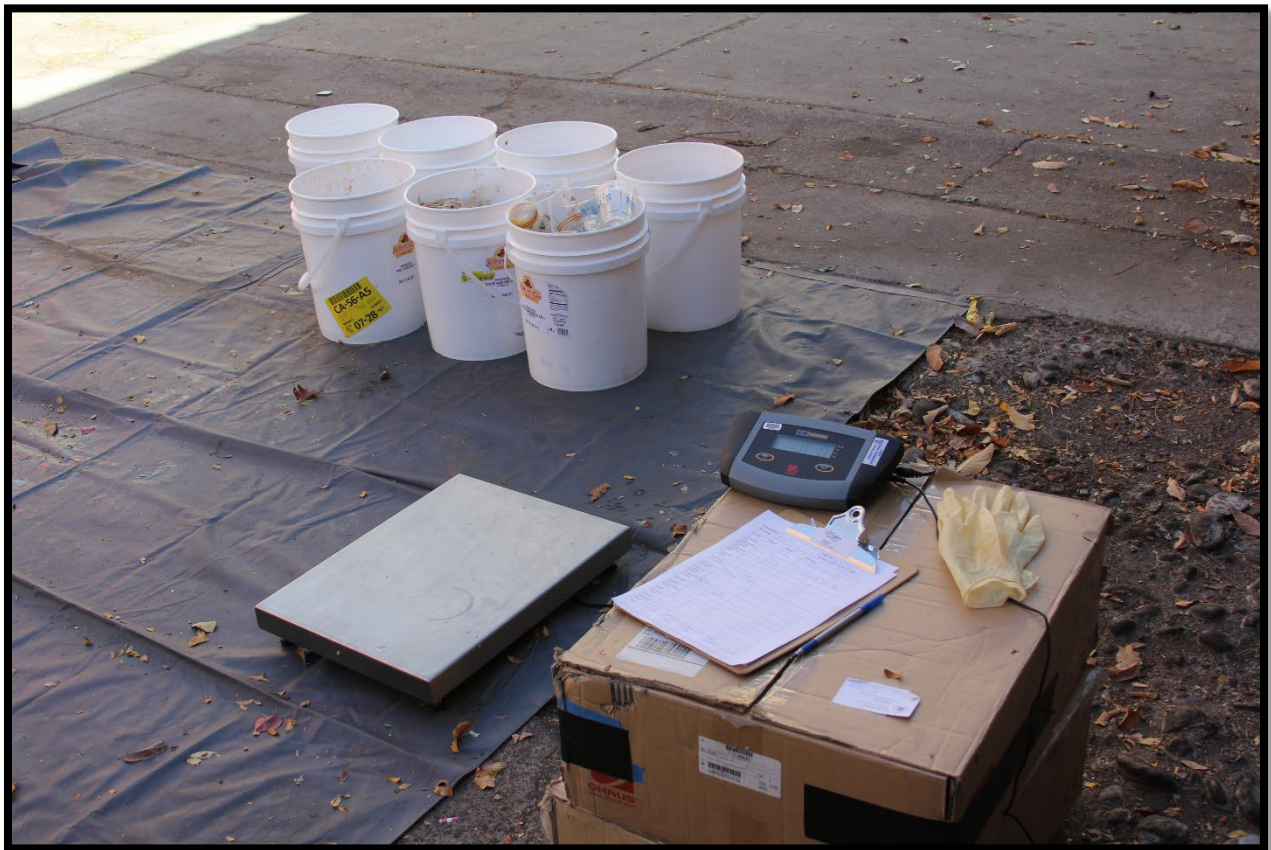


## Restaurant Waste Sort

2016-2017



## **Executive Summary**

Between October 2016 and April 2017, the City of Fort Collins conducted ten waste audits of restaurants with the primary goal of obtaining information on the amount of organic waste generated and disposed of at restaurants. Secondary goals included examining the diversion rates, contamination rates of the recycle stream and the potential for further diversion at these restaurants. A primary finding across these audits was the high percent of organic materials that are being disposed of. From these audits, it was found that approximately 68% of what is thrown away is organic material. The findings from these waste audits will assist City staff in the consideration and proposal of future ordinances and educational campaigns to farther promote landfill diversion in the City of Fort Collins.

## **Waste Audit Information and Process**

Between October 2016 and April 2017, the City of Fort Collins conducted waste audits of several Fort Collins restaurants to gain a greater understanding of the composition of waste from these various restaurants. In total, ten waste audits were completed. The primary purpose of these sorts was to gather information on the amount of organic material generated across Fort Collins restaurants, with the secondary purpose of determining current diversion rates and contamination rates of the recycle stream across the 10 locations. Collectively, this information was utilized to determine each locations highest potential diversion rates.

