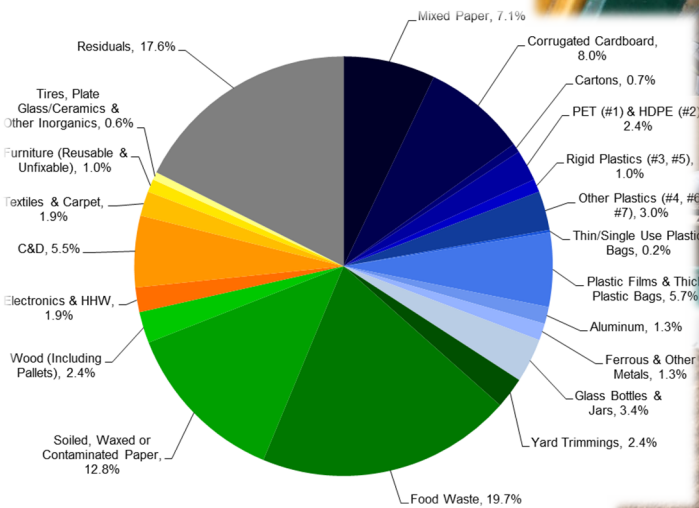




Austin's 2020 Waste Characterization, Capture Rate and Diversion Study



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**Austin’s 2020 Waste Characterization,
Capture Rate, and Diversion Study
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Study Overview

In 2005, the City of Austin established an aggressive goal to achieve Zero Waste to landfills and incinerators by 2040, defining Zero Waste as diversion of 90% of the City's waste from disposal. Subsequent to establishing this goal, the City developed its Zero Waste Strategic Plan in 2008 and its Austin Resource Recovery Master Plan (Master Plan) in 2011 to provide a pathway by which the Zero Waste goal may be met. These plans identify strategies, policies, programs, and infrastructure options to be implemented to increase diversion from landfill disposal. The Master Plan also provided near-term diversion targets as the City pursues its ultimate goal of Zero Waste, with a desire to divert 50% by 2015, 75% by 2020 and ultimately to achieve 90% by 2040.

The City's goals have been further reinforced by their incorporation into the City's Imagine Austin Comprehensive Plan, adopted in 2012. Imagine Austin stated more general goals regarding waste diversion, including reducing waste disposal, increasing reuse and recycling, and expanding waste diversion services.

In order to track progress towards its Zero Waste goal and identify needs and opportunities for diversion of particular materials, the Master Plan recommended that a waste characterization study be completed and then updated every five years. Aptim Environmental & Infrastructure, LLC (APTIM - then known as CB&I) completed the first Community Wide Study in 2016 calculating a 2015 diversion rate of 42%. The initial City-Serviced Residential Waste Characterization Study along with the 2015 Community Diversion Study are considered the Baseline Studies for this report. A list of definitions used for this Study are included in Appendix A.

The City currently provides waste management services to residential properties for three distinct material streams; trash, recyclables and compost. These services are provided principally by City staff within the Austin Resource Recovery (ARR) Department. The City-serviced residential waste stream is therefore within the City's direct influence. Based on 2020 collection data, ARR manages approximately 11% of the material generated within the City of Austin through these three programs. An additional 14% of the waste generated within the City is from street sweeping, recycling activities outside of the traditional programs and avoidance measures (resale, reuse, prevention). The remaining 75% of material generated in the City is from commercial properties, industrial operations, larger multi-family properties (apartment complexes, condominiums), education institutions, and government operations. This larger material stream is managed by private companies through individual contracts with the generators and is not within the City's direct influence.

The major objectives of this Study are to:

1. Update the characterization and composition of the disposed trash stream, the single-stream recycled material stream, and the compost stream in order to identify materials that can be targeted for further diversion and the need or opportunity for additional programs and services to increase diversion.
2. Develop Capture Rate calculations for ARR-collected trash, recyclable and compost materials.
3. Quantify the various material streams within the City and determine the current rate at which waste is diverted from disposal citywide.



1.1 Background

The Zero Waste International Alliance (ZWIA) adopted the first peer-reviewed and widely accepted definition of Zero Waste:

Zero Waste: The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health. (ZWIA website, definition last revised December 2018)

In 2008, Austin adopted a goal of becoming a Zero Waste community by 2040. Austin's definition of Zero Waste is largely consistent with ZWIA's definition. For Austin, Zero Waste means:

reducing the generation of wasted materials at the source and maximizing diversion methods to avoid landfills and incinerators. The overall goal is to strive for no waste burned or buried. (ARR Master Plan, page 35)

The City's Zero Waste goal is to divert at least 90% of the waste materials generated within the city from landfills or incinerators. Materials may be diverted from disposal to beneficial uses that create jobs, keep materials local, reduce environmental impacts, and extend the useful life of area landfills. In 2011, the Austin City Council approved Austin Resource Recovery's Master Plan, which identifies the key strategies and resources to achieve Zero Waste. The Master Plan also included interim milestones for Zero Waste in Austin, with goals of 50% diversion by 2015 and 75% diversion by 2020.

Currently in Austin, materials from single-family homes and multifamily properties up to 4 units are collected and managed by ARR's residential collection program. ARR's services include collection of trash, recyclables, compost, brush, and bulky wastes as well as drop off services for household hazardous wastes and other materials. Using private contracts, private haulers collect all other materials from businesses, institutions, multifamily properties with more than 4 units, and government offices. Third party private waste haulers are licensed through the City of Austin to handle landfill trash, recycling, or compost.

Based on data presented herein, ARR residential collection quantities are about 11% of the overall material generated in the City. Because residential services are managed directly by ARR, the City and ARR have the ability to design and establish services to maximize waste diversion within this sector. However, the majority of material generated city-wide is privately managed and not within the direct control of the City/ARR. Therefore, significant consideration should continue to be given to impacts on individual businesses and private haulers if the City establishes practices and programs to reduce disposal from landfills and incinerators.

1.2 Purpose and Objectives

ARR commissioned this Study to measure ARR's current diversion and capture rates and the diversion rate as a community. See definitions in Appendix A and below. The Study also provides a composition, or characterization, of the ARR-collected materials and is intended to be used to identify opportunities to increase diversion and provide an update to the Baseline Studies (Austin's 2015 Community Diversion Study and the City-Serviced Waste Characterization Study) to evaluate the community's progress towards the Zero Waste goal.



Austin's 2020 Waste Characterization, Capture Rate, and Diversion Study (Study) focuses on estimating diversion from both ARR-serviced properties and commercial properties within the city limits. Residential customers serviced by ARR's cart-based services include single-family homes, duplexes, triplexes, and fourplexes, as well as some small commercial properties located on residential routes. Commercial properties include retail businesses, food service establishments, professional offices, industrial properties, institutional facilities, government facilities, and multifamily properties five units and larger. Most commercial properties utilize dumpster service provided by private haulers rather than ARR's cart-based collection service.

The Study includes a review of data collected by ARR on discarded and diverted materials. Supplemental data was gathered specifically for this Study through direct contact with reuse facilities, a survey of local businesses, and performance of trash, recycling, and compost stream sorts. Through these activities, the Study:

1. Estimates Austin's 2020 capture rate for non-hazardous materials generated by Austin's residents and collected curbside via ARR programs (trash, recycling and compost).
2. Estimates Austin's 2020 diversion rate for non-hazardous materials generated by Austin's residents and businesses.
3. Estimates the quantity and characteristics of materials managed through diversion and disposal methods.
4. Provides updated data ARR can use to establish performance benchmarks for material streams impacted by Zero Waste programs.
5. Provides empirical data and observations of commercial diversion and disposal practices through:
 - Self-reported information by non-residential generators and multifamily property managers, identifying waste diversion practices, including reduction, they have implemented and estimates of diversion achieved; and
 - Field sorting of randomly selected loads to evaluate the composition of the commercial trash stream by component.
6. Identifies data gaps that currently exist or improvements that may be targeted for further data collection efforts prior to the next 5-year Study update. This next update is estimated to be for the calendar year 2025.

1.3 Capture Rate Calculation Method

The Capture Rate (CR) reflects the percentage of generated materials that are managed in the ideal disposition, expressed as a percentage of total generation of that material type. For example, materials that could be recycled are found in all three material streams (trash, recycling, compost), but only the recyclable materials that are disposed of in the recycling material stream are considered captured.



The formula for estimating the Capture Rate in its simplest form is:

$$\text{Capture Rate} = \frac{\text{Material Disposed in the Ideal Waste Stream}}{\text{Total Generation of that Material}}$$

The calculation of overall Capture Rate and the specific Capture Rate for each material stream in Austin is included in Section 5.

1.4 Diversion Rate Calculation Method

The Master Plan prescribed the method to measure diversion performance:

For the purpose of measurement, disposal includes waste sent to landfills and end-of-life disposition of materials sent to incinerators, waste-to-energy facilities and other disposal facilities. Diversion includes waste prevention activities and material sent to recyclers, composting systems, reuse facilities and other secondary use options. Waste generation is defined as disposal plus diversion.

The formula for estimating waste diversion, in its simplest form, is:

$$\text{Generation} = \text{Diversion} + \text{Disposal}$$

$$\text{Diversion Rate} = \frac{\text{Diversion}}{\text{Generation}}$$

The Master Plan noted that there are challenges in calculating diversion for a number of reasons, including:

- Limited ability to track material generation and movement through the region;
- Inconsistencies in reporting methods;
- A lack of documented diversion quantities; and
- Unknown waste prevention or reduction quantities.

Including waste prevention activities in the Diversion Rate calculation is particularly difficult. Waste prevention activities refer to process improvements, product redesigns, and other practices that reduce the generation of waste materials. This directly reduces the amount of material that would otherwise need to be managed. Waste prevention, also called waste reduction or source reduction, is the preferred option in the waste management hierarchy. However, it is difficult to quantify its impact on waste prevention unless there is historical data on material quantities generated prior to implementing waste prevention practices. However, waste prevention is specifically included in the definition of diversion as noted above. To address this challenge, the Study included efforts to characterize the waste prevention activities being implemented at commercial properties.

The scope of the current Study includes quantifying the diversion of non-hazardous waste generated by residents, businesses, government offices, and institutions. Diversion methods include recycling, composting, reuse, and reduction.



The Study includes consideration of the following material flows:

- Recyclable commodities, including cardboard, newsprint, mixed paper, plastics, glass, and metals;
- Organic materials, including yard trimmings, brush, and food waste;
- Electronics, including computers, printers, televisions, and small and large appliances;
- Food donation;
- Furniture, mattresses, textiles, carpets, and clothing;
- Pallets and packaging materials such as expanded polystyrene and pallet wrap;
- Construction and demolition materials;
- Scrap metal;
- Tires;
- Batteries, oil, paint, and antifreeze (BOPA) managed through City drop-off programs; and
- Household hazardous wastes (HHW) including cleaning products and lawn care chemicals when separately accepted through the City's HHW drop-off program.

The Study does not include materials outside of the non-hazardous municipal waste stream, such as hazardous wastes (HHW drop off is included as diversion), industrial process wastes, medical wastes, contaminated soils, or biosolids/sludge. These materials are regulated under federal statutes or are outside the City's authority to regulate, and therefore were determined to be appropriately excluded from measurement of diversion and progress towards the Zero Waste goal. Further, the Study does not include materials reused through direct person-to-person exchange (e.g., garage sales, used car sales, and Craigslist/eBay); significant estimation would be required to include these quantities, and estimates would be difficult to replicate in future studies. In addition, inclusion of these outlets for reuse of materials may result in questions regarding the credibility and reliability of the data upon which the Study and diversion rate calculation are based. Since a single item may be exchanged multiple times (which would lead to double-counting) and there is not a robust tracking system for the tonnage of materials reused through person-to-person transactions (which may lead to unreliable reporting of quantities), estimates of waste reduction/reuse through person-to-person transactions would likely not be credible.

The Study concludes with the best estimate of Austin's 2020 Capture Rate for ARR-collected material and a citywide Diversion Rate, based on quantifiable data collected over the course of the Study. In addition to tracking and reporting on diversion performance, the Master Plan also recommends tracking disposal reduction, which is directly related to achieving Zero Waste. As a result, the Study also includes a calculation of the 2020 Citywide Disposal Rate.

To supplement the quantitative data about the commercial sector's waste management practices, qualitative information was also considered, including identification of:

- Recyclable materials remaining in the disposed waste stream;
- Contaminants in the recycling and composting streams;
- Materials that are difficult for businesses to divert currently;
- Waste prevention / reduction practices businesses have implemented; and
- Reasons businesses do not recycle.

Combined with the quantitative data, the additional qualitative information will be valuable in ARR's consideration of future policies and programs.



2.0 Data Sources

A number of data sources were considered to develop a reliable estimate of Austin's 2020 diversion rate including data currently collected by the City, and other publicly available data.

In particular, the following City-tracked data sources were reviewed:

- 1. Licensed Hauler Tonnage Reports.** Under City of Austin Code 15-6, Article 3, trash, recycling, and compost haulers must be licensed. As a condition of the license, they must report the quantity of material collected and delivered to a landfill, recycling facility, or organic material processor every 6 months. Licensed hauler tonnage reports through calendar year 2020 were reviewed to provide an estimate of trash and diverted materials collected by licensed private haulers.
- 2. Universal Recycling Ordinance (URO) Reports.** City of Austin Code 15-6, Article 5 establishes the City's URO. Implementation of the URO began in 2012 and as of October 2018, the URO has been fully phased in, requiring all non-exempt, non-residential premises and multifamily premises with 5 or more dwelling units to submit a recycling plan or Annual Diversion Plan (ADP). ADP data was reviewed to identify additional recycling and waste reduction and other diversion quantities, not captured by the hauler licensing reports (e.g., materials self-hauled to recycling facilities and materials managed by companies not subject to hauler licensing). In addition to ADPs, all food enterprises that hold a food enterprise permit are required to submit an annual Organics Plan (OP). Organics Plan data was similarly reviewed to identify additional organics material that were not captured by hauler licensing reports (e.g., food donated to feed the hungry, food diverted to feed animals). See Appendix E for recent ADP and OP.
- 3. Residential Collection Program Data.** The City, through ARR, provides collection services and programs principally to single-family residences and multifamily properties up to 4 dwelling units. Material collection quantities through 2020 were reviewed for trash, recycling, yard trimmings, compost, bulk items, large brush, household hazardous waste (HHW), and material collected at the Resource Recovery Center drop-off location. This data is used to estimate current diversion quantities from the residential sector.

In addition to the data sources compiled by the City noted above, Hicks and Company Environmental, Archaeological, and Planning Consultants (HICKS) was commissioned to survey businesses and organizations within Austin:

- 1. Business Survey.** To supplement the data gathered through ADPs and Organics Reports, a survey of Austin Businesses was performed by HICKS to determine current business and multifamily diversion practices. Survey data was reviewed in order to evaluate the current state of reduction and reuse practices within Austin and to estimate the quantity of waste diverted by the use of these practices that is not captured by other sources.
- 2. Direct Contacts of Waste Managing Facilities.** HICKS contacted various city facilities that either directly managed portions of the waste stream or third-party



facilities that contracted with the City to manage certain portions of the waste stream.

See Appendix D for the facilities interviewed along with select responses.

3. Reuse and Repair Organizations. A number of reuse and repair businesses were contacted by HICKS to obtain quantities of materials accepted for reuse as well as quantities of recycling and disposal if those materials are not managed by licensed haulers (e.g., recycling of electronics or salvage textiles). Reuse-oriented organizations contacted included:

- Donation centers and consignment shops
- Food banks and food donation services
- Other donation or reuse providers

See Appendix D for a list of facilities interviewed along with select responses.

Third-party publicly available data was also reviewed to identify broader trends in waste management practices in and around Austin, supplementing the city-specific data noted above. The Texas Commission on Environmental Quality (TCEQ) Facility Report Data and waste management reporting by six peer communities were reviewed in order to contextualize the results of this Study. Landfill disposal tonnage data reported to the TCEQ was reviewed to identify tonnages handled statewide as well as in the Capital Area Council of Governments (CAPCOG) region, which includes the city of Austin. This data provides information about regional trends in disposal; however, facilities do not report the source of the materials they receive (either by generator type or by jurisdiction), and therefore may include material quantities that cross jurisdictional boundaries.

Finally, APTIM completed other tasks to collect additional quantitative and qualitative data for use in this Study. These tasks included sorting a limited number of trash, recycling and compost loads to gain further understanding of the materials' composition. The methodology and findings of these supplemental data-collection efforts are presented in subsequent sections of this report.



3.0 ARR Material Management Methods and Quantities

Based on the data provided by ARR for each of the programs it operates, APTIM compiled annual summaries of disposal and diversion for calendar year 2020. This section discusses the total tonnage generated by ARR’s customers and managed through ARR’s programs, current calculated Diversion Rate (as a percentage of generation) for ARR-managed materials, and per single-family-household generation and disposal rates. This data will be compared to that reported in the Baseline Studies and will provide additional metrics against which to evaluate ongoing progress towards the City’s Zero Waste goal.

3.1 Management Methods

Materials that are collected by ARR are generally managed through recycling, composting, or disposal. These terms are defined as follows in the 2011 Master Plan:

Recycling: The series of activities by which materials that are no longer useful to the generator are collected, sorted, processed, and converted into raw materials and used in the production of new products.

Composting: The process of converting difficult to handle organic materials resulting in a mixture of decayed organic matter used for fertilizing and agriculture.

Disposal: Final placement of wastes under proper process and authority with no intention to retrieve or reuse. This includes waste sent to landfills and end-of-life disposition of materials sent to incinerators, waste-to-energy facilities and other disposal facilities.

Table 3-1 identifies the management methods for each of the material streams collected by ARR.

Table 3-1. ARR Material Management Methods		
Management Method	Collection Practice	Collection Frequency
Recycling	Curbside single-stream recycling Curbside bulk items (recyclable) Household hazardous waste for recycling Resource Recovery Center items (recyclable)	Bi-weekly Twice per year Drop off Drop off
Composting	Curbside yard trimmings Curbside organics Curbside and drop-off large brush	Weekly Weekly Twice per year / drop off
Disposal	Curbside trash Curbside bulk items (non-recyclable) Household hazardous waste disposed Resource Recovery Center items (non-recyclable) Residuals from the Recycling and Composting operations	Weekly Twice per year Drop off Drop off As needed by processor



The sum of recycling, composting, reuse, reduction, and disposal quantities represent the total generation of materials by ARR-collected customers. Together, recycling, composting, reuse, and reduction (or prevention) activities are considered diversion¹.

Current generation and diversion quantities and rates are calculated below. The calculations are based on the management methods for the various collection programs operated by ARR and the quantities of material managed through each program during 2020.

3.2 Material Quantities

During calendar year 2020, ARR collected and managed 265,042 tons of material generated by its customers. Table 3-2 provides annual material tonnages collected by ARR programs. Quantities for calendar year 2019 are included for reference.

Note that not all materials collected for recycling or composting are ultimately diverted; some wastes are removed as contamination during the process of sorting the materials and are ultimately sent to landfills for disposal. The material removed and disposed by the processor as contamination may have been placed in the incorrect material stream by the generator or there may not be a market for that material, and it is excluded from the program.

Audits are performed at the City's contracted recycling and compost facilities to characterize the materials recovered and estimate contamination. The most recent audits performed indicate that the recycling facilities observe a 19.3% rate of contamination. This contamination rate has been deducted from the curbside recycling tonnage in Table 3-2 to provide a more accurate representation of disposal and diversion tonnages managed by ARR. The 19.3% rate of contamination conforms with the contamination rate estimated by Balcones Resources during their facility interview. This contamination or residual rate is only slightly higher than the rate used in the Baseline Studies of 17 to 18% and may be a result of an increased requirement in product quality in recent years.

As per the recommendation of Austin's 2015 diversion report, audits were also performed at organics processing facilities to establish a contamination rate. The most recent organics processing facility audits observe a contamination rate of 1.25% to 2.5% (observed contamination rates of recent studies average to 1.85%). Organics by Gosh indicated that the primary contaminants they observe are diapers, metal, plastics, and non-compostable wood. See Figures 3-1 and 3-2 below of ARR-collected organics.

In 2014 and again when contacted in 2021 for this study, Organics by Gosh noted that glass contamination is a significant challenge in managing material collected through the curbside organics program. This is an indication that additional resident education is needed to reinforce the materials that are acceptable and unacceptable for the program. The material composition of each waste stream is further discussed in Section 5.

¹ Note that the 2011 Master Plan defines diversion as "The combination of reusing, reducing, and recycling in order to keep materials from being disposed of in landfills. Diversion includes waste prevention activities and material sent to recyclers, composting systems, reuse facilities and other secondary use options." Because reduction/waste prevention activities cannot be directly quantified and because reuse is not a service provided by ARR, reduction and reuse activities are excluded from the calculation of the ARR-collected residential diversion rate in this report.



Table 3-2. ARR Material Quantities Managed (Tons)

	2019	2020
Disposal		
ARR Residential Trash	128,740.00	140,546.00
Recycling Residue	11,267.92	12,576.65
Organics Residue	721.70	931.29
Bulky Collected	11,298.00	5,506.00
Recycling		
ARR Curbside Recycling	58,383.00	65,164.00
Residue (19.3% of ARR Residential Rec.)	-11,267.92	-12,576.65
ARR RRDOC Total Tonnage	3,249.54	1,809.89
Organics		
ARR Residential Organics	39,011.00	50,340.00
Organics Residue (1.85% of Organics)	-721.70	-931.29
Brush	2,537.00	1,676.00
ARR Diversion Subtotal	91,190.92	105,481.94
Total Generation	243,218.54	265,041.89
Diversion Rate	37.49%	39.80%



Figure 3-1. Compost Material Delivered to Organics by Gosh



Figure 3-2. Mixed Organics (Including Contamination) Delivered to Organics by Gosh



Total generation by ARR customers in calendar year 2020 is approximately 265,042 (an increase of about 25% over FY2014's total of 212,680) tons per year, of which 159,560 tons per year were disposed (up from 132,178 in FY2014) and 105,482 tons per year were diverted (up from 80,502 in FY2014) through recycling and composting activities. As a point of comparison, the 2011 Master Plan projected 205,000 tons of diversion and 68,000 tons of disposal in FY2020. Observed disposal tonnages for 2020 are approximately 92,000 tons greater than the FY2020 projection and observed diversion tonnages are approximately 100,000 tons less than the FY2020 projection which assumed a 75% diversion rate.

In addition to tracking total tonnages of material managed and diversion rates, per household generation and disposal rates are important metrics to track. As the waste stream continues to change, (such as through changes in product design/manufacturing, material consumption, source reduction activities, and other conditions which impact the base character of generated material), reductions in the per-household disposal rate can provide an additional method of tracking progress towards the City's Zero Waste goal.

ARR currently serves 209,981 households (as reported in their 2021 annual report), and waste is therefore generated at a rate of 48.5 pounds per household per week. Of this, approximately 29.2 pounds per household per week is directed to landfill disposal and 19.3 pounds per household per week are diverted through recycling and composting. This is an increase from the per household generation rate of 42.5 pounds for fiscal year 2014 (with 26.4 pounds per household per week being landfilled and 16.1 pounds per household per week being diverted through recycling or composting).

Table 3-3. Per Household Generation, Disposal, and Diversion Rates

	2014	2020
Generation (pounds per HH per week)	42.5	48.5
Disposal (pounds per HH per week)	26.4	29.2
Diversion (pounds per HH per week)	16.1	19.3

From 2014 to 2020, the waste landfilled by ARR customers increased by an average of 2.8 pounds per household per week and the average diversion by ARR customers increased by 3.2 pounds per household per week. While the overall household disposal rate of ARR customers increased, the diversion rate also increased (approximately 53% of the increased generation was diverted).

3.3 ARR Collection Trends

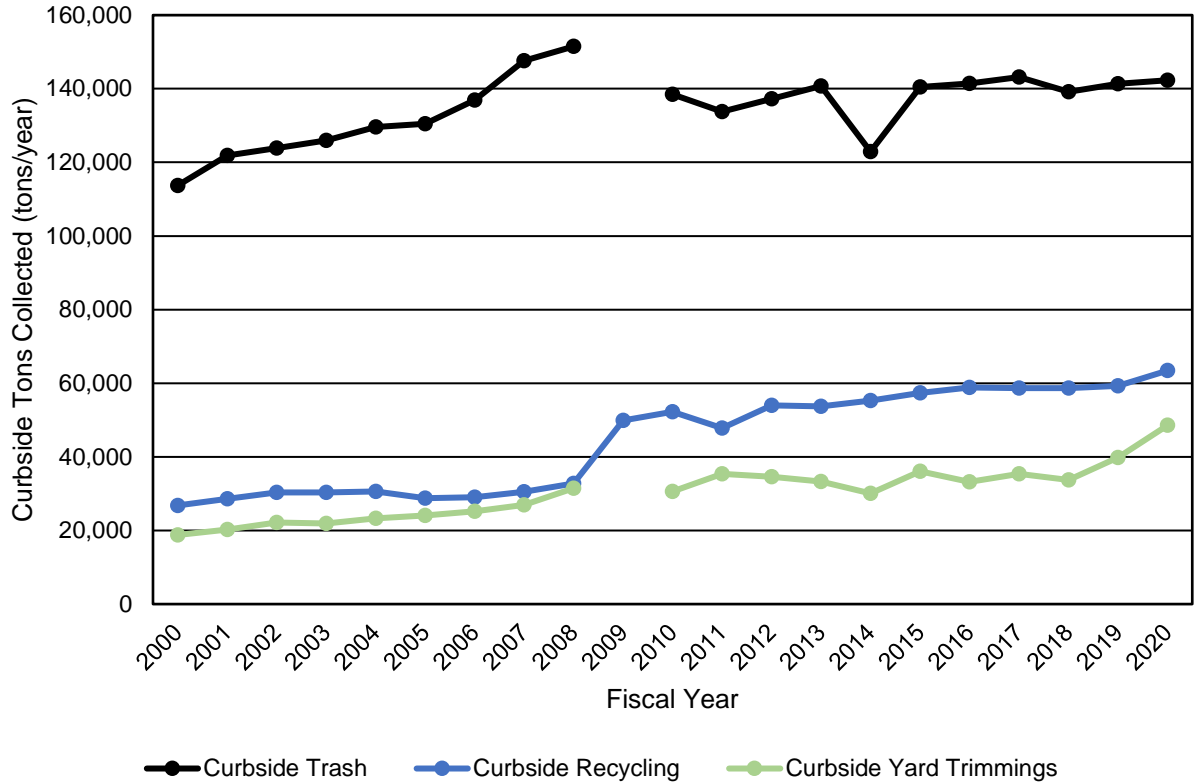
Historical trends in ARR collection data from FY2000 to FY2020 are shown in Figure 3-3. Trends in curbside trash collection closely mirror those that were observed in statewide disposal trends based on data from the TCEQ. Statewide trends are shown in Figure 3-4. The data in Figure 3-4 was obtained from waste facility annual reports submitted to the TCEQ. A sharp decrease in disposal is observed following the financial crisis of 2008, with a steady increase as the economy recovered.

The impact of ARR programs on diversion is also clearly visible in Figure 3-3, as a significant jump is observed in curbside recycling quantities following the rollout of cart based single-stream recycling in Austin in 2008 and 2009. ARR organics collection has also seen an



increase in recent years following the implementation of curbside compost collection and the Universal Recycling Ordinance (URO).

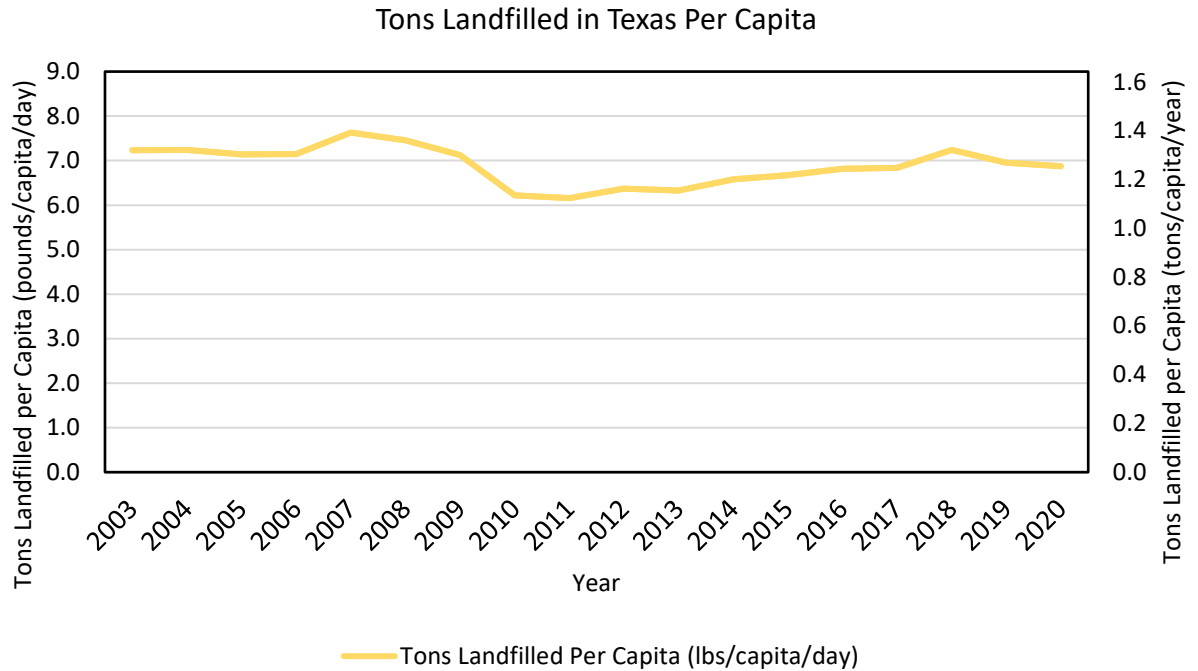
Figure 3-3. ARR Curbside Collected Materials FY2000-2020²



² The curbside trash quantities shown in Figure 3-3 include ARR curbside collected trash as well as bulky waste. Organics includes yard trimmings, curbside compost collection, and brush collection (See definition of Mixed Organics in Appendix A). Curbside recycling and compost quantities are as collected and as such have not been adjusted for residual materials that could not be recycled. Organics and Trash Collection quantities were not available for 2009.



Figure 3-4. Tons Landfilled Per Capita In Texas³



3.4 Current ARR Diversion Rate

The current diversion rate achieved by ARR’s programs and services is calculated by dividing the tons diverted by tons generated:

$$\text{Diversion Rate (\%)} = \frac{\text{Tons Recycled} + \text{Tons Composted} + \text{Tons Reused} + \text{Tons Reduced}}{\text{Tons Generated}}$$

During 2020, ARR-collected material was diverted at an average rate of 39.8% (an increase from the 38% diversion observed in the Baseline Studies).

$$\text{Diversion Rate (\%)} = \frac{105,482 \text{ Tons Diverted}}{265,042 \text{ Tons Generated}} = 39.8\%$$

The calculated diversion rate does not include waste reduction/prevention that may be occurring in the residential sector, as the impact of such activities cannot be accurately measured and was found to be a small factor in the Baseline Studies. The rate calculated also does not include materials from the residential sector which are sent for reuse.

The calculated ARR-collected diversion rate of 39.8% is greater than 4 of 6 peer-reviewed communities that were analyzed as part of the Benchmark portion of this Study. See Section 6 for that discussion.



³ Quantities of total waste landfilled in Texas were obtained from the Texas Commission on Environmental Quality, Municipal Solid Waste in Texas: A Year in Review reports from 2003 to 2020.

4.0 Business Survey Methodology and Findings

4.1 Business Survey Methodology

In order to supplement the information obtained from the Annual Diversion Plans and Organics Plans mandated by the URO and identify business diversion practices within the City of Austin, a survey of businesses and multifamily properties was performed. The survey requested that respondents identify their current waste reduction, reuse, and recycling practices. The survey also sought to secure similar data to that collected under the URO, including estimates of material quantities generated and diverted.

The Study team contacted 8,572 businesses through email. These businesses responded to the URO and provided contact information. The survey was emailed to those businesses in both English and Spanish. The survey included a website link to allow respondents to complete the survey online.

A total of 192 survey responses were received. This represents a 2.2% survey response rate, which is typical for a survey distributed through email.

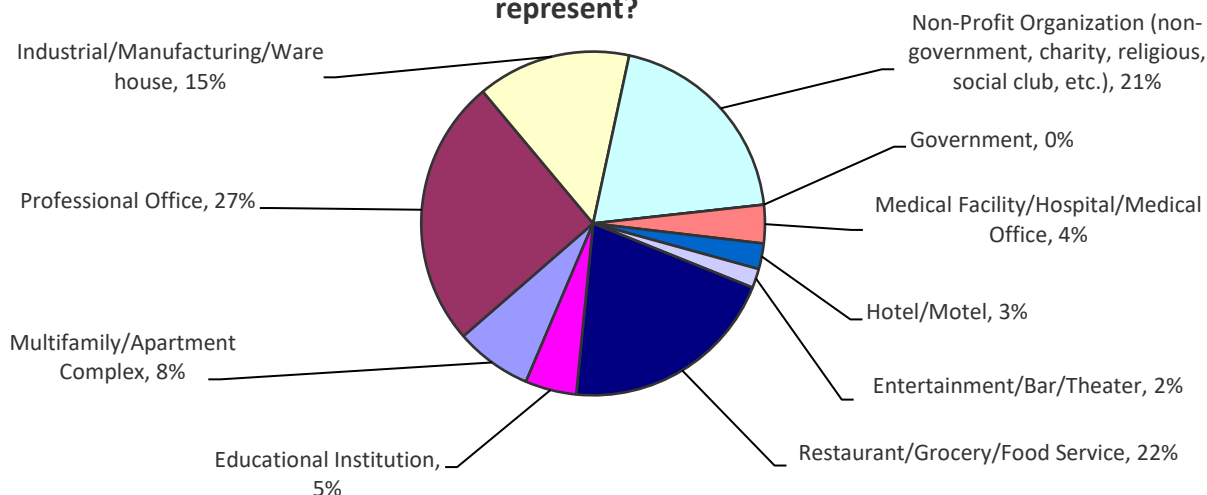
4.2 Business Survey Results

Survey responses are discussed below. The survey questions are shown above each graphic:

1. **Survey respondents by business type:** Figure 4-1 shows the proportion of responses received by business type. 155 of 192 survey respondents responded providing their business type. As shown, the plurality of responses (27%) was received from businesses classified as professional offices. Other large categories of respondents included non-profit organizations, restaurant/grocery/food service, and industrial/manufacturing/warehouse businesses.

Figure 4-1. Distribution of Survey Responses by Business Type

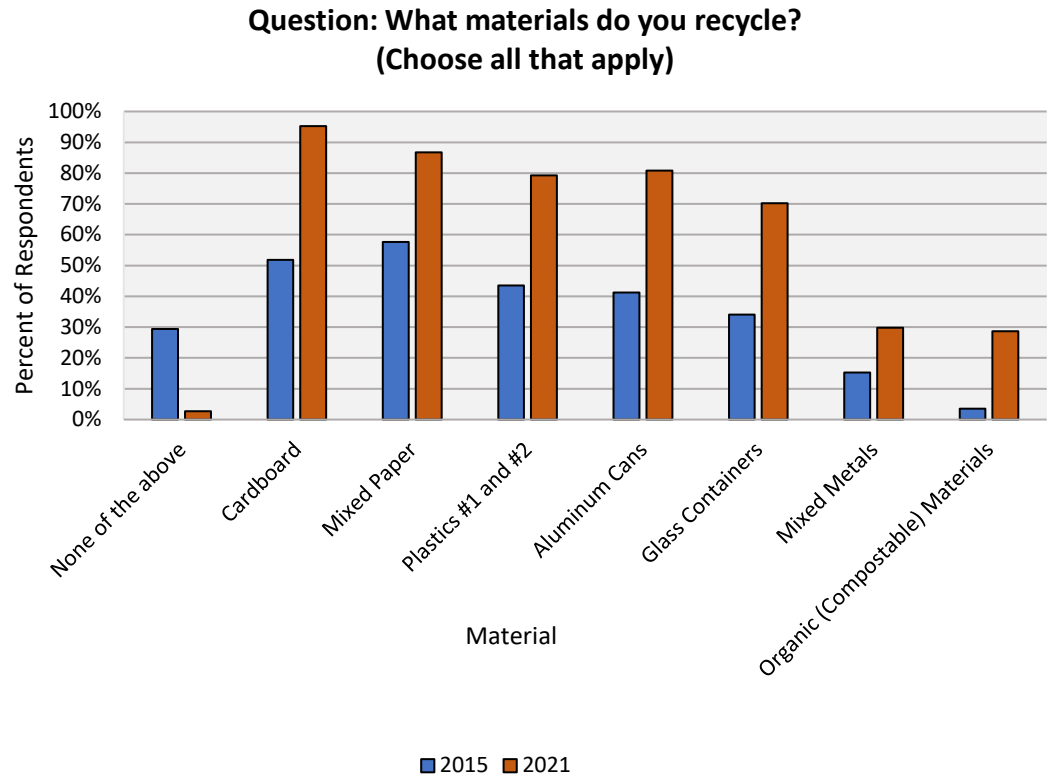
Question: Which category best describes the type of business that you represent?



2. Materials recycled: Respondents were asked whether they recycle a list of commonly recycled materials. A total of 188 respondents answered this question. As can be seen in Figure 4-2, more than 50% of respondents indicated that they recycle cardboard, mixed paper, plastics #1 and #2, aluminum cans, and glass containers. Less than 3% of respondents indicated that they did not recycle any of the materials listed. Results from the previous survey taken in 2015 are also shown as a comparison⁴.

29.4% of respondents to the 2015 survey indicated that they did not recycle any of these common materials, whereas only 2.7% of the respondents to the 2021 survey indicated that they did not recycle any of these common materials. This could indicate an increase in participation; however, the sample size of both survey's is relatively small in comparison to the total number of businesses in Austin.

Figure 4-2. Materials Recycled by Survey Respondents

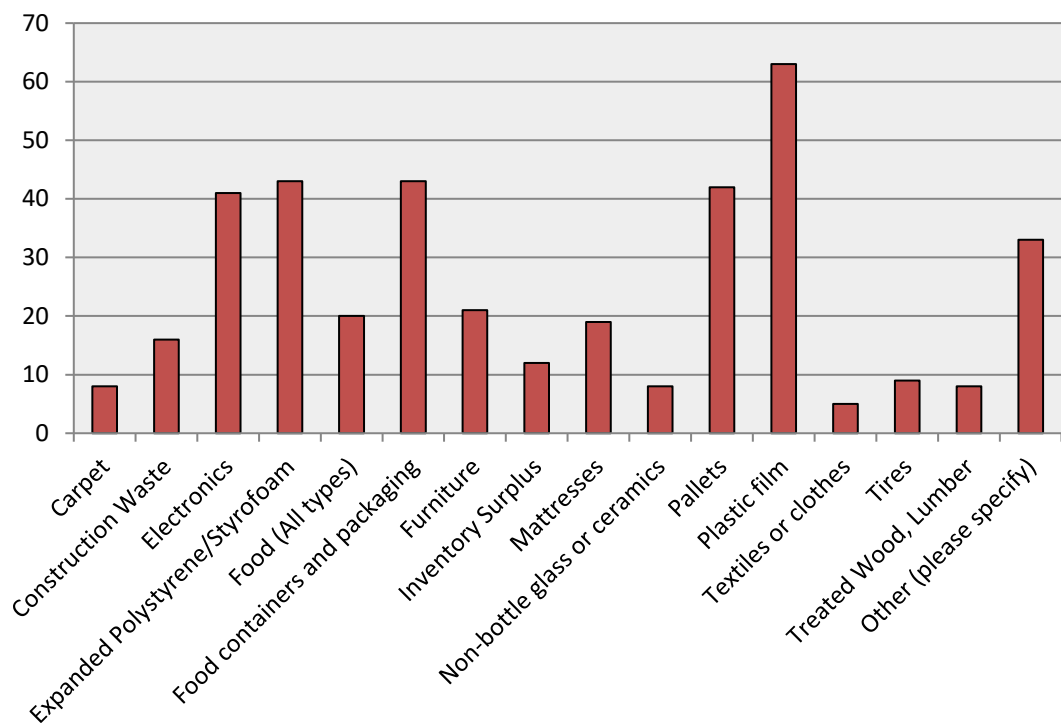


⁴ The question from 2015 was the same question that was asked in the recent survey other than the option “None” was available instead of “None of the above”. All 85 respondents to the 2015 survey answered this question.

3. Most challenging materials to recycle: A total of 170 survey recipients responded to this question. As shown in Figure 4-3, plastic film was the most difficult material to recycle, with 63 respondents (over 37% of question respondents) identifying it as one of the three most difficult materials to recycle. Other top responses include Styrofoam, food containers and packaging, pallets, and electronics. In addition, 33 respondents also identified “other” materials that are challenging to recycle; most frequently stated among these were: lightbulbs, batteries, and cardboard containers. In some cases, respondents only indicated one or two materials.

Figure 4-3. Most Challenging Materials to Recycle

Question: What are the three (3) most challenging materials for your business to recycle?

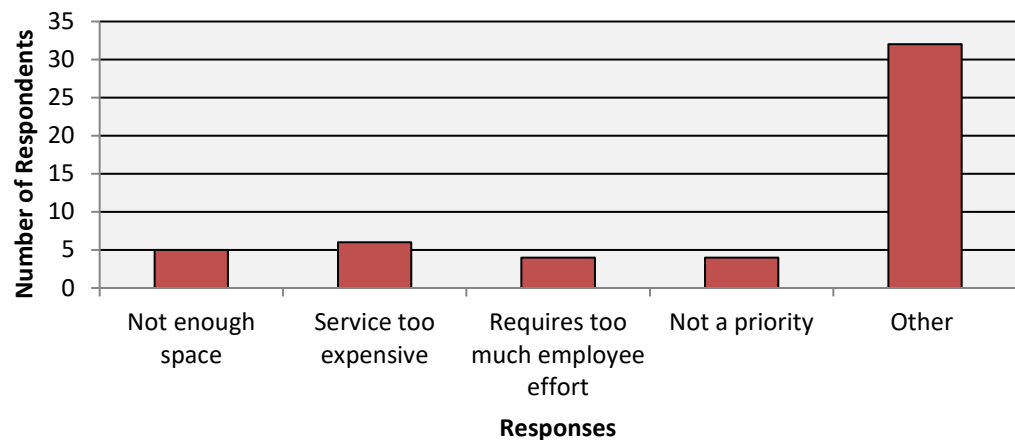


4. **Reasons for not recycling:** 14%⁵ of respondents to the 2021 survey indicated that they do not currently recycle. Among those who did not recycle “Service too expensive” was the top answer. In the “Other” category, 5 respondents indicated that they don’t recycle because they have nothing to recycle, their building is closed, or there are no employees on site.

In comparison, 40% of respondents to the 2015 survey (34 of 85), indicated that they did not recycle.

Figure 4-4. Reasons for Not Recycling

Question: If you don’t currently recycle, why not? (Choose all that apply)



5. **Materials recycled or sent to reuse, donation, resale, or repurpose:** Respondents were provided the option to indicate estimates of the quantity they dispose of, recycle, or reuse in some way (reuse, donate, resell, repurpose) both in terms of gross weight and in terms of material type. While including disposal and recycling quantities from this question in the calculation of diversion would be double counting tonnages reported by licensed haulers, quantities of reused, donated, resold, and repurposed material would not be accounted for in other data sources, and can be included in the diversion calculation. 116 respondents provided a gross quantity of 250 tons per year in the *reuse, donate, resell* category. 147 respondents provided quantities by material type, totaling 602 tons per year for all respondents in the *reuse, donate, resell, repurpose* category are shown in Table 4-1. The average of these quantities was used to extrapolate the quantity diverted by reuse, donation, resale, and repurposing for ARR businesses. See Table 4-2.



⁵ While 46 respondents answered this question, 20 of those respondents indicated in their “Other” response that they did, in fact, recycle. This leaves 26 (or 14% of all survey respondents) indicating that they do not recycle.

Table 4-1 summarizes the pounds of each material type reported to be recycled and reused by respondents. While the data presented in Table 4-1 reflects generator estimates of recycling and reuse, it does not necessarily reflect the composition of recycling and reuse materials citywide due to the limited number of businesses participating in the survey.

Table 4-1. Estimated Reuse, Donate, Resell by Material Type (Pounds Per Year)	
Material Type	Quantity
Appliances (washer/dryer, refrigerator, microwave, etc.)	600
Batteries	385
Carpet	2,060
Cleaning Chemicals, Pesticides, Acids/Bases	0
Construction Materials (concrete, lumber, asphalt)	5,375
Electronics (PCs, printers, copiers, cell phones)	6,130
Food (All types)	102,830
Furniture	57,145
Inventory Surplus or Products Near Expiration	635
Landscaping Materials (brush, grass, leaves)	2,190
Mattresses	2,090
Metals and Car Parts	110,120
Oils, Automotive Fluids, Lubricants	0
Packaging, including expanded polystyrene	8,115
Paints	15
Pallets	92,710
Paper Shredding/Document Destruction	205,840
Plastic film	105
Textiles	6,650
Tires	30
Other	601,515
Total (pounds)	1,204,540
Total (tons)	602.27



Table 4-2. Waste Reduction (Average of Both Questions)

Average Reuse, Donate, and Resell Quantities Among Respondents
(tons/year per Survey Response)

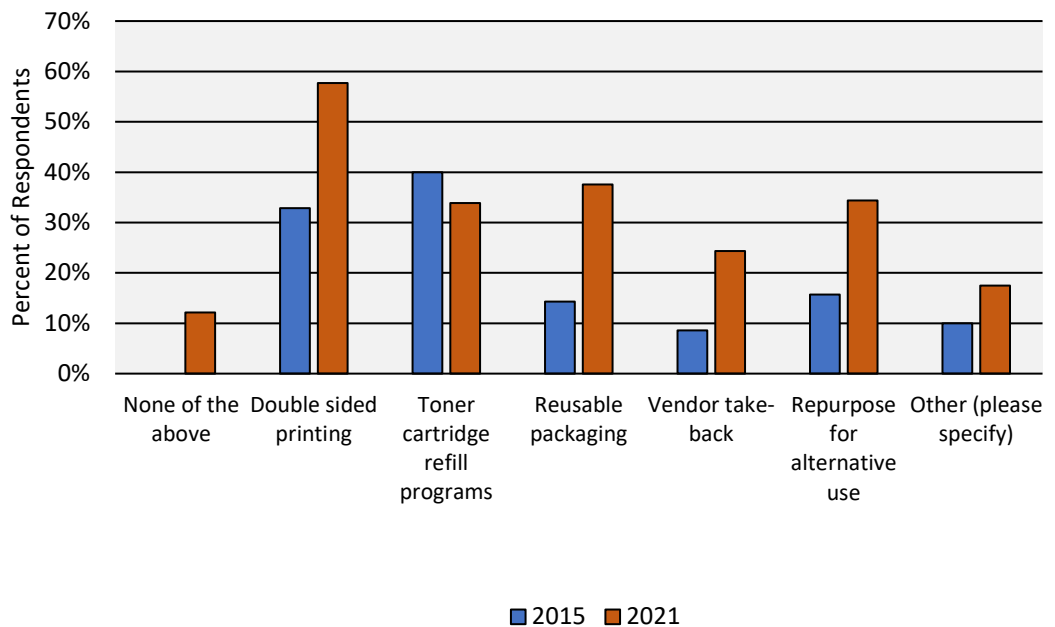
Gross Quantity Question	Specific Materials Question	Average
3.1	1.3	2.2

6. Process improvements to reduce waste: A total of 189 responses were received to this question. As shown in Figure 4-5, approximately 58% of respondents indicated they utilize double-sided printing to reduce waste. Approximately 34% reported using a toner cartridge refill program. Approximately 17% of the respondents indicated they have implemented other waste reduction activities without specifying the particular activities.

Respondents to the 2021 survey were more likely to implement every process improvement other than “Toner Cartridge Refill Programs” in comparison to the 2015 survey.

Figure 4-5. Waste Reduction Practices Implemented⁶

Question: What process improvements to reduce waste have you implemented? (Choose all that apply)



⁶ The 2015 survey question on process improvements did not include an option for “None of the Above”.

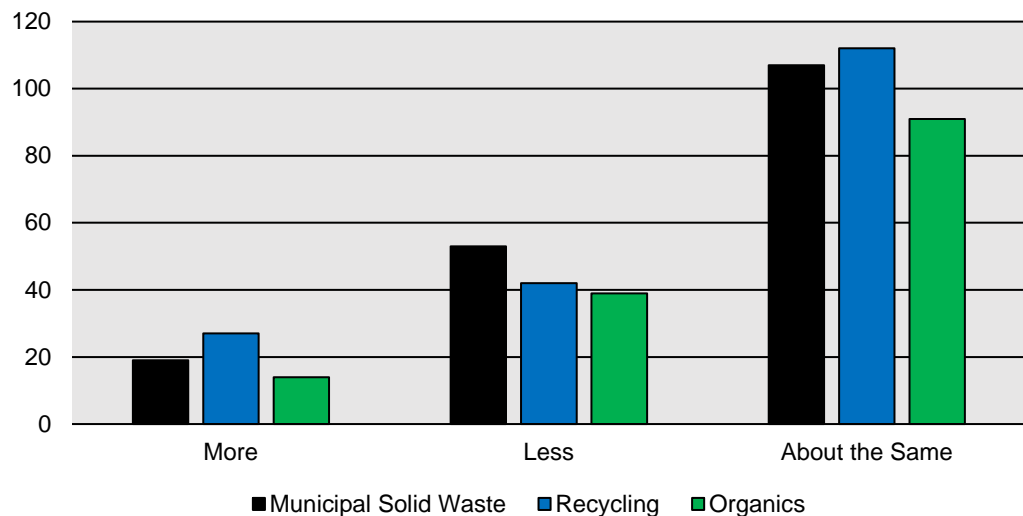
- 7. Diversion from Double-Sided Printing and Toner Cartridge Refill Programs:**
The survey asked respondents how much waste they saved per year through the implementation of double-sided printing and through toner cartridge refill programs.

Table 4-3. Estimated Diversion through Reduction Practices			
Source Reduction Practice	Respondents	Total Quantity Diverted Annually by Respondents	Quantity Diverted Per Respondent
Double-Sided Printing	54	5,437 lbs./year	100.69 lbs./year/business
Refillable Ink Cartridges	53	1,755 lbs./year	33.11 lbs./year/business

- 8. Impact of COVID-19 on Waste Generation:** 182 of 192 respondents provided information on how their waste generation has changed due to COVID-19. The majority of businesses reported that their generation in all three material streams was about the same as prior to COVID-19. Of the businesses who noted an impact on generation, most indicated that they are generating less after COVID-19; this is to be expected since businesses had operations curtailed during the pandemic. Also, many employees worked from home during the pandemic. For Austin residents and those typically working within the city, this would tend to cause a decrease in commercial waste generation and an increase in residential generation.

Figure 4-6. Impact of COVID-19 on Waste Generation

Question: Compared to conditions prior to COVID-19, how much waste is your business generating?



