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PSU Urban Center Building LEED EB Materials Audit Report

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LEED O+M Materials Audit:

PSU Urban Center

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Executive Summary

This report provides the Campus Sustainability Office with an objective, third party Materials Audit for Portland State University's Urban Center Building in Portland, Oregon. The data collected for this audit provides Campus Sustainability Office with insight into Urban Center's current waste composition and diversion rate as well as identifies opportunities to improve recycling, composting, and areas for reduction of materials consumption. Community Environmental Services (CES) conducted materials audits for 100% of Urban Center's landfill-bound, commingled recycling, glass bottles and jars recycling, and compost streams during a 24-hour period.

Of the entire 581.76 lbs. of Urban Center's combined materials streams, the following materials were misplaced[1] and had potential for diversion in the following ways:

- 7.5% (31.77 lbs.) of materials placed in the landfill could have been diverted through PSU's existing commingled recycling program
- 57.4% (243.74 lbs.) of materials placed in the landfill could have been diverted through PSU's existing compost program
- 6.0% (25.37 lbs). of materials placed in the landfill could be diverted through other current recycling programs (E-waste, reuse, textiles) or expanded recycling programs
- 29.2%% (124.04 lbs.) of materials placed in the landfill were non-recoverable

Of Urban Center's combined materials stream, 27.0% was diverted through Urban Center's commingled recycling, glass bottles and jars recycling, and composting programs. 24.8% of commingled recycling, glass bottles and jars recycling, and composting was diverted correctly. At 57.4%, compostable materials made up the largest category by weight of misplaced materials within the landfill stream; food scraps being the most prevalent. Of the commingled materials found in the landfill bound load, mixed paper made up the largest portion of materials at 10.05 lbs.

Based on these key findings, areas where Urban Center can make improvements include:

- Introduce a Green Leasing Protocol that engages restaurant tenants in composting and recycling
- Incorporate educational programming to reduce single-use food serviceware ending up in the streams
- Reduce contamination of commingled recycling and increase compost through introducing uniform buddied bins and signage
- Reinforce current programs and implement new programs to target currently additionally recoverable materials

Section 1: Background

In February of 2017, Molly Bressers and Anthony Hair of Portland State University's Campus Sustainability Office (CSO) contacted Community Environmental Services (CES) to conduct a LEED O+M Materials Analysis of the Urban Center. CES is a research and services unit at Portland State University, specializing in materials audit and diversion improvement education. The Urban Center materials audit conducted by CES was sorted to LEED standards.

The Urban Center Building (Urban Center) is located at 506 SW Mill Street, Portland, Oregon 97201. The 120, 057 square foot building consists of 9 floors and is home to the Urban and Public Affairs department. It is comprised of two separate but connected structures situated on a hardscape called the Urban Plaza. Multiple retail spaces including the PSU Bookstore, Ben and Jerry's, Rice Junkies, and Starbucks are located within Urban Plaza.

The objectives of the current LEED materials audit are as follows:

1. Determine the composition of Urban Center's material streams which include landfill bound materials, commingled recycling, compost, and glass bottle and jar recycling. The audit of all materials streams provides an accurate snapshot of material compositions and daily activities of the building.
2. Assess the materials generated from a time period that reflects typical business operations. The audit includes hand sorting the materials streams into specific categories, weighing sorted materials, recording the data, and making qualitative and quantitative observations.
3. Determine Urban Center's material diversion rates based on the materials audits, and make recommendations to improve diversion practices for each material stream.
4. Provide documentation for LEED O+M credit application under the "Materials and Resources: Solid Waste Management – Waste Stream Audit" credit section of "Operation and Maintenance."

Urban Center's Current Diversion Plan

The Campus Sustainability Office (CSO) is currently developing a Solid Waste Management Policy related to their campus-wide LEED O+M goals. They also have an in-house Climate Champions certification program that departments throughout campus can opt into as well as offer free under-desk recycling bin to departments upon request. CSO has an "All in the Hall" campaign to promote centralized buddied waste receptacles in hallways and reducing the number of trashcans in classrooms.

For Urban Center, there are some areas where multiple waste stream collection bins have been placed in a central area, with the help of CSO (Image 1.1). There are still some areas with standalone bins, including conference rooms and meeting rooms (Image 1.2). Compost collection was found near kitchens (Image 1.3).

Receptacles serviced for the Urban Center Building also collect trash from retail businesses in the area including Starbucks, Pizzicato, Rice Junkies, and Ben and Jerry's. Some receptacles in the plaza are grouped (Image 1.4), while some are standalone (Image 1.5). Work has started to coordinate outreach to these retailers about recycling and composting operations at Portland State. However, if any businesses request information or assistance, CSO will provide it. Outside receptacles in the plaza are

disposed of either at URBN or ASRC. Images 1.6 to 1.10 are examples of what the corrals look like and what kind of materials end up in the bins.

Materials generated by the Urban Center are collected by Trashco Services. Landfill-bound materials are collected five days a week. Landfill-bound materials from retail are stored in one (1) 4-yard container, and office generated materials are stored in one (1) 3-yard container. Commingled recycling is also picked up five days a week. Commingled recycling is stored in two (2) 4-yard containers. Glass is serviced once a week, and collected in two (2) 65-gallon roll carts. Compost is also serviced once a week. Retail compost is collected in four (4) 65-gallon containers and office-generated compost is stored in two (2) 60-gallon containers.

Photos of the Urban Center's Current Diversion Program

Image 1.1: Grouped bins in walkway of building

Image 1.2: Standalone waste bin in meeting room

Image 1.3: Compost bins found near kitchens

Image 1.4: Grouped bins outside

Image 1.5: Standalone bin outside

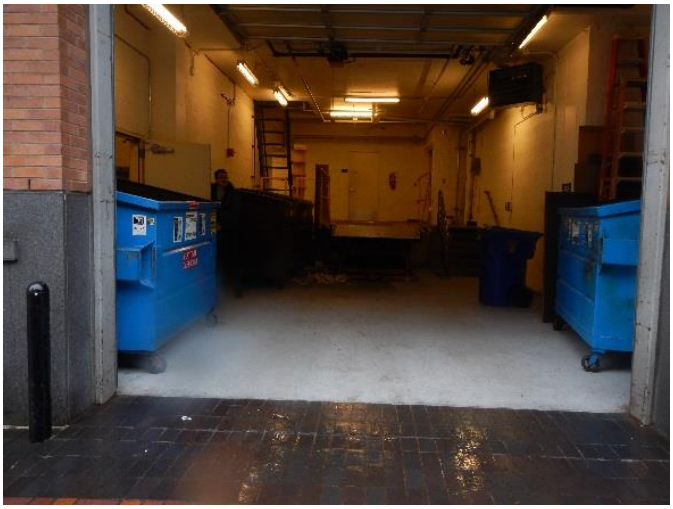

Image 1.6: Inside the urban center's corral

Image 1.7: Cardboard collection dropbox that has been repurposed for commingled recycling

Image 1.8: Commingled recycling collection

Image 1.9: Landfill-bound materials collection

Image 1.10: Glass and compost collection

Section 2: Methods

Four materials stream audits were conducted by the CES staff for Urban Center which included materials audits for each of the following materials streams: landfill-bound materials, compost, commingled recycling, and glass bottles and jars recycling. The landfill-bound materials audit and the commingled recycling materials audit were performed at the Metro Central Transfer Station (Metro Central), located at 6161 NW 61st Ave, Portland, Oregon. The compost and glass bottle and jar recycling stream audits were held at PSU's Market Center Building at 1600 SW 4th Ave, Portland, Oregon. The materials audit date and time periods were chosen to reflect materials generation during typical business operations over the course of 24-hours at Urban Center. The tenants were not informed of the materials audit in advance to avoid differentiation in materials generation and practices. CES worked with building management to ensure that the time period of generation was not subject to variations in building-occupant activities.

Materials Audits

The materials audit for streams were conducted by CES staff over the course of two days. The landfill-bound audit and commingled recycling audit took place on Friday, March 17th, at the Metro Central. The loads of both landfill-bound materials and commingled recycling materials were generated during the 24-hour period between the mornings of Thursday, March 16th and Friday, March 17th, then dropped off at Metro Central on the morning of March 17th. The compost materials audit and glass bottles and jars materials audit took place on Thursday, March 9th. Both the compost and glass bottles and jars streams contained materials generated over a one week period from Wednesday March 1st to Thursday morning March 9th. To account for waste generated in a 24-hour period, CES sorted 1/7th of the compost and glass bottles and jars loads. The formula used is as follows:

[total glass/compost poundage] / 7 (days per week) = representative 24-hours of materials generation

All materials were sorted by CES staff in accordance with the LEED O+M waste audit requirements. The material categories used for the audit are detailed in the materials categories section.

