Solid Waste Programs

2024 Annual Status Report

Submitted to: Transportation and Environment Committee

Agenda Date: March 3, 2025

Solid Waste Programs

2024 Annual Status Report

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EXECUTIVE SUMMARY

This report provides the Transportation and Environment Committee with a summary of the City of San José's (City) solid waste programs, including Recycle Right public outreach, and an update of various initiatives and projects since the Environmental Services Department's (ESD) last update on February 5, 2024. Solid waste programs help maintain a healthy, safe, and clean environment. San José is an environmental leader in recycling and has one of the largest solid waste management programs in the country.

ESD's Integrated Waste Management (IWM) Division oversees solid waste collection, processing, and disposal for residential, commercial and City Facilities operations. IWM develops and implements programs to meet or exceed state regulations, provides ease of use and exceptional value to customers, and improves and protects the environment by reducing greenhouse gas emissions. San José is unique in the amount of solid waste facility infrastructure located within city and county limits which aligns with Climate Smart San José goals by keeping carbon emissions associated with solid waste transport low.

Residential Program

The Residential Program serves over 336,924 single-family dwelling (SFD) and multi-family dwelling (MFD) households through curbside garbage, recycling, junk pickup, and yard trimmings collection. Services are provided by four contractors, making it one of the nation's largest privatized solid waste systems with an annual budget of $193 million.

Recycle Right Outreach

The campaign's goal is to reduce recycling contamination by educating residents and changing behavior to place correct items in the recycling and garbage containers. Multilingual (English, Spanish, and Vietnamese) key campaign messages focus on which items are recyclable and eliminating food and liquids from the recycling stream. The campaign has successfully engaged residents through more than 80 marketing tactics. In 2024, a comprehensive Residential Services Program guide was mailed to all SFD and MFD residents. Messaging directs residents to visit ESD's Recycle Right website, SanJoseRecycles.org, which offers a comprehensive searchable database of about 400 items as well as additional resources to inform residents about what goes

where. As of December 2024, the website has had about 1.2 million user visits and almost three million web views since its launch in 2019.

Fall 2024 Curbside Study

Since 2020, and every two years thereafter, the City has analyzed the composition of recyclable and non-recyclable (contamination) materials in recycling carts. The Fall 2024 Curbside Study provided a comparative analysis of the citywide contamination rate over the three biannual studies. Non-recyclable material was found to be at the lowest in 2024 at 41 percent compared to 57 percent in 2022, and 51 percent in 2020. This shift represents a 28 percent decrease between the 2022 and 2024 citywide rates, and a 20 percent decrease between 2020 and 2024.

Larger Garbage Cart Study

Approximately 8,500 households were offered a larger garbage cart at no additional charge to test if the larger garbage cart reduced recycling contamination. In 2022, 4,200 households upsized to a 96-gallon cart while in 2024, 4,500 households upsized from a 32-gallon to a 64-gallon cart, and from a 64-gallon to a 96-gallon cart. The study will conclude in March 2025.

In-Mold Cart Lids

In 2021 4,800 recycling cart lids were installed as a pilot to provide guidance to residents about acceptable items for the recycling cart. An additional 6,205 in-mold cart lids were installed in 2024 using grant funds with trilingual graphics to educate the residents on how to properly recycle. Additional cart lids will be deployed as carts are replaced.

Contamination and Recycling Tagging Project

The Contamination and Recycling Tagging (CART) project launched in March 2024 with a goal to reduce recycling contamination through behavior change using direct feedback cart tags. As of December 31, 2024, a team of eight field staff called Recycling Ambassadors visited over 66,000 SFDs, and inspected and left cart tags for over 55,500 carts. Recycling Ambassadors are projected to visit an additional 76,000 homes when the project is expected to conclude in June 2025.

Strategy Impacts on Contamination

The decreased contamination rate measured in the Fall 2024 Curbside Study reflects the impact of overlapping strategies. Additionally, Recycle Right outreach is a likely contributor to the contamination reduction from a qualitative standpoint. A statistical analysis was conducted to

assess the impact of three tactics on contamination reduction between Fall 2022 and Fall 2024. Takeaways are summarized below:

> ***Larger Garbage Carts:*** Due to the relatively few routes that offered a larger garbage cart and the large overlap in tactics employed in those routes, staff cannot confidently conclude that the cart size was the main factor driving the contamination change.
>
> ***In-Mold Lids:*** Routes with in-mold lids had a larger drop in contamination compared to routes with original lids. In-mold lid routes that included tagged carts tended to see greater reductions in contamination compared to original lid routes, but the magnitude of the reduction was not consistently observed along all in-mold lid routes.
>
> ***CART:*** Routes that were tagged before the Fall 2024 Curbside Study had a larger drop in contamination compared to routes that were not tagged. In general, routes with a higher percentage of tagged accounts tended to see larger contamination reductions. When routes with in-mold lids and larger garbage carts were excluded, tagged routes still showed greater reduction in contamination compared to non-tagged routes.

Overall findings between the three tactics emphasizes the effectiveness of tagging and in-mold lids in reducing contamination, suggesting that combined tactics may have a meaningful impact.

MFD Recycling Contamination

In February 2020, the MFD contamination rate was measured at 60 percent, which was nine percentage points higher than the SFD rate at that time. A newer recycling waste characterization study is needed to determine the current contamination rate and allow ESD staff to evaluate tactics. Multi-family sector recycling experiences unique challenges, such as a lack of ownership over bins, space constraints, logistical difficulties, containers without labels or signage, frequent tenant turnover, and limited multi-family specific outreach. The MFD outreach campaign's goal is to reduce contamination by 50 percent through initiatives using varied tactics targeting residents and property managers.

Grant funds will be used to enhance beverage container recycling through reusable in-unit tote bags and onsite signage. In spring/summer 2025, staff will distribute bags reaching approximately 344,000 residents to help them more easily transport recyclables to onsite containers. Additionally,

over 6,000 multilingual signs will be provided for installation in over 1,200 properties' garbage and recycling enclosure areas.

In November 2021, the San José Municipal Code was updated to clarify that all residential premises, including MFDs, shall subscribe to collection services and comply with service requirements. This provides the City with the right to review an MFD's service level for adequate capacity. GreenTeam of San José is authorized to contact the responsible party in the case of repeated instances of overflowing containers to arrange for an appropriate change in service level, and if refused, work with the City to make a final determination.

Solid Waste Containers and Bicycle Lanes

IWM provided residents with outreach to keep solid waste containers out of bicycle lanes as well as worked with Department of Transportation (DOT) staff on making streets multi-purpose for solid waste, bicycle infrastructure, and other needs. Staff reached out to all five solid waste service providers to request that they return emptied containers back at the curb, provide feedback of problem areas and to solicit ideas and best practices from their work in other cities. Staff continue to coordinate with DOT staff on multiple topics including downtown improvements, bicycle lane installations, solid waste collection and storage issues, right-of-way, and safer available solid waste container set-out locations in multiple bicycle lane configuration situations.

Commercial Program

Republic Services provides commercial solid waste collection services to about 8,000 accounts at business sites through three separate waste streams: Wet (organic material), Dry (mixed recyclables and non-recyclables), and Customized (recyclables only). Material is processed at Newby Island Resource Recovery Park and GreenWaste Renewable Energy Digestion Facility (also referred to as Zero Waste Energy Development, or ZWED). The Commercial Program increased diversion from 47 percent in FY 2022-2023 to 49 percent in FY 2023-2024 which can be attributed to an increase in organic material recovery and a decline in landfilled residue from material processing. Additional contributors include enhanced outreach efforts, right-sizing service levels, and reducing contamination. ESD and Republic Services staff continue to work with businesses on reducing contamination in the waste streams and compliance with state laws and the City's Municipal Code.

Enforcement Program

IWM Environmental Inspectors perform inspections utilizing education and enforcement tools to facilitate compliance with San José Municipal Code Section 9.10. During FY 2023-2024, the team conducted 1,453 inspections and issued 579 inspection reports, 794 warning notices, and 45 administrative citations. In January of 2024, Inspectors began education and enforcement for SB 1383 (Short lived Climate Pollutants Reduction Law). In September 2023, the City Auditor's Office concluded its audit of the program and staff has completed six of the seven total recommendations. The final recommendation, which involves acquiring a modern database to house enforcement data and generate reports, is in process and is expected to be completed by the end of 2026.

In September 2023, City Council directed staff to return to the Transportation and Environment Committee with enforcement options to keep bicycle lanes clear from obstructions. IWM's current program is complaint-based and education-focused, as a more proactive enforcement model was deemed cost-prohibitive. IWM continues to provide education and outreach to discourage set out practices in bicycle lanes. Staff continues to explore pilots and projects to keep carts and set-out material out of bicycle lanes in targeted areas.

Public Litter Can Program

IWM maintains 1,338 Public Litter Cans (PLC) throughout the city primarily located in business districts, excluding those at Valley Transportation Authority stops, parks, community centers, and libraries. Staff also oversees their collection and processing. Due to increased material and shipping costs, the price of PLCs has more than doubled since FY 2019-2020. Vandalism has increased from less than 15 in 2019 to over 100 during the first half of FY 2024-2025. Increases in vandalism in PLC material and shipping costs, will result in an increase in the annual PLC budget.

Household Hazardous Waste Program

San José participates in the Santa Clara County Household Hazardous Waste (HHW) Program. On June 28, 2024, the City entered into a new three-year agreement with the Santa Clara County HHW Program to provide collection. These services ensure that the City will be able to accommodate the growing number of residents utilizing the HHW drop-off service. The permanent and state-of-

the-art HHW drop-off facility, located at the Environmental Innovation Center, continues to be the primary drop-off location for countywide residents and small businesses, excluding Palo Alto.

City Facilities Program

IWM supports waste and recycling programs at approximately 160 City-owned and operated sites. The City Facilities program had a diversion rate 67 percent for FY 2023-2024, which includes both recycling and compost diversion from the landfill. Additional materials such as pens, batteries, metals, and electronics, are recovered through source separated recycling efforts. Grant-funded outdoor stickers and indoor posters are in development and will be installed at all sites, including community centers, libraries, and parks. These materials will provide directions on what goes where (targeting items commonly disposed at facilities by visitors) and include information for residents regarding junk pickup and HHW appointments.

Waste Diversion

San José waste management programs led the way in diverting waste from landfills and have produced a high citywide diversion rate. Diversion rates are typically represented as the percentage of material prevented from going to the landfill, as expressed in the formula below:

Diversion rate = Total tons diverted/Total tons generated

Total Tons generated = Total tons diverted + Total tons disposed

Residential, Commercial and City Facilities programs are included in the City's waste diversion calculations. The FY 2023-2024 citywide diversion rate was 63 percent. IWM's programs continue to yield high diversion rates, surpassing many other California municipalities, and are compliant with state diversion requirements.

Solid Waste Regulations

The City's solid waste program complies with multiple solid waste regulations centered around waste reduction, recycling, organics diversion, and climate change. Staff worked with the City's Intergovernmental Relations team to track major waste-related bills introduced in the State Legislature during the legislative session and submitted support letters for AB 2346 and SB 1053, both signed by the Governor. AB 2346 expands local jurisdictions' options for meeting the recovered organic waste product procurement targets set by SB 1383; and SB 1053 closes the

loophole in the state's plastic bag ban. Several other major waste-related bills were passed in California in 2024, including SB 707, which creates an Extended Producer Responsibility program for textiles. SB 707 requires textile producers to establish collection sites for consumers to return textiles, conduct public outreach on collection sites and textile repair, and manage textiles in alignment with the waste hierarchy, which prioritizes reuse and repair. Additionally, in 2024, California Department of Resources Recycling and Recovery (CalRecycle) staff began the formal rulemaking process to implement SB 54 (the Plastic Pollution Prevention and Packaging Producer Responsibility Act). City staff has been actively engaged in the SB 54 rulemaking process, including submitting comment letters on each version of the proposed regulations that CalRecycle published in 2024. The final SB 54 regulations will increase the recyclability of packaging and plastic food serviceware in California and will therefore divert material from landfill in San José.

SB 1383 Implementation

SB 1383 requirements are multi-faceted and impact various City departments and services. ESD has led implementation and provides guidance and direction to other departments. Accomplishments since February 2024 include:

- Completion of Residential and Commercial Programs' annual container contamination minimization monitoring, notifying parties via letters when contamination was found
- Residential garbage, recycling and yard trimmings container labels installed to inform residents about what goes where
- The installation of 6,205 in-mold SFD recycling cart lids along routes with above average contamination levels
- Ongoing MFD recycling bin lid color changes from black to blue to comply with container color requirements, as lids are replaced or included on brand new bins
- A Compost Hub pilot at Kelley Park opened in October 2024 to provide a central location for all City staff and contractors to pick up SB 1383-eligible compost or mulch from GreenWaste Z-Best Composting facility and apply it to City-owned properties
- The Wet Receptacle Assistance Program opened for applications from businesses in December 2024 which provides no-cost SB 1383-compliant interior receptacles and education materials to businesses

- City Facility waste containers are being standardized with color-coded lids and signage for both garbage (black/gray) and recycling (blue) streams
- Outreach: social media messages were posted on ESD's social media platforms including X, Facebook, and Instagram; a letter, brochure, and business checklist with information on SB 1383 was distributed via mail, in-person visits, and at outreach events
- The City participated in the Santa Clara County Food Recovery Program and received food recovery report data from San José entities for calendar year 2023. The report showed that there were 616 edible food generators and 40 food recovery organizations and services in San José, equating to 10.7 million pounds of edible food being donated
- ESD utilized $1.45 million in CalRecycle SB 1383 Local Assistance grant funding to support many of the above initiatives, and an additional $2.49 million was awarded in February 2024 through the same grant program to be utilized by April 2026

Climate Smart Zero Waste Element

A Zero Waste Element to the Climate Smart San José Plan will provide a roadmap to both reduce solid waste related greenhouse gas (GHG) emissions and landfilled material. Stakeholder feedback was solicited in winter 2024 and staff expect to bring the Zero Waste Element to City Council in 2025 for approval.

Grants

IWM staff is managing five active California Department of Resources Recycling and Recovery grants related to beverage container recycling, HHW and SB 1383. Additionally, staff applied for two United States Environmental Protection Agency grants in 2024 to establish a regional reusable foodware program and pilot contamination-detecting artificial intelligence collection vehicle cameras. While the regional reusable foodware program was not selected, staff will continue to partner with coalition partners to explore future grant funding opportunities. Staff expect to be notified about the contamination-detecting cameras project in July 2025.

Next Steps

IWM staff will continue to work on the following focus areas in FYs 2024-2025 and 2025-2026:

- Finalize the Climate Smart Zero Waste Element and bring it to the Transportation and Environment Committee and Council for approval and incorporation into the Climate Smart San José Plan
- Construction & Demolition Program improvements, outreach, and education
- CART project assessment
- Expand the compost hub pilot to the community
- Monitor bills during the legislative session to track potential impacts on solid waste programs
- Engage in statewide implementation of solid waste regulations, including SB 54 (2022) and SB 707 (2024)
- Distribute MFD tote bags and install enclosure signs
- Track and pursue grant opportunities that are applicable to the solid waste programs

1. BACKGROUND

1.1. San José's Solid Waste Program

ESD's IWM Division oversees solid waste collection, processing, and disposal for residential, commercial, and City Facilities operations. Initiatives are implemented through three sections: Residential Services, Enforcement, Commercial, and Regulations, and Solid Waste Program Performance. IWM develops and implements programs to meet or exceed state regulations, provides ease of use and exceptional value to customers, and improves and protects the environment by reducing GHGs. According to CalRecycle, organic waste in landfills accounts for approximately 20 percent of the methane emissions in California. One ton of methane in the atmosphere has approximately 27 to 30 times the warming impact of one ton of carbon dioxide over a 100-year period, making it a particularly destructive GHG[1]. Reducing solid waste-related GHGs can provide additional opportunities to enact the City's Climate Smart San José Plan and minimize our impact on climate change.

IWM is actively involved in county, regional, state, and national industry networks to better understand industry trends and inform actions, including: CalRecycle's Recycling Market Development Zone program; Californians Against Waste Local Government Collaborative, Bioenergy Association of California; National Stewardship Action Council's SB 54 Implementation Working Group; Government Reuse Forum and California Product Stewardship Council's Policy and Education Advisory Committee. IWM staff serves on various technical organizations, including Santa Clara County Recycling & Waste Reduction Commission; California Resource Recovery Association; Solid Waste Association of North America; Bay Area Recycling Outreach Coalition; and the Bay Area Deconstruction Workgroup. Furthermore, San José is currently an "observing city" as part of San Francisco's Game Changers Fund grant from Carbon Neutral City Alliance which builds an Online Materials Exchange that best supports the secondary market for salvage/surplus building materials.

1.2. Recycling and Recovery Infrastructure

San José is unique in the amount of solid waste facility infrastructure located within city and county limits. This aligns with the goals of Climate Smart San José by keeping the carbon emissions

[1] https://ghgprotocol.org/sites/default/files/2024-08/Global-Warming-Potential-Values%20%28August%202024%29.pdf

associated with the transport of solid waste low since waste does not have to be hauled over long distances for processing or disposal. Five materials recovery facilities utilized for the City's residential and commercial programs are in San José (GreenWaste Materials Recovery Facility, California Waste Solutions, GreenWaste Zanker Resource Recovery Facility, Newby Island Resource Recovery Park, and ZWED). Most of the compostable organics from these waste streams, such as food waste, yard waste, and compostable paper, are processed by the GreenWaste Z-Best Composting Facility (Z-Best) located in south Santa Clara County. Some of the above-mentioned facilities are among the most advanced in the country and serve as national benchmarks (Figure 1). Most facilities also serve other local jurisdictions and provide employment opportunities for San José.

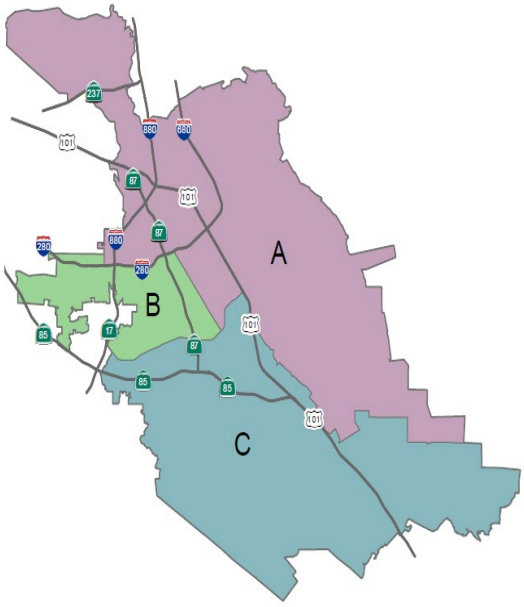
Figure 1: San José Area Facilities

Top Row (left to right): GreenWaste Materials Recovery Facility, Z-Best, ZWED, and Newby Island Resource Recovery Park. Bottom Row (left to right): GreenWaste Zanker Resource Recovery Facility, California Waste Solutions, and the San José Household Hazardous Waste Facility

2. RESIDENTIAL PROGRAM

Residential Services oversees the Residential Garbage and Recycling Program, which provides curbside garbage, recycling, junk pickup, and yard trimmings collection services to approximately 216,800 single-family dwelling (SFD) and 120,000 multi-family dwelling (MFD) households. Residential Services also oversees garbage, recycling, and yard trimmings collection at City

Facilities. The program provides collection service through four contracted service providers: California Waste Solutions, Garden City Sanitation, Inc., Green Team of San José, and GreenWaste. As shown in Figure 2, the City is divided into three solid waste collection Service Districts: District A (Downtown, East, and North San José), District B (West San José), and District C (South San José). Since 2007, California Waste Solutions and Garden City Sanitation have served Districts A and C, representing 75 percent (167,400 dwelling units) of the City's SFDs. GreenTeam has served District B, representing 25 percent (49,400 dwelling units) of the City's SFDs since 2002, and all the City's MFDs (120,000 units) since 1993. GreenWaste has served Districts A, B, and C since 2000. Combined, this system is one of the largest privatized solid waste systems in the nation with an annual budget of approximately $193 million.

CALIFORNIA WASTE SOLUTIONS ZERO WASTE SPECIALISTS	• Single-family recycling **District A** **District C**	
GARDEN CITY SANITATION INC.	• Single-family garbage **District A** **District C**	
Green Team	• Single-family garbage & recycling • Citywide Multi-family & City Facilities garbage & recycling **District B**	
greenwaste a greener way to a better world	• Citywide yard trimmings • Citywide garbage processing	

Single-family Households	Multi-family Households
A: 98,700	Citywide:
B: 49,400	120,000
C: 68,700	

Figure 2: Residential Service Providers, Services and Service Districts

The program provides SFDs with garbage and recycling carts, and an optional yard trimmings cart. MFDs utilize large garbage bins and both carts and bins for recycling. San José has a unique yard trimmings collection system, where most of the material is collected in loose piles set out on the street, (seen in Figure 3) rather than in a container. Garbage is collected and processed to recover organics (food scraps, compostable paper items and food-soiled items), which are sent to the Z-Best facility for composting. Recyclables are collected and processed at the California Waste Solutions and GreenWaste facilities and separated material commodities are sold on the recycling market. Yard trimmings are also collected, processed, and sent to the Z-Best facility for composting. Lastly, the Residential Program includes a free unlimited Junk Pickup program, which provides residents with a convenient curbside service. All SFD and MFD residents can schedule free appointments to have large items (such as mattresses, sofas, refrigerators, and tires) picked up by their recycling service provider.

Figure 3: On-street Yard Trimmings Collection

From FY 2022-2023 to FY 2023-2024, Residential garbage and yard trimmings tons collected, and yard trimmings tons diverted increased slightly, while recycling tons collected, garbage tons diverted, and recycling tons diverted decreased slightly (Figure 4). Possible reasons for the tonnage changes include some residents having various working situations (on-site work versus working remotely) and/or economic reasons influencing the amounts of materials generated, disposed, recycled, and set out for collection.

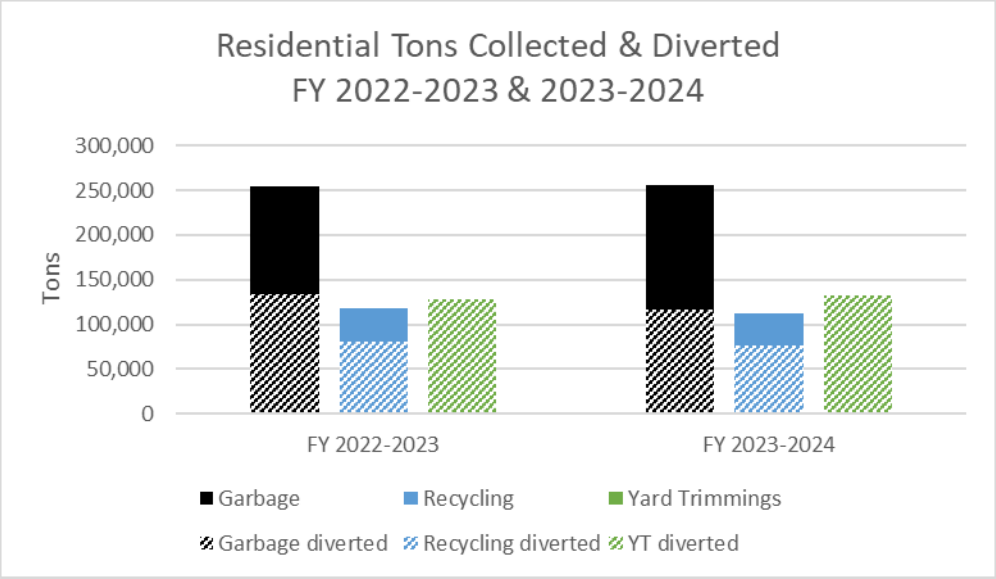


Figure 4: Residential Program - Tons Collected and Diverted

The Junk Pickup program conveniently offers residents no-cost collection year-round to encourage residents to legally dispose of their large/bulky items. Large appliances, such as refrigerators and electronic waste such as TVs, continue to be regularly collected while the most collected items include mattresses/box springs, sofas, and miscellaneous items. In FY 2023-2024, a total of 8,097 tons of materials were collected, reused, recycled, and properly disposed of through this program. Program outreach provides multilingual messaging and point residents to the Junk Pickup webpage which ranks as a top five searched webpage on the City's website.

2.1. Recycle Right Outreach

Figure 5: Recycle Right Postcard

featuring illustration by Ojas Gandhi, winner of ESD's elementary school art contest

Residential Program-related outreach responsibilities transitioned from the residential service providers to ESD in July 2019. Staff conducts comprehensive solid waste and recycling outreach including implementing a major Recycle Right public education campaign. The primary goal of the campaign is to reduce recycling contamination by educating residents and changing behavior to correctly place items in the recycling and garbage containers. Collecting clean, high-quality recyclables helps service providers meet strict contamination requirements in international recycling markets and send fewer non-recyclables to the landfill. To support this critical objective, key campaign messages are multilingual and educate residents on which items are recyclable and to eliminate food and liquids from the recycling stream. Messages are developed based on the latest local to national recycling studies and behavior change research.

The campaign includes more than 80 marketing tactics to reach residents. To help enhance community access to Recycle Right information and to be mindful that not all residents are online, staff provides information through a variety of methods including direct mail postcards, television and radio broadcasts, digital advertisements, videos on social media and streaming platforms, and event tabling activities. Staff also enhanced City department partnerships to tie recycling information to City programs such as story times and senior nutrition programs at local libraries, community centers, and other community gathering spaces.

ESD also staff developed a multilingual Residential Services Program Guide to educate residents about the City's solid waste services. Its purpose is to inform residents about proper disposal methods for trash, recyclables, and yard trimmings, ultimately fostering a more sustainable community. In September 2024, over 341,000 copies of the Residential Services Guide were mailed citywide (215,753 to SFDs and 125,304 to MFDs). To maximize the guide as a helpful tool for residents, staff also distributes them at outreach events.

All campaign messages direct residents to visit ESD's Recycle Right website, SanJoseRecycles.org. This website is available in English, Spanish (SanJoseRecicla.org), and Vietnamese (SanJoseTaiChe.org) and offers a comprehensive searchable database of items as well as reference sheets, guides, and blogs to inform residents about how to properly dispose of solid waste. Since its launch in 2019, website users continue to grow as seen in Figure 6. As of December

2024, more than 1.5 million users have visited the website, with a total of 3.7 million web views since 2019. On average, 24,000 users visit SanJoseRecycles.org monthly.

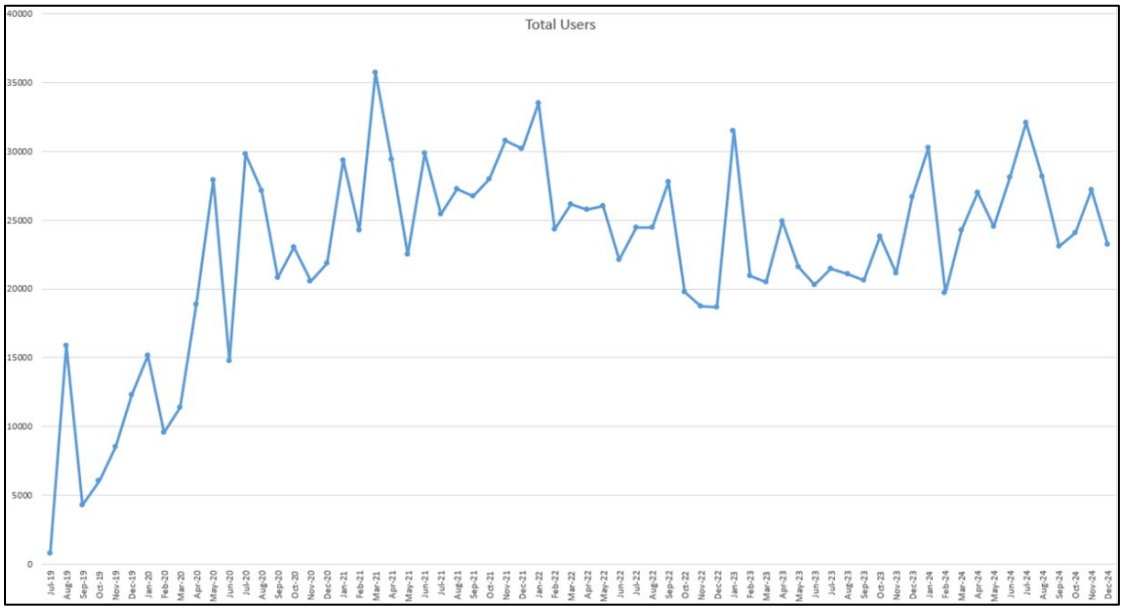


Figure 6: SanJoseRecycles.org Website User Trend

In 2024, ESD gave 22 multilingual in-person presentations to neighborhood association members, seniors, families, students, and members of the public. In addition to in-person community engagement, ESD continues to engage Spanish and Vietnamese speakers through the Recycle Right website.

The City's underserved communities, including low-income households and Spanish- and Vietnamese-speaking residents, are integral in the Recycle Right campaign. To address the digital divide, the campaign includes outreach tactics for low-income residents and Spanish- and Vietnamese-speakers including direct mail postcards, laundromat, ethnic grocery stores, and bus ads.

For the Spanish-speaking audience, this year's campaign has 16 targeted tactics, including digital and radio advertising, television commercials, interview segments, and in-person events. ESD also continues its outreach partnership with the San José Sharks. In addition to utilizing the Sharks players as ambassadors on advertisements, staff also used the Sharks mascot Sharkie. He is universally recognized in the community; not only is Sharkie featured in English advertisements,

but he is also placed on Univision (Spanish-language news station), Meta (Facebook and Instagram), X (formerly Twitter), and Google Advertisements in Spanish.

The campaign has about 18 tactics designated for the Vietnamese-speaking audience targeted at various ages. Tactics include newspaper and online ads, television interview segments, radio commercials, social media platforms, and in-person at cultural events, community centers, libraries, and schools.

2.2. Single-Family Dwelling Recycling Contamination

2.2.1. Fall 2024 Curbside Study

Figure 7: Third-party Consultant Field Team Sorting Recyclable Material Sample

Beginning in 2020 and every two years thereafter, IWM staff works with a third-party consultant to characterize the composition of SFD curbside recyclable materials. The objective of the characterization study is to determine the composition by weight of recyclable and non-recyclable materials within residential carts that the City's contracted recycling service providers collect from single-family residents in each collection district. The Fall 2024 Curbside Study demonstrated an overall contamination rate of 41 percent, as compared to 57 percent in 2022 and 51 percent in 2020. This shift represents a 28 percent decrease between the 2022 and 2024 citywide rates and a 20 percent decrease between 2020 and 2024. The Fall 2024 Curbside Study Report can be seen in Appendix B. Figure 8 below shows the recycling and contamination rates across the hauler service districts for the three studies.

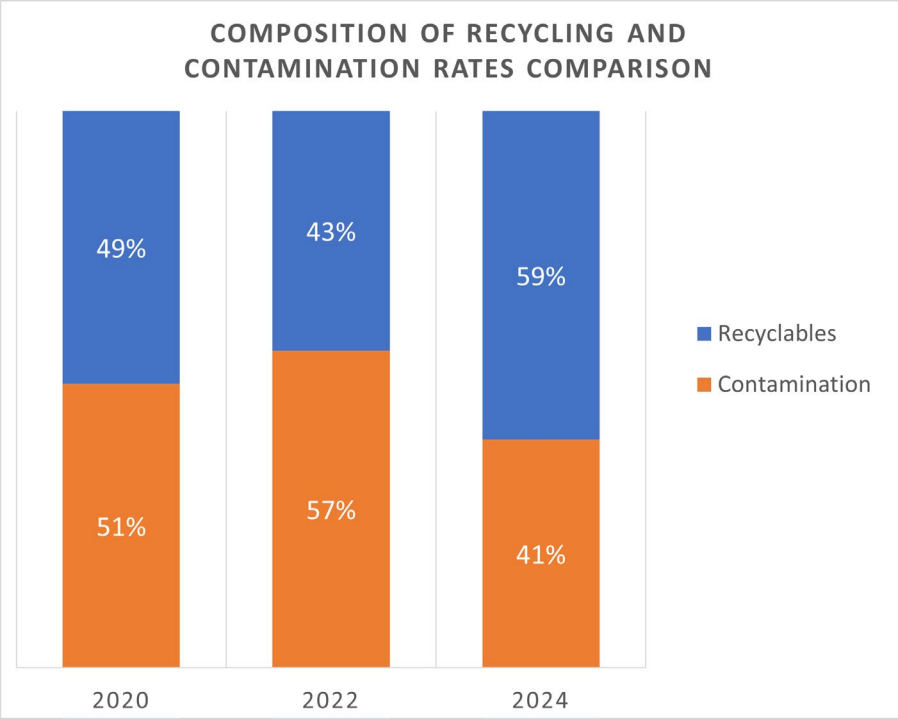


Figure 8: Recyclable and Non-Recyclable (Contamination) Composition Summary Citywide for 2020, 2022, and 2024

2.2.2. Residential Larger Garbage Cart Study

In July 2022, approximately 4,200 SFDs along five recycling routes were offered a 96-gallon garbage cart at no additional charge to test whether a larger garbage cart reduces recycling contamination. Initial results of the study were generally positive but somewhat inconclusive. Recycling contamination levels were measured through a third-party study and visual inspections of recycling cart contents. A Fall 2022 Curbside Study revealed that while contamination on study routes was reduced (ranging from six to 30 percentage points), four out of the five routes still averaged well above 50 percent contamination. Staff also performed an analysis of collected tons which supported that, on average, residents in the study areas changed their behavior by appropriately shifting contaminates (garbage) from their recycling cart to the garbage cart. Staff conducted before and after visual assessments of cart material, which also provided inconclusive data. Lastly, staff surveyed residents and learned that most residents found the extra garbage capacity useful, but doubted they would continue using the larger cart if they had to pay for the additional capacity. About 13 percent of participants opted out of the study with the most common

reasons being that the 96-gallon cart was too big for the household's use and the amount of garbage generated, or that the cart was too large and/or heavy to set out at the curb for collection.

Due to the inconclusive results, the study expanded in March 2024 to include five additional routes with approximately 4,300 households. These routes were added to provide a larger sample size, while striving to include participants in all service districts and most Council Districts to estimate the anticipated effects more confidently should larger garbage carts be deployed citywide. Based on first-round participant surveys and opt out feedback, second-round study participants received a cart one size larger than their service level prior to their joining of the study. This resulted in participants with 32-gallon garbage service receiving a 64-gallon cart and participants with 64-gallon service receiving a 96-gallon cart. The study is scheduled to end March 2025.

2.2.3. In-Mold Cart Lids

To accelerate SB 1383 recycling cart labeling requirements, which currently require the delivery of labeled carts for exchanges and new accounts, permanent, in-mold educational lids were designated and purchased for installation onto existing SFD recycling carts with funding from the first-round SB 1383 grant. Both recycling collection companies, California Waste Solutions and GreenTeam, signed Letters of Agreement to order and install up to 16,000 combined lids on the top contaminated routes identified in the Fall 2022 Curbside Study, with a target completion date of May 1, 2024. Due to incompatible cart types and sizes to fit the grant-funded lids, California Waste Solutions installed a total of 6,205 lids as of June 30, 2024. GreenTeam fulfilled their allotted installations of 3,000 lids. California Waste Solutions' remaining lids will be installed over time as compatible carts are identified through annual route audits and customer requests for cart repairs and exchanges.

2.2.4. Contamination And Recycling Tagging Project

After the Fall 2022 Curbside Study found that 57 percent of items placed in San José single-family recycling carts were not recyclable, a City team was deployed in late March 2024 to provide direct and household-specific feedback to SFD residents using multilingual cart tags (Appendix C) to continue efforts in reducing contamination. City staff, called Recycling Ambassadors, go house to house checking recycling carts on collection days. After an assessment, the Recycling Ambassadors leave an Oops labeled tag if contamination (non-recyclables or soiled recyclables) is found in the cart, circling items identified during their assessment and writing notes on the tag.