4.3 Survey Data Extrapolation

Three separate sources of data were identified in the business survey that can contribute to the calculation of the diversion rate without double counting other data sources:

- Waste saved through reduction and prevention practices
 - Waste prevented through double-sided printing
 - Waste prevented through ink/toner refill programs
- Quantities reported as *Reuse, Resale, Donation, Repurpose*

Source Reduction Practices

To quantify the waste diverted through reduction practices, the following equation is used:

A = Adoption Rate of Practice [%] (percent of responding businesses using practice),

D = Diversion Per Business Adopting Practice $\left[\frac{\text{tons}}{\text{year} * \text{business}}\right]$,

B = Number of businesses to extrapolate to (larger population) [businesses]

$$\text{Diversion Due to Reduction Practice} \left[\frac{\text{tons}}{\text{year}}\right] = A * D * B$$

- **Adoption Rate:** Given the data available there are two possible data sources for the adoption rate of double-sided printing and ink/toner refill programs: the Annual Diversion Plan reduction and reuse question and the business survey. The rate of use of these practices among the ADP respondents was used rather than the rate among the business survey respondents, as the ADP had a much larger number of respondents. The ADPs are mandated by ordinance while the business survey was entirely optional; therefore respondents to the ADP are likely more representative of businesses throughout Austin.
- **Diversion Rate Per Business Adopting Practice:** The quantity of waste diverted, or reduced, by each business taking part in either double sided printing or a toner refill program was determined based on responses to the business survey (Section 4.2 – 7).
- **Number of Businesses to Extrapolate to:** The adoption rates and diversion per business discussed above were extrapolated to the total number of respondents to the ADP.

The estimation of diversion in Austin from both Double Sided Printing and Toner Refill Programs is shown in Table 4-4.



Table 4-4. Source Reduction Practices - Extrapolation

Year	Practice	Adoption Rate	Diversion Per Business (tons/year)	Number of Businesses to Extrapolate to	Total Annual Diversion (tons/year)
2019	Double Sided Printing	12.34%	0.05	8998	55.52
	Toner Refill Programs	10.21%	0.017	8998	15.62
2020	Double Sided Printing	14.56%	0.05	8693	63.30
	Toner Refill Programs	11.17%	0.017	8693	16.50

The reduction from double sided printing and toner cartridge refill programs accounts from 70 to 80 tons of diversion. This is approximately .003% of all waste generated in Austin (2,448,143 tons in 2020).

Reuse, Resale, Donation, and Repurpose Quantities:

As discussed in 4.2.5, two questions within the business survey prompted respondents to provide the quantity of waste that they generated in the *Reuse, Resale, Donation, Repurpose* category. Both quantities cannot be used in the calculation of diversion. The average diversion calculated based on the results of these two questions was used to extrapolate the quantity used in the diversion calculation

In order to calculate the citywide quantity of materials diverted by business through *Reuse, Resale, Donation, Repurpose*, the following formula was used. The business survey was not performed in 2019 or 2020. The results of the 2021 business survey were used to estimate the reduction, resale, donation, and repurpose quantities for each of the target years.

$R = \text{Participation Rate [\%]}$ (percent of responding businesses diverting through Reusing, Reselling, Donation, and Repurposing),

$D = \text{Diversion Per Business}$ $\left[\frac{\text{tons}}{\text{year} * \text{business}} \right]$,

$B = \text{Number of businesses to extrapolate to}$ (larger population) [businesses]

$$\text{Diversion through Reuse, Resale, Donation, and Repurposing} \left[\frac{\text{tons}}{\text{year}} \right] = R * D * B$$

- **Participation Rate:** The percent of businesses that indicated that they divert waste through reuse, resale, donation, and repurposing in response to the survey.
- **Diversion Per Business:** The per business diversion was calculated as the total diversion in this category divided by the total number of businesses who reported diversion through this category in the business survey. Since the business survey included two questions on this quantity, the average of the per business diversion from each of these questions was used.
- **Number of Businesses to Extrapolate to:** The adoption rates and diversion per business discussed above were extrapolated to the number of respondents to the ADP.



Table 4-5. Reuse, Resale, Donate, and Repurpose Extrapolation

Year	Gross Quantities ⁷	By Material	Diversion Per Business (Average)	Number of Businesses	Extrapolated Diversion (tons/year)
	Diversion Per Business (tons/year)				
2019	1.3	3.1	2.2	8998	19,795.6
2020	1.3	3.1	2.2	8693	19,124.6
2021	1.3	3.1	2.2	8572	18,858.4

4.4 Summary Business Survey Findings

Based on answers to the questions regarding waste diverted through the adoption of source reduction practices, the quantity diverted by source reduction practices (Table 4-4) , and the amount of waste diverted through reuse, resale, and donation, quantities of waste diverted through reduction and reuse were calculated (see Table 4-5). The sum of these two practices is used in the calculation for diversion through reduction.

Overall findings of the business survey include the following:

- 90% of businesses indicated recycling at least one traditionally recyclable material (cardboard, mixed paper, plastics, aluminum, and glass).
- Electronics, plastic film, food and food containers, and expanded polystyrene are widely noted as materials that are challenging for businesses to recycle. Of these materials, plastic film appears to be the most difficult material for businesses to recycle.
- A higher number of respondents are participating in recycling and reduction activities in comparison to the respondents to the 2015 survey.
- The prevalence of process improvements to reduce and divert waste among survey respondents has increased since 2015.
- A large percentage (%) of responding business (58% of respondents utilize double sided printing, and 38% utilize reusable packaging) participate in diversion through waste prevention activities as well as reuse, donation, resale or repurpose (28% of businesses).
- Most businesses indicated that their waste generation is “About the Same” as it was before COVID-19.



⁷ Diversion Per Business for each question is the quantity of waste reported in the survey divided by the total number of survey respondents. This quantity is equivalent to $R \cdot D$ in the equation for Diversion Through Reuse, Resale, Donation, and Repurpose. The average of the Diversion Per Business from each of the two questions on this quantity was used in the final extrapolation.

5.0 Material Composition and Capture Rate

To better understand the City's waste material streams, APTIM conducted a field sorting study in August of 2021 to determine the composition of the ARR-collected programs for curbside trash, curbside recyclables, and curbside compost. Limited sampling was also performed to determine the composition of the commercial trash stream. The results of the field sorting study are presented in this section.

5.1. Sample Sorting Methodology

Composition data assists in identifying what materials are being recovered now, the proportion of materials remaining in the waste stream that could be recovered through existing programs, and what materials in the waste stream are not currently recoverable under existing programs. An additional objective of the limited sorts was to provide a high-level observation of disposal habits of the Austin residents and business community.

The City may use this information to identify the potential for increased material recovery and to understand the types and prevalence of contamination present in the recycling and composting streams. Sorting of a larger number of samples may provide additional data to support policy or program changes, particularly for less prevalent components of the material stream which may not be accurately characterized in the limited sorting completed for this Study. Additional samples were not deemed necessary for this Study but may be warranted in the future.

The principal facilities that manage the targeted material streams include landfills (for disposed trash), material recovery facilities (MRFs) (for recycled materials), and compost facilities (for organic materials). Therefore, samples were selected and characterized from incoming loads delivered to each type of facility. Samples were obtained from City collection vehicles that were randomly selected by route. Samples from commercial waste loads were selected by Texas Disposal Systems (TDS) based on availability.

To assess the composition of the material streams, a sorting protocol was developed. The protocol included the method used to procure a 200 to 250-pound sample from each selected load and to sort the materials of each sample into the desired material classes and categories. The sampling and sorting methodology are consistent with the method outlined in ASTM Standard D 5231-92: Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste.

The sampling protocol prepared by APTIM is briefly summarized below. The detailed sampling protocol and expanded definitions of the material categories are provided in Appendix B. Additionally, a task-specific Health and Safety Plan (HASP) was prepared, read and agreed to by all personnel involved with the sorting activities. Daily safety meetings were held to emphasize the requirements of the HASP and to discuss any new items that may have come up during previous activities.

After the driver emptied the load in an elongated pile in the designated location, one eighth of the load was randomly selected for sample selection using an imaginary eight cell grid. Facility staff assisted APTIM in the sample collection using onsite equipment to extract the desired material and transport it to the sorting area. The sample was placed on a tarp for sorting by APTIM's sub consultant, Sky Valley and Associates, LLC (Sky Valley). Sky Valley



and APTIM photographed the samples during the sorting process. Figure 5-1 shows the placement of an ARR-collected recycling sample into the sorting area.

Table 5-1 identifies the material classes and categories into which materials were sorted. Materials in Table 5-1 are grouped into larger material classes for sorting and characterization and do not represent the ideal stream for disposition (see Table. 5-2).

Table 5-1. Material Stream Components		
Material Class	Material Category	
Paper	Mixed paper	Corrugated cardboard
	Compostable Paper	Other Paper
	Poly-Coated/Aseptic Cartons	Residual Papers
Plastics	Polyethylene terephthalate (PET) (#1)	PVC #3 & PP#5
	High density polyethylene (HDPE) (#2)	PS#6
	Low density polyethylene (LDPE) (#4)	Other Plastics (#7)
	Thin Plastic Bags	Thick Plastic Bags
	Plastic Film	Plastic Straws
	Residual Plastics	
Metals	Ferrous metal	Other metals
	Aluminum	
Glass	Glass bottles and jars	Other Glass and Ceramics
Compostable ⁸ Materials	Yard trimmings	Compostable Wood
	Other Organics/Combustibles	
Food Waste	Meats	Fruits and Vegetables
	Fats and Oils	Unpackaged Food Wastes
	Packaged Food Wastes	
Reusable / Recoverable Materials	Electronics	Pallets
	Household hazardous waste	Tires
	Textiles	Construction and Demolition Wastes
	Carpet	Furniture
Residuals	Unknown or Not Classified	Painted Wood Residuals



⁸ It should be noted that the material class “Compostable Materials” does not contain all material categories that would ideally be disposed of in compost. The material class “Compostable Materials” is not equivalent to the set of materials that can be diverted through the compost stream (i.e. food waste). These materials are listed in Table 5-2.

Rigid, non-absorbent containers (e.g., laundry baskets and 5-gallon buckets) were used to hold the sorted items for each category. The sorting area for one ARR-collected recyclables sample is shown in Figure 5-2. When containers were full, and when sorting was complete, the container and its contents were weighed, the container weight subtracted, and the sample material weight recorded.

Figure 5-1 Placement of Recycling Sample into Sorting Area



Figure 5-2. Recycling Sorting Area



Any material remaining at the conclusion of sorting into the material categories listed was considered *Unknown or Not Classified*. Residual material generally consisted of diapers, chip bags, candy wrappers, multi-layered pouches (i.e., aseptic cartons), items of unknown material makeup, small pieces of broken glass or plastic, scraps of paper, and dirt and grit. These materials either do not currently have diversion outlets available or would be recyclable if managed separately by the generator or if present in a large enough size to be recovered by the recycling facility equipment (such as small pieces of glass).

Additionally, material categories were separated into their ideal material stream as shown in Table 5-2. The “Ideal Material Stream” for this Study represents the designated process stream for the material categories based on ARR programs. This will be used to calculate the Capture Rate of the ideal material streams (as discussed below). Categories of materials that are included in the ideal material stream of trash should be disposed of in the trash/landfill containers. Materials that are included in the ideal material stream of recycling should be managed through the curbside recycling program and materials that are included in the ideal material stream of compost should be processed through compost programs. Materials in the reusable/recoverable category can be diverted but do not belong in any of the three ARR-collected material streams. In the calculation of capture rate, “Reusable/Recoverable” materials are considered trash, as they cannot be processed through the current compost or recycling programs. Some of these items may be diverted through other ARR programs, such as at the RRDOC, and are included in the Diversion Rate calculations. They are not included in the Capture Rate since they are not part of the curbside ARR-collection programs.

Table 5-2. Material Categories by Ideal Material Stream

Ideal Material stream	Waste Categories	
Trash	Poly-Coated/Aseptic Cartons Thin Plastic Bags Plastic Film Residual Plastics Painted Wood PS #6	Residual Papers Thick Plastic Bags Plastic Straws Packaged Food Wastes Unknown or Not Classified
Recycling	Mixed Paper Other Paper HDPE #2 PVC #3 & PP #5 Other Plastics #7 Aluminum Glass Bottles & Jars	Corrugated Cardboard PET#1 LDPE #4 Ferrous Metal Other Metal Other Glass & Ceramics
Compost	Compostable Paper Compostable Wood Meats Fats and Oils	Yard Wastes Other Organics/Combustibles Fruits and Vegetables Unpackaged Food Wastes
Reusable/ Recoverable	Electronics Textiles Furniture C&D Wastes	Household Hazardous Waste Carpet Tires Pallets

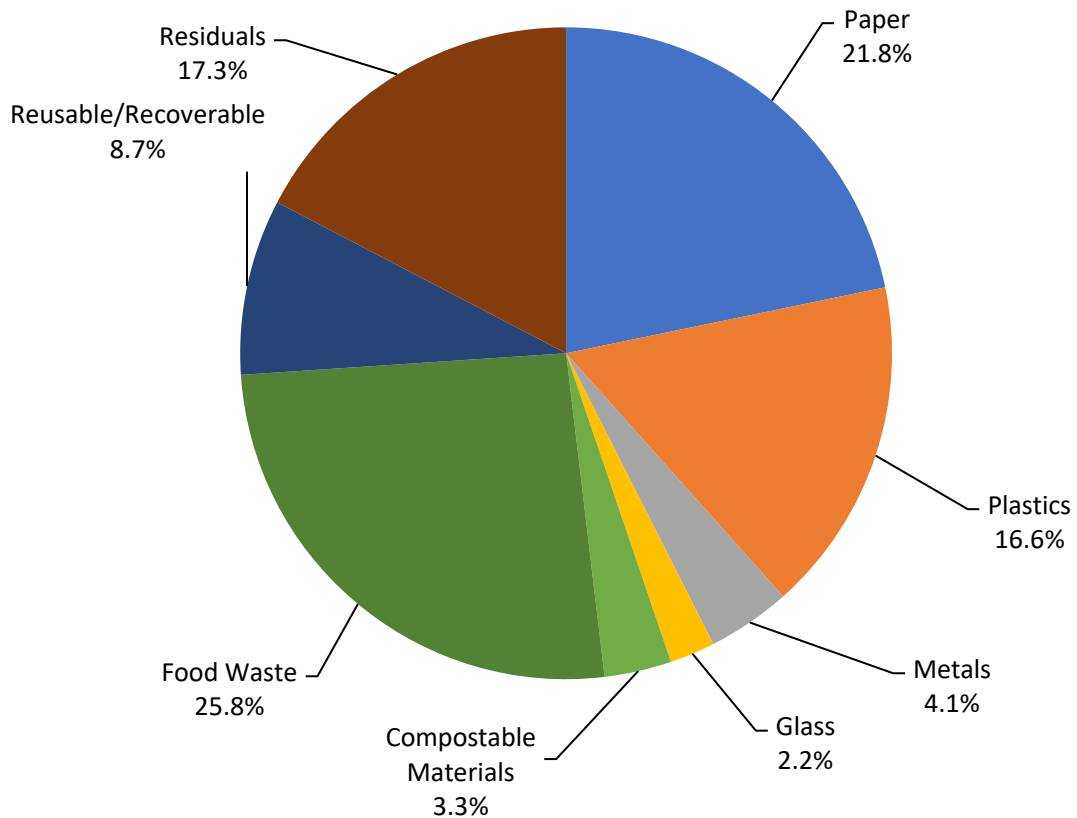


5.2. ARR Collected Trash Composition

A total of 43 samples of ARR-collected residential trash were targeted for sorting. Overall, the field crew collected and sorted 43 samples.

The average sample size was 226 pounds, within the 200-300 pound range established in the ASTM D 5231-92 standard. A total of 9,717 pounds of trash were sorted and characterized during the sorting event. A tabulation of individual sample data is contained in Appendix C.

Figure 5-3. ARR-Collected Trash Stream, by Material Class



Detailed results of the sorting study, by class and category of the ARR-collected trash stream, are presented in Table 5-3. The principal material classes present in the disposed material stream are food waste (26%), paper (22%), plastics (17%), and residuals (17%).



Table 5-3. ARR-Collected Trash Composition

Material Class / Category	Average Percent
PAPER	21.8%
Mixed Paper	1.3%
Corrugated Cardboard	1.4%
Compostable Paper	10.1%
Other Paper	6.7%
Poly-Coated / Aseptic Cartons	0.5%
Residual Papers	1.8%
PLASTICS	16.6%
PET #1	1.9%
HDPE #2	0.8%
LDPE #4	0.0%
PVC #3 & PP #5	1.5%
PS #6	0.2%
Other Plastics #7	0.3%
Thin Plastic Bags	2.7%
Thick Plastic Bags	0.1%
Plastic Film	4.6%
Plastic Straws	0.0%
Residual Plastics	4.6%
METALS	4.1%
Ferrous Metal	0.6%
Aluminum	1.6%
Other Metal	1.9%
GLASS	2.2%
Glass Bottles & Jars	2.1%
Other Glass & Ceramics	0.2%
COMPOSTABLE MATERIALS	3.3%
Yard Wastes	2.0%
Compostable Wood	1.1%
Other Organics/Combustibles	0.3%
FOOD WASTE	25.8%
Meats	0.6%
Fruits and Vegetables	0.7%
Fats and Oils	0.0%
Unpackaged Food Wastes	12.0%
Packaged Food Wastes	12.6%
REUSABLE / RECOVERABLE	8.7%
Carpet	1.6%
Furniture	0.0%
C&D Wastes	0.9%
Pallets	0.0%
Tires	0.0%
RESIDUALS	17.3%
Unknown or Not Classified	16.0%
Painted Wood	1.3%
Electronics	0.0%
Household Hazardous Waste	0.4%
Textiles	5.8%



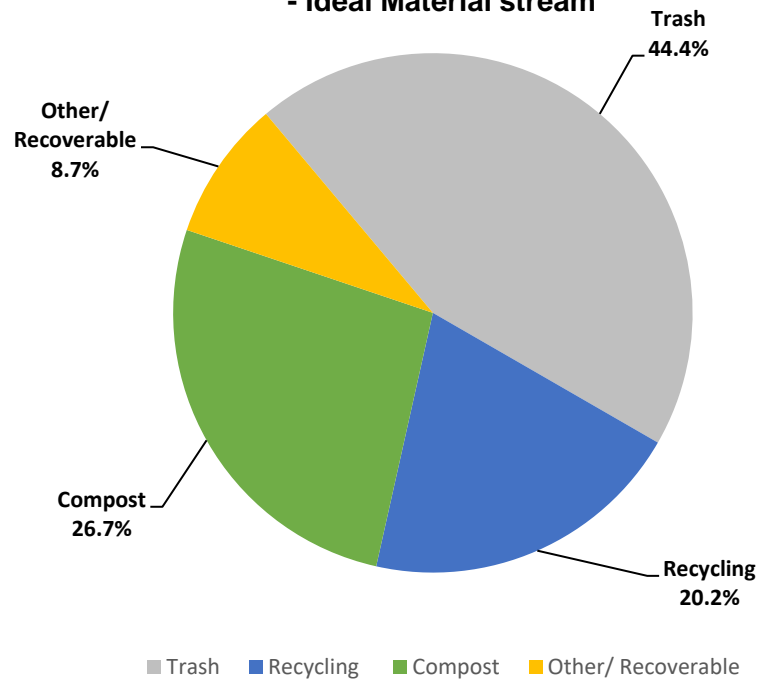
Table 5-4. Ideal Disposition of Materials in the ARR-Collected Trash Stream

Ideally Disposed of in the Trash	Pounds	Percentage of Total Sorted
Poly-Coated / Aseptic Cartons	52.30	0.54%
Residual Papers	176.49	1.82%
Thin Plastic Bags	257.99	2.66%
Thick Plastic Bags	7.95	0.08%
Plastic Film	446.20	4.59%
Plastic Straws	4.01	0.04%
Residual Plastics	448.55	4.62%
PS #6	19.30	0.20%
Unknown or Not Classified	1,554.30	16.00%
Painted Wood	130.60	1.34%
Packaged Food Wastes	1,220.06	12.56%
Trash Subtotal	4,317.75	44.44%
Ideally Disposed of in Recycling		
Mixed Paper	124.65	1.28%
Corrugated Cardboard	131.25	1.35%
Other Paper	650.95	6.70%
PET #1	186.85	1.92%
HDPE #2	78.10	0.80%
LDPE #4	1.11	0.01%
PVC #3 & PP #5	142.80	1.47%
Other Plastics #7	24.65	0.25%
Ferrous Metal	55.51	0.57%
Aluminum	157.30	1.62%
Other Metal	189.30	1.95%
Glass Bottles & Jars	203.50	2.09%
Other Glass & Ceramics	14.85	0.15%
Recycling Subtotal	1,960.82	20.18%
Ideally Disposed of in Compost		
Compostable Paper	978.25	10.07%
Yard Wastes	193.20	1.99%
Compostable Wood	102.20	1.05%
Other Organics/Combustibles	27.90	0.29%
Meats	57.75	0.59%
Fruits and Vegetables	65.40	0.67%
Fats and Oils	2.85	0.03%
Unpackaged Food Wastes	1,163.90	11.98%
Compost Subtotal	2,591.45	26.67%
Other/Recoverable		
Electronics	2.85	0.03%
Household Hazardous Waste	36.75	0.38%
Textiles	560.15	5.76%
Carpet	158.40	1.63%
Furniture	0.00	0.00%
C&D Wastes	87.85	0.90%
Pallets	0.00	0.00%
Tires	0.85	0.01%
Other/Recoverable Subtotal	846.85	8.72%
TOTAL	9,716.87	100.00%



A significant portion of the ARR-collected trash stream is potentially recoverable (theoretically, 47%) and could be diverted from disposal by the generator through the curbside recycling and compost programs, with an additional 9% potentially recoverable through other programs. The material class of materials sorted in the ARR-collected trash stream is shown in Table 5-3. The ideal waste disposition of materials within the ARR-collected trash stream is shown in Figure 5-4 and Table 5-4. Less than 45% of the materials found in the ARR-collected trash stream, would be ideally disposed of in the trash.

Figure 5-4, ARR Collected Trash Composition - Ideal Material stream



5.3. ARR-Collected Single-Stream Recycling Composition

Overall, the field crew collected and sorted 50 samples from recycling collection vehicles during the Study. One of the ARR-collected recycling samples is shown in Figure 5-5.

Figure 5-5. ARR-Collected Recycling Sample

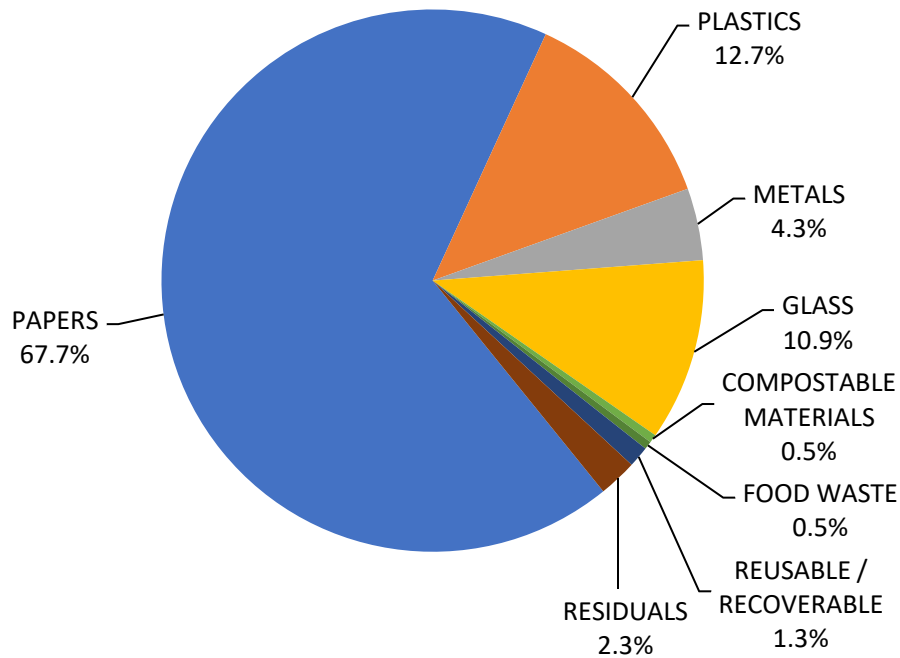


The average sample size was 217 pounds, within the 200-300 pound range established in the ASTM D 5231-92 standard. A total of 10,835 pounds of material placed in the recycling stream were sorted and characterized during the sorting event. Tabulation of individual sample data is contained in Appendix C.

The composition of the ARR-collected recyclables stream by material class is shown in Figure 5-6. Paper (subcategories are listed in Table 5-5) comprises approximately 67.7% of the material collected curbside for recycling. Plastics and glass are the next largest contributors, accounting for approximately 13% and 11% of the total recycling material stream respectively.

The ideal disposition of materials in ARR-collected recycling are shown in Table 5-6 and Figure 5-7.

Figure 5-6. ARR-Collected Recycling Stream, by Material Class



The recyclables were sorted as collected (i.e., prior to processing by the recycling facility), and therefore a portion of the recyclables may ultimately have not been recovered during facility processing. A portion is considered contamination due to particle size or lack of market among other things. Approximately 2.3%⁹ of the recyclables stream was comprised of materials that would ideally be disposed of in a compost bin which are not recovered at the recycling facility. Additionally, the categories of other paper (17.2%) and other plastics (0.2%) may include contaminants that would not be recovered during the recycling process but which, with manual sorting, were categorized.



⁹ The “Compostable Materials” material class does not include compostable paper which would be ideally disposed of in the compost stream and accounts for 1.8% of material disposed of in the ARR-collected recycling stream. Food waste accounts for about 0.5%. For the quantity of materials that would be ideally disposed of in the compost stream, see Table 5-6 and Figure 5-7.

Table 5-5. ARR-Collected Recycling Composition

Material Class / Category	Average Percent
PAPER	67.7%
Mixed Paper	9.7%
Corrugated Cardboard	37.3%
Compostable Paper	1.8%
Other Paper	17.2%
Poly-Coated / Aseptic Cartons	0.5%
Residual Papers	1.2%
PLASTICS	12.7%
PET #1	4.5%
HDPE #2	1.9%
LDPE #4	0.1%
PVC #3 & PP #5	1.0%
PS #6	0.2%
Other Plastics #7	0.2%
Thin Plastic Bags	0.6%
Thick Plastic Bags	0.1%
Plastic Film	1.6%
Plastic Straws	0.0%
Residual Plastics	2.5%
METALS	4.3%
Ferrous Metal	0.9%
Aluminum	2.4%
Other Metal	0.9%
GLASS	10.9%
Glass Bottles & Jars	10.8%
Other Glass & Ceramics	0.1%
COMPOSTABLE MATERIALS	0.5%
Yard Wastes	0.2%
Compostable Wood	0.3%
Other Organics/Combustibles	0.0%
FOOD WASTE	0.5%
Meats	0.0%
Fruits and Vegetables	0.0%
Fats and Oils	0.0%
Unpackaged Food Wastes	0.2%
Packaged Food Wastes	0.3%
REUSABLE / RECOVERABLE	1.3%
Electronics	0.1%
Household Hazardous Waste	0.5%
Textiles	0.5%
Carpet	0.1%
Furniture	0.0%
C&D Wastes	0.0%
Pallets	0.0%
Tires	0.0%
RESIDUALS	2.3%
Unknown or Not Classified	2.2%
Painted Wood	0.1%



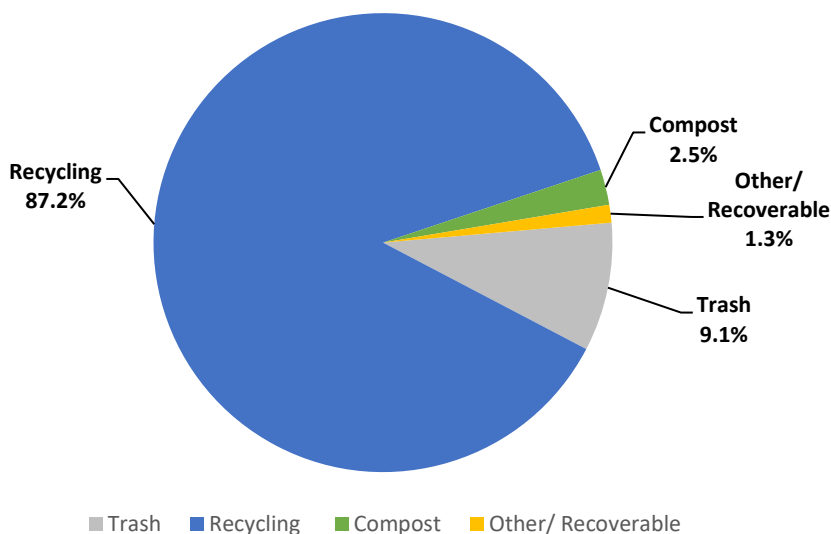
Table 5-6. Ideal Disposition of Materials in the Recyclables Stream

Ideally Disposed of in the Trash	Pounds Sorted	Percentage of Total Sorted
Poly-Coated / Aseptic Cartons	51.75	0.48%
Residual Papers	126.25	1.17%
Thin Plastic Bags	61.05	0.56%
Thick Plastic Bags	6.05	0.06%
Plastic Film	169.15	1.56%
Plastic Straws	4.03	0.04%
Residual Plastics	267.25	2.47%
PS #6	18.95	0.17%
Unknown or Not Classified	240.40	2.22%
Painted Wood	6.70	0.06%
Packaged Food Wastes	30.80	0.28%
Trash Subtotal	982.38	9.07%
Ideally Disposed of in Recycling		
Mixed Paper	1,053.77	9.73%
Corrugated Cardboard	4,041.34	37.30%
Other Paper	1,865.18	17.21%
PET #1	487.75	4.50%
HDPE #2	211.22	1.95%
LDPE #4	5.52	0.05%
PVC #3 & PP #5	112.83	1.04%
Other Plastics #7	26.95	0.25%
Ferrous Metal	99.90	0.92%
Aluminum	264.03	2.44%
Other Metal	101.45	0.94%
Glass Bottles & Jars	1,169.45	10.79%
Other Glass & Ceramics	7.55	0.07%
Recycling Subtotal	9,446.94	87.19%
Ideally Disposed of in Compost		
Compostable Paper	195.35	1.80%
Yard Wastes	22.40	0.21%
Compostable Wood	29.75	0.27%
Other Organics/Combustibles	1.50	0.01%
Meats	3.60	0.03%
Fruits and Vegetables	0.00	0.00%
Fats and Oils	0.00	0.00%
Unpackaged Food Wastes	17.40	0.16%
Compost Subtotal	270.00	2.49%
Other/Recoverable		
Electronics	5.45	0.05%
Household Hazardous Waste	58.55	0.54%
Textiles	59.10	0.55%
Carpet	12.45	0.11%
Furniture	0.00	0.00%
C&D Wastes	0.00	0.00%
Pallets	0.00	0.00%
Tires	0.00	0.00%
Other/Recoverable Subtotal	135.55	1.25%
TOTAL	10,834.87	100.00%



Only 13% of the waste disposed of within the recycling material stream was disposed of in the incorrect material stream (a much lower contamination rate than the 56% contamination rate present in the trash stream).

Figure 5-7, ARR-Collected Recycling Composition - Ideal Material Stream



5.4. ARR-Collected Curbside Compost Composition

Overall, the field crew collected and sorted 47 samples of ARR-collected curbside compost.

The average sample size was 219 pounds, within the 200-300 pound range established in the ASTM D 5231-92 standard. A total of 10,303 pounds of material from the compost stream were sorted and characterized during the sorting event. A tabulation of individual sample data is contained in Appendix C. The composition of the ARR-collected compost stream by material class is shown in Figure 5-8. The tipping of an ARR-collected compost load is shown in Figure 5-9.

Compostable material (including yard wastes, compostable wood, and other organics/combustibles) comprises more than 87%¹⁰ of the material collected curbside for management through the compost program. Food wastes and paper are the next largest contributors, both accounting for over 5% of the compost material stream.

The compost was sorted as collected, similar to the recyclables, and therefore a portion of the compost may ultimately have not been recovered during processing and been considered contamination.



¹⁰ The “Compostable Materials” material class does not include all materials which would be ideally disposed of in the compost stream and accounts for 87.7% of material disposed of in the ARR-collected compost stream. For the quantity of materials that would be ideally disposed of in the compost stream, see Figure 5-10 and Table 5-8 (95.3%).

Figure 5-8. ARR-Collected Compost Stream, by Material Class

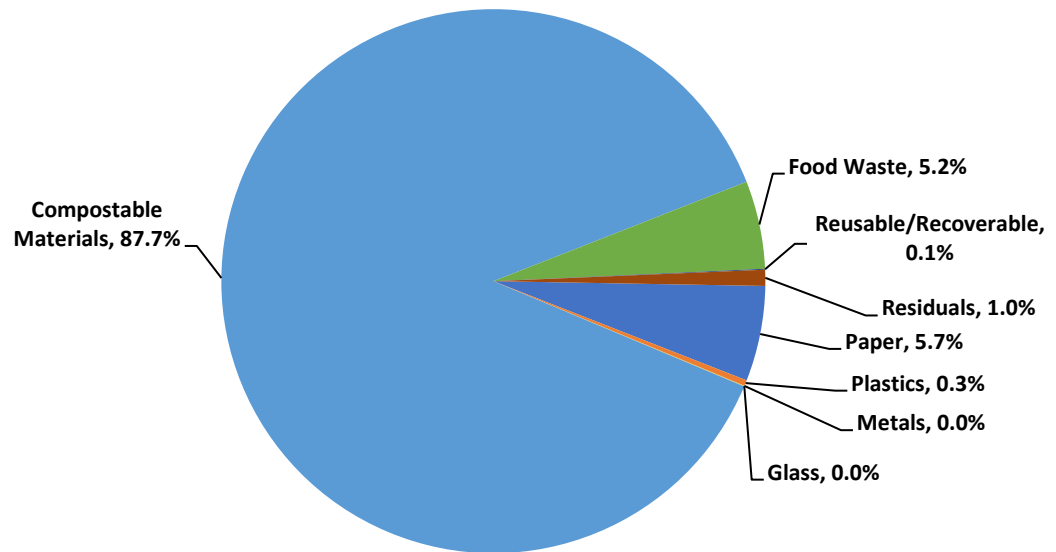


Figure 5-9. Tipping of an ARR-Collected Compost Load



Table 5-7. ARR-Collected Compost Composition

Material Category	Average Percent
PAPER	5.7%
Mixed Paper	0.1%
Corrugated Cardboard	0.3%
Compostable Paper	2.5%
Other Paper	2.6%
Poly-Coated / Aseptic Cartons	0.0%
Residual Papers	0.2%
PLASTICS	0.3%
PET #1	0.0%
HDPE #2	0.0%
LDPE #4	0.0%
PVC #3 & PP #5	0.0%
PS #6	0.0%
Other Plastics #7	0.0%
Thin Plastic Bags	0.1%
Thick Plastic Bags	0.0%
Plastic Film	0.1%
Plastic Straws	0.0%
Residual Plastics	0.1%
METALS	0.0%
Ferrous Metal	0.0%
Aluminum	0.0%
Other Metal	0.0%
GLASS	0.0%
Glass Bottles & Jars	0.0%
Other Glass & Ceramics	0.0%
COMPOSTABLE MATERIALS	87.7%
Yard Wastes	85.2%
Compostable Wood	2.2%
Other Organics/Combustibles	0.3%
FOOD WASTE	5.2%
Meats	0.1%
Fruits and Vegetables	0.5%
Fats and Oils	0.0%
Unpackaged Food Wastes	4.4%
Packaged Food Wastes	0.2%
REUSABLE / RECOVERABLE	0.1%
Electronics	0.0%
Household Hazardous Waste	0.0%
Textiles	0.0%
Carpet	0.0%
Furniture	0.0%
C&D Wastes	0.0%
Pallets	0.0%
Tires	0.0%
RESIDUALS	1.0%
Unknown or Not Classified	0.2%
Painted Wood	0.7%



Table 5-8. Ideal Disposition of Materials in the Compost Stream

Ideally Disposed of in the Trash	Pounds Sorted	Percentage of Total Sorted
Poly-Coated / Aseptic Cartons	1.30	0.01%
Residual Papers	16.05	0.16%
Thin Plastic Bags	11.06	0.11%
Thick Plastic Bags	0.00	0.00%
Plastic Film	6.12	0.06%
Plastic Straws	0.12	0.00%
Residual Plastics	6.36	0.06%
PS #6	0.52	0.01%
Unknown or Not Classified	24.12	0.23%
Painted Wood	73.85	0.72%
Packaged Food Wastes	18.90	0.18%
Trash Subtotal	158.40	1.54%
Ideally Disposed of in Recycling		
Mixed Paper	5.21	0.05%
Corrugated Cardboard	34.89	0.34%
Other Paper	265.10	2.57%
PET #1	3.45	0.03%
HDPE #2	0.25	0.00%
LDPE #4	0.00	0.00%
PVC #3 & PP #5	4.88	0.05%
Other Plastics #7	2.22	0.02%
Ferrous Metal	0.15	0.00%
Aluminum	0.71	0.01%
Other Metal	0.65	0.01%
Glass Bottles & Jars	2.35	0.02%
Other Glass & Ceramics	0.70	0.01%
Recycling Subtotal	320.56	3.11%
Ideally Disposed of in Compost		
Compostable Paper	260.95	2.53%
Yard Wastes	8,779.15	85.21%
Compostable Wood	222.67	2.16%
Other Organics/Combustibles	36.05	0.35%
Meats	10.60	0.10%
Fruits and Vegetables	53.80	0.52%
Fats and Oils	0.00	0.00%
Unpackaged Food Wastes	455.05	4.42%
Compost Subtotal	9,818.27	95.30%
Other/Recoverable		
Electronics	0.00	0.00%
Household Hazardous Waste	0.30	0.00%
Textiles	0.40	0.00%
Carpet	0.00	0.00%
Furniture	0.00	0.00%
C&D Wastes	5.05	0.05%
Pallets	0.00	0.00%
Tires	0.00	0.00%
Other/Recoverable Subtotal	5.75	0.06%
TOTAL	10,302.98	100.00%



The least contamination was observed in the ARR-collected compost stream, with only 5% of materials having an ideal disposition other than compost. An ARR-collected compost sample is shown in Figure 5-11.

Figure 5-10, ARR-Collected Compost Composition - Ideal Material stream

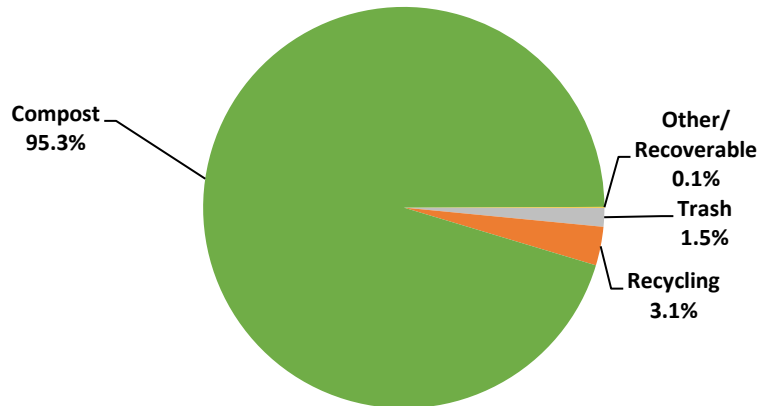


Figure 5-11. ARR-Collected Compost Sample



5.5. ARR- Collected Material Capture Rate

The Capture Rate reflects the percentage of generated materials that are managed in the Ideal Material Stream program during the period under consideration. The higher the capture rate, the better individuals are sorting the material they put in their trash, recycling, and compost carts. The lower the capture rate, the more contamination is present in the material streams.

For example, soda cans are recyclable, so they would ideally be placed in the recycling (recycling is the ideal material stream for soda cans). If eight soda cans are put in the recycling and two soda cans are placed in the trash, eight out of ten soda cans are “captured”, because eight of the soda cans were put into the correct stream. The rate is expressed as a percentage of total amount of that material type, in this case: soda cans. In this example, the capture rate of soda cans is 80%.

Recyclables are found in the recycling stream, as well as in the compost and trash streams. Only recyclables that are collected in the recycling stream are considered captured. The recycling capture rate is the quantity of recyclables found in the recycling, divided by the quantity of recyclables found in all three streams. Similarly, some compostable materials are found in the trash stream, the recycling stream, and the compost stream. Only the compostable materials disposed of in the compost stream are considered “captured”.

As a part of the study, APTIM set out to calculate Austin’s ARR-collected Capture Rate of the three material streams (trash, recycling, and compost).

The formula for estimating the Capture Rate in its simplest form, is:

$$\text{Capture Rate} = \frac{\text{Material Managed in the Ideal Stream}}{\text{Total Material Generated}}$$

As discussed earlier in this section, materials sorted were divided among four ideal material streams: trash – that would be ideally disposed of in the trash, recycling – which can be diverted through single-stream recycling, compost – which can be diverted by composting, and reusable/recoverable – which is theoretically divertible, but cannot be processed through Austin’s current compost or single-stream recycling programs. The ideal disposition (or material stream) of each of the sorting categories is listed in Table 5-2. Materials with the ideal material stream of “reusable/ recoverable” are considered trash for the calculation of capture rate, as they cannot be processed through the recycling or compost programs.



Table 5-9. ARR-Collected Material Samples by Ideal Collection Program

Ideal Program	ARR-Collected Material Stream		
	Trash	Recycling	Compost
Trash	53.15%	10.32%	1.59%
Recycling	20.18%	87.19%	3.12%
Compost	26.67%	2.49%	95.30%
Total	100%	100%	100%

Table 5-9 shows the percentage of sampled material that would ideally be managed by each of the three ARR-collection programs (trash, recycling and composting) that was present within the samples.

53.15% of the sampled material that was disposed of in the trash is considered trash. An additional 20.18% if the material disposed of in the trash was recyclable, and 26.67% of the material disposed of in the trash was compostable.

87.19% of the sampled material put into the recycling stream was recyclable. The remaining 12.81% of the recycling material sampled was comprised of 10.32% trash, and 2.49% material is compostable.

Compost had the lowest contamination of the three materials streams, with 95.30% of the sampled material disposed of in the compost stream being compostable. The remaining contamination was 1.59% trash and 3.12% recycling.

Table 5-10 shows tonnages collected by ARR in each material stream based on the ARR-collected tonnages during the sorting period and the composition data obtained from the material sorts (shown in Table 5-9). The Ideal Material tonnage divided by the total tonnage generated during that period represents the Capture Rate as shown in Table 5-11. The overall ARR-collected capture rate is 68.3%.

While the compost material stream had the lowest contamination rate of the three material streams, a large quantity of material that could be processed through the compost program was disposed of in the trash material stream (26.7% of the ARR-collected trash stream).



Table 5-10. ARR-Collected Material Streams

Ideal Disposition	Trash Collection (tons)	Estimated % of Total	Recycling Collection (tons)	Estimated % of Total	Compost Collection (tons)	Estimated % of Total	Total (tons)
Total¹¹	2,074.62	100%	657.65	100%	701.54	100%	
Trash	1,102.68	53.15%	67.86	10.32%	11.18	1.59%	1,181.71
Recycling	418.65	20.18%	573.41	87.19%	21.83	3.11%	1,013.88
Compost	553.29	26.67%	16.39	2.49%	668.53	95.30%	1,238.21

From the data shown in Table 5-11, of the 3,433.81 tons collected during the sorting period, an estimated 1,181.71 tons (34.4%) of that material would ideally be processed through the trash collection program. Based on the results of the sample sorting, 65.6% (2,252.09 Tons) of curbside collected materials handled by ARR could be diverted if they were properly sorted by the generator.

Table 5-11. Sort Period Capture Rate

	Tonnage within Ideal Material Stream	Total Tonnage (All Material Streams)	Capture Rate
Total	2,344.61	3,433.81	68.3%
Trash	1,102.68	1,181.71	93.3%
Recycling	573.41	1,013.88	56.6%
Compost	668.53	1,238.21	54.0%

Capture Rate by Council District

The City of Austin is divided into 10 City Council Districts. To evaluate localized generator sorting performance, capture rate was calculated for each of these 10 Council Districts. The trash, recycling, and compost samples sorted were divided among the 10 Council Districts, allowing for an estimation of district specific trash, recycling, and compost composition.

Materials collected by ARR during the sorting period were attributed to Council Districts based on data provided by ARR. This allowed for an estimation of the total material collected within each waste stream, in each District during the sorting period. Some collection routes cross through multiple Council Districts and therefore could not be 100% attributed to one district. Approximately 5% of trash, 3% of recycling, and 5% of compost collected could not be attributed to a specific district.

¹¹ Total quantities indicate the total quantity material processed through each material stream during the sort-period and does not account for residuals removed during recycling or compost operations.



Table 5-12 District Level Capture Rate

District	Capture Rate
1	70%
2	72%
3	73%
4	68%
5	69%
6	60%
7	60%
8	69%
9	85%
10	66%

The Capture Rate of all districts other than district 9¹² fall between 60% and 74% (Table 5-12), a reasonable spread around the Citywide Capture Rate of 68%. Due to some collection routes not being attributed to a specific district, the District-level Capture Rates are not as reliable as the Citywide Capture Rate.

Capture Rate is geographically consistent throughout the City, with all City Council Districts (other than District 9) falling within 8% of the Citywide Capture Rate. ARR customers consistently sort the material that they place into the recycling and compost streams well. Only 4.7% of material within the ARR-collected compost stream, and 12.8% of the material within the ARR-collected recycling stream is contamination¹³.

However, 46.8% of the ARR-collected trash stream is compostable or recyclable. 20.2% of the material should have been disposed of in the recycling and 26.7% of the material should have been disposed of in the compost.

The recycling material stream has a Capture Rate of 57% and a 54% Capture Rate of the compost material stream. This indicates that 43% of the recyclable materials generated by ARR customers are not being sorted into the recycling, and that 46% of compostable materials generated by ARR customers are not being sorted into the compost stream. Almost half of all compostable and recyclable materials are not being diverted due to incorrect sorting.

There is an opportunity to improve both the Capture Rate and the Diversion Rate by educating ARR customers on materials that they could divert from the trash. For instance, 12% of the ARR-collected trash stream is unpackaged food waste which could be composted, and 9% of the ARR-collected trash stream is recyclable paper. If ARR customers sorted all materials perfectly, the residential diversion rate would be 65.6%. This is significantly lower than the 2040 diversion goal proposed by the 2011 Master Plan of 90%. With current programs and technology, a residential diversion rate of 90% does not appear feasible.

¹² District 9 was an outlier with a capture rate of 85%. This appears to be due to District 9 having only two trash routes identified.

¹³ The recycling contamination rate of 12.8% found is lower than the average contamination rate found in recent MRF audits reviewed for this study (19.3%).



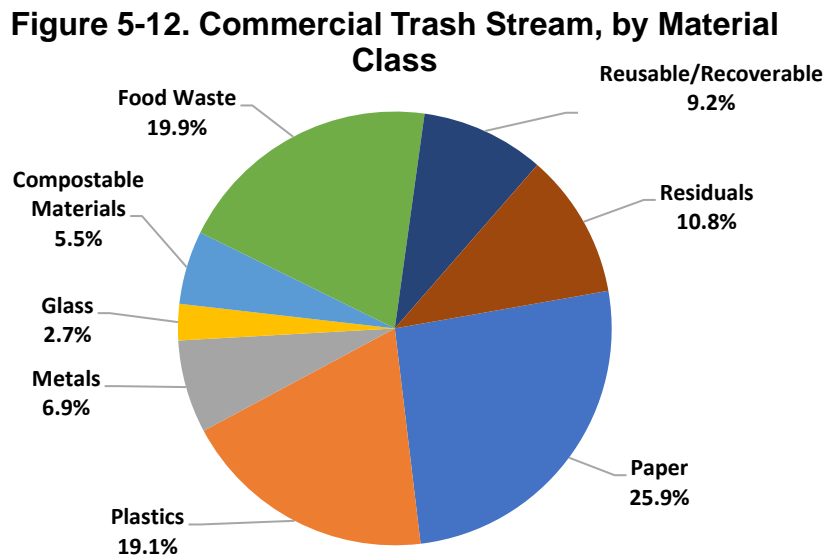
5.6. Commercial Trash Composition

In addition to evaluating ARR-collected material streams, the study also investigated the composition of commercial trash collected from within the city. Overall, the field crew collected and sorted 30 samples of commercial trash.

The average sample size was 219 pounds, within the 200-300 pound range established in the ASTM D 5231-92 standard. A total of 6,567 pounds of trash were sorted and characterized during the sorting event. Individual sample data is contained in Appendix C.

A commercial trash sample is shown as Figure 5-13.

The composition of the commercial trash stream by material class is shown on Figure 5-12 and in Table 5-13. Materials that can be composted (including food wastes, yard trimmings, wood, and other organic materials) comprise over 25% of the disposed material stream. Materials that are considered compostable or recyclable comprise about 56% of the material stream as shown in Table 5-14 and on Figure 5-14.



Most of the commercial trash stream is theoretically divertible through either recycling or compost management programs. 28%¹⁴ of the commercial trash stream could be diverted through composting, and 29% of the commercial trash stream could be diverted through recycling as shown in Figure 5-14.



¹⁴ Materials that would ideally be disposed of through composting includes the material class “Compostable Materials” as well as compostable paper which is in the “Paper” material class and meats, fruits, vegetable fats and oils, and unpackaged food wastes which are in the “Food Waste” material class.