Material Categories

For the audits, materials from each stream were sorted into the 32 material categories listed in Table 2.1 below, and presented in Images 2.1 and 2.2 specifically, and in other images within this report. A detailed description of each material category is provided in Appendix A: Glossary of Material Categories.

Commingled Recyclable	Compost	Additionally Recoverables	Non-Recoverables
Corrugated cardboard	Food scraps	Plastic film	True waste
Mixed paper	Food soiled fibers	Rigid plastic	Restroom waste
Plastic bottles & tubs	Compostable bags	E-waste	Single-use hot cups
Mixed metals	Compostable food service ware	Styrofoam	Single-use cold cups
Glass bottles & jars		Reuse	Single-use food serviceware
Aseptic		Textiles	Single-use event plates
		Intact food	Single-use event cups
		Cork	Liquid
		Film foam	Broken glass/non-recyclable glass
		Mylar	
		Waxed cardboard	Envelope packaging

Table 2.1: Material categories

Eighteen (18) of the above material categories were utilized according to LEED O+M and CES standards. The additional fourteen (14) categories were chosen due to their observed presence in the materials stream during the sorting process. Materials that make up a significant portion of the waste stream are highlighted and addressed by CES in Section 3: Observations and Section 4: Findings in order to discuss the opportunities for reduction and diversion associated with these material categories.

The four (4) general material classifications take into account the existing diversion opportunities in the Portland Metro Region and at the Urban Center. These classifications are further defined as:

Commingled recyclable materials category includes corrugated cardboard, mixed paper, plastic bottles and tubs, mixed metals, and aseptic containers. This category also includes glass bottles and jars. These materials are required to be recycled by businesses under the Metro regional government's business recycling requirements. Please note that in the Metro region, glass bottles and jars are recycled separately from the commingled recycling and any other commingled recyclable listed. This dual stream method of recycling glass bottles and jars separately allows for better quality and viability of recyclable materials as products and commodities. Commingled recyclable materials are collected by PSU's primary commercial hauler, Trashco. Please note that glass bottles and jars are included within the commingled recyclable category in all materials streams' data analysis for this audit, with the exception of discussing commingled recycling stream data. Glass bottles and jars are considered a contaminant within the commingled recycling stream data since this materials stream is not accepted within the general commingled recycling stream. Acceptable commingled recycling materials are presented as one general category for the commingled recycling materials audit and exclude glass bottles and jars.

Compostable materials are items that are accepted under Metro's current compostable material guidelines for commercial businesses. These include food scraps and BPI certified compostable bags.

Trashco also accepts food-soiled fibers and compostable food serviceware as per PSUs contracted agreement.

Additionally recoverable materials are those that have the opportunity to be recovered through an expanded diversion program or an existing non-primary hauler diversion system at PSU. These include plastic film, rigid plastics, e-waste, Styrofoam, reuse, textiles, wood, and intact food, and cork. PSU is currently recovering a number of additionally recoverable materials including: E-waste, reuse, and textiles. Items not currently diverted on site include plastic film, rigid plastics, and etc. experience fluctuations in recoverability due to the volatility of global secondary commodity markets. These materials are sometimes more readily recyclable than during other times, such as during times of market downturns. Please note that all additionally recoverable materials are unacceptable in the commingled recycling stream.

Non-Recoverable materials are those that cannot be diverted from the landfill through PSU's existing collection systems' markets and/or processing facilities. For analytical purposes, this was divided into the following subcategories: true waste, restroom waste, single-use hot cups, single-use cold cups, single-use food serviceware, single-use event plates, single-use event cups, liquid, broken/non-recyclable glass, and , envelope packaging.

Image 2.1: Sorting method used for commingled recycling

Image 2.2: Sorting method used for compost

Section 3: Observations

The following qualitative observations were made for each material stream. Associated photos can be found on the proceeding page.

Walk-Through Observations

1. There was less compostable materials in the compost bins in the corral than expected, considering the Urban Center waste collection room also collects waste from multiple restaurants (*see Image 3.1*).
2. An unidentified and likely unserviced bin was found with what appeared to be mostly glass and commingled materials (*see Image 3.2*).
3. Glass bottles and jars and other contaminating materials were found in the commingled recycling dropbox (*see Image 3.3*).
4. Durable dishes were found in kitchens, as well as access to a dishwashing station and signage encouraging employees to use a mug (*see Image 3.4*).
5. Standalone trash bins were found in areas where there was a lot of recyclable material generated, such as next to a copying machine (*see Image 3.5*)
6. Many bins were marked 'paper only' or 'fiber only' although all readily-recyclable materials are accepted in those streams (*see Image 3.6*).
7. Recycling signage was found at a buddied commingled recycling and landfill-bound bin stations (*see Image 3.7*).
8. Mixed signage was found at buddied bin stations. Sometimes signage was appropriate for some bins but other bins lacked signage (*see Image 3.8*).

Image 3.1: Less compost than expected found in compost bins in corral

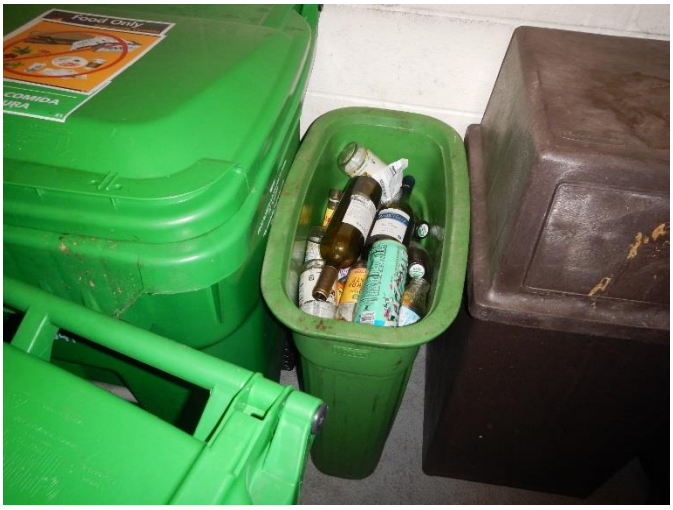

Image 3.2: An unidentified bin in the glass and compost recycling area

Image 3.3: Glass and contaminating material in the commingled recycling dropbox

Image 3.4: Durable dishes found in the kitchen

Image 3.5: Standalone trash bin next to copying machine

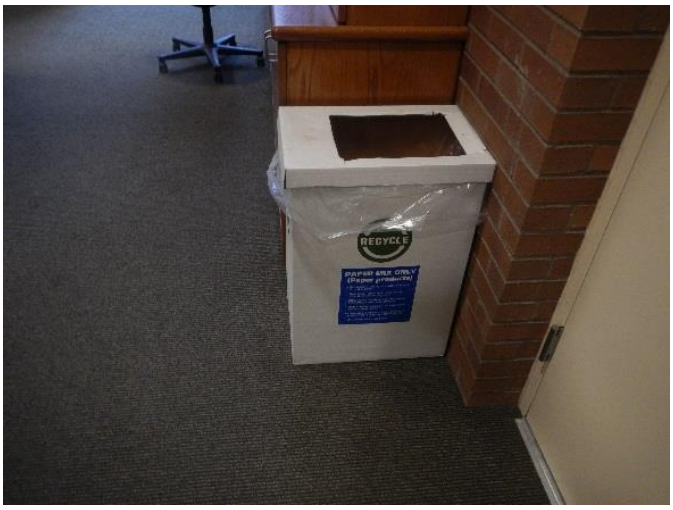

Image 3.6: Paper-only signage on recycling bin

Image 3.7: Signage for recycling found at buddied recycling g and trash bin

Image 3.8: Glass, recycling, compost, and landfill bins buddied together. Unclear signage distinguishing the trash bin from the recycling bin

Landfill-bound Materials Stream

Much of the materials generated were from restaurants. We sorted all materials generated from the College of Urban and Public Affairs (CUPA) separately, and then conducted restaurant specific sorts. Image 3.9 is of the entire landfill-bound load. Image 3.10 is of restaurant materials found within the load. Image 3.11 is Starbucks materials found in the load. Image 3.12 is Pizzicato materials found in the load. Image 3.13 is Rice Junkies materials found in the load. Lastly, Image 3.14 is Ben and Jerry's materials found in the load. CUPA specific observations will be found first, then Starbuck's landfill-observations, followed by Pizzicato and Rice Junkies.