If household hazardous waste (such as paint, aerosol cans, or batteries) is seen, staff contacts the recycling service provider and drivers inspect carts before collection. Staff leaves a Good Job labeled tag if no contaminants are seen. The tags serve as educational outreach with information to help residents recycle correctly as well as prompt behavior change by providing opportunities to give immediate feedback to residents in a supportive and educational way, reinforcing correct recycling behaviors or correcting mistakes in real time. Residents provided project feedback through a multilingual online survey as well as through email and phone.

As of December 31, 2024, a team of eight field staff called Recycling Ambassadors visited over 66,000 SFDs, inspected over 55,500 carts and left over 55,500 cart tags. Recycling Ambassadors were unable to inspect approximately 11,000 carts because they were not set out, had already been collected, or on rare occasions, residents refused to allow the inspections to take place. Approximately 85 percent of carts received Oops labeled tags when contamination was found, and 15 percent received Good Job labeled tags when no contamination was found. Recycling Ambassadors also spoke to over 1,000 residents about the City's solid waste program and reported additional field observations, such as damaged carts. Recycling Ambassadors are projected to visit an additional 76,000 single-family homes when the project is expected to conclude in June 2025. Table 1 below summarizes key performance indicators.

Table 1: CART Project Key Performance Indicators as of December 31, 2024

Metric	Number
Households Visited	**66,457**
Carts Inspected	55,593
Oops Labeled Tags Provided	49,278
Good Job Labeled Tags Provided	6,315
Damaged Carts Reported	5,344
Conversations Noted	1,024
Household Hazardous Waste Observed	205

2.2.5. Strategy Impacts on Contamination

The decreased contamination rate measured in the Fall 2024 Curbside Study reflects the collective impact of larger garbage carts, in-mold lids and cart tags, most of which targeted routes with 60 percent or greater contamination levels. Some recycling routes received overlapped strategies, for

example, some routes received both a larger garbage cart and cart tags. Additionally, ongoing Recycle Right outreach and the 2024 mailing of the Residential Services Program Guide to all residents are likely contributors to the reduction in contamination from a qualitative standpoint. To ensure a balanced interpretation of the findings, it is essential to acknowledge that these tactics were not implemented as part of a controlled academic research project, where robust controls are typically in place to account for potential interactive effects between strategies. Instead, multiple tactics were applied simultaneously in areas identified as having higher (60 percent or above) contamination levels, based on 2020 and 2022 curbside studies. A statistical analysis was conducted to assess the impact of the three tactics on contamination reduction between Fall 2022 and Fall 2024. Further details about this analysis can be found in Appendix D.

Larger Garbage Carts: Routes with a larger garbage cart were observed with a greater average decrease in contamination and the difference is statistically significant. Due to the relatively few routes offered a larger garbage cart and the large overlap in tactics employed in those routes, staff cannot confidently conclude that the cart size was the main factor driving the contamination change.

In-Mold Lids: In-mold lid routes had a statistically significant larger average decrease in contamination than original lid routes, and there was a significant mildly strong negative correlation (random results are unlikely) between the portion of the route that was tagged and the average change in contamination. This means that routes with more tagged accounts tended to see greater reductions in contamination, but the magnitude of the reduction was not consistently observed along all in-mold lid routes.

CART: The average two-year reduction in route-level contamination for routes tagged prior to the Fall 2024 study was significantly greater than for non-tagged routes. There was a statistically significant moderately strong negative correlation observed between contamination reduction and the percentage of accounts tagged in a route. This means that routes with a higher percentage of tagged accounts tended to see larger contamination reductions. When routes with in-mold lids and larger garbage carts were excluded, tagged routes still showed a statistically significant greater reduction in contamination compared to non-tagged routes.

Overall, CART tagging, and in-mold lids demonstrated statistically significant contamination reduction with high confidence. While the larger garbage carts showed promising results, the smaller number of routes limits definitive conclusions. This data supports the strategic prioritization of CART tagging and in-mold lids while suggesting further evaluation for larger garbage carts.

2.3. MFD Recycling Contamination

MFD recycling material is consistently more contaminated than material collected from SFD routes. The last characterization study for MFD contamination in February 2020 found the contamination rate to be 60 percent, which was nine percentage points higher than the single-family contamination rate measure in the fall of the same year. Recycling in the multi-family sector experiences unique challenges, such as a lack of ownership over bins, space constraints, logistical difficulties, containers without labels or signage, tenant turnover, and limited multi-family specific outreach. There is a need for a new waste characterization study to determine the current contamination rate and allow ESD staff to evaluate the impact of the City's outreach tactics, the effectiveness of the City's multi-family collection program, and strengthen grant applications by demonstrating the need for investment in multi-family specific tactics to reduce contamination. More information on recent multi-family outreach efforts is detailed below.

2.3.1. Efforts to Reduce Contamination

Outreach: MFDs face challenges and logistical issues that require a targeted and innovative approach to educate residents about proper garbage and recycling practices. ESD's strategy is to engage MFD communities through 15 outreach initiatives in 2024 - 2025 focused on reducing recycling contamination by 50 percent (from 60 percent contamination in 2020), to make the recycling process convenient, and to amplify services to property managers as a solution to their recycling challenges. These tactics involve digital outreach on social platforms, direct mail postcards, downloadable toolkits, garbage and recycling enclosure area signs, recycling container labels, in-person presentations, and a quarterly newsletter with actionable items and resources. Reusable recycling tote bags were designed in 2024 and will be distributed in early 2025 to make it easier for MFD residents to carry their recyclables to a shared collection area. Further details are in the CalRecycle CRV Grant section below. Other key objectives of the MFD outreach campaign include highlighting accepted materials, providing resources for property managers and owners to

help increase collection rates, reducing contamination, and encouraging residents to adopt behaviors that improve and enhance their recycling program, with more tactics to launch during the tote bag production and distribution. The tote bag landing page, SJEnvironment.org/MFDToteBag, provides valuable recycling resources for property managers and residents, along with a straightforward signup process to receive tote bags. Lastly, the campaign has successfully distributed four quarterly newsletters to 1,954 recipients, achieving an open rate of at least 50 percent. In September 2024, a Residential Services Program guide was mailed to all 125,000 MFD residents to inform residents about proper disposal methods for trash, recyclables, and yard trimmings at multi-family properties. Extra guides will be made available to property managers and owners to help address concerns with tenant move ins and move outs.

Beverage Container Recycling Grant Project: In November 2023, CalRecycle awarded ESD a $275,000 grant to focus on increasing California beverage container recycling at over 2,100 MFDs with five or more units. Almost 600 of these MFDs are within CalRecycle's "disadvantaged communities" area. An additional $135,000 will be drawn from the Beverage Container Recycling City County Payment Program to further the impact of this grant project. Grant funds will be used to provide convenience, accessibility, and information to residents about the CRV deposit recycling program, as well as reduce recycling contamination. Multi-purpose in-unit tote bags will be provided to 109,906 units (reaching approximately 344,000 residents) to help residents keep CRV containers out of the garbage, transport them to the property's recycling container, or transport them to local CRV recycling centers where their deposits will be returned. This project will also provide over 6,000 signs for at least 1,200 MFD properties' garbage and recycling enclosure areas. Both the bags and signs will contain multilingual recycling program information and graphics, including what goes where and how to locate CRV recycling centers. Additionally, receptacle stickers and informational posters will be installed in public facing city facility areas such as community centers, libraries, public gardens, and parks. Stickers and posters will feature information about CRV containers, take back locations, and how to properly sort waste.

Mandatory recycling and container right-sizing efforts: In November 2021, the San José Municipal Code was updated to clarify that all residential premises shall subscribe to and pay for the City's collection services for weekly collection and comply with those services' requirements.

This update indicates that the City shall have the right to review the service level to evaluate adequacy of capacity, and the responsible party shall adjust their service level as requested by the ESD Director. GreenTeam of San José is authorized to contact the responsible party in the case of repeated set-outs of excess material to arrange for an appropriate change in service level, and if refused, work with the City to make a final determination. This process has allowed service level adjustments to move forward in cases of repeated set-outs of excess material, providing a safer collection environment for residents and drivers.

2.4. Solid Waste Containers and Bicycle Lanes

IWM provided residents with outreach to keep solid waste containers out of bicycle lanes and worked with DOT staff on making streets multi-purpose for solid waste, bicycle infrastructure, and other needs. ESD's public outreach encouraged residents to set out containers and materials outside of bicycle lanes when possible. IWM's Enforcement team investigated public reports of solid waste containers obstructing the bicycle lane and mailed 83 reminder letters about container set out options. IWM staff also reached out to all five Residential and Commercial solid waste collection service providers to request that they return emptied containers back at the curb, provide feedback about areas where curbside set out is challenging, and to solicit ideas and best practices from their work in other cities. IWM has also been coordinating with DOT staff on multiple topics including downtown improvements, bicycle lane installations, solid waste collection and storage issues, right-of-way, safer available solid waste container set-out locations in multiple bike lane configuration situations, and locations that might benefit from a pilot project to draw attention to container set-out and street safety.

3. COMMERCIAL PROGRAM

Republic Services, under an exclusive franchise agreement, provides commercial solid waste collection services to about 8,000 accounts at business sites in San José. Republic collects the material by using three separate waste streams: Wet (organic material), Dry (mixed recyclables and non-recyclables), and Customized (recyclables only) seen in Figure 9. The Dry and Customized material are taken to Newby Island Resource Recovery Park for processing, Wet material is sent to ZWED for processing into energy and compost, and a fraction of Dry material is processed at ZWED and/or landfilled depending on contractual limits at ZWED and Newby Island Resource Recovery Park.

Figure 9: Commercial Program Containers

Staff continues to monitor the performance of Republic Services' 60 percent Minimum Diversion Standard per the Amended and Restated Agreement. Also pursuant to the Agreement, the FY 2023-2024 and FY 2024-2025 Republic Services' Outreach and Technical Assistance Plans contain certain benchmarks and requirements with which Republic Services is obligated to comply, including over 1,025 in-person business outreach visits for calendar year 2024. In calendar year 2023, Republic's annual diversion rate was 47 percent, which was below the contractual requirement. Republic was also unable to meet performance standards for call center metrics and complaint resolution. As a result, a Notice of Nonperformance was issued. Staff continues to work with Republic towards achieving the required performance targets.

Through the "Low Recyclable Content Dry Diversion" plan, Republic provides outreach to businesses whose unprocessed dry material is landfilled and ensures that all accounts are compliant with state recycling regulations. Staff worked with Republic and their third-party consultant on implementing the first phase of the Diversion plan in July 2021. Republic provided the data collected, activities performed, the compliance status of the businesses with state regulations (e.g., how many businesses needed assistance to be compliant), and recommendations for steps to be successful in the ongoing implementation of the plan. Republic has ensured that the dry material that is directly landfilled does not have a significant amount of recyclable material.

Additionally, City staff and Republic's Sustainability Advisors continue to work with businesses on increasing Wet service and reducing contamination in the waste streams. City and Republic staff also provide targeted outreach for proper sorting and compliance with state laws and the City's municipal code.

ZWED continues to demonstrate its commitment to fulfill its obligations through collaboration with the City and Republic and ongoing efforts to maintain high processing efficiency. ZWED's 2024 operational reports have shown an increase in recovered organics and a decrease in landfilled residue.

The Commercial Program recorded an increase in diversion from 47 percent to 49 percent in FY 2023-2024. The improvement can be attributed to a decline in landfilled residue from the processing and recovery of organic material, while simultaneously increasing the amount of organic material being diverted (Figure 10). City staff continues to work with Republic Services and their Sustainability Advisors regarding outreach to businesses to address right-sizing of service levels, the importance of proper sorting, and reducing contamination in the waste streams.

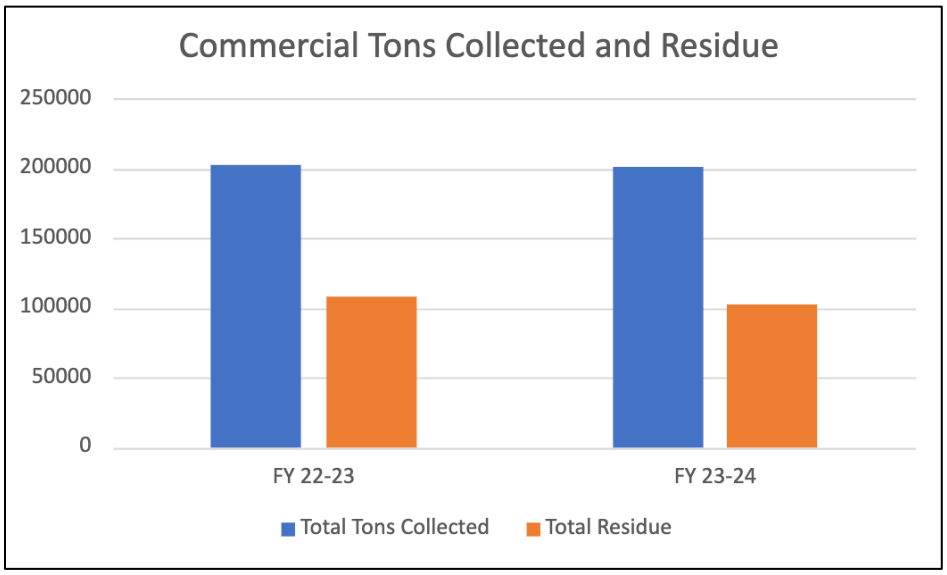


Figure 10: Increase in Commercial Waste Collected and Decrease in Residue for FY 2023-2024

The Wet Receptacle Assistance Program launched at the beginning of December 2024. The program, financed by CalRecycle's SB 1383 Local Assistance grant funds, provides qualifying San José businesses and institutions with up to $500 worth of free receptacles for the collection of organic waste, also known as "Wet" waste. These receptacles help businesses reduce their environmental impact and bring them one step closer to SB 1383 compliance. To qualify, a business or institution must be located within San José, be subscribed, or have access to Wet service with Republic Services and agree to comply with all SB 1383 requirements. In the first

month and half of the program, 28 businesses were approved to participate. Staff continues to perform outreach and promote the program to increase participation.

4. ENFORCEMENT PROGRAM

IWM Environmental Inspectors perform inspections and utilize education and enforcement tools to facilitate compliance with San José Municipal Code Section 9.10 to maintain a healthy, safe, and clean environment. Inspectors investigate reports of non-compliance related to solid waste management and solid waste hauling. Staff issues inspection reports, warning notices, and administrative citations in accordance with the Schedule of Fines. Inspectors utilize multilingual outreach to encourage proper solid waste management at residential and commercial facilities and inform residents about City-provided programs, such as the Junk Pickup program. The program also performs proactive inspections throughout the City for issues such as unauthorized hauling, dangerous accumulation, and no-collection service.

During FY 2023-2024, the Enforcement team conducted 1,453 inspections and issued 579 inspection reports, 794 warning notices, and 45 administrative citations. In January 2024, inspectors began enforcement of SB 1383. Education and outreach were provided during inspections to applicable businesses. Between February 2023 and December 2023, Enforcement has assisted the Commercial team with conducting 269 SB 1383-related Knock-and-Talks to inform businesses about the regulation and the January 2024 requirement of a Wet, Dry and/or Customized container(s) as well as appropriate receptacles for customers and staff. IWM Enforcement continues to utilize effective enforcement tools to reduce instances of unauthorized hauling through cease-and-desist letters and court action, where necessary. In September 2023, the City Auditor's Office concluded its audit of the IWM Enforcement Program. Recommendations included clarifying program goals, setting formal performance expectations, improving instructions for reporting illegal dumping, creating proactive enforcement opportunities in areas with low complaint submissions, and procuring a modern database. As of December 2024, staff has completed six of the seven total recommendations. The final recommendation, which involves acquiring a modern database to house enforcement data and generate reports, is in process and is expected to be completed by the end of 2026. In conjunction with ESD's Watershed Protection Division, IWM Enforcement is working on a Request for Proposals to secure a new database.

At the September 2023 City Council meeting where the City Council accepted the City Auditor's Office's report on the IWM Enforcement Program, Council also directed ESD staff to return to the Transportation and Environment Committee with enforcement options to keep bicycle lanes clear from obstructions. IWM's current program is complaint-based and education-focused, as a more proactive enforcement model was deemed cost-prohibitive. IWM continues to provide education and outreach for discourage set out practices in bicycle lanes. Staff continues to work with DOT staff on solutions, such as a pilot to install reflective tape on solid waste carts in high-traffic corridors. The Planning, Building and Code Enforcement Department is responsible for enforcing early set out of residential yard trimmings piles and enforces during the months of April through November. IWM's approach is education based: Enforcement staff sends residents set-out reminder letters with instructions on keeping containers out of bicycle lanes, and IWM outreach encourages set out outside of bicycle lanes whenever possible.

5. PUBLIC LITTER CAN PROGRAM

IWM maintains 1,338 Public Litter Cans (PLCs) throughout the city and oversees their collection and processing. PLC contents are processed to recover organics and recycling at a materials recovery facility. PLCs maintained through this program are primarily located in the city's business districts and exclude those located at Valley Transportation Authority stops, parks, community centers, and libraries. PLC maintenance, performed by IWM staff, includes graffiti abatement (Figure 11), painting of cans, repair of non-functioning equipment, and replacement of broken or damaged cans.

Figure 11: Example of Graffiti Abatement

IWM staff continues to provide PLC maintenance and new installations throughout the city. The program continues to be impacted by increased instances of vandalism and growing material costs. Instances of burnt can liners and cans damaged beyond repair due to vehicle accidents or breaking locks has substantially increased since FY 2019-2020. Additionally, the price of PLCs has more than doubled since FY 2019-2020 from approximately $900 each to nearly $2,000 each as of FY 2023-2024 due to increased material and shipping costs.

6. HOUSEHOLD HAZARDOUS WASTE PROGRAM

San José participates in the Santa Clara County's Household Hazardous Waste (HHW) Program. The City's permanent and state-of-the-art HHW drop-off facility, located at the Environmental Innovation Center, opened in September 2014 and has been the primary drop-off location for countywide residents and small businesses (excluding Palo Alto). Hazardous materials such as batteries, paint, pesticides, household cleaners, electronic waste, and other items containing harmful substances such as lead and mercury cannot be placed into garbage or recycling containers but are accepted at no charge with a residential drop-off appointment. Residents can also drop off HHW with retail partners located countywide. Small businesses can drop off HHW for a nominal fee.

In FY 2023-2024, the Santa Clara County HHW Program served 44,609 residents and 310 small businesses. San José residents represented 22,407 appointments and 155 small businesses, respectively. Approximately 82 percent of the total countywide appointments were handled at the

City's Environmental Innovation Center, of which approximately 97 percent of the total appointments were San José residents.

In December 2023, the City was awarded a $50,000 CalRecycle Household Hazardous Waste Grant. The grant has a three-year term and ends February 26, 2027. IWM's project under this grant includes sending a multilingual direct mail postcard to approximately 110,300 single-family and multi-family households in four San José City Council Districts that have had lower participation rates in the countywide Santa Clara County HHW Program. The goals of the postcard are to raise program awareness, increase the number of HHW Program appointments from residents residing in the targeted area, and increase the amount of HHW that is properly disposed. Mailing of the postcard is targeted for spring 2025. The targeted households will be determined by utilizing information from San José HHW appointment data, visits to the County's HHW Program website, and phone call data prior to and after mailing of the postcards. Staff will compare the HHW Program participation data and addresses from the postcard mailing list to match the addresses who received a postcard and participated in the HHW Program.

7. CITY FACILITIES PROGRAM

IWM supports waste and recycling programs at approximately 160 City-owned and operated sites. The City Facilities program had a diversion rate of 67 percent for FY 2023-2024, which includes both recycling and compost diversion from the landfill. Additional materials such as pens, batteries, metals, and electronics, are recovered through source separated recovery efforts. Grant-funded outdoor stickers and indoor posters are in development and will be installed at all city facilities, including community centers, libraries, and parks. These materials will provide directions on what goes where (targeting items commonly disposed at facilities by visitors) and include information on large item pickup and HHW appointments.

8. WASTE DIVERSION

IWM oversees a variety of waste management programs that serve the community and leads the way in diverting waste from landfills. These policies, programs and infrastructure have produced a high citywide diversion rate. Diversion rates are typically represented as the percentage of material prevented from going to the landfill, as expressed in the formula below:

$$\text{Diversion rate} = \text{Total tons diverted}/\text{Total tons generated}$$

Tons generated = Total tons diverted + Total tons disposed

Residential, Commercial, and City Facilities programs are included in the City's waste diversion calculations. The FY 2023-2024 citywide diversion rate was 63 percent (Figure 12). IWM's programs continue to yield high diversion rates, surpassing many other municipalities in California. San José is compliant with state diversion requirements and continues in its efforts to increase the amount of material that is reused, recycled, or composted.

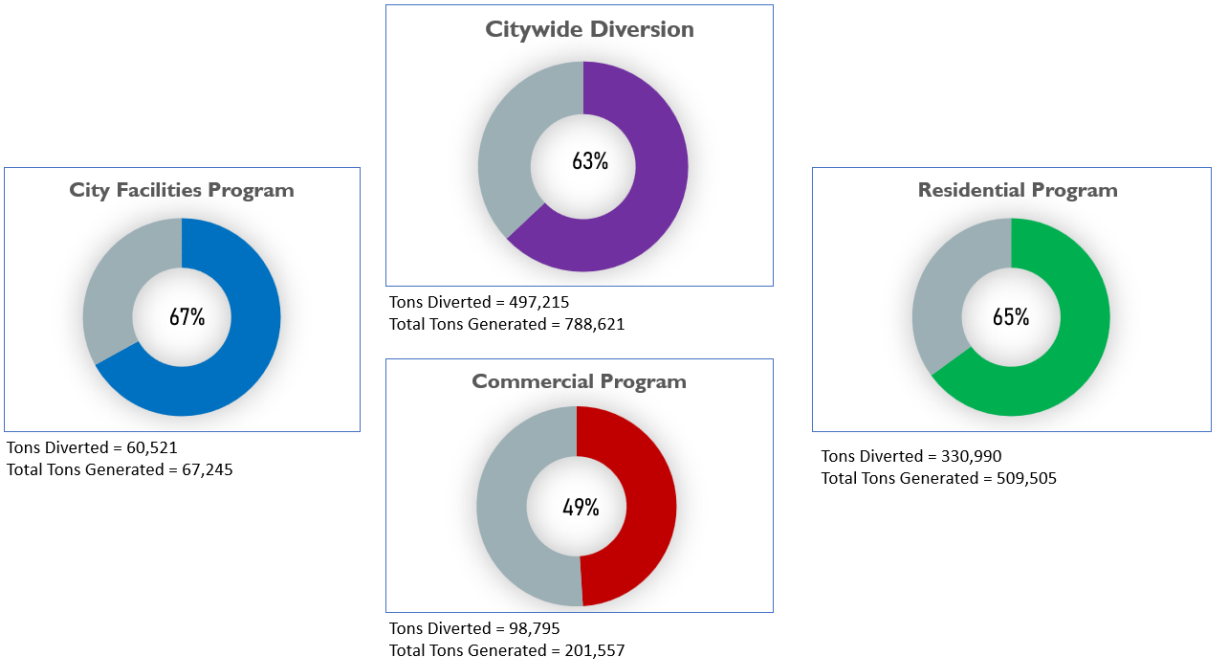


Figure 12: FY 2023-2024 Citywide and IWM Program Diversion Rates

9. SOLID WASTE REGULATIONS

The City's solid waste program complies with multiple solid waste regulations centered around waste reduction, recycling, organics diversion, and climate change. The key regulations related to solid waste and recycling are displayed in Figure 13 below.

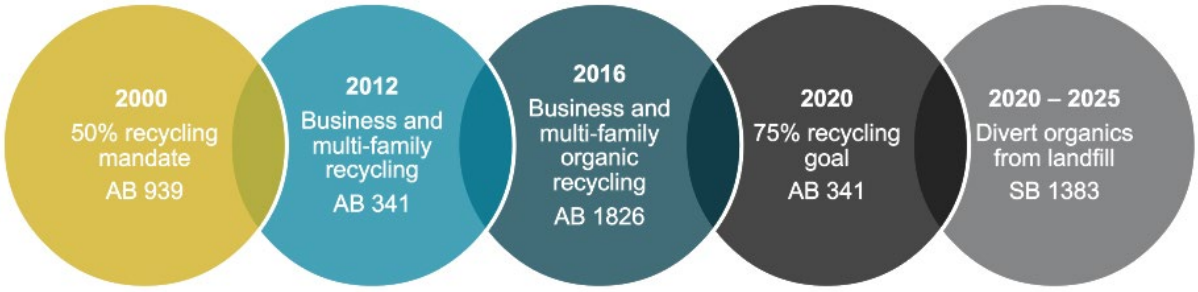


Figure 13: Major Solid Waste Regulations Governing IWM Programs

IWM staff closely monitor bills in session to track potential impacts on solid waste programs. Staff worked with the City's Intergovernmental Relations team to track major waste and recycling bills introduced in the State Legislature during the 2024 legislative session. Bills aimed at reducing waste resulting from solar panels (AB 2 and AB 1238), electric vehicle batteries (SB 615), marine flares (SB 1066), and single-use cups (SB 1167) advanced through the legislative process in 2024 but did not become law. These issues are likely to continue to be discussed during the 2025-2026 legislative session.

Table 2: Summary of Major Waste-Related Laws Passed in California in 2024

Legislation	Description
AB 2346 (Organic waste reduction regulations: procurement of recovered organic waste products)	Expands local jurisdictions' options for meeting the recovered organic waste product procurement targets set by SB 1383 (2016). This law will assist the City in working towards complying with this requirement of SB 1383.
SB 707 (Responsible Textile Recovery Act of 2024)	Creates an Extended Producer Responsibility program for textiles. It requires companies that produce textiles, such as articles of clothing, blankets, and towels, to establish collection sites for consumers to drop off textiles, conduct outreach to the public regarding these collection sites and information on textile repair, and meet certain performance standards. This law will extend the life of textiles generated and used in San José and give consumers an accessible method to facilitate recycling of textiles, which will reduce the amount of textiles disposed of in the landfill and reduce recycling contamination.
SB 1143 (Paint products: stewardship program)	Expands California's existing paint stewardship program to include paint coatings and coating-related products, which will require companies that produce these items to take responsibility for their products at the end of their life and incentivize producers to manufacture safer versions.

SB 1053 (Solid waste: recycled paper bags: standards: carryout bag prohibition)	Closes the loophole in the state's plastic bag ban, which was established by SB 270 (2014). Currently, non-recyclable thicker plastic bags are classified as "reusable" under this law and therefore allowed to be provided to customers by stores. SB 1053 closes this loophole; beginning on January 1, 2026, grocery stores, convenience stores, large retail stores with pharmacies, and other stores covered under the existing law may only provide paper bags to customers at the point of sale. The new law also changes increases the post-consumer recycled content requirement for these paper bags from 40 percent to 50 percent.
SB 1280 (Waste management: propane cylinders: reusable or refillable)	Requires all propane cylinders offered for sale in California to be reusable or refillable beginning on January 1, 2028. This law will reduce the amount of propane cylinders disposed of in San José and decrease the safety risks to waste management staff created by the improper disposal of these materials.
AB 660 (Food and beverage products: labeling: quality dates, safety dates, and sell-by dates)	Standardizes food labels in California. Beginning July 1, 2026, labels will be limited to the following: "BEST if Used by" to indicate the quality date of the food item, and "USE by" to indicate the safety date of the food item. All other date-related labelling of food that is distributed within California will be prohibited, with limited exceptions. This law will reduce consumer confusion on the safety and quality of food, thereby reducing food waste and saving consumers money.
SB 1384 (Powered wheelchairs: repair)	Requires manufacturers of powered wheelchairs to provide documentation, parts, embedded software, firmware, and tools used to maintain and repair the wheelchair to both independent repair shops and wheelchair owners. This law will reduce waste, including e-waste, and save consumers money.

Of the bills referenced above, City staff worked with the City's Intergovernmental Relations team to submit support letters for AB 2346 and SB 1053, and to sign on to the National Stewardship Action Council's coalition support letter for SB 1143. The City also signed on to the California Product Stewardship Council's coalition support letter for SB 707 in 2023.

9.1. SB 54 Update

In 2022, SB 54 (Plastic Pollution Prevention and Packaging Producer Responsibility Act) was signed into law, a landmark Extended Producer Responsibility program to reach ambitious targets to reduce single-use service ware and packaging through source reduction and post-consumer recycled content requirements. SB 54 has multiple requirements, as follows:

1. Requiring single-use packaging and plastic single-use food serviceware sold in California to be recyclable or compostable by January 1, 2032, with limited exceptions;
2. Requiring all plastic single-use packaging and plastic single-use food serviceware sold in California to meet a recycling rate of 65 percent by January 1, 2032, with interim goals beginning in 2028;
3. Requiring 25 percent of single-use plastic packaging and single-use plastic foodware sold or distributed in California to be source reduced by both weight and unit by 2032, with interim goals beginning in 2027 (ten percent source reduction must come from shifting to reusable or refillable product types, or from eliminating a plastic component from products)
4. Prohibiting expanded polystyrene producers from selling food serviceware unless they meet a 25 percent recycling rate by January 1, 2025;
5. Requiring producers of single-use packaging and plastic food serviceware to join a producer responsibility organization and pay fees to that organization to fully fund the implementation of the program, including by paying the costs that local jurisdictions and local recycling service providers incur when collecting, transporting, and processing covered material, as well as the costs to educate the public about proper sorting of covered material
6. Requiring the producer responsibility organization to pay $500 million per year from January 1, 2027 through January 1, 2037, to reduce the public health, environmental justice, and environmental impacts of plastics (the producer responsibility organization may collect up to $150 million of this total from plastic manufacturers); and
7. Requiring local jurisdictions to collect and divert from landfill covered materials that CalRecycle determines are recyclable or compostable.

CalRecycle appointed the SB 54 Advisory Board in July 2023, and the Board began meeting regularly in February 2024. The purpose of this Board is to advise CalRecycle and the producer responsibility organization regarding implementation of SB 54. ESD staff has been actively engaged in the SB 54 rulemaking process by submitting comment letters on each version of the proposed regulations that CalRecycle published in 2024, engaging with other local government staff and similar stakeholders in SB 54 forums, and attending SB 54 Advisory Board meetings and providing public comment when appropriate. The final SB 54 regulations will provide guidance in how to reduce the use of non-recyclable packaging and plastic food serviceware in San José, thereby diverting material from landfill and reducing recycling contamination.

9.2. SB 1383 Implementation

SB 1383 is the most significant waste reduction mandate to be adopted in California in the last 30 years. Environmental benefits associated with its implementation include fighting climate change, improving air quality, donating edible food to those in need, and decreasing tons of organic material landfilled. Most importantly, SB 1383 aligns with Climate Smart San José by reducing GHG emissions, and it helps the City achieve its zero waste goals through waste diversion and by supporting local recycling markets. The regulations were finalized by CalRecycle in November 2020 and went into effect on January 1, 2022. This has significant policy and legal implications for state and local governments.

SB 1383 regulations are multi-faceted and impact various departments and services within the City. ESD has taken the lead in the implementation and provided guidance and direction to other departments. ESD staff is engaging in a collaborative approach to comply with SB 1383 regulations. The response includes solid waste program adjustments, interdepartmental and interagency coordination, stakeholder engagement, and public education and outreach.

Staff continues to work with the service providers, City departments, and contractors to discuss cost-effective solutions to comply with container color and labeling requirements, container contamination minimization, data management and reporting, and procurement requirements.

9.2.1. Container Contamination Monitoring

Residential and Commercial Programs completed their required annual container contamination minimization monitoring for calendar year 2024 to ensure organics are placed in the correct containers and kept as clean as possible to maximize diversion. Residential Program staff worked with their respective service providers while Commercial Program staff worked with a third-party consultant and Republic Services. Both programs performed visual assessments of a portion of containers along every collection route. In instances where contamination was found, generators will be notified and provided information on acceptable materials. Auditors identified carts that did or did not contain prohibited contaminants, carts that had been serviced by the service provider already (Collected), carts that had been set out empty (Empty), and premises that did not set out carts (No Set Out). Data collected in 2024 will help refine future auditing procedures and tailor public outreach information to recover more materials.

9.2.2. Container Labeling

Residential garbage, recycling, and yard trimmings container labels continued to be installed onto brand new containers. The labels inform residents on what belongs in each streams' container, meets SB 1383's container labeling requirements, and will help recover more material. Residential service providers print and deliver carts with the labels (Figure 14).

The City executed two Letters of Agreement with the SFD recycling providers, California Waste Solutions, and GreenTeam of San José, to purchase and install 16,000 in-mold lids with recycling instructions between Fall 2023 and April 2024. Through a previous study, the in-mold lids successfully helped reduce recycling contamination. MFD recycling containers will also have new labels. This project is supported by ESD's CalRecycle SB 1383 Local Assistance grant funds. Routes were selected based on recycling contamination levels above the 2022 citywide average (57 percent).

Figure 14: SFD Recycling Cart Label

9.2.3. Outreach

Staff continues to engage with organic waste generators such as residents, businesses creating food waste, and landscapers through various outreach tactics as required by the regulations. The outreach is focused on informing them about the requirements to separate materials into the appropriate containers as well as to emphasize the methane reduction benefits of diverting organic waste from landfills.

Commercial Program staff collaborated with Republic Services' Sustainability Advisors to update businesses on organics recycling requirements through quarterly postcards, in-person outreach to identified accounts, system-wide letters, as well as trainings and generator waste audits. In response to feedback received from businesses that SB 1383 requirements are confusing, staff created a multilingual SB 1383 Compliance Checklist for Businesses to provide an overview of SB 1383 and organic waste, a summary of free resources for businesses, as well as a succinct, clear list of requirements for businesses to comply with SB 1383 requirements (Figure 15).

Figure 15: SB 1383 Compliance Checklist for Businesses Available in English, Spanish, and Vietnamese

ESD staff connected with the San José community at over 50 events and had in-person conversations with over 3,100 residents. Multilingual printed outreach material reached over 150,000 people and included postcards tailored for MFD residents, handouts designed to inform businesses about regulatory requirements, as well as newsletters, social media posts, welcome letters, and emails for new Residential and Commercial accounts. Social media and digital advertisements reached approximately 45,000 residents. Outreach efforts have helped raise awareness about SB 1383 and the importance of recovering organic waste.

9.2.4. Waivers and Enforcement

SB 1383 permits the City to issue businesses a waiver to exclude them from a required organic service subscription for special circumstances (physical space constraints or de minimis generation). Since its implementation in September 2023, staff has approved waivers for 232 San José businesses due to minimal organic waste generation. Beginning January 2024, IWM Enforcement staff began to conduct visits to businesses to ensure compliance with the San José Municipal Code and SB 1383 requirements.

9.2.5. Procurement

The City is required to annually procure a minimum amount of products made from recycled organic waste: 53,549 tons in 2024 and 82,383 tons in 2025 and beyond. The City's agreement through its Residential service provider GreenWaste Recovery includes 2,000 tons of free organic material (compost and mulch) per year that is available to all City staff, contractors and programs to use. In an effort to utilize all 2,000 tons of organic material, ESD staff worked with Parks Recreation and Neighborhood Services staff at Kelley Park to open a Compost Hub Pilot for all

City Staff and contractors in October 2024. Staff also worked with Z-Best to open a second compost hub location in September 2024 at the GreenWaste Zanker Resource Recovery Facility in North San José. In 2025, staff will continue to market the availability of compost and mulch at these locations to other City departments and contractors, identify opportunities for increased procurement of these items and work to open the compost hub to San José residents. ESD staff will also continue to work with other City departments and contractors to discuss cost-effective solutions to comply with the procurement requirements.

9.2.6. Edible Food Recovery Program

SB 1383 set an additional statewide goal to redirect 20 percent of edible food currently disposed of to people in need by 2025 and requires cities to establish edible food recovery programs in their communities to strengthen existing infrastructure for edible food recovery and food distribution. Joint Venture Silicon Valley was contracted by the County of Santa Clara Recycling and Waste Reduction Commission (of which the City is a member) to design and manage a countywide food recovery program, now known as the Santa Clara County Food Recovery Program. This approach creates a uniform, standardized, and coordinated effort throughout the incorporated and unincorporated areas of Santa Clara County. To ensure that all education for SB 1383-regulated edible food generators is uniform across the county, the program maintains and directs edible food generators towards a comprehensive website (SCCFoodRecovery.org).