Figure 5-13. Commercial Trash Sample in the Sorting Area



Table 5-13. Commercial Trash Composition

Material Category	Average Percent
PAPER	25.9%
Mixed Paper	2.2%
Corrugated Cardboard	7.7%
Compostable Paper	8.7%
Other Paper	4.6%
Poly-Coated / Aseptic Cartons	0.5%
Residual Papers	2.3%
PLASTICS	19.1%
PET #1	2.1%
HDPE #2	0.9%
LDPE #4	0.0%
PVC #3 & PP #5	1.2%
PS #6	0.4%
Other Plastics #7	0.3%
Thin Plastic Bags	3.6%
Thick Plastic Bags	0.2%
Plastic Film	4.4%
Plastic Straws	0.0%
Residual Plastics	5.9%
METALS	6.9%
Ferrous Metal	0.2%
Aluminum	1.9%
Other Metal	4.8%
GLASS	2.7%
Glass Bottles & Jars	2.4%
Other Glass & Ceramics	0.3%
COMPOSTABLE MATERIALS	5.5%
Yard Wastes	3.2%
Compostable Wood	2.0%
Other Organics/Combustibles	0.3%
FOOD WASTE	19.9%
Meats	1.2%
Fruits and Vegetables	0.9%
Fats and Oils	0.0%
Unpackaged Food Wastes	11.6%
Packaged Food Wastes	6.2%
REUSABLE / RECOVERABLE	9.2%
Electronics	0.1%
Household Hazardous Waste	0.6%
Textiles	3.0%
Carpet	2.7%
Furniture	0.5%
C&D Wastes	2.1%
Pallets	0.0%
Tires	0.3%
RESIDUALS	10.8%
Unknown or Not Classified	9.1%
Painted Wood	1.7%

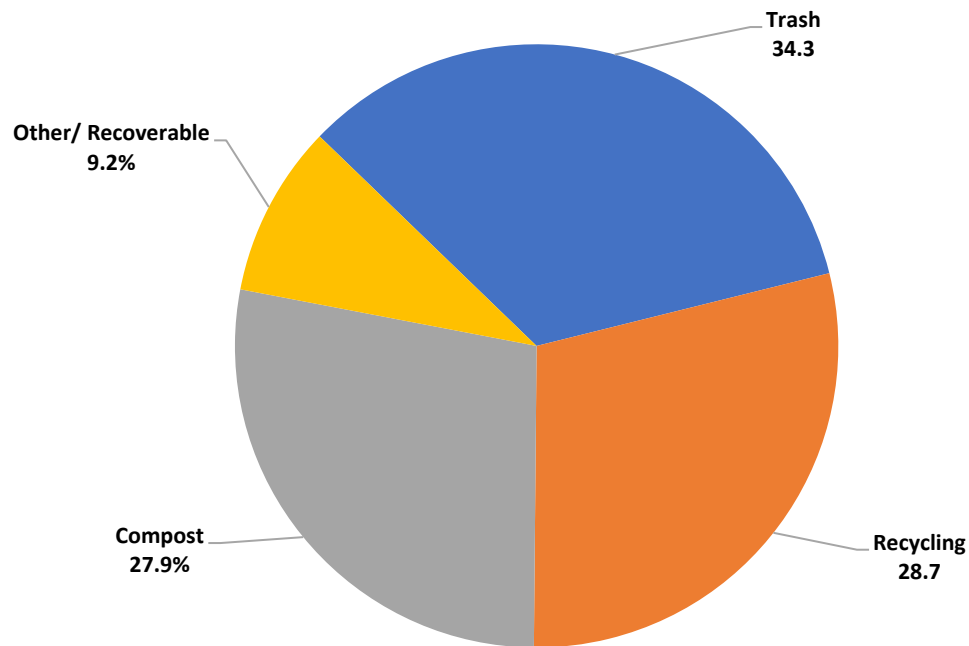


Table 5-14. Ideal Disposition of Materials in the Commercial Trash Stream

Ideally Disposed of in the Trash	Pounds Sorted	Percentage of Total Sorted
Poly-Coated / Aseptic Cartons	29.87	0.45%
Residual Papers	148.05	2.25%
Thin Plastic Bags	237.35	3.61%
Thick Plastic Bags	11.30	0.17%
Plastic Film	291.60	4.44%
Plastic Straws	2.80	0.04%
Residual Plastics	386.79	5.89%
PS #6	23.65	0.36%
Unknown or Not Classified	600.05	9.14%
Painted Wood	109.80	1.67%
Packaged Food Wastes	408.50	6.22%
Trash Subtotal	2,249.76	34.26%
Ideally Disposed of in Recycling		
Mixed Paper	142.50	2.17%
Corrugated Cardboard	502.65	7.65%
Other Paper	304.75	4.64%
PET #1	140.76	2.14%
HDPE #2	62.29	0.95%
LDPE #4	0.25	0.00%
PVC #3 & PP #5	78.85	1.20%
Other Plastics #7	16.70	0.25%
Ferrous Metal	14.35	0.22%
Aluminum	126.00	1.92%
Other Metal	315.35	4.80%
Glass Bottles & Jars	160.75	2.45%
Other Glass & Ceramics	16.90	0.26%
Recycling Subtotal	1,882.10	28.66%
Ideally Disposed of in Compost		
Compostable Paper	571.48	8.70%
Yard Wastes	209.50	3.19%
Compostable Wood	130.05	1.98%
Other Organics/Combustibles	19.90	0.30%
Meats	75.60	1.15%
Fruits and Vegetables	59.70	0.91%
Fats and Oils	0.00	0.00%
Unpackaged Food Wastes	763.45	11.63%
Compost Subtotal	1,829.68	27.86%
Other/Recoverable		
Electronics	7.45	0.11%
Household Hazardous Waste	37.55	0.57%
Textiles	193.75	2.95%
Carpet	174.30	2.65%
Furniture	33.90	0.52%
C&D Wastes	139.70	2.13%
Pallets	0.00	0.00%
Tires	18.55	0.28%
Other/Recoverable Subtotal	605.20	9.22%
TOTAL	6,566.74	100.00%



**Figure 5-14. Commercial Trash Composition
- Ideal Waste Stream**



5.7. Summary

In 2020, ARR collected 140,546 tons of curbside trash, 65,164 tons of curbside recycling, and 50,340 tons of curbside compost (before the removal of residue). Based on the composition of these streams, Table 5-15 shows estimates of the quantity of waste collected by ARR separated into material class and category. These estimates are based on the sorted percentage of each category extrapolated to the annual tonnage.

As identified above, materials that could be diverted by composting are the most significant divertible portion of the material streams collected by ARR, accounting for 27% in the ARR-collected trash, and 28% of commercial trash. With 27% of ARR-collected trash being compostable and 20% being recyclable, there is a significant opportunity to increase diversion through outreach and education without introducing additional programs.

Less contamination was observed in the ARR-collected trash stream in comparison to the commercial trash stream, with 44% of the materials collected in ARR trash being disposed of in the correct material stream, and only 34% of material collected in commercial trash being disposed of in the correct material stream. The commercial trash stream also represents an opportunity to increase diversion without introducing additional programs.



Table 5-15. ARR Collected Material Streams by Category (2020)¹⁵

Material Category	Trash (tons)	Recycling (tons)	Compost (tons)	Total (tons)
PAPER				
Mixed Paper	1,803	6,338	25	8,166
Corrugated Cardboard	1,898	24,306	170	26,375
Compostable Paper	14,150	1,175	1,275	16,599
Other Paper	9,415	11,218	1,295	21,928
Poly-Coated / Aseptic Cartons	756	311	6	1,074
Residual Papers	2,553	759	78	3,390
PLASTICS				
PET #1	2,703	2,933	17	5,653
HDPE #2	1,130	1,270	1	2,401
LDPE #4	16	33	0	49
PVC #3 & PP #5	2,065	679	24	2,768
PS #6	279	114	3	396
Other Plastics #7	357	162	11	529
Thin Plastic Bags	3,732	367	54	4,153
Thick Plastic Bags	115	36	0	151
Plastic Film	6,454	1,017	30	7,501
Plastic Straws	58	24	1	83
Residual Plastics	6,488	1,607	31	8,126
METALS				
Ferrous Metal	803	601	1	1,404
Aluminum	2,275	1,588	3	3,867
Other Metal	2,738	610	3	3,351
GLASS				
Glass Bottles & Jars	2,943	7,033	11	9,988
Other Glass & Ceramics	215	45	3	264
COMPOSTABLE MATERIALS				
Yard Wastes	0	0	0	0
Compostable Wood	2,794	135	42,895	45,824
Other Organics/Combustibles	1,478	179	1,088	2,745
	404	9	176	589
FOOD WASTE				
Meats	835	22	52	909
Fruits and Vegetables	946	0	263	1,209
Fats and Oils	41	0	0	41
Unpackaged Food Wastes	16,835	105	2,223	19,163
Packaged Food Wastes	17,647	185	92	17,925
REUSABLE / RECOVERABLE				
Electronics	41	33	0	74
Household Hazardous Waste	532	352	1	885
Textiles	8,102	355	2	8,459
Carpet	2,291	75	0	2,366
Furniture	0	0	0	0
C&D Wastes	1,271	0	25	1,295
Pallets	0	0	0	0
Tires	12	0	0	12
RESIDUALS				
Unknown or Not Classified	22,482	1,446	118	24,045
Painted Wood	1,889	40	361	2,290
TOTAL¹⁶	140,546	65,164	50,340	256,050

¹⁵ Quantities in each category were estimated based on the results of sample-sort and the total ARR-collected curbside trash, recycling, and compost quantities for 2020. Only curbside collected quantities were included, and the total recycling and compost values were not adjusted to account for residue.

¹⁶ Total quantities are for curbside ARR-collected material only. RRDOC and BRUSH are not included and account for 8,992 tons per year in 2020.



6.0 Calculation of Austin’s 2020 Diversion and Disposal Rates

The overall objective of the Study is to calculate Austin’s 2020 Citywide Diversion Rate, using comprehensive data from both the residential sector (principally served by ARR) and the commercial sector (served by private haulers and self-hauling of materials). In addition to these primary sectors, the Study also sought to include the impact of waste reduction and reuse practices of the commercial sector. In order to better understand the estimate of Austin’s 2020 Diversion Rate, rates for calendar years 2019 and 2020 were calculated to review possible year-to-year variations.

To perform this calculation, data collected through the existing hauler licensing program, Annual Diversion Plans (ADP), and various contractual services was supplemented with additional information gathered in this Study:

- Waste reduction and reuse quantities estimated by businesses participating in the business survey and ADPs;
- Organics donated and used to feed animals by businesses participating in Annual Organics Plans;
- Data collected by HICKS from reuse organizations;
- MRF contamination rates through review of material audits; and
- Organics contamination rates through review of material audits.

This section provides further discussion and detailed calculations of the Citywide Diversion and Disposal Rates.

6.1 Diversion Rate Calculation

The current Citywide Diversion Rate is calculated by dividing the amount of all materials diverted by the amount of all waste materials generated:

$$\text{Diversion Rate (\%)} = \frac{\text{Tons Recycled} + \text{Tons Composted} + \text{Tons Reused} + \text{Tons Reduced}}{\text{Tons Diverted} + \text{Tons Disposed}}$$

Where:

$$\text{Tons Diverted} = \text{Tons Recycled} + \text{Tons Composted} + \text{Tons Reused} + \text{Tons Reduced}$$

To calculate the components of the Diversion Rate, data from a number of sources was reviewed and compiled. Careful consideration was given to each of the data sources to ensure that activities and materials were not double counted.

In general, data from calendar years 2019 and 2020 were used to calculate a comprehensive Diversion Rate and account for possible year-to-year variability.



Principal data sources used to estimate the 2020 diversion rate included:

- **ARR-Collected Materials.** ARR tonnage data from its self-serviced operations including: residential trash collection, brush, bulk material, household hazardous waste disposed and recycled/reused, Resource Recovery Center recycling, tires, residential organics collection including yard trimmings, and the residential recycling collection.
- **Licensed Hauler Reports.** Self-reported tonnage data from licensed haulers, including trash, recycling, and composting quantities. Licensed Haulers in the City of Austin submit biannual reports including tonnages of trash, recycling, and organics collected within the city. Haulers report construction and demolition (C&D) debris and non-C&D tonnages separately.

MRF material audits are used by the City and identified that approximately 19.3% of incoming material is comprised of items that are not recoverable by the facility and are considered residue or contamination. The quantity of recycling reported through the licensed hauler reports reflects the tons of material collected for recycling, prior to processing at the MRFs. Because MRF residue is generally sent to landfills, reported recycling tonnages¹⁷ were reduced by 19.3% to reflect the residue after recyclables are processed at the MRF. In addition, one-third of this 19.3% residue was added to landfill disposal tonnages. Based on previous ARR discussions (2015) with MRF operators and haulers it was determined that some (approximately two-thirds) of the post-processing residue is already reported as landfill tonnage in the licensed hauler reports, leaving one-third unaccounted. This 19.3% residue rate is consistent with the contamination range that was estimated by Balcones Resources when contacted in 2021 (16-20% contamination).

In addition, the results of three compost material composition audits were reviewed to determine the contamination rate of licensed hauler collected organics and ARR-collected compost. The average of these contamination rates was 1.85% (Though not an unexpected result, the observed contamination rate was much less than the contamination rate of single stream recycling).

The Licensed Hauler reports were also reviewed for items being diverted from the commercial sector outside of typical single-stream recycling. Items such as wood pallets, car batteries, etc. are sometimes referred to as “orphan materials”. These materials can be recycled but must be delivered to specialty processors and is often done in-house or through hauling arrangements that would not be subject to licensed hauler reporting. A residual contamination was not applied to these materials.

- **Other Direct Contacts.** Tonnage data from other direct contacts. HICKS contacted reuse businesses to gather data on reuse quantities which are not currently collected and tracked by the City. HICKS also contacted facilities that accept material from the



¹⁷ Only recycling tonnage reported by haulers known to collect single-stream recyclables was reduced to address MRF residue. Other haulers reporting recycling tonnage are predominantly roll-off hauling businesses serving the construction industry; the 19.3% residue rate was not applied to those haulers or the C&D recycling quantities.

City programs to discuss any contamination issues, potential opportunities and impacts from the COVID-19 pandemic. These interviews are included in Appendix D.

- **Annual Diversion Plan Reports.** Recycling and reduction quantities reported in Annual Diversion Plans submitted by businesses subject to the Universal Recycling Ordinance. In the years 2019 and 2020, the number of ADP respondents varied between 8,500 and 9,000. Materials reported that are diverted through means other than the traditional single-stream recyclable program and not included in the licensed hauler reports were included in the calculation of diversion, these materials were referred to as “Orphan Materials”

Table 6-1. Quantity of Orphan Materials Reported in ADP Reports

2019	2020
431,928 tons ¹⁸	273,177 tons

- **Organics Plan Reports.** In addition to information contained in ADP Reports, quantities of food donated to feed the hungry and to feed animals reported in Annual Organics Plans was also included in the calculation of diversion.

Table 6-2. Quantity of Organics Reported as being Diverted to Feed the Hungry or Feed Animals (From Organics Plans)

2019	2020
21,616 tons	12,394 tons

- **Business Survey.** Reuse and reduction quantities were extrapolated from businesses that provided reuse and reduction information through the online survey.
- **Reduction and Prevention.** Estimates of reduction and prevention quantities were calculated based on responses to the Annual Diversion Plan’s question on reduction and reuse practices, as well as responses to the business survey.
 - Adoption rates of the most common reduction and reuse practices used by businesses within the city were calculated based on responses to the Annual Diversion Plan’s question on reduction and reuse. Quantities of waste diverted by these practices were determined based on responses to the business survey (Section 4).
 - In addition to reduction and prevention from the adoption of reduction and reuse practices, raw quantities of materials that were either reused, resold, donated, or repurposed, as reported by respondents to the business survey, were extrapolated in order to capture the broader reuse amounts within the business community.



¹⁸ It should be noted that in 2019 “Texas Concrete” reported recycling 10,000 tons of scrap metal per month.

Table 6-3 summarizes the available data by management method and source. Based on this data, the average Citywide diversion rate for 2019 and 2020 was 39.3%.

Table 6-3. 2020 Citywide Diversion Calculation				
	2019		2020	
	Quantity (tons)	% Of Generation	Quantity (tons)	% Of Generation
Disposal				
ARR Collected (Includes Bulky)	140,038	5.1%	146,052	6.0%
Licensed Hauler	1,401,619	51.0%	1,305,076	53.3%
Street Sweepings	55,505	2.0%	55,620	2.3%
Dead Animals	31	0.0%	33	0.0%
Unaccounted-for Residue	20,952	0.8%	19,272	0.8%
Direct Contacts	2,455	0.1%	1,568	0.1%
Recycling, Composting, and Reuse				
ARR Collected	91,191	3.3%	105,482	4.3%
Licensed Hauler Collected	527,361	19.2%	476,327	19.5%
Direct Contacts	34,359	1.3%	33,938	1.4%
ADP and Organics Plans	453,544	16.5%	285,571	11.7%
Reduction				
Survey (Extrapolation)	19,867	0.7%	19,204	0.8%
Total Generation	2,746,922	100.0%	2,448,143	100.0%
Disposal	1,620,600	59.0%	1,527,621	62.4%
Diversion	1,126,322	41.0%	920,522	37.6%
Diversion Rate	41.0%		37.6%	
Average Diversion Rate (2019, 2020)	39.3%			

Waste collected by licensed haulers accounts for 70-75% of the total waste generated in the City of Austin. Licensed haulers divert approximately 25-30% of the total waste that they manage.

6.2 Disposal Rate Calculation

Based on the data presented in Table 6-3, a per capita generation rate can be calculated. Given the generation, disposal, and diversion quantities shown in Table 6-3, as well as Census Bureau population estimates for 2019 and 2020, generation was 15.8 and 13.9 pounds per capita per day respectively. These values as well as the disposal and diversion rates are shown in Table 6-4.



As can be seen in Table 6-4, both per capita disposal and diversion rates saw a decrease from 2019 to 2020. This reflects the statewide data from the TCEQ, who reported that the statewide per capita disposal rates were 6.96 and 6.82 pounds per person per day in 2019 and 2020.¹⁹

Table 6-4. Citywide Per Capita Generation, Disposal, and Diversion		
	2019	2020
Total Generation (tons)	2,746,922	2,448,143
Total Disposal (tons)	1,620,600	1,527,621
Total Diversion (tons)	1,126,322	920,522
Population of Austin (US Census Bureau)	950,807	965,872
Per Capita Generation (LBS./Capita/Day)	15.8	13.9
Per Capita Disposal (LBS./Capita/Day)	9.3	8.7
Per Capita Diversion (LBS./Capita/Day)	6.5	5.2

The Capital Area Council of Governments (CAPCOG) region, which includes Austin, had a FY2020 disposal rate of 6.1 pounds per capita per day, based on total tonnage landfilled in the region. Austin is an urban community, and it is not unusual for large urban areas to exhibit higher rates of disposal than surrounding rural areas. Additionally, the estimate of CAPCOG’s disposal rate was based entirely on tons landfilled in the region, which does not account for waste which is generated within the region but landfilled elsewhere or waste that is generated outside the region and imported for disposal.

This marks an increase from the per capita generation, disposal, and diversion rates calculated in Austin’s 2015 Community Diversion Study of 11.7, 6.8, and 4.9 pounds per capita per day respectively.



¹⁹ Per capita disposal rates reported in TCEQ’s *Municipal Solid Waste in Texas: A Year in Review, 2020 Data Summary and Analysis* were calculated based on the total amount of waste disposed and Census Bureau population estimates.

Recommendations

Based on the experience gained through the completion of Austin's 2020 Waste Characterization, Capture Rate, and Diversion Study, the following recommendations for diversion program improvements are presented below. Study scope and approach modifications are also made to facilitate future diversion rate studies.

1. Maintain education regarding materials in the trash waste stream that could be diverted, such as compostable paper (10.1% of ARR-collected trash) and unpackaged food waste (12.0% of ARR-collected trash).
2. Consider revising the list of acceptable items in the compost collection program to better define whether food waste that is still in a package is acceptable.
3. Discuss food de-packaging options with the ARR organics processor. Packaged food waste is 12.6% of the ARR-collected trash stream.
4. Consider the usefulness of the business survey in obtaining actual diversion numbers as these are estimates by the respondents with no way for verification. The survey is useful in understanding attitudes and best practices for reuse/reduction but offers little regarding diversion percentage. Reduce the size of the survey to focus on reuse and to solicit a greater response.
5. Public education on the difference between recyclable paper and compostable paper could increase citywide diversion significantly. A significant amount of paper in the ARR-collected and commercial trash stream was identified as compostable (10.1% and 8.7%). It is impossible to determine if the paper became contaminated from being commingled with the trash. It may have been able to be recycled if properly managed. Conversely, contaminated (compostable) paper should not be placed in the recycle stream as it would then become a residual and require disposal.
6. Compile ARR and Non-ARR tonnages into a single database for a better retrieval and analysis of the data. This would decrease the effort required to analyze during the next 5-year update and would provide opportunities to look at interim percentages. It would be beneficial if ARR collection data is available at the kick-off of the next study before the planning of material sorts.
7. Consider adopting separate goals for ARR-collected material and for Citywide collection. Diversion goals should consider the performance of peer communities and available technology.
8. Update and/or clarify the difference between a material being recyclable and whether it is included in the current ARR programs.
9. Consider additional public/private partnerships to increase diversion given the majority of the waste generated in the City is managed by private haulers.



10. Consider expanding commercial sample sorting to meet the ASTM recommendation of 40 samples. This is recommended to identify potential partnerships with the commercial sector.
11. Update questions in the Annual Diversion Plans to clarify whether the quantity reported for reuse is included in the Licensed Hauler Reports and ask who their current hauler is.
12. Implement a routine data collection protocol for reduced, reused, and repurposed material quantities, securing data annually from known businesses providing these services in the city.



Table 6-5. Summary Disposal Rates

2019					
	Disposal	Affected Population		Disposal Rate	
	(tons)	Group	Value	(tons/year)	(pounds/day)
Citywide	1,620,600	Citywide	950,807	1.7	9.3
Commercial Fraction	1,447,823	Citywide	950,807	1.5	8.3
ARR-Hauled Fraction	152,028	Citywide	950,807	0.2	0.9
Household Disposal Rate					
Household	152,028	ARR-served households	209,981	0.7	4.0
2020					
	Disposal	Affected Population		Disposal Rate	
	(tons)	Group	Value	(tons/year)	(pounds/day)
Citywide	1,527,621	Citywide	965,872	1.6	8.7
Commercial Fraction	1,344,570	Citywide	965,872	1.4	7.6
ARR-Hauled Fraction	159,560	Citywide	965,872	0.2	0.9
Household Disposal Rate					
Household	159,560	ARR-served households	209,981	0.8	4.2

Sources:

1. Population: Census Bureau estimate.
2. Households: ARR 2021 Annual Report

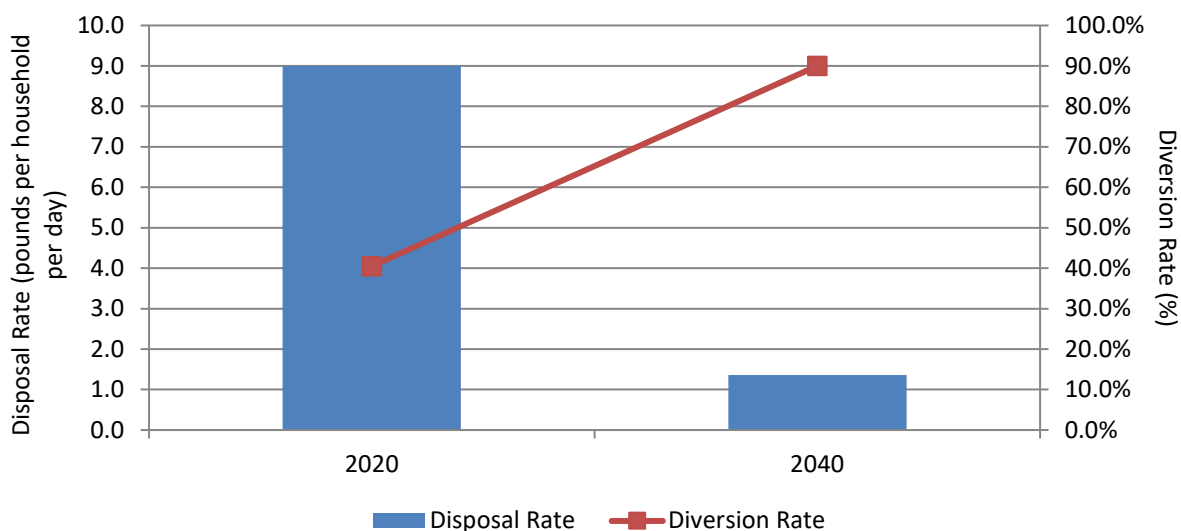
Notes:

1. "Commercial Fraction" includes disposal reported through the licensed hauler reports, reuse facilities, and residue from recycling collected by licensed haulers.
2. "ARR-Hauled Fraction" includes trash collected by ARR, residue from recycling and compost collected by ARR, and bulky collection.
3. Household disposal rates are calculated using the number of households served by ARR. All other disposal rates are calculated using the total population of Austin.

To reach the 90% diversion rate projected for the year 2040 in the 2011 Master Plan at the 2020 generation rate of 13.9 pounds per person per day, the City of Austin would have to decrease its disposal rate from 8.7 pounds per person per day to 1.4 pounds per person per day.



Figure 6- 1. Targeted Future Disposal Rate



6.3 Data Limitations

The data relied upon for this Study is comprehensive and represents the best available information upon which to base the calculation of the 2020 Citywide Diversion Rate. There are, however, certain limitations to the interpretation and use of the data gathered. Where appropriate, recommendations to address the data limitations are provided.

- 1. Data Quality.** The different data sources used in this Study have varying levels of accuracy and precision. The two largest data sources (data sources that account for the most tonnage) are ARR-collected materials, and licensed hauler reports. Data on ARR-collected materials are expected to have the highest level of accuracy, as the information is tracked by ARR. While quantities reported in licensed hauler reports are not audited, these quantities are expected to be reasonably accurate, as haulers are likely to keep records of the quantities that they haul as those quantities are an import metric for their businesses.

Quantities of non-single stream recycling obtained from ADPs, and quantities of reduction and reuse extrapolated from survey data are expected to be the least accurate source. The quantities provided through ADPs and through the survey are not audited, and businesses may not have a robust system for tracking the quantities of waste generation, disposal, and reduction if they have any system at all.

- 2. Business Survey Responses Reflect a Small Percentage of the City.** The business survey provided insights into the commercial waste reduction and diversion practices implemented in the city. While the survey response rate of 2.2% is consistent with response rates of similarly distributed surveys, it is possible that the responses are not representative of the broader business community because: 1) returned surveys were not equally proportional to the makeup of businesses citywide; and 2) it is possible that there is self-selection-bias in the survey responses, with businesses responding to the survey being more engaged in sustainability practices and feeling more comfortable sharing information with the City as this was not a



random survey. To be conservative, quantities of reduction and reuse determined from survey responses was only extrapolated to Annual Diversion Plan Respondents rather than to the entire population of businesses within the City of Austin.

- 3. Self-Reported Data.** Many of the data sources utilized in the Study are self-reported and have not been independently verified by ARR or APTIM. Study findings and the calculated Diversion Rate therefore assume data reported by others is accurate. Chief among these are the data contained in the Annual Diversion and Organics Plans. Due to discrepancies between reported collection capacity in the ADPs and trash tonnages reported by licensed haulers, it appears that ADP respondents tend to overestimate quantities that they dispose.²⁰

As a check on the disposal data compiled for Austin in this Study, Austin's calculated disposal rate was compared to the disposal rate calculated for the CAPCOG region and the State of Texas. The CAPCOGs 2020 disposal rate was less than Austin's 2020 disposal rate by 2.2 pounds per person per day.

While it is not unusual for large urban areas to exhibit higher rates of disposal than surrounding rural areas, consistent with the observation herein, it is also likely that the TCEQ underestimates disposal from the CAPCOG region. The TCEQ estimate is based solely on the quantity of material disposed of at landfills in the CAPCOG region. This estimate would not account for waste that is generated in the area if it was landfilled elsewhere.

- 4. Data Was Not Obtained from All Self-Hauled Businesses.** Businesses that self-haul their own waste, recycling, and/or compost are not accounted for in any data source. However, interviews with reuse facilities did yield some information on self-hauled tonnages though, it is clear that this does not represent the entirety of self-hauled waste within Austin (approximately 500 tons of self-hauled trash and 1,000 tons of self-hauled recycling were reported by the interviewed reuse facilities).
- 5. Responses to Annual Diversion Plans.** While 8,500-9,000 commercial properties in the City responded to the Annual Diversion Plan. Of those, many only responded to portions of the diversion plan. As businesses responding to the ADP may not have an internal tracking system for waste disposed, the accuracy of the estimated weight of recycling may be limited in comparison to licensed haulers.
- 6. District Level Data.** Several collection routes could not be attributed to a specific council district, and the information that was provided on the association of collection routes and council districts was variable. In future studies, in order to evaluate Capture Rate and diversion on a smaller geographic scale, the association between collection routes and council districts should be confirmed prior to the planning of sample sorting.

²⁰ The collection capacity reported by ADP respondents for recycling and organics (900,000 tons of recycling, and 200,000 tons of organics) exceed the quantity reported by licensed Haulers in 2020 (430,000 tons and 80,000 tons respectively). As ADP respondents should account for only a portion of the customers of licensed haulers, this indicates that ADP respondents tend to overestimate the quantity of material they dispose of. (The calculation of tonnage of collection capacity in the ADP assumes that recycling is 165 pounds/CY, that compost is 802.5 pounds/CY, and that collection bins are 75% full on average).

6.4 Benchmark Peer Communities

A benchmark study was performed in order to evaluate Austin’s current diversion practices and goals in comparison to a group of similar communities. To contextualize the information obtained in this Study, APTIM researched six peer communities regarding their solid waste management and diversion.

The peer communities contacted are shown in Table 6-6.

Table 6-6. Peer Communities Summary		
Community	Collection Quantities Available	Population ²¹
Ann Arbor	Residential and Commercial Collection	121,903
Dallas	Residential	1,338,846
Phoenix	Residential	1,658,442
San Antonio	Residential	1,529,133
San Francisco	Residential and Commercial Combined as one Quantity	874,784
Seattle	Residential and Commercial (with C&D materials separate)	741,251

Three of these communities (San Francisco, Seattle, and Ann Arbor) track both residential and commercial collection. In order to compare the diversion practices on a like basis, the data from these communities will be compared to the citywide quantities from Austin, while the communities that only track residential collection (Dallas, San Antonio, and Phoenix) will be compared to the ARR-collected residential sector. The diversion rates of each of the peer communities is shown in Table 6-7.

- Ann Arbor:** Ann Arbor, Michigan provides weekly residential curbside trash, recycling, and compost collection. In addition to data on city-collected residential collection quantities, quantities of commercial waste collection are also tracked. Ann Arbor’s overall diversion rate of 30% is exceeded by Austin’s 2020 ARR-collected diversion rate of 39.8%.
- Dallas:** Dallas, Texas collects, hauls, processes and/or disposes of material generated by the single-family sector and has imposed reporting requirements on multifamily collection. As Dallas collects and tracks data on the residential sector, this data can be compared to ARR-collected data. Dallas’ residential diversion rate is 19%.
- Phoenix:** The City of Phoenix Arizona Public Works Department provides solid waste and recycling collection services to their residential sector. As Phoenix collects and tracks data on residential collection, this data is comparable to ARR-collected waste quantities. Similar to Dallas, Phoenix has a residential diversion rate of approximately 20%.
- San Antonio:** The Solid Waste Management Department of San Antonio, Texas provides curbside collection of residential garbage, recycling, and organics in their



²¹ Total population information on benchmark communities was obtained from US Census Bureau, American Community Survey 2020 Data (Table 6-S0101)

city. San Antonio tracks this residential disposal quantities, this data is comparable to the ARR-collected materials quantity. Austin exceeds San Antonio’s residential diversion rate by approximately 5%. In San Antonio’s Solid Waste Management Department 2020 Recycling and Resource Recovery Plan Update, David Newman noted that a while a 60% diversion goal is possible, it would require that “every individual household would need to sort every single item perfectly correct 100% of the time”.

- **San Francisco:** San Francisco, California tracks residential and commercial waste collection together. This data is most appropriately compared to the citywide diversion and collection quantities of Austin. San Francisco’s diversion rate of 39.5% falls between Austin’s 2019 diversion rate of 41.0% and Austin’s 2020 Citywide diversion rate of 37.6%
- **Seattle:** Seattle, Washington tracks residential and commercial waste collection separately. Of the six communities that were contacted, Seattle had the highest overall and residential diversion. Seattle’s overall diversion rate is more than 30% greater than San Francisco (the peer community with the next highest commercial diversion rate) and Seattle’s residential diversion rate is more than 10% higher than Ann Arbors (the peer community with the next highest residential diversion rate).

Table 6-7. Peer Community Generation and Diversion Comparison				
Residential Generation and Diversion				
Peer Community	Disposed (tons)	Diverted (tons)	Total (tons)	Diversion Rate
Austin (2020 ARR-Collected)	159,560	105,482	265,042	39.80%
Dallas	234,474	55,000	289,474	19.0%
San Antonio	411,773	216,589	628,362	34.5%
Phoenix	501,955	127,003	628,958	20.2%
Seattle	119,903	195,836	315,739	62.0%
Ann Arbor	15,017	19,651	34,668	56.7%
Peer Community Average Diversion Rate (Residential)		38.5%		
Citywide Generation and Diversion				
Peer Community	Disposed (tons)	Diverted (tons)	Total (tons)	Diversion Rate
Austin (2020 Citywide)	1,527,621	920,522	2,448,143	37.60%
San Francisco	390,017	254,518	644,535	39.5%
Seattle	378,003	783,347	1,161,350	67.5%
Ann Arbor	52,917	22,971	75,888	30.3%
Peer Community Average Diversion Rate (Citywide)		44.2%		



Of the peer communities contacted, diversion rates varied from 19.0% to 67.5%. Though, Seattle was the only peer community to report an overall diversion rate of over 40%.

Austin's diversion exceeds the diversion rates of the majority of peer communities contacted with an overall rate higher than four of six peer communities and a residential diversion rate higher than four of six peer communities. Additionally, a peer community in Texas (San Antonio) noted that a diversion goal of 60% (30% less than Austin's 2040 goal) would only be possible through perfect waste sorting by every individual.

6.5 Summary of Findings

Austin's 2020 Waste Characterization, Capture Rate, and Diversion Study provides an understanding of current diversion performance in Austin. The Study includes both quantitative observations used to calculate diversion and disposal rates and qualitative observations obtained from business surveys and limited sample sorting of trash, organics and recycling streams.

The data collection components of the Study were designed to obtain information and make observations that individually and collectively lead to a more comprehensive understanding of waste and diversion practices in Austin. The individual components of the Study identified a number of findings, as previously noted in the discussion of each Study component. On a collective basis, several of these findings were reinforced and observed through multiple data collection methods:

- Residential properties within Austin widely recycle traditional commodity recyclables such as cardboard, mixed paper, plastics, aluminum, and glass. This observation was noted in sample sorting of ARR-collected recyclables. Greater than two thirds of the ARR-collected recyclables sorted were paper (including cardboard).
- ARR customers had higher diversion rate than the city overall in 2020 (the citywide diversion rate was 37.6% and the ARR collected materials diversion rate was 39.8%).
- Commercial and residential properties continue to dispose of recyclable and compostable materials in the trash. Sample sorting indicated that 66% of commercial trash and 56% of ARR-collected trash could theoretically be diverted through recycling or composting.
- Plastic film (excluding plastic bags) is noted to be challenging material to recycle as indicated by responses to the business survey. Sample sorting indicated that plastic film comprised nearly 5% of the ARR-collected trash stream and 4% of the commercial trash stream, indicating there is both opportunity for and interest in diversion of additional material to the extent that collection options and markets are available for plastic film. Including plastic bags in this program, if feasible, would increase the available feedstock and diversion amount.
- Food wastes were also noted by businesses as being challenging to divert, and they also represent a large component (approximately 20% of the commercial trash stream and 25% of the ARR-collected trash stream) of the disposed waste stream.



On a quantitative basis, recycling represents the predominant diversion method utilized in the city in 2020, as shown in Table 6-8. Together, composting and recycling account for the vast majority (more than 90%) of total diversion estimated in Austin. Reuse and reduction practices comprise the remaining diversion estimates and comprise approximately 2% of the total generation citywide. As has been noted, data collection methods are not established to formally track reuse activity citywide, and quantifying reduction impacts is challenging. While these factors may result in an over or underestimation of reuse and reduction quantities contributing to the overall Diversion Rate, it is clear that significant additional activity in the reuse and reduction sectors would need to be documented to make a significant impact on the overall Diversion Rate.

Table 6-8. City of Austin Waste Management Methods, 2019 and 2020

Management Method	2019		2020	
	Quantity (tons)	Percent of Total	Quantity (tons)	Percent of Total
Landfill	1,620,599.70	59.0%	1,527,621.03	62.4%
Recycling	910,323.48	33.1%	724,512.95	29.6%
Composting	142,034.47	5.2%	131,949.63	5.4%
Reduction and Reuse	73,964.22	2.7%	64,059.36	2.6%



Appendices

Appendix A

Definitions

DEFINITIONS

- **5-Year Diversion Rate Study** - The study recommended by the ARR Master Plan to periodically measure and report on the progress towards Austin's Zero Waste goal.
- **ARR** - Austin Resource Recovery
- **ARR Master Plan** - The Austin Resource Recovery Master Plan (Master Plan) projects future activities and services provided by Austin Resource Recovery for the next 30 years. The Master Plan looks at the Department in its entirety, laying a framework for how the Department provides services to its customers and empowers the Austin community to achieve Zero Waste.
- **ARR-Collected Material** - Materials (including trash, recycling, compost, bulk, brush, textiles, and household hazardous wastes) collected by ARR crews at the curbside or through drop-off programs from Residential generators or limited Commercial generators that can be served with the same level of service as Residential generators by ARR
- **Baseline Study** - The initial diversion rate study completed for year 2015 to comprehensively assess generation and diversion in Austin; the Baseline Study is comprised of the City-Serviced Residential Waste Characterization Study and the citywide 2015 Community Diversion Study.
- **Brush** - Large brush and tree limbs too large for the curbside compost collection
- **Bulk** - Items collected by ARR that are too large to fit in a customer's trash cart
- **Capture Rate** - The amount of specified recyclable materials correctly set out for residential recycling collection as a percentage of those specified recyclable materials in the recycling, compost, and refuse streams. The capture rate expresses the percentage of targeted recyclable materials that are actually being recycled relative to the total amount of the material generated.
- **City** - City of Austin, Texas
- **Commercial** - Austin Resource Recovery defines the Commercial sector as all businesses or residences that do not fall under the definition of "Residential." In Austin, Commercial properties have their trash and recycling provided by Private Haulers. Commercial properties include multifamily dwellings over 4 units. Multifamily dwellings less than 4 units are collected by ARR as part of the residential collection program.
- **Compost (or, Curbside Compost)** - Organic materials collected via carts from ARR customers including, but not limited to, mixed organics and yard trimmings.
- **Composition Study (or, Waste Composition Study)** - A process to identify the components that make up a particular material stream (e.g., waste or recycling), determined by the sorting of a sample quantity into desired material categories.
- **Consultant** - Aptim Environmental & Infrastructure, LLC (APTIM)
- **Construction and Demolition ("C&D") Debris** - Materials resulting from the alteration, construction, destruction, rehabilitation, or repair of any manmade physical structure including houses, buildings, industrial, or commercial facilities, and



roadways. C&D debris includes structural and functional materials comprising the structure and surrounding site improvements, including but not limited to:

- Brick, concrete, and other masonry materials;
- Stone;
- Glass;
- Wall coverings;
- Drywall;
- Framing and finishing lumber;
- Roofing materials;
- Plumbing fixtures (toilets, sinks, water heaters, pipes);
- Heating equipment (furnaces, duct work);
- Electrical wiring and components containing no hazardous fluids or refrigerants;
- Insulation;
- Wall-to-wall carpeting;
- Asphaltic substances;
- Metal incidental to any of the above; and
- Weathered railroad ties and weathered utility poles.

NOTE: C&D debris does not include materials whose removal has been required prior to demolition. For example, The National Emissions Standards for Hazardous Air Pollutants (“NESHAP”) regulated asbestos and the Toxic Substances Control Act (“TSCA”) regulated polychlorinated biphenyl (“PCB”) containing materials. C&D debris does not include materials identified or listed as solid wastes, infectious wastes, or hazardous wastes, nor does it include materials resulting from mining operations, nontoxic fly ash, spent nontoxic foundry sand, or slag. Containerized or bulk liquids, fuel tanks, drums and other closed or filled containers, tires, and batteries are also not C&D debris.

- **Disposal Rate** - A measure of the quantity of materials managed through disposal methods; typically expressed as a unit rate (e.g., pounds per person per day), the disposal rate is calculated as: $(\text{total annual tons disposed} \times 2,000 \text{ pounds per ton})$ divided by (population) divided by $(365 \text{ days per year})$.
- **Diversion Rate** - A measure of the quantity of materials managed through reduction, reuse, recycling, composting, and/or other management methods that are considered diversion and are not classified as disposal; typically expressed as a percentage, the diversion rate is calculated as: $(\text{total tons diverted})$ divided by $(\text{total tons diverted} + \text{total tons disposed})$.
- **Generation Rate** - A measure of the quantity of materials generated and requiring management through reduction, reuse, recycling, composting, disposal, and/or other discard management methods; typically expressed as a unit rate (e.g., pounds per person per day or tons per person per year). The generation rate is calculated as: $(\text{total annual tons generated} \times 2,000 \text{ pounds per ton})$ divided by (population) divided by $(365 \text{ days per year})$.
- **Health and Safety Plan (HASP)** - A written document that describes the process for identifying the physical and health hazards that could harm workers, procedures to prevent accidents, and steps to take when accidents occur.



- **Household Hazardous Waste (HHW)** - Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients; when generated by households, these materials are not required to be managed as hazardous waste by the generator.
- **Landfill** - A location at which the placement of waste occurs in or on designated land according to sanitary, environmental protection, and other safety requirements.
- **Licensed Hauler Tonnage** - Landfill, recycling, and organics stream tonnage reported by entities with a Private Hauler License, per City of Austin Ordinance.
- **Mixed Organics (food waste, yard trimmings)** - Includes food waste, yard trimmings and yard waste, City-approved compostable bags, single-use food service ware, and other organic materials collected as curbside compost.
- **MRF** - Material Recovery Facility, a specialized facility that receives, separates, and prepares recyclable materials for marketing to end-user manufacturers.
- **Multifamily** - Any property with 5 or more units, where residents stay 30 days or more
- **Participation Rate** - Percentage of units (e.g., businesses) participating in identified programs (e.g., recycling collection).
- **Per Capita** - A quantity expressed as the average per a given population or per person, using population data from a point in time that is representative of the period for which the data is relevant (i.e., for 2014 data, a Census estimate for 2014 may be used); generation and disposal rates are typically expressed on an average pounds per capita per day basis.
- **Private Hauler (aka Third-Party Hauler or Private Service Provider)** - A company or person that collects, removes, or transports waste, recycling, and /or organic/compost for a fee
- **Random** - Any use of the word random, or any form thereof, herein shall be applied according to ASTM standards and definitions related to municipal waste management sampling. Tools such as a random number generator should be considered.
- **Recycle** - The series of activities by which materials that are no longer useful to the generator are collected, sorted, processed, and converted into raw materials and used in the production of new products. (ARR Master Plan)
- **Recycling Rate** - A measure of the quantity of materials managed through recycling and composting methods (excluding materials managed through reduction and reuse methods) compared to the total quantity of materials generated; typically expressed as a percentage, the recycling rate is calculated as: (total annual tons recycled + total annual tons composted) divided by (total tons diverted + total tons disposed).
- **Reduce** - To make something smaller or use less, resulting in a smaller amount of waste (NIEHS website). The first “R” in the famous, “Reduce, Reuse, Recycle” mantra.
- **Repair** - Fix, mend, or restore an item to a good or sound condition for its continued use.
- **Repurpose** - To adapt for use in a different purpose. Example: Cutting the top off an old 2-liter soda bottle and repurposing the bottle into a flower pot.
- **Residential** - Austin Resource Recovery defines the Residential sector as 1-4 family homes. This type of residence is serviced by ARR collection for both trash and recycling. All customers are provided with a 96-gallon recycling cart and a trash cart



size selected by the customer based on their needs. Containers are variably priced depending on size, with the smallest carts available at the lowest cost.

- **Residual** - Contamination identified in a diverted collection stream such as trash identified in the recycling stream.
- **Reuse** - Using a discarded item for the same or similar function while preserving the embodied energy of its original form (ARR Master Plan). Reuse keeps new resources from being used awhile longer, and old resources from entering the waste stream (NRDC blog).
- **Self-Haul** - When a business or entity provides their own waste, recycling, or organics/compost hauling service and does not contract a third-party private hauler for this service.
- **Sorting Plan** - A detailed description of how to identify the components of the waste streams.
- **Universal Recycling Ordinance (URO)** - The Universal Recycling Ordinance requires affected properties to ensure that tenants and employees have access to convenient recycling. During this study period, all commercial properties over 25,000 square feet and multifamily properties with more than 10 dwelling units were affected by the URO, effective October 1, 2015.
- **Waste to Energy** - A combustion processing technology that burns waste and generates electricity
- **Wood Waste** - Any wood or tree limbs over four inches in diameter, unpainted and untreated pallets, lumber, cedar shingles, and other clean wood delivered to the City facilities.
- **Yard Trimmings** - Plant material (leaves, grass clippings, small branches, or limbs that are no longer than five feet, and no thicker than three inches in diameter, including flowers, roots, etc.) commonly thrown away in the course of maintaining yards and gardens, including sod and biodegradable waste approved for the yard waste programs of the City.
- **Zero Waste Advisory Commission (ZWAC)** - The ZWAC is empowered to review and analyze the policies and resources relating to material discard management in the City, and to advise the City Council on materials management policies and resources.



Appendix B

Limited Sample Sorting Protocol

Sampling and Sorting Methodology

Sampling Location and Quantities

Table 1 identifies the number and weight of samples to be selected for each material stream. The targeted sample numbers and weight are similar to the 2014 City-Serviced Residential Waste Characterization Study to enable comparison between the studies, with the exception of organics which were not sampled and sorted in 2014 and are being included for the first time in this Composition Study.

TABLE 1 – SAMPLING QUANTITIES		
Material Stream	Minimum Sample Quantity	Sample Weight
Garbage	32 samples	200-250 pounds
Recycling	32 samples	200-250 pounds
Organics	24 samples	200-250 pounds

All ARR-Collected loads to be sampled will be routed to the TDS Landfill, Materials Recovery Facility, or Organic Products compost facility based on material stream (all located at 3016 FM1327 in Creedmoor) for sample selection and sorting. Although a part of the Communitywide Diversion Rate and Capture Rate Analysis, for sorting efficiency garbage loads collected from commercial sources will be sorted during the same period as the ARR-Collected loads. TDS will identify commercial garbage loads collected primarily from within the Austin City Limits and direct those to the sort area according to the schedule below. Up to 6 loads will be identified on Monday and Friday of the first week and 10 to 12 loads on Monday and Friday of the second week.

Route Selection and Sampling Schedule

To ensure sorting efficiency and streamline coordination for ARR and its route drivers as well as the TDS host facilities, each sampling day will focus on a single material stream (i.e., trash, recycling, organics) and material streams will generally be completed on sequential days. Based on ARR data provided for the trash, recycling, and organics material streams, including days of collection, samples will be distributed by day as shown in Table 2.

TABLE 2 - SAMPLING SCHEDULE					
Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	½ ARR Garbage ½ Comm Garbage	ARR Garbage	ARR Garbage	ARR Garbage	½ ARR Garbage ½ Comm Garbage
2	Comm Garbage	Organics	Organics	Organics	Comm Garbage
3	Recycling (B)	Recycling (B)	Recycling (B)	Recycling (B)	Recycling (B)

Specific routes that have been randomly selected for sampling. ARR will be responsible for ensuring loads that are not typically delivered to TDS are directed to the facility on the day they are to be sampled.

Samples may be collected and held until the following sorting day to ensure adequate material quantities are available for sorting by the field crew until the current day's loads begin to arrive at the facility. APTIM and TDS will coordinate on the proper segregation and storage procedures and equipment / containerization required to be used for any samples that will be sorted on the following day.

Sample Selection and Sorting Protocol

Samples will be obtained from City collection vehicles that have been randomly selected by route, as described in the previous section or TDS identified vehicles. When a vehicle designated for inclusion in the Study enters the destination facility (i.e., landfill, MRF, or compost facility), the driver will notify the gate attendant that the load is part of the Composition Study. The gate attendant will instruct the driver to proceed to the unloading location, which will be located in close proximity to the active face or tipping area for that material.

Once within the unloading area, the vehicle will empty its load in an elongated pile in the designated location. From each pile, the field crew, with assistance from TDS, will select one sample using an imaginary 8 cell grid (four sections – on each side of the pile and two layers – 1 through 4 on the top and 5 through 8 on the bottom layer) superimposed over the dumped material. The grid section to be sampled has been randomly selected. In the event that the designated cell is not accessible due to site constraints, an alternate cell (typically the cell's mirror-image) will be selected. The crew leader will communicate the sample selection cell to TDS's equipment operator to extract a sample of approximately 200-250 pounds of material and transport it to the sorting location. Care will be taken when sampling from the bottom layer (cells 5 through 8) to avoid collecting any material (dirt and soil typically) from the unloading area. Once the appropriate amount of material has been secured and moved to the sorting location, the remainder of the load will be removed for disposal or other proper management by TDS.

When a sample is confirmed to meet the range of 200-250 pounds, the sample will be photographed, and the crew will begin sorting the waste into the categories identified in Material Descriptions table attached to this document. Laundry baskets and plastic tubs will be used to hold materials by category as the sample is sorted. Bags, boxes, and containers encountered in the sample will be emptied and their contents sorted. Wastes containing materials from multiple categories (e.g., a child's electronic toy comprised of paper, plastic, and electronic components) will be sorted into the category with the most weight (e.g., the child's toy would go to the "rigid/durable plastics" category if the weight of the plastic was estimated to be more than the weight of the paper and electronics).

The field crew will sort samples to the greatest reasonable level of detail, until no more than a small amount of material remains. Many samples, after being sorted down to five pounds or less, contain small residual pieces of material which are difficult to separate. The material will be screened over a 1" square mesh, resulting in two materials: "supermix" (materials too large to pass through the screen) and "fines" (material one-inch and less, often mixed with dirt). Materials contained in the supermix will be further sorted to the degree possible and any remaining supermix categorized as such and described. Fines will be characterized as such and recorded.

Once the sample sorting is complete, baskets will be visually checked for accuracy and the samples weighed. Two scales will be used to weigh samples: a 250-pound hanging digital scale of 0.1-pound accuracy and a digital platform scale with 0.1-pound accuracy, for smaller items. The weight of any individual items weighing more than 250 pounds will be estimated by the crew, usually by having two or more members lift the object and agreeing on the estimated weight. A visual estimate of the composition of any supermix and/or fines will be made and recorded. Any additional observations about the sample, such as the presence of bulky items or unusual wastes, will be recorded. Additional photographs of the sorted materials will be taken for quality assurance purposes.

All weights and observations will be recorded in written form on paper data forms. The paper forms will be organized according to category, and each form will have a designated line for the recording of the weight. Additionally, all forms will prompt for the following basic information to be included: Date; Site Location; Sample ID (route or truck number); Collection Vehicle Type; and Sampling Cell. Space will also be provided for general notes and comments. Once a form is completed, it will be reviewed for completeness and accuracy and compared to the visual observations of the material. Once the form is deemed complete, it will be placed into a folder for recordkeeping.

Once the sample data has been recorded, the sorted material will be placed into a roll-off or similar container for disposal or further processing and removed by TDS.

Material Categories

All samples will be sorted into the material categories identified on Material Descriptions table attached to this document. These material categories align with the categories utilized in the Baseline Studies.

2021 Austin Composition Study - MATERIAL DESCRIPTIONS

PAPERS	
Mixed Paper	Glossy paper, junk mail, envelopes, catalogs, magazines, non-foil wrapping paper.
Corrugated Cardboard	Unwaxed corrugated cardboard.
Compostable Paper (Compostable Materials)	<u>Soiled, waxed, or food-contaminated paper</u> including but not limited to: soiled paper/soiled food products, soiled paper cups, soiled paper plates/paper towels, paper, non-foam egg cartons, napkins, tissue papers, cardboard cereal and food boxes, empty and/or used pizza boxes, empty and/or used paper food containers, wood pulp garden pots, wet and waxed cardboard, and waxed paper.
Other Paper (Other Organics/Combustibles)	Paper bags, cereal boxes, shoe boxes, dry-goods boxes, newspaper, shredded paper, paper tubes.,
Poly-coated/Aseptic Cartons (Reusable/Recoverable)	Poly-coated and aseptic paper cartons.
Residual Papers (Residue)	Mixed-material papers, hardback books, poly-coated paper food trays, paper microwave food trays, foil-coated paper, carbon paper.
PLASTICS	
PET #1	Polyethylene terephthalate (#1) containers and products.
HDPE #2	High-density polyethylene (#2) containers and products.
LDPE #4	Low-density polyethylene (#4) containers and products.
PVC #3 & PP#5	Rigid/Durable polyvinyl chloride (#3) & polypropylene (#5) containers and products.
PS #6 (Reusable/Recoverable)	Polystyrene (#6) containers and products, foamed or solid.
Other Plastics #7	Other (#7) containers and products.
Thin Plastic Bags	Thin (under approx 3 mils) garbage bags and retail bags.
Thick Plastic Bags (Reusable/Recoverable)	Contractor garbage bags and heavy poly sheeting (approx.3 mils and over)
Plastic Film	All other plastic film
Plastic Straws	Plastic drinking straws.
Residual Plastics (Residue)	Mixed plastic/other materials, hoses, tarps, plastic rope, products with batteries, etc.
METALS	
Ferrous Metal	Steel and tin cans
Aluminum	Aluminum cans, foil, and trays
Other Metal	Mixed metals/materials, other ferrous and non-ferrous metal.
GLASS	
Glass Bottles & Jars	Glass jars and bottles, including caps.
Other Glass & Ceramics (Residue)	Dishware, glass panes, stoneware, non-fluorescent light bulbs.