1. Office and retail-specific streams were observed and divided for more thorough characterization (*see Images 3.9 to 3.14*).
2. Single-use event plates were found throughout the landfill-bound stream (*see Image 3.15*).
3. A significant amount of food-soiled fibers were found throughout the landfill-bound stream (*see Image 3.16*).
4. Compostable cups were found in the CUPA-specific landfill-bound stream (*see Image 3.17*).
5. Mixed paper was found in CUPA's landfill-bound stream (*see Image 3.18*).
6. Plastic film was found throughout CUPA's landfill-bound stream (*see Image 3.19*).
7. Hot cups were found throughout CUPA's landfill-bound stream (*see Image 3.20*).
8. Many aseptic containers were found in Starbucks' landfill-bound stream (see Image 3.21).
9. Many plastic bottles & tubs were found in Starbucks' landfill-bound stream (*see Image 3.22*).
10. Coffee grounds were found in Starbucks' landfill-bound stream (*see Image 3.23*).
11. A significant amount of mixed paper was found in Pizzicato's landfill-bound stream (*see Image 3.24*).
12. A large amount of food waste was found in Pizzicato's landfill-bound stream (*see Image 3.25).*
13. Food-soiled fibers were also found in Pizzicato's landfill-bound stream (*see Image 3.26*).
14. A large amount of food waste was found in Rice Junkies' landfill-bound stream (*see Image 3.27*).

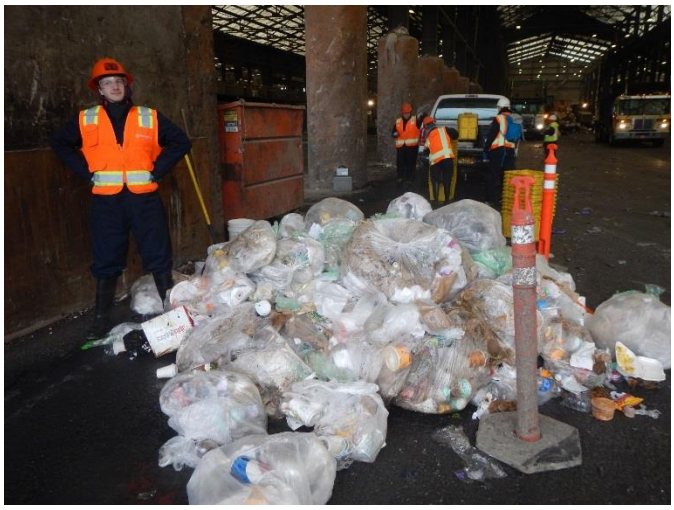

Image 3.9: Urban Center entire landfill-bound load.

Image 3.10: Materials from restaurants in the landfill-bound load.

Image 3.11: Starbucks' materials in landfill-bound stream

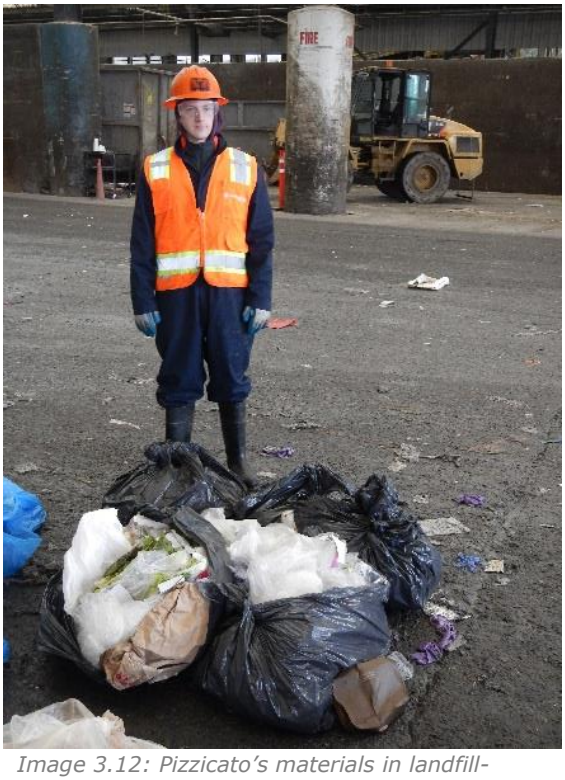

Image 3.12: Pizzicato's materials in landfill-bound stream

Image 3.13: Rice Junkies' materials in landfill-bound stream.

Image 3.14: Ben and Jerry's materials in landfill-bound stream

Image 3.15: Single-use plates in CUPA's landfill-bound stream

Image 3.16: Food-soiled fibers in CUPA's landfill-bound stream

Image 3.17: Compostable cups in CUPA's landfill-bound stream

Image 3.18: Mixed paper in CUPA's landfill-bound stream

Image 3.19: Plastic film in CUPA's landfill-bound stream

Image 3.20: Coffee cups in CUPA's landfill-bound stream

Image 3.21: Aseptic containers in Starbucks' landfill-bound stream

Image 3.22: Plastic bottles & tubs in Starbucks' landfill-bound stream

Image 3.23: Coffee grounds in Starbucks' landfill-bound stream

Image 3.24: Mixed paper in Pizzicato's landfill-bound stream

Image 3.25: Food waste in Pizzicato's landfill-bound stream

Image 3.26: Compostable fibers in Pizzicato's landfill-bound stream

Image 3.27: Food waste in Rice Junkies' lanfill-bound stream

Commingled Recycling Stream

1. True waste was found in the commingled recycling stream (*see Image 3.28*).
2. Rigid plastics were found in the commingled recycling stream (*see Image 3.29*).
3. A high amount of plastic film was found as a result of commingled recycling materials being disposed of in plastic bags (*see Image 3.30*).
4. Food soiled fibers and food scraps were found in the commingled recycling stream (*see Images 3.31 and 3.32*).

Image 3.28: Some true waste was found in the commingled recycling stream

Image 3.29: Rigid plastics in the commingled recycling stream

Image 3.30: Plastic bags were being used to dispose of commingled recycling

Image 3.31: Food soiled fibers in the commingled recycling stream

Image 3.32: Food scraps in the commingled recycling stream

Glass Bottle and Jar Recycling Stream

1. There was a large amount of broken glass in the glass recycling. Much of this comprised of ceramic plates and some glasses that were not acceptable in the glass bottles and jars stream (*see Image 3.33*).
2. There was a large amount of plastic bottles & tubs in the glass recycling (*see Image 3.34*).
3. There was mixed paper in the glass recycling (*see Image 3.35*).
4. There were mixed metals in the glass recycling (*see Image 3.36*).
5. There were some paper single-use containers in the glass recycling (*see Image 3.37*).

Image 3.33: Broken glass and ceramics in glass recycling.

Image 3.34: Plastic bottles & tubs in glass recycling.

Image 3.35: Mixed paper in glass recycling.

Image 3.36: Mixed metals in glass recycling.

Image 3.37: Single use containers in glass recycling.

Compost Stream

1. A very low amount of materials were generated in the compost stream (*see Image 3.38*).

Image 3.38: Seven days of Urban Center Compost.

Section 4: Findings

Findings and recommendations resulting from the materials audits are cited in terms of the material weight in pounds. Lighter materials such as plastic film, Styrofoam, plastic bottles and tubs, and single-use drink cups/service ware can contribute to a large percentage of volume in the waste stream, yet when considered by weight alone, these materials may not appear as a significant component of the load. Please refer to the photos in **Section 8: Materials Audit Photos** for a visual representation of the different materials streams.

All Streams Combined

The combined weights of all streams—landfill-bound, commingled recycling, compost, and glass bottle and jar recycling—generated over 24-hours of operation at Urban Center—totaled 581.76 pounds. Of this total, 24.6% was properly diverted through the commingled recycling stream and 0.2% was properly diverted through the compost stream (*see Table 4.1*).

Of the diverted materials, 2.2% were contaminant materials (*see Table 4.1*). Contaminant materials may be non-recoverable, recoverable through existing diversion streams other than the one in which they were observed (i.e., '**commingled recycling**' or '**compostable**'), or potentially recoverable through an expanded diversion program (i.e. '**additionally recoverable**').

Figure 4.1 displays the total diverted and landfill-bound materials regardless of proper or improper placement. Table 4.1 displays the composition of each materials stream, showing misplaced materials (i.e., contaminants) and properly placed materials within each stream

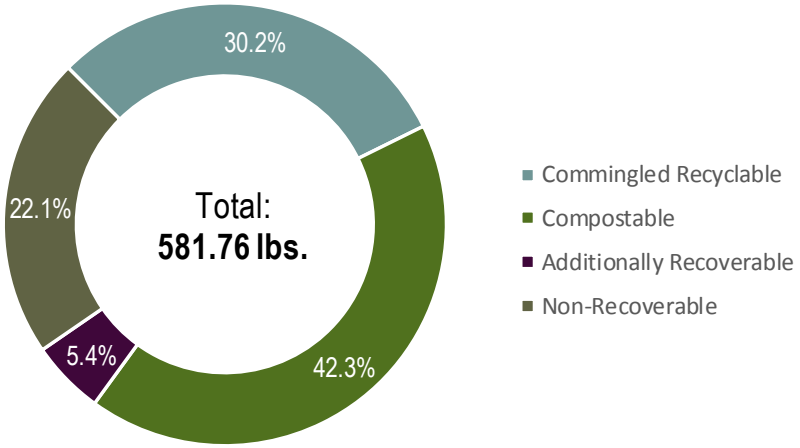

Figure 4.1: Overall composition of combined materials streams

Note: This chart does not reflect the proper diversion of these materials; this is only a snapshot of what percentages of each material category made up both streams combined. For example, while 42.0% of commingled recyclable materials were found within the combined streams, not all 30.2% was properly diverted. This is further described in the text below.