Beyond informational emails and letters, the Program has also provided extensive direct technical assistance for edible food generators as they develop their food recovery programs. All jurisdictions in Santa Clara County passed ordinances that require edible food generators to submit Food Recovery Reports, covering activity during the previous calendar year, on the same schedule as food recovery organizations or services holding contracts with edible food generators in the county. Starting calendar year 2023, reports must be submitted on or before May 1, covering activity during the previous calendar year. Figure 16 summarizes San José's footprint for calendar year 2023 for total number of commercial edible food generators, food recovery organizations and services, and pounds of edible food diverted from the landfill and given to those in need as reported in Food Recovery Reports. Calendar Year 2024 data will be available by May 1, 2025.

San José commercial edible food generators

San José food recovery organizations and services

Total pounds of edible food for calendar year 2023

Figure 16: San José's Edible Food Recovery Footprint

In May 2024, Food Recovery Reports were received from 346 edible food generators in Santa Clara County for the period covering the previous calendar year. At least ten percent of regulated generators in each jurisdiction have been inspected since August 2024, and the Program conducted follow-up inspections of businesses that were not yet in compliance. Inspections were organized according to an Inspection Prioritization List which prioritized businesses with potentially larger volumes of surplus food and those that did not complete Food Recovery Reports. The Santa Clara Food Recovery Program focused on education as the first phase of compliance until January 2024; the Program currently coordinates with each jurisdiction within the county on any necessary enforcement action with regulated entities. No enforcement action has been needed in San José to date.

In FY 2024-2025, City staff worked with staff from other jurisdictions within Santa Clara County on a long-term Memorandum of Understanding for the ongoing management and operation of the Countywide Food Recovery Program. It extended the commitment of participating jurisdictions to submit annual contributions to fund the Countywide Food Recovery Program based on the number of generators in each jurisdiction. This Memorandum of Understanding was approved by Council at its June 11, 2024 meeting[2] and became effective July 1, 2024, upon execution of the participating jurisdictions.[3]

[2] https://sanjoseca.primegov.com/Portal/viewer?id=0&type=7&uid=b0230431-aac6-4cc9-8b11-f8f5512ce106
[3] https://records.sanjoseca.gov/Contracts/OC-008526-000.pdf

9.2.7. Local Assistance Grant Funding

In April 2022, the City was awarded a $1.45 million CalRecycle SB 1383 Local Assistance grant. The City has utilized the grant funding in key areas to ensure successful implementation of SB 1383, including: outreach and marketing, SFD and MFD container labels, a data management system, procurement plan for approved products, development of a residential container contamination monitoring methodology and recordkeeping, and the development of an edible food recovery program in partnership with Santa Clara County. All grant-eligible expenditures and costs were incurred by November 1, 2024, as required by the grant.

In November 2023, the City applied for $1.58 million of grant funding through the second round of CalRecycle's SB 1383 Local Assistance grant program, and the City was awarded $2.49 million in February 2024. The grant term for this funding began in February 2024 and ends on April 1, 2026. The City plans to utilize grant funding in the following key areas: outreach and marketing, container labeling and recycling lid conversion to blue lids, indoor commercial containers, a record keeping and data management system, creation of a compost hub, additional strategies to meet procurement targets, personnel support and continued partnership with the Santa Clara County Food Recovery Program.

10. CLIMATE SMART ZERO WASTE ELEMENT

Incorporation of a Zero Waste Element (ZWE) to the Climate Smart San José plan will provide a roadmap to reduce solid waste related GHG emissions and reduce material to landfill. The proposed ZWE is designed to complement and build upon already-existing City plans, namely the Climate Smart San José and the 2008 Zero Waste Strategic Plan. It will assess the City's net GHG emissions resulting from the solid waste sector as well as reevaluate the prioritization of the City's zero waste strategies. It will also address related critical issues regarding changing waste regulations (i.e., SB 1383, SB 54), reuse potential, local infrastructure related to solid waste, and landfill capacity. This will help analyze the City's state of solid waste and the impact its solid waste programs have on San José's community wide GHG emissions, to quantify returns on investment, and to provide innovative solutions.

Stakeholder feedback was solicited from January 17 to February 11, 2024, through a community and stakeholder engagement process where members of the community had the opportunity to

provide feedback and ask questions directly about the draft plan. This process included a survey designed to gauge the audience's current level of awareness, attitudes toward recycling, composting, waste prevention, and the critical barriers and motivators related to selected zero waste strategies and actions included in the ZWE. One virtual stakeholder meeting took place to allow for a broader range of participants and lower the barriers to participation. An online Open House platform allowed stakeholders and members of the community to review and provide feedback on the draft document on their own time. ESD staff worked with the third-party consultant, Cascadia Consulting Group, to develop a multilingual outreach plan where the ZWE was promoted through various City's communication channels, including social media, website, and newsletters. Feedback received during the stakeholder engagement process and an updated methodology to assess GHG emission reductions associated with ZWE strategies have been incorporated into the draft. Staff expects to bring the Zero Waste Element to Council in 2025.

11. GRANTS

As described above, IWM staff currently manages five active CalRecycle grants related to beverage container recycling, HHW and SB 1383. In 2024 , staff applied for two United States Environmental Protection Agency grants. San José applied as a coalition partner with the cities of Cupertino, Sunnyvale, Mountain View, and San Benito County for the Climate Pollution Reduction Grant to implement a regional reusable foodware program to reduce single-use items (such as takeout clamshell and cup containers) sent to the landfill, lowering associated greenhouse gas emissions. Although the project was not awarded, coalition partners will seek other grant funding opportunities. Staff also applied for the Solid Waste Infrastructure for Recycling grant to reduce residential recycling contamination by piloting contamination-detecting artificial intelligence cameras paired with outreach to influence behavior change. Staff expects to be notified about selection in July 2025.

12. NEXT STEPS

IWM staff continues to work on the following focus areas in FYs 2024-2025 and 2025-2026:

- Finalize the Climate Smart Zero Waste Element and bring it to the Transportation and Environment Committee and Council for approval and incorporation into the Climate Smart San José Plan

- Construction & Demolition Program Improvements, Outreach, and Education
- CART project assessment
- Expand the compost hub pilot to the community
- Monitor bills during the legislative session to track potential impacts on solid waste programs
- Engage in statewide implementation of solid waste regulations, including SB 54 (2022) and SB 707 (2024)
- Distribute MFD tote bags and install enclosure signs
- Track and pursue grant opportunities that are applicable to the solid waste programs

APPENDIX A – Acronyms

APPENDIX A – Acronyms

AB	Assembly Bill
CalRecycle	California Department of Resources Recycling and Recovery
CART	Contamination And Recycling Tagging Project
City	City of San José
CRV	California Redemption Value
ESD	Environmental Services Department
FY	Fiscal Year
GHG	Greenhouse Gas
HHW	Household Hazardous Waste
IWM	Integrated Waste Management
MFD	Multi-Family Dwelling
PLC	Public Litter Can
SB	Senate Bill
SFD	Single-Family Dwelling
Z-Best	GreenWaste Z-Best Composting Facility
ZWE	Zero Waste Element
ZWED	Zero Waste Energy Development Company

APPENDIX B – 2024 Single-Family Curbside Recycling Characterization

2024 Single-Family Curbside Recycling Characterization

STUDY FINDINGS

FINAL – JANUARY 2025

ENVIRONMENTAL SERVICES DEPARTMENT
200 E. SANTA CLARA STREET, 10TH FLOOR
SAN JOSE, CA 95113

CASCADIA CONSULTING GROUP

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Contents

Overview of Study

The City of San José (City) contracts with two haulers for the collection and processing of source-separated curbside-recyclable materials from Single-Family residential properties. California Waste Solutions (CWS) transports collected Single-Family dwelling (SFD) recyclable materials from Districts A and C to their Material Recovery Facility (MRF) for processing. GreenTeam transports collected SFD recyclable materials from District B to the GreenWaste (GW) MRF for processing.

In August 2024, the City contracted with Cascadia Consulting Group (Cascadia) to characterize the composition of Single-Family curbside-recyclable materials. The overall objective of the characterization study is to determine the percentage by weight of "program materials," which are referred to in this study as Residential Recyclables for Studies (RRFS), that the City's contracted recycling haulers collect from Single-Family residents in each district. The City will use this information to compensate its two recycling haulers for processing the collected recyclable material per their contract agreements. The City will also use these results to inform focused outreach and awareness campaigns for residential recycling, in support of the City's goal to achieve carbon neutrality by 2030.

Cascadia conducted the five-week characterization study beginning October 21, 2024. SCS Engineers conducted the City's two most recent Single-Family curbside recycling characterization studies, in 2020 and 2022.

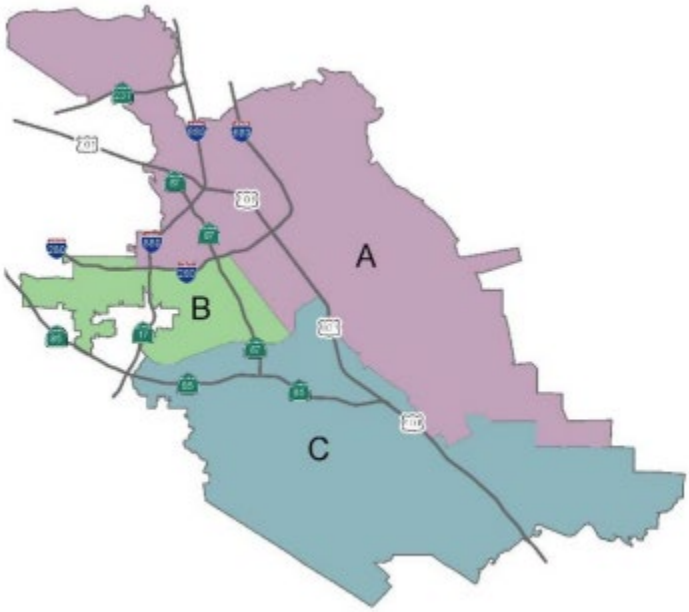
This document describes the process for characterizing Single-Family curbside-recyclable materials from the City of San José and delivered to the CWS and GreenWaste MRFs.

Characterization Methods

Description of Existing System

The City of San José provides garbage and recycling services to approximately 216,000 SFDs and 120,000 Multi-Family dwellings (3,500 complexes). Residential recycling services are divided between two haulers in three districts: A, B, and C (Figure 1).

Figure 1. Recycling Collection Districts



CWS collects and processes recyclables from 75 percent of the City's SFDs in Districts A and C. The CWS MRF is dedicated exclusively to San José residential material. GreenTeam collects recyclables from 25 percent of the City's SFDs in District B, as well as all of the City's Multi-Family dwellings, and delivers the material to the GreenWaste MRF. The GreenWaste MRF processes recyclables from the City as well as other materials delivered from multiple jurisdictions in the region.

Sampling Process

The study period consisted of four weeks of field sampling in a five-week period, from Monday, October 21, 2024 to Friday, November 22, 2024. The sampling period also included a make-up day on Monday, December 2, 2024 to accommodate two missed samples during the planned sampling period. Field work began with one week of sampling at the GreenWaste MRF for District B. The following three weeks of sampling occurred at the CWS MRF for Districts A and C.

Cascadia collected one sample from each of the 235 Single-Family curbside recycling routes in the City and sorted each sample into 27 unique material types (see Appendix A for material definitions). Table 1 shows the number of samples collected each day for District B, Table 2 shows the number of samples collected each day for District A, and Table 3 shows the number of samples collected each day for District C.

Table 1. District B Sample Collection (GreenWaste)

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Oct. 21-25	9	9	9	9	9	**45**

Table 2. District A Sample Collection (CWS)

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Oct. 28 - Nov. 1	7	8	7	7	7	**36**
Nov. 4-8	8	7	8	8	8	**39**
Nov. 18-22	7	7	7	7	6	**34**
Nov. 25-29					1	**1**
Total	**22**	**22**	**22**	**22**	**22**	**110**

Table 3. District C Sample Collection (CWS)

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Oct. 28 - Nov. 1	6	5	6	6	5	**28**
Nov. 4-8	5	6	5	5	5	**26**
Nov. 18-22	5	5	5	5	5	**25**
Nov. 25-29					1	**1**
Total	**16**	**16**	**16**	**16**	**16**	**80**

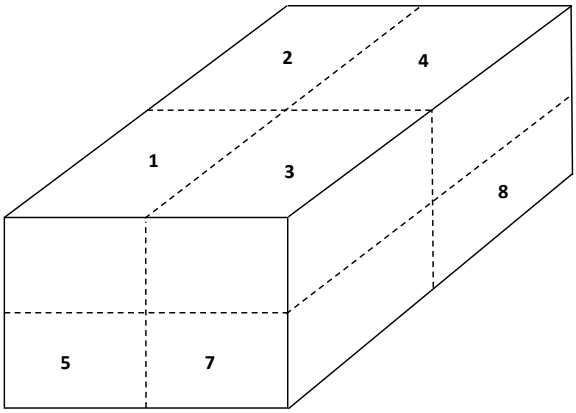
The two missed samples were from Friday routes in District A and District C on November 22, the final day of field work. CWS staff collected make-up samples from the missed Friday routes on Saturday, November 30. Because of the Thanksgiving holiday that week, Friday routes were serviced on Saturday, November 30. Cascadia returned on Monday, December 2 to sort the two make-up samples.

Sample Capture

Prior to field work, Cascadia collaborated with each MRF to create a list of Single-Family residential routes arriving each day of sampling. During field work, Cascadia coordinated with a member of the scalehouse to survey incoming vehicles, identify their route, and determine whether their loads contained material from single-family dwellings (at GW MRF only). If the load was eligible for sampling, the surveyor checked off the route on the list, affixed a Cascadia-provided sample placard with route information to the vehicle's windshield, and directed the driver to the designated sampling area (see Appendix B for an example placard and sample tracking sheet).

When the selected vehicle arrived at the designated sampling area, the Cascadia Field Lead collected the sample placard and asked the driver to discharge the load. The Cascadia Field Lead visually separated the load into approximately eight subsections and randomly selected a subsection for sampling (Figure 2). MRF personnel then used a loader to grab the sample from the selected subsection. The sample was weighed prior to sorting to confirm an appropriate sample size of 150 pounds.

Figure 2. Example Eight-cell Sampling Grid



Manual Sorting Process

The field team hand-sorted all samples into 27 material types, which included both Residential Recyclables for Studies (RRFS) and Non-Residential Recyclables for Studies (Non-RRFS), also referred to as non-program materials.

The hand-sorting process included the following steps:

- Using a digital camera, a member of the field team took a photograph of the sample with the sample placard positioned so that it is visible in each photograph.
- The field team sorted samples by material type into plastic tubs. The field team members specialized in groups of materials, such as *papers* or *plastics*, and focused on sorting those materials from the rest of the sample. The material types and definitions for each are listed in Appendix A.
- As sorting proceeded, the Field Lead continually monitored the homogeneity of material in the tubs and re-sorted any materials that were improperly classified. The overall goal was to positively identify each item in a sample and minimize the quantity of indistinguishable materials.
- Each tub containing sorted materials from just-completed samples was carried to a pre-calibrated digital scale for weighing. The field team weighed each material in its tub. The field team electronically recorded each material weight into Cascadia's cloud-based database

system (OSCAR) on rugged handheld tablets. The scale was tared to the weight of an empty tub before weighing out sorted material. All tubs had identical tare weight.

- At the end of each sampling and sorting day, the field team cleaned the sorting site, organized and stowed sorting supplies, and checked out with the facility manager.

The Cascadia Field Lead remained onsite during all sorting activities to ensure that the field team followed approved protocols and maintained consistency across samples and sampling events. The field team employed the same definition of contamination at each facility. Prior to the start of sorting activities, the field team underwent training to learn the material types and sorting protocols for this study. The Field Lead briefed personnel on any facility-specific health and safety requirements, personal protective equipment (PPE) requirements, and contingency protocols.

Food Contamination

The field team used a two-part test to determine if an RRFS item was contaminated. An RRFS item was considered contaminated if the item met either or both contamination criteria:

1. If more than 10 percent of the surface area of an RRFS item was covered in any type of contaminant (food, paint, moisture, oil, etc.), it was placed in the *other materials* Non-RRFS material type. This criterion is frequently met when a heavy RRFS material (e.g., *clean OCC*) is contaminated by a light contaminant (e.g., cooking oil). The *clean OCC* still accounts for the majority of the weight so it would pass Criterion 2 but fail Criterion 1.
2. If an RRFS item was more than 50 percent of any contaminant (food, paint, moisture, oil, etc.), by weight, it was placed in the *other materials* Non-RRFS material type. This criterion is frequently met when a light RRFS material (e.g., *#1 PET bottles and containers*) is contaminated. The *#1 PET bottles and containers* item may contain a small amount of leftover contaminant (e.g., peanut butter) that does not cover much of the surface area, but accounts for the majority of the weight. This item would pass Criterion 1 but fail Criterion 2.

Fines

Material 3 inches or less in size were placed into the *other materials* Non-RRFS material type. This included commingled materials, all under 3 inches, that are mixed together, such as plastic bottle caps, most pieces of broken glass, and paper clips. The samples were sorted until no more than a small amount of homogeneous fine material (*other materials*) remained.

Bagged Materials

If present in a sample, bagged materials were emptied and sorted with the loose material.

Hazardous Materials

If the field team identified hazardous materials during the sorting process, they weighed and noted them, then set them aside for proper handling. The weight of the hazardous materials was recorded in the proper material type(s) on the sample field form.

Material List Changes From Previous Studies

The material list used for the 2024 study was very similar to the lists used in the 2022 and 2020 Single-Family curbside recycling studies. The material type *pumpkins* was added for the 2024 study since sampling occurred around Halloween. Additionally, in 2024, two existing material types were split into more detailed material types for sorting purposes (see Appendix A for definitions of each):

Original Material Type	Detailed Material Types for 2024
Contaminated Recyclable and Remainder/Composite Paper	• Contaminated Recyclable Paper • Remainder/Composite Paper
Medical Waste	• Medical Waste • Personal Care Products

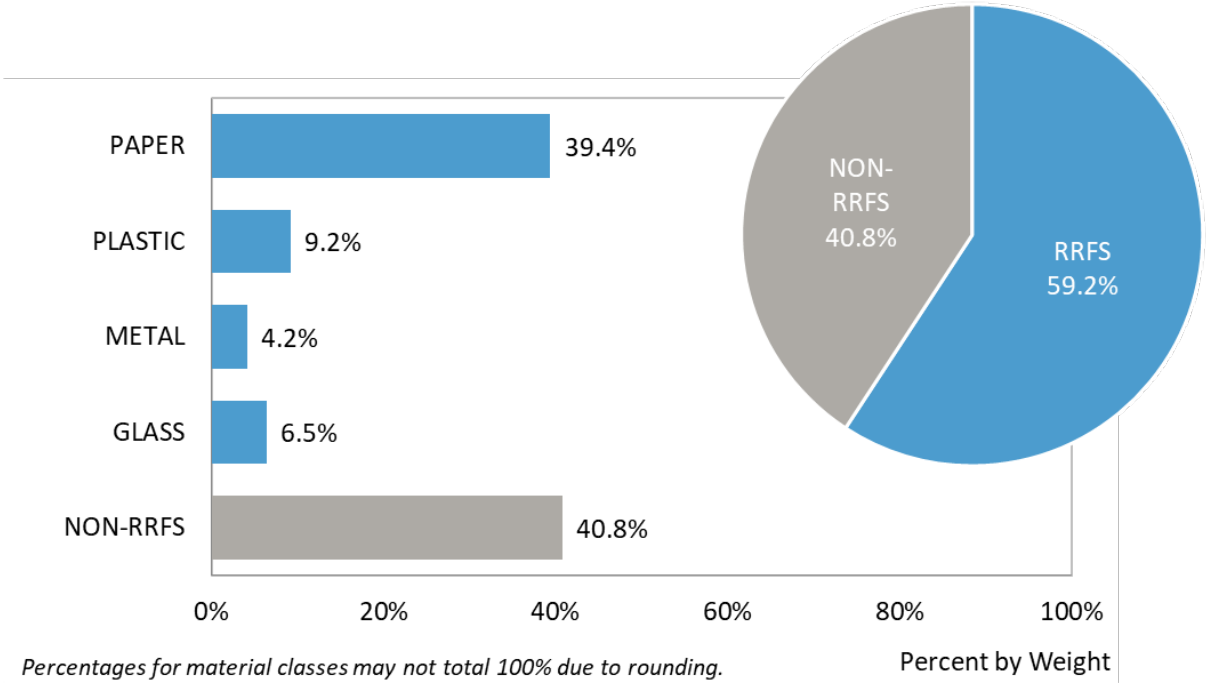
Compositions for the detailed material types are included in the raw sample data shared with the City of San José, but to facilitate easier comparison with previous studies, they are aggregated into their original material types for reporting. This means that while samples were sorted into 27 material types in the field, compositions are reported for a combined 25 material types in this document.

Summary of Results

Citywide

On average, RRFS materials accounted for 59.2 percent of Single-Family curbside recycling citywide (Figure 3). The remaining 40.8 percent of materials were non-program materials.

Figure 3. RRFS and Non-RRFS Composition Summary: Citywide



Percentages for material classes may not total 100% due to rounding.

Paper materials made up the largest proportion (39.4%) of RRFS materials and primarily consisted of *clean OCC* (19.4%) and *clean mixed paper* (16.8%; Table 4). **Plastic** materials accounted for 9.2 percent of RRFS and primarily consisted of *#1 PET bottles and containers* (3.5%) and *#2 HDPE bottles and containers* (2.0%). **Glass** materials (6.5%) and **Metal** materials (4.2%) accounted for relatively smaller proportions compared to the other material classes.

Clean OCC (19.4%) was the most prevalent RRFS material and *other materials* (20.8%) was the most prevalent Non-RRFS material. *Other materials* include plastic trash bags, rigid and expanded polystyrene, furniture, and materials with significant food contamination.

Table 4. Detailed Composition Results: Citywide

Material	Est. %	+ / -
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**59.2%**	**1.6%**
PAPER	**39.4%**	**1.4%**
Clean Newspaper	2.5%	0.2%
Clean OCC	19.4%	1.1%
Clean Mixed Paper	16.8%	0.6%
Clean Aseptic and Poly-coated Packaging	0.7%	0.0%
PLASTIC	**9.2%**	**0.3%**
#1 PET Bottles and Containers	3.5%	0.2%
#2 HDPE Bottles and Containers	2.0%	0.1%
#3, #4, #5, & #7 Bottles and Containers	1.3%	0.1%
Clear/Clean Plastic Bags and Other Film	0.3%	0.0%
Durable Plastic Items	2.0%	0.2%
METAL	**4.2%**	**0.3%**
Aluminum Beverage Cans	0.8%	0.1%
Aluminum Foil	0.1%	0.0%
Steel (Tin) Cans	1.3%	0.1%
Other Scrap Metal	2.1%	0.3%
GLASS	**6.5%**	**0.6%**
Recyclable Glass	6.5%	0.6%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**40.8%**	**1.6%**
Contaminated Recyclable and Remainder/Composite Paper	9.3%	0.6%
Remainder/Composite Plastic	1.2%	0.2%
Remainder/Composite Metal	1.2%	0.2%
Remainder/Composite Glass	0.3%	0.1%
Textiles	2.6%	0.3%
Organic Materials	3.4%	0.3%
Pumpkins	0.1%	0.0%
Medical Waste	0.9%	0.2%
Electronics	0.7%	0.2%
HHW and Special Waste	0.2%	0.1%
Other Materials	20.8%	1.0%
Total	**100%**	
Sample Count	***235***	

Confidence intervals calculated at the 90% confidence level.

Confidence intervals for binary outcomes will be equal.

Percentages for material types may not total 100% due to rounding.

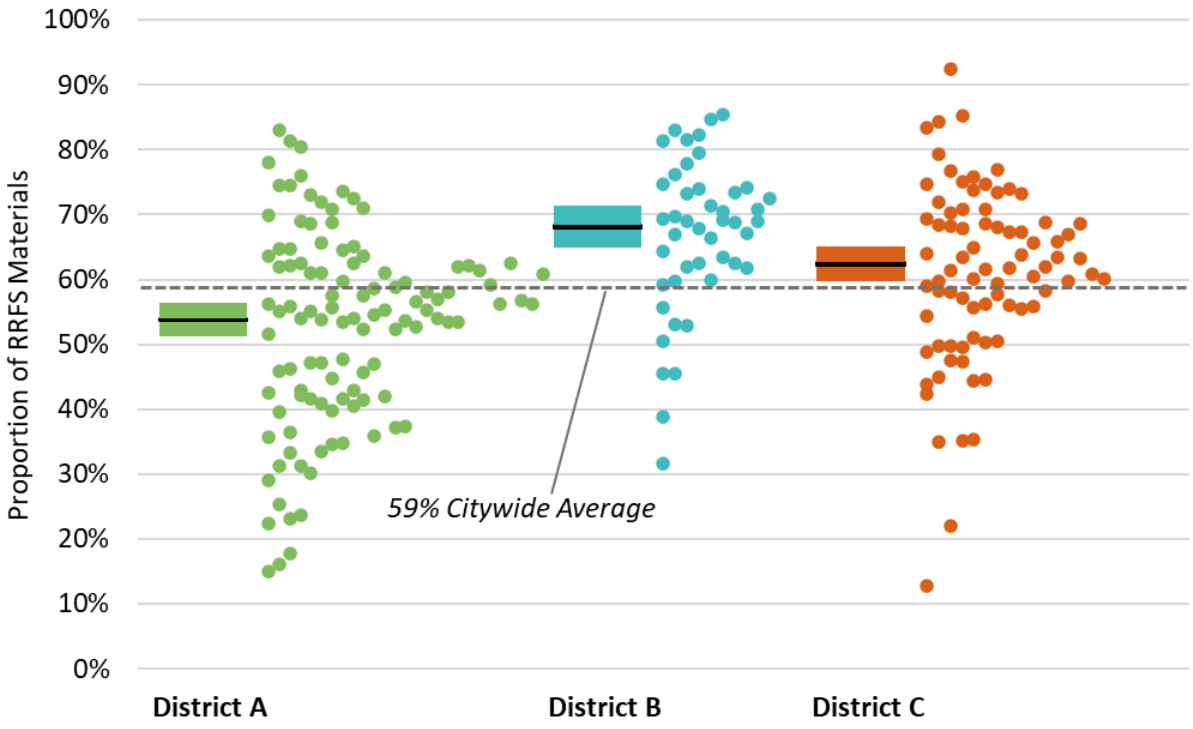
Figure 4 shows the proportion of RRFS materials in each of the 235 individual samples across each district. The black line represents the estimated mean proportion of RRFS across all samples in

each district. The colored bars represent the confidence interval around the mean and the colored dots indicate the proportion of RRFS in individual samples.

District B had the highest average proportion of RRFS materials (68%), followed by District C (63%) and District A (54%). At the sample level, the proportion of RRFS materials ranged from a minimum of 13 percent in District C (Sample 266) to a maximum of 93 percent, also in District C (Sample 333). Of the 235 samples, 101 (43%) fall below the citywide average of 59 percent.

A summary of individual sample weights, the weight of RRFS materials in each sample, and the proportion of RRFS materials in each sample is provided in Appendix C. Photos of each sample are provided in Appendix D.

Figure 4. Average and Individual Sample Proportions of RRFS Materials



Black line represents the estimated mean and colored bars represent the confidence interval around the mean. Dots represent individual samples.

By Collection District

District A had the highest proportion of Non-RRFS materials (46% compared to 32% for District B and 38% for District C; Figure 5). **Paper** materials were the most prevalent RRFS across all districts, although they accounted for a smaller proportion of material in District A (36% compared to 43% in

District B and 42% in District C). District B had the greatest proportion of **Glass** materials across all three districts (11% compared to 5% for District A and 6% for District C).

Figure 5. RRFS and Non-RRFS Composition Summary: Collection Districts

	District A	District B	District C
PAPER	36%	43%	42%
PLASTIC	9%	10%	9%
METAL	4%	4%	5%
GLASS	5%	11%	6%
NON-RRFS	46%	32%	38%
Total	**100%**	**100%**	**100%**

Clean OCC was the most prevalent RRFS material for District A (18.3%) and District C (22.0%), while *clean mixed paper* was the most prevalent RRFS material for District B (21.2%; Table 5). *Other materials* was the most prevalent Non-RRFS material for all districts (23.4% in District A, 16.9% in District B, and 19.3% in District C).

The proportions of other individual material types for each district were generally similar, with the exception of *contaminated recyclable and remainder/composite paper*, which accounted for a greater proportion of material in District A (10.8%) compared to District B (7.0%) and District C (8.7%).

Table 5. Detailed Composition Results: Collection Districts

Material	District A Est. %	District A + / -	District B Est. %	District B + / -	District C Est. %	District C + / -
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**53.6%**	**2.4%**	**67.9%**	**2.9%**	**62.2%**	**2.5%**
PAPER	**35.8%**	**2.1%**	**42.7%**	**2.5%**	**42.4%**	**2.3%**
Clean Newspaper	2.2%	0.3%	3.1%	0.8%	2.5%	0.3%
Clean OCC	18.3%	1.5%	17.5%	2.5%	22.0%	2.0%
Clean Mixed Paper	14.7%	0.9%	21.2%	1.5%	17.3%	1.0%
Clean Aseptic and Poly-coated Packaging	0.6%	0.1%	0.9%	0.1%	0.7%	0.1%
PLASTIC	**8.7%**	**0.4%**	**10.2%**	**0.8%**	**9.3%**	**0.5%**
#1 PET Bottles and Containers	2.9%	0.2%	4.5%	0.4%	3.8%	0.2%
#2 HDPE Bottles and Containers	2.0%	0.1%	2.3%	0.2%	1.9%	0.2%
#3, #4, #5, & #7 Bottles and Containers	1.3%	0.1%	1.6%	0.1%	1.3%	0.1%
Clear/Clean Plastic Bags and Other Film	0.3%	0.1%	0.3%	0.1%	0.3%	0.1%
Durable Plastic Items	2.2%	0.3%	1.5%	0.4%	2.0%	0.2%
METAL	**4.0%**	**0.3%**	**4.1%**	**0.5%**	**4.6%**	**0.7%**
Aluminum Beverage Cans	0.6%	0.1%	1.1%	0.1%	0.8%	0.1%
Aluminum Foil	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%
Steel (Tin) Cans	1.2%	0.1%	1.3%	0.2%	1.3%	0.1%
Other Scrap Metal	2.0%	0.3%	1.7%	0.5%	2.3%	0.7%
GLASS	**5.1%**	**0.7%**	**10.9%**	**2.1%**	**5.9%**	**0.7%**
Recyclable Glass	5.1%	0.7%	10.9%	2.1%	5.9%	0.7%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**46.4%**	**2.4%**	**32.1%**	**2.9%**	**37.8%**	**2.5%**
Contaminated Recyclable and Remainder/Composite Paper	10.8%	0.9%	7.0%	0.8%	8.7%	0.8%
Remainder/Composite Plastic	1.3%	0.3%	1.0%	0.3%	1.0%	0.2%
Remainder/Composite Metal	1.3%	0.4%	1.3%	0.5%	1.0%	0.4%
Remainder/Composite Glass	0.3%	0.1%	0.5%	0.2%	0.3%	0.1%
Textiles	3.2%	0.4%	1.4%	0.4%	2.6%	0.6%
Organic Materials	3.7%	0.4%	2.6%	0.5%	3.3%	0.5%
Pumpkins	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
Medical Waste	1.0%	0.3%	0.9%	0.5%	0.9%	0.2%
Electronics	1.1%	0.4%	0.4%	0.3%	0.4%	0.3%
HHW and Special Waste	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%
Other Materials	23.4%	1.4%	16.9%	2.1%	19.3%	1.4%
Total	**100%**		**100%**		**100%**	
Sample Count	***110***		***45***		***80***	

Confidence intervals calculated at the 90% confidence level.
Confidence intervals for binary outcomes will be equal.
Percentages for material types may not total 100% due to rounding.

By Collection Day

District A

In District A, material collected on Tuesday routes contained a greater proportion of Non-RRFS materials than on other collection days (57% compared to 41-48%; Figure 6). Tuesday material also contained a smaller proportion of **Paper** materials (28% compared to 33-41%).

The relative proportions of **Plastic**, **Metal**, and **Glass** materials were consistent across collection days.

Figure 6. RRFS and Non-RRFS Composition Summary: Collection Day, District A

	Monday	Tuesday	Wednesday	Thursday	Friday
PAPER	41%	28%	39%	33%	38%
PLASTIC	8%	8%	10%	9%	8%
METAL	4%	3%	5%	4%	4%
GLASS	6%	4%	6%	6%	5%
NON-RRFS	41%	57%	41%	48%	45%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

For all collection days in District A, *clean OCC* was the most prevalent RRFS material, followed by *clean mixed paper* (Table 6). For Tuesday routes, these materials accounted for nearly equal proportions of curbside recycling.

Other materials was the most prevalent Non-RRFS material for all collection days, followed by *contaminated recyclable and remainder/composite paper*. Tuesday routes had the highest proportions of *other materials* (27.2% compared to 21.3-23.8%) and *contaminated recyclable and remainder/composite paper* (15.0% compared to 8.0-10.8%).

The relative proportions of other individual material types were generally consistent across collection days, with the exception of *recyclable glass*, which ranged from 3.8 percent on Tuesday routes to 6.0 percent on Monday routes.

Table 6. Detailed Composition Results: District A by Collection Day

	Monday		Tuesday		Wednesday		Thursday		Friday	
Material	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**58.8%**	**5.7%**	**43.3%**	**5.0%**	**59.2%**	**4.4%**	**51.7%**	**5.5%**	**54.9%**	**4.4%**
PAPER	**40.7%**	**5.0%**	**27.7%**	**3.8%**	**39.1%**	**4.4%**	**33.3%**	**4.7%**	**38.1%**	**4.1%**
Clean Newspaper	2.6%	1.0%	2.0%	0.6%	2.3%	0.4%	1.6%	0.3%	2.3%	0.6%
Clean OCC	21.5%	3.9%	12.8%	2.4%	19.8%	3.3%	17.4%	3.1%	20.1%	3.4%
Clean Mixed Paper	15.9%	2.0%	12.4%	1.6%	16.3%	2.0%	13.8%	1.9%	15.0%	1.7%
Clean Aseptic and Poly-coated Packaging	0.6%	0.2%	0.5%	0.1%	0.7%	0.1%	0.5%	0.1%	0.7%	0.1%
PLASTIC	**7.8%**	**0.9%**	**8.4%**	**0.9%**	**9.8%**	**0.8%**	**9.1%**	**0.7%**	**8.5%**	**0.8%**
#1 PET Bottles and Containers	2.9%	0.4%	2.3%	0.2%	3.6%	0.5%	2.8%	0.4%	3.0%	0.3%
#2 HDPE Bottles and Containers	1.5%	0.2%	2.1%	0.3%	2.1%	0.4%	2.2%	0.3%	2.1%	0.3%
#3, #4, #5, & #7 Bottles and Containers	1.1%	0.1%	1.2%	0.2%	1.3%	0.1%	1.3%	0.1%	1.3%	0.2%
Clear/Clean Plastic Bags and Other Film	0.3%	0.2%	0.3%	0.2%	0.5%	0.1%	0.3%	0.1%	0.3%	0.1%
Durable Plastic Items	2.0%	0.8%	2.5%	0.5%	2.4%	0.6%	2.5%	0.4%	1.8%	0.5%
METAL	**4.3%**	**0.9%**	**3.3%**	**0.5%**	**4.7%**	**0.9%**	**3.9%**	**0.6%**	**3.7%**	**0.6%**
Aluminum Beverage Cans	0.8%	0.2%	0.4%	0.1%	0.6%	0.1%	0.5%	0.1%	0.6%	0.2%
Aluminum Foil	0.2%	0.1%	0.1%	0.0%	0.2%	0.1%	0.2%	0.0%	0.2%	0.1%
Steel (Tin) Cans	1.0%	0.1%	1.3%	0.1%	1.1%	0.2%	1.5%	0.3%	1.2%	0.2%
Other Scrap Metal	2.4%	0.8%	1.6%	0.5%	2.9%	0.8%	1.6%	0.6%	1.7%	0.6%
GLASS	**6.0%**	**1.7%**	**3.8%**	**1.3%**	**5.6%**	**1.3%**	**5.5%**	**1.5%**	**4.6%**	**1.6%**
Recyclable Glass	6.0%	1.7%	3.8%	1.3%	5.6%	1.3%	5.5%	1.5%	4.6%	1.6%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**41.2%**	**5.7%**	**56.7%**	**5.0%**	**40.8%**	**4.4%**	**48.3%**	**5.5%**	**45.1%**	**4.4%**
Contaminated Recyclable and Remainder/Composite Paper	9.4%	2.0%	15.0%	2.0%	8.0%	1.4%	10.8%	1.9%	10.7%	2.4%
Remainder/Composite Plastic	0.8%	0.3%	1.1%	0.3%	1.8%	0.7%	1.6%	0.8%	1.3%	0.4%
Remainder/Composite Metal	1.2%	1.1%	2.3%	0.9%	0.8%	0.3%	1.6%	1.0%	0.9%	0.4%
Remainder/Composite Glass	0.4%	0.2%	0.5%	0.5%	0.2%	0.1%	0.2%	0.1%	0.3%	0.2%
Textiles	3.5%	1.1%	3.3%	1.0%	3.0%	0.8%	3.6%	1.1%	2.4%	0.8%
Organic Materials	3.0%	1.0%	4.5%	0.9%	4.1%	1.0%	3.3%	1.0%	3.9%	1.1%
Medical Waste	0.5%	0.2%	1.5%	0.7%	1.0%	0.6%	1.6%	0.9%	0.5%	0.3%
Electronics	0.9%	0.8%	1.1%	0.6%	0.2%	0.1%	1.5%	1.1%	1.7%	1.1%
HHW and Special Waste	0.2%	0.2%	0.4%	0.4%	0.2%	0.1%	0.1%	0.0%	0.1%	0.1%
Other Materials	21.3%	3.2%	27.2%	3.0%	21.6%	2.6%	23.8%	3.5%	23.3%	3.1%
Total	**100%**		**100%**		**100%**		**100%**		**100%**	
Sample Count	***22***		***22***		***22***		***22***		***22***	

Confidence intervals calculated at the 90% confidence level.
Confidence intervals for binary outcomes will be equal.
Percentages for material types may not total 100% due to rounding.