2021 Austin Composition Study - MATERIAL DESCRIPTIONS

COMPOSTABLE MATERIALS	
Yard Wastes	Grass, lawn, and garden clippings, small trees/bushes and branches (limbs that are no longer than five feet, and no thicker than three inches in diameter), pinecones, shrub/brush trimmings, brush, yard/garden paper and cardboard products, flowers, plants, and soil.
Compostable Wood	Untreated, unpainted, unstained wood products, boxes and wood pieces small enough to fit into composting cart including but not to be limited to: wooden crates, popsicle sticks and small wood objects, wood shavings, unpainted and untreated pallets, lumber, cedar shingles, and other clean wood
Other Organics / Combustibles	Miscellaneous biodegradable items including but not limited to: pet hair/fur, feathers, sawdust, compostable utensils, dog and cat food, and bone meal, Biodegradable Products Institute (BPI) certified food waste bags, microwave popcorn bags.
FOOD WASTE (Compostable Materials)	
Meats	Animal meats including but not limited to: deli meats, sandwiches, raw and cooked meats (including beef, poultry, pork, venison, bison, and other types of meat), meat trimmings and renderings, and seafood
Fruits and Vegetables	Vegetable and fruit materials
Fats and Oils	Animal, vegetable, and fruit fats
Unpackaged Food Wastes	All unpackaged food waste including but not limited to: all food scraps, nuts and shells, corn cobs, coffee and tea bags/grounds/leaves and filters, eggs and egg shells, breads and bakery products, cheese and dairy products, food scraps, all edible grocery items, bones, and frozen foods
Packaged Food Wastes	Packaged food waste.
REUSABLE / RECOVERABLE	
Electronics	Electronics containing circuitry.
Household Hazardous Waste	Paints, solvents, batteries, caustic cleaners, auto chemicals, garden chemicals, medicines, fluorescent tubes and ballasts, items containing mercury, etc.
Textiles	Natural and synthetic textiles
Carpet	Carpet and carpet padding.
Furniture	Useable or repairable furniture
C & D Wastes	Construction/demolition wastes not otherwise classified.
Pallets	Intact reusable pallets
Tires	Rubber tires of all types.
RESIDUAL MATERIALS	
Treated Wood	Painted, stained or treated lumber and wood products.
Unknown or Not Classified	Unrepairable furniture, kitty liter, diapers, medical waste, residual fines, other unclassified materials.

Appendix C

Limited Sample Sorting Data

ARR Trash Composition

Date	8/12/2021		8/12/2021		8/12/2021		8/12/2021		8/13/2021		8/9/2021	
Route No.	PAH 51		PAH 74		PAH 30		PAH 54		PAF 72		PAM 41	
Truck No.	156789		136462		156792		136495		216441		136809	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS												
Mixed Paper	0.5	0.2%	2.4	1.0%	1.4	0.7%	1.2	0.5%	3.05	1.4%	9.4	4.3%
Corrugated Cardboard	2.4	1.0%	0.2	0.1%	3.75	1.8%	0.65	0.3%	4.7	2.2%	0	0.0%
Compostable Paper	9.5	4.1%	30.4	12.6%	11.15	5.3%	24.1	9.8%	28.1	13.2%	25.25	11.7%
Other Paper	7.1	3.0%	12.6	5.2%	14.5	6.8%	25.15	10.2%	10.4	4.9%	0	0.0%
Poly-Coated / Aseptic Cartons	1.4	0.6%	0.6	0.2%	0.5	0.2%	1	0.4%	0.9	0.4%	0.5	0.2%
Residual Papers	4.9	2.1%	1.8	0.7%	1.8	0.9%	4.25	1.7%	7.75	3.6%	3.4	1.6%
PLASTICS												
PET #1	7.65	3.3%	4.8	2.0%	2.45	1.2%	7.25	2.9%	3.5	1.6%	3.9	1.8%
HDPE #2	2.5	1.1%	0.9	0.4%	1.7	0.8%	4.3	1.7%	1.2	0.6%	1.4	0.6%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0.6	0.2%	0.05	0.0%	0.3	0.1%
PVC #3 & PP #5	3.2	1.4%	2.8	1.2%	3.05	1.4%	2.4	1.0%	2.1	1.0%	2.05	0.9%
PS #6	0.3	0.1%	0.4	0.2%	0.25	0.1%	0.5	0.2%	0.3	0.1%	0.7	0.3%
Other Plastics #7	0.2	0.1%	0.6	0.2%	0.2	0.1%	0.5	0.2%	1	0.5%	0.6	0.3%
Thin Plastic Bags	4.35	1.9%	6.4	2.7%	8.75	4.1%	6.7	2.7%	3.6	1.7%	10.4	4.8%
Thick Plastic Bags	0	0.0%	0.7	0.3%	0	0.0%	0.7	0.3%	0	0.0%	0	0.0%
Plastic Film	5.35	2.3%	12.1	5.0%	7.6	3.6%	10.5	4.3%	4.25	2.0%	3.9	1.8%
Plastic Straws	0.05	0.0%	0.1	0.0%	0.05	0.0%	0.1	0.0%	0.04	0.0%	0.2	0.1%
Residual Plastics	10.05	4.3%	8.5	3.5%	7.8	3.7%	8.25	3.4%	6.3	3.0%	5.4	2.5%
METALS												
Ferrous Metal	1.2	0.5%	2.3	1.0%	1.05	0.5%	1.5	0.6%	1	0.5%	1.1	0.5%
Aluminum	4.75	2.0%	3.4	1.4%	1.2	0.6%	5.7	2.3%	4.75	2.2%	6.9	3.2%
Other Metal	5.2	2.2%	1.1	0.5%	1.25	0.6%	13.25	5.4%	2.35	1.1%	0	0.0%
GLASS												
Glass Bottles & Jars	0.65	0.3%	0	0.0%	0.5	0.2%	11.85	4.8%	5.3	2.5%	16.5	7.6%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	2.8	1.1%	0.05	0.0%	0	0.0%
COMPOSTABLE MATERIALS												
Yard Wastes	0	0.0%	0	0.0%	9.5	4.5%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0	0.0%	8.75	3.6%	0.05	0.0%	0	0.0%	0	0.0%	1.9	0.9%
Other Organics/Combustibles	0.25	0.1%	0.7	0.3%	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%
FOOD WASTE												
Meats	0	0.0%	2	0.8%	8	3.8%	2.2	0.9%	0	0.0%	0.8	0.4%
Fruits and Vegetables	4.4	1.9%	4.8	2.0%	0	0.0%	0.7	0.3%	5.8	2.7%	5.7	2.6%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	28	12.0%	27.4	11.4%	7.5	3.5%	36.05	14.7%	32.35	15.1%	36.75	17.0%
Packaged Food Wastes	17.95	7.7%	31.35	13.0%	23.5	11.1%	30.2	12.3%	25.3	11.8%	36	16.6%
REUSABLE / RECOVERABLE												
Electronics	0	0.0%	0	0.0%	0	0.0%	0.7	0.3%	0.4	0.2%	0	0.0%
Household Hazardous Waste	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0.5	0.2%	1.5	0.7%
Textiles	32.15	13.8%	10.6	4.4%	16.75	7.9%	21	8.5%	11.85	5.5%	8.9	4.1%
Carpet	22	9.4%	0	0.0%	14.55	6.9%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	2.95	1.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS												
Unknown or Not Classified	54.5	23.3%	55.6	23.1%	62.9	29.7%	21.55	8.8%	46.65	21.8%	33.2	15.3%
Painted Wood	0	0.0%	7	2.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	233.45	100.0%	240.7	100.0%	211.7	100.0%	246.05	100.0%	213.54	100.0%	216.65	100.0%

ARR Trash Composition

Date	8/10/2021		8/10/2021		8/10/2021		8/10/2021		8/10/2021		8/13/2021		8/11/2021	
Route No.	PAT 74		PAT 32		PAT 42		PAT 30		PAT 73		PAF 80		PAW 40	
Truck No.	216628		136796		136802		136797		216438		216452		136809	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	5.1	2.3%	1.7	0.8%	0.5	0.2%	0.55	0.2%	0.6	0.3%	8.45	3.6%	2.8	1.1%
Corrugated Cardboard	3.35	1.5%	4.2	1.9%	4.7	2.1%	0	0.0%	0	0.0%	2.45	1.0%	8.45	3.3%
Compostable Paper	14.7	6.7%	27.1	12.5%	10.5	4.7%	21.6	9.7%	27.2	12.1%	15.9	6.8%	32.85	12.9%
Other Paper	13.7	6.2%	28.9	13.4%	13.05	5.9%	7.7	3.4%	25.1	11.2%	12.1	5.2%	25.8	10.1%
Poly-Coated / Aseptic Cartons	1	0.5%	1.6	0.7%	1.3	0.6%	0.5	0.2%	0.75	0.3%	2.6	1.1%	0.5	0.2%
Residual Papers	5.8	2.6%	2.8	1.3%	2.2	1.0%	3.2	1.4%	3	1.3%	2.3	1.0%	2.8	1.1%
PLASTICS														
PET #1	4.05	1.8%	4.9	2.3%	6.7	3.0%	5.4	2.4%	5	2.2%	6.75	2.9%	3.2	1.3%
HDPE #2	2.4	1.1%	1.4	0.6%	2.8	1.3%	1.5	0.7%	1.95	0.9%	1.9	0.8%	1	0.4%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0.05	0.0%
PVC #3 & PP #5	4.65	2.1%	4.1	1.9%	1.6	0.7%	2.1	0.9%	5.05	2.2%	2	0.9%	3	1.2%
PS #6	0.5	0.2%	0.4	0.2%	0.15	0.1%	0.3	0.1%	0.15	0.1%	1.2	0.5%	0.3	0.1%
Other Plastics #7	0.7	0.3%	0.3	0.1%	0.6	0.3%	0.4	0.2%	0.8	0.4%	0.8	0.3%	1.2	0.5%
Thin Plastic Bags	8.35	3.8%	5.45	2.5%	5.3	2.4%	9.25	4.1%	9.2	4.1%	5.85	2.5%	5.1	2.0%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0.8	0.4%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	13.8	6.3%	12.95	6.0%	7	3.2%	10.5	4.7%	13.15	5.8%	8	3.4%	7.3	2.9%
Plastic Straws	0.2	0.1%	0.05	0.0%	0.1	0.0%	0.1	0.0%	0.15	0.1%	0.05	0.0%	0.05	0.0%
Residual Plastics	12.35	5.6%	6.55	3.0%	15.5	7.0%	11.15	5.0%	10.2	4.5%	25.9	11.0%	4.95	1.9%
METALS														
Ferrous Metal	1	0.5%	0.9	0.4%	1.9	0.9%	1	0.4%	2.7	1.2%	1.3	0.6%	5.45	2.1%
Aluminum	2.6	1.2%	5.9	2.7%	8.2	3.7%	3.95	1.8%	3.2	1.4%	3.2	1.4%	1.4	0.5%
Other Metal	0	0.0%	0.25	0.1%	1.5	0.7%	5.1	2.3%	1.05	0.5%	11.2	4.8%	9.1	3.6%
GLASS														
Glass Bottles & Jars	2.8	1.3%	6.1	2.8%	6.2	2.8%	5.3	2.4%	2.9	1.3%	6.7	2.9%	2.5	1.0%
Other Glass & Ceramics	2.1	1.0%	1.8	0.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.8	0.3%
COMPOSTABLE MATERIALS														
Yard Wastes	1.6	0.7%	4.2	1.9%	2.3	1.0%	0	0.0%	6.45	2.9%	9.7	4.1%	13.2	5.2%
Compostable Wood	0.35	0.2%	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	9.2	3.9%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0.6	0.3%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	1.2	0.6%	5.8	2.6%	3.9	1.7%	0	0.0%	0.3	0.1%	0	0.0%
Fruits and Vegetables	0	0.0%	0.5	0.2%	2.4	1.1%	4.2	1.9%	2.1	0.9%	1	0.4%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	13.9	6.3%	35.6	16.5%	30.3	13.6%	30.95	13.8%	22.8	10.1%	23.5	10.0%	25.1	9.8%
Packaged Food Wastes	25.2	11.5%	41.75	19.3%	25.2	11.3%	22.5	10.1%	27.9	12.4%	43.9	18.7%	35.9	14.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1.35	0.6%	0	0.0%
Household Hazardous Waste	0	0.0%	1	0.5%	0	0.0%	0	0.0%	0	0.0%	0.5	0.2%	0.65	0.3%
Textiles	26.45	12.1%	5.05	2.3%	6.5	2.9%	22	9.8%	10.95	4.9%	2.8	1.2%	21.2	8.3%
Carpet	0	0.0%	0	0.0%	28.15	12.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	8.8	3.4%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	52.8	24.1%	9.4	4.4%	26.5	11.9%	49.05	21.9%	42.7	19.0%	23.6	10.1%	32.1	12.6%
Painted Wood		0.0%		0.0%	5.1	2.3%	0	0.0%	0	0.0%		0.0%	0	0.0%
TOTAL	219.45	100.0%	216.05	100.0%	222.15	100.0%	223.65	100.0%	225.05	100.0%	234.5	100.0%	255.55	100.0%

ARR Trash Composition

Date	8/12/2021		8/12/2021		8/12/2021		8/12/2021		8/9/2021		8/9/2021		8/10/2021	
Route No.	PAH 11		PAH 10		PAH 31		PAH 40		PAM 84		PAM 75		PAT 83	
Truck No.	156789		216437		106762		136809		156774		216628		156774	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0	0.0%	0	0.0%	1.1	0.5%	4.9	2.1%	0	0.0%	2.65	1.2%	1.2	0.6%
Corrugated Cardboard	1	0.5%	1.5	0.7%	0	0.0%	12.05	5.2%	0.1	0.0%	1.2	0.6%	4.9	2.2%
Compostable Paper	16.45	7.7%	17.4	8.5%	14.9	6.8%	12.1	5.3%	29.1	13.7%	30.75	14.2%	12.95	5.9%
Other Paper	15.25	7.1%	12.35	6.0%	18.8	8.6%	20.6	8.9%	8.8	4.1%	7.6	3.5%	11.05	5.1%
Poly-Coated / Aseptic Cartons	1.2	0.6%	1.2	0.6%	1.5	0.7%	2.1	0.9%	0.55	0.3%	1.3	0.6%	1.9	0.9%
Residual Papers	3.9	1.8%	2.8	1.4%	3.9	1.8%	18.3	7.9%	1.2	0.6%	5.1	2.4%	4.9	2.2%
PLASTICS														
PET #1	6.85	3.2%	6.8	3.3%	4.6	2.1%	3	1.3%	3.95	1.9%	2.15	1.0%	3.6	1.7%
HDPE #2	2.5	1.2%	2.35	1.1%	2.45	1.1%	1.15	0.5%	1.6	0.8%	1.9	0.9%	2.6	1.2%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	2.7	1.3%	3.7	1.8%	2.1	1.0%	4.05	1.8%	1.9	0.9%	2.5	1.2%	4.2	1.9%
PS #6	1	0.5%	1.05	0.5%	0.2	0.1%	0	0.0%	0.35	0.2%	0.7	0.3%	0.35	0.2%
Other Plastics #7	0.2	0.1%	0.5	0.2%	0.35	0.2%	0.4	0.2%	0.55	0.3%	0.9	0.4%	0.6	0.3%
Thin Plastic Bags	7.65	3.6%	8.5	4.1%	6.05	2.8%	7.1	3.1%	4.65	2.2%	4.6	2.1%	3.9	1.8%
Thick Plastic Bags	0	0.0%	0	0.0%	0.6	0.3%	1	0.4%	0	0.0%	0	0.0%	2.1	1.0%
Plastic Film	8.05	3.8%	7.75	3.8%	9.9	4.5%	9.35	4.1%	8.65	4.1%	9.3	4.3%	7.05	3.2%
Plastic Straws	0.2	0.1%	0.05	0.0%	0.1	0.0%	0.1	0.0%	0.05	0.0%	0.1	0.0%	0.05	0.0%
Residual Plastics	11.7	5.5%	8.6	4.2%	26.1	12.0%	13.6	5.9%	8.3	3.9%	6.25	2.9%	5.1	2.3%
METALS														
Ferrous Metal	1.9	0.9%	2.8	1.4%	0.06	0.0%	1.8	0.8%	1.5	0.7%	1.6	0.7%	0	0.0%
Aluminum	7.9	3.7%	6.4	3.1%	4.6	2.1%	4.8	2.1%	1.3	0.6%	1.5	0.7%	2.75	1.3%
Other Metal	2.75	1.3%	1.4	0.7%	0.4	0.2%	3.25	1.4%	11.4	5.4%	5.3	2.5%	2.9	1.3%
GLASS														
Glass Bottles & Jars	7.3	3.4%	9.8	4.8%	11.5	5.3%	1	0.4%	4.55	2.1%	3.8	1.8%	2.55	1.2%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	1	0.5%	0	0.0%	4.2	1.9%	0	0.0%	0.3	0.1%	1.1	0.5%	10.7	4.9%
Compostable Wood	0	0.0%	0.1	0.0%	0	0.0%	8.85	3.8%	2.35	1.1%	0.75	0.3%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	10.35	4.7%	0	0.0%	0.3	0.1%	0.2	0.1%	0.1	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	2.45	1.1%	3.55	1.7%	0	0.0%	4.3	2.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	2.05	0.9%	5.25	2.5%	0	0.0%	1.2	0.6%
Fats and Oils	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	46	21.5%	32.5	15.8%	26.8	12.3%	19.4	8.4%	40.45	19.0%	21.65	10.0%	24.6	11.3%
Packaged Food Wastes	33.2	15.5%	23.05	11.2%	24.9	11.4%	21.5	9.3%	63.8	30.0%	31.6	14.6%	28.8	13.2%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	2.5	1.2%	0	0.0%	2	0.9%	0	0.0%	0	0.0%	0.35	0.2%	0	0.0%
Textiles	11.9	5.6%	16.15	7.9%	1.6	0.7%	30.05	13.0%	1.85	0.9%	13.9	6.4%	12.75	5.9%
Carpet	0	0.0%	11.4	5.5%	0	0.0%	0	0.0%	0	0.0%	9.8	4.5%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	20.6	9.6%	27.1	13.2%	29.1	13.3%	25.5	11.1%	6.6	3.1%	42.7	19.7%	60.8	27.9%
Painted Wood	0	0.0%	0	0.0%	10.1	4.6%	0	0.0%	0	0.0%	5	2.3%	0	0.0%
TOTAL	213.75	100.0%	205.65	100.0%	218.26	100.0%	230.45	100.0%	212.95	100.0%	216.25	100.0%	217.9	100.0%

ARR Trash Composition

Date	8/10/2021		8/11/2021		8/11/2021		8/11/2021		8/12/2021		8/11/2021		8/11/2021	
Route No.	PAT 63		PAW 03		PAW 05		PAW 82		PAH 81		PAW 31		PAW 53	
Truck No.	156775		196695		156780		216448		196696		136797		196684	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0.6	0.3%	1.3	0.6%	4.15	2.1%	2.2	1.0%	2.8	1.3%	3.9	1.5%	0.55	0.3%
Corrugated Cardboard	1	0.4%	6.25	2.9%	1.45	0.7%	3.2	1.5%	4.35	2.0%	4.75	1.9%	0.15	0.1%
Compostable Paper	19.05	8.5%	17.5	8.1%	31.95	15.1%	28.2	13.2%	29.2	13.2%	21	8.3%	26.1	12.2%
Other Paper	19.95	8.9%	23.2	10.8%	21.05	10.0%	18.45	8.6%	24.1	10.9%	3	1.2%	20.3	9.5%
Poly-Coated / Aseptic Cartons	2	0.9%	2	0.9%	0.7	0.3%	1.1	0.5%	1.6	0.7%	0	0.0%	0.2	0.1%
Residual Papers	2.8	1.2%	1.5	0.7%	5.1	2.4%	1.3	0.6%	3.9	1.8%	0.75	0.3%	7.1	3.3%
PLASTICS														
PET #1	3.3	1.5%	2.8	1.3%	5.4	2.6%	4.3	2.0%	5.75	2.6%	2.6	1.0%	8.05	3.8%
HDPE #2	2	0.9%	1.2	0.6%	1.2	0.6%	2.3	1.1%	2.3	1.0%	0.65	0.3%	1.5	0.7%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	2.1	0.9%	2.7	1.3%	4.8	2.3%	4.15	1.9%	1.75	0.8%	3.8	1.5%	3.25	1.5%
PS #6	0	0.0%	0.7	0.3%	0.5	0.2%	0.7	0.3%	0.2	0.1%	0.2	0.1%	0.1	0.0%
Other Plastics #7	1.4	0.6%	0.3	0.1%	0.65	0.3%	0.25	0.1%	1	0.5%	0.15	0.1%	0.3	0.1%
Thin Plastic Bags	4.8	2.1%	4.75	2.2%	5.05	2.4%	3.7	1.7%	4.3	1.9%	2.4	1.0%	5.1	2.4%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	10.65	4.7%	8.6	4.0%	14.15	6.7%	12.4	5.8%	10.1	4.6%	6.9	2.7%	8.8	4.1%
Plastic Straws	0.1	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.015	0.0%
Residual Plastics	12.2	5.4%	8.05	3.7%	12.95	6.1%	11.65	5.4%	14.3	6.4%	15.3	6.1%	7.65	3.6%
METALS														
Ferrous Metal	0.8	0.4%	0	0.0%	0.55	0.3%	1	0.5%	0.7	0.3%	2.3	0.9%	1.5	0.7%
Aluminum	3.65	1.6%	2.1	1.0%	4.2	2.0%	2.7	1.3%	3.2	1.4%	1.5	0.6%	4.1	1.9%
Other Metal	0.5	0.2%	10.6	4.9%	0	0.0%	0.5	0.2%	1.05	0.5%	18.9	7.5%	0.75	0.4%
GLASS														
Glass Bottles & Jars	1.6	0.7%	2.7	1.3%	0.8	0.4%	11.4	5.3%	2.1	0.9%	2.5	1.0%	10.2	4.8%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.6	0.3%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	9.8	4.6%	0	0.0%	11.3	5.3%	1.7	0.8%	1.3	0.5%	29.1	13.0%
Compostable Wood	6.25	2.8%	0	0.0%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Organics/Combustibles	0.8	0.4%	0	0.0%	0	0.0%	0.4	0.2%	2.05	0.9%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0.9	0.4%	0.9	0.4%	1.6	0.7%	1.5	0.7%	1.05	0.4%	0	0.0%
Fruits and Vegetables	2.1	0.9%	1.75	0.8%	0	0.0%	1.1	0.5%	0	0.0%	0.6	0.2%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	23.5	10.5%	40	18.6%	41.05	19.4%	38.85	18.1%	25.1	11.3%	18.9	7.5%	28.15	13.2%
Packaged Food Wastes	23.6	10.5%	27.95	13.0%	20.9	9.9%	31.3	14.6%	36	16.2%	23.35	9.2%	30.25	14.2%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0.85	0.4%	0.45	0.2%	0.15	0.1%	1.6	0.7%	1	0.5%	1	0.4%	0.1	0.0%
Textiles	14.8	6.6%	21.15	9.8%	1.5	0.7%	1.7	0.8%	25.4	11.4%	55.8	22.1%	8.6	4.0%
Carpet	31.7	14.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	15.1	6.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3.35	1.3%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	29.55	13.1%	16.5	7.7%	31.65	15.0%	16.8	7.8%	15.75	7.1%	36	14.3%	11.65	5.5%
Painted Wood	3.2	1.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5.5	2.2%	0	0.0%
TOTAL	224.85	100.0%	214.8	100.0%	211.35	100.0%	214.2	100.0%	221.85	100.0%	252.6	100.0%	213.57	100.0%

ARR Trash Composition

Date	8/12/2021		8/12/2021		8/9/2021		8/9/2021		8/10/2021		8/10/2021		8/10/2021	
Route No.	PAH 65		PAH 62		PAM50		PAM 63		PAT 03		PAT 01		PAT 60	
Truck No.	216440		216449		196337		216440		196695		156771		196694	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	1.1	0.5%	2.4	1.1%	14.65	6.2%	3.85	1.8%	1.5	0.6%	1.8	0.9%	10.4	4.6%
Corrugated Cardboard	4.1	1.9%	0.9	0.4%	9.6	4.1%	1	0.5%	8.65	3.4%	2.6	1.2%	3	1.3%
Compostable Paper	21.35	9.7%	22.3	10.2%	28.7	12.2%	31.8	14.8%	29.8	11.8%	11.8	5.6%	26.2	11.6%
Other Paper	12.95	5.9%	10.5	4.8%	2.3	1.0%	11.6	5.4%	10.3	4.1%	10.05	4.7%	20.5	9.1%
Poly-Coated / Aseptic Cartons	1.4	0.6%	1.8	0.8%	1.6	0.7%	1.1	0.5%	0.5	0.2%	1	0.5%	1.3	0.6%
Residual Papers	1.9	0.9%	5.1	2.3%	9.4	4.0%	3.3	1.5%	5.3	2.1%	5.2	2.5%	3.4	1.5%
PLASTICS														
PET #1	3.8	1.7%	3.8	1.7%	4.1	1.7%	2.7	1.3%	7.2	2.9%	2.9	1.4%	3.15	1.4%
HDPE #2	0.6	0.3%	1.6	0.7%	2.3	1.0%	1.25	0.6%	2.15	0.9%	2	0.9%	1.5	0.7%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	2.5	1.1%	9.05	4.1%	4.4	1.9%	2.2	1.0%	2.4	1.0%	2.9	1.4%	2.8	1.2%
PS #6	0.4	0.2%	0.6	0.3%	0.2	0.1%	0.45	0.2%	0.6	0.2%	0.5	0.2%	0.5	0.2%
Other Plastics #7	0.25	0.1%	0.7	0.3%	1.05	0.4%	0.85	0.4%	0.5	0.2%	0.6	0.3%	0.5	0.2%
Thin Plastic Bags	0.29	0.1%	6.8	3.1%	8.85	3.8%	5.15	2.4%	9.5	3.8%	4.45	2.1%	6.5	2.9%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	4.5%	2.05	0.8%	0	0.0%	0	0.0%
Plastic Film	10.5	4.8%	10.3	4.7%	14.3	6.1%	9.6	0.1%	17.35	6.9%	13.05	6.2%	12.95	5.8%
Plastic Straws	0.1	0.0%	0.1	0.0%	0.15	0.1%	0.15	0.1%	0.05	0.0%	0.05	0.0%	0.5	0.2%
Residual Plastics	8.7	4.0%	11	5.0%	13.1	5.6%	9.1	4.2%	9.95	4.0%	6.65	3.1%	7.1	3.2%
METALS														
Ferrous Metal	0.5	0.2%	0.3	0.1%	1.4	0.6%	1.35	0.6%	1.9	0.8%	2.05	1.0%	0	0.0%
Aluminum	1.5	0.7%	3.05	1.4%	4.2	1.8%	1	0.5%	3.15	1.3%	1.15	0.5%	4	1.8%
Other Metal	4.8	2.2%	0.9	0.4%	0	0.0%	2.5	1.2%	7.75	3.1%	11.5	5.4%	4.2	1.9%
GLASS														
Glass Bottles & Jars	2.5	1.1%	1.2	0.5%	4.7	2.0%	4.5	2.1%	1.9	0.8%	9.5	4.5%	2.7	1.2%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0.95	0.4%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	0	0.0%	1.1	0.5%	26.15	12.2%	19.5	7.7%	0.45	0.2%	0	0.0%
Compostable Wood	20.9	9.5%	10.35	4.7%	0.5	0.2%	0	0.0%	0.45	0.2%	0.9	0.4%	0.1	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	4.75	2.2%	1.2	0.5%	0.45	0.2%	1.45	0.6%
FOOD WASTE														
Meats	0.1	0.0%	0.8	0.4%	0	0.0%	0	0.0%	1.6	0.6%	4.2	2.0%	1.2	0.5%
Fruits and Vegetables	0.9	0.4%	0.5	0.2%	3.3	1.4%	0	0.0%	5.5	2.2%	0	0.0%	0.5	0.2%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2.8	1.1%	0	0.0%	0	0.0%
Unpackaged Food Wastes	27.5	12.5%	28.1	12.8%	30.35	12.9%	0	0.0%	33.95	13.5%	29.45	13.9%	27.3	12.1%
Packaged Food Wastes	43.8	19.9%	25.6	11.7%	12.5	5.3%	35.5	16.5%	28.56	11.3%	29.3	13.8%	21.6	9.6%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	9.8	4.5%	0	0.0%	7.8	3.6%	0	0.0%	1.05	0.5%	1.2	0.5%
Textiles	4.9	2.2%	10.5	4.8%	17.7	7.5%	25.4	11.8%	17.35	6.9%	5.6	2.6%	8.45	3.8%
Carpet	9.3	4.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	3.15	1.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.85	0.3%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	28.1	12.8%	41.6	18.9%	44	18.8%	20.6	9.6%	15.6	6.2%	50.5	23.9%	46.55	20.7%
Painted Wood	1.8	0.8%	0	0.0%	0	0.0%	0.2	0.1%	1.9	0.8%	0	0.0%	5.35	2.4%
TOTAL	219.69	100.0%	219.65	100.0%	234.45	100.0%	214.8	100.1%	251.76	100.0%	211.65	100.0%	224.9	100.0%

ARR Trash Composition

Date	8/10/2021		8/13/2021		8/13/2021		8/13/2021		8/11/2021		8/11/2021		8/12/2021	
Route No.	PAT 61		PAF 33		PAF 13		PAF 40		PAW 64		PAW 63		PAH 03	
Truck No.	156776		156792		156793		136809		156775		156771		196635	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	4.05	1.8%	1.1	0.5%	1.3	0.5%	3.5	1.6%	1.4	0.6%	1.6	0.6%	2.75	1.3%
Corrugated Cardboard	3.7	1.7%	2.15	1.0%	4.05	1.6%	3.8	1.8%	2.5	1.0%	4.75	1.7%	0	0.0%
Compostable Paper	30.4	13.8%	13.5	6.4%	20	7.8%	26.75	12.5%	13.5	5.3%	29.6	10.8%	34.5	15.7%
Other Paper	17.2	7.8%	11.35	5.4%	17.8	6.9%	15.8	7.4%	18.2	7.2%	20.3	7.4%	10.4	4.7%
Poly-Coated / Aseptic Cartons	1.4	0.6%	2.05	1.0%	1.2	0.5%	0.25	0.1%	2.1	0.8%	1.3	0.5%	1.8	0.8%
Residual Papers	3.2	1.5%	3.2	1.5%	2.3	0.9%	3.25	1.5%	6.75	2.7%	2.9	1.1%	5.04	2.3%
PLASTICS														
PET #1	4.9	2.2%	1.4	0.7%	2.2	0.9%	3.7	1.7%	4.25	1.7%	3.55	1.3%	3.3	1.5%
HDPE #2	1.1	0.5%	1.2	0.6%	1.1	0.4%	1.5	0.7%	1.2	0.5%	2.4	0.9%	1.4	0.6%
LDPE #4	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	3.5	1.6%	3.15	1.5%	3.6	1.4%	2.15	1.0%	6.5	2.6%	4.2	1.5%	5.4	2.5%
PS #6	0.65	0.3%	0.2	0.1%	0.5	0.2%	0.7	0.3%	0.2	0.1%	1	0.4%	0.5	0.2%
Other Plastics #7	0.5	0.2%	0.4	0.2%	0.4	0.2%	0.5	0.2%	0.5	0.2%	1	0.4%	0.5	0.2%
Thin Plastic Bags	5.2	2.4%	4.2	2.0%	3.9	1.5%	4.5	2.1%	8.3	3.3%	6.75	2.5%	8.8	4.0%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	9.3	4.2%	9.85	4.7%	12.9	5.0%	10.4	4.9%	14.8	5.9%	10.8	3.9%	18.4	8.4%
Plastic Straws	0.05	0.0%	0.05	0.0%	0.1	0.0%	0.05	0.0%	0.15	0.1%	0.05	0.0%	0.05	0.0%
Residual Plastics	9.75	4.4%	12.1	5.7%	15.95	6.2%	10.65	5.0%	12.85	5.1%	5.95	2.2%	2.9	1.3%
METALS														
Ferrous Metal	1.1	0.5%	0.5	0.2%	1	0.4%	0.1	0.0%	2.3	0.9%	2.8	1.0%	0	0.0%
Aluminum	6.75	3.1%	2.7	1.3%	5.15	2.0%	1.5	0.7%	4.1	1.6%	5.1	1.9%	1.6	0.7%
Other Metal	15.9	7.2%	0.4	0.2%	0.3	0.1%	6.4	3.0%	1.6	0.6%	6.2	2.3%	11	5.0%
GLASS														
Glass Bottles & Jars	7.9	3.6%	1	0.5%	5.85	2.3%	0.9	0.4%	2.05	0.8%	4.3	1.6%	6.55	3.0%
Other Glass & Ceramics	2.5	1.1%	0.4	0.2%	0	0.0%	0	0.0%	1	0.4%	1.15	0.4%	0.7	0.3%
COMPOSTABLE MATERIALS														
Yard Wastes	8.25	3.7%	16.4	7.8%	0	0.0%	0	0.0%	2.9	1.1%	0	0.0%	0	0.0%
Compostable Wood	0.8	0.4%	0	0.0%	4.9	1.9%	17.35	8.1%	0	0.0%	0	0.0%	2.5	1.1%
Other Organics/Combustibles	0	0.0%	0	0.0%	1.7	0.7%	0	0.0%	1.2	0.5%	0	0.0%	0.5	0.2%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	1.1	0.4%	0	0.0%	0	0.0%	2.6	0.9%	0	0.0%
Fruits and Vegetables	0.6	0.3%	0.5	0.2%	0.75	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	37.7	17.1%	1.9	0.9%	20.45	7.9%	28.25	13.2%	13	5.1%	30.2	11.0%	29.7	13.5%
Packaged Food Wastes	27.65	12.5%	34.6	16.4%	23.4	9.1%	4.1	1.9%	11.6	4.6%	27.7	10.1%	24.9	11.3%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0.45	0.2%	1	0.4%	0	0.0%	0	0.0%
Textiles	5.5	2.5%	6.75	3.2%	5.15	2.0%	5.15	2.4%	4.1	1.6%	16.2	5.9%	7.15	3.3%
Carpet	0	0.0%	0	0.0%	14.6	5.7%	0	0.0%	1.8	0.7%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	15.75	6.1%	0	0.0%	0	0.0%	6.15	2.2%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	11.05	5.0%	60.4	28.7%	20.8	8.1%	50.5	23.6%	112.8	44.6%	75.8	27.6%	39.55	18.0%
Painted Wood	0	0.0%	19	9.0%	49.5	19.2%	12.2	5.7%	0	0.0%	0	0.0%	0	0.0%
TOTAL	220.6	100.0%	210.5	100.0%	257.7	100.0%	214.4	100.0%	252.65	100.0%	274.35	100.0%	219.89	100.0%

ARR Trash Composition

Date	8/12/2021		8/12/2021		Total	Average	Percent of Total	Standard Deviation (pounds)	Standard Deviation (%)
	Route No.	PAH 06	PAH 05	Truck No.					
	156772	156780							
	Pounds	Percent	Pounds	Percent					
PAPERS									
Mixed Paper	7.5	3.1%	2.45	1.1%	124.7	2.9	1.3%	3.1	1.3%
Corrugated Cardboard	3.2	1.3%	0.5	0.2%	131.3	3.1	1.4%	2.8	1.2%
Compostable Paper	34.9	14.6%	18.15	8.1%	978.3	22.8	10.1%	7.5	3.3%
Other Paper	25.9	10.8%	15.2	6.8%	651.0	15.1	6.7%	6.8	3.0%
Poly-Coated / Aseptic Cartons	1.6	0.7%	1.4	0.6%	52.3	1.2	0.5%	0.6	0.3%
Residual Papers	4.55	1.9%	3.15	1.4%	176.5	4.1	1.8%	2.9	1.3%
PLASTICS									
PET #1	4.55	1.9%	2.65	1.2%	186.9	4.3	1.9%	1.7	0.7%
HDPE #2	2.3	1.0%	3.85	1.7%	78.1	1.8	0.8%	0.8	0.3%
LDPE #4	0	0.0%	0.01	0.0%	1.1	0	0.0%	0.1	0.0%
PVC #3 & PP #5	3.45	1.4%	2.8	1.3%	142.8	3.3	1.5%	1.4	0.6%
PS #6	0.3	0.1%	0.5	0.2%	19.3	0.4	0.2%	0.3	0.1%
Other Plastics #7	0.55	0.2%	0.4	0.2%	24.7	0.6	0.3%	0.3	0.1%
Thin Plastic Bags	10.15	4.2%	3.4	1.5%	258.0	6	2.7%	2.3	1.0%
Thick Plastic Bags	0	0.0%	0	0.0%	8.0	0.2	0.1%	0.5	0.7%
Plastic Film	15.15	6.3%	8.5	3.8%	446.2	10.4	4.6%	3.2	1.5%
Plastic Straws	0.1	0.0%	0.05	0.0%	4.0	0.1	0.0%	0.1	0.0%
Residual Plastics	6.6	2.8%	11.55	5.2%	448.6	10.4	4.6%	4.7	2.0%
METALS									
Ferrous Metal	0.8	0.3%	0.5	0.2%	55.5	1.3	0.6%	1.0	0.4%
Aluminum	2.6	1.1%	3.9	1.7%	157.3	3.7	1.6%	1.9	0.9%
Other Metal	1.75	0.7%	3.05	1.4%	189.3	4.4	1.9%	4.8	2.1%
GLASS									
Glass Bottles & Jars	5.65	2.4%	3.2	1.4%	203.5	4.7	2.1%	3.7	1.7%
Other Glass & Ceramics	0	0.0%	0	0.0%	14.9	0.3	0.1%	0.7	0.3%
COMPOSTABLE MATERIALS									
Yard Wastes	0.7	0.3%	0.3	0.1%	193.2	4.5	2.0%	7.2	3.3%
Compostable Wood	4.6	1.9%	0	0.0%	102.2	2.4	1.1%	4.7	2.1%
Other Organics/Combustibles	0.5	0.2%	0	0.0%	27.9	0.6	0.3%	1.7	0.8%
FOOD WASTE									
Meats	0	0.0%	5.7	2.6%	57.8	1.3	0.6%	1.9	0.9%
Fruits and Vegetables	0.7	0.3%	6.5	2.9%	65.4	1.5	0.7%	2.0	0.9%
Fats and Oils	0	0.0%	0	0.0%	2.9	0.1	0.0%	0.4	0.2%
Unpackaged Food Wastes	19.8	8.3%	29.1	13.0%	1163.9	27.1	12.0%	9.8	4.6%
Packaged Food Wastes	29.75	12.4%	32.65	14.6%	1220.1	28.4	12.6%	9.6	4.5%
REUSABLE / RECOVERABLE									
Electronics	0	0.0%	0	0.0%	2.9	0.1	0.0%	0.2	0.1%
Household Hazardous Waste	0	0.0%	0.9	0.4%	36.8	0.9	0.4%	1.9	0.9%
Textiles	5.1	2.1%	1.8	0.8%	560.2	13	5.8%	10.7	4.5%
Carpet	0	0.0%	0	0.0%	158.4	3.7	1.6%	8.0	3.5%
Furniture	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%
C&D Wastes	10.7	4.5%	37	16.6%	87.9	2	0.9%	6.4	2.8%
Pallets	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%
Tires	0	0.0%	0	0.0%	0.9	0	0.0%	0.1	0.1%
RESIDUALS									
Unknown or Not Classified	36.2	15.1%	19.4	8.7%	1554.3	36.1	16.0%	20.5	8.6%
Painted Wood	0	0.0%	4.75	2.1%	130.6	3	1.3%	9.6	3.3%
TOTAL	239.65	100.0%	223.31	100.0%	9716.9	225.8	100.0%		

ARR Recycling Composition

Date	8/25/2021		8/26/2021		8/26/2021		8/26/2021		8/27/2021		8/27/2021		8/23/2021	
Route No.	RWBS34		RHBU23		RHBS40		RHBU62		RFBU60		RFBU22		RMBS44	
Truck No.	226990		196508		196691		156788		136459		196692		116566	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	11.6	5.4%	11	5.2%	11.7	5.6%	2.8	1.3%	16.72	7.8%	87.4	41.2%	21.5	8.7%
Corrugated Cardboard	73.35	34.4%	103.6	48.7%	133.85	64.1%	122.25	56.5%	55.8	26.0%	65.1	30.7%	50.3	20.3%
Compostable Paper	3	1.4%	1.5	0.7%	13.95	6.7%	12	5.5%	2.35	1.1%	3.75	1.8%	2	0.8%
Other Paper	50.15	23.5%	28.5	13.4%	31.95	15.3%	36.8	17.0%	25.8	12.0%	12.05	5.7%	28.2	11.4%
Poly-Coated / Aseptic Cartons	0.6	0.3%	0.5	0.2%	0.2	0.1%	1.6	0.7%	1.1	0.5%	0.3	0.1%	0.6	0.2%
Residual Papers	1.2	0.6%	3.8	1.8%	0.5	0.2%	0	0.0%	4	1.9%	0.3	0.1%	10.05	4.1%
PLASTICS														
PET #1	8.05	3.8%	8.6	4.0%	2.55	1.2%	6	2.8%	13.45	6.3%	1.1	0.5%	18.2	7.3%
HDPE #2	10.45	4.9%	4.9	2.3%	1.35	0.6%	2.45	1.1%	5.75	2.7%	1.6	0.8%	8	3.2%
LDPE #4	0	0.0%	0.05	0.0%	0.05	0.0%	0	0.0%	0.05	0.0%	0.05	0.0%	0	0.0%
PVC #3 & PP #5	1.9	0.9%	1.55	0.7%	1.3	0.6%	2.5	1.2%	3	1.4%	2.8	1.3%	3.6	1.5%
PS #6	0.2	0.1%	0.2	0.1%	0.25	0.1%	0.1	0.0%	1.1	0.5%	0.75	0.4%	0.3	0.1%
Other Plastics #7	0.7	0.3%	1.05	0.5%	0.15	0.1%	0.6	0.3%	1.05	0.5%	0.25	0.1%	0.8	0.3%
Thin Plastic Bags	0.6	0.3%	1	0.5%	0.5	0.2%	0.7	0.3%	2.05	1.0%	0.4	0.2%	1.2	0.5%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	1.65	0.8%	3.15	1.5%	1.7	0.8%	6.9	3.2%	4.25	2.0%	1.5	0.7%	6.2	2.5%
Plastic Straws	0.1	0.0%	0.15	0.1%	0.01	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.1	0.0%
Residual Plastics	8.1	3.8%	10.05	4.7%	0.55	0.3%	7	3.2%	9.95	4.6%	4.9	2.3%	21.85	8.8%
METALS														
Ferrous Metal	1	0.5%	3	1.4%	1.1	0.5%	0.4	0.2%	3.2	1.5%	0	0.0%	4.6	1.9%
Aluminum	7.5	3.5%	3.8	1.8%	1.5	0.7%	4.6	2.1%	8.2	3.8%	3	1.4%	10.2	4.1%
Other Metal	3.2	1.5%	0	0.0%	0	0.0%	0.5	0.2%	1	0.5%	1.2	0.6%	5.05	2.0%
GLASS														
Glass Bottles & Jars	22.1	10.4%	4.2	2.0%	4.6	2.2%	3.6	1.7%	40.4	18.8%	15.05	7.1%	34.9	14.1%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	12.65	5.9%	0	0.0%	0	0.0%	1	0.5%	0	0.0%	8.75	3.5%
Compostable Wood	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%	0	0.0%	0.15	0.1%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.5	0.2%	0.85	0.4%	1	0.4%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%
Textiles	0.5	0.2%	4.85	2.3%	0	0.0%	3.7	1.7%	0.9	0.4%	7.6	3.6%	2.4	1.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5.1	2.4%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	7.1	3.3%	4.6	2.2%	1.1	0.5%	1.4	0.6%	7.65	3.6%	1.85	0.9%	8.3	3.3%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	213.05	100.0%	212.7	100.0%	208.86	100.0%	216.25	100.0%	214.72	100.0%	212	100.0%	248.1	100.0%

ARR Recycling Composition

Date	8/23/2021		8/23/2021		8/23/2021		8/23/2021		8/23/2021		8/24/2021		8/24/2021	
Route No.	RMBS42		RMBS33		RMBS34		RMBS40		RMBS35		RTBS35		RTBS34	
Truck No.	116565				176953		186504		116560		116563		176953	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	9.4	4.3%	4.55	2.2%	40.2	21.4%	5.9	3.2%	12.2	5.6%	18.95	7.6%	10.55	4.2%
Corrugated Cardboard	48.55	22.2%	47.4	22.9%	55.15	29.3%	46.7	25.1%	56.7	26.2%	77.25	30.8%	134.25	52.9%
Compostable Paper	7.85	3.6%	11	5.3%	1.6	0.9%	2.6	1.4%	7.1	3.3%	3.15	1.3%	5.45	2.1%
Other Paper	41.25	18.9%	25.8	12.5%	38.6	20.5%	42.8	23.0%	42.5	19.6%	57.1	22.8%	19.48	7.7%
Poly-Coated / Aseptic Cartons	1.05	0.5%	0.75	0.4%	0.5	0.3%	1.8	1.0%	0.2	0.1%	0.2	0.1%	1	0.4%
Residual Papers	2.6	1.2%	2.3	1.1%	1.45	0.8%	2.1	1.1%	4.7	2.2%	3.1	1.2%	1.4	0.6%
PLASTICS														
PET #1	10.95	5.0%	9	4.3%	8.2	4.4%	20.15	10.8%	14.2	6.6%	12.3	4.9%	6.6	2.6%
HDPE #2	7.25	3.3%	5.6	2.7%	4.35	2.3%	10.3	5.5%	7.62	3.5%	4.5	1.8%	2.4	0.9%
LDPE #4	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0.01	0.0%	0	0.0%
PVC #3 & PP #5	2.8	1.3%	0.85	0.4%	0.7	0.4%	1.6	0.9%	4.6	2.1%	1.2	0.5%	4.5	1.8%
PS #6	0.5	0.2%	0.15	0.1%	0	0.0%	0.6	0.3%	0.2	0.1%	0.1	0.0%	0.2	0.1%
Other Plastics #7	1.2	0.5%	1.05	0.5%	1.1	0.6%	0.6	0.3%	0.15	0.1%	0.25	0.1%	0.1	0.0%
Thin Plastic Bags	3.2	1.5%	4.2	2.0%	1.5	0.8%	0.9	0.5%	3.3	1.5%	2.1	0.8%	1.4	0.6%
Thick Plastic Bags	0	0.0%	0	0.0%	0.45	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	2.4	1.1%	1.8	0.9%	1	0.5%	4	2.1%	4.1	1.9%	4	1.6%	2.6	1.0%
Plastic Straws	0.05	0.0%	0.1	0.0%	0.1	0.1%	0.1	0.1%	0.1	0.0%	0.01	0.0%	0.1	0.0%
Residual Plastics	5.7	2.6%	6.3	3.0%	3.6	1.9%	12.2	6.6%	2.75	1.3%	3.2	1.3%	3.85	1.5%
METALS														
Ferrous Metal	0.8	0.4%	3.55	1.7%	0.35	0.2%	4	2.1%	1.6	0.7%	5.6	2.2%	1.5	0.6%
Aluminum	5	2.3%	4.2	2.0%	3.85	2.0%	8.2	4.4%	15.1	7.0%	12.3	4.9%	8.6	3.4%
Other Metal	1.2	0.5%	5.7	2.8%	0.6	0.3%	1.2	0.6%	1.2	0.6%	1.2	0.5%	3.6	1.4%
GLASS														
Glass Bottles & Jars	28.55	13.1%	48.2	23.3%	9.75	5.2%	20	10.7%	34.2	15.8%	22.1	8.8%	40.3	15.9%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.5	0.2%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	1.7	0.7%	0	0.0%
Other Organics/Combustibles	0.45	0.2%	0	0.0%	0.05	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	15.5	7.1%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Packaged Food Wastes	4.2	1.9%	2.3	1.1%	1.5	0.8%	0	0.0%	0	0.0%	0.6	0.2%	1.2	0.5%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	13.85	6.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	5.2	2.4%	1.55	0.7%	1.3	0.7%	0	0.0%	0.1	0.0%	0.2	0.1%	1.6	0.6%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	12.75	5.8%	6.3	3.0%	12.05	6.4%	0.1	0.1%	3.8	1.8%	19.55	7.8%	2.4	0.9%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.35	0.1%
TOTAL	218.4	100.0%	207.05	100.0%	187.95	100.0%	186.25	100.0%	216.52	100.0%	250.67	100.0%	253.93	100.0%

ARR Recycling Composition

Date	8/24/2021		8/24/2021		8/26/2021		8/26/2021		8/23/2021		8/23/2021		8/23/2021	
Route No.	RTBS40		RTBS32		RHBS34		RWBU20		RMBU22		RMBU22		RMBU20	
Truck No.	116565		116564		176953		196692		196508		196691		156787	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	10.65	4.8%	8.5	3.9%	14.35	6.9%	8.7	4.4%	14.2	7.3%	30.1	14.2%	6.15	3.1%
Corrugated Cardboard	112.65	50.9%	113.45	51.7%	53.3	25.7%	50.55	25.6%	28.2	14.4%	46.7	22.0%	77.35	39.1%
Compostable Paper	15.45	7.0%	3.1	1.4%	1.6	0.8%	3.9	2.0%	2.3	1.2%	4.8	2.3%	0.4	0.2%
Other Paper	33.5	15.1%	20.75	9.5%	33.4	16.1%	34.95	17.7%	61.1	31.2%	38.8	18.3%	45.95	23.2%
Poly-Coated / Aseptic Cartons	0.5	0.2%	1.3	0.6%	0.75	0.4%	1.25	0.6%	0.8	0.4%	1.3	0.6%	0.5	0.3%
Residual Papers	1.3	0.6%	2.4	1.1%	1.05	0.5%	1.6	0.8%	2.6	1.3%	7.1	3.3%	2.7	1.4%
PLASTICS														
PET #1	7.2	3.3%	6.75	3.1%	7.7	3.7%	14.25	7.2%	11.9	6.1%	16.1	7.6%	16.6	8.4%
HDPE #2	4.55	2.1%	3.7	1.7%	2.1	1.0%	8.1	4.1%	2.95	1.5%	7.2	3.4%	5.1	2.6%
LDPE #4	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	1.95	0.9%	1.6	0.7%	3.7	1.8%	1.55	0.8%	2.05	1.0%	2.8	1.3%	2.2	1.1%
PS #6	0.2	0.1%	0.4	0.2%	0.25	0.1%	1.05	0.5%	0	0.0%	0.5	0.2%	0.6	0.3%
Other Plastics #7	0.5	0.2%	0.65	0.3%	0.5	0.2%	1.2	0.6%	0.8	0.4%	0.7	0.3%	0.2	0.1%
Thin Plastic Bags	0.5	0.2%	4	1.8%	0.8	0.4%	1.1	0.6%	1.05	0.5%	2.1	1.0%	1.6	0.8%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	1.2	0.5%	1.6	0.7%	4.65	2.2%	2.6	1.3%	8.55	4.4%	1.8	0.8%	1.8	0.9%
Plastic Straws	0.1	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.1	0.1%	0.2	0.1%	0.2	0.1%
Residual Plastics	3.1	1.4%	12	5.5%	2.8	1.3%	8.3	4.2%	7.5	3.8%	7.05	3.3%	2.1	1.1%
METALS														
Ferrous Metal	2.4	1.1%	1.2	0.5%	2.2	1.1%	2	1.0%	2.05	1.0%	3.6	1.7%	3.6	1.8%
Aluminum	6.35	2.9%	6	2.7%	7.6	3.7%	5.05	2.6%	9.9	5.1%	6.4	3.0%	3.1	1.6%
Other Metal	0.5	0.2%	0	0.0%	4.55	2.2%	0.2	0.1%	2.1	1.1%	1.3	0.6%	0.6	0.3%
GLASS														
Glass Bottles & Jars	2.8	1.3%	25.8	11.8%	62.9	30.3%	20.5	10.4%	10.4	5.3%	27.2	12.8%	12.5	6.3%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	2.55	1.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Packaged Food Wastes	0.6	0.3%	0	0.0%	1.2	0.6%	5.2	2.6%	0	0.0%	0.3	0.1%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	3.45	1.7%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0.5	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	1	0.5%	0.9	0.4%	0.4	0.2%	2.05	1.0%	0	0.0%	0	0.0%	0	0.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	11.65	5.3%	4.6	2.1%	1.8	0.9%	19.9	10.1%	26.65	13.6%	6.05	2.9%	14.8	7.5%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0.3	0.2%	0.4	0.2%	0	0.0%	0	0.0%
TOTAL	221.2	100.0%	219.25	100.0%	207.7	100.0%	197.8	100.0%	195.6	100.0%	212.1	100.0%	198.05	100.0%