Ten restaurants participated in the waste audits, four of which are quick service restaurants (restaurants with limited menus and food preparation primarily counter service) while the other six were full service restaurants (Increased menus and food preparation with full table service). The waste audits for each of the restaurants was performed mid-week where City staff collected and sorted all trash and recycling from restaurants. In general, contents were sorted into the following categories:

- Dry recoverable fibers (paper, cardboard, paperboard, and newspapers)
- Comingled containers (plastic containers/bottles, metal cans)
- Glass
- Plastic film (clean and recoverable)
- Food scraps including scraps from the following sources:
  - Preparation
  - Post-Consumer
  - Packaged or expired foods
- Wet or contaminated fiber (napkins, wet paper)
- Reusable Items (still in working condition)
- Hazardous waste
- Trash

Once sorted into the categories listed above, contents were weighed, the information was recorded and the waste was disposed of. Restaurants varied in both their access and use of single stream recycling containers; with nine of the participating restaurants having access to single stream recycling and five of the restaurants limiting their use to cardboard only.

## **Results**

### ***Quick Service Restaurants***

Quick service restaurants varied in their primary cuisine served ranging from hamburgers, soups and sandwiches to chicken. Bags of waste from three of the four quick service restaurants were sorted as “back of house” and “front of house” because the waste compositions were varied and distinct between preparation and post-consumer waste. On average, quick service restaurants had a diversion rate (the percent of total waste that is currently recycled) of approximately 19%, with the highest diversion rate being 39% and the lowest 9%.

While all four of the quick service restaurants have access to single stream recycling, one of the four restaurants only recycled their cardboard. When examining the contamination rate of the recycle stream (amount of non-recyclables included in the recycling), the average contamination rate was almost 9% with the lowest contamination rate being 0% from the restaurant only recycling cardboard. Potential diversion rates were calculated in two ways; the first, with maximized recycling, not including organics and the second with maximized recycling and organic material being diverted. The potential diversion rate that restaurants could achieve varied, with the average potential diversion rate with maximized recycling being approximately 23%.<sup>1</sup> Inclusion of organic materials significantly increased the potential diversion rate, raising the potential diversion rate to approximately 83.5%.

When assessing types of organic waste, across the quick service restaurants, most food scraps thrown away fall under the food preparation category, with an average of 31% of waste generated coming from food preparation scraps. Following food preparation, food scraps thrown away post-consumer was the next highest category for food waste approximating 11.75% of the waste stream across the four restaurants. Packaged foods did not comprise a large portion of the waste stream, and averaged less than 2%.

Wet and contaminated fiber also made up a significant portion of the waste stream with approximately 17.5% of the waste stream comprised of wet or contaminated fiber.

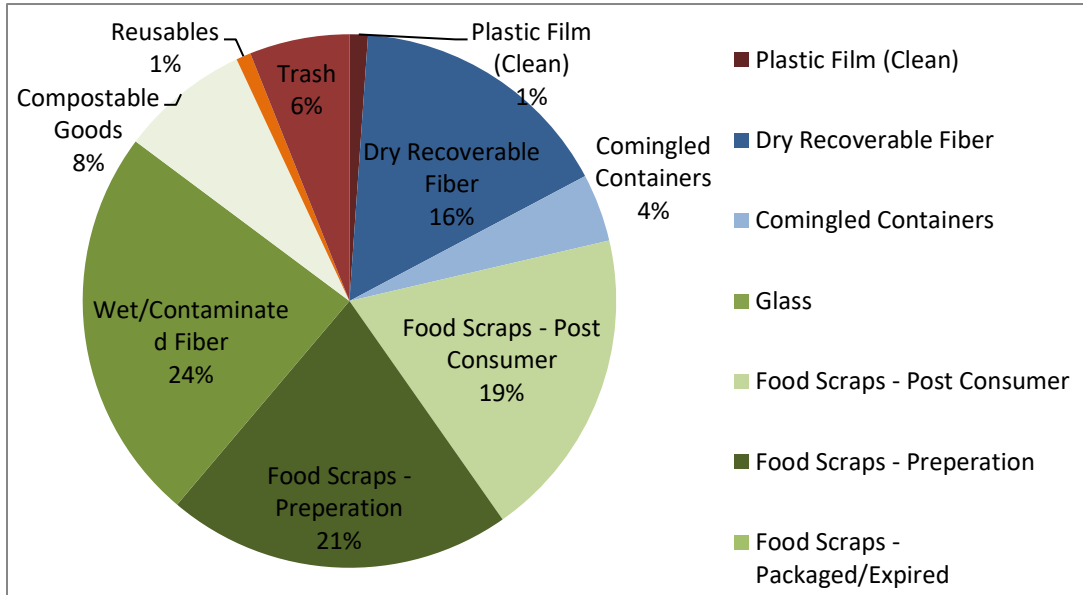
For each of the restaurants audited, the amount of total weekly waste and total organic waste (food scraps + wet/contaminated fiber) was calculated. Using the weekly total a yearly projection was calculated to determine the approximate amount of organic waste that is being disposed of by each restaurant.<sup>2</sup> For quick service restaurants, the average weekly total of organic waste is approximately 477.5 pounds with an average yearly total of 24,834 pounds.

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<sup>1</sup> Diversion rates are calculated by adding up the total pounds of materials found in the waste stream and subtracting the materials that could be recycled.