District B

In District B, Non-RRFS materials accounted for a similar proportion of curbside recycling across all collection days (30-34%; Figure 7). **Paper** materials were consistently the most prevalent RRFS materials and ranged from 39 percent on Thursday routes to 47 percent on Monday routes.

Material collected on Thursday routes contained a greater proportion of **Glass** materials (16% compared to 8-12% on other days).

Figure 7. RRFS and Non-RRFS Composition Summary: Collection Day, District B

	Monday	Tuesday	Wednesday	Thursday	Friday
PAPER	47%	43%	43%	39%	42%
PLASTIC	9%	12%	11%	9%	10%
METAL	3%	4%	4%	4%	5%
GLASS	9%	12%	8%	16%	10%
NON-RRFS	32%	30%	34%	32%	33%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Clean mixed paper was the most prevalent RRFS material, followed by *clean OCC*, for all collection days in District B except Friday (Table 7). For Friday routes, *clean OCC* was the most prevalent RRFS material, followed by *clean mixed paper*.

Other materials was the most prevalent Non-RRFS material for all collection days, followed by *contaminated recyclable and remainder/composite paper*.

The relative proportions of other individual material types were generally consistent across collection days, with the exception of *recyclable glass*, which ranged from 8.0 percent on Wednesday routes to 15.9 percent on Thursday routes

Table 7. Detailed Composition Results: District B by Collection Day

Material	Monday		Tuesday		Wednesday		Thursday		Friday	
	Est. %	+ / -	Est. %	+ / -	Est. %	+ / -	Est. %	+ / -	Est. %	+ / -
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**68.5%**	**4.7%**	**70.4%**	**5.0%**	**65.5%**	**4.9%**	**68.2%**	**10.0%**	**67.0%**	**7.9%**
PAPER	**47.2%**	**3.7%**	**42.6%**	**4.4%**	**42.6%**	**3.7%**	**38.9%**	**8.6%**	**42.0%**	**6.4%**
Clean Newspaper	3.7%	3.0%	2.2%	1.1%	4.1%	2.3%	3.4%	1.2%	2.1%	0.7%
Clean OCC	18.2%	4.1%	15.7%	5.7%	16.4%	7.1%	15.0%	5.9%	22.3%	4.6%
Clean Mixed Paper	24.1%	3.5%	23.6%	1.4%	21.4%	3.8%	19.9%	3.6%	16.9%	2.6%
Clean Aseptic and Poly-coated Packaging	1.2%	0.4%	1.1%	0.2%	0.8%	0.2%	0.6%	0.2%	0.7%	0.2%
PLASTIC	**9.3%**	**1.5%**	**11.6%**	**1.8%**	**10.9%**	**2.4%**	**9.2%**	**1.0%**	**9.8%**	**1.3%**
#1 PET Bottles and Containers	4.0%	0.7%	5.2%	0.6%	4.2%	0.9%	4.0%	0.6%	5.0%	1.1%
#2 HDPE Bottles and Containers	2.3%	0.5%	2.5%	0.5%	2.3%	0.5%	2.2%	0.4%	2.1%	0.5%
#3, #4, #5, & #7 Bottles and Containers	1.8%	0.4%	1.7%	0.3%	1.7%	0.4%	1.4%	0.3%	1.3%	0.3%
Clear/Clean Plastic Bags and Other Film	0.2%	0.1%	0.3%	0.2%	0.4%	0.4%	0.2%	0.1%	0.3%	0.1%
Durable Plastic Items	0.9%	0.6%	1.8%	0.7%	2.3%	1.3%	1.5%	0.5%	1.0%	0.4%
METAL	**2.9%**	**0.9%**	**4.4%**	**1.1%**	**4.1%**	**0.9%**	**4.2%**	**0.9%**	**5.0%**	**1.4%**
Aluminum Beverage Cans	0.8%	0.1%	1.2%	0.2%	1.1%	0.3%	1.0%	0.3%	1.3%	0.2%
Aluminum Foil	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Steel (Tin) Cans	0.8%	0.2%	1.4%	0.3%	1.6%	0.5%	1.4%	0.4%	1.1%	0.4%
Other Scrap Metal	1.2%	0.8%	1.6%	0.9%	1.3%	0.9%	1.6%	0.7%	2.4%	1.6%
GLASS	**9.0%**	**3.0%**	**11.7%**	**4.4%**	**8.0%**	**3.3%**	**15.9%**	**7.0%**	**10.2%**	**5.2%**
Recyclable Glass	9.0%	3.0%	11.7%	4.4%	8.0%	3.3%	15.9%	7.0%	10.2%	5.2%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**31.5%**	**4.7%**	**29.6%**	**5.0%**	**34.5%**	**4.9%**	**31.8%**	**10.0%**	**33.0%**	**7.9%**
Contaminated Recyclable and Remainder/Composite Paper	7.6%	1.4%	5.1%	1.3%	7.3%	2.1%	6.8%	2.4%	7.9%	1.7%
Remainder/Composite Plastic	1.9%	0.8%	1.5%	1.0%	0.7%	0.4%	0.7%	0.4%	0.3%	0.1%
Remainder/Composite Metal	0.8%	0.8%	3.6%	1.8%	1.0%	0.6%	0.6%	0.4%	0.9%	0.7%
Remainder/Composite Glass	0.4%	0.6%	0.7%	0.8%	0.4%	0.3%	0.4%	0.2%	0.5%	0.5%
Textiles	1.6%	1.0%	0.8%	0.5%	2.0%	1.3%	1.3%	1.2%	1.3%	0.6%
Organic Materials	2.3%	1.1%	2.3%	1.1%	1.8%	0.8%	2.2%	1.1%	4.1%	1.1%
Medical Waste	0.4%	0.4%	0.6%	0.4%	1.7%	1.8%	1.0%	1.0%	1.0%	0.8%
Electronics	0.0%	0.0%	0.8%	1.1%	0.2%	0.2%	0.5%	0.8%	0.4%	0.5%
HHW and Special Waste	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	0.4%	0.3%	0.1%	0.1%
Other Materials	16.4%	4.9%	14.2%	3.4%	19.3%	4.3%	17.9%	6.4%	16.6%	4.8%
Total	**100%**		**100%**		**100%**		**100%**		**100%**	
Sample Count	***9***		***9***		***9***		***9***		***9***	

Confidence intervals calculated at the 90% confidence level.
Confidence intervals for binary outcomes will be equal.
Percentages for material types may not total 100% due to rounding.

District C

In District C, the proportion of Non-RRFS materials ranged from 32 percent on Friday routes to 48 percent on Wednesday routes (Figure 8). **Paper** materials were consistently the most prevalent RRFS materials and ranged from 34 percent on Wednesday routes to 51 percent on Friday routes.

Material collected on Monday routes contained a greater proportion of **Metal** materials than on other collection days (6% compared to 3-5%). Material collected on Wednesday routes contained a smaller proportion of **Glass** materials than on other collection days (4% compared to 5-7%). The proportion of **Plastic** materials was relatively consistent across collection days.

Figure 8. RRFS and Non-RRFS Composition Summary: Collection Day, District C

	Monday	Tuesday	Wednesday	Thursday	Friday
PAPER	42%	40%	34%	45%	51%
PLASTIC	10%	9%	9%	10%	9%
METAL	6%	4%	5%	4%	3%
GLASS	6%	7%	4%	7%	5%
NON-RRFS	36%	40%	48%	33%	32%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

For all collection days in District C, *clean OCC* was the most prevalent RRFS material, followed by *clean mixed paper* (Table 8).

Other materials was the most prevalent Non-RRFS material for all collection days and ranged from 16.5 percent on Friday routes to 24.0 percent on Wednesday routes. *Contaminated recyclable and remainder/composite paper* was the next most prevalent Non-RRFS material and ranged from 7.6 percent on Thursday routes to 10.1 percent on Wednesday routes.

The relative proportions of other individual material types were generally consistent across collection days.

Table 8. Detailed Composition Results: District C by Collection Day

	Monday		Tuesday		Wednesday		Thursday		Friday	
Material	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**	**Est. %**	**+ / -**
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**64.2%**	**4.6%**	**59.7%**	**5.1%**	**51.8%**	**5.5%**	**66.5%**	**4.8%**	**68.5%**	**5.1%**
PAPER	**42.0%**	**3.9%**	**40.4%**	**4.1%**	**33.6%**	**4.5%**	**45.2%**	**4.8%**	**50.9%**	**5.7%**
Clean Newspaper	2.3%	0.4%	2.4%	0.6%	1.7%	0.5%	2.4%	0.6%	3.7%	1.2%
Clean OCC	21.6%	3.3%	19.7%	3.5%	17.6%	3.0%	24.5%	4.4%	26.3%	6.4%
Clean Mixed Paper	17.3%	1.7%	17.8%	2.3%	13.8%	2.0%	17.5%	1.4%	20.1%	2.9%
Clean Aseptic and Poly-coated Packaging	0.7%	0.1%	0.5%	0.1%	0.5%	0.1%	0.8%	0.1%	0.8%	0.1%
PLASTIC	**9.5%**	**1.4%**	**8.7%**	**0.8%**	**8.7%**	**1.5%**	**10.3%**	**0.8%**	**9.4%**	**1.0%**
#1 PET Bottles and Containers	4.3%	0.7%	3.5%	0.5%	2.9%	0.5%	4.1%	0.5%	4.0%	0.4%
#2 HDPE Bottles and Containers	1.7%	0.3%	1.9%	0.3%	2.2%	0.5%	2.1%	0.4%	1.9%	0.4%
#3, #4, #5, & #7 Bottles and Containers	1.4%	0.3%	1.2%	0.1%	1.4%	0.3%	1.5%	0.2%	1.3%	0.2%
Clear/Clean Plastic Bags and Other Film	0.3%	0.1%	0.4%	0.2%	0.2%	0.1%	0.3%	0.2%	0.5%	0.2%
Durable Plastic Items	1.9%	0.5%	1.7%	0.5%	2.1%	0.6%	2.3%	0.5%	1.8%	0.6%
METAL	**6.4%**	**2.8%**	**4.0%**	**0.5%**	**5.1%**	**1.9%**	**4.2%**	**0.9%**	**3.1%**	**0.5%**
Aluminum Beverage Cans	0.9%	0.2%	1.0%	0.2%	0.6%	0.1%	0.9%	0.2%	0.9%	0.2%
Aluminum Foil	0.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.2%	0.1%	0.1%	0.1%
Steel (Tin) Cans	1.4%	0.3%	1.4%	0.2%	1.4%	0.3%	1.1%	0.2%	1.2%	0.2%
Other Scrap Metal	4.0%	2.7%	1.5%	0.5%	3.0%	2.0%	2.1%	0.9%	1.0%	0.4%
GLASS	**6.3%**	**1.3%**	**6.7%**	**2.2%**	**4.4%**	**1.6%**	**6.8%**	**1.7%**	**5.1%**	**1.1%**
Recyclable Glass	6.3%	1.3%	6.7%	2.2%	4.4%	1.6%	6.8%	1.7%	5.1%	1.1%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**35.8%**	**4.6%**	**40.3%**	**5.1%**	**48.2%**	**5.5%**	**33.5%**	**4.8%**	**31.5%**	**5.1%**
Contaminated Recyclable and Remainder/Composite Paper	9.8%	2.1%	8.2%	2.0%	10.1%	1.9%	7.6%	1.1%	7.9%	2.0%
Remainder/Composite Plastic	0.7%	0.6%	1.1%	0.4%	1.3%	0.5%	1.5%	0.7%	0.6%	0.3%
Remainder/Composite Metal	0.5%	0.3%	1.5%	0.8%	1.7%	1.0%	0.4%	0.2%	1.0%	1.0%
Remainder/Composite Glass	0.1%	0.1%	0.4%	0.2%	0.2%	0.1%	0.3%	0.2%	0.3%	0.2%
Textiles	2.7%	1.9%	3.5%	1.7%	3.6%	1.4%	1.8%	0.6%	1.4%	0.6%
Organic Materials	2.4%	0.8%	3.2%	1.0%	5.4%	1.6%	2.9%	0.7%	2.8%	1.0%
Medical Waste	1.3%	0.8%	0.6%	0.5%	1.3%	0.5%	0.5%	0.2%	0.6%	0.4%
Electronics	0.9%	1.2%	0.4%	0.3%	0.3%	0.3%	0.3%	0.4%	0.2%	0.2%
HHW and Special Waste	0.4%	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.2%	0.1%
Other Materials	16.8%	3.0%	21.1%	3.2%	24.0%	2.6%	18.0%	3.3%	16.5%	3.2%
Total	**100%**		**100%**		**100%**		**100%**		**100%**	
Sample Count	***16***		***16***		***16***		***16***		***16***	

Confidence intervals calculated at the 90% confidence level.
Confidence intervals for binary outcomes will be equal.
Percentages for material types may not total 100% due to rounding.

Comparison to Previous Studies

This section compares results from the 2024 study to studies conducted in 2022 and 2020 by SCS Engineers. The studies followed similar methodologies and used identical material lists, with the addition of *pumpkins* in 2024 since sampling occurred shortly before, during, and after Halloween. The material was rolled up into *organic materials* to facilitate comparison with 2022 and 2020 composition results. Citywide, *pumpkins* accounted for 0.1% of the Single-Family curbside recycling stream in 2024.

The 2022 and 2020 studies did not report confidence intervals, so they are omitted from the 2024 results in this section for consistency.

Citywide

The proportion of Non-RRFS material in Single-Family curbside recycling citywide was smallest in 2024 (41% compared to 57% in 2022 and 51% in 2020; Figure 9).

The proportion of **Paper** materials was greatest in 2024 (39% compared to 23% in 2022 and 29% in 2020), while the proportion of **Glass** materials has decreased consistently over time (6% in 2024 compared to 7% in 2022 and 9% in 2020). The proportion of **Plastic** materials was smaller in 2024 (9%) than 2022 (10%), but greater than 2020 (7%). The proportion of **Metal** materials has remained the same (4%).

Figure 9. RRFS and Non-RRFS Composition Summary: Citywide 2020, 2022, and 2024

	2020	2022	2024
PAPER	29%	23%	39%
PLASTIC	7%	10%	9%
METAL	4%	4%	4%
GLASS	9%	7%	6%
NON-RRFS	51%	57%	41%
Total	**100%**	**100%**	**100%**

Clean OCC was the most prevalent RRFS material in all three studies citywide and accounted for the greatest proportion of material in 2024 (19.4% compared to 11.7% in 2022 and 15.9% in 2020;

Table 9). The proportion of *clean mixed paper* was also greatest in 2024 (16.8% compared to 9.1% in 2022 and 10.7% in 2020).

Other materials was the most prevalent Non-RRFS material for all studies, although its proportion has decreased somewhat over time (20.8% in 2024 compared to 22.5% in 2022 and 23.9% in 2020). The proportion of *contaminated recyclable and remainder/composite paper* was also smallest in 2024 (9.3% compared to 21.9% in 2022 and 13.2% in 2020.

The relative proportions of other individual material types were generally consistent between studies.

Table 9. Detailed Composition Results: Citywide 2020, 2022, and 2024

	2020	2022	2024
Material	**Est. %**	**Est. %**	**Est. %**
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**49.0%**	**43.2%**	**59.2%**
PAPER	**29.2%**	**23.1%**	**39.4%**
Clean Newspaper	1.8%	1.6%	2.5%
Clean OCC	15.9%	11.7%	19.4%
Clean Mixed Paper	10.7%	9.1%	16.8%
Clean Aseptic and Poly-coated Packaging	0.7%	0.8%	0.7%
PLASTIC	**7.3%**	**9.5%**	**9.2%**
#1 PET Bottles and Containers	2.9%	3.4%	3.5%
#2 HDPE Bottles and Containers	1.9%	2.0%	2.0%
#3, #4, #5, & #7 Bottles and Containers	1.2%	1.4%	1.3%
Clear/Clean Plastic Bags and Other Film	0.2%	0.7%	0.3%
Durable Plastic Items	1.1%	2.0%	2.0%
METAL	**3.5%**	**3.9%**	**4.2%**
Aluminum Beverage Cans	0.7%	0.8%	0.8%
Aluminum Foil	0.1%	0.0%	0.1%
Steel (Tin) Cans	1.2%	1.2%	1.3%
Other Scrap Metal	1.6%	1.8%	2.1%
GLASS	**9.0%**	**6.7%**	**6.5%**
Recyclable Glass	9.0%	6.7%	6.5%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**51.0%**	**56.8%**	**40.8%**
Contaminated Recyclable and Remainder/Composite Paper	13.2%	21.9%	9.3%
Remainder/Composite Plastic	1.5%	0.9%	1.2%
Remainder/Composite Metal	2.3%	1.2%	1.2%
Remainder/Composite Glass	0.3%	0.3%	0.3%
Textiles	1.8%	2.4%	2.6%
Organic Materials	5.5%	4.5%	3.4%
Medical Waste	0.9%	0.9%	0.9%
Electronics	0.9%	1.6%	0.7%
HHW and Special Waste	0.8%	0.7%	0.2%
Other Materials	23.9%	22.5%	20.8%
Total	**100%**	**100%**	**100%**
Sample Count	***216***	***238***	***235***

Percentages for material types may not total 100% due to rounding.

Collection District A

In District A, the proportion of Non-RRFS material in Single-Family curbside recycling has decreased over time to 46 percent in 2024 (compared to 56% in 2022 and 2020; Figure 10).

Among RRFS materials, the proportion of **Paper** materials was greatest in 2024 (36% compared to 23% in 2022 and 27% in 2020), while the proportion of **Glass** materials has decreased over time (5% in 2024 compared to 7% in 2022 and 2020). The proportion of **Plastic** materials was similar in 2024 (9%) and 2022 (10%), but greater than 2020 (7%). The proportion of **Metal** materials has stayed fairly constant (4% in 2024 and 2022 and 3% in 2020).

Figure 10. RRFS and Non-RRFS Composition Summary: District A 2020, 2022, and 2024

	2020	2022	2024
PAPER	27%	23%	36%
PLASTIC	7%	10%	9%
METAL	3%	4%	4%
GLASS	7%	7%	5%
NON-RRFS	56%	56%	46%
Total	**100%**	**100%**	**100%**

In District A, *clean OCC* was the most prevalent RRFS material for all studies and accounted for the greatest proportion of material in 2024 (18.3% compared to 11.6% in 2022 and 15.6% in 2020;

Table 10). The proportion of *clean mixed paper* was also greatest in 2024 (14.7% compared to 9.0% in 2022 and 9.6% in 2020).

Other materials was the most prevalent Non-RRFS material for all studies. After decreasing between 2020 (26.9%) and 2022 (21.7%), its proportion increased in 2024 (23.4%). The proportion of *contaminated recyclable and remainder/composite paper* was smallest in 2024 (10.8% compared to 21.6% in 2022 and 13.6% in 2020).

The relative proportions of other individual material types were generally consistent between studies, with the exception of *organic materials*, which has decreased consistently over time (3.8% in 2024 compared to 4.6% in 2022 and 6.3% in 2020).

Table 10. Detailed Composition Results: District A 2020, 2022, and 2024

Material	2020 Est. %	2022 Est. %	2024 Est. %
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**44.5%**	**43.8%**	**53.6%**
PAPER	**27.2%**	**23.1%**	**35.8%**
Clean Newspaper	1.3%	1.7%	2.2%
Clean OCC	15.6%	11.6%	18.3%
Clean Mixed Paper	9.6%	9.0%	14.7%
Clean Aseptic and Poly-coated Packaging	0.7%	0.8%	0.6%
PLASTIC	**6.8%**	**9.9%**	**8.7%**
#1 PET Bottles and Containers	2.5%	3.6%	2.9%
#2 HDPE Bottles and Containers	1.9%	1.9%	2.0%
#3, #4, #5, & #7 Bottles and Containers	1.1%	1.4%	1.3%
Clear/Clean Plastic Bags and Other Film	0.2%	0.7%	0.3%
Durable Plastic Items	1.0%	2.2%	2.2%
METAL	**3.1%**	**3.9%**	**4.0%**
Aluminum Beverage Cans	0.5%	0.9%	0.6%
Aluminum Foil	0.1%	0.1%	0.2%
Steel (Tin) Cans	1.1%	1.2%	1.2%
Other Scrap Metal	1.4%	1.8%	2.0%
GLASS	**7.3%**	**6.9%**	**5.1%**
Recyclable Glass	7.3%	6.9%	5.1%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**55.5%**	**56.2%**	**46.4%**
Contaminated Recyclable and Remainder/Composite Paper	13.6%	21.6%	10.8%
Remainder/Composite Plastic	1.8%	1.1%	1.3%
Remainder/Composite Metal	2.9%	1.2%	1.3%
Remainder/Composite Glass	0.1%	0.3%	0.3%
Textiles	1.6%	2.5%	3.2%
Organic Materials	6.3%	4.6%	3.7%
Medical Waste	1.0%	0.8%	1.0%
Electronics	0.8%	1.6%	1.1%
HHW and Special Waste	0.5%	0.9%	0.2%
Other Materials	26.9%	21.7%	23.4%
Total	**100%**	**100%**	**100%**
Sample Count	***102***	***111***	***110***

Percentages for material types may not total 100% due to rounding.

Collection District B

In District B, the proportion of Non-RRFS material in Single-Family curbside recycling was smallest in 2024 (32% compared to 47% in 2022 and 45% in 2020; Figure 11).

The proportion of **Paper** materials was greatest in 2024 (43% compared to 28% in 2022 and 30% in 2020). The proportions of **Plastic** (8-11%) and **Glass** (9-13%) materials have fluctuated between study years, while the proportion of **Metal** materials has remained the same (4%).

Figure 11. RRFS and Non-RRFS Composition Summary: District B 2020, 2022, and 2024

	2020	2022	2024
PAPER	30%	28%	43%
PLASTIC	8%	11%	10%
METAL	4%	4%	4%
GLASS	13%	9%	11%
NON-RRFS	45%	47%	32%
Total	**100%**	**100%**	**100%**

In District B, the proportion of *clean mixed paper* has increased over time, and it became the most prevalent RRFS material in 2024 (21.2%;

Table 11). In 2022 and 2020, *clean OCC* was the most prevalent RRFS material.

Other materials was the most prevalent Non-RRFS material for all studies, although it accounted for the smallest proportion in 2024 (16.9% compared to 18.7% in 2022 and 18.1% in 2020). The proportion of *contaminated recyclable and remainder/composite paper* was also smallest in 2024 (7.0% compared to 17.9% in 2022 and 12.9% in 2020).

The relative proportions of other individual material types were generally consistent between studies, with the exception of *organic materials*, which accounted for a notably smaller proportion in 2024 (2.6% compared to 4.8% in 2022 and 4.7% in 2020).

Table 11. Detailed Composition Results: District B 2020, 2022, and 2024

Material	2020 Est. %	2022 Est. %	2024 Est. %
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**55.5%**	**52.8%**	**67.9%**
PAPER	**29.9%**	**28.0%**	**42.7%**
Clean Newspaper	2.6%	2.2%	3.1%
Clean OCC	15.1%	13.4%	17.5%
Clean Mixed Paper	11.3%	11.4%	21.2%
Clean Aseptic and Poly-coated Packaging	1.0%	1.0%	0.9%
PLASTIC	**8.2%**	**11.2%**	**10.2%**
#1 PET Bottles and Containers	3.3%	4.7%	4.5%
#2 HDPE Bottles and Containers	2.0%	2.1%	2.3%
#3, #4, #5, & #7 Bottles and Containers	1.4%	1.8%	1.6%
Clear/Clean Plastic Bags and Other Film	0.3%	0.8%	0.3%
Durable Plastic Items	1.2%	1.8%	1.5%
METAL	**4.2%**	**4.2%**	**4.1%**
Aluminum Beverage Cans	0.9%	1.3%	1.1%
Aluminum Foil	0.1%	0.1%	0.1%
Steel (Tin) Cans	1.4%	1.2%	1.3%
Other Scrap Metal	1.9%	1.7%	1.7%
GLASS	**13.2%**	**9.3%**	**10.9%**
Recyclable Glass	13.2%	9.3%	10.9%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**44.5%**	**47.2%**	**32.1%**
Contaminated Recyclable and Remainder/Composite Paper	12.9%	17.9%	7.0%
Remainder/Composite Plastic	0.7%	0.9%	1.0%
Remainder/Composite Metal	2.0%	0.3%	1.3%
Remainder/Composite Glass	0.3%	0.2%	0.5%
Textiles	2.0%	1.9%	1.4%
Organic Materials	4.7%	4.8%	2.6%
Medical Waste	1.1%	0.8%	0.9%
Electronics	0.8%	1.3%	0.4%
HHW and Special Waste	1.9%	0.4%	0.1%
Other Materials	18.1%	18.7%	16.9%
Total	**100%**	**100%**	**100%**
Sample Count	***46***	***47***	***45***

Percentages for material types may not total 100% due to rounding.

Collection District C

In District C, the proportion of Non-RRFS material in Single-Family curbside recycling was smallest in 2024 (38% compared to 57% in 2022 and 49% in 2020; Figure 12).

The proportion of **Paper** materials was greatest in 2024 (42% compared to 24% in 2022 and 32% in 2020). The proportion of **Glass** materials has decreased over time to 6 percent in 2024 and 2022, from 9 percent in 2020. The proportions of **Plastic** materials (8-9%) and **Metal** materials (4-5%) have stayed fairly constant.

Figure 12. RRFS and Non-RRFS Composition Summary: District C 2020, 2022, and 2024

	2020	2022	2024
PAPER	32%	24%	42%
PLASTIC	8%	9%	9%
METAL	4%	4%	5%
GLASS	9%	6%	6%
NON-RRFS	49%	57%	38%
Total	**100%**	**100%**	**100%**

In District C, *clean OCC* was the most prevalent RRFS material for all studies and accounted for the greatest proportion of material in 2024 (22.0% compared to 12.6% in 2022 and 17.1% in 2020; Table 12). *Clean mixed paper* was the next most prevalent RRFS material and also accounted for a greater proportion of material in 2024 (17.3% compared to 9.3% in 2022 and 12.0% in 2020).

Other materials was the most prevalent Non-RRFS material for all study years, although its proportion decreased in 2024 (19.3% compared to 23.4% in 2022 and 23.5% in 2020). The proportion of *contaminated recyclable and remainder/composite paper* was also smallest in 2024 (8.7% compared to 22.6% in 2022 and 12.8% in 2020).

The relative proportions of other individual material types were generally consistent between studies.

Table 12. Detailed Composition Results: District C 2020, 2022, and 2024

Material	2020 Est. %	2022 Est. %	2024 Est. %
RESIDENTIAL RECYCLABLES FOR STUDIES (RRFS)	**51.3%**	**42.8%**	**62.2%**
PAPER	**31.7%**	**24.2%**	**42.4%**
Clean Newspaper	2.0%	1.5%	2.5%
Clean OCC	17.1%	12.6%	22.0%
Clean Mixed Paper	12.0%	9.3%	17.3%
Clean Aseptic and Poly-coated Packaging	0.7%	0.7%	0.7%
PLASTIC	**7.4%**	**9.2%**	**9.3%**
#1 PET Bottles and Containers	3.3%	3.3%	3.8%
#2 HDPE Bottles and Containers	1.7%	1.7%	1.9%
#3, #4, #5, & #7 Bottles and Containers	1.2%	1.2%	1.3%
Clear/Clean Plastic Bags and Other Film	0.3%	0.7%	0.3%
Durable Plastic Items	1.0%	2.3%	2.0%
METAL	**3.5%**	**3.9%**	**4.6%**
Aluminum Beverage Cans	0.8%	0.9%	0.8%
Aluminum Foil	0.1%	0.0%	0.1%
Steel (Tin) Cans	1.1%	1.2%	1.3%
Other Scrap Metal	1.5%	1.8%	2.3%
GLASS	**8.7%**	**5.5%**	**5.9%**
Recyclable Glass	8.7%	5.5%	5.9%
NON-RESIDENTIAL RECYCLABLES FOR STUDIES (NON-RRFS)	**48.7%**	**57.2%**	**37.8%**
Contaminated Recyclable and Remainder/Composite Paper	12.8%	22.6%	8.7%
Remainder/Composite Plastic	1.5%	0.7%	1.0%
Remainder/Composite Metal	1.5%	1.2%	1.0%
Remainder/Composite Glass	0.7%	0.2%	0.3%
Textiles	1.9%	2.6%	2.6%
Organic Materials	4.7%	3.5%	3.3%
Medical Waste	0.5%	0.7%	0.9%
Electronics	1.1%	1.6%	0.4%
HHW and Special Waste	0.6%	0.7%	0.2%
Other Materials	23.5%	23.4%	19.3%
Total	**100%**	**100%**	**100%**
Sample Count	***68***	***80***	***80***

Percentages for material types may not total 100% due to rounding.

Assessment of MSW Collection Pilot Program

Overview of Pilot Program

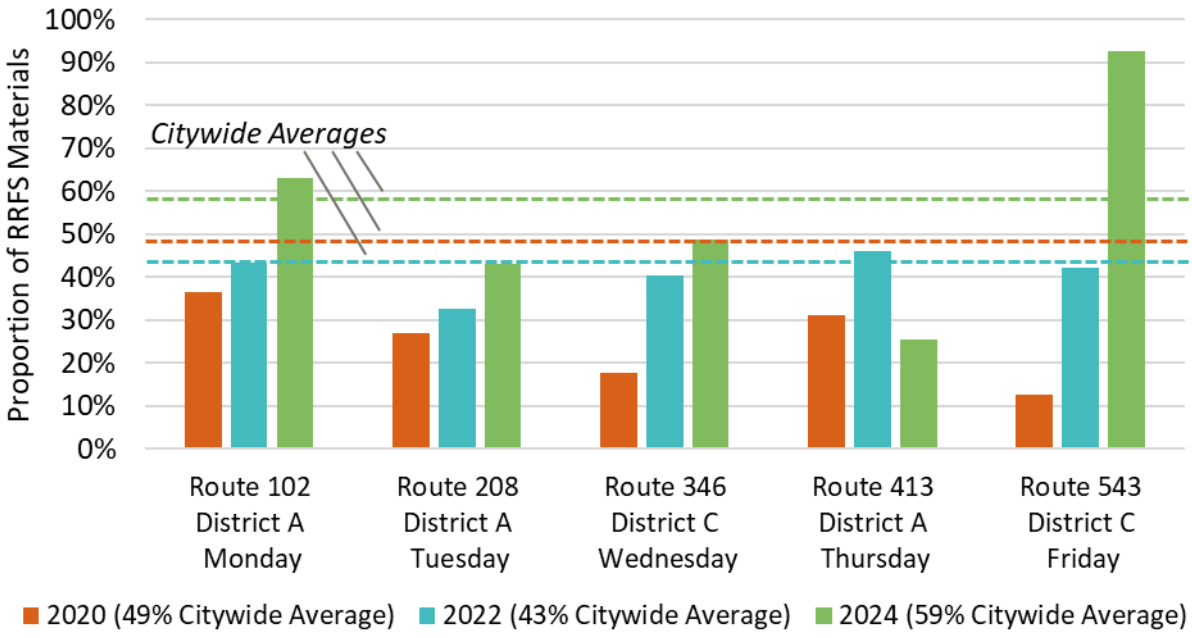
In July 2022, approximately 4,200 single-family dwellings along five recycling routes were offered a 96-gallon garbage cart at no additional charge to test whether a larger garbage cart reduces recycling contamination ("round one" pilot). Due to the inconclusive results of the study and continued problems with recycling contamination, the study expanded in March 2024 to include five additional routes with approximately 4,300 households ("round two" pilot). These routes were added to provide a larger sample size while striving to include participants in all service districts and most Council Districts within the overall study to estimate the anticipated effects more confidently should larger garbage carts be deployed citywide. Based on first-round participant survey and opt out feedback, second-round study participants received a cart one size larger than their service level prior to their joining of the study. This resulted in participants with 32-gallon garbage service receiving a 64-gallon cart and participants with 64-gallon service receiving a 96-gallon cart. The study will conclude in March 2025.

Summary of Results

Overall, the proportion of RRFS materials on pilot routes increased over time. However, this occurred simultaneously with an increase in RRFS materials along all routes, making it difficult to assess the specific impact of the pilot program on contamination rates.

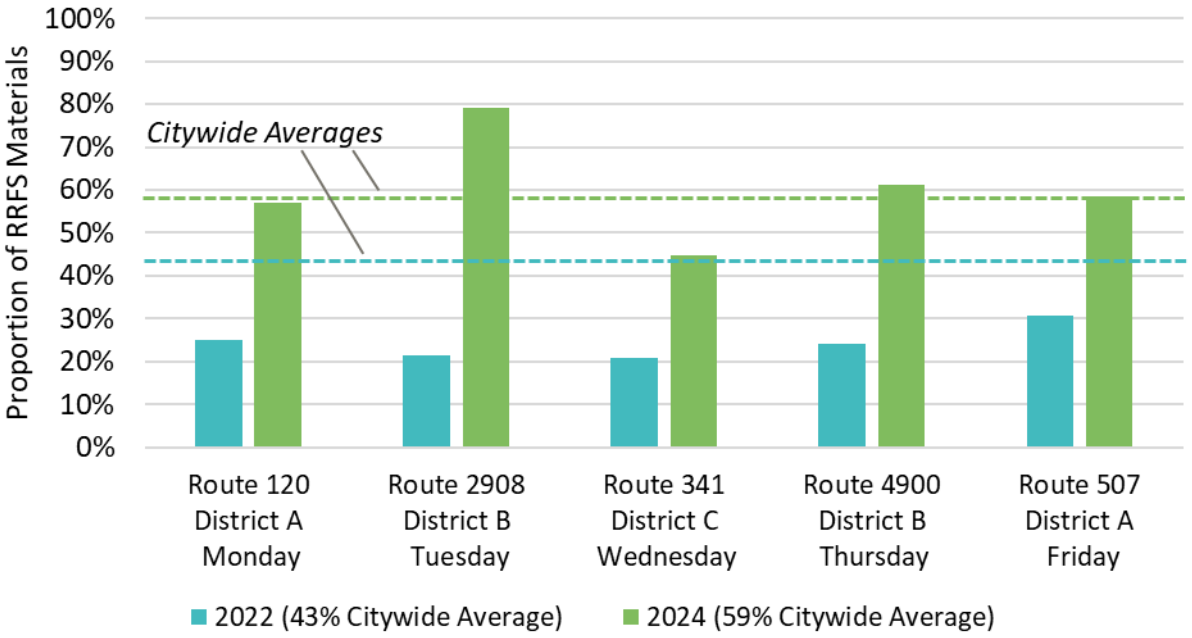
The proportion of RRFS materials on first-round pilot routes increased from 2020-2024 for all routes except Route 413, which had higher contamination in 2024 than in 2022 and 2020 (Figure 13).