	MATERIALS	WEIGHT (LBS)	PERCENT OF GRAND TOTAL
Commingled Recyclable	Corrugated cardboard	109.01	18.7%
	Mixed paper	10.89	1.9%
	Mixed metals	4.94	0.8%
	Plastic bottles & tubs	2.34	0.4%
	Misplaced Materials:		
	Glass bottles & jars	0.49	0.1%
	Compostable Materials	1.26	0.2%
	Additionally Recoverable Materials	6.03	1.0%
	Non-Recoverable Material	1.06	0.2%
	Glass bottles & jars	15.66	2.7%
	Misplaced Materials:		
	Commingled Recoverable	0.56	0.1%
	Compostable Materials	0.03	0.0%
	Additionally Recoverable Materials	0.03	0.0%
	Non-Recoverable Material	3.38	0.6%
	Total Properly Diverted	**142.84**	**24.6%**
	Overall Contamination	**12.83**	**2.2%**
Compostable	Food scraps	0.61	0.1%
	Food-soiled fibers	0.42	0.1%
	Compostable bags	0.09	0.0%
	Compostable food serviceware	0.01	0.0%
	Misplaced Materials:		
	Commingled Recyclable Materials	0.00	0.0%
	Additionally Recoverable Materials	0.00	0.0%
	Non-Recoverable Materials	0.05	0.0%
	Total Properly Diverted	**1.13**	0.2%
	Overall Contamination	**0.05**	0.0%
Landfill- bound	True waste	46.67	8.0%
	Restroom waste	29.39	5.1%
	Single-use hot cups	14.39	5.1%
	Liquid	10.58	5.1%
	Single-use food serviceware	9.1	1.8%
	Single-use cold cups	6.9	5.1%
	Single-use event plates	3.21	0.6%
	Single-use event cups	2.22	0.4%
	Envelope packaging	1.58	0.3%
	Misplaced Materials:		
	Commingled Recyclable Materials	31.77	5.5%
	Compostable Materials	243.74	41.9%
	Additionally Recoverable Materials	25.37	4.4%
	Total Diverted	**124.04**	21.3%
	Recoverable	**300.88**	51.7%
	TOTAL PROPERLY DIVERTED*	**143.97**	**24.7%**
	TOTAL CONTAMINATION*	**12.87**	**2.2%**
	GRAND TOTAL	**581.76**	**27.0%**

Table 4.1: Composition of all material streams

"Total Properly Diverted" includes properly placed commingled and compostable materials.

"Total Contamination" includes non-recoverable, additionally recoverable, commingled and compostable materials that were improperly placed in either the commingled or compostable streams.

By accounting for the misplaced materials from any given stream, a clearer picture of the true rate of diversion for that material stream emerges. Table 4.2 shows that 81.3% of commingled recycling and glass bottles and jars recycling materials found throughout the load were being properly diverted. For compostable materials, only 0.5% of materials were properly placed in the compost stream while the majority of the food scraps and food-soiled fibers were found in the landfill-bound stream.

Classification	Total Lbs. in All Streams	Properly Diverted	Diversion Rate
Commingled Recyclable	175.65	142.84	81.3%
Compostable	246.16	1.13	0.5%
Streams Combined	421.81	143.97	34.1%

Table 4.2 Diversion rates by stream

Note: "Commingled Recyclable" includes commingled recycling and glass bottles and jars combined for diversion rate purposes. Additionally, the "Streams Combined" classification is a sum of both "Commingled Recyclable" and "Compostable" streams which make up the currently recoverable materials serviced by Trashco.

The proceeding subsections provide more detail on each individual material stream, presenting data collected from the materials audits. Findings from the landfill-bound, commingled recycling, glass bottle and jar recycling, and compost streams are presented separately. Figures 4.2 through 4.5 and Tables 4.3 through 4.6 provide a breakdown of the specific materials found in each assessed materials stream, beginning with landfill-bound materials and concluding with the compost stream.

Landfill-bound stream

A total of 424.92 pounds of landfill-bound materials were generated over 24-hours of operation at Urban Center. Figure 4.2 and Table 4.3 present the material weights according to the different material categories outlined in **Section 2: Methods**.

According to the data, 64.9% of the landfill-bound materials could have been diverted through Urban Center's existing recovery systems through Trashco, including compost, commingled recycling, and glass bottle and jar recycling. ***Compostable*** materials (primarily food scraps) made up 57.4% of the landfill-bound materials, while ***commingled reyclable*** materials made up 7.5% of the load.

Additionally recoverable materials comprised 5.9% of the landfill-bound load. Of this percentage, 0.7% could have been diverted through PSU's current Reuse Program program (*see Table 4.3*). The rest of these materials have the potential to be diverted, should PSU explore additional diversion programs.

Non-recoverable materials comprised 29.2% of the landfill-bound load True waste comprised the largest portion of the category at 11.0%. Restroom waste was the second largest material in this category, comprising 6.9% of the total load

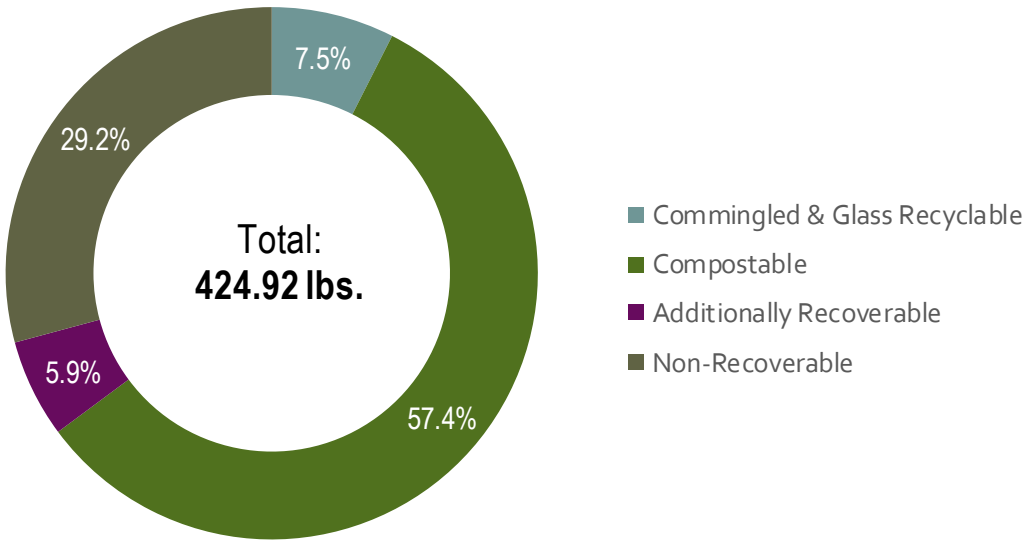

Figure 4.2: Landfill-bound stream general composition

	Material		LBS	%
Commingled Recyclable	Corrugated cardboard		1.64	0.4%
	Mixed paper		10.05	2.4%
	Plastic bottles and tubs		9.11	2.1%
	Mixed metals		2.68	0.6%
	Aseptic		4.57	1.1%
	Glass bottles & jars		3.72	0.9%
		Total	**31.77**	**7.5%**
Compostable	Food scraps		161.5	38.0%
	Food-soiled fibers		78.28	18.4%
	Compostable food serviceware		3.96	0.9%
		Total	**243.74**	**57.4%**
Additionally Recoverable	Plastic film		7.2	1.7%
	Rigid plastics		6.79	1.6%
	Intact food		5.19	1.2%
	Reuse		3.03	0.7%
	Film foam		2.51	0.6%
	Mylar		0.65	0.2%
		Total	**25.37**	**6.0%**
Non-Recoverable	True waste		46.67	11.0%
	Restroom waste		29.39	6.9%
	Single-use hot cups		14.39	3.4%
	Liquid		10.58	2.5%
	Single-use food serviceware		9.1	2.1%
	Single-use cold cups		6.9	1.6%
	Single-use event plates		3.21	0.8%
	Single-use event cups		2.22	0.5%
	Envelope packaging		1.58	0.4%
		Total	**124.04**	**29.2%**
	GRAND TOTAL		**424.92**	**100.0%**

Table 4.3: Landfill bound stream specific material composition

Commingled Recycling Stream

A total of 136.02 pounds of materials were diverted to the commingled recycling stream over the 24-hour generation period. Figure 4.2 presents the commingled recycling stream's generalized composition, based on properly placed materials versus contaminants. This indicates that 93.5% of materials in the commingled recycling stream were properly placed, while 6.5% were contaminant materials.