ARR Recycling Composition

Date	8/23/2021		8/23/2021		8/25/2021		8/25/2021		8/25/2021		8/25/2021		8/25/2021	
Route No.	RMBU51		RMBU50		RWBU22		RWBU62		RWBU20		RWBU10		RWBU11	
Truck No.	196548		216444		116609		196504		196508		216443		156546	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	7.2	3.4%	34.8	16.1%	36	14.5%	40.2	18.8%	34.4	16.5%	53.8	23.7%	24.6	11.6%
Corrugated Cardboard	84.95	40.1%	49.7	23.0%	77.4	31.1%	58.5	27.4%	53.2	25.5%	84.7	37.2%	71.85	33.9%
Compostable Paper	1.6	0.8%	1.8	0.8%	8.3	3.3%	3.6	1.7%	2.5	1.2%	3.95	1.7%	1.8	0.8%
Other Paper	30.1	14.2%	54.7	25.3%	40.7	16.4%	55.7	26.1%	45.7	21.9%	35.1	15.4%	24.95	11.8%
Poly-Coated / Aseptic Cartons	0.6	0.3%	1.15	0.5%	4.8	1.9%	0.9	0.4%	1.2	0.6%	1.05	0.5%	1.6	0.8%
Residual Papers	1.3	0.6%	1.9	0.9%	4.1	1.6%	1.5	0.7%	0.5	0.2%	2.7	1.2%	3.05	1.4%
PLASTICS														
PET #1	10.85	5.1%	14.05	6.5%	10.8	4.3%	7.95	3.7%	10.85	5.2%	8.65	3.8%	8.85	4.2%
HDPE #2	2.3	1.1%	6.85	3.2%	10.5	4.2%	2.1	1.0%	4.95	2.4%	2.1	0.9%	3.2	1.5%
LDPE #4	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%
PVC #3 & PP #5	1.7	0.8%	0.55	0.3%	5.1	2.1%	2.2	1.0%	2.3	1.1%	1.75	0.8%	2.6	1.2%
PS #6	0.05	0.0%	0.45	0.2%	0.2	0.1%	0.1	0.0%	0.3	0.1%	0	0.0%	0.4	0.2%
Other Plastics #7	0.2	0.1%	0.8	0.4%	0.5	0.2%	0.6	0.3%	0.5	0.2%	0.5	0.2%	0.2	0.1%
Thin Plastic Bags	1	0.5%	0.75	0.3%	1.2	0.5%	0	0.0%	1.1	0.5%	0.65	0.3%	0.8	0.4%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	1.5	0.7%	5.2	2.4%	4.6	1.9%	4.8	2.2%	3	1.4%	1.1	0.5%	2.7	1.3%
Plastic Straws	0.05	0.0%	0.05	0.0%	0.1	0.0%	0.15	0.1%	0.35	0.2%	0.1	0.0%	0.05	0.0%
Residual Plastics	1.2	0.6%	7.85	3.6%	4.8	1.9%	2.5	1.2%	6.3	3.0%	1.9	0.8%	24.3	11.4%
METALS														
Ferrous Metal	1.2	0.6%	4.2	1.9%	4.7	1.9%	3.6	1.7%	1.4	0.7%	1.9	0.8%	3.6	1.7%
Aluminum	1.5	0.7%	6	2.8%	4.4	1.8%	3.5	1.6%	5.5	2.6%	1.9	0.8%	2.7	1.3%
Other Metal	0	0.0%	1.6	0.7%	2.1	0.8%	11.5	5.4%	2.1	1.0%	0	0.0%	2	0.9%
GLASS														
Glass Bottles & Jars	32.8	15.5%	14.35	6.6%	17.4	7.0%	6.5	3.0%	27.65	13.2%	24.4	10.7%	30.7	14.5%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	3.6	1.7%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Packaged Food Wastes	1.95	0.9%	0	0.0%	0.7	0.3%	0	0.0%	2.05	1.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.9%
Household Hazardous Waste	28.6	13.5%	1	0.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.65	0.3%	0	0.0%	0	0.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	1.2	0.6%	7.1	3.3%	10.1	4.1%	3.85	1.8%	2.3	1.1%	1.15	0.5%	0.2	0.1%
Painted Wood	0	0.0%	1.05	0.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	211.85	100.0%	215.9	100.0%	248.6	100.0%	213.35	100.0%	208.8	100.0%	227.4	100.0%	212.25	100.0%

ARR Recycling Composition

Date	8/25/2021		8/25/2021		8/25/2021		8/25/2021		8/26/2021		8/23/2021		8/23/2021		8/23/2021	
Route No.	RWBU23		RWBS33		RWBU51		RWBS41		RHBU60		RMBU52		RMBU61		RMB532	
Truck No.	196692		196697		216444		216450		196504		216442		216453		116563	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS																
Mixed Paper	23.3	11.5%	10.7	5.0%	16.8	8.1%	26.9	11.5%	27.8	13.0%	26.7	12.6%	9.7	4.6%	31.25	14.1%
Corrugated Cardboard	67.8	33.4%	89.45	41.7%	88.3	42.4%	44.2	18.9%	122.5	57.5%	45.1	21.3%	96.05	45.1%	57.1	25.7%
Compostable Paper	0.9	0.4%	1.5	0.7%	1.8	0.9%	1.3	0.6%	1.6	0.8%	6	2.8%	1.75	0.8%	1.1	0.5%
Other Paper	33.15	16.4%	43.7	20.4%	43.9	21.1%	47.95	20.5%	24.1	11.3%	60.55	28.6%	46.4	21.8%	45.55	20.5%
Poly-Coated / Aseptic Cartons	1	0.5%	1.05	0.5%	1.8	0.9%	0.35	0.1%	0.25	0.1%	2.6	1.2%	0.3	0.1%	1.3	0.6%
Residual Papers	4.15	2.0%	0.4	0.2%	1.7	0.8%	10.7	4.6%	1.1	0.5%	2	0.9%	1.8	0.8%	2.1	0.9%
PLASTICS																
PET #1	13.15	6.5%	9.2	4.3%	7.85	3.8%	13	5.6%	4.45	2.1%	14.85	7.0%	13.6	6.4%	13.5	6.1%
HDPE #2	8.25	4.1%	2.9	1.4%	3.2	1.5%	4.25	1.8%	0.6	0.3%	5.85	2.8%	3.5	1.6%	5.1	2.3%
LDPE #4	0	0.0%	0.05	0.0%	0	0.0%	0.2	0.1%	0.1	0.0%	0.3	0.1%	0	0.0%	0	0.0%
PVC #3 & PP #5	1.8	0.9%	1.2	0.6%	2.1	1.0%	2.25	1.0%	1.5	0.7%	3.2	1.5%	1.6	0.8%	2.95	1.3%
PS #6	0.8	0.4%	0.2	0.1%	0.2	0.1%	0.4	0.2%	0.5	0.2%	0.2	0.1%	0	0.0%	0.5	0.2%
Other Plastics #7	0.4	0.2%	0.4	0.2%	0.15	0.1%	0.15	0.1%	1.2	0.6%	0.6	0.3%	0.2	0.1%	0.3	0.1%
Thin Plastic Bags	1.2	0.6%	0.8	0.4%	0.7	0.3%	0.55	0.2%	0.5	0.2%	0.95	0.4%	1.2	0.6%	0.3	0.1%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	3.6	1.8%	1.85	0.9%	5.15	2.5%	2.55	1.1%	6.9	3.2%	2.45	1.2%	2.05	1.0%	2.95	1.3%
Plastic Straws	0.1	0.0%	0.01	0.0%	0.15	0.1%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%
Residual Plastics	1.6	0.8%	2.35	1.1%	1.6	0.8%	4.3	1.8%	3.2	1.5%	4	1.9%	6.3	3.0%	3.9	1.8%
METALS																
Ferrous Metal	1.5	0.7%	1.9	0.9%	1.3	0.6%	1.4	0.6%	1.5	0.7%	2.3	1.1%	1	0.5%	0.55	0.2%
Aluminum	4.2	2.1%	5.05	2.4%	2.55	1.2%	7.55	3.2%	4.7	2.2%	4.65	2.2%	1.93	0.9%	4.95	2.2%
Other Metal	1.4	0.7%	0	0.0%	1.5	0.7%	2	0.9%	0	0.0%	6	2.8%	0	0.0%	10.8	4.9%
GLASS																
Glass Bottles & Jars	32	15.8%	41.6	19.4%	19.6	9.4%	49.55	21.2%	8	3.8%	17.55	8.3%	18	8.5%	31.85	14.3%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	5.7	2.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS																
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.4	0.2%	0	0.0%	1.05	0.5%	0	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%	0	0.0%	0.2	0.1%
FOOD WASTE																
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE																
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	4.7	2.3%	5.8	2.5%	0.6	0.3%	0.6	0.3%	1.9	0.9%	0.8	0.4%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3.5	1.7%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS																
Unknown or Not Classified	2.1	1.0%	0.2	0.1%	1.4	0.7%	2.6	1.1%	1.6	0.8%	1.1	0.5%	4.4	2.1%	5.3	2.4%
Painted Wood	0	0.0%	0	0.0%	1.9	0.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	202.7	100.0%	214.51	100.0%	208.35	100.0%	233.9	100.0%	213.15	100.0%	211.4	100.0%	212.88	100.0%	222.4	100.0%

ARR Recycling Composition

Date	8/24/2021		8/24/2021		8/24/2021		8/27/2021		8/27/2021		8/27/2021		8/27/2021	
Route No.	RTBU53		RTBU62		RTBU51		RFBU51		RFBU50		RFB533		RFB534	
Truck No.	216442		136465		216450		196548		216444		216442		176953	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	8.35	3.9%	16.4	7.2%	24	11.0%	29	13.6%	8.6	4.1%	16.05	7.4%	48.3	19.5%
Corrugated Cardboard	103.55	48.2%	106.35	46.9%	105.7	48.3%	87.4	41.1%	122.45	58.4%	123.85	56.9%	73.55	29.7%
Compostable Paper	3.9	1.8%	4.4	1.9%	2.2	1.0%	3.1	1.5%	1.5	0.7%	4.8	2.2%	1.2	0.5%
Other Paper	30.2	14.1%	40.1	17.7%	28.9	13.2%	38.2	17.9%	34.3	16.4%	21.95	10.1%	33.1	13.4%
Poly-Coated / Aseptic Cartons	1.1	0.5%	1.8	0.8%	0.5	0.2%	0.8	0.4%	1.2	0.6%	0.9	0.4%	1.4	0.6%
Residual Papers	1.2	0.6%	2.2	1.0%	1.6	0.7%	3	1.4%	3.7	1.8%	1.4	0.6%	1.9	0.8%
PLASTICS														
PET #1	4.95	2.3%	14.7	6.5%	7.95	3.6%	10.05	4.7%	4.85	2.3%	6.35	2.9%	8.2	3.3%
HDPE #2	1.9	0.9%	5.25	2.3%	1.3	0.6%	2.65	1.2%	1.75	0.8%	3	1.4%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.01	0.0%	4.15	1.7%
PVC #3 & PP #5	2.2	1.0%	1.8	0.8%	1.2	0.5%	2.4	1.1%	1.85	0.9%	1.25	0.6%	6.18	2.5%
PS #6	0.6	0.3%	0.2	0.1%	0.1	0.0%	1.05	0.5%	0.4	0.2%	0.2	0.1%	0.35	0.1%
Other Plastics #7	0.5	0.2%	0.2	0.1%	1	0.5%	0.35	0.2%	0.15	0.1%	0.5	0.2%	0.5	0.2%
Thin Plastic Bags	1.05	0.5%	1.3	0.6%	2	0.9%	0.2	0.1%	1	0.5%	1.15	0.5%	0.9	0.4%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	5.6	2.6%	0	0.0%
Plastic Film	3.85	1.8%	4.9	2.2%	12.75	5.8%	1.65	0.8%	3.55	1.7%	6.15	2.8%	1.8	0.7%
Plastic Straws	0.15	0.1%	0.1	0.0%	0.15	0.1%	0	0.0%	0.1	0.0%	0.05	0.0%	0.05	0.0%
Residual Plastics	4.05	1.9%	3.2	1.4%	2.2	1.0%	2.9	1.4%	4.85	2.3%	10.3	4.7%	1.1	0.4%
METALS														
Ferrous Metal	1.05	0.5%	0.65	0.3%	2.9	1.3%	1.95	0.9%	0.2	0.1%	0.6	0.3%	4.2	1.7%
Aluminum	2.25	1.0%	2.5	1.1%	3.2	1.5%	3.9	1.8%	2.5	1.2%	3.4	1.6%	9.25	3.7%
Other Metal	1.8	0.8%	0.3	0.1%	0	0.0%	0.65	0.3%	9.35	4.5%	0	0.0%	4.9	2.0%
GLASS														
Glass Bottles & Jars	26.05	12.1%	12	5.3%	14.6	6.7%	22.1	10.4%	4.15	2.0%	6.05	2.8%	42.8	17.3%
Other Glass & Ceramics	0.75	0.3%	0	0.0%	0	0.0%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0.15	0.1%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0.15	0.1%	1.1	0.4%
Other Organics/Combustibles	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.7	0.3%
Packaged Food Wastes	1.6	0.7%	1.2	0.5%	0	0.0%	0.4	0.2%	0	0.0%	0.25	0.1%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	13.3	6.2%	0	0.0%	0.8	0.4%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	3.2	1.4%	1.4	0.6%	0.15	0.1%	0	0.0%	0	0.0%	0	0.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0.2	0.1%	3.7	1.6%	3.7	1.7%	0.6	0.3%	1.3	0.6%	3.65	1.7%	2.15	0.9%
Painted Wood	0	0.0%	0	0.0%	0.7	0.3%	0	0.0%	2	1.0%	0	0.0%	0	0.0%
TOTAL	214.8	100.0%	226.65	100.0%	218.85	100.0%	212.9	100.0%	209.75	100.0%	217.61	100.0%	247.78	100.0%

ARR Recycling Composition

Date	8/27/2021		8/27/2021		8/26/2021		8/26/2021		8/26/2021		8/26/2021	
Route No.	RFBS42		RFBS43		RHBU13		RHBU10		RHBU11		RHBU12	
Truck No.	186504		196697		216447		216443		196506		196685	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS												
Mixed Paper	6	2.7%	26.5	11.4%	18.9	8.8%	14.5	6.5%	29	13.6%	24	10.9%
Corrugated Cardboard	133.79	61.1%	61.4	26.5%	90.6	42.0%	138.7	62.2%	75.15	35.3%	97.35	44.3%
Compostable Paper	11.6	5.3%	4	1.7%	1.9	0.9%	1.95	0.9%	1.6	0.8%	1.05	0.5%
Other Paper	17.75	8.1%	44.9	19.3%	37.85	17.5%	29.15	13.1%	37.3	17.5%	39.2	17.8%
Poly-Coated / Aseptic Cartons	0.2	0.1%	1.6	0.7%	0.5	0.2%	1.55	0.7%	1.2	0.6%	1.05	0.5%
Residual Papers	0.4	0.2%	3	1.3%	3.05	1.4%	2	0.9%	4.1	1.9%	1.65	0.8%
PLASTICS												
PET #1	4.5	2.1%	5.9	2.5%	8.8	4.1%	5.2	2.3%	7.9	3.7%	8.35	3.8%
HDPE #2	1.8	0.8%	3	1.3%	5.9	2.7%	2	0.9%	1.75	0.8%	2.7	1.2%
LDPE #4	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	2.5	1.1%	2.25	1.0%	1	0.5%	1.05	0.5%	1.95	0.9%	2.95	1.3%
PS #6	0.4	0.2%	0.7	0.3%	0	0.0%	0	0.0%	1.1	0.5%	0.5	0.2%
Other Plastics #7	0.2	0.1%	1	0.4%	0.5	0.2%	0.2	0.1%	0.5	0.2%	0.15	0.1%
Thin Plastic Bags	1.3	0.6%	1.05	0.5%	1	0.5%	1.3	0.6%	1.2	0.6%	0.6	0.3%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	4.55	2.1%	2.05	0.9%	2.15	1.0%	1.6	0.7%	3.2	1.5%	1.4	0.6%
Plastic Straws	0.05	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%
Residual Plastics	1	0.5%	2.35	1.0%	2.9	1.3%	0.6	0.3%	2	0.9%	5.75	2.6%
METALS												
Ferrous Metal	1.5	0.7%	1.9	0.8%	0.3	0.1%	1.5	0.7%	1.05	0.5%	1.7	0.8%
Aluminum	4.8	2.2%	7.25	3.1%	4.45	2.1%	3.25	1.5%	6.35	3.0%	3	1.4%
Other Metal	0.3	0.1%	0	0.0%	5.05	2.3%	0.6	0.3%	0.3	0.1%	0.5	0.2%
GLASS												
Glass Bottles & Jars	23.7	10.8%	40.2	17.3%	28.7	13.3%	14	6.3%	34.6	16.3%	21.55	9.8%
Other Glass & Ceramics	0	0.0%	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS												
Yard Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	0	0.0%	21.4	9.2%	0	0.0%	0.2	0.1%	0.05	0.0%	0.3	0.1%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE												
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	2.85	1.3%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE												
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0.1	0.0%	0	0.0%	0	0.0%	0.9	0.4%	1.9	0.9%	2.15	1.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3.85	1.8%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS												
Unknown or Not Classified	2.25	1.0%	1.5	0.6%	1.8	0.8%	0	0.0%	0.55	0.3%	0	0.0%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	219.09	100.0%	232.1	100.0%	215.75	100.0%	223.1	100.0%	212.8	100.0%	219.75	100.0%

ARR Recycling Composition

Date: 8/27/2021
 Route No.: RFBU11
 Truck No.: 216447

	Pounds	Percent	Total	Average	Percent of Total	Standard Deviation (pounds)	Standard Deviation (%)
PAPERS							
Mixed Paper	22.9	11.0%	1053.8	21.1	9.7%	15.2	7.0%
Corrugated Cardboard	78.25	37.6%	4041.3	80.8	37.3%	29.4	13.2%
Compostable Paper	3.8	1.8%	195.4	3.9	1.8%	3.5	1.6%
Other Paper	50.6	24.3%	1865.2	37.3	17.2%	11.1	5.4%
Poly-Coated / Aseptic Cartons	1.2	0.6%	51.8	1	0.5%	0.8	0.3%
Residual Papers	1.8	0.9%	126.3	2.5	1.2%	2.1	0.9%
PLASTICS							
PET #1	8.6	4.1%	487.8	9.8	4.5%	4.1	2.0%
HDPE #2	2.35	1.1%	211.2	4.2	1.9%	2.6	1.2%
LDPE #4	0	0.0%	5.5	0.1	0.0%	0.6	0.2%
PVC #3 & PP #5	2.7	1.3%	112.8	2.3	1.1%	1.1	0.5%
PS #6	1.4	0.7%	19.0	0.4	0.2%	0.3	0.2%
Other Plastics #7	0.9	0.4%	27.0	0.5	0.2%	0.3	0.2%
Thin Plastic Bags	1.1	0.5%	61.1	1.2	0.6%	0.9	0.4%
Thick Plastic Bags	0	0.0%	6.1	0.1	0.0%	0.8	0.4%
Plastic Film	1.7	0.8%	169.2	3.4	1.6%	2.2	1.0%
Plastic Straws	0.05	0.0%	4.0	0.1	0.0%	0.1	0.0%
Residual Plastics	5.1	2.4%	267.3	5.3	2.4%	4.7	2.2%
METALS							
Ferrous Metal	0.6	0.3%	99.9	2	0.9%	1.4	0.6%
Aluminum	6.4	3.1%	264.0	5.3	2.4%	2.8	1.3%
Other Metal	1.8	0.9%	101.5	2	0.9%	2.7	1.3%
GLASS							
Glass Bottles & Jars	16.95	8.1%	1169.5	23.4	10.8%	13.6	6.1%
Other Glass & Ceramics	0	0.0%	7.6	0.2	0.1%	0.8	0.3%
COMPOSTABLE MATERIALS							
Yard Wastes	0	0.0%	22.4	0.4	0.2%	2.2	1.0%
Compostable Wood	0	0.0%	29.8	0.6	0.3%	3.0	1.3%
Other Organics/Combustibles	0	0.0%	1.5	0	0.0%	0.1	0.0%
FOOD WASTE							
Meats	0	0.0%	3.6	0.1	0.0%	0.5	0.2%
Fruits and Vegetables	0	0.0%	0.0	0	0.0%	0.0	0.0%
Fats and Oils	0	0.0%	0.0	0	0.0%	0.0	0.0%
Unpackaged Food Wastes	0	0.0%	17.4	0.3	0.1%	2.2	1.0%
Packaged Food Wastes	0.15	0.1%	30.8	0.6	0.3%	1.1	0.5%
REUSABLE / RECOVERABLE							
Electronics	0	0.0%	5.5	0.1	0.0%	0.6	0.3%
Household Hazardous Waste	0	0.0%	58.6	1.2	0.6%	4.8	2.3%
Textiles	0	0.0%	59.1	1.2	0.6%	1.8	0.8%
Carpet	0	0.0%	12.5	0.2	0.1%	1.0	0.5%
Furniture	0	0.0%	0.0	0	0.0%	0.0	0.0%
C&D Wastes	0	0.0%	0.0	0	0.0%	0.0	0.0%
Pallets	0	0.0%	0.0	0	0.0%	0.0	0.0%
Tires	0	0.0%	0.0	0	0.0%	0.0	0.0%
RESIDUALS							
Unknown or Not Classified	0	0.0%	240.4	4.8	2.2%	5.7	2.8%
Painted Wood	0	0.0%	6.7	0.1	0.0%	0.4	0.2%
TOTAL	208.35	100.0%	10834.9	216.5	100.0%		

ARR Organics Composition

Date
Route No.
Truck No.

	8/18/2021		8/18/2021		8/18/2021		8/16/2021		8/16/2021		8/17/2021		8/17/2021	
	OW 06		OW 08		OW 04		OM 26		OM 23		OT 12		OT 13	
	196690				206463						216435		196698	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%
Corrugated Cardboard	0.15	0.1%	2.05	1.0%	0.5	0.2%	0.3	0.1%	0.05	0.0%	0	0.0%	1.2	0.6%
Compostable Paper	1.8	0.8%	4.35	2.0%	2	1.0%	2.7	1.2%	4	1.8%	2.5	1.2%	2	0.9%
Other Paper	4	1.9%	4.2	2.0%	1.85	0.9%	3.8	1.7%	10.05	4.6%	1	0.5%	2.9	1.4%
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Papers	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	1.35	0.6%	0	0.0%	0	0.0%
PLASTICS														
PET #1	0	0.0%	0	0.0%	0.05	0.0%	0.2	0.1%	0	0.0%	0.1	0.0%	0	0.0%
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0	0.0%	0	0.0%	0.35	0.2%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%
PS #6	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Plastics #7	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%
Thin Plastic Bags	0	0.0%	0	0.0%	0.4	0.2%	0	0.0%	0.2	0.1%	0.1	0.0%	1	0.5%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0	0.0%	0.25	0.1%	0	0.0%	0.05	0.0%	0.3	0.1%	0.05	0.0%	0	0.0%
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0.01	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Plastics	0	0.0%	0	0.0%	0.2	0.1%	0.35	0.2%	0.65	0.3%	0.05	0.0%	0	0.0%
METALS														
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Aluminum	0	0.0%	0	0.0%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%
GLASS														
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.7	0.3%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	193	89.6%	195.1	91.7%	198.8	95.1%	194.4	88.6%	170.1	77.9%	202.1	93.6%	169.05	80.1%
Compostable Wood	14.5	6.7%	0	0.0%	0.2	0.1%	0	0.0%	6.25	2.9%	7	3.2%	0	0.0%
Other Organics/Combustibles	0.25	0.1%	0.95	0.4%	0.55	0.3%	0.3	0.1%	1.75	0.8%	0.1	0.0%	1.75	0.8%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.45	0.2%	0	0.0%	4.05	1.9%
Fruits and Vegetables	0	0.0%	0.5	0.2%	0	0.0%	1.1	0.5%	0.75	0.3%	0.8	0.4%	7.55	3.6%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	0.8	0.4%	0.75	0.4%	3.2	1.5%	12.05	5.5%	21.15	9.7%	2	0.9%	13.75	6.5%
Packaged Food Wastes	0	0.0%	3.5	1.6%	0	0.0%	2.75	1.3%	0.6	0.3%	0	0.0%	5	2.4%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0.35	0.2%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0.9	0.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0	0.0%	1.1	0.5%	0.8	0.4%	0.8	0.4%	0	0.0%	0	0.0%	0	0.0%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2.35	1.1%
TOTAL	215.4	100.0%	212.75	100.0%	209.1	100.0%	219.36	100.0%	218.35	100.0%	216	100.0%	211	100.0%

ARR Organics Composition

Date
Route No.
Truck No.

	8/17/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021	
	OT 35	OT 33	OT 34	OT 24	OT 25	OT 14	OT 31	OT 30						
	176952	156770	176947	186512	206467	196705	196688	176949						
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.1%	0	0.0%	0	0.0%
Corrugated Cardboard	1	0.4%	0	0.0%	0	0.0%	2.1	1.0%	0.75	0.5%	0	0.0%	0.1	0.1%
Compostable Paper	2.15	0.9%	2.35	1.1%	13.1	6.4%	5.3	2.5%	7.35	4.5%	0	0.0%	6.4	2.9%
Other Paper	2.45	1.1%	0.75	0.4%	3.8	1.9%	4.9	2.3%	12.3	7.5%	3.1	1.5%	2.7	1.2%
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	0.95	0.5%	0	0.0%	0	0.0%	0	0.0%
Residual Papers	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1.4	0.9%	0	0.0%	1.1	0.5%
PLASTICS														
PET #1	0.1	0.0%	0.05	0.0%	0.2	0.1%	0.15	0.1%	0.05	0.0%	0	0.0%	0	0.0%
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0	0.0%	0	0.0%	0.4	0.2%	0.01	0.0%	0.2	0.1%	0	0.0%	0.01	0.0%
PS #6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.1%	0	0.0%	0	0.0%
Other Plastics #7	0	0.0%	0	0.0%	0	0.0%	0.01	0.0%	0.8	0.5%	0	0.0%	0.05	0.0%
Thin Plastic Bags	0	0.0%	0.15	0.1%	0	0.0%	0	0.0%	0.25	0.2%	0.2	0.1%	0	0.0%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0.01	0.0%	0.15	0.1%	1.25	0.6%	0.1	0.0%	0.2	0.1%	0.2	0.1%	0	0.0%
Plastic Straws	0.05	0.0%	0	0.0%	0	0.0%	0.01	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Plastics	0	0.0%	0.25	0.1%	0	0.0%	0.2	0.1%	0.46	0.3%	0.15	0.1%	0.25	0.1%
METALS														
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%
Aluminum	0.01	0.0%	0	0.0%	0	0.0%	0.16	0.1%	0	0.0%	0	0.0%	0.05	0.0%
Other Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GLASS														
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.7	0.3%
COMPOSTABLE MATERIALS														
Yard Wastes	208.2	91.8%	197	95.8%	180.65	88.4%	130.3	62.4%	115.8	71.0%	205.7	98.1%	191.5	88.0%
Compostable Wood	1.3	0.6%	0.55	0.3%	0.55	0.3%	33.8	16.2%	2.2	1.3%	0.4	0.2%	5.75	2.6%
Other Organics/Combustibles	0.55	0.2%	0.9	0.4%	0.65	0.3%	0.45	0.2%	0.9	0.6%	0	0.0%	0.5	0.2%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0.5	0.2%	10.75	5.1%	2.15	1.3%	0	0.0%	1.4	0.6%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	8.2	3.6%	3.4	1.7%	1.75	0.9%	17	8.1%	15.25	9.4%	0	0.0%	7	3.2%
Packaged Food Wastes	0.9	0.4%	0	0.0%	1.35	0.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0.25	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	2.45	1.2%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0	0.0%	0	0.0%	0	0.0%	0.2	0.1%	0.3	0.2%	0	0.0%	0	0.0%
Painted Wood	1.9	0.8%	0	0.0%	0	0.0%	0	0.0%	2.45	1.5%	0	0.0%	0	0.0%
TOTAL	226.82	100.0%	205.55	100.0%	204.45	100.0%	208.84	100.0%	163.06	100.0%	209.75	100.0%	218.01	100.0%

ARR Organics Composition

Date	8/18/2021		8/16/2021		8/17/2021		8/17/2021		8/17/2021		8/18/2021		8/17/2021	
Route No.	OW 02		OM 6		OT 01		OT 17		OT 03		OT 10		OT 20	
Truck No.	176951				206463		196675		196690		186878			
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Corrugated Cardboard	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1.2	0.5%
Compostable Paper	5.15	2.4%	4.8	2.1%	4.25	1.8%	3.9	1.6%	16	7.7%	0.1	0.0%	3.5	1.8%
Other Paper	1.9	0.9%	7.4	3.3%	5.55	2.4%	11.8	4.7%	9.65	4.6%	4.2	2.0%	3.75	1.7%
Poly-Coated / Aseptic Cartons	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Papers	0.1	0.0%	0.1	0.0%	0.8	0.3%	0	0.0%	1.4	0.7%	0	0.0%	0.55	0.3%
PLASTICS														
PET #1	0.35	0.2%	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0.5	0.2%	0	0.0%	0	0.0%	0.05	0.0%	0.1	0.0%	0	0.0%	0.3	0.1%
PS #6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Plastics #7	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Thin Plastic Bags	0	0.0%	0.4	0.2%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%
Residual Plastics	0	0.0%	0	0.0%	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%
METALS														
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Aluminum	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Metal	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GLASS														
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	174.4	81.2%	205.75	91.9%	202.3	87.4%	229.95	92.5%	180.65	86.9%	208.95	98.0%	188.4	85.8%
Compostable Wood	23.55	11.0%	0.01	0.0%	5.4	2.3%	0	0.0%	0	0.0%	0	0.0%	13.85	6.3%
Other Organics/Combustibles	0.65	0.3%	0	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0	0.0%	0.3	0.3%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0.7	0.3%	1.15	0.5%	3.3	1.4%	0	0.0%	0	0.0%	0	0.0%	0.65	0.3%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	7	3.3%	2.7	1.2%	0	0.0%	1.35	0.5%	0	0.0%	0	0.0%	4.7	2.1%
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0.1	0.0%	0.55	0.2%	3.65	1.6%	0	0.0%	0	0.0%	0	0.0%	1.25	0.6%
Painted Wood	0	0.0%	0	0.0%	5.3	2.3%	1.15	0.5%	0	0.0%	0	0.0%	0	0.0%
TOTAL	214.7	100.0%	223.86	100.0%	231.35	100.0%	248.5	100.0%	207.85	100.0%	213.25	100.0%	219.55	100.0%

ARR Organics Composition

Date	8/18/2021		8/18/2021		8/18/2021		8/18/2021		8/18/2021		8/18/2021		8/18/2021	
Route No.	OW 12		OW 32		OW 30		OW 27		OW 34		OW 14		OW 31	
Truck No.	206467		176952		166825		186512		176947		196705		196688	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1.65	0.7%
Corrugated Cardboard	0	0.0%	0.3	0.1%	4.45	2.0%	2.75	1.0%	0	0.0%	0.3	0.1%	0.65	0.3%
Compostable Paper	4.3	2.0%	5.4	2.5%	3.1	1.4%	3	1.1%	3	1.4%	5	2.4%	6.5	2.7%
Other Paper	3.8	1.8%	4.1	1.9%	5.1	2.3%	8.3	3.0%	2.1	1.0%	3.9	1.9%	4.55	1.9%
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Papers	0	0.0%	0.25	0.1%	0.15	0.1%	0.15	0.1%	0	0.0%	0.4	0.2%	0.25	0.1%
PLASTICS														
PET #1	0	0.0%	0	0.0%	0.4	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.4	0.2%	1.05	0.4%
PS #6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Plastics #7	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Thin Plastic Bags	0	0.0%	0	0.0%	1.5	0.7%	0	0.0%	0.7	0.3%	0.2	0.1%	0.75	0.3%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0.2	0.1%	0.15	0.1%	1.4	0.6%	0.1	0.0%	0	0.0%	0.1	0.0%	0	0.0%
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Plastics	0.15	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
METALS														
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Aluminum	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GLASS														
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	187.3	88.5%	193.2	89.7%	162	74.4%	257.1	93.3%	193.1	91.4%	171.3	82.4%	215.7	89.2%
Compostable Wood	8.45	4.0%	0	0.0%	0.01	0.0%	0.15	0.1%	0	0.0%	4.6	2.2%	0	0.0%
Other Organics/Combustibles	0.5	0.2%	1.4	0.6%	1.75	0.8%	1.2	0.4%	1.35	0.6%	0.9	0.4%	1.3	0.5%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	1.2	0.6%	0	0.0%	0	0.0%	2.65	1.3%	0	0.0%
Fruits and Vegetables	1.9	0.9%	0.65	0.3%	2.35	1.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	5.05	2.4%	10	4.6%	32.45	14.9%	2.7	1.0%	11	5.2%	16.25	7.8%	9.45	3.9%
Packaged Food Wastes	0	0.0%	0	0.0%	1.8	0.8%	0	0.0%	0	0.0%	1.85	0.9%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Wrecks	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	211.65	100.0%	215.45	100.0%	217.66	100.0%	275.5	100.0%	211.25	100.0%	207.85	100.0%	241.75	100.0%

ARR Organics Composition

Date	8/18/2021		8/18/2021		8/18/2021		8/18/2021		8/16/2021		8/16/2021		8/16/2021		8/16/2021	
Route No.	OW 21		OW 11		OW 17		OW 10		OM 30		OM 31		OM 32		OM 35	
Truck No.	166794		186510				186878								176952	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS																
Mixed Paper	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0.5	0.2%	0.76	0.3%	0	0.0%	0	0.0%
Corrugated Cardboard	0	0.0%	1.39	0.7%	0.55	0.3%	0.1	0.0%	1	0.5%	5	2.1%	0.15	0.1%	0	0.0%
Compostable Paper	5.7	2.7%	6.4	3.0%	8.75	4.2%	14.2	6.7%	8.7	4.1%	12.9	5.4%	21.95	8.1%	4.6	1.9%
Other Paper	7.7	3.6%	4.75	2.2%	7.1	3.4%	9.1	4.3%	6.2	2.9%	4.05	1.7%	11.1	4.1%	11.65	4.9%
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%
Residual Papers	0.55	0.3%	0	0.0%	1.2	0.6%	0.25	0.1%	1.1	0.5%	1.15	0.5%	1.65	0.6%	0.35	0.1%
PLASTICS																
PET #1	0.1	0.0%	0.3	0.1%	0	0.0%	0	0.0%	0.1	0.0%	0.05	0.0%	0	0.0%	0.1	0.0%
HDPE #2	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%	0.15	0.1%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%	0.35	0.1%	0	0.0%
PS #6	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0.15	0.1%	0	0.0%
Other Plastics #7	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.35	0.1%	0	0.0%	0	0.0%
Thin Plastic Bags	0.1	0.0%	4.2	2.0%	0	0.0%	0	0.0%	0	0.0%	0.01	0.0%	0.15	0.1%	0.2	0.1%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0.1	0.0%	0	0.0%	0	0.0%	0.15	0.1%	0.15	0.1%	0.15	0.1%	0	0.0%	0.1	0.0%
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Plastics	0.4	0.2%	0.55	0.2%	0	0.0%	0.05	0.0%	0	0.0%	0.1	0.0%	1	0.4%	0.15	0.1%
METALS																
Ferrous Metal	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Aluminum	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0.1	0.0%
Other Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GLASS																
Glass Bottles & Jars	0	0.0%	1.65	0.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS																
Yard Wastes	174.7	81.8%	145.7	68.3%	170.1	80.8%	178.1	83.5%	153.7	72.1%	188.4	78.6%	180.1	66.5%	208.7	86.9%
Compostable Wood	0	0.0%	5.05	2.4%	0	0.0%	0.15	0.1%	19.95	9.4%	0.5	0.2%	11.35	4.2%	1.5	0.6%
Other Organics/Combustibles	1.2	0.6%	1.75	0.8%	1.45	0.7%	0.5	0.2%	0.95	0.4%	1.3	0.5%	4.85	1.8%	0.55	0.2%
FOOD WASTE																
Meats	0.45	0.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.65	0.3%	1.15	0.4%	0	0.0%
Fruits and Vegetables	0	0.0%	1.05	0.5%	0.75	0.4%	0.55	0.3%	3.45	1.6%	2.4	1.0%	1.35	0.5%	2.35	1.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	21.3	10.0%	39	18.3%	20.3	9.6%	4.35	2.0%	15.85	7.4%	21.75	9.1%	30.5	11.3%	9.4	3.9%
Packaged Food Wastes	1.15	0.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE																
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Wrecks	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	1.7	0.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS																
Unknown or Not Classified	0	0.0%	0	0.0%	0.15	0.1%	5.8	2.7%	1.5	0.7%	0.01	0.0%	4.95	1.8%	0.31	0.1%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL	213.55	100.0%	213.39	100.0%	210.45	100.0%	213.3	100.0%	213.3	100.0%	239.68	100.0%	271.1	100.0%	240.06	100.0%

ARR Organics Composition

Date
Route No.
Truck No.

	8/16/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021		8/17/2021	
	OM 04		OT 08		OT 05		OT 04		OT 02		OT 21		OT 23	
	176948		196703		186510		186511		166794		196689			
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS														
Mixed Paper	1.85	0.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Corrugated Cardboard	0	0.0%	0	0.0%	0	0.0%	2.7	1.3%	2.2	0.9%	3.25	1.5%	0.6	0.3%
Compostable Paper	5.4	2.3%	6.85	3.0%	0.95	0.4%	0.05	0.0%	15.2	6.5%	1.3	0.6%	7.1	3.4%
Other Paper	7.4	3.1%	4.2	1.9%	4	1.7%	0.9	0.4%	12.2	5.2%	6.3	3.0%	5.5	2.6%
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Papers	0.25	0.1%	0	0.0%	0.2	0.1%	0	0.0%	0.65	0.3%	0.3	0.1%	0.05	0.0%
PLASTICS														
PET #1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0	0.0%	0.2	0.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.1	0.0%
PS #6	0.01	0.0%	0	0.0%	0	0.0%	0	0.0%	0.01	0.0%	0	0.0%	0	0.0%
Other Plastics #7	0	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0.55	0.2%	0.01	0.0%	0	0.0%
Thin Plastic Bags	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	0.05	0.0%	0.1	0.0%	0.01	0.0%	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Residual Plastics	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%	0.75	0.3%	0.05	0.0%	0	0.0%
METALS														
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Aluminum	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Metal	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
GLASS														
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS														
Yard Wastes	187.1	78.4%	199	87.8%	188.2	81.5%	144.7	68.4%	188.2	80.4%	194	92.5%	186.1	89.4%
Compostable Wood	21.15	8.9%	0	0.0%	31	13.4%	0.9	0.4%	0	0.0%	1.2	0.6%	0.2	0.1%
Other Organics/Combustibles	0.85	0.4%	0.65	0.3%	0.5	0.2%	0.1	0.0%	0.8	0.3%	0.3	0.1%	0.2	0.1%
FOOD WASTE														
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	2.05	0.9%	0.3	0.1%	1.35	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	11.75	4.9%	15.25	6.7%	4.4	1.9%	1.45	0.7%	13.45	5.7%	1.3	0.6%	8.35	4.0%
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
REUSABLE / RECOVERABLE														
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Textiles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Auto Wrecks	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS														
Unknown or Not Classified	0.8	0.3%	0	0.0%	0.1	0.0%	0	0.0%	0	0.0%	1.75	0.8%	0	0.0%
Painted Wood		0.0%		0.0%		0.0%	60.7	28.7%		0.0%		0.0%		0.0%
TOTAL	238.71	100.0%	226.65	100.0%	230.86	100.0%	211.5	100.0%	234.06	100.0%	209.81	100.0%	208.2	100.0%

ARR Organics Composition

Date	8/17/2021		8/18/2021		8/17/2021		8/18/2021	8/16/2021									
	Route No.	Truck No.	OT 22	186877	OW 24	136796			BTOT 99	186500	Pounds	Percent	Pounds	Percent	Total	Average	Percent of Total
PAPERS																	
Mixed Paper	0	0.0%	0	0.0%	0	0.0%	5.2	0.1	0.0%	0.4	0.2%	5.2	0.1	0.0%	0.4	0.2%	
Corrugated Cardboard	0	0.0%	0	0.0%	0	0.0%	34.9	0.7	0.3%	1.2	0.5%	34.9	0.7	0.3%	1.2	0.5%	
Compostable Paper	2.45	1.2%	8.05	3.7%	4.3	2.0%	261.0	5.6	2.6%	4.6	2.0%	261.0	5.6	2.6%	4.6	2.0%	
Other Paper	4.3	2.0%	10.65	4.9%	8.35	3.9%	265.1	5.6	2.6%	3.2	1.5%	265.1	5.6	2.6%	3.2	1.5%	
Poly-Coated / Aseptic Cartons	0	0.0%	0	0.0%	0	0.0%	1.3	0	0.0%	0.1	0.1%	1.3	0	0.0%	0.1	0.1%	
Residual Papers	0	0.0%	0	0.0%	0.25	0.1%	16.1	0.3	0.1%	0.5	0.2%	16.1	0.3	0.1%	0.5	0.2%	
PLASTICS																	
PET #1	0	0.0%	0.05	0.0%	0	0.0%	3.5	0.1	0.0%	0.1	0.1%	3.5	0.1	0.0%	0.1	0.1%	
HDPE #2	0	0.0%	0	0.0%	0	0.0%	0.3	0	0.0%	0.0	0.0%	0.3	0	0.0%	0.0	0.0%	
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
PVC #3 & PP #5	0.01	0.0%	0.05	0.0%	0.35	0.2%	4.9	0.1	0.0%	0.2	0.1%	4.9	0.1	0.0%	0.2	0.1%	
PS #6	0	0.0%	0	0.0%	0.1	0.0%	0.5	0	0.0%	0.0	0.0%	0.5	0	0.0%	0.0	0.0%	
Other Plastics #7	0	0.0%	0	0.0%	0	0.0%	2.2	0	0.0%	0.2	0.1%	2.2	0	0.0%	0.2	0.1%	
Thin Plastic Bags	0	0.0%	0	0.0%	0	0.0%	11.1	0.2	0.1%	0.7	0.3%	11.1	0.2	0.1%	0.7	0.3%	
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
Plastic Film	0.1	0.0%	0	0.0%	0	0.0%	6.1	0.1	0.0%	0.3	0.1%	6.1	0.1	0.0%	0.3	0.1%	
Plastic Straws	0	0.0%	0	0.0%	0	0.0%	0.1	0	0.0%	0.0	0.0%	0.1	0	0.0%	0.0	0.0%	
Residual Plastics	0	0.0%	0.15	0.1%	0	0.0%	6.4	0.1	0.0%	0.2	0.1%	6.4	0.1	0.0%	0.2	0.1%	
METALS																	
Ferrous Metal	0	0.0%	0	0.0%	0	0.0%	0.2	0	0.0%	0.0	0.0%	0.2	0	0.0%	0.0	0.0%	
Aluminum	0	0.0%	0	0.0%	0	0.0%	0.7	0	0.0%	0.0	0.0%	0.7	0	0.0%	0.0	0.0%	
Other Metal	0.15	0.1%	0	0.0%	0	0.0%	0.7	0	0.0%	0.1	0.0%	0.7	0	0.0%	0.1	0.0%	
GLASS																	
Glass Bottles & Jars	0	0.0%	0	0.0%	0	0.0%	2.4	0.1	0.0%	0.3	0.1%	2.4	0.1	0.0%	0.3	0.1%	
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0.7	0	0.0%	0.1	0.0%	0.7	0	0.0%	0.1	0.0%	
COMPOSTABLE MATERIALS																	
Yard Wastes	200.55	95.5%	174.2	80.8%	200.9	92.7%	8779.2	186.8	85.3%	24.0	8.8%	8779.2	186.8	85.3%	24.0	8.8%	
Compostable Wood	0.15	0.1%	0.15	0.1%	0.9	0.4%	222.7	4.7	2.1%	8.5	3.8%	222.7	4.7	2.1%	8.5	3.8%	
Other Organics/Combustibles	0.35	0.2%	0	0.0%	0.2	0.1%	36.1	0.8	0.4%	0.8	0.3%	36.1	0.8	0.4%	0.8	0.3%	
FOOD WASTE																	
Meats	0	0.0%	0	0.0%	0	0.0%	10.6	0.2	0.1%	0.7	0.3%	10.6	0.2	0.1%	0.7	0.3%	
Fruits and Vegetables	0	0.0%	2	0.9%	0	0.0%	53.8	1.1	0.5%	2.0	0.9%	53.8	1.1	0.5%	2.0	0.9%	
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
Unpackaged Food Wastes	1.95	0.9%	20.3	9.4%	1.3	0.6%	455.1	9.7	4.4%	9.3	4.2%	455.1	9.7	4.4%	9.3	4.2%	
Packaged Food Wastes	0	0.0%	0	0.0%	0	0.0%	18.9	0.4	0.2%	1.0	0.5%	18.9	0.4	0.2%	1.0	0.5%	
REUSABLE / RECOVERABLE																	
Electronics	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
Household Hazardous Waste	0	0.0%	0	0.0%	0	0.0%	0.3	0	0.0%	0.0	0.0%	0.3	0	0.0%	0.0	0.0%	
Textiles	0	0.0%	0	0.0%	0	0.0%	0.4	0	0.0%	0.1	0.0%	0.4	0	0.0%	0.1	0.0%	
Auto Parts	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
Auto Tires	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	5.1	0.1	0.0%	0.5	0.2%	5.1	0.1	0.0%	0.5	0.2%	
Pallets	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
Tires	0	0.0%	0	0.0%	0	0.0%	0.0	0	0.0%	0.0	0.0%	0.0	0	0.0%	0.0	0.0%	
RESIDUALS																	
Unknown or Not Classified	0	0.0%	0	0.0%	0	0.0%	24.1	0.5	0.2%	1.2	0.5%	24.1	0.5	0.2%	1.2	0.5%	
Painted Wood	0	0.0%	0	0.0%	0	0.0%	73.9	1.6	0.7%	10.9	4.2%	73.9	1.6	0.7%	10.9	4.2%	
TOTAL	210.01	100.0%	215.6	100.0%	216.65	100.0%	10303.0	218.9	100.0%			10303.0	218.9	100.0%			

Commercial Trash Composition

Date	8/9/2021		8/9/2021		8/9/2021		8/9/2021		8/9/2021	
Route No.	A103		A108		A107		A105		A102	
Truck No.	665-16		60094-20		60081-19		60090		60093	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS										
Mixed Paper	1.2	0.5%	1.55	0.7%	1.25	0.6%	2.1	0.9%	0	0.0%
Corrugated Cardboard	14.5	6.1%	1.6	0.7%	26.1	12.2%	9.7	4.2%	18.8	9.0%
Compostable Paper	12.85	5.4%	18.2	8.5%	18.2	8.5%	12.1	5.3%	48.6	23.4%
Other Paper	22.5	9.4%	15.2	7.1%	19.75	9.2%	10.7	4.7%	2.2	1.1%
Poly-Coated / Aseptic Cartons	1.3	0.5%	0.35	0.2%	0.1	0.0%	1.7	0.7%	0.015	0.0%
Residual Papers	4.5	1.9%	9.2	4.3%	1.85	0.9%	1.7	0.7%	1.9	0.9%
PLASTICS										
PET #1	6.35	2.7%	4.9	2.3%	5.56	2.6%	6.95	3.0%	3.5	1.7%
HDPE #2	1.7	0.7%	6.1	2.8%	1.9	0.9%	3	1.3%	2.1	1.0%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	4.5	1.9%	1.4	0.7%	1.2	0.6%	1	0.4%	5.7	2.7%
PS #6	0.5	0.2%	0.2	0.1%	0.2	0.1%	0	0.0%	3.2	1.5%
Other Plastics #7	0.2	0.1%	0.15	0.1%	1.25	0.6%	0.45	0.2%	0.15	0.1%
Thin Plastic Bags	5.2	2.2%	7.6	3.5%	9.3	4.3%	4.6	2.0%	10.1	4.9%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Plastic Film	8.65	3.6%	9.95	4.6%	7.6	3.5%	9.1	4.0%	15.3	7.4%
Plastic Straws	0.1	0.0%	0.1	0.0%	0.05	0.0%	0	0.0%	0.25	0.1%
Residual Plastics	10.4	4.4%	12.6	5.9%	7	3.3%	8.15	3.6%	2.7	1.3%
METALS										
Ferrous Metal	1.6	0.7%	0	0.0%	1.1	0.5%	0.5	0.2%	0	0.0%
Aluminum	11.6	4.9%	5	2.3%	3.2	1.5%	3.1	1.4%	3.55	1.7%
Other Metal	0.8	0.3%	7.6	3.5%	2.45	1.1%	0	0.0%	1.6	0.8%
GLASS										
Glass Bottles & Jars	2.5	1.0%	6.5	3.0%	8	3.7%	3.5	1.5%	2.5	1.2%
Other Glass & Ceramics	0	0.0%	0.6	0.3%	1.85	0.9%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS										
Yard Wastes	0	0.0%	0	0.0%	14.1	6.6%	4.4	1.9%	0	0.0%
Compostable Wood	0	0.0%	0	0.0%	16.65	7.8%	11.6	5.1%	6.15	3.0%
Other Organics/Combustibles	0.2	0.1%	0	0.0%	12.1	5.6%	0	0.0%	0.5	0.2%
FOOD WASTE										
Meats	11.35	4.8%	0	0.0%	1.8	0.8%	0	0.0%	0	0.0%
Fruits and Vegetables	3.3	1.4%	0.8	0.4%	4.3	2.0%	4.7	2.0%	0.75	0.4%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	25	10.5%	38.3	17.8%	24.5	11.4%	25.2	11.0%	48.2	23.2%
Packaged Food Wastes	11.15	4.7%	17.4	8.1%	6.55	3.1%	21.9	9.5%	22.1	10.6%
REUSABLE / RECOVERABLE										
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	0	0.0%	2.1	1.0%	1.05	0.5%	0	0.0%
Textiles	19.6	8.2%	28.2	13.1%	11.4	5.3%	14.4	6.3%	4.7	2.3%
Carpet	20.9	8.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	16.65	7.3%	0	0.0%
RESIDUALS										
Unknown or Not Classified	35.8	15.0%	21.8	10.1%	3.25	1.5%	28.2	12.3%	3.2	1.5%
Painted Wood	0	0.0%	0	0.0%	0	0.0%	23.1	10.1%	0	0.0%
TOTAL	238.25	100.0%	215.3	100.0%	214.7	100.0%	229.55	100.0%	207.77	100.0%