Figure 13. Proportion of RRFS Materials in Round One Pilot Routes: 2020, 2022, and 2024



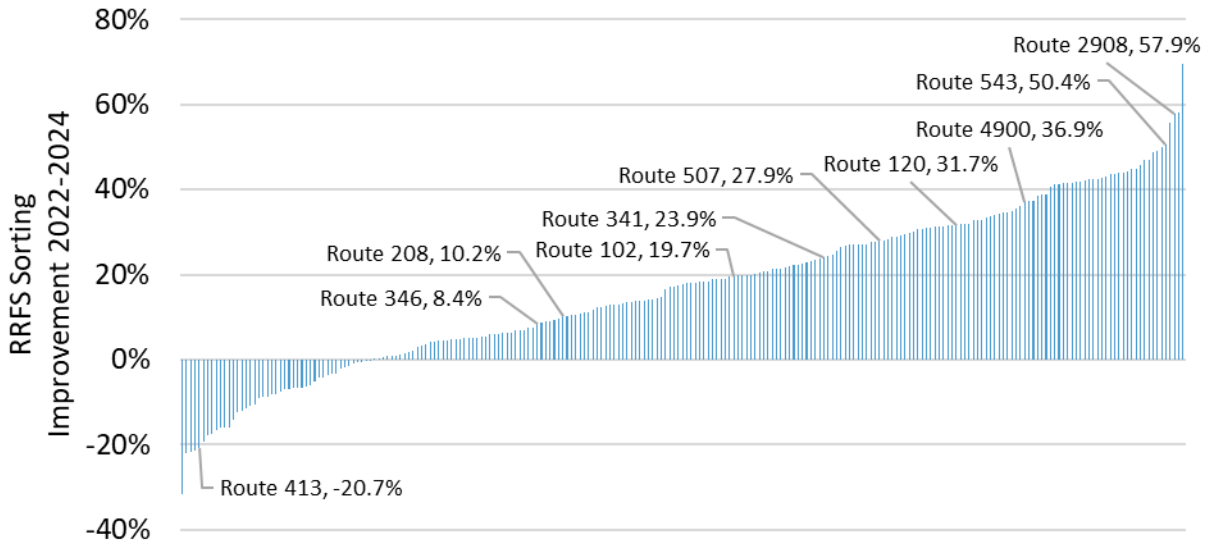
The proportion of RRFS materials on second-round pilot routes increased from 2022-2024 for all routes (Figure 14).

Figure 14. Proportion of RRFS Materials in Round Two Pilot Routes: 2022 and 2024



Between 2022 and 2024, 190 routes (81%) saw an increase in the proportion of RRFS materials in the recycling stream. Figure 15 shows the percentage point improvement in the proportion of RRFS materials between study years for all routes, ordered from least to greatest improvement. For example, a route that reported 20% RRFS materials in 2022 and 70% RRFS materials in 2024 improved by 50 percentage points and would be at the far right of the graph (greatest improvement). Pilot routes are labeled, along with their percentage point improvement.

Figure 15. Summary of All Collection Route Improvements: 2022 to 2024



Appendix A: Definitions of Material Types

Residential Recyclables For Studies (RRFS)

Material Class	Material Type	Definition
Paper	Clean Newspaper	Paper used in newspapers. Examples include newspaper and glossy inserts, and all items made from newsprint, such as free advertising guides, election guides, plain news packing paper, stapled college schedules of classes, and tax instruction booklets. These materials are clean enough to be included in a commodity bale.
Paper	Clean OCC	Unwaxed corrugated cardboard containers/boxes. This type does not include pizza boxes. These materials are clean enough to be included in a commodity bale.
Paper	Clean Mixed Paper	Other types of recyclable papers. Examples include books (paperback), carbonless paper, catalogs, cereal and cracker boxes, colored paper, computer paper, construction paper, coupons, egg cartons, envelopes, gift wrap, junk mail, magazines, paper bags, shoe boxes, shopping bags, bags of shredded paper, telephone books, and white office paper. These materials are clean enough to be included in a commodity bale.
Paper	Clean Aseptic and Poly-coated Packaging	Multi-layer paper packing designed to keep food and other putrescible contents fresh. Includes items like soy-milk containers, paper gable top containers, and paper soup cartons. These materials are clean enough to be included in a commodity bale.
Plastic	#1 PET Bottles and Containers	Clear or colored PET containers. When marked for identification, it bears the number "1" in the center of the triangular recycling symbol and may also bear the letters "PETE" or "PET". The color is usually transparent green or clear. A PET container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent. Examples include plastic soda, water,

Material Class	Material Type	Definition
		or juice bottles, dairy tubs, clamshell containers (both clear and non-clear), and salsa tubs.
Plastic	#2 HDPE Bottles and Containers	Natural and colored HDPE containers. This plastic is usually either cloudy white, allowing light to pass through it (natural) or a solid color, preventing light from passing through it (colored). When marked for identification, it bears the number "2" in the triangular recycling symbol and may also bear the letters "HDPE". Examples include milk jugs, water jugs, detergent bottles, clamshell containers, some hair-care bottles, empty motor oil, empty antifreeze, and other empty vehicle and equipment fluid containers marked with the number "2".
Plastic	#3, #4, #5, & #7 Bottles and Containers	Plastic containers made of types of plastic other than HDPE, PET, or polystyrene. When marked for identification, these items may bear the number "3", "4", "5", or "7" in the triangular recycling symbol. This subtype also includes unmarked plastic bottles and containers. Examples include clamshell containers, baby wipe containers, flower pots, food containers, household cleaner bottles, prescription bottles, and shampoo bottles.
Plastic	Clear/Clean Plastic Bags and Other Film	Transparent (clear) flexible plastic sheeting, free of dye, paint and other coloration, uncontaminated with food or garbage residue. It is made from a variety of plastic resins including HDPE and LDPE. It can be easily contoured around an object by hand pressure. Examples include dry-cleaning plastic bags intended for one-time use, newspaper bags, produce bags, and film plastic used for large-scale packaging or transport packaging such as shrink-wrap, mattress bags, furniture wrap, and film bubble wrap. This type does not include garbage bags, film or sheeting and bags that are opaque, dyed, painted or with other coloration. Examples of excluded film include branded wraps on cases of beverage bottles, metal cans etc. opaque or dyed newspaper/produce/one-time use shopping bags, and dyed film or bubble wrap.

Material Class	Material Type	Definition
Plastic	Durable Plastic Items	Products made entirely of plastic meant for multiple use. Examples include toys, toothbrushes, milk crates, plastic pallets, plastic lawn furniture, and fiberglass products.
Metal	Aluminum Beverage Cans	Any food or beverage container that is made mainly of aluminum. Examples include most aluminum soda or beer cans.
Metal	Aluminum Foil	Any thin non-ferrous metal item that is formable using hand pressure.
Metal	Steel (Tin) Cans	Rigid containers made mainly of steel. These items will stick to a magnet and may be tin-coated. This subtype is used to store food, beverages, paint, and a variety of other household and consumer products. Examples include canned food and beverage containers, pet food cans, empty metal paint cans, empty spray paint and other aerosol containers, and bimetal containers with steel sides and aluminum ends. Full or partially full aerosol containers are included in HHW and Special Waste.
Metal	Other Scrap Metal	Includes ferrous, non-ferrous, and mixed metal items, other than items described previously. These items may be made of aluminum, copper, brass, bronze, lead, zinc, iron, other metals, or a combination of metals. Examples include aluminum pie pans, aluminum furniture, appliances, small metal cast iron pans, doorknobs, metal lids and caps, pots and pans, metal. The "rule of thumb" for classifying an object in this type is that it must not fit in the recyclable metal categories described above, and metals must account for at least 80% of the object's weight.
Glass	Recyclable Glass	Brown, clear, green, or colored glass bottle and jars, whole or broken, of any size. Examples include clear

Material Class	Material Type	Definition
		soda bottles, brown beer bottles, green wine bottles, mayonnaise jars, and jam jars.

Non-Residential Recyclables For Studies (Non-RRFS)

Material Type	Definition
Contaminated Recyclable Paper *(combined with Remainder/Composite Paper for reporting)*	Includes the following: • **Contaminated Newspaper**: paper used in newspapers. Examples include newspaper and glossy inserts, and all items made from newsprint, such as free advertising guides, election guides, plain news packing paper, stapled college schedules of classes, and tax instruction booklets. These materials appear to have been contaminated either through use prior to disposal or during collection and hauling. The contamination is sufficient to prevent the sale of the materials. • **Contaminated OCC**: unwaxed corrugated cardboard containers/boxes. This type does not include pizza boxes. These materials appear to have been contaminated either through use prior to disposal or during collection and hauling. The contamination is sufficient to prevent the sale of the materials. • **Contaminated Mixed Paper**: other types of recyclable papers. Examples include books (paperback), carbonless paper, catalogs, cereal and cracker boxes, colored paper, computer paper, construction paper, coupons, egg cartons, envelopes, gift wrap, junk mail, magazines, paper bags, shoe boxes, shopping bags, post it notes, bags of shredded paper, telephone books, and white office paper. These materials appear to have been contaminated either through use prior to disposal or during collection and hauling. The contamination is sufficient to prevent the sale of the materials. • **Contaminated Aseptic and Poly-coated Packaging:** multi-layer paper packing designed to keep food and other putrescible contents fresh. Includes items like soy-milk containers, paper gable top containers, and paper soup cartons. These materials appear to have been contaminated either through use prior to disposal or during collection and hauling. The contamination is sufficient to prevent the sale of the materials. • **Pizza Boxes**: cardboard boxes used to store and transport fresh (not frozen) pizzas. This includes both clean and contaminated pizza boxes, and paper pizza box inserts.

Material Type	Definition
Remainder/Composite Paper *(combined with Contaminated Recyclable Paper for reporting)*	Items made mostly of paper that do not fit into any of the above types and may be combined with minor amounts of other materials such as wax or glues. Typically, this is paper with other materials attached in sufficient quantities that it would be considered to be contaminated by a typical MRF. Examples include three-ring binders containing paper, or plastic packaging glued to paper or cardboard, cigarette boxes, Tyvek, and paper mâché.
Remainder/Composite Plastic	Plastic that cannot be put in any other type or subtype. They are usually recognized by their optical opacity. This type includes items made mostly of plastic but combined with other materials. Examples include disposable razors, pens, lighters, and plastic toys with a significant other material component.
Remainder/Composite Metal	Metal that cannot be put in any other type or subtype. This type includes items made mostly of metal but combined with other materials and items made of both ferrous metals and non-ferrous metal combined. Examples include small non- electronic appliances such as toasters and hair dryers, motors, insulated wire, metal window blinds, and finished products that contain a mixture of metals and other materials, whose weight is derived significantly from the metal portion of its construction.
Remainder/Composite Glass	Glass that cannot be put in any other type or subtype. It includes items made mostly of glass but combined with other materials. Examples include Pyrex, Corning ware, crystal and other glass tableware, mirrors, non-fluorescent light bulbs, auto windshields, candle holders, and other glass not typically accepted by a MRF.
Textiles	Loose or bagged items made of thread, yarn, fabric, or cloth. Examples include clothes, cotton, linen, polyester, rayon, wool, fabric trimmings, draperies, carpet, and all natural and synthetic cloth fibers. This type does not include cloth-covered furniture, mattresses, leather shoes, leather bags, or leather belts.
Organic Materials	Includes the following: • **Food Waste**: food material resulting from the processing, storage, preparation, cooking, handling, or consumption of food. Examples

Material Type	Definition
	include discarded meat scraps, dairy products, eggshells, fruit or vegetable peels, and other food items from homes, stores, and restaurants. • **Yard Waste**: includes plant material from any public or private landscape. Examples include leaves, grass clippings, plants, prunings, shrubs, woody plant material, branches, and stumps. • **Non-recyclable Compostable Paper**: includes paper that is considered unsuitable for recycling, due to food contamination or human contact, but that is suitable for typical composting operations. Examples include waxed cardboard, paper towels, food-contaminated paper plates, waxed paper, tissues, and other papers that were soiled with food during use (e.g., paper clamshells).
Pumpkins	Whole pumpkins disposed around Halloween.
Medical Waste *(combined with Personal Care Products for reporting)*	Materials used in medical processes, including tubing, surgical tray liners, exam table liners, and any materials in red biohazard bags. Includes both treated and untreated medical waste. Also includes: • **Sharps**: needles, syringes, and lancets, used or unused. BUT epi-pens which still contain undispensed medicine are medicine, and will be sorted as Other Materials (empty epi-pens are sharps). Individual sharps will be counted.
Personal Care Products *(combined with Medical Waste for reporting)*	Disposable baby diapers, adult protective undergarments, and feminine hygiene products. Includes diapers and any contents.
Electronics	Items containing a circuit board, including computers and electronic computer accessories. Also includes TVs and CRT Monitors (items containing a cathode ray tube [CRT]). Examples include televisions, CRT computer monitors, and other items containing a cathode ray tube.
HHW and Special Waste	Pesticides, cleaning products, paint, and other chemicals hazardous to human and environmental health. Pesticides includes pesticides, insecticides, herbicides, and wood preservatives. Cleaning products includes consumer products intended for cleaning, including ammonia, bleach, “green” cleaners, waxes, and polishes. Paint includes latex paint, alkyd paint, oil-based paint, architectural paint, and automotive and specialty (traffic marking) paint. Also includes:

Material Type	Definition
	• **Automotive Batteries**: any type of automotive battery including both dry cell and lead acid. • **Lithium Ion Batteries**: lightweight, high energy density batteries that are frequently used to power portable electronic devices (like cell phones, laptops, and digital cameras), power tools, and electric vehicles. They are often rechargeable. Batteries must be labeled as lithium ion to be included here. • **Alkaline Batteries**: includes all battery chemistries, primarily alkaline batteries, including alkaline rechargeable batteries. • **Ni-Cad Batteries**: includes all batteries, usually rechargeable, using a nickel cadmium chemistry. Batteries must be labeled as Ni-Cad to be included here. • **Tanks**: metal containers used for storing gasses. Examples include helium and propane tanks, full or partially full aerosol cans, and fire extinguishers. • **Tires**: vehicle tires. Examples include tires from trucks, automobiles, motorcycles, heavy equipment, and bicycles. • **Oil Filters**: metal oil filters used in motor vehicles and other engines, which contain a residue of used oil. • **Motor Oil**: lubricating oil, either used or unused, primarily used in vehicles or internal combustion engines. • **Mercury Lamps**: all tubes and bulbs with intentionally added mercury, includes fluorescent tubes and compact fluorescents, High Intensity Discharge (HID) bulbs, sodium vapor lamps, and neon signs. Does NOT include incandescent or halogen tubes or bulbs. • **Other Universal Waste**: hazardous wastes that may contain mercury, lead, and other substances hazardous to human and environmental health. Examples include thermostats, mercury-containing items, discharge lamps, and mercury vapor lamps.
Other Materials	Items not classified above. Examples of material in this type include mattresses, box springs, plastic trash bags, #6 plastic bottles and containers (rigid polystyrene), Styrofoam containers and packing material, vinyl hose, eating utensils, foam carpet padding, ceramics, animal carcasses, ash, animal feces and litter, furniture, stuffed toys, carpet padding, leather items, more than half full containers of medicines, shingles, drywall, and other construction material. Bottles and containers with significant food contamination (where the food, liquid, or other solid exceeds the weight of the bottle/container) are included. Includes wood waste from non-yard waste sources. Examples include dimensional lumber, pallets, crates, and plywood. Includes material that is less than 3 inches in length, width, and depth.

Appendix B: Example Field Forms

Figure 16. Example Sample Placard

City of San José Single-Family Curbside Recycling Study 2024

Circle District		
A	B	C
Sample ID		
301		
Route		
Circle Date		
MON	TUE	WED	THU	FRI
10-28	10-29	10-30	10-31	11-1

Figure 17. Example Sample Tracking Sheet

City of San José Single-Family Curbside Recycling Study 2024		
Date **10/21/2024**	Facility Name **GreenWaste**	
FW Lead	Start Time	End Time
FW Team		

	Sample ID	District	Truck Number	Route Number	Comments
1	101	District B			
2	102	District B			
3	103	District B			
4	104	District B			
5	105	District B			
6	106	District B			
7	107	District B			
8	108	District B			
9	109	District B			
10					
11					
12					
13					

Notes

Appendix C: Raw Data Tables

This section reports metadata, RRFS weights, and non-RRFS weights for each of the 235 samples collected for this study, organized by district.

The field team opportunistically recorded the time each sample was acquired (when it was tipped) to inform future studies and better coordinate field work with tip times. Tracking sample time involved coordination with the vehicle surveyor, which was not always feasible.

District A (CWS MRF)

Table 13. Sample Detail for District A at CWS MRF

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
146	1	Monday	10/28/2024	11:25	187.22	67.50	119.72	36.1%
147	3	Monday	10/28/2024	11:59	169.25	88.71	80.55	52.4%
148	5	Monday	10/28/2024	13:30	153.46	107.22	46.24	69.9%
149	7	Monday	10/28/2024	12:30	166.31	119.36	46.95	71.8%
150	9	Monday	10/28/2024	13:45	150.84	80.68	70.16	53.5%
151	11	Monday	10/28/2024	14:30	151.10	69.92	81.18	46.3%
152	20	Monday	11/4/2024	9:30	181.17	103.10	78.07	56.9%
153	17	Monday	10/28/2024	10:22	187.90	32.28	155.62	17.2%
154	7	Tuesday	10/29/2024	9:01	186.10	79.88	106.22	42.9%
155	12	Tuesday	10/29/2024	9:15	179.08	55.12	123.96	30.8%
156	21	Tuesday	10/29/2024	9:41	154.96	37.41	117.55	24.1%
157	19	Tuesday	10/29/2024	10:20	153.04	56.76	96.28	37.1%
158	1	Tuesday	10/29/2024	10:30	151.48	71.90	79.58	47.5%
159	3	Tuesday	10/29/2024	not recorded	153.95	89.69	64.26	58.3%
160	10	Tuesday	10/29/2024	not recorded	150.02	89.70	60.32	59.8%
161	14	Tuesday	10/29/2024	not recorded	178.31	106.53	71.78	59.7%
162	21	Wednesday	10/30/2024	9:15	154.32	83.52	70.80	54.1%
163	1	Wednesday	10/30/2024	10:00	180.57	102.85	77.72	57.0%
164	3	Wednesday	10/30/2024	not recorded	155.70	96.90	58.80	62.2%
165	7	Wednesday	10/30/2024	not recorded	170.35	97.11	73.24	57.0%
166	10	Wednesday	10/30/2024	not recorded	151.04	94.18	56.86	62.4%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
167	12	Wednesday	10/30/2024	not recorded	153.76	97.60	56.16	63.5%
168	14	Wednesday	10/30/2024	not recorded	154.34	113.28	41.06	73.4%
169	20	Thursday	10/31/2024	8:35	179.58	95.54	84.04	53.2%
170	1	Thursday	10/31/2024	not recorded	150.94	85.36	65.58	56.6%
171	3	Thursday	10/31/2024	not recorded	175.66	60.90	114.76	34.7%
172	7	Thursday	10/31/2024	not recorded	167.96	126.66	41.30	75.4%
173	10	Thursday	10/31/2024	not recorded	152.13	120.34	31.79	79.1%
174	12	Thursday	10/31/2024	not recorded	181.70	111.26	70.44	61.2%
175	14	Thursday	10/31/2024	not recorded	153.10	83.58	69.52	54.6%
176	4	Friday	11/1/2024	9:05	152.72	66.60	86.12	43.6%
177	20	Friday	11/1/2024	not recorded	153.20	115.64	37.56	75.5%
178	7	Friday	11/1/2024	10:30	150.18	87.88	62.30	58.5%
179	1	Friday	11/1/2024	not recorded	162.83	67.02	95.81	41.2%
180	10	Friday	11/1/2024	not recorded	154.86	107.90	46.96	69.7%
181	12	Friday	11/1/2024	14:39	150.12	84.02	66.10	56.0%
182	14	Friday	11/1/2024	not recorded	173.64	100.86	72.78	58.1%
183	13	Monday	11/4/2024	not recorded	151.08	73.84	77.24	48.9%
184	14	Monday	11/4/2024	10:00	192.82	106.64	86.18	55.3%
185	2	Monday	11/4/2024	not recorded	163.92	103.24	60.68	63.0%
186	4	Monday	11/4/2024	not recorded	132.32	84.42	47.90	63.8%
187	6	Monday	11/4/2024	not recorded	151.33	111.88	39.45	73.9%
188	8	Monday	11/4/2024	not recorded	214.70	176.82	37.88	82.4%
189	10	Monday	11/4/2024	not recorded	182.38	101.76	80.62	55.8%
190	20	Tuesday	11/5/2024	10:10	150.32	48.40	101.92	32.2%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
191	8	Tuesday	11/5/2024	10:31	150.64	64.74	85.90	43.0%
192	17	Tuesday	11/5/2024	not recorded	158.02	90.22	67.80	57.1%
193	2	Tuesday	11/5/2024	not recorded	152.00	92.96	59.04	61.2%
194	5	Tuesday	11/5/2024	not recorded	153.11	91.10	62.01	59.5%
195	11	Tuesday	11/5/2024	not recorded	193.10	31.72	161.38	16.4%
196	15	Tuesday	11/5/2024	not recorded	178.64	79.72	98.92	44.6%
197	13	Wednesday	11/6/2024	9:59	175.42	46.18	129.24	26.3%
198	17	Wednesday	11/6/2024	not recorded	153.66	100.96	52.70	65.7%
199	2	Wednesday	11/6/2024	not recorded	152.40	116.56	35.84	76.5%
200	6	Wednesday	11/6/2024	not recorded	156.76	100.40	56.36	64.0%
201	15	Wednesday	11/6/2024	not recorded	151.76	86.66	65.10	57.1%
202	19	Wednesday	11/6/2024	not recorded	152.24	96.12	56.12	63.1%
203	20	Wednesday	11/6/2024	not recorded	168.62	92.48	76.14	54.8%
204	22	Wednesday	11/6/2024	not recorded	150.28	81.92	68.36	54.5%
205	13	Thursday	11/7/2024	9:54	177.52	45.16	132.36	25.4%
206	19	Thursday	11/7/2024	10:10	172.44	61.30	111.14	35.5%
207	2	Thursday	11/7/2024	not recorded	182.96	129.86	53.10	71.0%
208	4	Thursday	11/7/2024	not recorded	171.16	75.60	95.56	44.2%
209	6	Thursday	11/7/2024	not recorded	155.92	72.28	83.64	46.4%
210	17	Thursday	11/7/2024	not recorded	193.42	94.64	98.78	48.9%
211	17	Thursday	11/7/2024	not recorded	185.34	85.64	99.70	46.2%
212	18	Thursday	11/7/2024	not recorded	167.46	113.34	54.12	67.7%
213	19	Friday	11/8/2024	10:25	177.58	114.16	63.42	64.3%
214	13	Friday	11/8/2024	10:32	196.54	94.32	102.22	48.0%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
215	17	Friday	11/8/2024	10:35	189.15	126.86	62.29	67.1%
216	6	Friday	11/8/2024	not recorded	174.34	60.46	113.88	34.7%
217	9	Friday	11/8/2024	not recorded	159.62	67.22	92.40	42.1%
218	15	Friday	11/8/2024	not recorded	185.52	106.86	78.66	57.6%
219	22	Friday	11/8/2024	not recorded	153.30	94.23	59.07	61.5%
220	12	Monday	11/18/2024	not recorded	169.54	121.94	47.60	71.9%
221	15	Monday	11/18/2024	not recorded	218.12	126.96	91.16	58.2%
222	16	Monday	11/18/2024	not recorded	152.03	96.68	55.35	63.6%
223	18	Monday	11/18/2024	not recorded	162.72	90.98	71.74	55.9%
224	19	Monday	11/18/2024	10:50	150.86	70.66	80.20	46.8%
225	21	Monday	11/18/2024	not recorded	159.12	116.62	42.50	73.3%
226	22	Monday	11/18/2024	8:00	145.56	121.85	23.71	83.7%
227	4	Tuesday	11/19/2024	not recorded	161.33	59.12	102.21	36.6%
228	6	Tuesday	11/19/2024	7:00	178.06	97.04	81.02	54.5%
229	9	Tuesday	11/19/2024	not recorded	164.94	92.74	72.20	56.2%
230	13	Tuesday	11/19/2024	not recorded	150.72	44.64	106.08	29.6%
231	16	Tuesday	11/19/2024	not recorded	177.14	71.54	105.60	40.4%
232	18	Tuesday	11/19/2024	not recorded	172.12	32.40	139.72	18.8%
233	22	Tuesday	11/19/2024	not recorded	155.36	76.64	78.72	49.3%
234	4	Wednesday	11/20/2024	not recorded	156.26	58.24	98.02	37.3%
235	5	Wednesday	11/20/2024	not recorded	182.02	134.32	47.70	73.8%
236	8	Wednesday	11/20/2024	not recorded	190.16	104.32	85.84	54.9%
237	9	Wednesday	11/20/2024	not recorded	150.34	122.18	28.16	81.3%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
238	11	Wednesday	11/20/2024	not recorded	150.29	93.10	57.19	61.9%
239	16	Wednesday	11/20/2024	9:10	157.10	69.18	87.92	44.0%
240	18	Wednesday	11/20/2024	not recorded	165.30	104.50	60.80	63.2%
241	5	Thursday	11/21/2024	not recorded	161.06	61.72	99.34	38.3%
242	8	Thursday	11/21/2024	not recorded	176.12	97.54	78.58	55.4%
243	9	Thursday	11/21/2024	not recorded	150.30	62.64	87.66	41.7%
244	11	Thursday	11/21/2024	not recorded	151.62	94.44	57.18	62.3%
245	15	Thursday	11/21/2024	not recorded	154.06	102.42	51.64	66.5%
246	21	Thursday	11/21/2024	10:00	197.57	48.06	149.51	24.3%
247	22	Thursday	11/21/2024	not recorded	153.22	91.16	62.06	59.5%
248	2	Friday	11/22/2024	not recorded	150.66	104.34	46.32	69.3%
249	3	Friday	11/30/2024	not recorded	163.90	108.70	55.20	66.3%
250	5	Friday	11/22/2024	not recorded	156.98	98.86	58.12	63.0%
251	8	Friday	11/22/2024	not recorded	159.08	63.32	95.76	39.8%
252	16	Friday	11/22/2024	not recorded	152.03	89.38	62.65	58.8%
253	18	Friday	11/22/2024	not recorded	151.01	64.76	86.25	42.9%
254	21	Friday	11/22/2024	10:50	180.44	58.06	122.38	32.2%
308	11	Friday	11/8/2024	not recorded	155.50	95.04	60.46	61.1%

District B (GW MRF)

Table 14. Sample Detail for District B at GW MRF

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
101	1	Monday	10/21/2024	10:15	169.60	107.80	61.80	63.6%
102	2	Monday	10/21/2024	13:30	154.32	128.58	25.74	83.3%
103	3	Monday	10/21/2024	10:45	165.68	111.42	54.26	67.3%
104	4	Monday	10/21/2024	10:22	159.77	111.26	48.51	69.6%
105	5	Monday	10/21/2024	9:38	164.90	117.52	47.38	71.3%
106	6	Monday	10/21/2024	8:58	156.42	108.78	47.64	69.5%
107	7	Monday	10/21/2024	10:28	204.86	110.36	94.50	53.9%
108	8	Monday	10/21/2024	11:38	151.36	102.98	48.38	68.0%
109	Condo R	Monday	10/21/2024	11:56	162.17	121.06	41.11	74.7%
110	1	Tuesday	10/22/2024	9:35	164.51	115.00	49.51	69.9%
111	2	Tuesday	10/22/2024	10:30	151.39	112.95	38.44	74.6%
112	3	Tuesday	10/22/2024	11:38	152.14	70.32	81.82	46.2%
113	4	Tuesday	10/22/2024	10:00	151.50	104.78	46.72	69.2%
114	5	Tuesday	10/22/2024	9:43	167.45	125.66	41.79	75.0%
115	6	Tuesday	10/22/2024	9:26	172.17	122.24	49.93	71.0%
116	7	Tuesday	10/22/2024	9:08	153.30	110.64	42.66	72.2%
117	8	Tuesday	10/22/2024	11:40	151.06	119.64	31.42	79.2%
118	Condo R	Tuesday	10/22/2024	12:13	167.38	125.96	41.42	75.3%
119	1	Wednesday	10/23/2024	9:25	173.42	121.18	52.24	69.9%
120	2	Wednesday	10/23/2024	10:51	151.99	117.85	34.14	77.5%
121	3	Wednesday	10/23/2024	10:59	183.88	131.40	52.48	71.5%
122	4	Wednesday	10/23/2024	10:38	195.64	118.90	76.74	60.8%
123	5	Wednesday	10/23/2024	9:50	178.52	112.62	65.90	63.1%
124	6	Wednesday	10/23/2024	10:14	166.06	78.98	87.08	47.6%
125	7	Wednesday	10/23/2024	9:35	163.28	123.84	39.44	75.8%
126	8	Wednesday	10/23/2024	12:34	150.44	89.72	60.72	59.6%
127	Condo R	Wednesday	10/23/2024	14:08	162.02	105.18	56.84	64.9%
128	1	Thursday	10/24/2024	11:50	161.51	114.47	47.04	70.9%
129	2	Thursday	10/24/2024	10:45	158.68	137.62	21.06	86.7%
130	3	Thursday	10/24/2024	11:10	151.23	85.96	65.27	56.8%
131	4	Thursday	10/24/2024	10:30	177.45	147.61	29.84	83.2%
132	5	Thursday	10/24/2024	9:30	151.63	84.64	66.99	55.8%
133	6	Thursday	10/24/2024	9:24	150.98	122.54	28.44	81.2%
134	7	Thursday	10/24/2024	12:10	160.66	51.86	108.80	32.3%
135	8	Thursday	10/24/2024	11:33	155.74	132.38	23.36	85.0%
136	Condo R	Thursday	10/24/2024	not recorded	172.53	105.43	67.10	61.1%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
137	1	Friday	10/25/2024	14:25	152.32	98.04	54.28	64.4%
138	2	Friday	10/25/2024	12:10	151.39	127.72	23.67	84.4%
139	3	Friday	10/25/2024	11:45	197.51	162.72	34.79	82.4%
140	4	Friday	10/25/2024	10:04	177.73	136.64	41.09	76.9%
141	5	Friday	10/25/2024	11:22	156.15	61.12	95.03	39.1%
142	6	Friday	10/25/2024	8:43	152.02	109.84	42.18	72.3%
143	7	Friday	10/25/2024	13:43	163.40	84.00	79.40	51.4%
144	8	Friday	10/25/2024	10:55	178.83	111.71	67.12	62.5%
145	Condo R	Friday	10/25/2024	8:43	167.62	110.64	56.98	66.0%

District C (CWS MRF)

Table 15. Sample Detail for District C at CSW MRF

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
255	31	Friday	11/22/2024	10:45	172.55	96.15	76.40	55.7%
256	32	Monday	10/28/2024	not recorded	184.36	84.28	100.08	45.7%
257	34	Monday	10/28/2024	not recorded	187.16	116.86	70.30	62.4%
258	38	Monday	10/28/2024	11:00	214.90	111.72	103.18	52.0%
259	41	Monday	10/28/2024	12:00	156.07	89.44	66.63	57.3%
260	45	Monday	10/28/2024	15:00	161.24	103.78	57.46	64.4%
1001	39	Monday	10/28/2024	10:30	163.32	119.77	43.55	73.3%
261	39	Tuesday	10/29/2024	10:00	150.88	104.26	46.62	69.1%
262	38	Tuesday	10/29/2024	10:15	153.06	93.94	59.12	61.4%
263	32	Tuesday	10/29/2024	not recorded	167.37	102.81	64.56	61.4%
264	34	Tuesday	10/29/2024	not recorded	185.24	113.14	72.10	61.1%
265	44	Tuesday	10/29/2024	not recorded	152.62	109.64	42.98	71.8%
266	45	Wednesday	10/30/2024	not recorded	159.18	21.14	138.04	13.3%
267	39	Wednesday	10/30/2024	not recorded	182.58	109.92	72.66	60.2%
268	38	Wednesday	10/30/2024	not recorded	162.14	93.24	68.90	57.5%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
269	35	Wednesday	10/30/2024	not recorded	153.52	80.16	73.36	52.2%
270	34	Wednesday	10/30/2024	not recorded	173.92	78.82	95.10	45.3%
271	44	Wednesday	10/30/2024	not recorded	150.10	75.56	74.54	50.3%
272	45	Thursday	10/31/2024	not recorded	150.66	105.04	45.62	69.7%
273	39	Thursday	10/31/2024	not recorded	178.22	118.56	59.66	66.5%
274	38	Thursday	10/31/2024	not recorded	165.82	122.86	42.96	74.1%
275	35	Thursday	10/31/2024	not recorded	153.06	96.04	57.02	62.7%
276	34	Thursday	10/31/2024	not recorded	159.74	98.30	61.44	61.5%
277	44	Thursday	10/31/2024	not recorded	154.62	104.12	50.50	67.3%
278	34	Friday	11/1/2024	not recorded	183.92	138.32	45.60	75.2%
279	35	Friday	11/1/2024	not recorded	183.60	147.46	36.14	80.3%
280	38	Friday	11/1/2024	not recorded	163.34	102.30	61.04	62.6%
281	39	Friday	11/1/2024	not recorded	164.14	96.78	67.36	59.0%
282	37	Friday	11/1/2024	not recorded	151.48	118.06	33.42	77.9%
283	37	Monday	11/4/2024	not recorded	173.46	104.32	69.14	60.1%
284	35	Monday	11/4/2024	not recorded	169.34	109.14	60.20	64.5%
285	42	Monday	11/4/2024	not recorded	150.53	104.29	46.24	69.3%
286	44	Monday	11/4/2024	not recorded	150.36	129.78	20.58	86.3%
287	46	Monday	11/4/2024	17:15	150.14	99.48	50.66	66.3%
289	36	Tuesday	11/5/2024	not recorded	163.41	39.95	123.46	24.4%
290	41	Tuesday	11/5/2024	not recorded	181.54	117.20	64.34	64.6%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
291	31	Tuesday	11/5/2024	not recorded	154.44	79.52	74.92	51.5%
292	33	Tuesday	11/5/2024	not recorded	152.22	107.24	44.98	70.5%
293	42	Tuesday	11/5/2024	not recorded	151.40	96.64	54.76	63.8%
294	45	Tuesday	11/5/2024	not recorded	163.14	59.44	103.70	36.4%
295	46	Wednesday	11/6/2024	9:26	180.78	88.32	92.46	48.9%
296	36	Wednesday	11/6/2024	not recorded	151.37	115.36	36.01	76.2%
297	31	Wednesday	11/6/2024	not recorded	157.98	105.12	52.86	66.5%
298	40	Wednesday	11/6/2024	not recorded	152.89	79.83	73.06	52.2%
299	42	Wednesday	11/6/2024	not recorded	151.64	88.38	63.26	58.3%
300	36	Thursday	11/7/2024	10:30	150.06	104.90	45.16	69.9%
301	31	Thursday	11/7/2024	not recorded	152.46	54.62	97.84	35.8%
302	40	Thursday	11/7/2024	not recorded	165.46	125.04	40.42	75.6%
303	42	Thursday	11/7/2024	not recorded	164.46	122.36	42.10	74.4%
304	46	Thursday	11/7/2024	not recorded	168.34	104.12	64.22	61.9%
305	32	Friday	11/8/2024	not recorded	161.38	85.82	75.56	53.2%
306	36	Friday	11/8/2024	not recorded	158.94	120.42	38.52	75.8%
307	40	Friday	11/8/2024	not recorded	169.28	100.46	68.82	59.3%
309	44	Friday	11/8/2024	not recorded	151.78	104.70	47.08	69.0%
310	46	Friday	11/8/2024	not recorded	195.84	122.94	72.90	62.8%
311	31	Monday	11/18/2024	11:05	160.02	104.54	55.48	65.3%
312	33	Monday	11/18/2024	not recorded	177.80	134.10	43.70	75.4%
313	36	Monday	11/18/2024	10:48	168.74	77.70	91.04	46.0%
314	40	Monday	11/18/2024	10:18	166.48	115.44	51.04	69.3%