Table 4.3 details the material weights according to the different material categories outlined in **Section 2: Methods**. Of the properly-placed commingled recycling materials, corrugated cardboard compromised the largest material observed, with 80.1% of the commingled load. The second-largest portion was mixed paper, with 8.0% of the load.

The commingled stream contained a low level of contaminants, at 6.5%. Of the total commingled recycling stream, non-recoverable materials comprised 0.7% of the load. The most common non-recoverable material was true waste, comprising of 0.6% of the total load. Improperly placed glass bottles and jars comprised 0.4% of the total load. Additionally recoverable materials comprised 4.5% of the total load, with waxed cardboard being the most common contaminant found and 4.0% of the total load. Compostable materials comprised 0.9% of the total commingled recycling load.

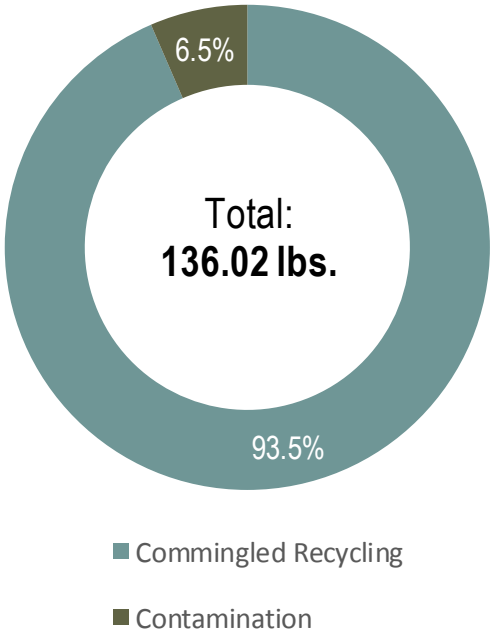

Figure 4.3: Commingled recycling stream generalized composition

	Material		LBS	%
Properly Diverted	Corrugated cardboard		109.01	80.1%
	Mixed paper		10.89	8.0%
	Plastic bottles & tubs		2.34	1.7%
	Mixed metals		4.94	3.6%
		Total	**127.18**	**93.5%**
Contamination	Glass bottles & jars		0.49	0.4%
	Food scraps		0.78	0.6%
	Food-soiled fibers		0.48	0.4%
	Waxed cardboard		5.50	4.0%
	Rigid plastic		0.22	0.2%
	Reuse		0.17	0.1%
	Plastic film		0.14	0.1%
	True waste		1.00	0.7%
	Single-use hot cups		0.06	0.0%
		Total	**8.84**	**6.5%**
	GRAND TOTAL		**136.02**	**100.0%**

Table 4.4: Commingled recycling stream specified material composition

Glass Bottle & Jar Recycling Stream

A total of 19.64 pounds of materials were diverted to the glass bottle and jar recycling stream over the 24-hour generation period. Figure 4.3 presents the glass bottle and jar recycling stream's generalized composition, based on properly placed materials versus contaminants. This indicates that 79.7% of materials in this stream were properly placed, while 20.3% were contaminant materials.

Table 4.4 details the material weights according to the different material categories outlined in **Section 2: Methods**. The contaminants found in the glass bottle and jar recycling stream were comprised mostly of broken/non-recyclable glass such as ceramic plates at 16.2% and commingled recyclable materials at 3.4%.

	Material		LBS	%
Properly Diverted	Non-redeemable glass		13.08	66.6%
	Redeemable glass		2.57	13.1%
		Total	**15.66**	**79.7%**
Contamination	Plastic bottles & tubs		0.29	1.5%
	Mixed paper		0.14	0.7%
	Mixed metals		0.12	0.6%
	Corrugated cardboard		0.01	0.1%
	Food soiled fibers		0.02	0.1%
	Food scraps		0.00	0.0%
	Rigid plastic		0.02	0.1%
	Cork		0.01	0.0%
	Broken glass		3.18	16.2%
	Liquid		0.07	0.4%
	Single-use food serviceware		0.07	0.3%
	True waste		0.05	0.3%
	Single-use hot cups		0.01	0.0%
	Single-use cold cups		0.00	0.0%
		Total	**3.99**	**20.3%**
	GRAND TOTAL		**19.64**	**100.0%**

Table 4.5. Glass bottle & jar stream specified material composition

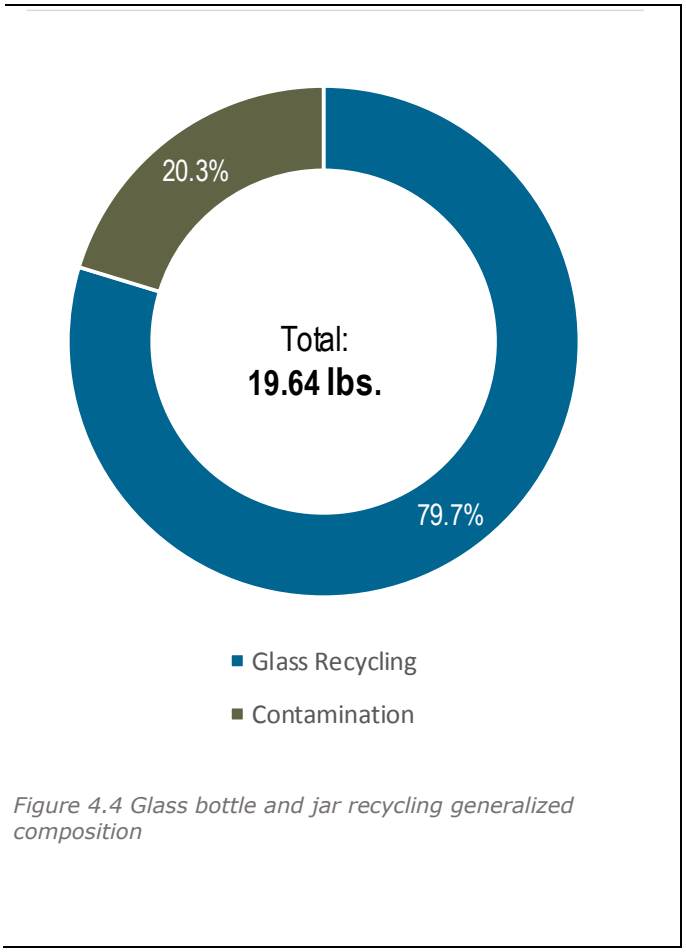

Figure 4.4 Glass bottle and jar recycling generalized composition

Compost Stream

A total of 1.18 pounds of materials were diverted to the compost stream over the 24-hour generation period at the Urban Center building, and were sorted by CES staff for the materials audit. Figure 4.4 presents the compost stream's generalized composition, based on properly placed materials versus contaminants. Figure 4.4 shows 96.0% of materials in the compost stream were properly placed by weight. There was some contamination in the compost load at 0.6%. This contamination included non-compostable single use food service ware and true waste. It is important to note that the amount of compost found in the landfill (243.74 lbs.) far exceeded the amount found in the compost bins.

Table 4.5 details the material weights according to the different material categories outlined in **Section 2: Methods**. Although the compost stream is well-sorted and generally free of contaminants, it should be noted that the compostable materials in this stream make up only 0.5% of the total compostable materials observed in all material streams during the Urban Center materials audit.