Commercial Trash Composition

Date	8/13/2021		8/13/2021		8/13/2021		8/13/2021		8/13/2021	
Route No.	A102		A105		A108		A107		A103	
Truck No.	60094		60102		60109		60081		60065	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS										
Mixed Paper	1.3	0.6%	1.8	0.8%	0	0.0%	0	0.0%	0.4	0.2%
Corrugated Cardboard		0.0%	12.55	5.8%	2.75	1.3%	27.5	12.7%	46.4	22.1%
Compostable Paper	46.4	21.5%	3.15	1.5%	10.2	4.7%	3.4	1.6%	4	1.9%
Other Paper	3.9	1.8%	11.3	5.2%	24.8	11.4%	10.6	4.9%	5.1	2.4%
Poly-Coated / Aseptic Cartons	2.6	1.2%	0	0.0%	0.2	0.1%	0.5	0.2%	0.5	0.2%
Residual Papers	0.8	0.4%	1.7	0.8%	21.3	9.8%	14.15	6.5%	0.8	0.4%
PLASTICS										
PET #1	1.4	0.6%	1.2	0.6%	7.9	3.6%	4.9	2.3%	4.1	1.9%
HDPE #2	1.2	0.6%	4	1.8%	0	0.0%	3.04	1.4%	1	0.5%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	0.5	0.2%	0.3	0.1%	1.9	0.9%	1	0.5%	1.4	0.7%
PS #6	1.6	0.7%	0.45	0.2%	1.3	0.6%	0.2	0.1%	0.4	0.2%
Other Plastics #7	0.3	0.1%	0.4	0.2%	0.4	0.2%	0.7	0.3%	0.1	0.0%
Thin Plastic Bags	12.7	5.9%	3.6	1.7%	14.2	6.6%	9.8	4.5%	1.6	0.8%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1.6	0.8%
Plastic Film	14.5	6.7%	2.9	1.3%	3.2	1.5%	20.3	9.3%	12.1	5.8%
Plastic Straws	0.1	0.0%	0.05	0.0%	0.05	0.0%	0.05	0.0%	0.1	0.0%
Residual Plastics	32.15	14.9%	18.2	8.4%	13.4	6.2%	34	15.6%	3.9	1.9%
METALS										
Ferrous Metal	0	0.0%	0	0.0%	0.1	0.0%	0	0.0%	3.7	1.8%
Aluminum	1.9	0.9%	0.4	0.2%	32	14.8%	1.1	0.5%	3.5	1.7%
Other Metal	24.5	11.4%	46.1	21.2%	0.45	0.2%	37.8	17.4%	0	0.0%
GLASS										
Glass Bottles & Jars	0	0.0%	0	0.0%	0.65	0.3%	1.1	0.5%	0.7	0.3%
Other Glass & Ceramics	13.65	6.3%	0	0.0%	0	0.0%	0.8	0.4%	0	0.0%
COMPOSTABLE MATERIALS										
Yard Wastes	0	0.0%	46.4	21.4%	29.8	13.8%	1.45	0.7%	0	0.0%
Compostable Wood	0.1	0.0%	0	0.0%	0	0.0%	1.9	0.9%	12.6	6.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE										
Meats	0	0.0%	0	0.0%	0	0.0%	0	0.0%	10.8	5.1%
Fruits and Vegetables	0	0.0%	1.45	0.7%	0	0.0%	0.8	0.4%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	25.6	11.9%	0.7	0.3%	13.55	6.3%	5	2.3%	77.7	36.9%
Packaged Food Wastes	9.25	4.3%	10.2	4.7%	19.9	9.2%	10.1	4.6%	3.2	1.5%
REUSABLE / RECOVERABLE										
Electronics		0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	2.9	1.3%	1	0.5%	0	0.0%	3.45	1.6%	0	0.0%
Textiles	10.5	4.9%	2.8	1.3%	1.75	0.8%	1.9	0.9%	0.1	0.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	33.9	15.6%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS										
Unknown or Not Classified	5.9	2.7%	12.5	5.8%	0.5	0.2%	21.8	10.0%	14.6	6.9%
Painted Wood	1.7	0.8%	0	0.0%	16.4	7.6%	0	0.0%	0	0.0%
TOTAL	215.45	100.0%	217.05	100.0%	216.7	100.0%	217.34	100.0%	210.4	100.0%

Commercial Trash Composition

Date	8/16/2021		8/16/2021		8/16/2021		8/16/2021		8/16/2021	
Route No.	A102		A107		A108		A109		A105	
Truck No.	60094		60081		60109		60086		60090	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS										
Mixed Paper	1.2	0.6%	34	16.0%	0.1	0.0%	4.3	2.0%	1	0.4%
Corrugated Cardboard	6.8	3.2%	17.65	8.3%	7.35	3.6%	12.6	5.9%	5.6	2.4%
Compostable Paper	5.9	2.8%	7.2	3.4%	16	7.7%	23.4	10.9%	18.7	7.9%
Other Paper	5.6	2.6%	18.3	8.6%	6.9	3.3%	33.6	15.7%	5.9	2.5%
Poly-Coated / Aseptic Cartons	0.35	0.2%	1	0.5%	0.4	0.2%	1.6	0.7%	0	0.0%
Residual Papers	4.3	2.0%	15.5	7.3%	3.5	1.7%	1.4	0.7%	3.7	1.6%
PLASTICS										
PET #1	6.45	3.0%	4.3	2.0%	5.35	2.6%	6.3	2.9%	3.35	1.4%
HDPE #2	0.75	0.4%	1.4	0.7%	1.75	0.8%	2.1	1.0%	1	0.4%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	14.4	6.7%	2.2	1.0%	1.6	0.8%	3.6	1.7%	6.25	2.6%
PS #6	0.2	0.1%	0.3	0.1%	0.5	0.2%	0.9	0.4%	1.1	0.5%
Other Plastics #7	0.5	0.2%	1.2	0.6%	0.4	0.2%	0.2	0.1%	0.3	0.1%
Thin Plastic Bags	8.45	4.0%	3.7	1.7%	7.1	3.4%	11.8	5.5%	7.9	3.3%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3.6	1.5%
Plastic Film	27.55	12.9%	4	1.9%	3.1	1.5%	14.3	6.7%	9.9	4.2%
Plastic Straws	0	0.0%	0.2	0.1%	0.1	0.0%	0.05	0.0%	0.1	0.0%
Residual Plastics	22.05	10.3%	11.95	5.6%	6.8	3.3%	25.75	12.0%	8.85	3.8%
METALS										
Ferrous Metal	0	0.0%	0	0.0%	0.4	0.2%	0	0.0%	0.05	0.0%
Aluminum	1.8	0.8%	0.4	0.2%	4.3	2.1%	4.75	2.2%	2.85	1.2%
Other Metal	0	0.0%	24.6	11.6%	0.8	0.4%	2.8	1.3%	2.8	1.2%
GLASS										
Glass Bottles & Jars	7.9	3.7%	0.2	0.1%	11.8	5.7%	32	15.0%	2.6	1.1%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS										
Yard Wastes	0	0.0%	41.6	19.6%	1.5	0.7%	1.8	0.8%	24.1	10.2%
Compostable Wood	0	0.0%	0	0.0%	0	0.0%	6.5	3.0%	0	0.0%
Other Organics/Combustibles	1.1	0.5%	1.3	0.6%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE										
Meats	22.75	10.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	27.15	12.7%	0	0.0%	1.5	0.7%	0	0.0%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	23.5	11.0%	2.5	1.2%	68.8	33.2%	7.3	3.4%	34.05	14.4%
Packaged Food Wastes	15.8	7.4%	1	0.5%	4.7	2.3%	4.05	1.9%	10.6	4.5%
REUSABLE / RECOVERABLE										
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0.6	0.3%	5.05	2.4%	0	0.0%	0	0.0%	2.3	1.0%
Textiles	0.3	0.1%	1.5	0.7%	11.8	5.7%	10.6	5.0%	5.3	2.2%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	10.8	5.2%	0	0.0%	14.4	6.1%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS										
Unknown or Not Classified	8.5	4.0%	2.65	1.2%	29.6	14.3%	2	0.9%	59.7	25.3%
Painted Wood		0.0%	9.05	4.3%		0.0%		0.0%		0.0%
TOTAL	213.9	100.0%	212.75	100.0%	206.95	100.0%	213.7	100.0%	236	100.0%

Commercial Trash Composition

Date	8/16/2021		8/16/2021		8/16/2021		8/16/2021		8/16/2021	
Route No.	A103		A102		A108		A105		A103	
Truck No.	60065		60094 (2nd Load)		60109 (2nd Load)		60090		60065	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS										
Mixed Paper	0.2	0.1%	0.7	0.3%	1.1	0.5%	3.4	1.6%	12.8	5.8%
Corrugated Cardboard	10.45	4.9%	11.4	5.4%	12.05	5.7%	32.95	15.2%	81	36.4%
Compostable Paper	4.35	2.0%	1.3	0.6%	40.95	19.2%	4.8	2.2%	19.7	8.9%
Other Paper	4.35	2.0%	2.8	1.3%	5.05	2.4%	4.75	2.2%	4	1.8%
Poly-Coated / Aseptic Cartons	0.5	0.2%	0	0.0%	0	0.0%	0.75	0.3%	0.8	0.4%
Residual Papers	1.05	0.5%	3.2	1.5%	2.5	1.2%	0.5	0.2%	0.65	0.3%
PLASTICS										
PET #1	2.7	1.3%	1.2	0.6%	4.7	2.2%	1.7	0.8%	8.3	3.7%
HDPE #2	3.75	1.8%	0.5	0.2%	0.2	0.1%	0.2	0.1%	1.3	0.6%
LDPE #4	0	0.0%	0.05	0.0%	0	0.0%	0	0.0%	0	0.0%
PVC #3 & PP #5	1.2	0.6%	1.4	0.7%	2.1	1.0%	1	0.5%	2.7	1.2%
PS #6	0.15	0.1%	0.4	0.2%	0.55	0.3%	0.2	0.1%	2.75	1.2%
Other Plastics #7	0.15	0.1%	0.3	0.1%	1	0.5%	0.2	0.1%	1	0.4%
Thin Plastic Bags	1	0.5%	1.35	0.6%	8.25	3.9%	5.7	2.6%	3.8	1.7%
Thick Plastic Bags	4.3	2.0%	0	0.0%	0.15	0.1%	0	0.0%	0	0.0%
Plastic Film	4.45	2.1%	2.9	1.4%	7.3	3.4%	1.75	0.8%	1.6	0.7%
Plastic Straws	0.05	0.0%	0.1	0.0%	0.1	0.0%	0.1	0.0%	0.1	0.0%
Residual Plastics	18.3	8.6%	7.15	3.4%	6.35	3.0%	10.3	4.7%	14.95	6.7%
METALS										
Ferrous Metal	0.5	0.2%	0.2	0.1%	0	0.0%	0	0.0%	0.05	0.0%
Aluminum	1.5	0.7%	1.1	0.5%	6.15	2.9%	1.5	0.7%	1.9	0.9%
Other Metal	53.05	24.8%	40.25	18.9%	0	0.0%	32.35	14.9%	0	0.0%
GLASS										
Glass Bottles & Jars	10.15	4.7%	2.2	1.0%	1.5	0.7%	1.8	0.8%	21.6	9.7%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS										
Yard Wastes	7	3.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Compostable Wood	51.5	24.1%	0	0.0%	0	0.0%	5.55	2.6%	15.9	7.1%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.2	0.1%
FOOD WASTE										
Meats	2.8	1.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0.5	0.2%	0	0.0%	0	0.0%	1.9	0.9%	0	0.0%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	11.4	5.3%	0.1	0.0%	6.85	3.2%	13.05	6.0%	1.45	0.7%
Packaged Food Wastes	6.1	2.9%	1.6	0.8%	32.4	15.2%	5.7	2.6%	2.9	1.3%
REUSABLE / RECOVERABLE										
Electronics	0	0.0%	0.8	0.4%	0.3	0.1%	5.85	2.7%	0.05	0.0%
Household Hazardous Waste	0	0.0%	3.3	1.6%	0	0.0%	0	0.0%	2.1	0.9%
Textiles	1	0.5%	33.2	15.6%	4.6	2.2%	2.7	1.2%	0	0.0%
Carpet	0	0.0%	45.8	21.5%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	50.4	23.6%	64.1	29.5%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	1.9	0.9%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS										
Unknown or Not Classified	3.2	1.5%	32.5	15.3%	1.7	0.8%	14.5	6.7%	19.6	8.8%
Painted Wood	8.2	3.8%	14.9	7.0%	16.9	7.9%	0	0.0%	1.3	0.6%
TOTAL	213.85	100.0%	212.6	100.0%	213.15	100.0%	217.3	100.0%	222.5	100.0%

Commercial Trash Composition

Date	8/20/2021		8/20/2021		8/20/2021		8/20/2021		8/20/2021	
Route No.	A107		A102		A108		A105		A102	
Truck No.	60081		60093		60094		60090		60093	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS										
Mixed Paper	4.4	2.1%	0.95	0.4%	1.2	0.5%	0	0.0%	3.5	1.6%
Corrugated Cardboard	16.15	7.6%	45.95	21.2%	17.95	8.1%	5.5	2.2%	9.25	4.3%
Compostable Paper	40.4	18.9%	23.4	10.8%	16.2	7.3%	1.8	0.7%	35.7	16.7%
Other Paper	4	1.9%	3.8	1.8%	13.9	6.3%	1	0.4%	17.1	8.0%
Poly-Coated / Aseptic Cartons	2.55	1.2%	0.4	0.2%	1.5	0.7%	0	0.0%	0.85	0.4%
Residual Papers	3.85	1.8%	5.2	2.4%	4.2	1.9%	0.5	0.2%	2.5	1.2%
PLASTICS										
PET #1	2.7	1.3%	0.85	0.4%	8.7	3.9%	1.4	0.6%	5.7	2.7%
HDPE #2	5.1	2.4%	2.65	1.2%	2.3	1.0%	0.25	0.1%	5.55	2.6%
LDPE #4	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.05	0.0%
PVC #3 & PP #5	0.85	0.4%	3	1.4%	1.75	0.8%	0.15	0.1%	1.8	0.8%
PS #6	0.25	0.1%	0.5	0.2%	0.4	0.2%	0.2	0.1%	0.1	0.0%
Other Plastics #7	0.3	0.1%	0.6	0.3%	0.5	0.2%	0	0.0%	1.4	0.7%
Thin Plastic Bags	9.4	4.4%	14.8	6.8%	7.5	3.4%	0.4	0.2%	5.6	2.6%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.65	0.3%
Plastic Film	8.45	4.0%	7.1	3.3%	6.5	2.9%	0.7	0.3%	9.6	4.5%
Plastic Straws	0.05	0.0%	0.25	0.1%	0.2	0.1%	0	0.0%	0.1	0.0%
Residual Plastics	20.39	9.5%	16.1	7.4%	6.2	2.8%	2.85	1.1%	7.05	3.3%
METALS										
Ferrous Metal	0	0.0%	0	0.0%	0.2	0.1%	0.25	0.1%	4.55	2.1%
Aluminum	3	1.4%	2	0.9%	4.2	1.9%	0.5	0.2%	1.4	0.7%
Other Metal	9.85	4.6%	0	0.0%	0	0.0%	0.35	0.1%	0.7	0.3%
GLASS										
Glass Bottles & Jars	1	0.5%	0.7	0.3%	12.3	5.5%	2.9	1.1%	8.6	4.0%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS										
Yard Wastes	0	0.0%	0	0.0%	1.4	0.6%	4.25	1.7%	0	0.0%
Compostable Wood	0.1	0.0%	0.35	0.2%	0	0.0%	0.05	0.0%	0.1	0.0%
Other Organics/Combustibles	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FOOD WASTE										
Meats	0.05	0.0%	24.5	11.3%	0	0.0%	0	0.0%	0	0.0%
Fruits and Vegetables	0.65	0.3%	0	0.0%	0.1	0.0%	0	0.0%	5	2.3%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	28.9	13.5%	61.3	28.3%	52.4	23.6%	2.5	1.0%	26	12.2%
Packaged Food Wastes	3.25	1.5%	1.1	0.5%	57.6	26.0%	2.4	0.9%	6.55	3.1%
REUSABLE / RECOVERABLE										
Electronics	0.3	0.1%	0	0.0%	0.15	0.1%	0	0.0%	0	0.0%
Household Hazardous Waste	0.25	0.1%	0	0.0%	0	0.0%	0.9	0.4%	0.05	0.0%
Textiles	5	2.3%	1.3	0.6%	1.8	0.8%	0	0.0%	1.5	0.7%
Carpet	0	0.0%	0	0.0%	0	0.0%	107.6	42.4%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS										
Unknown or Not Classified	40.3	18.9%	0	0.0%	2.75	1.2%	114.6	45.2%	40.3	18.9%
Painted Wood	2.2	1.0%	0	0.0%	0	0.0%	2.6	1.0%	12.5	5.8%
TOTAL	213.69	100.0%	216.8	100.0%	221.9	100.0%	253.65	100.0%	213.75	100.0%

Commercial Trash Composition

Date	8/20/2021		8/20/2021		8/20/2021		8/20/2021	
Route No.	A107		A103		A103		A108	
Truck No.	60081		60065		60065		60094	
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent
PAPERS								
Mixed Paper	4.2	1.8%	3.6	1.7%	3.8	1.8%	39.3	19.1%
Corrugated Cardboard	2.9	1.2%	8.8	4.1%	27.5	13.0%	3.4	1.7%
Compostable Paper	30.68	12.9%	27.5	12.7%	38.1	18.0%	22.4	10.9%
Other Paper	9.8	4.1%	4.55	2.1%	24.6	11.6%	2.65	1.3%
Poly-Coated / Aseptic Cartons	3.1	1.3%	0.5	0.2%	1.6	0.8%	2.5	1.2%
Residual Papers	4.5	1.9%	8.4	3.9%	20.3	9.6%	1.1	0.5%
PLASTICS								
PET #1	4.2	1.8%	5.1	2.3%	12.2	5.8%	2.9	1.4%
HDPE #2	2.4	1.0%	0.5	0.2%	1.2	0.6%	2.55	1.2%
LDPE #4	0.1	0.0%	0	0.0%	0	0.0%	0.05	0.0%
PVC #3 & PP #5	1.4	0.6%	6.1	2.8%	3.3	1.6%	1.8	0.9%
PS #6	1.6	0.7%	1.2	0.6%	1.1	0.5%	2.7	1.3%
Other Plastics #7	0.6	0.3%	1.05	0.5%	1.15	0.5%	0.45	0.2%
Thin Plastic Bags	20.65	8.7%	15.8	7.3%	8.85	4.2%	5.1	2.5%
Thick Plastic Bags	0	0.0%	0	0.0%	0	0.0%	1	0.5%
Plastic Film	32.5	13.7%	10.2	4.7%	9.5	4.5%	6.1	3.0%
Plastic Straws	0.15	0.1%	0.05	0.0%	0.05	0.0%	0	0.0%
Residual Plastics	5.3	2.2%	12.8	5.9%	11.05	5.2%	16.5	8.0%
METALS								
Ferrous Metal	0.1	0.0%	1.05	0.5%	0	0.0%	0	0.0%
Aluminum	5.65	2.4%	4.4	2.0%	4.75	2.2%	0.6	0.3%
Other Metal	5	2.1%	12.8	5.9%	1.85	0.9%	0.4	0.2%
GLASS								
Glass Bottles & Jars	0	0.0%	1.4	0.6%	6.7	3.2%	2.4	1.2%
Other Glass & Ceramics	0	0.0%	0	0.0%	0	0.0%	0	0.0%
COMPOSTABLE MATERIALS								
Yard Wastes	0	0.0%	26.5	12.2%	5.2	2.5%	0	0.0%
Compostable Wood	0.2	0.1%	0	0.0%	0	0.0%	0.3	0.1%
Other Organics/Combustibles	0	0.0%	1.9	0.9%	0	0.0%	2.2	1.1%
FOOD WASTE								
Meats	0.25	0.1%	0.3	0.1%	0	0.0%	0	0.0%
Fruits and Vegetables	0	0.0%	0	0.0%	0	0.0%	3.35	1.6%
Fats and Oils	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unpackaged Food Wastes	37.7	15.9%	22.1	10.2%	15.2	7.2%	39.8	19.3%
Packaged Food Wastes	32.8	13.8%	20.9	9.6%	11.8	5.6%	35.1	17.1%
REUSABLE / RECOVERABLE								
Electronics	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Household Hazardous Waste	0	0.0%	10.2	4.7%	0	0.0%	0	0.0%
Textiles	12.5	5.3%	0	0.0%	0.5	0.2%	2	1.0%
Carpet	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Furniture	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C&D Wastes	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Pallets	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tires	0	0.0%	0	0.0%	0	0.0%	0	0.0%
RESIDUALS								
Unknown or Not Classified	18.25	7.7%	9.5	4.4%	1.4	0.7%	9.1	4.4%
Painted Wood	0.95	0.4%	0	0.0%	0	0.0%	0	0.0%
TOTAL	237.48	100.0%	217.2	100.0%	211.7	100.0%	205.75	100.0%

Commercial Trash Composition

Date: 8/20/2021
 Route No.: A108
 Truck No.: 60094

	Pounds	Percent	Total	Average	Percent of Total	Standard Deviation (pounds)	Standard Deviation (%)
PAPERS							
Mixed Paper	13.15	5.7%	142.5	4.8	2.2%	9.3	4.4%
Corrugated Cardboard	7.5	3.3%	502.7	16.8	7.7%	17.0	7.8%
Compostable Paper	15.9	6.9%	571.5	19	8.7%	14.0	6.6%
Other Paper	6.05	2.6%	304.8	10.2	4.7%	8.3	3.8%
Poly-Coated / Aseptic Cartons	4.2	1.8%	29.9	1	0.5%	1.1	0.5%
Residual Papers	3.3	1.4%	148.1	4.9	2.2%	5.7	2.6%
PLASTICS							
PET #1	5.9	2.6%	140.8	4.7	2.1%	2.6	1.2%
HDPE #2	2.8	1.2%	62.3	2.1	1.0%	1.6	0.7%
LDPE #4	0	0.0%	0.3	0	0.0%	0.0	0.0%
PVC #3 & PP #5	3.35	1.5%	78.9	2.6	1.2%	2.8	1.3%
PS #6	0.5	0.2%	23.7	0.8	0.4%	0.8	0.4%
Other Plastics #7	1.3	0.6%	16.7	0.6	0.3%	0.4	0.2%
Thin Plastic Bags	11.5	5.0%	237.4	7.9	3.6%	4.7	2.1%
Thick Plastic Bags	0	0.0%	11.3	0.4	0.2%	1.0	0.5%
Plastic Film	20.5	8.9%	291.6	9.7	4.4%	7.5	3.3%
Plastic Straws	0.2	0.1%	2.8	0.1	0.0%	0.1	0.0%
Residual Plastics	13.6	5.9%	386.8	12.9	5.9%	8.0	3.7%
METALS							
Ferrous Metal	0	0.0%	14.4	0.5	0.2%	1.1	0.5%
Aluminum	7.9	3.4%	126.0	4.2	1.9%	5.8	2.6%
Other Metal	6.45	2.8%	315.4	10.5	4.8%	15.9	7.4%
GLASS							
Glass Bottles & Jars	7.55	3.3%	160.8	5.4	2.5%	7.0	3.3%
Other Glass & Ceramics	0	0.0%	16.9	0.6	0.3%	2.5	1.2%
COMPOSTABLE MATERIALS							
Yard Wastes	0	0.0%	209.5	7	3.2%	13.0	6.0%
Compostable Wood	0.5	0.2%	130.1	4.3	2.0%	10.2	4.8%
Other Organics/Combustibles	0.4	0.2%	19.9	0.7	0.3%	2.2	1.0%
FOOD WASTE							
Meats	1	0.4%	75.6	2.5	1.1%	6.4	3.0%
Fruits and Vegetables	3.45	1.5%	59.7	2	0.9%	5.0	2.3%
Fats and Oils	0	0.0%	0.0	0	0.0%	0.0	0.0%
Unpackaged Food Wastes	24.8	10.8%	763.5	25.4	11.6%	20.6	9.7%
Packaged Food Wastes	20.4	8.9%	408.5	13.6	6.2%	12.8	5.9%
REUSABLE / RECOVERABLE							
Electronics	0	0.0%	7.5	0.2	0.1%	1.1	0.5%
Household Hazardous Waste	2.3	1.0%	37.6	1.3	0.6%	2.2	1.0%
Textiles	2.8	1.2%	193.8	6.5	3.0%	8.4	3.8%
Carpet	0	0.0%	174.3	5.8	2.6%	21.3	8.6%
Furniture	0	0.0%	33.9	1.1	0.5%	6.2	2.9%
C&D Wastes	0	0.0%	139.7	4.7	2.1%	14.8	6.8%
Pallets	0	0.0%	0.0	0	0.0%	0.0	0.0%
Tires	0	0.0%	18.6	0.6	0.3%	3.0	1.3%
RESIDUALS							
Unknown or Not Classified	42.35	18.4%	600.1	20	9.1%	23.7	9.7%
Painted Wood	0	0.0%	109.8	3.7	1.7%	7.2	3.0%
TOTAL	229.65	100.0%	6566.7	219.1	100.0%		

Appendix D

Hicks and Company Technical Memos

Name of City Department	COA Household Hazardous Waste (HHW) and COA Resource Recovery Drop-Off Center (RRDOC)
Representative (Interviewed)	Andy Dawson
Web	https://www.austintexas.gov/dropoff
Email	
Phone Number	
Days and Hours of operation	Mon - Sat 9am to 5pm
Annual tonnage accepted at the facility?	See table below:

Resource Recovery Drop-Off Center (RRDOC)			Household Hazardous Waste (HHW)	
Fiscal Year (FY)	Yard Trimmings (brush)*	Annual tonnage (Total)	Fiscal Year (FY)	Annual tonnage (Total)
2016	Unknown	1,384	2016	904
2017	Unknown	1,640	2017	936
2018	Unknown	1,988	2018	996
2019	Unknown	2,200	2019	990
2020**	N/A	1,212	2020*	596
2021	N/A	1,250	2021	996

*Facility no longer accepts yard trimming as of September 2021 – tonnages were tracked – Hornsby Bend Plant counted them so not to be double counted we will not include the tonnage here (RRC did such a small amount compared to their annual tonnage – maybe 1%)

**Operations shut down six months due to COVID-19

Note - As of December 2021, HHW is approximately 2% higher over FY 2019

Note - RRDOC low for 2021, unclear why; 2019 was busiest year on record

Broken down by material category(ies) if possible	See list of items below (end of table) - they don't have tonnage by item.
What is the percentage of	Trash produced from operations is less than 2% of the whole and is mostly packaging from recyclables or business operations.
What is most common?	Furniture and mattresses
What is most problematic?	N/A - items are turned away so it's not an issue - however, they know there's no place for mattresses to get diverted. One problem is that thrift stores (like Goodwill) also turn away mattresses but they inform people that mattresses can be diverted at RRC, however, that's not the case and people get frustrated when the mattresses are turned away again and have to go to the landfill. - As a note, Styrofoam is divertible but it's problematic to handle as it can't be quantified or stored easily and is costly to transport. They use a machine to melt it (which removes 90% of the air/product size).
How is presence of non-conforming material determined, and how is it managed when observed?	Human sorting - items are turned away (they do not take more than 10% trash and on average it's only 2% trash in this almost always the packaging on materials)
What makes this material difficult to manage?	N/A - items are turned away so it's not an issue. They tell people to go to the landfill or use their bulk trash services at their homes. People do get upset that it's not easy to get rid of these items and they are also upset when/if they are charged to dispose of them.
Where is material disposed/marketed? Who manages the material after you?	Household Hazardous Waste (HHW) – Majority goes to CleanEarth in Alabama as they specialize in hazwaste such as single use batteries. Also CleanEarth has a cheaper rate as it costs money to recycle these items and they go with what is budget friendly. They use Call2 for rechargeable batteries such as hearing aids or button batteries. - Their major processors are in Houston. HHW packages to their specs (household items, not industrial or commercial). Nasty hazwaste has to be very specifically disposed of but what HHW collects (and what the State of Texas allows them to collect) is mostly benign and considered household strength and mostly diluted to 90%. Categories mostly end up sorted by less flammable vs. super flammable and it can be tricky with segregating chemicals so they are careful not to touch these items and to separate acids and bases. For example, oxidizers like bleach can affect items near them. HHW processes and sorts everything, loads and packages hazwaste per specifications and then they drive them to Houston where they get stored and processed. Anything high-haz is separated again (and incinerated if needed – things like granulated pesticides). - They contract with Ranger for supplies and recycling items like smoke detectors, cylinders, and fire extinguishers. - They utilize local outlets when possible especially for things like propane ("comfort heat") if the cylinders are not damaged.
Where is material disposed/marketed? Who manages the material after you?	Resource Recovery Drop-Off Center (RRDOC) - (to clarify, these are two departments under one whole - RRDOC is the entire facility and broken down to HHW and then RRC) - examples of management of common items include: - Austin Metal and Iron: hard batteries (lead acid), metal, steel, copper, aluminum – call it scrap - Balcones Resources: general residential single stream (RSS) – 1) bottles, papers, plastics, basics and also 2) mixed rigid plastics like a kid playground or Adirondack chairs (plastic is light so not reflected in total tonnage as well) - Universal Recycling Technologies 6/6/2022 URT – electronics anything - Redrock recycling: Styrofoam and plastic film, reported in general recyclables - Reliable Tire Disposal: Tires, if you are a COA resident it's free – dropped off there's a fee \$6 up to 20" or \$7 for above
What are challenges to the program? Quantity? More or less material desired?	All material collected is expected or wanted – but would like to see more things like fire extinguishers, smoke detectors, fireworks (any items that could hurt trash personnel). In general, wish more stuff was collected and that more people are using recycling facilities and not using the landfill - especially for these dangerous and/or reusable items.
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	See above: mostly contaminated items are denied at the gate, and this helps to reduce trash, etc. They do have an appointment system and that helps (to sort in advance).
What impacts have been noted as a result of Covid-19?	Changing facility operations from open drop-off to appointment based (see more detail below).
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Facility was closed March 2020 due to public demand – have opened and closed many times. Reopened June 2020. Closed in favor of at-home pick up service in December 2020 for HHW. Realized they could not manage those services without center. HHW was most in demand. Pick up through March 2021. Reopened early April 2021 by appointment only with online scheduling tool and it is working so staying that way.
What, if any, sustained impacts are still noted today?	HHW has totally resumed (met and exceeded) to pre-pandemic level. Every year was higher than the year before, i.e., tonnage and customers. As of December 2021, HHW is approximately 2% higher over FY 2019 (for recycling - busiest year ever). Recycling is still very low for 2021 – they're not really sure why. See chart above with more detail.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Appointment based scheduling was developed to allow for social distancing – currently still under mask mandate Spring 2022. They do not plan to return to open drop off because appointments working so much better. The old system was very cramped, with a long line, sometimes 200 yards. Now the line is rarely longer than five cars. Some people really like it, some people really dislike it but it's improved operations overall.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Seems unlikely that will return to non-appointment, open drop off. See above.
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	- Most customers seem to be from a closer area (78744 and 78741 zip codes) so location and convenience are likely a factor in deciding to recycle. - Also socioeconomic is a factor. They have a heat map that shows affluent neighborhoods in the northwest also use their facility and may have the time or income to travel/recycle. - There are inefficiencies in their layout but would require a lot of construction and may not be worth it financially or would be efficient. A better option could be to build a new facility more up north, which would allow more room at the south center.

Name of City Department	COA Household Hazardous Waste (HHW) and COA Resource Recovery Drop-Off Center (RRDOC)			
Representative (Interviewed)	Andy Dawson			
	HHM		RRC	
	Items Broken Down by Category			
	Accepted	Not Accepted	Accepted	Not Accepted
	Cleaning products	Radioactive materials	Televisions	Mattresses
	Automotive fluids and oil filters	Syringes and medical waste	Computers	Furniture
	Paint and thinners	Explosive materials (including ammunition)	Electronic media, such as CDs (remove and throw away jewel cases), DVDs and floppy disks	Toilets
	Fluorescent light bulbs	Any waste generated by a business	Printers and fax machines	Non-recyclable trash
	Batteries (car and household)	-	Cell phones and chargers	Styrofoam Packing Peanuts
	Pesticides and herbicides	-	Lawn mowers and weed eaters	-
	Mercury	-	Large appliances	-
	Aerosol cans	-	Washers and dryers	-
	Pool chemicals	-	Stoves	-
	Cooking oil	-	Water heaters	-
	Propane cylinders	-	Air conditioners	-
	-	-	Exercise equipment	-
	-	-	Small appliances	-
	-	-	Lamps	-
	-	-	Microwaves	-
	-	-	Kitchen appliances	-
	-	-	Plastic bags (clean and dry)	-
	-	-	Plastic film / plastic wrap (clean and dry)	-
	-	-	Styrofoam (clean and dry -- NO peanuts)	-
	-	-	Scrap metal	-
	-	-	Large hard plastic items	-
	-	-	Lawn chairs and furniture	-
	-	-	Playground equipment	-
	-	-	Children's pools	-
	-	-	Pet carriers	-
	-	-	Trash cans	-
	-	-	Single-stream recyclables	-
	-	-	Cardboard	-
	-	-	Hard plastic	-
	-	-	Paper	-
	-	-	Cans and foil	-
	-	-	Glass bottles and jars	-

Name of Business	Organics by Gosh (ObG)
Representative (Interviewed)	Zach Thomas
Web	https://www.organicsbygosh.com/about/
Email	[REDACTED]
Phone Number	[REDACTED]
Days and Hours of operation	7am to 7pm M-Sat (not open Sunday); usually close early Saturday due to city trucks at 12:30
Annual tonnage accepted at the facility?	ObG was recently audited by the City of Austin ARR Dept so the COA should already have detailed weights, percentages, etc. Otherwise see below.
Broken down by material category(ies) if possible	Tree trimmings, lawn clippings, leaves, food waste, other compostable materials. For private companies they do food waste pick ups). They also have trash tigers at facilities that sort the materials and they pick them up after. For City of Austin they process "green waste contaminated" (so small sticks, leaves, home depot leaf bags, orange peels - food is allowed but not usually included). See "items broken down by category" for detailed categories.
What is the percentage of residuals (non-conforming material) received?	Small.
What is most common?	Diapers, metal, plastics - non-compostable wood (power poles or coated or chemically-treated furniture)
What is most problematic?	Glass is the most problematic because it can get into the compost and fragment into shards and then the resulting product is dangerous and even could cause injury or a lawsuit. Plastic (both non-recycle bags and recyclable) is also problematic. There are two types of plastic/other materials Omri certification (https://www.omri.org/) demands to avoid.
How is presence of non-conforming material determined, and how is it managed when observed?	They pull out non-conforming items and recycle if possible - often they can't recycle because it's just too dirty. Removing contamination takes lots of extra time, is done by hand by slowly as they are pushing the materials into a grinder, thinning it out, and looking very carefully.
What makes this material difficult to manage?	See above. These materials cause extra time and expense and it's difficult to maintain staffing as it is (shortages, high turnover, less affordable as labor has been driven up) to keep up with volume. Also, service trucks are never consistent. Brittle plastics, glass, shards, decrease quality product and they sometimes have to dispose of material.
Where is material disposed/marketed? Who manages the material after you?	Trash goes to the landfill or recyclables are recycled when possible. Otherwise their materials become their products (ex. mulch) are diverted to customers: Examples include TxDOT, school ISDs, housing development, landscapers, homeowners (not core businesses). They take their product and then mix that base material with blending yard to meet certification criteria of different business needs. Oldcastle is a major customer as they lease a warehouse and can process 44 bags a minute of material and they're about to add a third line which will increase production to 66 bags a minute. They use Bluebonnet to process things like power line poles.
What are challenges to the program? Quantity? More or less material desired?	Just get more desirable materials that breaks down well and getting less contaminated material.
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	Same as the other sources, see above.
What impacts have been noted as a result of Covid-19?	Operations are the same as they are an essential business and had no shut down but they continue to follow safety standards. They did and do continue to have labor issues as mentioned.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	During the height of COVID, restaurant production was down about 40% - that was about the biggest difference.
What, if any, sustained impacts are still noted today?	None, see above.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Just implementing safety standards (masks, social distancing), see above.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	They are mostly back to normal.
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	Another grinder would help but they cost about 1.2 million and takes weeks or months to build and have a lead time of a year ahead for productivity. - People don't seem to care but better instructions help—if people understood how to compost or what to compost or were encouraged to compost than that would help the diversion process overall. Better "separated waste training." ObG looks to the Missouri's Organics in Kansas as a really evolved program and a good example for standards, for example, a tiger separates trash in advance and no stored by product. - Underpaid City drivers don't really care and are inconsistent - there is no enforcement, no training, and no caring.

ObG	
Items Broken Down by Category	
Accepted	Not Accepted
Fruit & Vegetable Cull & Trim	Plastic, Plastic Cases
Outdated & Spoiled Food Products	Oyster shells
Salads, Salad Bar items, Salad materials	Oils or Grease
Paper Towels, Paper & Waxed Paper	Price Tags & Strips
Waxed & Wet Cardboard	Styrofoam
Wood Boxes, Crates, Pieces – No treated wood – No nails	Metal, Aluminum Foil & Aluminum Twist Ties
Bread & Bakery Products	Glass
Meat, Poultry, Seafood and Bones	Cans
All Paper Plates, Cups & Bowls	Fabric Tape, Rope, Twine
-	Rubber Bands, Band-Aids
-	Gloves

Name of Business	Austin Metal & Iron
Representative (Interviewed)	Ike Shapiro
Web	https://www.organicsbygosh.com/about/
Email	
Phone Number	
Days and Hours of operation	M-F 7:30 to 4; Sat 7:30 to 11-30 (they have two facilities I-35 and 4th Street and Decker Lane and 290)
Annual tonnage accepted at the facility?	Will not provide.
Broken down by material category(ies) if possible	See "items broken down by category" chart. No tonnages available.
What is the percentage of residuals (non-conforming material) received?	Almost zero - they turn almost everything away at the door that's non-conforming. However, there's a small percentage of residuals that come as part of the recyclables such as car batteries, cardboard, packaging, etc.
What is most common?	See above.
What is most problematic?	None of these things are problematic and they have a vendor system to sort and recycle.
How is presence of non-conforming material determined, and how is it managed when observed?	They are visually seen by staff and removed and recycled if possible or thrown away if necessary.
What makes this material difficult to manage?	These materials are not difficult to manage.
Where is material disposed/marketed? Who manages the material after you?	Locally, they use Balcones Resources Recycling for cardboard, etc. They will not release their vendor list (confidential) but they have a long list of vendors all over the world. They've been in business for 108 years and have a fourth generation owner and same family runs the business so they have good relations with vendors.
What are challenges to the program? Quantity? More or less material desired?	Market changes and material can be hard to sell but can always be moved eventually. Otherwise, finding help, staffing, labor shortages are an on-going issue. In general they would want more material—they can never buy enough and always need more material. They advertise on KXAN, etc., to promote themselves as "the oldest business you've never heard of" and people might divert more if they knew they were there and paid for the recyclables.
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	No, see above.
What impacts have been noted as a result of Covid-19?	During the height of COVID, they got really slow there for a while.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	No, just less material during COVID.
What, if any, sustained impacts are still noted today?	N/A
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	During COVID they broke operations into teams so that if one team got COVID they could still be open. They also follow safety standards. But otherwise, the same.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Their business is always up and down but it's back to normal otherwise.
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	The biggest thing is that the more that is recycled, the more they can pay. If people knew they were there and that they pay for everything (it's not a donation facility) perhaps they would recycle more. They know that materials ends up in landfills - things like cans, cat food tins, cookie tins/popcorn tins, soda cans, and metal hangers, let alone scrap metal from accepted items and items listed in their accepted items list.

Austin Metal and Iron	
Items Broken Down by Category	
Accepted	Not Accepted
non-ferrous metals	mercury
ferrous metals	materials or containers that held chemicals or toxic materials
steel	Munitions scrap
copper	Needles and medical waste metal
aluminum	Pressurized containers like fire extinguishers
brass	Radioactive metal
stainless steel	mattress coils, too messy
cast iron	-
bronze	-
Most appliances	-
Bicycles	-
Cans	-
Computers	-
Containers	-
Copper pipes, tubes, and wires	-
Metal patio furniture	-
Pots and pans	-
Sinks and faucets	-
Other odds and ends	-
Window frames	-
Vehicles	-

Name of Business	Texas Disposal Systems (TDS)
Representative (Interviewed)	Adam Gregory, Business Development Specialist; Ryan Hobbs, Business Development Specialist; Sindy Estrada, assistant (to organize meetings)
Web	https://www.texasdisposal.com/
Email	
Phone Number	
Days and Hours of operation	7am to 7pm or until dark M-Sat (landfill)
Annual tonnage accepted at the facility?	The COA has the exact figures but, on average, they process about 140,000 tons a year from COA curbside pickup. They service 60 counties so the larger picture numbers aren't as helpful. Also, there's really no exact number in general. They process three (3) to 5,000 tons everyday and there's really no cap - roughly 1.1 million tons annually.
Broken down by material category(ies) if possible	See "items broken down by category" table. When it comes to diversion and curbside loads, they sort as best as possible at the facility. They pull out wood, metal, reusable, concrete, brush/yard waste, recyclables when possible. Commercial loads aren't feasible to sort except for obvious wood items that they pull out.
For landfills, are there any diversion activities being implemented or planned / piloted? What are the impacts of these activities, and how do (or can) they support increased waste diversion in Austin?	No new materials are being diverted.
What is the percentage of residuals (non-conforming material) received?	Unknown and cannot estimate.
What is most common?	Mattresses and badly sorted trash and recyclables
What is most problematic?	Mattresses and box springs are very costly to process and have very little value. The coils tangle in the equipment and the nature of the springs means they resist being compacted. They take up a lot of room and can't be processed and they don't break down well in the landfill. There are no mattress diversion facilities locally. Also, they get a large quantity of mattresses because they are about the only place that takes them. The volume of mattresses seems to increase every year because they have become more affordable and easier to buy and move. There is no way to estimate how many mattresses a year they process but it's well in the 1000s. See comments below on proper sorting.
How is presence of non-conforming material determined, and how is it managed when observed?	N/A - they sort everything they can and trash goes to the landfill. Their recycling center is worth \$20 million and can sort all the trash, etc., and there are also humans who sort, pull, recycle, etc.
What makes this material difficult to manage?	See above about mattresses and box springs and below for difficult and expense in sorting materials.
Where is material disposed/marketed? Who manages the material after you?	The landfill is the endpoint disposal but they do recycle as much as they can including wood, plastics, brush, etc. They also have an on-site retail operation called TDS Resale Center considered "Austin's best unadvertised garage sale." They have basically everything you can imagine there at a fraction of the cost. They try to divert as much as possible that can be sold as they end up with emptied storage units, etc. Examples furniture, tools, appliances, books, electronics, clothes, toys, sports equipment, and knick knacks. Overall their facility includes a number of diversion operations including, for example, compost, construction and demolition, scrap metal, concrete crushing, tire recycling, telephone poles, and single stream recovery facility from city recycling. They process as needed to divert and reuse/repurpose.
What are challenges to the program? Quantity? More or less material desired?	TDS provides services to ARR and feels the relationship is productive for both parties. The program itself cannot improve but see suggestions below to increase diversion and decrease disposal (less material).
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	N/A as a landfill but unwanted or contaminated material is badly sorted trash, compost, recyclables (see comments below).
What impacts have been noted as a result of Covid-19?	N/A - as a landfill, they were essential and open and trash still arrived. They can't "not" be normal as they are very essential and must operate as usual.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Material collection seemed to actually increase during the height of COVID. Residential volumes and recycling went up hugely with people working from home in 2020, and there was some reduction in commercial volumes at the same time. But that's pretty much evened out - currently (in early 2022) volumes are high for both residential and commercial.
What, if any, sustained impacts are still noted today?	None.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Safety procedures per standards (social distancing, separating groups, masks), but otherwise the same.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	Austin is remarkably robust compared to other markets and they have many abilities and programs available. At this point, most residents in Austin have three containers (trash, recycling, compost) but if people would use them correctly that would go a long way. Perhaps education of individuals could help as changing human behavior is the primary issue because people often don't sort their trash correctly. Just making the right choices would make a huge difference. TDS does educate and so does the City but diversion comes from people and more education is important. The facilities are there and available but there isn't enough proper use of local facilities. There are different ways to measure progress and this continues to change and improve. TDS understands the Zero Waste concept and diversion percent is how the progress is currently measured, but this concept is inherently flawed. We're not just trying to divert to landfill but also reduce how much is generated—reduction works against diversion goals. TDS advocates to change the metrics of how success is measured such as per capita figure measure and reduction of disposal. - Their recycling center is worth \$20 million and can sort all the trash, etc., but the cheapest most efficient sorter is the human who sorts the trash to begin with. - Education is huge and marketing to get people to buy into using the containers properly is key. We can't say people won't change because education could help and incrementally increase understanding and participation. There isn't a magical sorting system—the cost is huge to try to sort mixed waste stream. The cost to sort and recycle is higher than the value of the recyclables and it degrades the materials that otherwise would be valuable. TDS understands the technology available and cost per ton. - Marketing and education is needed and getting creative such as including incentives, flyers or door hangers, newsletters, radio or TV contests, or even penalties to change behavior.

Name of Business	Texas Disposal Systems (TDS)		
TDS			
Items Broken Down by Category			
General Accepted	TDS Landfill Only	Not Accepted	
Aerosol Cans (empty)	Aggregates (debris-free) — TDS Landfill only	Bulk Liquids (non-compostable) — Unacceptable	
Air Conditioner (freon removed)	Asbestos (friable)* — TDS Landfill only (24 hour notice, manifest and proper packaging required)	Chemicals — Unacceptable	
Appliances (freon removed)	Asbestos (non-friable)* — TDS Landfill only (24 hour notice, manifest and proper packaging required)	Fluorescent Light Bulbs — Unacceptable	
Aseptic Containers	Boats* — TDS Landfill only	Light Bulbs (fluorescent) — Unacceptable	
Bamboo	Bulk Liquids (compostable) — TDS Landfill and Evans Road only	Motor Oil — Unacceptable	
Batteries (household)	Car* — TDS Landfill only	Oil — Unacceptable	
Beer	Concrete (debris-free) — TDS Landfill only	Paint — Unacceptable	
Bones	Dairy Liquids — TDS Landfill and Evans Road only	Used Oil — Unacceptable	
Boxes (clean cardboard/boxboard)	Dead Animals — TDS Landfill only	-	
Boxes (soiled cardboard/boxboard)	Dirt (clean/debris-free) — TDS Landfill and Evans Road only	-	
Boxboard (clean)	Gable Top Containers — TDS Landfill only	-	
Boxboard (soiled)	Gas Grill* — TDS Landfill only	-	
Branches	Go Cart* — TDS Landfill only	-	
Brush (untreated)	Helium Tank* — TDS Landfill only	-	
Cardboard	Industrial Waste (class II & III) — TDS Landfill only	-	
Carpet	Liquids — TDS Landfill & Evans Road only	-	
Catalogs	Oil Filters — Georgetown only	-	
CDs	Plastic Bags — TDS Landfill only	-	
Cereal Boxes	Propane Tank* — TDS Landfill only	-	
Clean Paper	Railroad Ties* — TDS Landfill only	-	
Clothing	Sand (clean/debris-free) — TDS Landfill and Evans Road only	-	
Coat Hangers (plastic)	Sedimentary Rock (debris-free) — TDS Landfill only	-	
Coat Hangers (wire)	Sludge* — TDS Landfill only (must be approved)	-	
Coffee Grounds	Stepping Stones (debris-free) — TDS Landfill only	-	
Computers	Styrofoam (debris-free) — TDS Landfill only	-	
Computer Monitors	Water — TDS Landfill and Evans Road only	-	
Computer Parts	Wine — TDS Landfill and Evans Road only	-	
Computer Towers	-	-	
Construction Debris	-	-	
Cookie Boxes	-	-	
Cooler (plastic)	-	-	
Dairy	-	-	
Dry Wall (debris-free)	-	-	
DVDs	-	-	
Electronics	-	-	
Foam Padding	-	-	
Foil (debris-free)	-	-	
Foil (soiled)	-	-	
Food Boxes	-	-	
Freezer (freon removed)	-	-	
Garden hoses	-	-	
Glass	-	-	
Green waste	-	-	
Insulation	-	-	
Kegs	-	-	
Lawn materials	-	-	
Lawn mowers	-	-	
Leaves/yard bags	-	-	
Light Bulbs (non fluorescent)	-	-	
Metals	-	-	
Motors	-	-	
Motor Oil Bottles (empty)	-	-	
Paper all kinds	-	-	
Pizza boxes	-	-	
Pet Waste	-	-	
Plants/yard debris	-	-	
PVC (polyvinyl chloride)	-	-	
PVC Pipe (polyvinyl chloride)	-	-	
Refrigerators (freon removed)	-	-	
Remodeling Debris	-	-	
Rocks (debris-free)	-	-	
Roofing Materials	-	-	
Shingles	-	-	
Stoves	-	-	
Stumps	-	-	
TVs	-	-	
Tile (debris-free)	-	-	
Tires	-	-	
Toilets	-	-	
Vehicle Batteries (no cracks or leaks)	-	-	
Water heater (no water included)	-	-	
Wood (treated)	-	-	
Wood (untreated)	-	-	
Yard waste	-	-	
Box springs — Some limitations may exist. Certain items require an additional fee.			
Mattresses — Some limitations may exist. Certain items require an additional fee.			