Sample ID	Route	Day	Date Acquired	Time Acquired	Total Sample Weight (lbs)	RRFS Portion (lbs)	Non-RRFS Portion (lbs)	% RRFS
315	43	Monday	11/18/2024	not recorded	150.10	117.36	32.74	78.2%
316	35	Tuesday	11/19/2024	not recorded	171.42	118.08	53.34	68.9%
317	37	Tuesday	11/19/2024	not recorded	188.30	113.98	74.32	60.5%
318	40	Tuesday	11/19/2024	10:30	150.10	101.80	48.30	67.8%
319	43	Tuesday	11/19/2024	not recorded	190.88	125.34	65.54	65.7%
320	46	Tuesday	11/19/2024	not recorded	181.98	103.62	78.36	56.9%
321	32	Wednesday	11/20/2024	not recorded	160.68	91.86	68.82	57.2%
322	33	Wednesday	11/20/2024	10:15	157.86	57.74	100.12	36.6%
323	37	Wednesday	11/20/2024	not recorded	166.82	101.14	65.68	60.6%
324	41	Wednesday	11/20/2024	not recorded	180.92	80.96	99.96	44.7%
325	43	Wednesday	11/20/2024	not recorded	180.87	91.59	89.28	50.6%
326	32	Thursday	11/21/2024	not recorded	171.07	83.46	87.61	48.8%
327	33	Thursday	11/21/2024	not recorded	195.04	150.80	44.24	77.3%
328	37	Thursday	11/21/2024	not recorded	191.70	114.16	77.54	59.6%
329	41	Thursday	11/21/2024	not recorded	184.65	157.13	27.52	85.1%
330	43	Thursday	11/21/2024	not recorded	176.62	122.36	54.26	69.3%
331	33	Friday	11/22/2024	not recorded	164.51	120.29	44.22	73.1%
332	41	Friday	11/22/2024	not recorded	157.08	112.92	44.16	71.9%
333	43	Friday	11/30/2024	not recorded	162.05	150.25	11.80	92.7%
334	43	Friday	11/22/2024	not recorded	156.70	131.48	25.22	83.9%
335	45	Friday	11/22/2024	not recorded	156.60	68.84	87.76	44.0%

Material Weights per Sample

Table 16. Material Weight Sample Detail: Samples 101-111

Material Type	101	102	103	104	105	106	107	108	109	110	111
Clean Newspaper	2.24	29.28	4.54	3.64	3.20	4.42	3.38	1.78	2.50	2.14	11.30
Clean OCC	37.52	3.70	25.64	39.38	18.38	46.24	40.02	28.12	31.60	32.82	17.70
Clean Mixed Paper	40.58	48.10	56.20	34.52	42.54	30.44	29.60	41.92	35.56	43.52	32.96
Clean Aseptic and Poly-coated Packaging	1.94	0.68	1.50	3.00	1.04	2.66	1.30	1.94	4.06	1.62	2.88
#1 PET Bottles and Containers	6.72	4.60	4.84	10.44	6.76	5.10	5.86	5.82	9.40	9.64	8.38
#2 HDPE Bottles and Containers	2.84	3.60	2.64	5.28	1.68	5.82	4.02	4.94	3.76	6.46	4.60
#3, #4, #5, & #7 Bottles and Containers	3.00	1.88	2.94	4.72	2.10	3.06	2.06	4.12	3.24	2.70	2.85
Clear/Clean Plastic Bags and Other Film	0.24	0.16	0.12	0.64	0.60	1.00	0.16	0.14	0.30	2.36	0.16
Durable Plastic Items	0.12	5.82	0.44	0.28	0.00	0.00	1.22	2.70	3.26	2.48	2.20
Aluminum Beverage Cans	1.54	0.68	0.96	0.66	1.76	1.36	2.10	1.02	1.52	1.88	1.62
Aluminum Foil	0.24	0.00	0.02	0.04	0.12	0.34	0.10	0.18	0.06	1.32	0.10
Steel (Tin) Cans	1.66	1.50	0.34	0.44	1.36	0.92	2.14	1.58	2.34	1.72	3.18
Other Scrap Metal	0.26	7.34	0.76	0.46	4.44	0.56	0.72	1.50	2.40	0.04	6.22
Recyclable Glass	8.90	21.24	10.48	7.76	33.54	6.86	17.68	7.22	21.06	6.30	18.80
Contaminated Recyclable Paper	5.48	5.98	6.56	9.50	0.72	3.34	18.06	7.90	1.70	9.52	2.54
Remainder/Composite Paper	11.76	4.14	5.38	3.38	14.26	1.86	3.00	5.76	4.08	2.90	4.02
Remainder/Composite Plastic	6.30	4.78	1.00	1.42	6.52	1.28	0.48	4.86	1.92	1.20	3.40
Remainder/Composite Metal	0.12	0.02	0.92	0.72	7.34	0.54	0.04	1.60	0.01	6.92	5.84
Remainder/Composite Glass	0.00	0.00	0.00	0.00	6.18	0.00	0.00	0.32	0.00	0.02	0.00
Textiles	0.20	1.38	0.76	8.90	0.24	3.50	1.78	1.30	5.54	2.54	0.06
Organic Materials	2.84	0.12	9.32	1.36	0.56	8.42	5.32	1.00	5.32	1.84	5.84
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.00	0.00	0.00	0.00	0.00	2.60	0.10	0.00	2.98	0.00	0.04
Electronics	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00
HHW and Special Waste	0.06	0.00	0.00	0.04	2.54	0.00	0.16	0.00	0.04	0.01	0.00
Other Materials	34.82	9.32	30.32	23.19	9.02	26.10	65.56	25.64	19.52	24.30	16.70

Table 17. Material Weight Sample Detail: Samples 112-122

Material Type	112	113	114	115	116	117	118	119	120	121	122
Clean Newspaper	2.08	1.06	4.38	2.10	2.86	4.20	1.80	1.56	5.24	8.44	2.62
Clean OCC	6.84	17.56	2.90	42.14	23.98	23.10	57.74	36.20	65.92	27.12	42.36
Clean Mixed Paper	39.40	39.54	43.10	36.90	36.40	34.02	32.22	39.48	7.23	36.34	37.82
Clean Aseptic and Poly-coated Packaging	1.10	1.40	2.12	1.94	0.96	0.90	2.18	2.44	0.80	1.30	1.14
#1 PET Bottles and Containers	4.14	9.22	10.86	9.90	6.52	7.68	8.54	9.70	12.20	6.46	5.62
#2 HDPE Bottles and Containers	1.24	4.12	4.82	5.36	2.64	3.96	2.76	4.30	6.94	3.34	3.34
#3, #4, #5, & #7 Bottles and Containers	1.84	3.40	3.18	3.46	2.34	3.52	1.46	3.04	4.48	2.58	1.60
Clear/Clean Plastic Bags and Other Film	0.10	0.22	0.10	0.54	0.38	0.32	0.40	3.84	0.40	0.04	0.28
Durable Plastic Items	0.64	6.36	5.00	4.32	1.94	2.78	0.74	4.16	1.64	0.90	1.96
Aluminum Beverage Cans	1.52	2.18	1.50	3.14	1.72	2.16	1.36	1.96	3.10	0.80	1.64
Aluminum Foil	0.06	0.02	0.06	0.30	0.08	0.10	0.04	0.20	0.18	0.12	0.60
Steel (Tin) Cans	1.08	4.26	2.64	2.22	1.26	2.08	2.20	3.56	5.18	1.34	1.80
Other Scrap Metal	0.24	0.46	4.22	5.96	5.32	0.74	0.10	0.94	0.04	2.24	8.42
Recyclable Glass	10.04	14.98	40.78	3.96	24.24	34.08	14.42	9.80	4.50	40.38	9.70
Contaminated Recyclable Paper	12.98	1.76	3.84	4.38	2.80	2.96	4.62	4.64	7.66	3.74	14.88
Remainder/Composite Paper	1.46	1.10	1.46	2.80	2.98	5.96	5.30	5.12	1.58	2.94	5.32
Remainder/Composite Plastic	1.00	2.64	1.10	10.04	0.82	0.12	1.62	0.38	0.50	0.60	0.22
Remainder/Composite Metal	4.92	17.08	0.38	0.24	9.06	6.74	0.00	0.30	5.58	2.30	1.48
Remainder/Composite Glass	0.00	0.00	7.26	2.27	0.00	0.10	0.00	0.00	0.38	0.40	0.00
Textiles	0.80	1.04	0.92	1.06	4.50	0.02	0.00	4.44	0.52	2.16	0.82
Organic Materials	2.76	1.44	0.94	3.76	1.28	4.38	11.28	8.76	3.00	3.90	1.60
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.18	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	1.62	2.80	0.02	1.12	0.06	0.00	2.36	0.28	0.00	0.00	18.00
Electronics	10.04	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
HHW and Special Waste	0.00	0.00	0.12	0.10	0.10	0.00	0.00	0.20	0.00	0.00	0.08
Other Materials	46.06	18.86	25.18	24.16	21.06	11.14	16.24	28.12	14.86	36.44	34.34

Table 18. Material Weight Sample Detail: Samples 123-133

Material Type	123	124	125	126	127	128	129	130	131	132	133
Clean Newspaper	9.12	3.16	4.30	23.80	4.70	11.16	4.36	6.82	4.62	2.08	4.62
Clean OCC	3.04	1.54	37.08	1.76	34.68	31.86	58.90	13.04	23.76	21.90	3.08
Clean Mixed Paper	57.20	42.24	36.70	31.14	37.86	34.12	37.60	29.42	32.65	17.12	34.56
Clean Aseptic and Poly-coated Packaging	1.20	0.78	1.38	1.20	1.50	1.06	1.58	0.26	1.54	1.52	0.48
#1 PET Bottles and Containers	7.26	6.42	8.62	4.64	3.74	8.28	7.68	4.58	9.44	7.30	5.14
#2 HDPE Bottles and Containers	4.48	2.08	4.20	3.32	2.90	3.48	3.18	2.12	5.30	4.56	4.46
#3, #4, #5, & #7 Bottles and Containers	2.94	1.04	2.78	3.64	3.38	1.70	3.04	2.74	1.98	3.26	1.90
Clear/Clean Plastic Bags and Other Film	0.18	0.36	0.32	0.30	0.12	0.76	0.16	0.20	0.14	0.12	0.22
Durable Plastic Items	11.70	1.66	9.82	1.44	1.34	0.86	2.34	1.82	1.80	4.18	2.38
Aluminum Beverage Cans	2.38	1.22	2.44	0.94	1.58	1.12	2.94	0.46	2.38	1.34	1.88
Aluminum Foil	0.06	0.02	0.28	0.02	0.12	0.04	0.30	0.06	0.12	0.06	0.16
Steel (Tin) Cans	2.16	3.44	1.78	0.84	3.78	3.22	2.10	1.74	3.30	4.06	2.56
Other Scrap Metal	1.72	5.18	0.32	0.58	0.80	7.55	2.72	2.06	0.78	2.28	0.12
Recyclable Glass	9.18	9.84	13.82	16.10	8.68	9.26	10.72	20.64	59.80	14.86	60.98
Contaminated Recyclable Paper	4.18	8.74	2.24	23.16	9.32	9.00	3.98	9.24	2.72	2.94	1.04
Remainder/Composite Paper	2.40	3.08	7.22	2.10	3.28	8.44	4.16	7.00	4.38	3.84	3.22
Remainder/Composite Plastic	2.44	0.72	0.44	2.48	3.44	1.22	0.06	0.80	2.68	3.22	0.22
Remainder/Composite Metal	3.04	0.58	0.18	0.80	0.48	0.00	1.64	1.23	0.00	0.36	4.12
Remainder/Composite Glass	1.90	3.30	0.24	0.00	0.00	1.60	0.00	0.04	0.80	1.40	0.58
Textiles	9.70	0.36	0.08	2.18	9.88	0.68	0.04	0.44	0.50	8.44	0.08
Organic Materials	0.82	2.82	4.90	0.90	1.44	4.16	1.08	1.22	2.58	5.02	2.24
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00
Personal Care Products	0.00	3.60	0.14	0.26	2.90	0.30	0.02	4.88	0.04	0.20	0.00
Electronics	1.46	0.00	0.96	1.20	0.00	0.00	0.00	7.20	0.00	0.00	0.00
HHW and Special Waste	0.06	0.12	0.00	0.00	0.16	0.30	0.00	0.04	1.62	0.84	0.10
Other Materials	39.90	63.76	23.04	27.64	25.94	21.28	10.08	33.18	14.52	40.72	16.84

Table 19. Material Weight Sample Detail: Samples 134-144

Material Type	134	135	136	137	138	139	140	141	142	143	144
Clean Newspaper	0.66	3.28	11.42	1.46	4.82	6.38	5.72	0.36	2.62	2.42	6.08
Clean OCC	6.14	39.18	18.58	39.18	58.94	32.02	52.56	16.36	26.42	31.00	30.42
Clean Mixed Paper	20.20	53.00	27.64	34.06	29.26	38.02	32.48	10.14	30.82	21.28	34.51
Clean Aseptic and Poly-coated Packaging	0.66	0.16	0.94	0.36	1.24	0.56	1.28	0.84	1.72	1.20	1.82
#1 PET Bottles and Containers	5.68	3.90	5.50	6.92	8.98	16.88	5.28	5.06	11.32	7.62	6.28
#2 HDPE Bottles and Containers	4.14	2.44	2.12	2.62	4.22	2.46	2.18	2.86	5.46	2.60	5.42
#3, #4, #5, & #7 Bottles and Containers	1.42	1.04	2.52	1.08	1.52	1.98	2.78	1.56	3.34	1.56	3.72
Clear/Clean Plastic Bags and Other Film	0.14	0.38	0.38	0.84	0.38	0.30	0.12	0.26	1.18	0.34	0.40
Durable Plastic Items	1.42	5.36	1.18	2.28	0.66	1.22	1.02	4.80	2.06	1.30	0.68
Aluminum Beverage Cans	0.64	1.98	1.84	2.50	2.24	2.04	1.80	1.40	2.62	2.24	1.74
Aluminum Foil	0.58	0.06	0.08	0.06	0.02	0.06	0.10	0.24	0.00	0.12	1.02
Steel (Tin) Cans	1.00	0.52	2.34	1.48	2.08	1.82	1.22	0.40	4.68	1.48	1.14
Other Scrap Metal	1.46	2.66	4.13	2.34	0.54	0.24	7.92	13.52	1.62	7.94	1.36
Recyclable Glass	7.72	18.42	26.76	2.86	12.82	58.74	22.18	3.32	15.98	2.90	17.12
Contaminated Recyclable Paper	19.22	6.04	2.24	3.44	2.86	7.72	14.92	9.94	5.30	11.20	8.40
Remainder/Composite Paper	3.34	7.16	0.64	3.94	2.40	5.38	4.90	2.78	3.60	5.98	3.30
Remainder/Composite Plastic	0.86	0.00	1.48	0.56	0.90	0.92	0.03	0.42	0.54	0.34	0.16
Remainder/Composite Metal	0.00	0.02	1.06	0.32	0.82	0.40	0.86	5.81	0.86	4.26	0.08
Remainder/Composite Glass	0.84	0.64	0.00	2.82	0.04	0.00	0.36	4.02	0.00	0.00	0.30
Textiles	8.00	0.02	0.00	2.80	0.18	0.78	2.28	5.78	1.50	1.44	0.00
Organic Materials	11.36	0.92	3.46	8.96	3.68	3.14	4.52	12.40	5.54	8.92	8.92
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	8.08	0.00	0.40	0.28	0.42	0.06	0.00	5.16	0.44	6.94	1.94
Electronics	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	4.92	0.16	0.00
HHW and Special Waste	2.40	0.06	0.00	0.00	0.14	0.01	0.00	0.00	0.24	0.10	0.00
Other Materials	54.70	8.50	57.82	31.16	12.23	15.88	13.22	48.72	19.24	40.06	44.02

Table 20. Material Weight Sample Detail: Samples 145-155

Material Type	145	146	147	148	149	150	151	152	153	154	155
Clean Newspaper	1.12	0.24	4.10	10.78	2.02	1.14	0.44	3.56	0.74	1.02	0.72
Clean OCC	46.22	22.16	48.55	24.24	76.44	26.44	7.39	34.10	2.34	28.68	6.86
Clean Mixed Paper	22.86	18.02	23.26	33.38	18.92	28.06	18.34	26.04	6.76	18.68	20.86
Clean Aseptic and Poly-coated Packaging	1.54	0.90	0.54	0.92	0.98	0.62	2.04	2.86	0.18	0.48	0.42
#1 PET Bottles and Containers	6.70	7.72	4.60	6.46	5.06	2.38	6.72	6.54	1.34	4.90	3.74
#2 HDPE Bottles and Containers	4.26	4.02	1.10	2.04	3.34	2.48	3.06	2.74	0.92	2.36	2.38
#3, #4, #5, & #7 Bottles and Containers	2.38	1.52	1.33	2.34	1.62	1.84	2.02	2.90	0.66	2.28	1.42
Clear/Clean Plastic Bags and Other Film	0.46	0.40	0.00	0.68	0.34	0.64	0.28	0.26	0.04	0.32	0.22
Durable Plastic Items	1.56	1.80	0.98	0.36	1.32	1.80	0.40	3.12	1.10	5.38	1.24
Aluminum Beverage Cans	2.50	5.52	0.72	2.48	0.52	0.36	1.52	0.50	0.58	0.84	0.72
Aluminum Foil	0.08	0.20	0.07	0.12	0.02	0.14	0.15	0.34	0.16	0.26	0.20
Steel (Tin) Cans	2.82	2.66	0.16	1.86	1.38	1.28	2.18	1.14	1.86	2.76	1.24
Other Scrap Metal	0.88	1.32	1.84	3.32	0.16	5.30	13.12	7.60	1.34	6.10	1.80
Recyclable Glass	17.26	1.02	1.46	18.24	7.24	8.20	12.26	11.40	14.26	5.82	13.30
Contaminated Recyclable Paper	9.42	37.52	8.80	7.26	10.92	2.78	29.54	11.12	30.20	26.44	16.80
Remainder/Composite Paper	12.44	3.38	2.78	8.48	2.40	3.40	6.74	6.02	3.92	5.48	4.44
Remainder/Composite Plastic	0.28	0.08	1.00	0.34	0.01	2.38	0.02	2.34	0.10	1.64	0.12
Remainder/Composite Metal	0.08	1.32	0.00	0.10	0.00	0.58	5.14	0.64	1.24	1.02	11.40
Remainder/Composite Glass	0.28	0.00	0.00	0.00	0.00	0.00	2.60	0.34	1.18	0.04	0.26
Textiles	4.24	7.00	0.50	9.48	6.68	2.76	0.01	3.66	16.98	4.48	3.80
Organic Materials	5.00	3.32	0.14	0.92	1.28	10.16	0.44	9.84	19.12	7.30	18.64
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00
Personal Care Products	0.20	3.56	0.00	0.02	1.16	0.12	0.00	0.80	1.70	2.34	4.42
Electronics	0.00	0.36	17.24	0.00	5.00	0.00	0.45	0.96	0.00	5.58	0.00
HHW and Special Waste	0.72	0.38	0.00	0.00	0.00	0.08	0.08	0.60	3.60	1.10	8.32
Other Materials	24.32	62.80	50.09	19.64	19.50	47.90	36.16	41.62	77.58	50.80	55.76

Table 21. Material Weight Sample Detail: Samples 156-166

Material Type	156	157	158	159	160	161	162	163	164	165	166
Clean Newspaper	2.00	5.62	2.90	1.74	1.12	2.26	2.70	4.00	5.52	4.38	5.74
Clean OCC	5.67	17.44	29.62	41.34	32.92	23.74	22.64	29.28	23.68	47.96	29.22
Clean Mixed Paper	14.20	16.12	17.14	25.00	22.78	25.98	25.82	30.63	31.84	16.45	35.84
Clean Aseptic and Poly-coated Packaging	0.16	1.32	0.56	0.22	0.92	1.44	0.42	0.98	2.42	0.78	1.34
#1 PET Bottles and Containers	1.68	3.10	3.68	4.02	4.86	5.12	4.54	4.00	6.02	3.24	4.42
#2 HDPE Bottles and Containers	2.44	1.60	2.64	2.96	2.78	4.14	3.36	2.74	3.06	2.94	0.62
#3, #4, #5, & #7 Bottles and Containers	1.10	2.04	1.14	1.94	1.74	1.71	2.80	1.56	2.20	0.76	1.14
Clear/Clean Plastic Bags and Other Film	0.38	0.86	1.52	0.13	3.52	0.24	0.52	0.24	0.12	2.08	0.20
Durable Plastic Items	1.16	0.64	4.32	1.72	6.78	4.26	1.08	4.90	3.16	4.56	1.38
Aluminum Beverage Cans	0.58	0.94	0.72	0.58	0.42	0.62	0.96	0.58	1.16	0.04	0.96
Aluminum Foil	0.02	0.34	0.10	0.08	0.08	0.12	0.16	0.16	1.10	0.02	0.26
Steel (Tin) Cans	2.76	1.70	2.54	2.64	1.36	2.12	2.74	1.24	1.96	2.04	0.70
Other Scrap Metal	3.12	3.30	0.30	3.56	6.80	8.22	10.08	7.52	9.80	11.26	0.00
Recyclable Glass	2.14	1.74	4.72	3.76	3.62	26.56	5.70	15.02	4.86	0.60	12.36
Contaminated Recyclable Paper	39.97	22.34	16.36	25.98	16.66	4.26	12.80	17.10	5.35	9.70	3.18
Remainder/Composite Paper	5.18	3.42	3.32	2.78	3.86	4.36	5.50	3.32	2.56	3.48	6.18
Remainder/Composite Plastic	1.60	0.02	0.08	0.82	4.52	0.32	1.16	6.10	1.02	15.06	0.34
Remainder/Composite Metal	3.20	6.50	0.42	1.50	0.00	7.72	3.42	1.10	0.02	0.18	0.14
Remainder/Composite Glass	0.00	11.98	0.00	0.00	0.22	0.00	0.00	0.76	0.00	0.50	0.02
Textiles	2.54	0.82	2.92	0.84	1.50	20.06	5.92	3.58	0.20	14.20	0.28
Organic Materials	5.40	7.38	7.58	2.82	1.82	4.54	5.18	6.84	15.52	0.66	2.68
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	1.10	0.08	0.30	0.14	0.00	0.96	7.00	0.00	0.36	0.00	9.44
Electronics	0.00	0.00	0.70	0.22	0.34	0.00	0.00	0.00	0.00	0.00	0.00
HHW and Special Waste	0.76	0.12	0.22	0.00	0.10	0.30	0.46	0.00	0.10	0.00	0.00
Other Materials	57.80	43.56	47.68	29.16	31.30	29.26	29.36	38.92	33.67	29.46	34.60

Table 22. Material Weight Sample Detail: Samples 167-177

Material Type	167	168	169	170	171	172	173	174	175	176	177
Clean Newspaper	5.50	3.58	3.00	3.14	4.60	4.02	4.72	2.82	0.90	4.42	9.98
Clean OCC	30.54	38.02	16.30	21.36	14.06	54.70	38.38	31.94	35.02	13.66	43.98
Clean Mixed Paper	30.22	40.60	17.60	26.16	16.14	41.40	42.48	28.04	18.14	9.08	31.28
Clean Aseptic and Poly-coated Packaging	0.42	0.64	0.90	0.56	2.10	0.54	0.56	0.78	0.54	1.10	0.34
#1 PET Bottles and Containers	4.08	3.94	4.16	4.86	6.50	3.40	2.42	5.26	3.36	5.06	4.96
#2 HDPE Bottles and Containers	6.46	1.58	5.84	3.24	3.68	1.90	2.30	4.60	4.32	4.00	1.74
#3, #4, #5, & #7 Bottles and Containers	1.92	1.86	1.56	2.44	2.40	2.34	1.46	1.48	2.44	1.90	1.68
Clear/Clean Plastic Bags and Other Film	0.64	0.30	0.08	0.26	0.04	0.54	0.26	0.30	0.40	0.60	0.52
Durable Plastic Items	1.76	6.66	1.92	5.12	3.56	4.84	4.68	4.28	2.32	0.74	4.48
Aluminum Beverage Cans	0.40	0.22	0.78	0.62	1.66	0.38	0.40	0.78	0.74	0.84	5.42
Aluminum Foil	0.14	0.06	0.36	0.40	0.40	0.04	0.08	0.92	0.04	0.36	0.04
Steel (Tin) Cans	2.26	0.64	3.00	3.98	2.16	1.66	1.78	2.82	0.96	2.32	1.36
Other Scrap Metal	9.94	4.72	12.68	3.10	0.42	4.82	0.18	2.24	4.96	1.88	6.04
Recyclable Glass	3.32	10.46	27.36	10.12	3.18	6.08	20.64	25.00	9.44	20.64	3.82
Contaminated Recyclable Paper	6.46	0.16	29.48	4.42	23.32	7.48	6.82	8.26	15.00	13.90	5.40
Remainder/Composite Paper	3.50	10.18	6.12	9.12	5.70	4.34	3.40	4.76	2.86	4.00	2.68
Remainder/Composite Plastic	1.70	7.50	0.48	1.36	2.32	1.38	0.01	3.88	1.02	5.10	1.50
Remainder/Composite Metal	5.02	0.46	2.62	1.96	0.00	0.78	0.12	1.44	0.00	0.06	0.58
Remainder/Composite Glass	0.14	1.46	1.74	1.12	0.00	0.00	0.00	1.20	0.30	1.20	0.00
Textiles	3.58	5.14	0.24	5.50	4.32	7.80	1.54	9.62	1.82	2.40	0.30
Organic Materials	8.72	1.52	1.70	1.80	4.88	1.14	3.46	4.32	15.30	12.28	2.86
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	2.68	0.02	0.96	0.52	3.16	0.42	1.00	1.22	0.32	1.00	1.02
Electronics	0.14	0.64	0.00	0.00	0.14	1.34	0.00	3.88	0.06	0.00	0.00
HHW and Special Waste	0.10	0.18	0.24	1.02	0.00	0.28	0.06	0.00	0.02	0.38	0.00
Other Materials	24.12	13.80	40.46	38.76	70.92	16.34	15.38	29.58	32.82	45.80	23.22

Table 23. Material Weight Sample Detail: Samples 178-188

Material Type	178	179	180	181	182	183	184	185	186	187	188
Clean Newspaper	2.70	3.90	2.20	7.42	1.94	3.58	4.22	7.46	0.64	2.76	18.20
Clean OCC	29.12	13.08	42.04	25.62	59.82	16.40	44.22	41.42	32.78	56.44	41.28
Clean Mixed Paper	21.94	12.46	32.24	32.12	15.40	18.56	16.08	30.36	21.62	29.02	53.20
Clean Aseptic and Poly-coated Packaging	1.34	1.88	1.16	1.62	0.30	0.84	0.70	1.28	1.18	0.34	1.22
#1 PET Bottles and Containers	7.66	6.06	3.88	4.88	4.16	4.24	4.82	6.06	3.08	5.34	7.38
#2 HDPE Bottles and Containers	5.36	2.44	3.44	1.86	1.44	4.58	5.40	1.58	1.44	3.76	2.26
#3, #4, #5, & #7 Bottles and Containers	2.44	2.88	1.74	2.78	0.72	1.56	2.86	2.24	2.06	1.92	2.58
Clear/Clean Plastic Bags and Other Film	0.06	0.20	0.52	0.94	0.36	0.02	0.24	0.06	3.20	0.34	0.20
Durable Plastic Items	2.00	8.48	1.20	0.94	0.66	5.88	5.44	3.64	1.88	5.00	1.08
Aluminum Beverage Cans	0.96	1.66	0.36	0.90	0.90	0.40	0.96	0.42	1.62	0.94	1.72
Aluminum Foil	0.10	0.30	0.02	0.08	1.04	0.28	0.22	0.06	0.56	0.70	0.40
Steel (Tin) Cans	2.54	2.24	1.24	1.38	1.06	2.94	3.34	1.46	1.70	0.64	2.20
Other Scrap Metal	0.68	7.78	2.26	1.80	4.30	4.16	16.18	2.90	1.26	2.30	6.30
Recyclable Glass	10.98	3.66	15.60	1.68	8.76	10.40	1.96	4.30	11.40	2.38	38.80
Contaminated Recyclable Paper	10.38	20.86	11.14	11.06	11.34	10.08	6.22	3.40	4.78	8.70	4.28
Remainder/Composite Paper	3.10	6.78	2.64	2.16	0.00	1.88	2.24	4.04	2.26	2.96	3.54
Remainder/Composite Plastic	7.22	0.48	2.24	1.00	7.24	0.94	0.62	0.40	1.30	0.16	0.40
Remainder/Composite Metal	3.68	2.42	0.00	0.72	5.20	0.22	26.26	4.94	0.84	0.88	0.00
Remainder/Composite Glass	0.92	0.00	0.00	0.00	5.36	0.68	0.00	0.02	1.48	0.80	0.00
Textiles	1.38	6.52	2.48	0.04	1.80	13.50	5.50	0.12	13.94	4.78	3.82
Organic Materials	2.02	2.10	2.30	3.10	9.10	6.70	5.62	0.34	1.76	5.40	1.26
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.06
Personal Care Products	0.16	0.01	0.00	0.96	0.68	0.22	4.44	0.00	0.00	0.00	0.04
Electronics	0.00	0.00	4.00	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.00
HHW and Special Waste	0.02	0.06	0.12	0.08	0.42	0.02	0.10	0.06	0.00	0.01	0.10
Other Materials	33.42	56.58	22.04	46.98	31.64	42.82	34.72	47.36	21.54	15.76	24.38

Table 24. Material Weight Sample Detail: Samples 189-199

Material Type	189	190	191	192	193	194	195	196	197	198	199
Clean Newspaper	0.54	3.52	3.54	7.66	11.76	2.18	0.82	2.62	0.54	3.12	7.88
Clean OCC	55.26	11.44	19.64	28.42	28.32	29.84	0.82	27.40	8.04	34.76	44.88
Clean Mixed Paper	26.54	11.32	23.34	25.72	26.74	24.30	12.70	20.34	10.56	24.02	32.78
Clean Aseptic and Poly-coated Packaging	0.50	1.06	0.56	1.74	0.36	0.02	0.38	2.04	0.50	0.80	1.32
#1 PET Bottles and Containers	2.56	3.98	2.62	4.68	2.32	5.02	2.34	3.80	3.56	6.16	12.98
#2 HDPE Bottles and Containers	1.96	3.74	3.76	2.44	5.44	5.46	1.50	4.98	0.72	3.06	2.36
#3, #4, #5, & #7 Bottles and Containers	1.88	1.36	2.88	2.30	1.76	2.70	1.12	5.40	2.44	2.04	1.60
Clear/Clean Plastic Bags and Other Film	0.34	0.02	0.10	0.80	0.52	0.68	0.04	0.12	0.26	0.34	0.62
Durable Plastic Items	4.16	6.32	3.16	5.38	4.68	7.56	2.20	4.42	3.96	9.26	0.86
Aluminum Beverage Cans	0.72	0.46	0.52	0.76	0.14	0.72	0.86	0.18	2.02	0.54	0.48
Aluminum Foil	0.08	0.20	0.10	0.80	0.40	0.48	0.10	0.10	0.04	0.14	1.32
Steel (Tin) Cans	1.16	1.42	1.56	2.26	2.48	2.98	2.66	3.16	1.62	1.50	0.74
Other Scrap Metal	3.30	1.30	2.48	1.70	5.22	0.40	3.24	0.82	8.06	2.74	0.22
Recyclable Glass	2.76	2.26	0.48	5.56	2.82	8.76	2.94	4.34	3.86	12.48	8.52
Contaminated Recyclable Paper	18.66	12.00	35.14	11.74	14.58	9.40	32.18	24.04	20.54	7.22	4.10
Remainder/Composite Paper	2.14	4.04	7.96	3.00	5.92	2.98	2.40	3.76	5.72	1.88	3.08
Remainder/Composite Plastic	1.50	3.66	0.92	0.34	3.68	2.74	2.08	2.56	3.56	1.00	1.00
Remainder/Composite Metal	0.82	0.10	0.64	3.54	1.36	1.88	12.80	2.20	1.04	0.02	3.04
Remainder/Composite Glass	2.18	0.98	0.18	0.04	0.32	0.90	0.12	0.06	0.24	0.28	0.00
Textiles	4.18	6.98	8.28	7.42	1.94	7.80	4.88	9.40	5.26	4.26	4.16
Organic Materials	4.96	13.96	3.72	2.74	1.04	6.72	11.64	11.02	20.58	6.02	2.72
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	2.28	5.38	0.48	1.34	0.00	1.52	15.00	1.78	4.86	0.54	0.04
Electronics	0.04	0.00	0.00	6.38	0.18	0.00	2.48	3.08	3.24	0.16	0.18
HHW and Special Waste	1.42	0.02	2.22	0.18	0.02	0.01	0.54	0.00	0.00	0.12	0.06
Other Materials	42.44	54.80	26.36	31.08	30.00	28.06	77.26	41.02	64.20	31.20	17.46

Table 25. Material Weight Sample Detail: Samples 200-210

Material Type	200	201	202	203	204	205	206	207	208	209	210
Clean Newspaper	5.26	2.84	4.16	2.52	6.32	1.52	2.08	5.28	1.32	2.42	4.48
Clean OCC	42.30	18.92	29.06	19.92	18.68	4.96	25.84	44.78	26.38	31.26	39.76
Clean Mixed Paper	22.98	30.56	31.88	15.08	30.50	16.78	15.68	38.18	19.26	18.66	23.64
Clean Aseptic and Poly-coated Packaging	2.04	0.28	1.02	1.30	0.84	0.74	0.46	1.52	0.56	0.40	1.46
#1 PET Bottles and Containers	6.46	7.52	5.78	4.78	8.54	3.80	3.56	6.46	4.72	3.02	4.58
#2 HDPE Bottles and Containers	5.04	6.98	3.36	2.40	3.98	2.08	1.96	4.42	5.44	2.44	4.04
#3, #4, #5, & #7 Bottles and Containers	1.94	1.90	2.10	2.88	1.70	2.14	1.60	2.02	3.30	1.38	2.20
Clear/Clean Plastic Bags and Other Film	0.80	0.86	0.32	0.28	0.38	0.10	0.12	1.58	0.22	0.80	0.46
Durable Plastic Items	1.50	3.78	2.56	10.50	1.86	3.80	3.16	6.14	2.26	1.46	3.32
Aluminum Beverage Cans	0.30	1.42	1.02	1.06	0.94	0.66	0.54	0.74	1.32	0.54	0.50
Aluminum Foil	0.56	0.14	0.92	0.06	0.48	0.16	0.66	0.78	0.08	0.14	0.26
Steel (Tin) Cans	0.64	2.86	2.74	1.38	1.64	4.06	1.42	2.14	2.84	1.10	3.54
Other Scrap Metal	3.80	3.54	0.74	11.10	0.06	1.18	1.42	1.98	0.26	1.82	2.72
Recyclable Glass	6.78	5.06	10.46	19.22	6.00	3.18	2.80	13.84	7.64	6.84	3.68
Contaminated Recyclable Paper	7.96	13.28	7.98	3.44	7.10	20.94	25.54	9.38	16.20	11.40	20.64
Remainder/Composite Paper	0.00	2.66	0.96	3.44	5.76	4.60	1.32	3.90	2.76	2.34	5.78
Remainder/Composite Plastic	4.22	1.34	1.66	5.42	0.56	0.08	0.74	4.82	2.22	2.50	5.84
Remainder/Composite Metal	4.80	0.14	0.14	0.00	0.20	14.28	1.32	0.26	1.20	0.14	0.00
Remainder/Composite Glass	0.36	0.28	0.02	0.06	0.00	0.00	0.20	1.00	0.00	0.52	0.00
Textiles	3.24	3.52	3.94	8.14	3.10	3.52	3.04	4.34	3.56	10.20	11.60
Organic Materials	6.00	4.92	2.68	5.80	7.46	11.58	8.64	3.90	12.78	15.74	5.00
Pumpkins	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.28	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.66	0.12	0.06	0.62	0.32	12.52	2.20	0.50	17.56	0.50	1.82
Electronics	0.00	1.12	0.26	0.92	0.00	0.26	3.40	0.00	0.00	0.00	15.70
HHW and Special Waste	0.10	0.10	0.00	2.20	0.10	0.04	0.00	0.04	0.10	0.20	0.14
Other Materials	29.02	37.62	38.42	46.10	43.40	64.54	64.74	24.96	38.90	40.10	32.26