	Material		LBS	%
Properly Diverted	Food scraps		0.61	52.1%
	Food-soiled fibers		0.42	35.6%
	Compostable bags		0.09	7.9%
	Compostable food serviceware		0.01	0.5%
		Total	**1.13**	**96.0%**
Contamination	Single-use food serviceware		0.04	3.4%
	True waste		0.01	0.6%
		Total	**0.05**	**4.0%**
	GRAND TOTAL		**1.18**	**100.0%**

Table 4.6: Compost stream specific materials composition

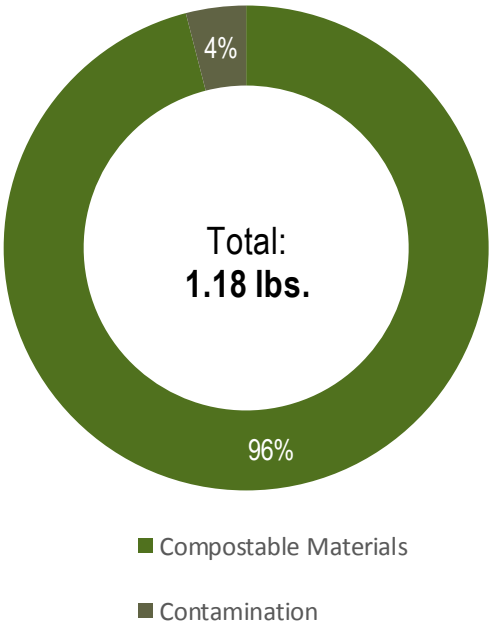

Figure 4.5: Compost stream general composition

Section 5: LEED O+M Materials Generation and Diversion Table

Table 6.1 shows the material categories according to the LEED O+M Materials Generation and Diversion guidelines. The *Total in Waste Stream* column gives the total weight of the specific material regardless of which material stream it was deposited in. For example, the cardboard weight is a combination of cardboard found in the commingled recycling, glass, and landfill-bound streams. The *Percentage of Total Waste Stream* column displays how much of the building's entire waste stream is comprised of that material. The *Waste Diverted* column gives the weight of the specific material that was actually diverted to the recycling stream. For example, the plastic weight is the amount found in the commingled recycling stream, but not in any other streams. The *Percentage of Waste Type Currently Diverted from Waste Stream* column displays the percentage of each specific material that was diverted. This indicates, for example, that 99.5% of the compostable materials at the building is not being diverted and is being deposited into landfill-bound, commingled-bound, or glass-bound containers. Please note that 'Other Waste' does not have figures for the *Waste Diverted* or *Percentage of Waste Type Currently Diverted from Waste Stream* columns because 'Other Waste' is not divertible within Urban Center's existing diversion systems.

Waste Type	Waste Stream	Percentage of Total Waste stream	Waste Diverted	Percentage of Waste Type
Metal	7.74	1.3%	4.94	63.8%
Mixed Paper	25.65	4.4%	10.89	42.5%
Cardboard	110.66	19.0%	109.01	98.5%
Glass	19.87	3.4%	15.66	78.8%
Plastic	11.74	2.0%	2.34	19.9%
Wet Waste	246.16	42.3%	1.13	0.5%
Other Waste	159.95	27.5%	N/A	N/A
Total	581.76	100%	143.97	

Table 5.1: LEED Materials Generation and Diversion rates

Figure 5.1 provides the diversion rate of each material for which a diversion system currently exists at the Urban Center. The chart displays the rate at which each material was properly diverted as a percentage of that material's total assessed weight in all materials streams combined. The data show that Urban Center had more success separating and diverting some materials than others. Urban Center successfully diverted 98.5% of corrugated cardboard, 78.8% of glass bottles and jars, 63.8% of mixed metals, 51.7% of mixed paper, and 19.9% of plastic bottles and tubs. The compost stream was least successful with only 0.5% success at materials diversion. Figure 5.1 also shows that all materials have some room for improvement in their diversion rates, but that certain specific materials could be more actively targeted for improvement, in terms of their collection and diversion practices. Compost collection significantly weighed down the overall diversion rate due to compost not being diverted. Targeted improvement in this area is important in increasing the overall rate of diversion at Urban Center

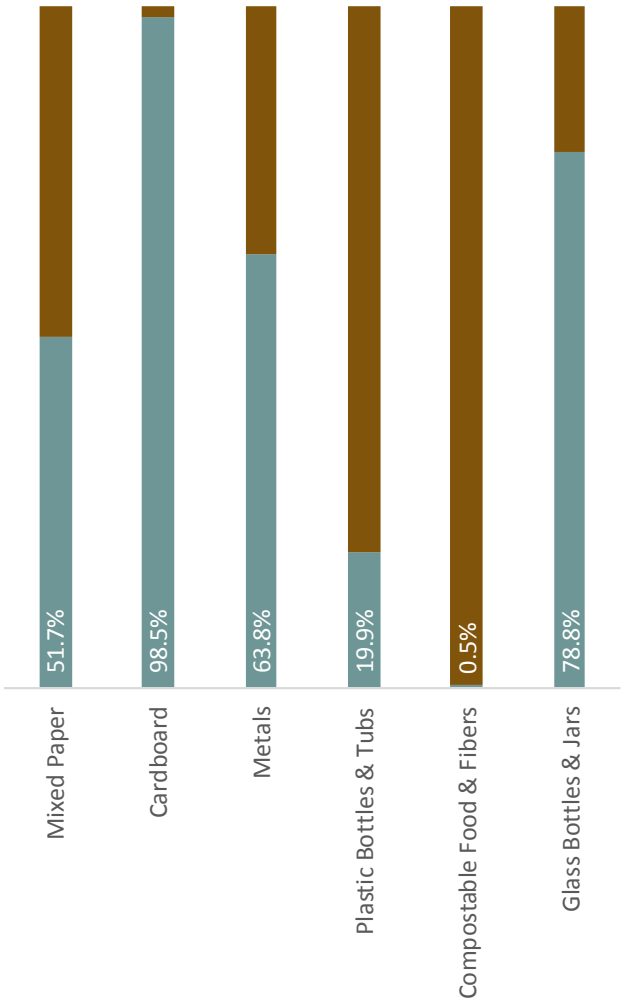

Figure 5.1: Diversion rates for each divertible material

A detailed description of each material category used in Table 5.1 is provided in the LEED O+M Materials Generation and Diversion Table Glossary on the next page.

LEED O+M Materials Generation and Diversion Table Glossary

Metal – Containers made of aluminum, steel, or tin, including containers for beverages, food, and other materials; this includes aerosol cans and clean aluminum foil.

Mixed Paper – Office paper, newspaper, magazines, phonebooks, paper board/soft cardboard, folders, scrap paper, sticky notes, shredded paper, paper bags, egg cartons, cereal boxes, and all other non-corrugated cardboards; this includes aseptic containers such as gable-top milk and juice cartons and square-shaped cartons often used for soups or soymilk.

Corrugated Cardboard – Corrugated boxes or sheets used for shipping and packaging materials.

Glass – Bottles and jars made of glass.

Plastics – Plastic bottles and tubs; this includes containers for beverages and other fluids, plastic tubs of primarily food grade plastic often used for yogurt, margarine, and other food or non-food materials, rigid plant pots larger than four inches, and plastic buckets five gallons or smaller.

Wet Waste – Vegetables, fruit, grain-based food scraps, meat, fish, fat, bones, eggshells, coffee grounds and paper fibers contaminated with food, including coffee filters, soiled napkins, soiled paper bags, that meet the guidelines set by City of Portland Bureau of Planning and Sustainability. This is the definition that LEED uses for wet waste. The solid waste community may define wet waste differently. It is sometimes defined as a general mix of landfill-bound materials, which is in contrast to 'dry waste,' or construction materials such as wood, metals, and glass, and other recyclables.

Other Waste/Miscellaneous – This category includes both non-recoverable materials (single-use drink cups, single-use food containers, restroom waste, liquid, etc.) and other recoverable materials (rigid plastics, plastic film, office reuse/donatable materials, printer toner, polystyrene expanded foam block, and polyethylene expanded foam sheets.)

Section 6: Discussion

The quantitative data in Section 4: Findings paired with observations in Section 3: Observations indicates that the Urban Center has the opportunity to greatly reduce its diversion rate by reducing the amount of compost that ends up in landfill. 57.4% of the landfill-bound stream, 243.7 lbs. of food scraps and compostable fibers, was much greater than the amount of compost that was successfully diverted to the compost stream (1.13 lbs.). This could be partially attributed to the confusing layout of the Urban Center materials collection area, where compost and glass bottles recycling is located in an adjacent room to the main collection area. Our main findings and observations indicate that the tenants—Starbucks, Pizzicato, Rice Junkies, and Ben and Jerry's, are not making an effort to compost, and in some cases they are not recycling either. Tenants of the Urban Center are driving the overall diversion rates down. Getting tenants on board to compost and recycle could greatly improve the diversion rate for urban center. CUPA also produced a high amount of compostable materials that were mistakenly diverted to landfill. This could be improved by adding more compost bins throughout the building and increasing the amount of signage—possibly by making signage larger, and through educational programming highlighting that compostable fibers are accepted in Portland State's compost stream.

The second most common category in the landfill-bound load was commingled recycling and glass bottles & jars. Again, much of this may have been attributed by the tenants. Starbucks in particular generated a high amount of aseptic containers and plastic bottles & tubs. Pizzicato generated a large amount of mixed paper in the landfill-bound stream. CUPA also needs to improve its efforts to divert recyclable materials from the landfill-bound stream. Many plastic bottles were found in the landfill-bound stream, as well as mixed paper, and aluminum soda cans.

Single-use food service ware was found throughout the landfill bound stream for both CUPA and the restaurant tenants. Much of this consisted of coffee cups, cold cups, restaurant to-go containers, single-use plates, and single-use cups. Encouraging more use of the already available durable dishes and dish washing stations could reduce the CUPA-specific single-use items. Encouraging restaurants to offer more durable dishware could be a project incorporated in the upcoming green leasing protocol.