Name of Business	Balcones Resources
Representative (Interviewed)	Natalie Betts
Web	https://www.balconesresources.com/
Email	
Phone Number	
Days and Hours of operation	M-F 6:30 am to 7:00 pm (do not accept from public, only from haulers)
Annual tonnage accepted at the facility?	They have two facilities in Austin. One is Austin proper and processes 35 tons an hour with two shifts daily M-Fri, and one shift Sat so about 3,080 tons if 100% running. The Taylor facility is about 15 tons an hour or 600 tons a week if 100% running (five eight-hour shifts).) They don't really know the receipts from the City or exact numbers as there are a very limited amount of commercial haulers.
Broken down by material category(ies) if possible	See "items broken down by category" tables.
What is the percentage of residuals (non-conforming material) received?	They don't have these numbers exactly. For single stream recycling which includes curb side, residential, and commercial offices it's mostly a mix of cardboard, paper, glass and they can usually process all of it but at the end there is sometimes non-conforming (residual). But in general, they estimate about 15-20% that is not recyclable such as plastic film (bags, shrink wrap), milk cartons, and incompatible plastics like the type without a recycling symbol.
What is most common?	Likely plastic film but not sure. They have to routinely pull out materials such as plastic film, hoses and Christmas lights ("tangles"), plastic that is too small to recycle (ex., pen plastic, straws), milk cartons [paperboard coated with a waterproof plastic type], and the occasional TV or small appliance.
What is most problematic?	Hazardous materials, batteries, and household chemicals can cause fire or injure workers. "Tangles" such as hoses, cords, Christmas lights, rope, and plastic can cause the machine to get jammed and can hurt workers if the tangles get stuck or wound up on something. Concrete blocks, car parts, or other heavy items can be really hard to pull out of the line and can injure workers who try to do so. Workers are able to stop and pause the sorting line when they need to in order to safely remove these items if needed.
How is presence of non-conforming material determined, and how is it managed when observed?	They presort in a line of people who pull out visually obviously non-conforming items. Most items end up in the landfill because they cannot be diverted but they try to gather material like scrap metal or rigid plastics (ex., laundry basket) and recycle them if possible. They do make sure that there are no recyclables in the residuals and have a program called last chance optical review to ensure that. They also QA/QC and look for aluminum and plastics, etc. Problem Items include dirty peanut butter jars or a full water bottle that can end up as residual as the optical sorters are designed for empty containers, so they use human optical review to catch those things if they can.
What makes this material difficult to manage?	These items are time consuming to remove and process, take up space, have to be transported, and see above for danger and risk in sorting.
Where is material disposed/marketed? Who manages the material after you?	They use "waste management" landfill (not TDS) and she's pretty sure they have to deliver to them and pay. They cannot share vendor lists but can confirm they distribute both locally and throughout US/Mexico/Canada. They do try to sell locally but doesn't always work for end market.
What are challenges to the program? Quantity? More or less material desired?	See above and below. More material is great, less contaminated material preferred.
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	See above.
What impacts have been noted as a result of Covid-19?	They've had supply chain issues and they've had to keep more stock and plan ahead.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	One of the biggest changes was the shift from commercial to residential. The material was about the same levels though. However, they did notice an increase in contamination. Also they observed more cardboard because of online ordering.
What, if any, sustained impacts are still noted today?	Higher contamination rates and more cardboard persists but commercial and residential loads are more normalized.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They also follow normal protocol and standards as required and needed.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	<p>Nationally there's not much policy (compared to other environmental fields) for recycling/trash. More streamlining of products and packaging and containers so the systems that recover can be optimized. Consistency of collection colors, etc., so people are not confused or have to relearn. More research funding and data collection is needed as information is fragmented. Materials and packaging (items) should be designed with the end in mind. Recycling is just a part of the solution, but just one part—materials need a longer life.</p> <p>More education is needed. For example, Balcones Resources does videos and tours but teaching people how to recycle is the thing as we're asking people to learn it/relearn it. For example, she's observed that the sorting system in Germany is successful and humans really understand the system. We need more education for the residential program and more resources for marketing and advertising for education.</p> <p>The COA Universal Recycling Ordinance is great. Having a drop-off center year round is great, however, there needs to be more places to drop off and they need to be easier to get to. The more convenient it is to recycle (especially hard to recycle things like batteries, plastic bags) the more people will recycle and not throw these items in blue bins.</p> <p>Collaboration or partnering is a good idea. They would also like to be involved in these types of opportunities—especially for troublesome items like hazardous materials, plastic film, and batteries.</p>

Balcones Resources	
Items Broken Down by Category	
Accepted	Not Accepted
Newspapers, magazines, catalogs, phone books, mixed paper	Paper with heavy wax or plastic coating (candy wrappers, take-out and freezer containers, etc.)
White and colored paper (lined, copier, computer; staples are ok)	Soiled or soft paper (napkins, paper towels, tissues)
Mail and envelopes	Hardcover books (schools should follow their school book recycling procedures)
Receipts	Batteries
Paper Bags	Electronic devices banned from disposal
Soft-cover books (phone books, paperbacks, comics, etc.; no spiral bindings)	Printer cartridges
Posters	Glass items other than glass bottles and jars (such as mirrors, light bulbs, ceramics, and glassware)
Empty plastic bottles and rigid food and non-food containers	Window blinds
Post commercial or industrial plastics	Foam plastic items
Metal cans (soup, pet food, empty aerosol cans, empty paint cans, etc.)	Flexible plastic items
Aluminum cans	Film plastic (such as plastic shopping bags and wrappers)
Metal caps and lids	Cigarette lighters and butane gas lighters
Cardboard egg cartons	Cassette and VHS tapes
Cardboard trays	Pens and markers
Smooth cardboard (food and shoe boxes, tubes, file folders, cardboard from product packaging)	"Tangles" (such as cables, wires, cords, hoses)
Pizza boxes (remove and discard soiled liner; recycle little plastic supporter with rigid plastics)	Rigid plastic containers containing medical "sharps" or disposable razors
Paper cups (waxy lining ok if cups are empty and clean; recycle plastic lids with rigid plastics)	Containers that held dangerous or corrosive chemicals
Corrugated cardboard boxes (flattened and tied together with sturdy twine)	-
tin cans	-
glass	-
shredding	-

Name of Business	City Collection Department
Representative (Interviewed)	Ron Romero
Web	https://www.austintexas.gov/department/austin-resource-recovery
Email	
Phone Number	
Days and Hours of operation	Collections services which houses all operations and collecting M-F, work days are from 6am to 4pm or until finished – the facility is not open to the public.
Annual tonnage accepted at the facility?	Per interviewee, the COA has these numbers (they were not provided).
Broken down by material category(ies) if possible	See "items broken down by category" tables.
What is the percentage of residuals (non-conforming material) received?	N/A - all items collected are taken to the processors so there is no sorting or observation of materials - they are basically a vehicle hub.
What is most common?	Nothing most common but see below for some items they observe.
What is most problematic?	Nothing most problematic but see below for some items they observe.
How is presence of non-conforming material determined, and how is it managed when observed?	Pretty much everything (trash and recycling) can have contamination in them because the public needs help with knowing how to sort. Examples include problem items such as "tangles" (water hoses), plastic film, pizza boxes that should be composted, and lithium batteries/batteries. For garbage, they have observed recyclables in the garbage that haven't been sorted by the household human into the correct bins. They've also observed household hazardous waste, medical waste, and chemicals that end up in the trash stream. But they are not a sorting facility (they are a vehicle hub) so these items are taken to the processors to sort.
What makes this material difficult to manage?	Everything is contained and not difficult—nothing is hard to transport. Everything is compacted within the equipment. Garbage compacts better than recycling (plastic and glass) so there may be more trips to the recycling center versus garbage however.
Where is material disposed/marketed? Who manages the material after you?	Everything is brought to processors, for examples, TDS.
What are challenges to the program? Quantity? More or less material desired?	<p>For recycling, they currently provide bi-weekly (every two weeks) recycling collection and they have been inundated with recycling lately. Perhaps switching to a weekly collection schedule would help.</p> <p>They would prefer more material and would like to see additional commodities to the recycling stream. They would like to reduce the quantities that go to the landfill, especially for reuse (second life). So the more the better.</p> <p>They feel they already have some of the best and greatest equipment, with great drivers and skilled staff, but increasing public awareness would help challenges (of sorting) - see below.</p>
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	See above.
What impacts have been noted as a result of Covid-19?	See below - an increase in cardboard, etc.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	The main change was greater amounts of recycling and garbage from residents, due to stay at home measures. There was also quite a bit more cardboard and boxes since many people migrated to buying and ordering online.
What, if any, sustained impacts are still noted today?	The habits of recycling continue to be the same trend and there is still a lot more packaging and cardboard. They have observed a slight decrease in residential garbage as the pandemic has elevated some and more people are in school and work.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They put in place safety measures (with all employees and drivers) including sanitizing trucks more than once a day and using protective equipment (masks, gloves, sanitizer). They continue to operate under current standards as needed.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	See above.
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	They are currently working on a public service agreement (PSA) to educate people on how to sort. But ideas to increase awareness include marketing campaigns, outreach at schools and libraries, and PSAs. A school-age children program would be great because children will recycle, grow up to recycle, and even teach their parents. Also the program should include translated materials for bilingual children, like Spanish and Vietnamese speaking. These investments in marketing would be a good return. Austin is growing and gaining population, so constant education and reeducation is needed. Marketing, public outreach, and education are key to increase productivity.

City Collection Department (Trash)		City Collection Department (Recycling)	
Items Broken Down by Category		Items Broken Down by Category	
Accepted	Not Accepted	Accepted	Not Accepted
all regular household trash	rocks	Glossy paper	Plastic film and bags
dusty material such as bagged sawdust	dirt concrete	Junk mail/envelopes	Styrofoam
broken glass wrapped in newspapers	gravel	Catalogs/magazines	Water/garden hoses
animal waste and cat litter	construction debris	Newspapers	Textiles
Styrofoam packing peanuts	Hazardous materials	Non-foil wrapping paper	Wood
Needles and syringes (properly contained)	solvents	Cardboard	Medical waste (e.g. syringes and sharp containers)
small dead animals (bagged)	paints	Toilet paper/paper towel rolls	trash
-	batteries	Boxes	plastic bags and film
-	automotive fluid	Steel and tin cans	strings of lights and electrical cords
-	fluorescent light bulbs	Aluminum foil baking pans	clothing and textiles
-	pool chemicals	Aluminum foil (balled 2 inches or larger)	-
-	Large dead animals	Jars and caps (labels can be left on containers)	-
-	-	Bottles and bottle caps (labels can be left on containers)	-
		Water/soda bottles	-
		Jars/tubs	-
		Non-battery toys	-
		Buckets/baskets	-
		lawn chairs	-

Name of Business	City Collection Department
Representative (Interviewed)	Samuel Gilbert
Web	https://www.austintexas.gov/department/austin-resource-recovery
Email	[REDACTED]
Phone Number	[REDACTED]
Days and Hours of operation	Not open to the public - 6 a.m. to 2:30 p.m. (5 days) or 6 a.m. to 4:30 p.m. (4 days)
Annual tonnage accepted at the facility?	Interviewee said he would forward by email.
Broken down by material category(ies) if possible	See "items broken down by category" tables.
What is the percentage of residuals (non-conforming material) received?	Because most of bulk is delivered to the landfill, there's no percent of residuals as they will move anything they are able to.
What is most common?	For bulk items, they often see issues with how items are disposed of, not necessarily the item itself. For example, fencing with nails still embedded. For compost, non-conforming items in the compost include recyclables such as plastic and glass, Styrofoam, grocery bags, diapers, and household trash that is not compostable (often these are sorting issue when the bin is misused or misunderstood). They rarely have non-conforming items during sweeping or animal collection.
What is most problematic?	For bulk, problematic items tend to just be items too big or unwieldy to lift or transport, like very large furniture. For compost, if the bin is filled with trash or broken glass, etc., then it is contaminated and is taken to the landfill. The most problematic issue is when contaminated material can't be seen visually and is disguised - this can happen if brush or leaves is covering non-compost item underneath, for example, and those materials end up in the compost stream.
How is presence of non-conforming material determined, and how is it managed when observed?	As mentioned, if a compost bin is contaminated the contents are taken to the landfill - so, in this case, these bins are observed by city staff and disposed of. Otherwise, the compost is delivered to Organics by Gosh and non-conforming materials are removed and sorted at that facility.
What makes this material difficult to manage?	For bulk, this doesn't really apply - very heavy items are somewhat difficult. For compost, many misused compost bins are a problem to deal with and sort. For example, four-plexes in a cul-de-sac might have a dozen bins and most might be misused as trash. It takes extra time to check, sort, and deal with these bins.
Where is material disposed/marketed? Who manages the material after you?	Bulk does recycle when possible. For example, they pull metals out and delivery to Austin Metal & Iron. Compost is managed by Organics by Gosh. They take large appliances, electronics, tires, hazmat, and good-condition items to the RRDOC (Recycle and Reuse Drop-off Center). Main landfill takes their bulk and trash collected.
What are challenges to the program? Quantity? More or less material desired?	Would like to see more composting material and more residents participate in the program and utilize the compost bins - it would be preferable if compostable trash was composted instead of ending up in the landfill. An additional challenge in general is that the compost bins are often not used correctly and quite a bit of contamination ends up the compost, making it unusable. For the material stream that is sorted correctly, in general would like to see an increase in food items and a decrease or reduction in leaf collection.
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	Absolutely contamination can be a problem. Most prevalent would be plastic and glass (that should be in the recycle bins), Styrofoam, grocery bags, diapers, and household trash that is not compostable. Most unwanted is contamination that is hard or impossible to sort out by the end vendor - such as broken glass (that makes the whole lot contaminated).
What impacts have been noted as a result of Covid-19?	Services have been suspended temporarily off and on since COVID for all large brush and bulk collection due to staffing shortages brought about by COVID 19, unfilled vacant positions, and low return on hiring ads. They attempted to resume bulk pickup end of 2020 and again early 2021, but were unable to meet the workload demands. This is largely due to vacancies which have been a strong trend since COVID began.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Because bulk pickup wasn't available, there was an increase in garbage collection as many people just left the bulk to be picked up by garbage. The amount of compost doubled briefly (from about 6 tons to 12 tons) after the Texas freeze in 2021, but related more to the large amount of dead plant/brush materials.
What, if any, sustained impacts are still noted today?	See above. The largest sustained impact is high job vacancy and staffing shortages. COVID itself created vacancies or absenteeism as people called in sick. Then vacancies began to occur and their applicant pool decreased as well. They estimate sometimes 75% fewer applicants.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Staff worked only outside the facility during the height of COVID. Also, they limited only two people per vehicle and enforced masks. Also, due to higher absences and job vacancies, they've had to suspend brush collection and residential street sweeping at times.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Operations are back to normal but staffing is still an issue - they have higher vacancies.
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	They are currently testing out a pilot program where people can set out singular items that can be picked up and taken to the correct recycling centers (like Austin Metal & Iron). Each service the City currently offers is great, especially compared to outside of Austin. Outside of Austin, for example, some residents have to pay for bulk or other services. The City goes above and beyond, even recycling fabrics/textiles. An issue is that the City has a vast array of options that people don't know about or know how to use the services. For example, household hazardous waste and the RRDOC are not used as much as they should be. Also, many people don't know that they can process their brush for free if they deliver it. As a City, we don't have enough facilities for private citizens to access to dispose of products - we only have two recycling facilities and facilities like Austin Metal & Iron. There is a lack of diversity of where to dispose of products. We also don't have transfer stations. In addition, services that are used just aren't used correctly, like the issues with composting participation and contamination. Many of the compost/recycling bins sit idle or are used for trash. With areas of high contamination, perhaps compost bins should be upon request only. Or there could be a larger effort to educate and get involved with community. They do attend town hall meetings, for example, but there is small participation or turnout there. They do send instructions with compost bins upon first delivery, but perhaps literature in the mail stream or continuing education would help. They just need an avenue to reach out to individuals. Ideas could be to create partnerships, like with block leaders. City staff could actually train people in areas of neighborhoods that struggle with sorting and using the bins.

Name of Business	City Collection Department				
Representative (Interviewed)	Samuel Gilbert				
	City Collection Department (Bulk)		City Collection Department (Composting)		City Collection Department (all other)
	Items Broken Down by Category		Items Broken Down by Category		Items Broken Down by Category
	Accepted	Not Accepted	Accepted	Not Accepted	Accepted Not Accepted
	Doors	Brush	Food scraps	Aluminum	(large) dead animals within the public ROW dead animals on TxDOT roads or highways
	Carpet	Household trash	Yard trimmings (lawn and leaf paper bags)	Animal carcasses	dead pets dead livestock
	Furniture	Cardboard boxes	Food soiled paper	Ceramics	regular street sweeping maintenance streep sweeping will not remove tree limbs or large quantities of blown leaves
	Appliances (remove doors)	Hazardous materials	Natural fibers (toothpicks, chopsticks, popsicle sticks)	Cigarette butts and ashes	
	Passenger car tires (remove rims; limit eight tires per household)	Mirrors	Pizza boxes	Clothing	
	Lawn mowers (remove gas/oil)	Automotive chassis and bodies		Cotton balls and cotton swabs	
	Railroad ties (cut in half)	Motorcycles		Diapers	
	Pallets	Trailers		Glass	
	Rolled fencing	Boats		Glossy paper	
	Nail-free lumber	Tires that are still mounted on rims		Hazardous waste	
	metal	Sheet glass and other construction and remodeling debris		Kitty litter	
	car tires (rims removed)	-		Liquids (including fats, oils, grease)	
	large brush	-		Medical waste	
	Other services by appointment, etc.:			Metal	
	-- The Recycle & Reuse Drop-off Center (household hazardous waste disposal, electronics recycling and free items for pickup) --			Pet waste	
	Clothing and Housewares (including Goodwill)			Plastic of any kind (bags, bottles, containers, straws, etc.)	
				Rocks	
				Styrofoam	
				Trash	
				Tree stumps	
				Wine corks	
				Wood that is treated or painted	

Name of Business	Goodwill (corporate)
Representative (Interviewed)	Angelica Roman
Web	https://www.goodwillcentraltexas.org/
Email	[REDACTED]
Phone Number	[REDACTED]
Interviewer Name	Shannon Barrientes
Date of Interview	N/A - multiple attempts to reach Ms. Roman were unsuccessful, by phone and email
Method of Interview	N/A
Days and Hours of operation	Multiple locations but on average open 9 AM to 8 PM, 7 days a week
Annual tonnage accepted at the facility?	Unknown
Broken down by material category(ies) if possible	See "items broken down by category" tables.
What is the percentage of residuals (non-conforming material) received?	Unknown
What is most common?	Unknown
What is most problematic?	Unknown
How is presence of non-conforming material determined, and how is it managed when observed?	Unknown
What makes this material difficult to manage?	Unknown
Where is material disposed/marketed? Who manages the material after you?	Unknown
What are challenges to the program? Quantity? More or less material desired?	Unknown
Is contamination (non-conforming material) a problem? What is most prevalent? Why is it difficult to manage or unwanted?	Unknown
What impacts have been noted as a result of Covid-19?	Unknown
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Unknown
What, if any, sustained impacts are still noted today?	Unknown
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Unknown
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Unknown
Is there one (or two) - thing(s) they would change to increase productivity or diversion?	Unknown

Goodwill (corporate)	
Items Broken Down by Category	
Accepted	Not Accepted
Clothing of any kind	Mattresses
Shoes	Box springs
Accessories (purses, ties, belts, scarves, etc.)	paint
Books, CDs, DVDs, Tapes, Records	chemicals
Small Furniture	hazardous materials
Collectable items	tube TVs
Jewelry and Antiques	home rehab items (like ceiling fans, siding, cabinets)
Household items (dishes, knick-knacks, etc.)	tires
Linens	car seats
Electrical items (radios, TVs, clocks, lamps, etc.)	-
Toys and Children's items	-
Computers and Components	-

1504 WEST 5TH STREET AUSTIN, TEXAS 78703 [REDACTED]



ENVIRONMENTAL
ARCHEOLOGICAL
AND PLANNING
CONSULTANTS

TECHNICAL MEMORANDUM

TO: Michael Oden, P.E.
Aptim Environmental
12005 Ford Road, Suite 600
Dallas, Texas 75234

FROM: Patricia Frost, P.G.
Senior Project Manager/Professional Geoscientist
Hicks & Company Environmental/Archeological Consultants

DATE: June 10, 2022

RE: Waste Diversion Study: Reuse and Thrift Stores Phone Interviews

Hicks & Company was asked to participate in the City of Austin 2021/22 Waste Diversion Study. This Technical Memorandum summarizes information gathered during thrift store phone interviews. Four of the stores had closed or could not be located and at least three stores no longer accepted donations or participated in reuse/recycling programs. Thirty-two stores were contacted, and a representative interviewed (see attached interview summary sheets), and twenty-one stores were responsive to being interviewed. The stores interviewed range from recycling facilities to used clothing and thrift stores, used office furniture stores, and the local food bank (refer to the attached interview summary sheets for individual interview responses). Several commonalities and themes can be selected from the variety of facilities and are listed below:

Observations of Commonality Between Stores

- Almost all of the stores interviewed process donations as they arrive and, because of that, there are a low number of non-conforming items. Most of the stores simply have residual packaging from donations that are recycled or disposed of.
- Several stores/facilities mentioned that educating the public on how and where to recycle would increase diversion.
- Almost all the stores interviewed said they had plentiful donations and were pleased with their community generosity and the quality of goods donated.
- Almost all of the stores interviewed said they are mostly back to normal operations after COVID, with a few mentioning labor shortages.

Common Non-Conforming Items that Can't be Reused/Recycled/Diverted

- Mattresses
- Car Seats

Common Non-Conforming Items that Can be Reused/Recycled/Diverted

- Home rehab or demo (concrete, ceiling fans)
- Tires
- Batteries

Current Common Challenges Faced by Thrift Facilities

- Some labor shortages

ATTACHMENT 1
REUSE AND THRIFT STOREs LIST AND INTERVIEW SHEETS

TYPE	NAME OF ORGANIZATION	ADDRESS	PHONE NUMBER	CATEGORY	2022 NOTES
Recycle	American Textile Recycling Service (ATRS)	9201 Brown Ln Unit 10, Austin, TX 78754		Textile Recycling	
Recycle	ARMA 3rd Fall Shred Day (annual event at Balcones Shred)	9301 Johnny Morris Rd, Austin, TX 78724		Specialty Recycler	
Reuse	Austin Creative Reuse	2005 Wheless Ln, Austin, TX 78723		Reuse	
Reuse	Austin Habitat for Humanity	500 W Ben White Blvd, Austin, TX 78704		Reuse	
Recycle	All American Recycling	9202 FM 812, Austin, TX 78719		Reuse & Recycle	
Recycle	Austin Metal & Iron	1000 E. 4th St., Austin, Texas 78702		Recycle	
Recycle	Break It Down	7400 FM969, Austin, Texas 78724		Recycling & compost	Emailed and spoke with Thalia 3/2, 3/4, 3/7 (emailed questions to assist), 4/1 - she at first tried to get in touch with the owners but eventually didn't respond back to me
Reuse	Capital Area Food Bank	6500 Metropolis Dr, Austin, TX 78744		Reuse	
Recycle	Centex Shred	1130 Rutherford Ln, Ste 220, Austin, TX 78753		Specialty Recycler	
Recycle	Construction Waste Recycler	924 Cavalry Ride Trl, Austin, TX		Recycling & compost	Operated from a house and left voicemails (2/8, 4/5), tried to call but no one picks up, and emailed but no response.
Reuse	Dress for Success	701 Tillery St A-5, Austin, TX 78702		Reuse	Do not response to calls or emails (emailed austin@, Mia, and Amanda twice) and have left multiple messages.
Recycle	Goodwill Central Texas Lake Austin Store	701 Newman Dr, Austin, TX 78703		Reuse	
Reuse	Goodwill Central Texas - Brodie Lane	9801 Brodie Ln, Austin, TX 78748		Reuse	
Reuse	Goodwill Central Texas - Outlet South	6505 Burleson Rd, Austin, TX 78744		Reuse	
Reuse	Goodwill Central Texas - North Lamar	5555 N Lamar Blvd B100, Austin, TX 78751		Reuse	Manager (Lana Ayers) refused interview and said only corporate could answer questions about store.
Reuse	Goodwill Central Texas - Oak Hill Store	7100 US-290 suite c, Austin, TX 78735		Reuse	Manager (Aubrey Johnston store manager but manager Tyler Crowder) refused interview and said only corporate could answer questions about store.
Reuse	Goodwill Northwood Plaza	2900 W Anderson Ln # 3, Austin, TX 78757		Reuse	
Reuse	Goodwill Central Texas - Clock Tower	7817 Clock Tower Dr, Austin, TX 78753		Reuse	
Reuse	Goodwill Central Texas Boutique - Westbank	2814 Bee Caves Rd, Austin, TX 78746		Reuse	
Reuse	Goodwill Airport Location	836 Airport Blvd, Austin, TX 78702		Reuse	
Recycle	Greenthumb Compost LLC	P.O. Box 41539, Austin, TX 78704		Compost	
Recycle	Hope Family Thrift Store	1122 E 51st St, Austin, TX 78723		Reuse	Emailed but has not responded. Present in store but busy and can't come to phone.
Recycle	The Salvation Army Thrift Store Austin, TX	8801 Research Blvd, Austin, TX 78758		Reuse	Do not answer phone
Recycle	The Salvation Army Family Store & Donation Center	4216 S Congress Ave, Austin, TX 78745		Reuse	Do not answer phone
Reuse	Smart Buy Office Furniture	8910 Research Blvd #F2, Austin, TX 78758		Reuse	
Reuse	St. Vincent de Paul	901 W Braker Ln, Austin, TX 78758		Reuse	Do not answer phone
Reuse	Texas Thrift	5319 N Interstate Hwy 35, Austin, TX 78723		Reuse	Do not answer phone
Recycle	University of Texas at Austin	FC5 1.102 (on campus)		Educational	
Reuse	University of Texas	FC5 1.102 (on campus)		Educational	
Recycle	ZOA Compost Pickup			Compost	
Reuse	Buffalo Exchange	2904 Guadalupe St., Austin, Texas 78705		Reuse	Manager (Josie) said they don't do surveys or interviews of any kind, only their marketing team will, however, only the staff can contact the marketing team. Emailed request in April and also called to follow up.
Reuse	Uptown Cheapskate Austin	3005 S Lamar Blvd., Austin, Texas 78704		Reuse	clothing

PERMANENTLY CLOSED FACILITIES					
Recycle	Compost Peddlers	N/A		Compost	Permanently closed - confirmed closed in Jan. 2019
Recycle	EcoBox	2200 Denton Dr. #110, Austin, TX 78758		Reuse	They cancelled the used box program because of COVID and have no plans at this time to restart it. The used boxes they did take before COVID were resold in their retail store.
Reuse	EcoBox	5400 Brodie Lane, Suite 220, Austin, TX 78745		Reuse	They cancelled the used box program because of COVID and have no plans at this time to restart it. The used boxes they did take before COVID were resold in their retail store.
Reuse	Granite Recyclers Austin	440 E St Elmo Rd, Austin, TX 78745			Permanently closed
Reuse	Hotel 1			Hotel	Could not find
Reuse	The Arc of Texas (ReUselt)	N/A		Reuse	Permanently closed - confirmed with Susan closed in 2018 - they no longer offer this service or take goods like this.

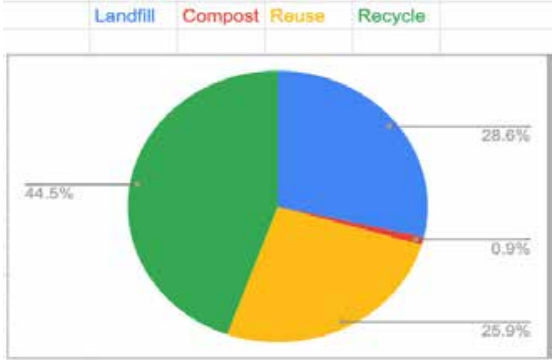
Name of Organization	American Textile Recycling Service (ATRS)
Representative (Interviewed)	David Peganyee
Address	9201 Brown Ln Unit 10, Austin, TX 78754
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Textile Recycling

Days and Hours of operation	Mon-Fri, but will change soon to Sun-Fri; 7am - 5 pm, but flexible closing time
Annual tonnage accepted at the facility?	50 tons/year, but goals for at least 150 tons/year
Amount from City contracts?	No city contract, but extremely interested in the idea, especially with schools.
Broken down by material category(ies) if possible	Clothing, shoes, household items (misc.)
Approximate percentage of total receipts	Central Texas branch was in SA, but moved into Austin last year. Have not generated a profit currently, because of the change. However, interviewee mentioned that he had not done the budget yet.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	4-5%
What is this percent based on?	Ride alongs with driver weekly and monthly to evaluate collections and keeps daily records of what is collected (clothing, misc., trash).
What material unable to divert is most common?	Mattresses (despite labels on bins noting that mattresses are not allowed), wet clothes, dirty couches, car seats.
What material unable to divert is most problematic?	Mattresses
How is presence of non-conforming material determined, and how is it managed when observed?	As the driver is loading, he bags the good clothing and separates into the categories. When he gets to the warehouse, he throws trash away and rolls bins out and weighs everything before bringing inside.
Why is this material not allowed and what are the obstacles for management?	Health reasons (wet clothes can't go with dry clothes) and resale value (must be of decent quality). They have looked into washing the wet clothing, but commercial washers and dryers are expensive. If they could work with the city to put more bins out, could collect more, meaning less goes to the landfill.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Most are sent to Houston to be sorted into different categories, then sold to clients (companies and individuals, flea markets, stores, etc) - Partners with Dell Children's Hospital. All donations are technically made to Dell Children's Hospital; this company is just the means for which donations are collected and sold; this company takes the bins there and the drivers pick up and drop off bins.
What impacts have been noted as a result of Covid-19?	Cost (paying employees when they're not at work), finding drivers (especially at the beginning, because of fear of getting COVID from touching the bins that hundreds of people had touched), major increase in donations in the beginning, but has gone back to normal.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Major increase in donations in the beginning, but has gone back to normal.
What, if any, sustained impacts are still noted today?	Still hard to find employees.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Gloves; some wore masks, but employees who were collecting the donations were outside and didn't always wear masks; lots of hand sanitizer; and washing hands. Operations have returned to normal.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Having a voice/letting people know that it's an option would generate more donations; increase availability - there are lots of public space that bins could be placed at; someone with the City to work with.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	Interviewee was unaware of the program, but would love to learn about it and to work with the City.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	Absolutely! Already operate and run 3 box trucks, 100 5x5 metal recycling bins that can be labeled per whoever they are working with, can do all the the work (coordinating, delivering bins, and collecting donations). Would not need any resources; they would just need to partner with the City to get the word out that this service is available.
Is the contamination rate (percent of non-conforming material) higher or lower than from other sources? In what way?	
Are the residuals more or less difficult to manage compared to other sources? Is the challenge with residuals due to type, volume, something else? (this question may need to be modified depending on previous answers)	
Is there something they wish they could change, within the industry / region / state, to increase diversion potential? (Not asking about city contract issues -keep more global)	
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	

Name of Organization	ARMA 3rd Fall Shred Day (annual event at Balcones Shred through Balcones Resources)
Representative (Interviewed)	Bob McGivney
Address	9301 Johnny Morris Rd, Austin, TX 78724
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Paper

Days and Hours of operation	Annual Event November 6, 2021 (typically scheduled early November 7am – 2pm)
Annual tonnage accepted at the facility?	(using 2021 as example) 40,150# or 20.07 tons
Amount from City contracts?	Yes, but not for this event.
Broken down by material category(ies) if possible	Paper (but also accept hard drives) and residential cardboard/containers (see below).
Approximate percentage of total receipts	N/A
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	0%
What is this percent based on?	Known
What material unable to divert is most common?	N/A
What material unable to divert is most problematic?	N/A
How is presence of non-conforming material determined, and how is it managed when observed?	Carboard boxes are residual but are recycled.
Why is this material not allowed and what are the obstacles for management?	N/A
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	N/A - recycled on-site.
What impacts have been noted as a result of Covid-19?	Was unable to hold event in 2020 (but they were able to in 2021 and 2019).
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	N/A
What, if any, sustained impacts are still noted today?	N/A
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	N/A
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	N/A
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	N/A
Is the contamination rate (percent of non-conforming material) higher or lower than from other sources? In what way?	N/A
Are the residuals more or less difficult to manage compared to other sources? Is the challenge with residuals due to type, volume, something else? (this question may need to be modified depending on previous answers)	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential? (Not asking about city contract issues -keep more global)	N/A
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	In reference to ARMA Shred Day, which is a shred only event, they wish they could hold the event at Highland Mall/ACC again, it was great with lots of space. The recent Nov event was held at the Materials Recovery Facility (MRF) and was very tight on space with over 700 cars coming through among all the existing truck traffic.

Name of Organization	Austin Creative Reuse
Representative (Interviewed)	Jennifer Evans, Executive Director
Address	2005 Wheless Ln, Austin, TX 78723
Email	[REDACTED]
Website	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	10 a.m. - 8 pm Tuesday-Saturday, 12 pm - 6 pm Sunday, Closed Monday - to public (there 7 days a week)
Annual tonnage accepted at the facility?	All creative materials, broadly defined. 2015: 38k (pounds) 2016: 1222k 2017: 125k 2018: 153k 2019: 262k 2020: 222k 2021: 410k
Amount from City contracts?	N/A - no contract - they have done programs with the City of Austin but do not have a current contracts .
Broken down by material category(ies) if possible	Creative materials include arts and crafts, fine arts, like same things you'd find at Hobby Lobby: textiles, fiber art, vintage, plastic containers and tops, old paper materials, some packaging, office supplies, school supplies.
Approximate percentage of total receipts	This is sales only (does not include grants, govt funding, contributions, etc): 2015: \$9,072 2016: \$112,692 2017: \$218,067 2018: \$302,500 2019: \$398,423 2020: \$307,778 2021: \$535,003
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Everything they have is donated from homes and businesses and they end up with broken items, dirty textiles, household recyclables (plastic containers), household haz waste like paint - landfill percentage is about 1% (over ten years 1-3%). 2021: 14% (total poundage that we received as donations that we could not use (e.g., resell in our store, use in programming, etc) Of that 14%, the streams broke down as follows: In total for 2021, 3% of what we received as donations ultimately ended up in the landfill. 2020: 11% (cannot use), 4% landfill 2019: 9% (cannot use), 3% landfill 
What is this percent based on?	Everything is weighed and tracked - reuse (books), compost, landfill, recycle. Everything is tracked Google form.
What material unable to divert is most common?	Aerosols, paint, broken plastic, broken items. Large quantities - binders, for example. They are always searching for ways to get rid of these items.
What material unable to divert is most problematic?	Costly is large plastics - fills up quickly and is expensive to have picked up. Try to avoid styrofoam because it's large and difficult to transport.
How is presence of non-conforming material determined, and how is it managed when observed?	All staff and volunteers hand sort boxes and repackage and price everything, some items go into the store and some into special programs like schools and educators and non-profit. "Pay what you can" program.
Why is this material not allowed and what are the obstacles for management?	Appliances and large furniture; Art projects that require disassembly; Candles in glass or ceramic containers; Cardboard Shoe Boxes; Clothing (or parts of clothing) & Shoes; Computers or large electronics; Household Recycling (plastic food containers, aluminum cans, booze bottles, toilet paper rolls, etc.); Mattresses or bedding; Plush toys;Potpourri; Prescription or other medication bottles; Styrofoam; Toxic substances (or anything that contained toxic substances) VHS tapes and cases.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Have great relationship with City - composting program - Household Hazardous Waste and Austin Reuse and Recycle Center (electronics, etc.) the City helped with this. Break it Down for composting. TDS for landfill and mixed recycling. Sell some scrap metal --- double check by email. Also work with other thrift stores in the Austin area - like move furniture unless it's art and craft related.
What impacts have been noted as a result of Covid-19?	Closed for a lot for the last two years (eight months) - impacted donations to take in and take out. Started online store, donations by appt only, some outdoor sales, even quarantined donations.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Saw a lot more of recyclables and household hazardous waste coming in with donations. People might think it's hard to recycle and were trying to recycle through them. "Wishcycling" - like someone has items and wants to recycle but don't have the capacity and knowledge or the easiest way to recycle.
What, if any, sustained impacts are still noted today?	Starting to return to normal - reopened April 1, 2021, for continuous operation. Not at capacity but difficult to quantify because they moved March 2020 just as COVID started. Still figuring out budgets, etc. But were able to keep staff - moving timed really well with COVID. Still under projection but moving in right direction.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Started online store - donations by appt only - some outdoor sales - even quarantined donations. Moved back to walk-in donations (which is more convenient) but still requiring masks but that's about it so far. They have a workshop space (holds 30) but only including 15 to allow for social distancing. Will keep online store but have altered what is on the site and evaluating (about 10% of total sales).
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	See above.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	More consistency - choices of diversion within their household (depending on where you live) some people have composting, students/apartments don't have effective access or access - comperable levels of service throughout the city. Effective education for citizens - the city does a pretty good job of what they present - but do people engage or learn? Recycling is complicated. Also people are moving into Austin quickly and people have to educate themselves on what is recyclable. There are no consequences of doing what is wrong.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	School ISDs recycling and composting is great. There are some good facilities (like Household Hazardous facility and that it is free.) Having composting is rare. The City used to have rebates and clinics - not sure if still around but those were great great (that is how they started their composting).
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	Would like to do more now that COVID is passing like pitch competition, workshop, and outdoor space to do events. Would like to do educational opportunities. They have the opportunity to educate; for example educating on how to recycle properly (like when they attempt to donate non-conforming). They've tried quarterly re-use market days with artists who reuse and it's been fun and successful. First Friday in November they do a reuse fashion show with 27 designers (and had fun categories) which was sponsored by Austin Reuse Recovery sponsored. As for resources, easy is just the best - would be great if more could be picked up.

Name of Organization	Austin Habitat for Humanity
Representative (Interviewed)	Crystal
Address	500 W Ben White Blvd, Austin, TX 78704
Email	
Phone Number	██████████
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	M - Sat 9am to 6pm; Sunday 11am to 5pm
Annual tonnage accepted at the facility?	Unknown
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Furniture, appliances, and household hardware or reuse (subcategories include cabinets, fans, flooring, doors, windows, counters, toilers, rugs, hardware, toilets (under 1.28 GPF), kitchenware, tools, electronics, lumber/siding/trim/plywood) and some general goods (such as sporting equipment, toys, bicycles).
Approximate percentage of total receipts	N/A
How much material is received for diversion that cannot be	N/A - they do not accept material they cannot divert. The percentage of residuals are recycled.
What is this percent based on?	N/A
What material unable to divert is most common?	N/A
What material unable to divert is most problematic?	There are not enough residuals or non-conforming materials to be a problem.
How is presence of non-conforming material determined, and how is it managed when observed?	Staff supervises donations at the door and refuses items they are unable to divert or use. They do accept recycling and recycle residual material such as metals, wood, paper, cement, glass, plastic, sheetrock, clothing, shoes, cardboard, some electronics, motors, cell phones, ink cartridges, and eyewear.
Why is this material not allowed and what are the obstacles for management?	They are not allowed to accept bulky office furniture including cubicales, used mattresses, soiled or broken furniture, electronics over 5 years old, tube TVs, baby items (car seats, strollers, furniture), hazardous chemicals, used carpet, large toilets (over 1.28 GPF), unframed glass, food/alcohol, broken appliances, waterbeds, sofabeds, tires, and batteries. They try to avoid taking items that cannot be recycled. Any excess is thrown away (ex., Styrofoam, shrink wrap). There are no obstacles as they turn them away.
Where is material taken for diversion or disposal? What are	N/A
What impacts have been noted as a result of Covid-19?	They enforced all safety standards during COVID.
Were there changes to the material stream (quantity,	N/A
What, if any, sustained impacts are still noted today?	N/A
What, if any, operational changes occurred as a result of	They are back to normal pretty much.
If operations have not returned to pre-Covid conditions, are	N/A
Is there something they wish they could change, within the	They have a lot of material and a pretty constant flow of donations.
What are the strengths that you see in City of Austin's Austin	N/A
Do you believe there are opportunities for your facility /	N/A

Name of Organization	All American Recycling
Representative (Interviewed)	Vicki Spring, Office Manager
Address	9202 FM 812, Austin, TX 78719
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse/Recycle

Days and Hours of operation	M-F 8-5, Sat 8-3
Annual tonnage accepted at the facility?	Unknown
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	metals only
Approximate percentage of total receipts	In the millions, unknown.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	0%
What is this percent based on?	Best guess.
What material unable to divert is most common?	N/A - materials are all pre-sorted before they are accepted, therefore, no non-confirming examples. However, common example would be tires. They will keep the rims but return the tire itself to the customer.
What material unable to divert is most problematic?	N/A
How is presence of non-conforming material determined, and how is it managed when observed?	Human sorted and returned.
Why is this material not allowed and what are the obstacles for management?	They only do metals.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	All of their materials are sent outside of Austin, including their own recycling.
What impacts have been noted as a result of Covid-19?	They only were shut down a few days and noticed about a 15% drop in their business during portions of 2020 and 2021.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	N/A
What, if any, sustained impacts are still noted today?	None - they are back to normal.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	No changes and back to normal.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	See below.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	Austin does a good job of recycling but should not charge as much for it.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	They would participate in events if it made sense. They feel they are already out there and known for what they do.

Name of Organization	Austin Metal & Iron
Representative (Interviewed)	Jim Shapiro
Address	1000 E. 4th St., Austin, Texas 78702
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Recycle

Days and Hours of operation	Mon-Fri 7:30 am - 4 pm, Sat 7:30 am - 11 am, closed Sunday
Annual tonnage accepted at the facility?	6,000 tons
Amount from City contracts?	1,000 tons (but no details)
Broken down by material category(ies) if possible	Farris and non-farris
Approximate percentage of total receipts	Not willing to share.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	None
What is this percent based on?	Observation
What material unable to divert is most common?	N/A
What material unable to divert is most problematic?	N/A
How is presence of non-conforming material determined, and how is it managed when observed?	N/A
Why is this material not allowed and what are the obstacles for management?	They only take metals.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Material goes to the end consumer, is melted down, and made into new product.
What impacts have been noted as a result of Covid-19?	A lack of personnel and business slowed down a bit.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	There were no changes with the initial wave.
What, if any, sustained impacts are still noted today?	A lack of work force.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They were super cautious by wearing masks and limiting who was allowed in offices, safety and covid protocols. They are still operating under pre-Covid conditions as of Spring.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	They hope to return to pre-Covid conditions.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	This facility is paying for material, which results in materials not going to the landfill. As long as people are being paid for their materials, they will keep diverting them to this facility and others like it.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	The City does a good job, no improvements needed.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	No, they have exhausted everything in the City. And they only handle things that are of value.

Name of Organization	Break It Down
Representative (Interviewed)	Thalia
Address	7400 FM 969, Austin, Texas 78724
Email	
Phone Number	
Category/Type of Facility (Recycle/resuse/compost, etc.)	Recycle/Compost

Days and Hours of operation	By Appointment
Annual tonnage accepted at the facility?	
Amount from City contracts?	
Broken down by material category(ies) if possible	Composting and also glass, cardboard, plastics, metal, paper, plastic fulm and aspectic containers
Approximate percentage of total receipts	
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	
What is this percent based on?	
What material unable to divert is most common?	
What material unable to divert is most problematic?	
How is presence of non-conforming material determined, and how is it managed when observed?	
Why is this material not allowed and what are the obstacles for management?	
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	
What impacts have been noted as a result of Covid-19?	
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	
What, if any, sustained impacts are still noted today?	
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	

Name of Organization	Capital Area Food Bank
Representative (Interviewed)	Maddie Cordovano
Address	6500 Metropolis Dr, Austin, TX 78744
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	Mon-Fri 7am-6pm
Annual tonnage accepted at the facility?	32,350 tons
Amount from City contracts?	Unknown
Broken down by material category(ies) if possible	Non-perishable, packaged food
Approximate percentage of total receipts	N/A
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Unknown - they do not accept non-food items, ice packs, and food in opened packaging.
What is this percent based on?	Best guess.
What material unable to divert is most common?	Expired product, produce
What material unable to divert is most problematic?	Expired product
How is presence of non-conforming material determined, and how is it managed when observed?	Redonate to farmers or zoos.
Why is this material not allowed and what are the obstacles for management?	Inedible
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Redonated to farmers or zoos or composted
What impacts have been noted as a result of Covid-19?	Slower product donations at first, then an influx; internal effects: movement of employees, PPE, field work had to pause.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Slower product donations at first, then an influx.
What, if any, sustained impacts are still noted today?	Supply chain impact, number of volunteers to help move product, general safety with getting work done.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Remain changed, but unsure of what those changes entailed.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Unsure, but assuming the changes will stay in effect even after Covid.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Unknown
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	Didn't know much about the programs.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	Yes; continuing to grow bigger and have a further reach to distribute as much as possible.

Name of Organization	Central Texas Shredding
Representative (Interviewed)	Tim Henning
Address	Mobile Document Shredding
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Paper

Days and Hours of operation	M-S, 8 to 5, by appointment (services Austin and from San Antonio to Georgetown)
Annual tonnage accepted at the facility?	80,000 lbs a month (40,000 tons per month) - 2 trucks, 3 FT, 1 PT = 480,000 tons a year
Amount from City contracts?	They do not have any City contracts - they do have state and federal contracts.
Broken down by material category(ies) if possible	Paper (mostly), hard drives/cell phones/tapes/X-rays - most value and tonnage is from SOP (sorted office paper).
Approximate percentage of total receipts	\$500,000 total income - business breaks even after overhead costs.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	About 1% is taken to the landfill (Austin Community Landfill on Giles Lane).
What is this percent based on?	Best guess.
What material unable to divert is most common?	If X-rays (from doctors offices), plastic bags, textiles, or CDs end up in the shredding by accident it can contaminate the paper and either downgrade it or it can't be recycled.
What material unable to divert is most problematic?	X-rays, plastic, CDs.
How is presence of non-conforming material determined, and how is it managed when observed?	Depending on the contamination, they can usually still recycle as downgraded mixed paper (which includes things like magazines and junk mail/brochures and is of much less value). They are usually able to observe the contamination quickly and remove it.
Why is this material not allowed and what are the obstacles for management?	They only take paper and the categories above - do not have issues with not allowed material.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	The paper is taken to Balcones Resources/Recycling for the most part. They use Renew Logic on Rutland for items like tapes, some CDs, cell phones. X-rays are shipped to a facility in Ohio that melts it down for the silver.
What impacts have been noted as a result of Covid-19?	The price of paper went up which made recycling more valuable, especially when COVID first started. They noticed a change in an increase with homeowners vs. businesses (due to working from home). On the negative side, they couldn't do shred events at schools/churches/events for a long time.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	An increase of shredding at homes and a decrease of shredding at businesses during initial wave. A big decrease in community events and recycling.
What, if any, sustained impacts are still noted today?	Pretty much stream and quantity is back to normal - a few businesses and events are still not open and/or may never return. They are able to do community events again.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They are still wearing masks, their team is vaccinated, and they try to respect social distancing. During COVID, they introduced a curbside service and then would call for credit card info.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	They still have the curbside service available and some customers do still use it, but largely they are back to normal operations. They still are wearing their masks and social distance with customers as applicable.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	An improvement would be the availability of another recycling facility for paper, etc. (for example, San Antonio has a couple). Austin only has one (Balcones Resources) and they aren't always easy to work with but have improved. A city recycling facility would be great.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	See above - would be nice to have more recycling facilities.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	They would really like to be able to work with the City. They would like to do events, etc., to spread awareness of their program.

Name of Organization	Goodwill Central Texas Lake Austin Store
Representative (Interviewed)	Angel and Brandon Odanga
Address	701 Newman Dr, Austin, TX 78703
Email	
Phone Number	(512) 478-6711
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	M-Sun 9-8 (or after hours but prefer not during the night)
Annual tonnage accepted at the facility?	Unknown at this location.
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances. https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown at this location.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	This location doesn't have a lot of non-conforming material. Mostly donations arrive during the day and they can turn them away items they don't use. They do allow night drop-offs, but there are rarely items there that can't be diverted.
What is this percent based on?	Observation.
What material unable to divert is most common?	Most common items that are left behind at night might be baby items like carseats or strollers and the occasional mattress.
What material unable to divert is most problematic?	Nothing is really problematic - they turn everything over to the truck/salvage pick up and it's sorted away from the store.
How is presence of non-conforming material determined, and how is it managed when observed?	They visually inspect donations as they arrive and do their best to turn away non-acceptable items. When they do come across non-conforming items, they remove them and store them properly to be picked up by the sorting truck.
Why is this material not allowed and what are the obstacles for management?	Baby items and things like mattresses can't be resold by law.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	They recycle what they can on-site (cardboard, plastics) and also sort what is trash and the rest goes on the truck to be properly disposed of.
What impacts have been noted as a result of Covid-19?	They noticed significant labor shortages started during COVID and have continued.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	COVID didn't really change their material stream.
What, if any, sustained impacts are still noted today?	They are highly short of staff and have been since COVID.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They still have installed plexiglass and masks available for customers. Otherwise, they are back to normal.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	They are likely keeping the plexiglass.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Everything donated to them is resold and they have a lot of excess donations. They see a need for clothing donations directly to the homeless or very poor. Otherwise, they are in a location with very generous residents who donate in excess and good quality items.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	N/A

Name of Organization	Goodwill Central Texas - Outlet South
Representative (Interviewed)	Dee
Address	6505 Burleson Rd, Austin, TX 78744
Email	
Phone Number	(512) 681-3301
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	9 a.m. to 7 p.m., 7 days a week
Annual tonnage accepted at the facility?	Unknown - corporate would know
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown - corporate would know
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Almost none. Staff sorts donations as they arrive and they turn away non-conforming items that cannot be diverted. They lock their donation center at closing and rarely have items left there at night.
What is this percent based on?	Observation.
What material unable to divert is most common?	They rarely get items they cannot divert and people rarely try to bring items to donate that cannot be diverted.
What material unable to divert is most problematic?	N/A
How is presence of non-conforming material determined, and how is it managed when observed?	Staff sorts material as it arrives and recycles residuals and removes trash if needed. There is not much non-conforming material.
Why is this material not allowed and what are the obstacles for management?	They are not allowed to take certain items but people seem to understand (as they don't try to donate those things).
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Donations that can't be out into store can be take by the salvage truck or to the Goodwill facility.
What impacts have been noted as a result of Covid-19?	Operations are back to normal and they haven't had any long term issues like staffing shortages.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	None observed.
What, if any, sustained impacts are still noted today?	None
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They are back to normal operations.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Their community donates so much and they have a lot of excess donations.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	Unknown
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	Unknown

Name of Organization	Goodwill Northwood Plaza
Representative (Interviewed)	Katina
Address	2900 W Anderson Ln # 3, Austin, TX 78757
Email	
Phone Number	
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	9 a.m. to 9 p.m.
Annual tonnage accepted at the facility?	Unknown
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances. https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Very low amount. Their location doesn't end up with a lot of material they can't divert as they only accept donations during the day when they are opens. Donations are mostly sorted as they arrive and the staff does pretty well at it. They recycle what they can't divert and send away for sorting.
What is this percent based on?	Observation.
What material unable to divert is most common?	Couldn't say as it's not common.
What material unable to divert is most problematic?	No problems.
How is presence of non-conforming material determined, and how is it managed when observed?	Everything is sorted by staff and almost always refused at the donation site.
Why is this material not allowed and what are the obstacles for management?	All items listed on their website (paint, household hazardous waste, mattresses, tires, TVs).
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	They recyle the packaging through the City but the rest is picked up by the Goodwill truck.
What impacts have been noted as a result of Covid-19?	None
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	N/A
What, if any, sustained impacts are still noted today?	N/A
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Still have plexi-glass up but otherwise normal.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	They get a lot of donations and good quality ones, not sure what they would change.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	N/A

Name of Organization	Goodwill Central Texas - Clock Tower
Representative (Interviewed)	Theresa
Address	7817 Clock Tower Dr, Austin, TX 78753
Phone Number	
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	M-Sat 9-8, Sun 10-8
Annual tonnage accepted at the facility?	Unknown for this location
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances. https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown for this location
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	This location doesn't receive a lot of non-conforming material and it's very low percent. For the most part, donations are sorted at the time they are donated. People do leave things there at night and occasionally they find something non-conforming.
What is this percent based on?	Observation.
What material unable to divert is most common?	Not very common at this location. But they do sort out a bit of old, broken, or ripped furniture and mattresses.
What material unable to divert is most problematic?	The furniture they can't process takes up some space until the truck can pick it up but mostly it's just dangerous to deal with - they can be nails, broken wood, or coils sticking out.
How is presence of non-conforming material determined, and how is it managed when observed?	If donations are brought during the day, staff turns them away or directs them; items left at night go to the warehouse or onto the salvage truck to be sorted.
Why is this material not allowed and what are the obstacles for management?	There are not obstacles, but they just can't accept certain items because they are broken or law doesn't allow it.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	They recycle everything they can on-site, such as residual cardboard and packaging. They also sort out obvious trash. Everything else is taken away to be sorted, diverted, or disposed of.
What impacts have been noted as a result of Covid-19?	No real differences and this location doesn't have a staffing issue.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Didn't observe changes.
What, if any, sustained impacts are still noted today?	No real differences. They had to discontinue their Sunday auctions during COVID and haven't been able to get them going again.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They follow all safety protocols and will continue to.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	They feel like people in their community donate a lot, but they do see fluctuations in donations and wish it were more steady. It's like donaters are half great at donating, half not great. Sometimes this store has too much, other times some of their standard items are out of stock.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	They don't do any events or partnerships that they know of.