Table 26. Material Weight Sample Detail: Samples 211-221

Material Type	211	212	213	214	215	216	217	218	219	220	221
Clean Newspaper	1.12	3.76	2.46	9.44	5.92	1.62	2.82	3.48	0.32	10.94	3.76
Clean OCC	23.14	59.28	42.30	27.24	60.40	11.60	24.46	16.56	56.09	54.32	38.24
Clean Mixed Paper	24.54	18.24	29.50	26.72	28.78	29.12	21.08	36.70	25.36	24.06	40.82
Clean Aseptic and Poly-coated Packaging	0.78	0.68	0.36	1.60	1.14	0.48	1.12	0.68	1.16	1.44	0.98
#1 PET Bottles and Containers	6.40	4.66	6.82	4.52	6.58	2.92	5.36	3.68	3.42	3.86	8.26
#2 HDPE Bottles and Containers	6.94	2.46	4.38	7.00	3.46	3.42	3.00	3.30	1.48	2.44	3.76
#3, #4, #5, & #7 Bottles and Containers	3.04	2.82	1.56	2.40	3.44	1.56	2.20	1.84	2.10	2.40	1.90
Clear/Clean Plastic Bags and Other Film	0.52	0.46	0.18	0.06	0.46	0.24	0.16	0.14	0.98	1.90	0.42
Durable Plastic Items	6.36	4.48	4.10	8.28	3.98	1.42	1.62	2.20	1.60	3.78	2.90
Aluminum Beverage Cans	0.68	0.84	1.00	0.70	1.18	0.26	0.58	1.50	0.40	1.82	2.44
Aluminum Foil	0.20	0.14	0.10	1.50	0.04	0.10	0.20	0.18	0.14	0.06	0.14
Steel (Tin) Cans	6.14	5.20	1.36	1.70	2.66	2.40	2.66	2.56	0.82	1.92	2.64
Other Scrap Metal	2.14	3.56	6.34	0.88	1.94	4.30	0.02	2.56	0.00	0.74	3.34
Recyclable Glass	3.64	6.76	13.70	2.28	6.88	1.02	1.94	31.48	0.36	12.26	17.36
Contaminated Recyclable Paper	25.54	5.14	2.68	17.70	14.12	36.16	27.36	5.70	3.72	10.48	7.52
Remainder/Composite Paper	7.94	3.44	4.44	4.60	3.40	6.24	3.38	6.60	7.24	2.90	5.46
Remainder/Composite Plastic	1.94	18.52	4.04	0.78	0.14	3.50	2.06	2.56	1.84	1.30	7.98
Remainder/Composite Metal	5.44	3.20	3.34	5.04	1.52	0.28	0.04	0.06	0.00	1.34	0.90
Remainder/Composite Glass	0.34	0.14	0.14	0.06	0.42	0.00	0.40	0.72	0.44	0.84	3.06
Textiles	0.72	0.26	4.86	11.48	7.62	2.28	0.64	2.62	13.64	0.16	19.60
Organic Materials	3.68	4.44	15.26	7.82	3.35	6.82	14.08	10.04	6.76	2.78	8.68
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	3.46	0.02	0.80	0.08	0.00	0.30	0.44	0.62	0.00	0.18	0.70
Electronics	4.66	0.16	0.18	14.84	0.64	0.86	0.38	15.46	0.00	3.24	0.00
HHW and Special Waste	0.28	0.00	0.00	0.66	0.00	0.02	0.08	0.52	0.21	0.00	0.24
Other Materials	45.70	18.80	27.68	39.16	31.08	57.42	43.54	33.76	25.22	24.38	37.02

Table 27. Material Weight Sample Detail: Samples 222-232

Material Type	222	223	224	225	226	227	228	229	230	231	232
Clean Newspaper	14.22	2.02	1.28	2.66	1.16	1.82	1.24	5.38	6.26	3.06	0.50
Clean OCC	15.02	23.44	24.76	47.32	61.54	15.46	28.04	22.16	8.96	28.12	7.50
Clean Mixed Paper	40.12	37.32	21.56	31.98	24.76	17.60	31.76	29.44	10.28	16.48	5.88
Clean Aseptic and Poly-coated Packaging	0.46	0.44	0.58	3.02	1.12	0.58	0.24	0.88	0.80	1.08	1.16
#1 PET Bottles and Containers	1.70	4.36	3.80	6.24	4.48	4.38	5.40	4.46	2.70	5.14	3.30
#2 HDPE Bottles and Containers	0.76	3.00	1.64	1.46	2.36	3.44	4.06	3.88	3.54	4.52	3.16
#3, #4, #5, & #7 Bottles and Containers	1.54	1.82	1.22	1.76	2.32	1.50	1.16	2.80	2.06	2.96	1.46
Clear/Clean Plastic Bags and Other Film	0.08	0.68	0.12	0.68	0.34	0.12	0.10	0.68	0.06	0.04	0.10
Durable Plastic Items	12.82	0.60	1.58	0.50	13.06	3.24	4.78	4.32	2.64	5.12	2.08
Aluminum Beverage Cans	1.14	0.58	1.28	1.84	0.58	0.38	1.08	0.90	0.38	0.08	0.68
Aluminum Foil	0.02	0.74	0.00	0.02	1.60	0.20	0.06	0.10	0.12	0.38	0.08
Steel (Tin) Cans	1.70	2.30	1.00	2.06	1.05	1.56	2.02	1.52	0.94	1.38	1.76
Other Scrap Metal	1.44	3.02	7.52	0.34	0.02	0.32	3.18	0.90	2.80	0.46	1.28
Recyclable Glass	5.66	10.66	4.32	16.74	7.46	8.52	13.92	15.32	3.10	2.72	3.46
Contaminated Recyclable Paper	12.62	7.98	5.56	12.20	3.48	10.51	8.18	12.44	17.56	23.68	25.84
Remainder/Composite Paper	1.32	3.38	18.74	2.52	2.30	11.48	13.60	3.36	4.12	3.66	10.78
Remainder/Composite Plastic	2.82	1.24	1.04	1.46	0.44	1.52	1.58	0.90	4.98	0.18	1.56
Remainder/Composite Metal	0.01	0.00	0.04	0.00	0.16	0.20	9.08	2.46	0.60	1.42	12.90
Remainder/Composite Glass	0.00	0.00	0.18	0.60	0.00	0.00	0.86	0.14	0.66	0.00	0.10
Textiles	4.00	6.68	5.90	0.82	0.12	3.64	6.64	13.10	5.90	3.96	1.50
Organic Materials	1.42	15.44	5.00	4.36	2.04	12.42	4.38	6.74	9.98	4.42	10.78
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.16	0.46	0.00	1.52	0.02	1.50	2.02	5.72	2.58	0.00	3.68
Electronics	0.00	0.00	0.00	6.30	0.00	0.70	0.52	0.10	1.10	12.64	5.38
HHW and Special Waste	0.16	0.16	0.38	0.12	0.01	0.10	0.00	0.00	0.22	0.04	0.12
Other Materials	32.84	36.40	43.36	12.60	15.08	60.14	34.16	27.24	58.38	55.60	67.08

Table 28. Material Weight Sample Detail: Samples 233-243

Material Type	233	234	235	236	237	238	239	240	241	242	243
Clean Newspaper	3.26	3.06	2.76	3.92	1.84	1.86	1.56	2.58	0.32	2.88	0.38
Clean OCC	19.24	18.50	67.14	37.46	64.28	36.94	27.16	10.82	14.18	26.08	25.60
Clean Mixed Paper	31.78	0.00	24.26	25.40	21.64	32.66	15.80	44.78	15.68	28.00	12.20
Clean Aseptic and Poly-coated Packaging	0.52	1.40	1.32	1.72	0.90	2.20	0.90	1.86	0.16	1.98	0.42
#1 PET Bottles and Containers	2.32	6.08	6.64	4.00	8.20	3.94	4.06	6.98	2.36	8.62	3.84
#2 HDPE Bottles and Containers	3.02	5.00	4.00	2.96	2.40	4.38	3.80	2.50	3.64	2.96	2.44
#3, #4, #5, & #7 Bottles and Containers	0.94	2.50	3.50	2.20	2.92	2.56	1.56	2.60	1.28	3.12	1.40
Clear/Clean Plastic Bags and Other Film	0.04	0.54	2.14	0.24	0.38	0.60	2.12	2.10	0.02	3.02	0.86
Durable Plastic Items	10.06	2.08	2.12	11.18	4.42	2.24	2.22	2.00	10.36	3.06	6.62
Aluminum Beverage Cans	0.24	1.54	1.44	0.64	1.38	0.98	0.16	1.42	0.32	3.14	0.44
Aluminum Foil	0.16	0.02	0.24	0.22	0.02	0.20	0.50	0.16	0.44	0.28	0.12
Steel (Tin) Cans	2.58	1.32	2.32	2.16	1.28	1.44	3.70	1.08	1.70	3.30	1.16
Other Scrap Metal	0.66	0.00	7.90	4.58	0.52	2.00	0.68	1.60	4.78	2.72	1.88
Recyclable Glass	1.82	16.20	8.54	7.64	12.00	1.10	4.96	24.02	6.48	8.38	5.28
Contaminated Recyclable Paper	21.22	19.38	3.32	15.26	1.62	5.20	15.96	3.76	2.02	13.08	5.86
Remainder/Composite Paper	2.32	6.74	5.84	5.92	2.80	1.20	5.76	3.86	5.82	3.00	2.90
Remainder/Composite Plastic	2.34	1.82	0.50	2.72	0.46	3.24	1.36	0.24	1.98	1.92	4.32
Remainder/Composite Metal	0.22	2.00	0.00	0.52	0.06	0.72	2.88	0.84	19.88	0.14	3.30
Remainder/Composite Glass	0.36	0.50	1.08	0.14	0.00	0.00	0.06	0.72	0.00	0.00	0.00
Textiles	1.28	3.34	2.40	14.92	4.02	0.01	7.00	5.46	16.52	8.64	21.04
Organic Materials	5.40	4.72	5.34	7.58	2.84	5.08	13.44	7.03	1.56	4.74	9.50
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	1.86	0.02	5.14	0.00	0.02	1.80	1.20	0.01	0.00	0.76	3.90
Electronics	1.30	0.00	0.00	0.00	0.00	0.00	0.22	0.44	23.04	0.00	0.00
HHW and Special Waste	0.00	0.00	0.00	0.06	0.00	0.46	1.30	0.74	0.08	0.00	0.00
Other Materials	42.42	59.50	24.08	38.72	16.34	39.48	38.74	34.48	28.44	46.30	36.84

Table 29. Material Weight Sample Detail: Samples 244-254

Material Type	244	245	246	247	248	249	250	251	252	253	254
Clean Newspaper	2.84	1.86	0.94	3.54	5.12	0.40	0.72	1.38	2.08	1.68	7.84
Clean OCC	41.74	39.10	8.82	22.70	38.06	52.30	43.78	19.42	37.18	12.58	20.52
Clean Mixed Paper	28.62	26.58	13.20	22.10	35.70	21.70	17.34	20.54	23.18	28.02	10.88
Clean Aseptic and Poly-coated Packaging	0.50	1.50	0.20	2.50	0.76	1.40	1.32	0.34	1.56	1.20	0.56
#1 PET Bottles and Containers	4.78	7.82	2.14	7.46	4.76	6.20	4.04	3.64	6.36	5.56	2.58
#2 HDPE Bottles and Containers	4.18	5.40	2.68	3.40	2.62	3.70	3.10	2.66	5.00	6.08	2.76
#3, #4, #5, & #7 Bottles and Containers	1.84	2.30	2.36	2.60	1.44	2.20	2.84	2.34	3.68	2.20	1.66
Clear/Clean Plastic Bags and Other Film	0.38	1.52	0.02	0.30	0.24	0.30	2.28	0.28	0.08	0.04	0.30
Durable Plastic Items	3.64	1.76	5.74	3.62	4.64	2.40	4.24	1.00	1.78	2.90	5.24
Aluminum Beverage Cans	0.68	1.00	0.50	1.46	0.40	1.10	0.20	0.70	0.16	0.58	0.34
Aluminum Foil	0.04	0.36	0.40	0.08	0.10	0.70	0.04	0.06	1.06	0.04	0.16
Steel (Tin) Cans	2.22	2.68	1.14	2.18	0.80	1.90	1.30	4.00	0.98	1.86	1.52
Other Scrap Metal	0.40	0.86	6.38	0.72	2.48	0.60	10.28	2.28	0.02	1.60	3.64
Recyclable Glass	2.58	9.68	3.54	18.50	7.22	13.80	7.38	4.68	6.26	0.42	0.06
Contaminated Recyclable Paper	12.32	1.80	36.56	2.18	1.72	1.30	3.14	9.66	8.28	24.82	44.22
Remainder/Composite Paper	4.36	4.76	6.64	2.88	4.52	2.80	2.48	3.84	5.22	4.04	2.34
Remainder/Composite Plastic	1.40	1.04	1.00	0.18	1.86	0.50	0.84	0.70	0.78	0.80	0.56
Remainder/Composite Metal	0.44	0.98	0.90	0.02	0.48	0.00	0.04	1.14	0.46	2.94	4.12
Remainder/Composite Glass	0.28	0.00	0.00	0.00	0.00	2.30	0.08	0.08	0.00	0.18	0.00
Textiles	3.94	2.42	11.66	2.06	2.90	2.90	9.48	0.20	0.18	3.34	0.40
Organic Materials	3.44	2.26	2.90	1.44	2.74	1.50	1.38	7.32	20.54	1.06	4.30
Pumpkins	0.00	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
Personal Care Products	0.00	0.24	3.20	3.98	0.00	0.00	2.76	0.02	0.00	0.00	1.78
Electronics	0.00	1.20	2.28	0.22	6.42	17.30	0.00	0.00	0.00	0.04	0.92
HHW and Special Waste	0.00	0.02	0.01	0.00	2.00	0.00	0.02	0.10	0.57	0.14	0.00
Other Materials	31.00	34.40	84.30	49.10	23.68	26.60	37.90	72.70	26.56	48.89	63.74

Table 30. Material Weight Sample Detail: Samples 308, 255-260, 1001, and 261-263

Material Type	308	255	256	257	258	259	260	1001	261	262	263
Clean Newspaper	6.64	2.52	4.50	5.60	3.48	4.82	2.84	4.94	3.12	3.36	4.97
Clean OCC	35.32	34.25	24.68	29.02	38.05	20.06	51.66	37.58	33.48	27.40	17.06
Clean Mixed Paper	31.08	26.16	22.14	26.04	26.82	28.42	25.34	32.68	31.84	28.54	31.84
Clean Aseptic and Poly-coated Packaging	2.20	1.42	1.26	1.60	0.94	1.44	0.82	1.48	0.18	0.88	0.78
#1 PET Bottles and Containers	5.12	6.78	6.60	12.02	4.48	9.18	4.72	9.95	5.50	6.32	8.74
#2 HDPE Bottles and Containers	3.28	2.92	2.14	2.84	1.40	4.50	1.64	2.64	2.56	2.82	5.08
#3, #4, #5, & #7 Bottles and Containers	1.04	2.14	1.84	1.84	1.02	3.42	1.00	3.38	2.32	1.74	2.34
Clear/Clean Plastic Bags and Other Film	0.28	4.02	0.04	0.40	0.26	0.20	0.10	1.18	0.18	0.20	0.56
Durable Plastic Items	2.52	3.08	2.00	4.14	1.94	3.02	1.22	1.36	2.60	5.40	1.06
Aluminum Beverage Cans	1.60	1.38	2.14	1.34	1.12	1.18	1.06	2.08	2.10	1.54	0.76
Aluminum Foil	0.12	0.12	0.10	0.68	0.02	0.24	0.04	0.16	0.04	0.38	0.06
Steel (Tin) Cans	2.90	2.48	2.38	4.22	3.22	2.66	0.94	4.24	1.36	2.02	2.70
Other Scrap Metal	0.86	0.86	5.12	13.72	3.72	2.28	0.20	2.00	1.90	0.36	2.90
Recyclable Glass	2.08	8.02	9.34	13.40	25.25	8.02	12.20	16.10	17.08	12.98	23.96
Contaminated Recyclable Paper	17.24	5.04	21.54	16.46	15.54	13.06	6.52	3.82	2.14	16.26	14.16
Remainder/Composite Paper	0.00	2.36	4.18	9.62	5.22	16.60	5.24	3.26	7.52	2.20	2.68
Remainder/Composite Plastic	2.82	0.58	0.40	0.18	0.66	0.12	0.41	0.64	1.94	0.04	4.86
Remainder/Composite Metal	0.06	2.72	1.80	0.02	0.24	0.00	3.06	1.06	0.04	1.06	0.00
Remainder/Composite Glass	0.14	0.82	0.06	0.30	0.64	0.01	0.00	0.00	2.24	0.62	1.90
Textiles	7.48	7.60	4.32	1.24	14.20	0.14	29.82	0.70	1.64	0.70	0.76
Organic Materials	4.32	10.22	14.18	8.22	1.16	2.22	3.98	3.74	0.96	3.66	2.28
Pumpkins	0.00	0.34	1.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	5.60	0.20	0.00	1.04	11.70	0.00	2.98	0.92	0.34	0.44	0.22
Electronics	0.70	0.00	1.88	0.02	20.12	0.12	0.00	0.03	0.00	0.84	0.76
HHW and Special Waste	0.00	0.08	4.36	0.18	0.74	0.00	0.05	0.62	0.00	0.00	0.04
Other Materials	22.10	46.44	45.82	32.96	32.96	34.36	5.40	28.76	29.80	33.30	36.90

Table 31. Material Weight Sample Detail: Samples 264-274

Material Type	264	265	266	267	268	269	270	271	272	273	274
Clean Newspaper	1.92	3.74	0.76	7.24	5.58	5.32	1.64	1.92	1.28	5.68	0.72
Clean OCC	60.10	19.08	2.22	46.86	33.24	21.32	19.58	14.18	31.08	26.98	66.90
Clean Mixed Paper	26.22	36.88	7.00	26.04	32.00	30.84	16.04	23.68	21.72	31.98	24.00
Clean Aseptic and Poly-coated Packaging	0.16	1.26	0.32	0.72	1.08	0.58	0.34	0.74	2.18	0.98	2.00
#1 PET Bottles and Containers	4.48	7.24	1.04	5.14	6.14	3.04	1.44	3.88	10.20	5.34	5.22
#2 HDPE Bottles and Containers	1.74	1.24	2.98	2.98	3.52	1.32	1.46	2.20	4.94	1.24	4.06
#3, #4, #5, & #7 Bottles and Containers	1.26	1.58	0.60	1.52	1.72	2.74	0.54	1.14	0.88	2.34	2.08
Clear/Clean Plastic Bags and Other Film	3.60	0.40	0.10	0.60	0.54	0.02	0.32	0.02	0.46	0.26	0.34
Durable Plastic Items	1.34	1.62	2.28	1.56	3.64	0.90	3.42	2.88	1.94	8.46	4.58
Aluminum Beverage Cans	1.74	2.28	0.68	1.44	0.76	0.50	0.28	1.16	2.50	1.30	0.40
Aluminum Foil	0.24	0.02	0.24	0.04	0.44	0.02	0.08	0.02	0.04	0.46	0.42
Steel (Tin) Cans	0.60	2.46	0.92	0.82	2.24	3.72	1.20	2.26	1.76	2.74	1.14
Other Scrap Metal	3.64	1.42	1.38	1.66	1.52	0.16	32.04	9.80	2.66	10.62	0.52
Recyclable Glass	6.10	30.42	0.62	13.30	0.82	9.68	0.44	11.68	23.40	20.18	10.48
Contaminated Recyclable Paper	3.54	3.50	29.74	8.46	18.04	22.24	18.96	11.08	4.30	10.12	2.12
Remainder/Composite Paper	2.68	3.86	0.00	5.74	3.54	3.52	2.78	5.24	3.66	5.00	9.00
Remainder/Composite Plastic	0.16	3.40	1.74	1.52	5.10	2.04	0.68	1.00	1.36	7.52	1.18
Remainder/Composite Metal	13.18	3.72	7.34	4.86	0.02	0.36	14.88	0.10	0.72	1.36	0.04
Remainder/Composite Glass	0.68	0.32	0.02	0.06	0.02	0.00	0.06	0.86	1.70	0.00	0.00
Textiles	14.70	0.34	12.74	3.32	1.98	0.48	8.90	9.68	1.50	3.40	5.36
Organic Materials	2.40	2.50	18.14	4.24	5.66	2.54	4.70	5.34	8.88	1.44	9.86
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.00	0.00	6.24	0.54	0.46	2.00	3.56	0.00	0.12	1.34	0.02
Electronics	0.00	5.34	4.64	0.00	0.30	0.00	0.08	0.00	0.00	0.04	0.12
HHW and Special Waste	2.06	0.00	0.06	0.06	0.10	0.16	0.10	0.80	0.10	0.00	0.16
Other Materials	32.70	20.00	57.38	43.86	33.68	40.02	40.40	40.44	23.28	29.44	15.10

Table 32. Material Weight Sample Detail Samples 275-285

Material Type	275	276	277	278	279	280	281	282	283	284	285
Clean Newspaper	5.22	5.56	4.30	5.88	11.08	17.30	3.62	13.26	6.06	2.70	7.50
Clean OCC	35.00	30.86	39.32	80.44	28.78	17.22	33.24	43.18	33.40	58.18	25.71
Clean Mixed Paper	22.34	21.08	30.70	22.56	67.84	42.08	24.76	35.82	35.84	26.64	36.06
Clean Aseptic and Poly-coated Packaging	0.88	1.80	1.44	0.92	1.70	2.02	1.72	0.20	1.20	1.48	0.44
#1 PET Bottles and Containers	6.42	7.36	6.18	6.68	10.14	7.36	7.10	5.78	6.36	5.58	4.96
#2 HDPE Bottles and Containers	6.42	6.06	2.00	2.20	5.54	2.56	5.02	1.44	2.90	4.00	1.92
#3, #4, #5, & #7 Bottles and Containers	2.20	3.34	1.62	1.50	1.54	2.00	2.62	1.84	2.56	1.46	1.82
Clear/Clean Plastic Bags and Other Film	0.04	0.14	0.34	1.08	0.16	0.16	0.42	1.28	0.02	0.16	0.36
Durable Plastic Items	3.40	2.22	3.02	6.62	1.66	5.26	2.64	3.62	2.76	0.42	7.68
Aluminum Beverage Cans	1.08	1.38	1.34	1.02	1.54	1.28	1.18	1.36	2.86	1.10	1.10
Aluminum Foil	0.14	0.40	0.22	0.16	0.28	0.08	0.18	0.06	0.20	0.04	0.14
Steel (Tin) Cans	1.44	1.62	0.64	2.50	1.86	2.16	1.96	1.44	3.22	1.80	1.30
Other Scrap Metal	5.58	5.40	0.00	0.84	1.44	1.28	1.06	0.76	3.24	2.14	4.04
Recyclable Glass	5.88	11.08	13.00	5.92	13.90	1.54	11.26	8.02	3.70	3.44	11.26
Contaminated Recyclable Paper	8.66	12.16	8.66	3.88	8.18	23.50	5.58	2.36	8.42	29.18	2.50
Remainder/Composite Paper	4.86	5.36	3.22	5.74	8.56	2.12	1.26	3.48	5.36	6.62	2.60
Remainder/Composite Plastic	0.68	1.12	2.60	2.26	0.62	4.48	0.20	0.48	0.56	0.00	1.42
Remainder/Composite Metal	3.96	0.32	0.20	0.02	0.00	0.02	17.56	0.00	0.02	0.00	0.60
Remainder/Composite Glass	0.12	0.00	0.72	0.02	0.28	0.10	2.48	0.26	0.00	0.02	0.42
Textiles	5.64	1.32	0.06	0.38	0.01	0.10	1.40	3.46	4.18	0.40	3.50
Organic Materials	2.88	3.68	5.38	14.40	2.44	5.50	3.54	0.78	3.28	1.72	1.38
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.08	0.68	2.76	2.12	1.40	0.78	0.14	0.00	3.40	0.20	0.20
Electronics	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.42	0.54	0.00
HHW and Special Waste	0.14	0.00	0.18	0.00	1.57	1.54	0.02	0.04	0.08	0.08	0.04
Other Materials	30.00	36.80	26.66	16.78	13.02	22.64	35.18	22.56	43.42	21.44	33.58

Table 33. Material Weight Sample Detail: Samples 286, 287, and 289-297[1]

Material Type	286	287	289	290	291	292	293	294	295	296	297
Clean Newspaper	2.22	2.84	2.22	12.04	4.94	3.10	1.84	4.78	1.92	3.80	2.46
Clean OCC	27.32	33.68	14.04	29.50	19.36	42.68	48.94	9.12	31.88	38.54	33.96
Clean Mixed Paper	24.64	27.90	8.58	44.06	26.04	28.82	21.10	23.34	14.60	38.10	24.04
Clean Aseptic and Poly-coated Packaging	0.76	1.10	0.46	1.50	1.10	1.48	0.44	0.60	1.20	1.60	0.76
#1 PET Bottles and Containers	6.04	6.46	2.24	7.74	5.80	7.44	5.06	3.72	3.56	7.84	6.50
#2 HDPE Bottles and Containers	1.16	3.92	2.12	4.90	2.00	4.54	4.40	2.08	2.92	5.78	5.40
#3, #4, #5, & #7 Bottles and Containers	1.36	1.78	1.54	2.62	1.78	1.22	1.68	2.62	2.78	3.78	2.90
Clear/Clean Plastic Bags and Other Film	1.98	0.38	0.01	0.90	0.14	0.22	0.90	0.28	0.46	0.70	0.50
Durable Plastic Items	6.04	4.86	1.10	1.54	1.66	0.82	5.10	5.20	4.00	0.98	7.94
Aluminum Beverage Cans	2.40	0.94	1.42	0.94	1.20	2.20	1.02	1.24	0.66	2.28	0.90
Aluminum Foil	0.10	0.04	0.04	0.16	0.26	0.40	0.00	0.28	0.14	0.04	0.40
Steel (Tin) Cans	1.68	0.62	3.90	2.28	2.64	1.70	2.78	1.98	2.52	2.32	1.36
Other Scrap Metal	44.80	11.06	2.28	1.92	5.44	1.44	0.16	1.22	6.70	6.14	0.38
Recyclable Glass	9.28	3.90	0.00	7.10	7.16	11.18	3.22	2.98	14.98	3.46	17.62
Contaminated Recyclable Paper	1.80	7.80	28.86	11.56	7.58	2.10	9.20	18.74	6.00	3.84	3.46
Remainder/Composite Paper	1.66	3.40	5.20	2.58	5.68	4.06	2.34	4.36	4.24	2.60	1.82
Remainder/Composite Plastic	0.34	0.06	0.64	0.84	0.78	0.78	4.62	3.52	1.16	3.74	7.24
Remainder/Composite Metal	0.96	0.26	1.30	3.08	0.06	0.00	0.00	1.74	0.18	0.41	0.00
Remainder/Composite Glass	0.18	0.00	0.36	0.02	0.04	0.00	0.00	0.82	1.00	2.10	0.00
Textiles	1.56	8.04	11.76	0.38	4.38	0.16	16.32	9.76	17.36	0.10	0.10
Organic Materials	2.42	3.86	8.02	6.44	4.32	3.96	1.30	10.22	19.00	3.52	16.76
Pumpkins	0.00	4.36	0.00	0.00	0.00	5.78	0.00	0.50	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00
Personal Care Products	0.00	0.12	0.46	0.02	0.00	0.00	0.00	3.46	6.82	1.58	0.88
Electronics	0.00	0.00	0.04	0.48	0.34	0.00	0.38	2.04	0.52	0.00	0.00
HHW and Special Waste	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.18	0.12	0.71	0.00
Other Materials	11.66	22.76	66.82	38.88	51.74	28.14	20.60	48.36	36.06	17.28	22.60

[1] There is no Sample 288.

Table 34. Material Weight Sample Detail: Samples 298-309

Material Type	298	299	300	301	302	303	304	305	306	307	309
Clean Newspaper	1.72	4.92	2.02	8.50	6.88	2.86	5.62	6.02	7.14	1.66	2.94
Clean OCC	31.17	19.42	43.14	3.08	51.96	56.78	22.30	18.86	44.74	27.78	50.20
Clean Mixed Paper	23.60	23.18	29.96	23.54	37.18	26.82	30.48	33.82	31.12	22.90	25.82
Clean Aseptic and Poly-coated Packaging	0.94	0.82	0.42	0.94	1.06	1.76	1.46	2.00	1.42	2.00	1.10
#1 PET Bottles and Containers	6.44	6.30	6.20	3.30	4.56	6.70	10.40	7.90	9.54	8.90	3.08
#2 HDPE Bottles and Containers	5.10	9.56	4.24	1.44	4.12	1.86	3.84	3.40	2.84	4.14	1.56
#3, #4, #5, & #7 Bottles and Containers	3.34	2.60	4.30	2.36	1.90	1.58	3.88	2.58	2.78	3.42	1.80
Clear/Clean Plastic Bags and Other Film	0.34	0.06	0.54	0.08	0.26	0.30	0.12	0.10	0.30	0.46	1.14
Durable Plastic Items	1.00	9.40	2.00	3.04	5.16	1.18	3.64	2.00	0.00	10.38	1.64
Aluminum Beverage Cans	1.04	0.52	1.34	2.52	0.82	1.32	1.98	2.12	1.46	2.90	1.48
Aluminum Foil	0.06	0.20	0.10	0.16	0.12	0.78	0.26	0.04	0.26	0.02	0.10
Steel (Tin) Cans	1.66	3.40	1.74	1.40	0.98	1.94	4.10	4.52	2.78	1.92	0.72
Other Scrap Metal	0.28	2.42	0.26	1.90	1.36	6.42	0.70	0.14	3.74	0.54	0.28
Recyclable Glass	3.14	5.58	8.64	2.36	8.68	12.06	15.34	2.32	12.30	13.44	12.84
Contaminated Recyclable Paper	8.14	19.30	8.00	19.92	8.66	6.20	10.44	31.10	7.42	5.96	6.92
Remainder/Composite Paper	6.06	3.66	1.88	3.78	2.24	1.76	6.26	3.42	4.02	3.70	2.30
Remainder/Composite Plastic	0.44	0.42	0.22	2.90	0.62	0.38	2.56	0.36	0.88	2.54	0.04
Remainder/Composite Metal	0.02	0.24	0.28	0.78	0.70	0.68	0.00	0.26	0.92	1.66	0.50
Remainder/Composite Glass	0.52	0.06	0.00	0.84	1.14	0.24	2.24	0.00	0.00	1.40	0.34
Textiles	2.90	0.06	1.80	1.44	0.78	5.34	4.94	2.32	0.98	3.64	5.36
Organic Materials	18.30	3.36	3.30	5.18	2.96	1.20	8.44	1.06	0.92	10.42	7.54
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	1.10	0.00	0.04	0.18	0.00	1.14	0.10	0.00	0.92	1.98	0.00
Electronics	0.00	0.00	0.06	0.00	0.00	1.22	0.42	0.00	0.18	0.00	0.00
HHW and Special Waste	0.04	0.00	0.46	0.00	0.14	0.16	0.00	0.16	0.00	0.04	0.14
Other Materials	35.54	36.16	29.12	62.82	23.18	23.78	24.72	36.88	22.28	37.48	23.94

Table 35. Material Weight Sample Detail: Samples 310-320

Material Type	310	311	312	313	314	315	316	317	318	319	320
Clean Newspaper	3.42	3.00	2.00	2.72	3.44	3.00	3.28	3.86	2.16	5.32	1.82
Clean OCC	33.02	36.94	70.16	22.32	40.64	31.56	44.86	31.14	32.88	40.44	53.84
Clean Mixed Paper	47.62	27.56	30.26	21.08	34.18	39.08	29.84	30.82	33.82	50.36	20.28
Clean Aseptic and Poly-coated Packaging	1.14	2.04	0.76	0.82	1.18	1.52	1.04	0.88	1.60	1.38	0.26
#1 PET Bottles and Containers	8.46	8.56	5.64	5.22	6.44	12.46	8.10	5.16	4.12	7.48	4.24
#2 HDPE Bottles and Containers	7.14	2.18	3.20	2.28	2.06	6.08	4.38	4.82	3.74	2.02	2.54
#3, #4, #5, & #7 Bottles and Containers	1.76	4.34	2.32	2.04	2.64	4.28	2.32	2.10	1.92	2.50	2.52
Clear/Clean Plastic Bags and Other Film	0.34	0.12	0.32	0.10	0.84	0.68	0.12	0.32	0.26	1.08	0.44
Durable Plastic Items	0.90	4.60	3.34	1.88	4.28	1.98	4.24	1.72	3.48	1.32	6.32
Aluminum Beverage Cans	2.20	1.24	2.32	0.94	0.94	2.06	3.48	1.38	0.70	2.72	0.84
Aluminum Foil	0.02	0.12	0.04	0.12	0.52	0.26	0.08	0.28	0.30	0.16	0.08
Steel (Tin) Cans	2.30	2.92	1.24	1.88	2.34	3.50	2.60	2.86	0.68	3.28	2.70
Other Scrap Metal	2.90	1.88	8.12	0.86	0.44	2.54	1.06	4.66	8.72	0.98	2.68
Recyclable Glass	11.72	9.04	4.38	15.44	15.50	8.36	12.68	23.98	7.42	6.30	5.06
Contaminated Recyclable Paper	10.94	12.56	15.20	10.10	9.70	7.02	3.78	1.64	4.70	12.72	16.56
Remainder/Composite Paper	3.26	3.72	3.72	2.80	2.36	4.34	2.86	3.42	1.92	7.46	2.34
Remainder/Composite Plastic	1.64	10.64	0.22	0.76	0.24	2.74	3.04	0.58	0.90	1.80	0.52
Remainder/Composite Metal	2.24	4.30	0.36	0.48	0.30	0.10	3.00	8.76	0.00	2.50	0.28
Remainder/Composite Glass	0.94	0.00	0.00	0.46	0.00	1.10	1.68	1.00	0.00	0.14	0.08
Textiles	3.50	0.20	0.32	3.32	0.98	0.18	0.46	18.72	0.40	0.46	12.90
Organic Materials	2.08	2.90	1.10	2.94	7.00	3.44	10.94	14.64	7.60	4.94	1.18
Pumpkins	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00
Personal Care Products	0.04	0.56	0.82	10.94	2.30	0.02	0.00	1.56	0.00	9.10	0.88
Electronics	2.84	0.20	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.24
HHW and Special Waste	0.20	0.26	0.10	3.56	0.09	0.02	0.00	0.68	0.00	0.08	0.00
Other Materials	45.22	20.14	21.48	55.68	27.64	13.78	27.58	23.32	32.78	26.00	43.38