The commingled recycling and glass recycling streams had moderately high levels of contamination. Most common items improperly placed in the commingled recycling stream were glass, rigid plastics, and plastic film, reuse items, and waxed cardboard. Commonly misplaced items in the glass stream were other commingled recycling items. Additional work to improve signage and access to commingled and glass recycling could help lower contamination rates for the two streams.

In addition to these findings, we also found differences in bin collection systems used inside CUPA and outside at the Urban Plaza. Introducing more consistency in bin placement, buddied bins, and signage can help improve compost and recycling rates, while reducing contamination of streams.

Lastly, our findings indicate that there are some additionally recoverable materials either mistakenly being diverted to commingled recycling or being placed in landfill that could be recovered. By diverting additionally recoverable materials from these streams, Urban Center could divert 25 lbs. of material from going to landfill. This could also prevent contamination of the commingled recycling stream by 4.5%. The most common additionally recoverable materials were plastic film, rigid plastics, intact food, and reuse.

Section 7: Recommendations

These recommendations are based on findings and observations from Urban Center. The reasoning behind these recommendations can be found in Section 7: Discussion. Primary recommendations from CES include:

Introduce a Green Leasing Protocol that engages restaurant tenants in composting and recycling

- A green leasing protocol for Portland Tenants could be a great way to increase composting and recycling rates and reduce materials from ending up in the landfill.
- Portland State could offer incentives to restaurants for participating, such as a reduction in their waste utilities bills. For each action a restaurant commits to, the incentives could increase.
- Portland State could help with monitoring, education, and communication to tenants.
- We could work with restaurants to identify what their challenges are to composting and recycling, and help create unique diversion plans for each restaurant.
    - For Pizzicato, we could let them know that Trashco now accepts paper products in the compostable stream, and help them identify a good layout for materials collection unique to their space.
    - For Starbucks, we could try to help them find space for their bins. This could be done by taking away some landfill-bound bins to make room for compost and recycling in proportion to what characterizes Starbuck's stream.
    - For Rice Junkies, we could let them know that they are generating quite a lot of food waste. We found 33.65 lbs. of compostable material in their stream, 77% of their entire waste generated during a 24-hour period (see attached data for raw weights for restaurants). If they were to get on board with composting, they could greatly help Urban Center with its waste diversion goals.
    - Ben & Jerry's had little food waste and recyclable material in their stream.

Incorporate educational programming to reduce single-use food serviceware

- There are currently opportunities and programs on campus that can help the Urban Center reduce their need for single-use food service ware.
- Currently there are some durable dishes and signage in the kitchens, as well as areas to wash dishes. Increasing signage of these opportunities could help CUPA reduce its need for single-use food service ware.
- Mugrunners and the Waste Reduction Task Force could hold tabling events in the lobby of CUPA, encouraging students and office workers to bring their own mugs and reuse materials. Tabling could also include some mugs collected through the Mug runners program.
- If possible, restaurants could have durable dishware incorporated into their green leases. Some restaurants could offer a discount for those who bring their own mug and reusable dishware and place signage encouraging customers to opt for durable dishware.
- If dishware is needed in CUPA for large events, they can contact the Campus

Sustainability Office and reserve a dish set. If this isn't possible, consider purchasing compostable dishware to reduce waste.

Reduce contamination of commingled recycling and increase compost through introducing uniform buddied bins and signage

- During our walkthrough, we noticed various types of waste collection bins and signage inside CUPA and outside at the Urban Plaza. Introducing more uniformity for signage and buddied bins could help reinforce good waste diversion practices.
- There were a couple areas where there were only waste bins and no compost or recycling bins. Pairing these areas with recycling and composting bins can help prevent readily divertible materials from ending up in the landfill.
- Current signage should be revised to be larger, include pictures, include examples of what does not belong in the stream to reduce contamination, and be multi-lingual if possible. The trisorter signage is a good example of signage with pictures of what belongs in each stream, as well as a list of commonly misplaced items.
- Restaurants could introduce matching buddied collection bins to front of house that matches the bin styles at Portland State. They could also opt for back of house sorting to reduce customer contamination. By choosing to take these actions, Portland State could help with training, monitoring, and financial incentives.

Reinforce current programs & Implement new programs to target currently additional recoverable materials

- Additionally recoverable materials made up 5% of all streams generated during a 24-hour period. The most common items found in this category were plastic film, waxed cardboard, rigid plastic, reuse, and intact food.
- Currently, there are programs at Portland State to help divert reuse from the landfill. Collection bins for reuse materials could be placed in office areas and in lobbies, and emptied periodically by the Waste Reduction Task Force. These materials could go in the Reuse Room, or collected for office pop up swaps.
- Additionally, new programs could be implemented to increase diversion. The Foodrunners program could collect intact food generated by restaurants and CUPA. Intact, non-perishable food could be collected in a food donation bin in the kitchens for the Portland State Food Pantry, and be periodically checked by the Foodrunners.
- Depending on current market trends, it may be financially feasible to introduce special recycling bins for plastic film and rigid plastics in the kitchen areas to be serviced as needed. Matreials could be collected from across campus and then recycled once a high enough volume of materials has been reached to make it financially feasible. Explore plastic film and rigid plastics recycling options through Metro's Find a Recycler webpage: http://www.oregonmetro.gov/index.cfm/go/by.web/id=1383.
- Alternatively, these materials could be diverted to other places on campus or in Portland through repurposing, such as the Art Department's Supply Studio.

Section 8: Materials Audit Photos

The proceeding photos are intended to provide visual examples of the material categories, their standard composition, and evidence of individual materials' presence in the land-fill bound, compost, commingled recycling, and glass bottles and jars streams.

Landfill-Bound Stream

Image 8.1: Full landfill-bound load pre-sor

Image 8.2: Restaurant waste in the landfill-bound stream

Image 8.3: College of Urban and Public Affairs (CUPA) materials post sort

Image89.4: Restroom waste found in entire landfill-bound load

Image 8.5: CUPA plastic bottles & tubs

Image 8.6: CUPA mixed paper

Image 8.7: CUPA aseptic containers

Image 8.8: CUPA mixed metals

Image 8.9: CUPA glass bottles & jars

Image 8.10: CUPA food scraps

Image 8.11: CUPA food-soiled fibers

Image 8.12: CUPA compostable food service ware

Image 8.13: CUPA reuse

Image 8.14: CUPA rigid plastics

Image 8.15: CUPA plastic film

Image 8.16: CUPA intact food

Image 8.17: CUPA single-use hot cups

Image 8.18: CUPA Single-use COLD cups

Image 8.19: Single-use event cups

Image 8.20: CUPA single-use food serviceware

Image 8.21: CUPA single-use event plates

Image 8.22: CUPA liquid

Image 8.23: CUPA foam film

Image 8.24: CUPA envelope packaging

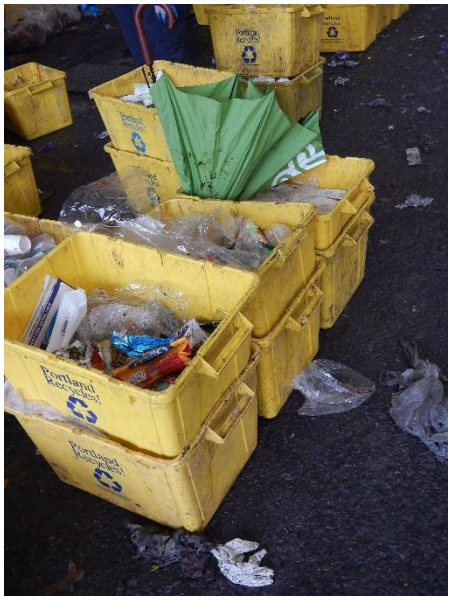

Image 8.25: CUPA true waste

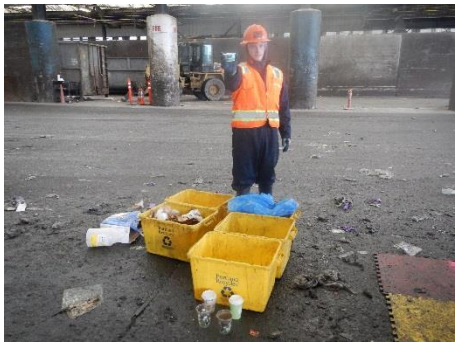

Image 8.26: Ben & Jerry's stream

Image 8.27: Ben & Jerry's plastic bottles and tubs and mixed paper contents

Image 8.28: Ben & Jerry's food-soiled fibers

Image 8.29: Ben & Jerry's food scraps

Image 8.30: Ben & Jerry's hot cups and cold cups

Image 8.31: Ben & Jerry's rigid plastic

Image 8.32: Ben & Jerry's plastic film

Image 8.33: Ben & Jery's true waste

Image 8.34: Pizzicato stream

Image 8.35: Pizzicato mixed paper

Image 8.36: Pizzicato mixed metals

Image 8.37: Pizzicato plastic bottles & tubs

Image 8.38: Pizzicato glass bottles & jars

Image 8.39: Pizzicato food scraps

Image 8.40: Pizzicato food-soiled fibers

Image 8.41: Pizzicato intact food

Image 8.42: Pizzicato intact food

Image 8.43: Pizzicato plastic film

Image 8.44: Pizzicato single-use food serviceware

Image 8.45: Pizzicato single-use cold cups

Image 8.46: Pizzicato single-use hot cups

Image 8.47: Pizzicato true waste (receipt paper)