Name of Organization	Goodwill Central Texas Boutique - Westbank
Representative (Interviewed)	Elizabeth
Address	2814 Bee Caves Rd, Austin, TX 78746
Phone Number	
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	9 a.m. to 7 p.m., 7 days a week
Annual tonnage accepted at the facility?	Unknown
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	They take the same items as a regular Goodwill, but they are smaller and turn away larger furniture. But they take textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	They don't get very much non-conforming material.
What is this percent based on?	Observation
What material unable to divert is most common?	car seats, some mattresses
What material unable to divert is most problematic?	No problems - the items are picked up by the Goodwill truck and diverted or disposed of.
How is presence of non-conforming material determined, and how is it managed when observed?	Staff sorts almost everything that arrives at the time it's donated. They do get a small amount of items left outside the donation center at night and those would mostly be the occasional car seat or mattress. But it's not often or much. They recycle cardboard and other items
Why is this material not allowed and what are the obstacles for management?	Items not allowed by law basically - mattress, baby items, hazmat.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	The items are picked up by the Goodwill truck and diverted or disposed of.
What impacts have been noted as a result of Covid-19?	None noticed.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Not noticed.
What, if any, sustained impacts are still noted today?	None.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They still have plexiglass up, but otherwise everything is pretty much back to normal.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	They could use more donations and they wish people knew they were there. They get a lot of people who say they are surprised to discover them. In general, more advertising.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	Unknown

Name of Organization	Goodwill Central Texas - Brodie Lane
Representative (Interviewed)	Yvette Reyez
Address	9801 Brodie Ln, Austin, TX 78748
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	M-Sat 8-8, Sun 10-8
Annual tonnage accepted at the facility?	Email for corporate office
Amount from City contracts?	N/A - but email to make sure
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Email corporate office
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	10%
What is this percent based on?	best guess
What material unable to divert is most common?	Mattresses, rehoming items (like ceiling fans, siding, cabinets), tires, car seats
What material unable to divert is most problematic?	Mattresses, all of the above - problems are inability to resell, they take up lot of space, time and expense to process
How is presence of non-conforming material determined, and how is it managed when observed?	If donations are brought during the day, staff will redirect donaters with a list or address/facility of the proper place to leave items; items left at night go to the Bureson location warehouse and seperated into proper facilities - all local Goodwills share it and they recycle at that facility
Why is this material not allowed and what are the obstacles for management?	Cannot resell the items because of laws (like car seats, mattresses, tires, hazmat, chemicals) or don't have the proper space or set up (like rehoming items - like siding, ceiling fans)
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Items left at night go to the Bureson location warehouse and seperated into proper facilities - all local Goodwills share it and they recycle at that facility
What impacts have been noted as a result of Covid-19?	Overall donations were slower during COVID and also they had temporarily stopped home pick ups and use of dressing rooms.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	No noticeable change
What, if any, sustained impacts are still noted today?	No sustained change - things are pretty much back to normal
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Were masking, social distancing, no house pickups, locked dressing rooms - now masks are optional and all else is the same
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Operations are pretty much back to normal
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	N/A
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	N/A

Name of Organization	Goodwill Airport Location
Representative (Interviewed)	
Address	836 Airport Blvd, Austin, TX 78702
Phone Number	
Category/Type of Facility (Recycle/resuse/compost, etc.)	Reuse

Days and Hours of operation	M-Sat 9-8, Sun 10-8
Annual tonnage accepted at the facility?	Email for corporate office
Amount from City contracts?	Unknown
Broken down by material category(ies) if possible	Textiles (clothing, linens), shoes, accessories, media (books, CDs, DVDs), furniture, jewelry, antiques, household items (dishes, knick-knacks, collectables, décor), toys, computers, small appliances. https://www.goodwillcentraltexas.org/uploads/files/general_files/2017_07.25_Donation_Guidelines.pdf
Approximate percentage of total receipts	Unknown
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	They lock the donation center at night but people leave quite a bit of non-diveratable material there. It's likely about 10% of everything donated and she would say is substantial. They turn people away during the day but they just come at night leave it there.
What is this percent based on?	Best guess, observation.
What material unable to divert is most common?	Mattresses , tires, baby stuff, and even just trash outside their donation area.
What material unable to divert is most problematic?	It's just time and expense to sort and clean it up.
How is presence of non-conforming material determined, and how is it managed when observed?	During the day they turn away non-conforming items. For non-conforming items left behind, they sort it as best they can on-site and then the rest goes on the Goodwill salvage truck to be sorted at the main facility.
Why is this material not allowed and what are the obstacles for management?	They can't resell it or divert it, so have to turn it away.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	They recycle on-site (cardboard, etc.) but everything else is picked up by the truck.
What impacts have been noted as a result of Covid-19?	None really.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Not that they observed.
What, if any, sustained impacts are still noted today?	None really.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	They are still only open until 8 p.m. and used to be open until 9 p.m.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Their community is generous with donating and they have a pretty steady stream coming in. In fact, sometimes they have too much. It fluctuates and depends.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	N/A

Name of Organization	Greenthumb Compost LLC
Representative (Interviewed)	Owen Rutz
Address	Irrelevant - pick up stuff (restaurants, office buildings)
Email	[REDACTED]
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Compost

Days and Hours of operation	Generally M-F between 10 a.m. and 10 p.m. - only pick up by appointment (contract) - small ones non contract pick up once a week.
Annual tonnage accepted at the facility?	About 17 tons per week - before COVID about 5 tons per week (2018 = 3 tons per week).
Amount from City contracts?	N/A - have applied
Broken down by material category(ies) if possible	Compost (used to do recycle and trash but stopped during pandemic - was also very small amount).
Approximate percentage of total receipts	Can't share that.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	1%
What is this percent based on?	Best guess - they bill for contamination but weight is very light on the whole.
What material unable to divert is most common?	Latex gloves, glass bottles, aluminum cans (soda), plastic bottles.
What material unable to divert is most problematic?	Glass bottles breaking contaminate an entire barrell of waste and it all gets thrown away - but they almost always catch the contamination before it gets mixed with the larger load.
How is presence of non-conforming material determined, and how is it managed when observed?	Visually inspect.
Why is this material not allowed and what are the obstacles for management?	Because it contaminates the compost.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	It goes into a trash dumpster and picked up by a waste company and it takes a long time to fill up a 4-yard dumpster. Will not share name of (local Austin companie[s]) trash pick up.
What impacts have been noted as a result of Covid-19?	Was forced to fire people. Had to lay off during low times and then rehire, but it's difficult to hire and hard to compete with unemployment, also training and hiring is expensive and takes months to get going.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Material stream is the same but there has been more material and, actualym, heavier material since COVID but still trying to figure out the difference and why that is.
What, if any, sustained impacts are still noted today?	Number of customers is down 60% but volume of material has gone up (ex. hotels).
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Windows open in trucks and wearing masks during property.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Offices open and close, open and close, very difficult to keep up with clients - very challenging.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	N/A
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	N/A but see below.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	He's heard there's a pilot program for apartments/townhouses/condos and they get calls even. But they have tried to call the City but it has not worked out. Maybe the program doesn't get passed? He thinks the City would have to require it. Also, it would help to know RFP selection process or get debriefed on opportunities.

Name of Organization	University of Texas at Austin Self-Haule and Reuse/Surplus
Representative (Interviewed)	Lindsey Hutchison, Mark Engleman, Michael Costa
Address	Main Campus
Email	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Recycle/Reuse/Compost

Days and Hours of operation	Standard work hours as needed for entire campus.
Annual tonnage accepted at the facility?	<p>All of campus (tons). Note that Recycle includes single stream as well as specialty recycling (metals, ink & toner, nitrile gloves, etc.).</p> <ul style="list-style-type: none"> Calendar Year 2017: Recycle 2051; Compost 1175; Donated or Resold: 438; Landfill: 5581 FY Sept 1 2018 – Aug 31 2019: Recycle 2050; Compost 1165; Donated or Resold: 405; Landfill: 5019 FY Sept 1 2019 – Aug 31 2020: Recycle 1301; Compost 727; Donated or Resold: 499; Landfill: 3277 FY Sept 1 2020 – Aug 31 2021: Recycle 952; Compost 362; Donated or Resold: 446; Landfill: 3067 <p>Surplus Property portion (tons). Note that Recycle is metals recycling.</p> <ul style="list-style-type: none"> Calendar Year 2017: Recycle 149; Compost 0; Donated or Resold:436; Landfill: 162 FY Sept 1 2018 – Aug 31 2019: Recycle 149; Compost 0; Donated or Resold: 392; Landfill: 120 FY Sept 1 2019 – Aug 31 2020: Recycle 119; Compost 0; Donated or Resold: 494; Landfill: 87 FY Sept 1 2020 – Aug 31 2021: Recycle 130; Compost 0; Donated or Resold: 436; Landfill: 89 <p>Self-haul portion (tons). Note that Recycle is single stream recycling.</p> <ul style="list-style-type: none"> Calendar Year 2017: Recycle 944; Compost 0; Donated or Resold: 0; Landfill: 2455 FY Sept 1 2018 – Aug 31 2019: Recycle 1041; Compost 33.89* <p>Compost Self Haul started in April of this year; Donated or Resold: 0; Landfill: 2218</p> <ul style="list-style-type: none"> FY Sept 1 2019 – Aug 31 2020: Recycle 494; Compost 49; Donated or Resold: 0; Landfill: 1568 FY Sept 1 2020 – Aug 31 2021: Recycle 390; Compost 18; Donated or Resold: 0; Landfill: 1124
Amount from City contracts?	Not available to share or unknown
Broken down by material category(ies) if possible	Self-haul are individual canisters for waste, recycling, and compost and are located at core academic facilities and auxiliary like dorms, etc. Food uses third party facilities often and are not a part of these departments.
Broken down by material category(ies) if possible	Reuse/Surplus is mandated by State of Texas University Property and they process everything from pens to vehicles and this department make decisions on how and when to reuse items either back to UT departments or to distribute to school districts. Other items/excess is available through online auction and their public reuse store.
Approximate percentage of total receipts	Can't share this/unknown.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	It varies and last year they were very close to actual zero waste. Broken items are the biggest thing that can't be reused and are recycled/diverted when possible. Non-divertable items about 1%.
What is this percent based on?	Audit and record keeping
What material unable to divert is most common?	For Reuse/Surplus, common items that can't be diverted are broken particle board desks and bookshelves and some modular furniture. They recycle the metal but the particle board is very tough to repurpose. Modular furniture is hard to reuse once it's broken down. For self-haul, they sometimes see construction debris, scrap metal, buildings materials. They think downtown contractors have excess for thier dumpsters.
What material unable to divert is most problematic?	None are problematic.
How is presence of non-conforming material determined, and how is it managed when observed?	Staff sorts and processes all items.
Why is this material not allowed and what are the obstacles for management?	For Reuse/Surplus, it's mostly modular furniture and furntiture made of particle board just don't have long lives and hard to rebuild or use once taken apart. For self-haul, they don't see as much issue. Sometimes things are left by the bins (like furniture) and they are photographed and taken to the Reuse/Surplus l and then diverted properly. For the
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	For Reuse/Surplus, they have their own reuse store and online auction store, but locally they also use Balcones Resources/Recycling, Organics by Gosh, and the landfill when needed. Also, their self-haul uses the same local services.
What impacts have been noted as a result of Covid-19?	They were closed during COVID March through August, 2020 and the students came back September 2020.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	They tpically do waste audits but didn't during COVID, but there definitely was a big decrease in volume (students gone) and also being able to haul and recycle due to staff out and supply chain issues for truck maintenance.
What, if any, sustained impacts are still noted today?	Things are mostly back to normal Spring 2022 but last completed year was lower volume as still some hybrid schedules.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	See above for temporary changes, but otherwise, none.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	<p>Educating the public is really important but, also, recycling branding itself should be consistent. There's confusion for those not from the area as typical bin colors would be black for trash, blue for recycle, and green for compost. But the City is using brown for compost maybe because it's cost effective, but it does add confusion.</p> <p>They would like to see a universal recycling ordinance page. Also, guidelines on how to handle apartment waste, for example, since apartments residents can't always compost, for example. They've heard that the City is considering a pilot program for apartments and, if so, they would be interested in learning about it for dorms.</p>
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	The City has a great web page and it's helpful when trying to learn about recycling. For improvement, consistent education and branding is very important and could be done more. Also it should be very easy to find information about where to recycle odd items like batteries. Also, it seems like people don't really know about the City programs or even what options they have (like that they can select trash can sizes, etc).
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	UT has done some partnerships with WebCampus for moveouts and tabling events around Earth month and the City has a table there so they've done some partnership but UT has limited capacity.

Name of Organization	Zoa Compost Pickup
Representative (Interviewed)	Larcy
Address	N/A (from home)
Email	[REDACTED]
Website	https://zoacompostpickup.com/
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/resuse/compost, etc.)	Compost

Days and Hours of operation	Pick ups every Monday from 6 a.m. to 3 p.m. (posted hours M-F 9-4 for communication)
Annual tonnage accepted at the facility?	3 tons for first year (in business one year)
Amount from City contracts?	N/A - no city contracts
Broken down by material category(ies) if possible	Compost (3 tons average one year)
Approximate percentage of total receipts	estimate \$15,000 sales (2021)
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Residential waste is less than .05% but business waste is more like 10 to 15%.
What is this percent based on?	Best guess
What material unable to divert is most common?	Residential non-conforming material includes things like paper coffee cups and produce stickers; business non-conforming material is more like plastic bags, to-go containers, and cigarettes.
What material unable to divert is most problematic?	All equally problematic.
How is presence of non-conforming material determined, and how is it managed when observed?	All material is sifted by hands first and human sorted, then commercially processed by Break It Down Austin.
Why is this material not allowed and what are the obstacles for management?	Items now allowed are either not compostable or the items contaminate the compost.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	Break It Down (local) allows them to use contamination dumpster and also their recycling bin, however, the majority of non-conforming material is not recyclable and goes to the dumpster/landfill.
What impacts have been noted as a result of Covid-19?	None - the business is a no-contact business and stream and quantity didn't change much as a result of COVID.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	No, the material stream was pretty standard and consistent throughout COVID and continues to be.
What, if any, sustained impacts are still noted today?	No sustained impacts from COVID.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	Operations are the same.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	N/A
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	Awareness, cost, and accessibility are the key factors in encouraging people to recycle/compost. People would recycle/compost more if they knew more about the process, it was easy to do, and affordable.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	They don't really know much about the City's programs but the City falls short with apartments and condos when it comes to composting. Those people cannot compost easily and those are millions of residents who, therefore, do not compost city-wide.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	They would like to be a part of events or potential promotional opportunities, however, they just don't see events or options that fit them usually. There should be standard systems for apartments and condos such as bins by the trashcans. It's difficult to get contracts with apartment offices that are corporate owned to allow office pick up. People can individually schedule pick up but cost is a factor. Another general issue is manpower and staffing/cost of staffing and vehicles are necessary to grow a business to pick up more compost.

Name of Organization	Uptown Cheapskate
Representative (Interviewed)	Adriana, Manager
Address	3005 S. Lamar Blvd., Ste 110-A, Austin, Texas 78704
Email	[REDACTED]
Website	https://www.uptowncheapskate.com/location/austin/
Phone Number	[REDACTED]
Category/Type of Facility (Recycle/reuse/compost, etc.)	Reuse

Days and Hours of operation	M-Sat 10 a.m. to 9 p.m., Sun 11:30 a.m. to 7 p.m.
Annual tonnage accepted at the facility?	Unsure (it's not weighed but it's a huge amount)
Amount from City contracts?	N/A
Broken down by material category(ies) if possible	Men and women's clothing, shoes, and some accessories.
Approximate percentage of total receipts	Not known/can't share at this location - they have several locations in Texas.
How much material is received for diversion that cannot be diverted? Percentage of residuals (non-conforming material) received?	Items are sorted as they are turned so everything is diverted. The items they can resell, they purchase from the donater. Items they can't resell, they either return to the donater directly or they offer to donate. All donated items go 100% to Purple Heart, a society that benefits veterans and their families. It's a lot of material, but hard to estimate even by guessing but sometimes a third or half even sometimes none of a donation
What is this percent based on?	Can't guess.
What material unable to divert is most common?	N/A - they are able to divert everything.
What material unable to divert is most problematic?	N/A - they are able to divert everything. They don't really have residuals. Donations arrive in boxes, containers, and trash bags but they are returned to the donater at the time so the trash/recycling is not left in the store. However, if they have cardboard, they do recycle with the city and, of course, have basic trash from normal operations.
How is presence of non-conforming material determined, and how is it managed when observed?	Anything non-confirming is just handed back to the donater and, also, is pretty rare.
Why is this material not allowed and what are the obstacles for management?	There are no obstacles, they are just limited to the items they take for resell and/or can donate.
Where is material taken for diversion or disposal? What are the markets for the material? Local, national, international?	They either resell items in their store or donate to the Purple Heart.
What impacts have been noted as a result of Covid-19?	They were temporarily closed during the height of COVID.
Were there changes to the material stream (quantity, composition) during 2020 with the initial wave of Covid?	Material was not different.
What, if any, sustained impacts are still noted today?	No sustained impacts - they are back to normal.
What, if any, operational changes occurred as a result of Covid? Have operations returned to pre-Covid conditions, or do operations remain changed?	N/A outside of standard safety protocol.
If operations have not returned to pre-Covid conditions, are there plans to do so? Why / why not?	Operations are about the same.
Is there something they wish they could change, within the industry / region / state, to increase diversion potential?	They actually have a lot of donations - it's pretty much daily donations and a steady stream. They think their community donates quite a bit and the quality is good.
What are the strengths that you see in City of Austin's Austin Resource Recovery's current programs and services? What are the areas that could use improvement?	They don't really know about programs.
Do you believe there are opportunities for your facility / organization to take an additional role in increasing City of Austin Austin Resource Recovery (ARR) waste diversion? If so, what role may you have? What resources are available to you currently, or what resources would you require?	They would be interested in partnering with the City of Austin or other facilities to participate in events or drives.

Appendix E

Annual Diversion Plans and Organics Plans



Please return to:
Austin Resource Recovery
Attn: BOT
P. O. Box 1088
Austin, TX 78767

2019 ORGANICS DIVERSION PLAN

Due 2/1/19

Contact Information

Name: _____

Title: _____

Phone: _____

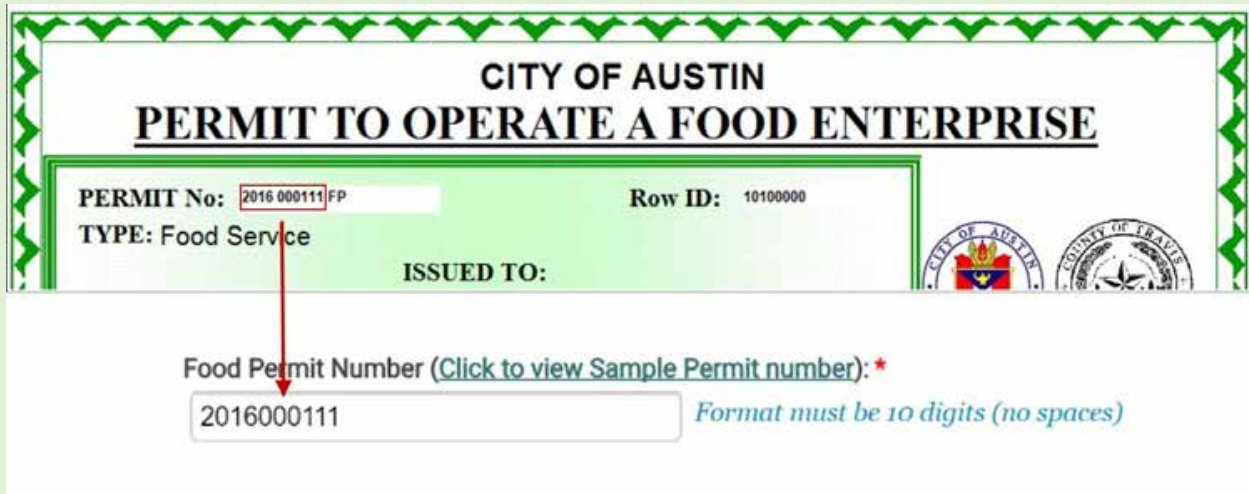
Email: _____

Business Information

Business Name: _____

Business Address: _____

Food Permit Number: _____ (see example below)



Property ID#: _____

To retrieve your Property ID number, ask your county's appropriate Central Appraisal District:



- Travis Central Appraisal District: (512) 834-9317 www.traviscad.org
- Williamson Central Appraisal District: (512) 930-3787 www.wcad.org

Type of Business:

- Assisted Living/Child Care
- Bar/Pub
- Cafeteria/Buffer
- Coffee/Beverage Shop
- Commercial Kitchen/Catering/School
- Convenience Store
- Entertainment (Theater, bowling, etc.)
- Hospitality/Hotel
- Manufacturing/Warehouse/Distributor
- Mobile Vendor/Food Truck
- Quick Service (Fast food)
- Restaurant
- Other: _____

Note: Organic material includes:

- Meats, fats and dairy
- Vegetables, fruits, grains
- Paper towels (including bathroom) and paper napkins
- Food soiled paper, cardboard or waxboard (e.g. pizza boxes, paper cups, paper food containers, coffee filters, tea bags)
- Landscape trimmings and floral décor

Signage and Education

Does your business post informational signs to help employees divert organic material?

- Yes No

Does your business educate employees and tenants about diverting organic material? Yes

- No

Organics Diversion Options

Do you divert organic material by instituting organic **waste reduction practices**?

- Yes No



If so, please describe your program(s): _____

Do you divert organic material by **feeding hungry people**?

Yes No

If so, where did the food go?*

Central TX Food Bank

Church: _____

Employee take home program

Keep Austin Fed

Other non-profit organization(s): _____

School(s)

FOOD TYPE	HOW MUCH?	VOLUME/WEIGHT	HOW OFTEN?	UNIT
<input type="checkbox"/> Bread/ Baked Goods <input type="checkbox"/> Dairy <input type="checkbox"/> Eggs <input type="checkbox"/> Meat/Fish <input type="checkbox"/> Non-Perishables <input type="checkbox"/> Meal/Prepared <input type="checkbox"/> Food <input type="checkbox"/> Produce <input type="checkbox"/> Other		<input type="checkbox"/> Gallons <input type="checkbox"/> Liters <input type="checkbox"/> Pounds		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year

Do you divert organic material by **feeding animals**?

Yes No

If so, where did the food go? Please list the recipient organization(s): _____

Do you divert organic material by providing for **industrial uses**?

Yes No

If so, please describe your program(s): _____



Do you divert organic material by **composting**?

Yes No

Service Provider: _____

Compost Service Capacity

Container (circle one)	Number of Containers	Volume of Container	Volume Unit (circle one)	Pick-up Frequency	Pick-up Unit (circle one)
5 Gal Bucket			Gallons		Per Week
55 Gal Drum			Cubic Yards		Per Month
Cart					
Dumpster					
Roll-off					
Other					

Do you divert organic material by **alternative means**?

Yes No

If so, please describe your program(s): _____

Signature of Person Completing Form

Name: _____

Signature: _____

Phone Number: _____

I certify that this information is accurate and valid to the best of my knowledge.

All done! Thank you.



Please return to:
Austin Resource Recovery
Attn: BOT
P. O. Box 1088
Austin, TX 78767

2019 ANNUAL DIVERSION PLAN

Due 2/7/19

Contact Information

Name: _____
Title: _____
Phone: _____
Email: _____
Property Name: _____

Property or Business Information

Name of Property: _____
Property Street Address: _____
Property Zip Code: _____
Which industry best describes your property?



Commercial	Multifamily
<input type="checkbox"/> Entertainment/Theater <input type="checkbox"/> Government <input type="checkbox"/> Hotel/Motel/Lodging <input type="checkbox"/> Industrial/Manufacturing/Warehouse <input type="checkbox"/> Medical/Hospital <input type="checkbox"/> Offices <input type="checkbox"/> Non-Profit/Religious/Private Educational <input type="checkbox"/> Restaurant/Bar/Grocery/Food Service <input type="checkbox"/> Retail/Mall <input type="checkbox"/> Other: _____	<input type="checkbox"/> Apartment <input type="checkbox"/> Condominium <input type="checkbox"/> Dormitory <input type="checkbox"/> Mobile Home Park <input type="checkbox"/> Nursing Home / Assisted Living <input type="checkbox"/> Townhome <input type="checkbox"/> Other: _____

Property ID

This Property Tax ID is the unique value used by the county appraisal districts to identify a specific property. *(We include the Property ID on all letters and postcards talking about the Universal Recycling Ordinance)*

To retrieve your Property ID number, ask your county's appropriate Central Appraisal District:

- Travis Central Appraisal District: (512) 834-9317 www.traviscad.org
- Williamson Central Appraisal District: (512) 930-3787 www.wcad.org

The links above provide 'Real' and 'Personal' Property IDs.

Enter the 6-digit (7-digit for Williamson County) 'Real' Property ID # here:

Travis County example 123456, Williamson County example R123456

Is this submission for an entire property or part of the property?

- Entire Tax Parcel
- Part of the Tax Parcel

If you are reporting for all buildings on the parcel, choose "Entire Tax Parcel"

If you are reporting for ONLY PART of the building, or one of many buildings, on a tax parcel, choose "Part of the Tax Parcel"

What is the number of the building, unit, or suite? _____



For commercial properties: what is the size of the property (or your portion of the property) in square feet? _____

For multifamily properties: how many dwelling units do you have? _____

If this is a property with multiple Property IDs, please list additional Property IDs here:

Additional Property Information

Is your property vacant?

- Yes No

Are you located in the Downtown Trash and Recycling District which provides shared dumpsters in alleys (in green below)?

- Yes No



Does your property have trash and recycling carts with the city logo (see below)?

- Yes No



1. Materials Collected

Do you offer single-stream recycling (where all your recyclables go in one bin-- paper, cardboard, aluminum cans, plastic bottles #1 and #2, glass bottles and jars) to your employees?

Yes No

If you selected 'No' to the question above, you must request a Materials Waiver:

Waiver Request - Explain why location does not offer single-stream recycling and document any proposed substitute materials in the Additional Material table below:

2. Collection Services and Additional Materials

Please describe the number and size of your trash and recycling containers (if you don't know, call your hauler and give them your address and they will tell you)

Trash Collection Services:

Container (circle one)	Number of Containers	Volume of Container	Volume Unit (circle one)	Pick-up Frequency	Pick-up Unit (circle one)
---------------------------	-------------------------	------------------------	-----------------------------	----------------------	---------------------------------



Dumpster			Gallons		Per Week
Cart			Cubic Yards		Per Month
Roll-off					
Other					

Recycling Collection Services

Container (circle one)	Number of Containers	Volume of Container	Volume Unit (circle one)	Pick-up Frequency	Pick-up Unit (circle one)
Dumpster			Gallons		Per Week
Cart			Cubic Yards		Per Month
Roll-off					
Other					

Compost Collection Services (Optional)

Container (circle one)	Number of Containers	Volume of Container	Volume Unit (circle one)	Pick-up Frequency	Pick-up Unit (circle one)
5 Gal Bucket			Gallons		Per Week
55 Gal Drum			Cubic Yards		Per Month
Cart					
Dumpster					
Roll-off					
Other					

Additional Diverted Materials by Volume, Weight, or Quantity (Optional)

This section refers to material not handled in mixed- or single-stream recycling.

Austin Resource Recovery staff will review this information and may request additional documentation.

Material	Units of Measure (circle one)	Amount	Frequency (circle one)
Motor Vehicle	Pounds		Per Week
Batteries	Tons		Per Month
	5 Gal Buckets		Per Year
Metal Scrap	Pounds		Per Week
	Tons		Per Month



	5 Gal Buckets		Per Year
Motor Oil	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year
Wooden Pallets	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year
Shredded Paper	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year
Tires	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year
Other Material by Weight	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year
Other Material by Volume	Pounds		Per Week
	Tons		Per Month
	5 Gal Buckets		Per Year

If you need a **Capacity Waiver**, please explain your issue. *Austin Resource Recovery staff will review waiver requests on a case-by-case basis and respond within 60 days, if waiver is not accepted. Waivers must be requested each year.*

Reduction or Reuse Credit (Optional)

Businesses may qualify for the Reduction or Reuse Credit if waste generation has been significantly reduced through reuse or process improvements during the past two calendar years. To request a Reduction or Reuse Credit, describe the process improvements or source reduction below. If you know the estimated weight or volume savings, enter those values in the Other Material (by Weight/Volume) row at the bottom of the Additional Diverted Materials by Volume, Weight or Quantity table on page 5.



Do you qualify for a Reduction or Reuse Credit? Yes No

If yes, please explain: _____

3. Convenience

Convenience Requirement: The Universal Recycling Ordinance requires each trash service container (cart, dumpster, roll-off, etc.) or access point (chute, hopper) to have a recycling service container or access point within 25 feet.

Does this location meet the Convenience Requirement? Yes No

If not, please fill out a Waiver Request below:

Convenience Waiver Request (Optional)

A waiver request claiming space constraints will not be considered without proper documentation and explanation. Examples of documentation may include correspondence from the hauler, site plans, or photos. Please attach documentation to this form. *Austin Resource Recovery staff will review waiver requests on a case-by-case basis and respond within 60 days, if waiver is not accepted. Waivers must be requested each year.*

Space Constraint

Property has valet service for both trash and recycling

Other: _____

The Austin Resource Recovery Director may deny waiver requests if carts or wheeled dumpsters can alleviate this condition. The ARR Director may also require additional education to compensate for less convenience.

4. Signage

Do you have signage on outdoor containers meeting the following requirements? Note: Your waste service provider may provide signage.

- Landfill containers - labeled as "landfill" in 2 languages



- Recycling containers
 - Labeled as "recycling" in 2 languages and features chasing arrows symbol (recycling symbol)
 - Indicates what materials are accepted in the container in 2 languages (example here)
- Compost containers (if any)
 - Labeled as "Compost" or "Organics" in 2 languages
 - Indicates what materials are accepted in the container

Does this location meet the Sign Requirements? Yes No

Example of URO-compliant signage:



5. Education

Are the employees or tenants of this property educated about what and where to recycle within 30 days of hire or move-in and at least once a year?

Are educational materials offered in at least 2 languages?

Yes No

Select the educational methods used:



- Email
- In-person
- Flyer

Education is required. For dual language educational materials: (512) 974-9727

6. Additional Notes and Information (Optional)

This section can be used to offer additional information about your property. Please note that if you have questions or concerns that need immediate attention, you should call Austin Resource Recovery at (512) 974-9727 or email at CommercialRecycling@AustinTexas.gov.

Please enter additional information or comments: _____

Please attach any supporting documentation you would like to include.

7. Signature

Name: _____

Signature: _____ Date: _____

Phone Number: _____

All done! Thank you.



Mail completed form to:
Austin Resource Recovery
Attn: BOT
P. O. Box 1088
Austin, TX 78767

2020 ORGANICS DIVERSION PLAN

Due February 1, 2020

The City of Austin has a goal to reach Zero Waste by 2040. The Universal Recycling Ordinance (URO) supports this goal by **requiring food-permitted businesses to provide convenient access to organics diversion** for their employees, and to report how they are meeting these requirements **by filling out this form** every year.

NOTE: All questions are required unless noted as optional.

About Your Property

Contact Information (Required)

Name: _____

Title: _____

Business Information (Required)

Business Name: _____

Business Street Address: _____

Suite or Building Number: _____

Business Zip Code: _____



Type of Business (Required)

- Assisted Living/Child Care
- Bar/tap room
- Coffee/Beverage Shop
- Commercial Kitchen/Catering/School
- Convenience Store
- Entertainment (Theater, bowling, etc.)
- Food bank/pantry
- Hospitality/Hotel
- Ice/water sales or manufacture
- Grocery
- Mobile Vendor
- Quick Service (Fast Food)
- Restaurant
- Snow cones/popsicles/ice cream
- Soup Kitchen
- Warehouse/distribution
- Other (please specify): _____

Food Permit Number (Required) _____

If you have additional food permit numbers, please write them here:

Your Austin Public Health Food Permit Number will be between 6 and 10 digits.

You can find your Food Permit Number on all letters you receive from Austin Resource Recovery.



Real Property ID #:

Travis County example: 123456

Williamson County example: R123456

How to Find Your Real Property ID:

- 1) Find it the letter you received from Austin Resource Recovery
- 2) Ask your county's Central Appraisal District office:
 - Travis Central Appraisal District: (512) 834-9317
www.traviscad.org
 - Williamson Central Appraisal District: (512) 930-3787
www.wcad.org

Organics Diversion Requirements

URO requires all food permitted businesses to provide employees access to diversion options for organic material. Organic material can include:

- Vegetables, fruits, grains
- Meats, fats and dairy
- Landscape trimmings and floral décor
- Paper towels (including bathroom) and paper napkins
- Food soiled paper, cardboard or waxboard (e.g. pizza boxes, paper cups, paper food containers, coffee filters, tea bags)
- BPI-certified Compostable items (e.g. bags, utensils, cups and plates that are labeled as "Compostable" on the item)



Organics Diversion Practices (All Questions Are Required)

The Universal Recycling Ordinance **requires all food permitted businesses to provide access to organics diversion to employees**. Select all the diversion options you currently offer.

1. Do you prevent/divert organic material by using **waste reduction practices**?

Check all that apply

- Purchase Reduction (ex. Purchase daily, cook to order, selling out, etc.)
- Prep Waste Reduction (ex. Training staff on proper prep techniques)
- Secondary Use (ex. Vegetable trimming made into stock, stale bread made into croutons, etc.)
- Inventory Management (ex. Reduce price or promoting daily specials to use food near expiration, use of food waste log, etc.)
- Not Applicable

2. Do you divert organic material by **donating food to people**?

- Yes No

If yes, where did the food go? (Please specify)

- Employee take-home program
- Church or religious organization: _____
- Food bank/Soup kitchen: _____
- Schools: _____
- Other non-profit organization(s): _____

FOOD TYPE	HOW MUCH?	VOLUME /WEIGHT	HOW OFTEN?	UNIT
<input type="checkbox"/> Produce <input type="checkbox"/> Bread/ Baked Goods <input type="checkbox"/> Dairy/Eggs <input type="checkbox"/> Meat/Fish <input type="checkbox"/> Non-Perishables <input type="checkbox"/> Meal/Prepared Food <input type="checkbox"/> Other: _____		<input type="checkbox"/> Gallons <input type="checkbox"/> Liters <input type="checkbox"/> Pounds		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year



3. Do you divert organic material by feeding animals?

Yes No

If yes, where did the food go? Please list the recipient organization(s):

FOOD TYPE	HOW MUCH?	VOLUME /WEIGHT	HOW OFTEN?	UNIT
<input type="checkbox"/> Produce <input type="checkbox"/> Bread/Baked Goods <input type="checkbox"/> Dairy/Eggs <input type="checkbox"/> Meat/Fish <input type="checkbox"/> Non-Perishables <input type="checkbox"/> Meal/Prepared Food <input type="checkbox"/> Other: _____		<input type="checkbox"/> Gallons <input type="checkbox"/> Liters <input type="checkbox"/> Pounds		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year

4. Do you divert organic material by composting?

Yes No

Service Provider (or Self): _____

HOW MANY CONTAINERS?	CONTAINER TYPE	VOLUME	HOW OFTEN?	PICK-UP UNIT
	<input type="checkbox"/> Bucket	<input type="checkbox"/> 5 gallon		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
	<input type="checkbox"/> Cart	<input type="checkbox"/> 36 gallon		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
	<input type="checkbox"/> Drum	<input type="checkbox"/> 55 gallon		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
	<input type="checkbox"/> Dumpster	<input type="checkbox"/> 2 cubic yard <input type="checkbox"/> 3 cubic yard <input type="checkbox"/> 4 cubic yard		<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
	<input type="checkbox"/> Other: _____			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month



5. Do you divert organic material in a way NOT described above?

Check **all** that apply.

- Vendor take-back
- Coffee grounds offering
- Bio Fuel (not grease trap)
- Industrial use
- Other:

- Not applicable

Signage and Education (Required)

1. Does your business post informational **signs** to help employees divert organic material?

- Yes
- No

Signage is required. For dual language signage, see our website:

<http://austintexas.gov/bizorganics>

2. Does your business **educate employees** about diverting organic material?

- Yes
- No

Select the educational methods used

- Email
- In-person
- Flyer

Education is required. For dual language educational materials, see our website:

<http://austintexas.gov/bizorganics>



Signature (Required)

I certify that the information provided in my 2020 Organics Diversion Plan is accurate and valid to the best of my knowledge. (Required)

Signature: _____

Name : _____

Email address: _____

Phone number: _____

Date: _____

Please contact me about city-sponsored training or educational materials:

Yes No

You're all done! Thank you.

If you're interested in expanding your zero waste efforts, visit austintexas.gov/zwbizrebate



Mail completed form to:
Austin Resource Recovery
Attn: BOT
P. O. Box 1088
Austin, TX 78767

2020 ANNUAL RECYCLING PLAN

Due February 1, 2020

The City of Austin has a goal to reach Zero Waste by 2040. The Universal Recycling Ordinance (URO) supports this goal by **requiring property and/or business owners or managers to:**

- **provide convenient access to recycling** for their employees and tenants, and
- report how they are meeting these requirements **by filling out and submitting a recycling plan (called an Recycling Plan)** every year.

NOTE: All questions are required unless noted as optional.

Your Property

Property or Business Information (Required)

1. Name of Property: _____
2. Property Street Address: _____
3. Property Suite or Building Number: _____
4. Property Zip Code: _____



Real Property ID (Required)

The Real Property Tax ID is the unique value used by the county appraisal districts to identify your specific property.

5. 'Real' Property ID #:

Travis County example: 123456

Williamson County example: R123456

6. If this is a property with multiple Property IDs, please list any additional Property IDs:

Find Your Real Property ID:

- 1) Find it the letter or email you received from Austin Resource Recovery
- 2) Ask your county's Central Appraisal District office:
 - Travis Central Appraisal District: (512) 834-9317
www.traviscad.org
 - Williamson Central Appraisal District: (512) 930-3787
www.wcad.org

Tax Parcel Information (Required)

7. Is this submission for an entire property or part of the property?

Entire Tax Parcel - If you are reporting for ALL buildings on the tax parcel.

OR

Part of the Tax Parcel - If you are reporting for ONLY PART of the building, or one of many buildings, on a tax parcel.



Property Type (Required)

8. Which industry best describes your property?

Commercial	Multifamily
<input type="checkbox"/> Offices <input type="checkbox"/> Industrial /Manufacturing/Warehouse <input type="checkbox"/> Retail/Mall <input type="checkbox"/> Hotel/Motel/Lodging <input type="checkbox"/> Restaurant/Grocery/Food Service <input type="checkbox"/> Entertainment/Bar/Theater <input type="checkbox"/> Medical/Hospital <input type="checkbox"/> Religious/Private Education <input type="checkbox"/> Landscaping/Florist <input type="checkbox"/> Government <input type="checkbox"/> Other: _____	<input type="checkbox"/> Apartment <input type="checkbox"/> Condominium <input type="checkbox"/> Dormitory <input type="checkbox"/> Mobile Home Park <input type="checkbox"/> Nursing Home / Assisted Living <input type="checkbox"/> Townhome <input type="checkbox"/> Other: _____ _____

Property Size (Required for Multi-family properties ONLY):

9. How many dwelling units does your property have?

_____ dwelling units



Property Status and Service (Required)

Most businesses will answer “NO” to all three questions and then fill out the rest of the Recycling Plan.

10. Is your property vacant?

Yes No

11. Are you located in the Downtown Trash and Recycling District which provides shared dumpsters in alleys (in green on the map on the right)?

Yes No



12. Does your property have trash and recycling carts with the city logo (see right)?

Yes No



Note: If you answer “Yes” to any of the questions 10-12, go immediately to the Signature section on Page 13. You still must sign and date your Recycling Plan and mail it back to us. You do not have to fill out pages 5-12.



Your Diversion Practices

Materials Collected*

13. Do you offer single-stream recycling to your employees or residents?*

- Yes
- No

Single-stream recycling means all your recyclables go in one bin-- paper, cardboard, aluminum cans, plastic bottles #1 and #2, glass bottles and jars.

If you selected 'No' to the question above, you **must** fill out a Materials Waiver Request (below):

Waiver Request - Explain why your location does not offer single-stream recycling. Include any proposed substitute materials in the "Additional Materials" table (page 6):

Based on the information you provide below, Austin Resource Recovery staff will determine your diversion rate and compliance with capacity requirements. If you don't meet the capacity requirements for your property type (commercial or multifamily), we will contact you to fill out a capacity waiver request.

Commercial	Multifamily
<p><u>Option 1:</u> Provide at least 50% recycling capacity to your employees (1:1 ratio of recycling-to-trash service)</p> <p><u>Option 2:</u> Divert at least 85% of material leaving the property away from the landfill, by weight.</p>	<p><u>Option 1:</u> Provide at least 6.4 gallons of recycling capacity per dwelling unit per week.</p> <p><u>Option 2:</u> Divert at least 85% of material leaving the property away from the landfill, by weight.</p>



2. Collection Services (Required)

14. Please fill in the type, size, number, and pick-up frequency of your trash, recycling and/or compost containers. (Use your hauler receipts. If you don't know, ask your hauler.)

Trash Collection Services (Required)

CONTAINER TYPE	VOLUME	HOW MANY CONTAINERS?	HOW OFTEN?	PER PICK-UP UNIT
<input checked="" type="checkbox"/> Drum	<input type="checkbox"/> 55 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input checked="" type="checkbox"/> Per Month
<input type="checkbox"/> Cart	<input type="checkbox"/> 64 gallon <input type="checkbox"/> 96 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Dumpster	<input type="checkbox"/> 2 cubic yard <input type="checkbox"/> 3 cubic yard <input type="checkbox"/> 4 cubic yard <input type="checkbox"/> 6 cubic yard <input type="checkbox"/> 8 cubic yard <input type="checkbox"/> 10 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Compactor	<input type="checkbox"/> 20 cubic yard <input type="checkbox"/> 30 cubic yard <input type="checkbox"/> 40 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Roll-off	<input type="checkbox"/> 10 cubic yard <input type="checkbox"/> 20 cubic yard <input type="checkbox"/> 30 cubic yard <input type="checkbox"/> 40 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Other: _____				<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month



Recycling Collection Services (Required)

CONTAINER TYPE	VOLUME	HOW MANY CONTAINERS?	HOW OFTEN?	PICK-UP UNIT
<input type="checkbox"/> Drum/Barrel	<input type="checkbox"/> 55 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Cart	<input type="checkbox"/> 64 gallon <input type="checkbox"/> 96 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Dumpster	<input type="checkbox"/> 2 cubic yard <input type="checkbox"/> 3 cubic yard <input type="checkbox"/> 4 cubic yard <input type="checkbox"/> 6 cubic yard <input type="checkbox"/> 8 cubic yard <input type="checkbox"/> 10 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Compactor	<input type="checkbox"/> 20 cubic yard <input type="checkbox"/> 30 cubic yard <input type="checkbox"/> 40 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Roll-off	<input type="checkbox"/> 10 cubic yard <input type="checkbox"/> 20 cubic yard <input type="checkbox"/> 30 cubic yard <input type="checkbox"/> 40 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Other: _____				<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month

Compost Collection Services (Optional)

CONTAINER TYPE	VOLUME	HOW MANY CONTAINERS?	HOW OFTEN?	PICK-UP UNIT
<input type="checkbox"/> Bucket	<input type="checkbox"/> 5 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Cart	<input type="checkbox"/> 36 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Drum	<input type="checkbox"/> 55 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Dumpster	<input type="checkbox"/> 2 cubic yard <input type="checkbox"/> 3 cubic yard <input type="checkbox"/> 4 cubic yard			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month
<input type="checkbox"/> Other: _____				<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month



Additional Materials (Optional)

This section refers to material not handled in mixed- or single-stream recycling. Diverted material is recycled, reused, donated, or otherwise kept out of the landfill. What you add here will count towards your overall diversion rate.

Austin Resource Recovery staff will review this information and may ask for documentation.

Material	Units of Measure	Amount	How often?	Frequency
Batteries (General and Motor Vehicle)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> 5 gallon buckets <input type="checkbox"/> Individual pieces			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Cardboard (baled)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Bales			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Donated food	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Gallons			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Electronics	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Individual pieces			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Landscape Debris	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Mattresses	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Individual pieces			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Metal Scrap (Steel, Tin, Etc.)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> 55 gallon drums			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year



Motor Oil	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Gallons			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Pallets, wood or plastic	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Individual pieces			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Paper, shredded	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Gallons			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Plastic bags and film (including pallet wrap)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Bales			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Expanded Polystyrene (Styrofoam)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> 33 gallon			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Textiles	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Tires (Car or Truck)	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards <input type="checkbox"/> Individual pieces			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Scrap wood	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic yards			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year
Other: _____	<input type="checkbox"/> Pounds <input type="checkbox"/> Tons <input type="checkbox"/> Cubic Yards			<input type="checkbox"/> Per Week <input type="checkbox"/> Per Month <input type="checkbox"/> Per Year



3. Convenience (Required)

The Universal Recycling Ordinance requires each trash service container (or access point) to have an accompanying recycling service container (or access point) within 25 feet.

15. Does this location meet the Convenience Requirement?

- Yes
- No



If you select 'No' above, you **must** fill out a Convenience Waiver Request (below).

Convenience Waiver Request

Austin Resource Recovery will not consider a convenience waiver request without proper documentation and explanation. Please attach examples of documentation (may include correspondence from the hauler, site plans, or photos).

My property cannot meet the convenience requirement because:

- Space Constraint (check all that apply):
 - Container would consume required parking space resulting in code violation.
 - Property has no physical space for additional container.
 - Container will restrict vehicle access.
 - Collection vehicle would not be able to access the collection container.
 - Placement requires concrete pad exceeding impermeable cover limits.

Other:

Austin Resource Recovery Director may deny waiver requests if carts or wheeled dumpsters can alleviate this condition. Austin Resource Recovery may also require additional employee and/or tenant education to compensate for less convenience.


Austin Resource Recovery staff will review waiver requests on a case-by-case basis. If we do not accept the waiver, you will notified 60 days. Waivers must be requested each year.



4. Signage (Required)

Dual language signage is required. You may get signage from your hauler. Signage is also available on our website: <http://austintexas.gov/uro>

Signage Requirements:

- Posted on all containers
- Landfill trash containers - Labeled “Landfill Trash” in 2 languages
- Recycling containers:
 - Labeled “Recycling” in 2 languages
 - Features the chasing arrows (recycling) symbol 
 - Indicates what materials are accepted in the container in 2 languages
- Organics containers (if any)
 - Labeled as “Organics” or “Compost” in 2 languages
 - Indicates what materials are accepted in in 2 languages



Example of compliant signage.

16. Does this location meet the Signage Requirements?

Yes No

5. Education (Required)

Dual language education is required. Template emails and letters are available on our website: <http://austintexas.gov/uro>

17. Are the employees or tenants of this property educated about what and where to recycle within 30 days of hire or move-in and at least once a year?

Yes No

18. Are educational materials offered in at least 2 languages?

Yes No

19. Select ALL educational methods used:

Email In-person Flyers or other print materials



Reduction or Reuse Credit (Optional)

Businesses may qualify for the Reduction or Reuse Credit if waste generation has been significantly reduced through reuse or process improvements during the past two calendar years.

20. Do you qualify for a Reduction or Reuse Credit?

Yes No

If **Yes**, explain your property's process improvements or source reduction practices:

Please attach any supporting documentation you would like to include.

6. Additional Information (Optional)

This section can be used to offer additional information about your property. If you have questions or concerns that need immediate attention, call Austin Resource Recovery at (512) 974-9727 or email at CommercialRecycling@AustinTexas.gov.

Additional information or comments:



7. Signature (Required)

I certify the information provided in my 2020 Recycling Plan is accurate and valid to the best of my knowledge. (Required)

Signature: _____

Date: _____

Name: _____

Title: _____

Name of Company: _____

Email: _____

Phone Number: _____

Please contact me about city-sponsored training or educational materials:

Yes

No

You're all done! Thank you.

If you're interested in expanding your zero waste efforts, visit austintexas.gov/zwbizrebate

Appendix F

Detailed Diversion Calculation Table

City of Austin Diversion Calculation Summary Table (2019 and 2020)

Diversion Rate Overview Table (tons)	2019	2020
Disposal		
ARR		
ARR Residential Trash	128,740.00	140,546.00
Street Sweepings	55505	55,620.00
Dead Animals	31.00	33.00
Bulky Collected	11,298.00	5,506.00
<i>ARR Disposal Subtotal</i>	<i>195,574.00</i>	<i>201,705.00</i>
Licensed Hauler Report		
Landfill Trash	1,059,068.03	1,081,778.69
C&D Landfilled	342,550.97	223,297.32
<i>Licensed Hauler Disposal Subtotal</i>	<i>1,401,619.00</i>	<i>1,305,076.01</i>
Unaccounted-for Residue		
MRF Residue (1/3 of total Recycling Residue)	18,339.02	16,834.12
Organics Residue (All Organics Residue)	2,612.68	2,437.90
<i>Unaccounted-for Residue Subtotal</i>	<i>20,951.70</i>	<i>19,272.02</i>
Direct Contacts		
Landfilled	2,455.00	1,568.00
<i>Direct Contacts Subtotal</i>	<i>2,455.00</i>	<i>1,568.00</i>
DISPOSAL SUBTOTAL	1,620,599.70	1,527,621.03
Recycling, Composting, and Reuse		
ARR		
ARR Curbside Recycling	58,383.00	65,164.00
Residue (19.3% of ARR Residential Rec.)	-11,267.92	-12,576.65
ARR RRDOC Total Tonnage	3,249.54	1,809.89
ARR Residential Organics	39,011.00	50,340.00
Organics Residue (1.85% of Organics)	-721.70	-931.29
Brush	2,537.00	1,676.00
<i>ARR Diversion Subtotal</i>	<i>91,190.92</i>	<i>105,481.94</i>
Licensed Hauler Report		
Non-C&D Recycling	333,596.99	314,497.41
Residue (19.3% of full service haulers Rec.)	-43,749.13	-37,925.70
Non-C&D Organic Materials	98,026.15	77,181.53
C&D Recycled	137,189.06	119,823.26
C&D Organics	4,189.00	4,257.00
Organics Residue (1.85% of Organics)	-1,890.98	-1,506.61
<i>Licensed Hauler Diversion Subtotal</i>	<i>527,361.09</i>	<i>476,326.89</i>
Direct Contacts		
Recycling	994.00	544.00
Organics	884.00	933.00
Reuse	32,481.00	32,461.00
<i>Direct Contacts Subtotal</i>	<i>34,359.00</i>	<i>33,938.00</i>
Survey		
"Orphan Materials"	431,927.94	273,176.74
Organics Donated/Used for Animal Feed	21,616.48	12,393.96
<i>Survey Diversion Subtotal</i>	<i>453,544.42</i>	<i>285,570.70</i>
RECYCLING/COMPOST/REUSE SUBTOTAL	1,106,455.43	901,317.54
Reduction		
Survey		
Duplexing (Double Sided Printing)	55.52	63.3
Refillable Toner Cartridges	15.62	16.5
Hicks Survey Reuse, Donate, and Resell	19,795.60	19,124.60
REDUCTION SUBTOTAL	19,866.74	19,204.40
Summary		
Total Generation	2,746,921.87	2,448,142.97
Disposal Subtotal	1,620,599.70	1,527,621.03
Diversion Subtotal	1,126,322.17	920,521.94
Diversion Rate	41.00%	37.60%