Table 36. Material Weight Sample Detail: Samples 321-331

Material Type	321	322	323	324	325	326	327	328	329	330	331
Clean Newspaper	2.66	0.66	0.98	2.70	0.54	2.46	1.42	3.96	4.72	2.64	8.10
Clean OCC	36.92	20.06	53.32	26.04	33.79	25.58	84.96	42.40	50.65	46.26	46.82
Clean Mixed Paper	19.16	17.42	15.36	25.88	24.00	23.80	41.14	26.18	41.20	36.78	41.40
Clean Aseptic and Poly-coated Packaging	0.78	0.52	0.90	0.50	1.62	1.40	0.94	1.64	1.88	1.24	0.84
#1 PET Bottles and Containers	2.56	4.72	5.42	4.80	6.34	6.90	6.54	6.60	8.36	8.90	4.42
#2 HDPE Bottles and Containers	2.66	2.36	1.78	3.72	2.80	4.56	2.50	3.30	2.32	3.44	3.48
#3, #4, #5, & #7 Bottles and Containers	2.06	1.76	3.80	2.56	1.80	2.90	1.88	2.64	2.62	3.68	1.64
Clear/Clean Plastic Bags and Other Film	0.40	0.20	0.48	0.16	0.84	1.90	2.20	0.34	0.06	0.52	0.18
Durable Plastic Items	1.46	3.48	4.22	3.16	5.32	2.44	2.92	10.16	3.24	4.12	1.80
Aluminum Beverage Cans	0.72	0.58	1.10	1.70	0.38	0.76	0.86	1.78	1.24	2.32	1.18
Aluminum Foil	0.12	0.14	0.24	0.34	0.24	0.66	0.10	0.42	0.16	0.26	0.02
Steel (Tin) Cans	2.18	1.84	5.68	1.70	2.10	2.50	1.22	2.74	1.52	2.22	1.86
Other Scrap Metal	1.40	0.10	0.32	6.06	9.12	1.18	1.66	5.32	12.14	0.76	5.50
Recyclable Glass	18.78	3.90	7.54	1.64	2.70	6.42	2.46	6.68	27.02	9.22	3.05
Contaminated Recyclable Paper	5.02	13.50	9.04	18.78	9.36	5.53	8.30	5.46	3.72	6.98	9.68
Remainder/Composite Paper	2.56	4.34	4.86	5.58	3.70	7.92	4.28	7.94	2.46	4.78	3.54
Remainder/Composite Plastic	3.26	0.62	1.64	3.58	0.50	9.56	0.58	0.76	1.34	7.06	0.36
Remainder/Composite Metal	0.00	1.58	0.72	8.46	4.92	0.16	0.14	0.16	0.00	0.34	0.00
Remainder/Composite Glass	0.00	0.12	0.14	0.36	0.96	0.00	0.10	0.00	0.38	0.40	0.24
Textiles	5.64	9.20	4.62	16.28	1.82	7.88	2.82	2.06	0.06	3.90	1.04
Organic Materials	7.66	7.26	4.62	3.60	16.82	2.94	2.40	9.04	3.76	5.52	2.10
Pumpkins	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Waste	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
Personal Care Products	2.38	1.02	5.20	1.16	0.64	0.00	0.20	2.46	2.68	0.26	0.00
Electronics	0.18	2.88	0.16	0.02	0.26	7.10	0.00	0.00	0.00	0.00	0.36
HHW and Special Waste	0.16	0.14	0.30	0.18	0.28	0.08	0.14	0.60	0.00	0.00	0.00
Other Materials	41.96	58.22	34.38	41.96	50.02	46.38	25.28	49.06	13.12	25.02	26.90

Table 37. Material Weight Sample Detail: Samples 332-335

Material Type	332	333	334	335
Clean Newspaper	10.66	0.40	0.86	2.62
Clean OCC	32.78	112.20	74.22	19.22
Clean Mixed Paper	43.18	20.40	26.30	21.40
Clean Aseptic and Poly-coated Packaging	1.94	0.70	0.90	1.62
#1 PET Bottles and Containers	6.18	5.20	4.32	5.36
#2 HDPE Bottles and Containers	2.16	1.50	0.90	3.12
#3, #4, #5, & #7 Bottles and Containers	2.00	0.70	3.62	1.60
Clear/Clean Plastic Bags and Other Film	0.78	1.70	0.24	0.10
Durable Plastic Items	0.42	4.40	0.32	1.76
Aluminum Beverage Cans	0.92	0.20	0.98	2.48
Aluminum Foil	0.12	0.90	0.06	0.16
Steel (Tin) Cans	1.72	0.40	0.74	2.44
Other Scrap Metal	0.02	0.05	4.46	1.36
Recyclable Glass	10.04	1.50	13.56	5.60
Contaminated Recyclable Paper	9.22	0.80	13.58	13.52
Remainder/Composite Paper	3.96	0.70	0.96	2.74
Remainder/Composite Plastic	0.06	0.00	0.04	0.74
Remainder/Composite Metal	0.00	0.00	0.00	1.12
Remainder/Composite Glass	0.00	0.00	0.00	0.00
Textiles	5.60	0.00	0.88	0.24
Organic Materials	1.80	2.20	0.64	8.96
Pumpkins	0.00	0.00	0.00	3.48
Medical Waste	0.00	0.00	0.00	0.00
Personal Care Products	0.70	0.00	0.62	6.46
Electronics	0.00	1.10	0.00	0.58
HHW and Special Waste	0.16	0.00	0.00	0.26
Other Materials	22.66	7.00	8.50	49.66

Appendix D: Sample Photos

GW MRF Sample Photos

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CWS MRF Sample Photos

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APPENDIX C – Opps and Good Job Cart Tags

APPENDIX C – Opps and Good Job Cart Tags

Double-Sided Oops Tag

Tagged carts will be collected. *Carts with Household Hazardous Waste may not be collected.*

Se recogerán los contenedores etiquetados. No se recogerán los contenedores con desechos domésticos peligrosos.

Thùng rác có gắn thẻ sẽ được thu gom. Thùng rác chứa Rác Thải Gia Dụng Nguy Hại có thể không được thu gom.

OOPS!

¡Uy!

Ôi, không được!

SAN JOSE

We found these in your recycling cart.
Please keep these out of your recycling.

Encontramos estos en su contenedor de reciclaje.
Por favor, manténgalos fuera de su reciclaje.

Thùng rác tái chế của quý vị có những thứ này.
Xin đừng bỏ những thứ này trong thùng rác tái chế.

Non-Recyclable Plastics: Styrofoam (plastic #6), wrap, packaging bags
Place in garbage or bring plastic bags, wrap, and packaging to a drop off location.
Plásticos no reciclables: Plástico nº 6, bolsas, envoltura, materiales de empaque
Deposítelos en la basura o lleve bolsas de plástico, envoltura y materiales de empaque a un punto de recolección.
Nhựa/Nilon Loại Không Tái Chế Được: Nhựa số 6, túi, màng bọc, bao bì
Bỏ vào thùng rác thải bình thường hoặc mang túi nilon, màng bọc và bao bì tới địa điểm tiếp nhận.

Dirty or Non-Recyclable Paper
Place in garbage.
Papel sucio o no reciclable
Deposítelo en la basura.
Giấy Bẩn hoặc Không Thể Tái Chế
Bỏ vào thùng rác thải bình thường.

Bagged Recyclables
Do not bag items. Keep loose.
Reciclables en bolsas • No ponga los artículos en bolsas. Manténgalos sueltos.
Đồ Tái Chế Trong Túi • Đừng bỏ đồ tái chế vào túi. Hãy để rời.

Food, Garbage
Place in garbage.
Comida, basura
Deposítelo en la basura.
Thực Phẩm, Rác Thải Thường
Bỏ vào thùng rác thải bình thường.

Yard Waste, Construction Debris
Place yard trimmings in yard waste. Special instructions for construction debris at:
Residuos del jardín, escombros de construcción
Ponga los recortes de jardín con los residuos de jardín. Instrucciones especiales para escombros de construcción en:
Rác Thải Sân Vườn, Rác Vụn Xây Dựng
Bỏ rác thải sân vườn vào thùng rác sân vườn. Hướng dẫn đặc biệt xử lý phế liệu xây dựng có tại:
SanJoseRecycles.org

Household Hazardous Waste (including E-Waste)
Make a *FREE* appointment.
Residuos peligrosos del hogar (incluyendo desechos electrónicos)
Programe una cita *SIN COSTO*.
Rác Thải Gia Dụng Nguy Hại (bao gồm cả rác thải điện tử)
Làm hẹn *MIỄN PHÍ*.
HHW.org • (408) 299-7300

Dirty Recyclables with Food/Liquid
Empty and scrape before recycling.
Reciclables sucios con comida/líquidos
Vacíelos y ráspelos antes de reciclar.
Đồ Tái Chế có dính Bẩn Thức Ăn/Chất Lỏng
Hãy trút hết toàn bộ và vét sạch trước khi tái chế.

Bulky Items
Schedule a Junk Pickup at NO COST.
Artículos grandes • Programe una recogida de artículos grandes SIN COSTO.
Đồ Cồng Kềnh
Làm hẹn Thu Gom Rác MIỄN PHÍ.

Clothing, Shoes, Textiles
Donate or place in garbage.
Ropa, zapatos, textiles
Dónelos o tírelos a la basura.
Quần Áo, Giày Dép, Vải Vóc
Quyên góp hoặc bỏ vào thùng rác thải hàng thường

For more information and to provide feedback:
Para más información y para enviar comentarios:
Để biết thêm thông tin và chia sẻ phản hồi:
SJEnvironment.org/CartTags
(408) 975-2550
ZeroWaste@sanjoseca.gov

These Are Recyclable

Estos son reciclables
Đây Là Rác Có Thể Tái Chế Được

SAN JOSE

Don't bag recyclables.
Keep items loose.

No ponga los reciclables en bolsas, manténgalos sueltos.
Không bỏ rác tái chế vào túi, hãy để rời.

Clean Plastic #1-5 and 7
(unless labeled compostable)
Plástico limpio nº 1-5 y 7
(al menos que lleve etiqueta de compostable)
Nhựa Sạch số 1-5 và 7
(trừ khi được dán nhãn là có thể phân hủy)

Clean, dry paper
Papel limpio y seco
Giấy sạch, khô

Clean Metal
Metal limpio • Kim Loại Sạch

Clean Glass Jars and Bottles
Botellas y botes de vidrio limpios
Chai Lọ Thủy Tinh Sạch

Recycling can be confusing.
Here are three tips to recycle right:

El reciclaje puede ser confuso. Aquí hay tres consejos para reciclar correctamente: • Quá trình tái chế có thể hơi khó hiểu. Dưới đây là ba mẹo để tái chế đúng cách:

- **Empty and scrape containers before recycling. No need to rinse.**
  Vacíe y raspe el contenido en la basura antes de reciclar. No hay necesidad de enjuagar. Trút hết toàn bộ và vét sạch đồ bên trong vào thùng rác thải bình thường trước khi tái chế. Không cần rửa.
- **Recycle plastics #1-5 and #7 (unless labeled compostable).** Recicla plástico #1-5 y 7 (a menos que esté etiquetado como compostable). Tái chế nhựa số 1-5 và 7 (trừ khi có nhãn dễ phân hủy).
- **Keep recyclables loose; do not bag recyclables.**
  Mantén los reciclables sueltos; nunca en bolsas.
  Để rời rác tái chế; không bỏ rác tái chế vào túi.

SanJoseRecycles.org/Extra-Garbage

Look up what's recyclable

SanJoseRecycles.org

Busque lo que es reciclable
SanJoseRecicla.org
Tìm hiểu những gì có thể tái chế
SanJoseTaiChe.org

Double-Sided Good Job Tag

APPENDIX D – Strategy Impacts on Contamination Analysis

Strategy Impacts on Contamination

1 OVERVIEW

The purpose of this section is to expand on the methodology and analysis used to measure the overlap of various tactics employed to reduce recycling contamination and how those efforts relate to the results of the Fall 2024 curbside study. These efforts include the following three Single-Family Dwelling pilot studies since 2021:

1. Larger Garbage Cart Study: Approximately 8,500 households were offered a larger garbage cart at no additional charge to test if the larger garbage cart reduced recycling contamination. In 2022, 4,200 households upsized to a 96-gallon cart while in 2024, 4,500 households upsized from a 32-gallon to a 64-gallon, and from a 64-gallon to a 96-gallon cart.
2. In-mold cart lids: In 2021, 4,800 recycling cart lids were installed as a pilot. An additional 6,205 in-mold cart lids were installed in 2024 with trilingual graphics to educate the residents on how to properly recycle. Additional cart lids will be deployed as carts are replaced.
3. Contamination and Recycling Tagging (CART): Since March 2024, a field team of eight recycling ambassadors has visually inspected over 55,500 recycling carts and left educational Oops and Good Job labeled tags based on findings to reduce contamination.

In addition to these three tactics that were implemented to reduce route-level contamination, citywide tactics such as the Recycle Right outreach efforts and mailing of the Residential Services Program guide are also identified as likely contributors to the reduction in contamination from a qualitative standpoint. To ensure a balanced interpretation of the findings, it is essential to acknowledge that these tactics were not implemented as part of a controlled academic research project, where robust controls are typically in place to account for potential interactive effects between strategies. Instead, multiple tactics were applied simultaneously in areas identified as having higher contamination levels, based on prior studies.

As a result, the findings from the Fall 2024 Curbside Study should be viewed within the context of the collective impact of these tactics rather than as a definitive measure of the effectiveness of any individual tactic in isolation. This nuanced understanding helps to accurately reflect the real-world application of these strategies.

2 METHODOLOGY AND RESULTS FOR STATISTICAL ANALYSIS

Relating Larger Garbage Study Cart efforts to the Fall 2024 Curbside Study Results

The Shapiro-Wilk test was performed to verify that the change in contamination levels was normally distributed across all routes. Bartlett's test was then conducted to confirm homogeneity of variance in the two-year percentage point change in contamination from Fall 2022 to Fall 2024 between routes that received a larger garbage cart and those that retained their original cart. Given these results, a point-biserial correlation test was employed to examine the relationship between route-level contamination changes and the binary variable representing whether a route received a larger garbage cart. This test, appropriate for binary variables and data with an approximately normal distribution, revealed a weak negative correlation between the variables. However, the correlation was not statistically significant ($n_{larger} = 10$, $n_{original} = 224$, $r = -0.09$, $p = 0.194$, $\alpha = 0.05$).

Further, the Shaprio-Wilk test confirmed that contamination changes were normally distributed within both groups: routes that received a larger garbage cart and those that retained the original cart. Because of the large difference in sample size between groups, a non-parametric analysis was selected as the most appropriate statistical test, therefore the Wilcoxon rank sum test was used to compare the median change in contamination at the route level between the two groups of routes, based on selection for receiving a larger garbage cart. Results indicated that the median decrease in contamination for routes that received a larger garbage cart was not significantly different than the decrease in contamination for routes that retained the original cart ($n_{larger} = 10$, $n_{original} = 224$, $M_{larger} = -25.9$, $M_{original} = -17.0$, $p = 0.184$, $\alpha = 0.05$).

Relating In-Mold Cart Lid Installation Efforts to the Fall 2024 Curbside Study Results

The Shapiro-Wilk test was used to confirm: 1) that the change in contamination was normally distributed across all routes, 2) that the change contamination was normally distributed within the two groups of routes based on lid status, and 3) that the that percent of accounts that received in-mold lids was not normally distributed across all routes. The Bartlett's test was used to confirm that the variance in the change in contamination between routes that received an in-mold lid with images and routes that retained the original lid was not equal. Therefore, a Spearman correlation was used to determine the relationship between the change in route level contamination and route selection for receiving an in-mold lid. There was a mild negative correlation between the variables, and the correlation was statistically significant ($n_{in\text{-}mold} = 25$, $n_{not\ in\text{-}mold} = 209$, $r = -0.39$, $p = 4.18e\text{-}10$, $\alpha = 0.05$).

Because of large differences in sample size between groups, a non-parametric analysis was selected as the most appropriate statistical test, therefore the Wilcoxon rank sum test was used to compare the median

change in contamination at the route level between the two groups of routes, based on selection for receiving an in-mold lid. The median decrease in contamination for routes that received an in-mold lid was significantly greater than the decrease in contamination for routes that retained the original lid ($n_{\text{in-mold}} = 25$, $n_{\text{not in-mold}} = 209$, $M_{\text{in-mold}} = -37.0$, $M_{\text{not in-mold}} = -13.8$, $p = 1.45e\text{-}9$, $\alpha = 0.05$)

Relating CART Efforts to the Fall 2024 Curbside Study Results

The Shapiro-Wilk test was used to confirm: 1) that the change in contamination was normally distributed across all routes, 2) that the change in contamination was not normally distributed within the two groups of routes based on educational tag status, and 3) that the percent of accounts that were tagged was not normally distributed across all routes. The Bartlett's test was used to confirm that the variance in the change in contamination between routes that received educational cart tags and routes that did not receive cart tags was equal. Therefore, a Spearman correlation was used to determine the relationship between the change in route level contamination and route selection for receiving cart tags. There was a moderate negative correlation between the variables, and the correlation was statistically significant ($n_{\text{tagged}} = 84$, $n_{\text{not tagged}} = 150$, $r = -0.45$, $p = 2.81e\text{-}13$, $\alpha = 0.05$).

Because the assumptions for a parametric analysis were not satisfied, the Wilcoxon rank sum test was used to compare the median change in contamination at the route level between the two groups of routes, based on selection for receiving educational cart tags. The median decrease in contamination for routes that received cart tags was significantly greater than the decrease in contamination for routes that did not receive cart tags ($n_{\text{tagged}} = 84$, $n_{\text{not tagged}} = 150$, $M_{\text{tagged}} = -28.6$, $M_{\text{not tagged}} = -8.9$, $p = 3.89e\text{-}11$, $\alpha = 0.05$).

Similar results were observed from the Spearman correlation and Wilcoxon rank sum tests when routes that received a larger garbage cart or an in-mold lid were excluded. There was a mild negative correlation between the variables, and the correlation was statistically significant ($n_{\text{tagged}} = 60$, $n_{\text{not tagged}} = 142$, $r = -0.37$, $p = 6.59e\text{-}8$, $\alpha = 0.05$). The median decrease in contamination for routes that received cart tags was significantly greater than the decrease in contamination for routes that did not receive cart tags ($n_{\text{tagged}} = 60$, $n_{\text{not tagged}} = 142$, $M_{\text{tagged}} = -29.8$, $M_{\text{not tagged}} = -7.0$, $p = 6.24e\text{-}7$, $\alpha = 0.05$).

3 ANALYSIS

Relating Larger Garbage Cart Study Efforts to the Fall 2024 Curbside Study Results

Between Fall 2022 and Fall 2024, routes that were given larger garbage carts did not show a statistically significant reduction in contamination compared to routes that kept their original cart size. On average, the median contamination on routes with larger carts decreased by 26 percentage points, while routes with

original cart sizes saw a median reduction of 17 percentage points. Out of the 10 routes with larger garbage carts, three received both in-mold lids and tagging, and six received only tagging.

The box plot (Figure D-1) compares the change in recycling contamination levels for routes with larger garbage carts versus those with original-sized carts over two years. There is overlap in the ranges between routes that received a larger garbage cart and routes that retained the original cart, such that the decrease in contamination for all routes that received a larger garbage cart is within the range of decrease for routes that retained the original cart size.

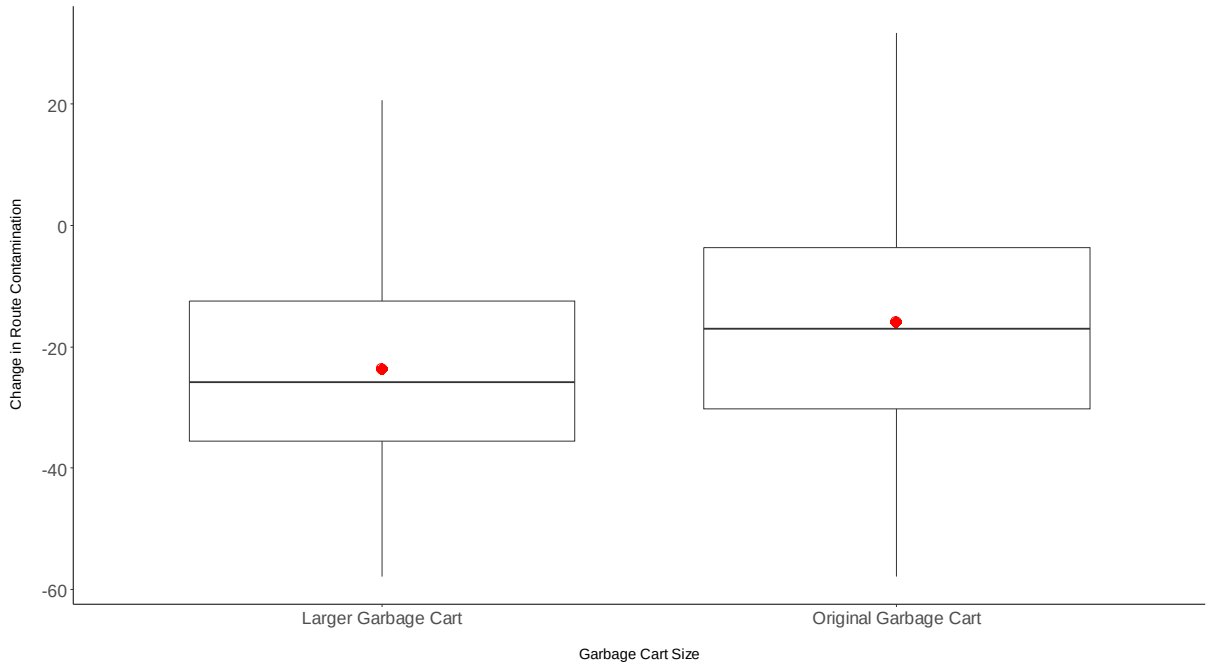

Figure D-1: Comparing the two-year change in contamination for routes that received a larger garbage cart and routes that retained the original cart size. The middle line in each box shows the median (the midpoint of the data). The red dot represents the mean change in contamination. The boxes cover the middle 50 percent of data (from the 25th to the 75th percentile). The vertical lines (whiskers) extend to show most of the data (5th to 95th percentile). The decrease in contamination for all routes that received a large garbage cart is within the range of decrease for routes that retained the original cart size.

Relating In-Mold Cart Lid Installation Efforts to the Fall 2024 Curbside Study Results

Routes that had in-mold lids before the Fall 2024 study showed a much larger reduction in contamination compared to routes with the original lids. On average, the median contamination dropped by 37 percentage points for in-mold lid routes, while it dropped by only 14 percentage points for routes with original lids –

a difference of 23 percentage points. This difference is statistically significant, meaning it is unlikely to have happened by chance. Additionally, there was a mild but statistically significant negative correlation between contamination reduction and the percentage of accounts tagged within a route. This means that routes with more tagged accounts tended to see greater reductions in contamination. Among the 25 routes which received in-mold lids, 20 were tagged, three had received larger garbage carts, and all the three routes with larger garbage carts were also tagged.

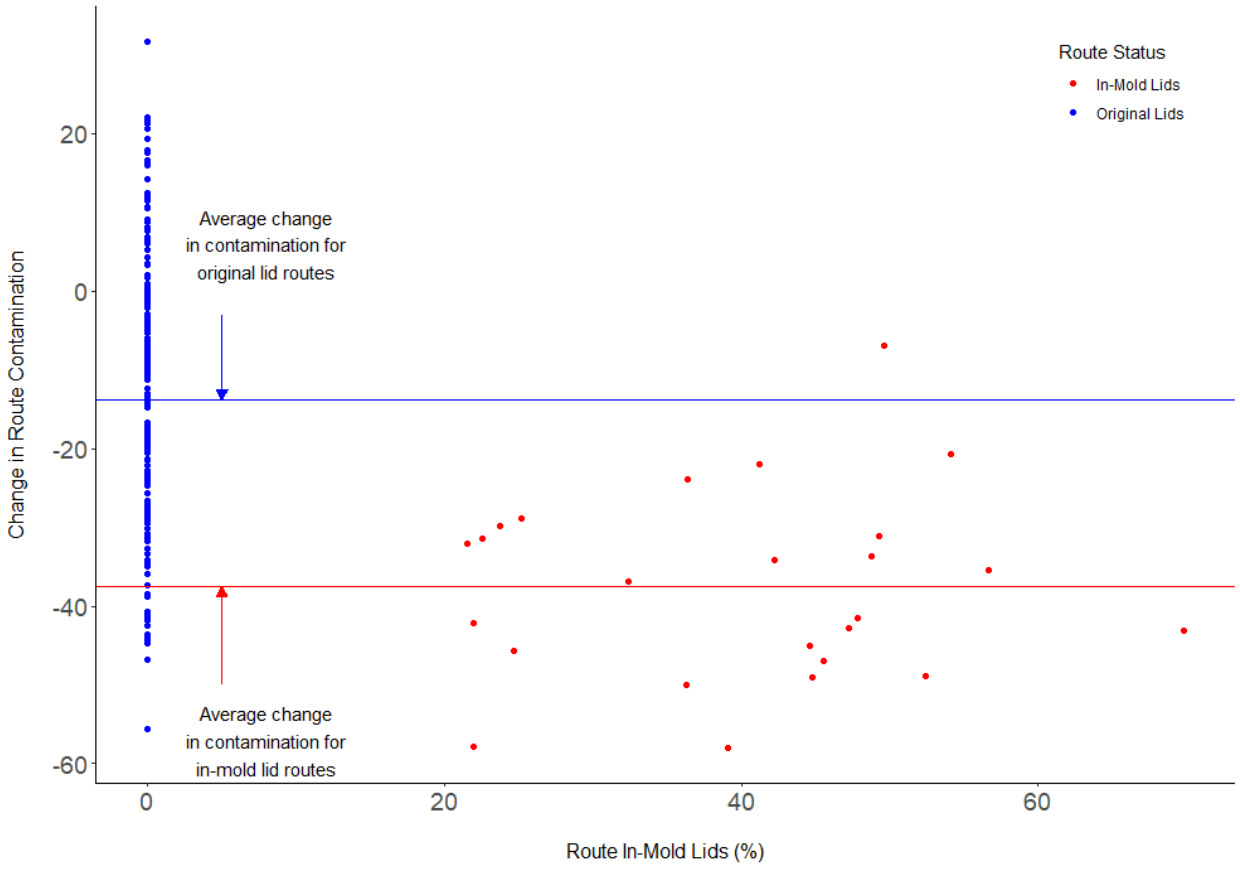

Figure D-2: Evaluating how changes in the portion of a route that received an in-mold lid relates to the two-year change in contamination. The red points indicate in-mold lid routes while the blue points indicate original lid routes. The red line represents the average reduction for in-mold lid routes, and the blue line shows the average reduction for original lid routes. The median contamination dropped by 37 percentage points for in-mold lid routes, while it dropped by only 14 percentage points for routes with original lids

The chart shown in Figure D-2 compares contamination reduction for in-mold lid routes and original lid routes. In-mold lid routes had a statistically significant larger average decrease in contamination than original lid routes, meaning it is unlikely that the drop in contamination for in-mold lid routes was observed randomly. The significant mild negative correlation between the portion of the route that received in-mold lids and the average change in contamination means that generally contamination dropped when more carts

in a route received an in-mold lid, however, the magnitude of the drop in contamination is not consistently observed in routes when the portion of in-mold lids installed in the route increases.

Relating CART Efforts to the Fall 2024 Curbside Study Results

The chart shown in Figure D-3 shows the mean two-year reduction in route-level contamination for routes tagged prior to the Fall 2024 study was significantly greater than for non-tagged routes, with tagged routes reducing contamination by 20 percentage points more on an average compared to non-tagged routes. Specifically, tagged routes saw a median contamination reduction of 29 percentage points, while non-tagged routes had a reduction of nine percentage points. This difference is statistically significant, meaning that is unlikely that the difference was observed randomly. In addition, there was a statistically significant moderately strong negative correlation observed between contamination reduction and the percentage of accounts tagged in a route. This means that routes with a higher percentage of tagged accounts tended to see larger contamination reductions.

Of the 84 routes that received tags, 20 also received in-mold lids, six also received larger garbage carts, and three also received both in-mold lids and larger garbage carts. When routes with in-mold lids and larger garbage carts were excluded, tagged routes still showed a statistically significant greater reduction in contamination compared to non-tagged routes, with a difference of 19 percentage points. In this case, tagged routes saw an average reduction of 27 percentage points, compared to eight percentage points for non-tagged routes. A statistically significant mildly strong negative correlation was observed between percentage of accounts tagged in a route and contamination reduction in these routes. This emphasizes the effectiveness of tagging in reducing contamination levels, even when accounting for other co-mingled factors like in-mold lids or larger garbage carts.

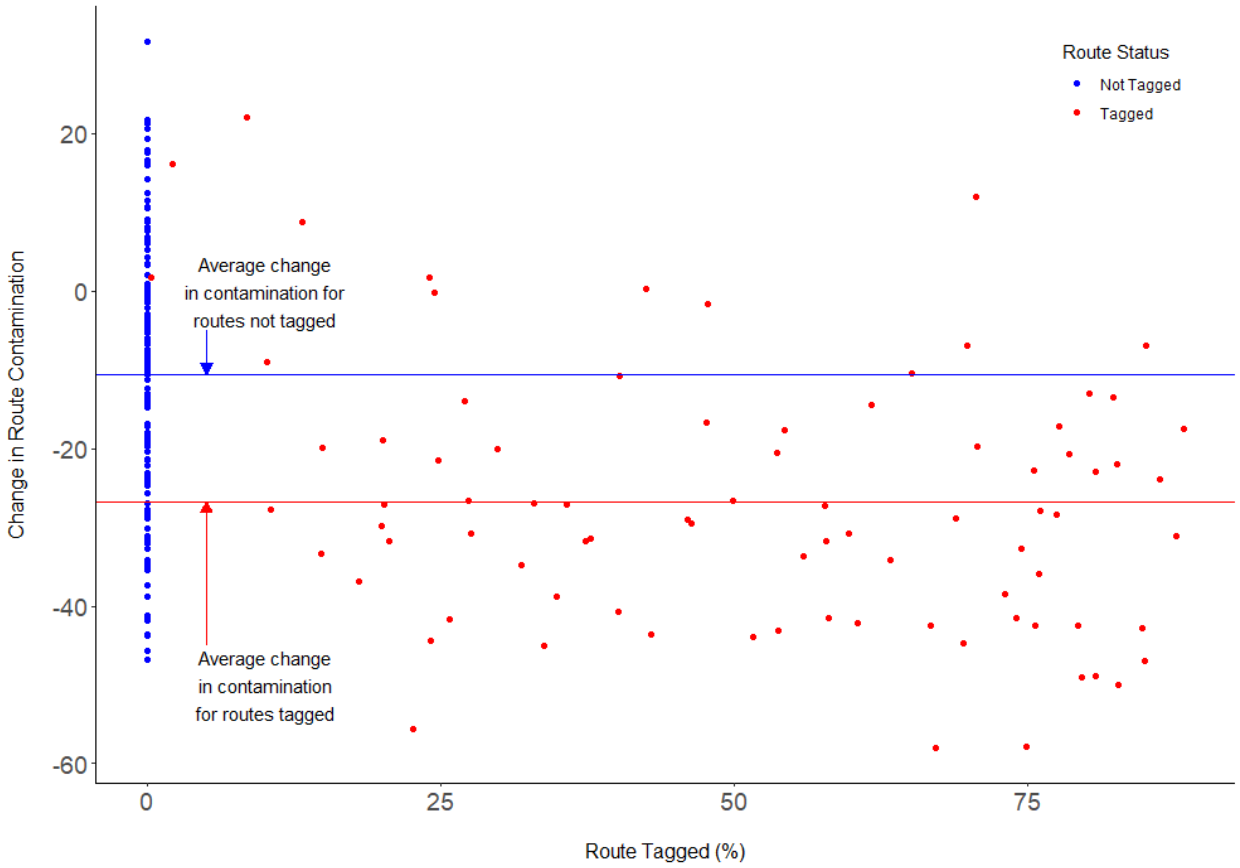

Figure D-3: Evaluating how changes in the portion of a route that received tagging relates to the two-year change in contamination. Red points indicate tagged routes, blue points indicate non-tagged routes. The red line represents the average reduction for tagged routes, while the blue line represents the average reduction for non-tagged routes. Tagged routes saw a median contamination reduction of 29 percentage points, while non-tagged routes had a reduction of nine percentage points.

Summary of Statistical Power Analysis

A post-hoc power analysis was performed to estimate the statistical power of the tests that were performed to evaluate the effects of the three contamination reduction tactics. The statistical power analysis is used to further evaluate the adequacy of sample size and assess the robustness of significant findings.

The table below summarizes the descriptive statistics for each comparison group, detailing the number of routes (n), the mean, median, standard deviation (SD), and the range of contamination reduction values between Fall 2022 and Fall 2024 studies.

Table D-1: Summary statistics for the two-year route-level change in contamination based on the tactic employed.

Group	n	Min	Mean	SD	Median	Max
Larger Garbage Cart	10	-57.87	-23.74	21.47	-25.91	20.69
Original Garbage Cart	224	-57.96	-16.05	18.11	-17.00	31.72
In-Mold Lid Route	25	-57.96	-37.51	12.04	-36.92	-6.93
Original Lid Route	209	-55.59	-13.85	17.25	-13.85	31.72
Tagged Routes	84	-57.96	-26.78	16.71	-28.60	22.10
Not Tagged Routes	150	-46.81	-10.54	16.49	-8.88	31.72
Tagged Routes in Isolation	61	-55.59	-22.69	16.36	-26.68	22.10
Not Tagged Routes in Isolation	141	-46.81	-9.86	16.10	-7.65	31.72

Key Findings from Power Analysis

1. **Larger Garbage Cart Study:**
    - **Power:** 0.25 (low).
    - **Observation:** The mean contamination reduction for Larger Garbage Cart Study routes (-24%) was greater than that for Original Garbage Cart routes (-16%). However, the small sample size (n=10) limited the statistical power of this analysis.

2. **In-Mold Lid Routes:**
    - **Power:** 1.00 (high).
    - **Observation:** New Lid Routes showed a significantly larger mean reduction (-38%) compared to Old Lid Routes (-14%). The high statistical power and robust sample size (n=25 for New Lid, n=209 for Old Lid) support the reliability of these results.

3. **CART Tagging Routes:**
    - **Power:** 1.00 (high).
    - **Observation:** Tagged routes demonstrated a significantly higher mean reduction (-27%) compared to Non-Tagged routes (-11%). With a sample size of n=83 (Tagged) and n=151 (Not Tagged), the findings are well-supported.

4. **CART Tagging Routes in Isolation:**
    - **Power:** 0.99 (high).
    - **Observation:** Tagged routes demonstrated a significantly higher mean reduction (-23%) compared to Non-Tagged routes (-10%). With a sample size of n=61 (Tagged) and n=141 (Not Tagged), the findings are well-supported.

4 TAKEAWAYS

In conclusion, the findings for each tactic are summarized below.

Larger Garbage Carts: Routes with a larger garbage cart were observed with a greater average decrease in contamination between the Fall 2022 and Fall 2024 studies, but the difference was not statistically significant. Due to the relatively few routes offered a larger garbage cart and the large overlap in tactics employed in those routes, staff cannot confidently conclude that the cart size was the main factor driving the contamination change.

In-Mold Lids: In-mold lid routes had a statistically significant larger average decrease in contamination between the Fall 2022 and Fall 2024 studies than original lid routes, and there was a significant mildly strong negative correlation between the portion of the route that was tagged and the average change in contamination. This means that routes with more tagged accounts tended to see greater reductions in contamination, but the magnitude of the reduction was not consistently observed along all in-mold lid routes.

CART: The routes tagged before the Fall 2024 study showed a significantly greater average reduction in route-level contamination between the Fall 2022 and Fall 2024 studies compared to non-tagged routes. There was a statistically significant moderately strong negative correlation observed between contamination reduction and the percentage of accounts tagged in a route. This means that routes with a higher percentage of tagged accounts tended to see larger contamination reductions. When routes with in-mold lids and larger garbage carts were excluded, tagged routes still showed a statistically significant greater reduction in contamination compared to non-tagged routes.

Overall, CART tagging, and in-mold lids demonstrated statistically significant contamination reduction with high confidence. While the Larger Garbage Cart Study showed promising results, the smaller number of routes limits definitive conclusions. This data supports the strategic prioritization of CART tagging and in-mold lids while suggesting further evaluation for larger garbage carts.