Image 8.48: Pizzicato true waste

Image 8.49:Rice Junkies landfill stream

Image 8.50: Rice Junkies food scraps

Image 8.51: Rice Junkies food scraps (meat)

Image 8.52: Rice Junkies food-soiled fibers

Image 8.53: Rice Junkies compostable single-use food serviceware

Image 8.54: Rice Junkies single-use food serviceware

Image 8.55: Rice Junkies single-use hot cups and cold cups

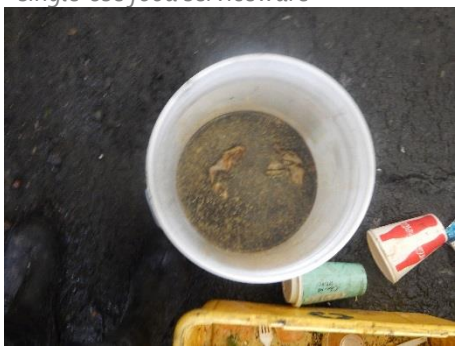

Image 8.56: Rice Junkies liquid

Image 8.57: Rice Junkies true waste

Image 8.58: Starbucks landfill stream

Image 8.59: Starbucks corrugated cardboard

Image 8.60: Starbucks mixed paper

Image 8.61: Starbucks mixed metals

Image 8.62: Starbucks aseptics

Image 8.63: Starbucks plastic bottles & tubs

Image 8. 64: Starbucks mixed metals

Image 8.65: Starbucks food-scraps

Image 8.66: Starbucks food-soiled fibers

Image 8.67: Starbucks reuse

Image 8.68: Starbucks rigid plastics

Image 8.69: Starbucks mylar

Image 8.70: Starbucks single-use food serviceware

Image 8. 71: Starbucks single-use cold cups

Image 8.72: Starbucks single-use hot cups

Image 8.73: Starbucks liquid

Image 8.74: Starbucks true waste

Commingled Recycling

Image 8.75: Commingled stream

Image 8.76: Corrugated cardboard

Image 8.77: Mixed paper

Image 8.78: Plastic bottles & tubs

Image 8.79: Mixed metals

Image 8.80: Glass bottles & jars

Image 8.81: Food scraps

Image 8.82: Food-soiled fibers

Image 8.83: Plastic film

Image 8.84: Single-use cold cups and single-use food-serviceware

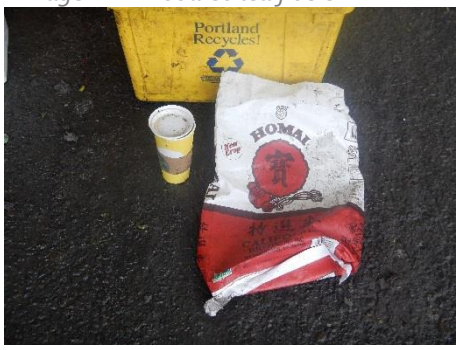

Image 8.85: Single-use hot cups and non-recoverable bag

Image 8.86: Truewaste

Compost Stream

Image 8.87: Compost stream

Glass Bottles and Jars Stream

Image 8.88: Glass bottles & jars stream

Image 8.89: Redeemable glass bottles & jars

Image 8.90: Anon-redeemable glass bottles & jars

Image 8.91: Mixed paper

Image 8.92: Mixed metals

Image 8.93: Plastic bottles & tubs

Image 8.94: Food-soiled fibers

Image 8.95: Rigid plastics

Image 8.96: Single-use food serviceware

Image 8.97: Broken glass

Image 8.98: Liquid

Image 8.99: True waste

Appendix A: Glossary of Material Categories

Aseptic containers – Aseptic containers such as gable-top milk and juice cartons and square-shaped cartons often used for soups or soymilk. This category is an accepted material in the commingled recycling.

Broken glass – glass materials that cannot be recovered through the glass bottles and jars recycling stream due to it being broken prior to their disposal into the glass stream

Corrugated cardboard – Corrugated boxes or sheets used for shipping and packaging materials.

Cork – a tree-based material used as a stopper for liquid storage

Envelope packaging – non-reusable packaging material made of plastic film and/or intermingled paper and plastic film that is used in the mailing process

Film foam – packaging material made up of expanded polystyrene

Food scraps – Vegetable, fruit, grain-based food scraps, meat, fish, fat, bones, eggshells, tea bags, and coffee grinds. This category excludes non-compostable hot and cold drink cups, gable-top or square shaped aseptic cartons, waxed cardboard, and utensils, straws, lids, or bags made of plastic.

Food soiled fibers - Paper fibers contaminated with food, including soiled napkins, soiled paper bags, pizza boxes, and paper towels.

Glass bottles and jars – Bottles and jars made of glass. This category can be split up between redeemable and non-redeemable glass depending upon whether it is accepted under Oregon's Bottle Bill. This category excludes light bulbs, flat glass, flower vases, drinking glasses, window glass, and tempered glass such as baking dishes.

Intact food – Food that is not spoiled and would have potential for food donation, rather than disposal.

Liquid – Liquids that were in containers in the load.

Mixed paper – Includes office paper, newspaper, magazines, phonebooks, paper board/soft cardboard, folders, scrap paper, sticky notes, shredded paper, paper bags, egg cartons, cereal boxes, and all other non-corrugated cardboards. This category may include or exclude aseptic materials such as gable-top milk and juice cartons and square-shaped cartons often used for soups or soymilk in this report. In figures or tables where aseptic containers have been called out in their own category, the mixed paper category excludes aseptics.

Metals – Containers and metal pieces made from any type of metal except aluminum; includes metal containers as well as scrap metal.

Mylar – a polyester film composed of biaxially-oriented polyethylene terephthalate

Plastic bottles and tubs – Plastic containers with a neck, including containers for beverages and other fluids; plastic tubs of primarily food grade plastic often used for yogurt, margarine, and other food or non-food materials, rigid plant pots larger than four inches, and plastic buckets five gallons and smaller.

Plastic film – All clean plastic film bags including grocery and sandwich bags. Also includes shrink-wrap, pallet wrap, bubble wrap, and plastic films.

Reuse – Items that may be re-used through donation to a program or by in-house programs such as for office supplies or furniture.

Restroom waste – Bathroom paper towels and other related items.

Rigid plastic – Non-bottle and non-tub shaped plastics that are not accepted through the regional commingled recycling programs, but are acceptable at various plastics recycling facilities in the region. Includes plastic pallets and spools.

Single-use compostable food service ware – Non-durable containers, plates, dishes and flatware designed for single use and used to serve and transport food. These are comprised of compostable materials.

Single-use event cups - Non-durable, non-recyclable single-use cups for either hot or cold beverages. These cups may be made of plastic, plastic-lined paper, plastic-embedded paper, expanded polystyrene foam, or compostable plastics used for in-house events.

Single-use event plates – Non-durable, non-recyclable cups made of plastic, plastic-lined paper, plastic-embedded paper, expanded polystyrene foam, or compostable materials used for in-house events.

Single-use hot/cold cups – Non-durable, non-recyclable single-use cups for either hot or cold beverages. These cups may be made of plastic, plastic-lined paper, plastic-embedded paper, expanded polystyrene foam, or compostable plastics.

Single-use food service ware – Non-durable containers, plates, dishes and flatware designed for single use and used to serve and transport food. These may be made of plastic, plastic-lined paper, plastic-embedded paper, expanded polystyrene foam, or compostable plastics.

True waste – Materials that cannot currently be diverted. These materials are known as "true waste" because there are currently no recycling markets for these materials, and the materials are not compostable at local composting facilities, or the materials are not readily reused or fit for donation. Common materials include candy wrappers, chip bags, soiled textiles unfit for donation or recycling, polyvinyl chloride items such as gift cards, and non-recyclable mixed material items without current recycling markets.

Waxed Cardboard – Waxed corrugated cardboard boxes or sheets used for shipping and packaging products generally produce or products that are iced or frozen.