<sup>2</sup> Total weekly projections for organics are based upon the percentage of business that was done on the day the sort occurred. For example, if 12.5 % of business for the week was done on the day that the sort occurred, then 12.5% is divided by the total amount of waste to determine the total weekly amount of waste generated. To approximate the total amount of organics in the waste stream for a year, the weekly total pounds of organic waste was divided by the percent of business that was done, and then multiplied by 52 weeks for the year.

### Quick Service Restaurants



### Full Service Restaurants

On average, full service restaurants had a diversion rate of approximately 14%, with the highest diversion rate being 18% and the lowest 7%.

When examining the contamination rate of the recycle stream (amount of trash in the recycling), the average contamination rate is less than 4% with the lowest contamination rate being 0%. A possible explanation for why full service restaurants saw less contamination in their recycle stream than quick service restaurants is because on average, the full service restaurants audited also divert less than quick service restaurants. This is due in large part to the fact that many of these restaurants either do not have access to, or are not utilizing single-stream recycling containers. For example, two of the six full service restaurants have access to single stream recycling, but only use it to recycle their cardboard. On average, cardboard only recycling tends to have lower contamination rates than co-mingled single stream recycling. In sum, restaurants recycling only cardboard have less contamination, they are also typically diverting less.

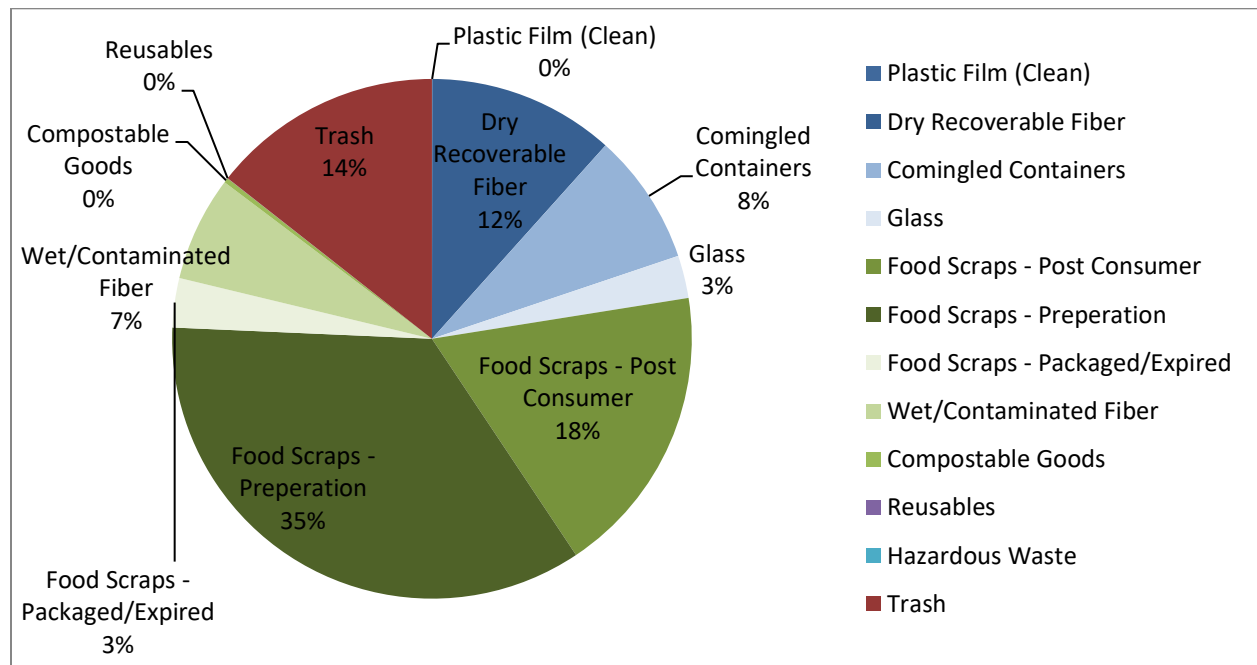
The potential diversion rate that full service restaurants could achieve varied, but since most of these restaurants did not have access to single stream recycling, there is greater opportunity to increase their diversion rate. The average potential diversion rate with maximized recycling was approximately 20% without organics. In addition, with the inclusion of organic materials, the potential diversion rates for full service restaurants increase from approximately 20% to approximately 90%.

Like quick service restaurants, most of food scraps thrown away fall under the food preparation category (with an average of 27% of waste generated coming from food preparation scraps). Following food preparation, food scraps thrown away post-consumer was the next highest category for food waste approximating 23% of the waste stream across the six restaurants. Packaged foods did not comprise a very large size of the waste stream, and averaged less than 2%.

Wet and contaminated fiber also made up a significant portion of the waste stream with approximately 13% of the waste stream comprised of wet and contaminated fiber.

For each of the restaurants audited, the amount of total weekly waste was calculated, and from that, what amount of total waste is organic waste (including contaminated fiber). From here, the total organic waste for a year of business is calculated to determine the approximate amount of organic waste that is going to the landfill. The average total of waste from organic material for full service restaurants is approximately 2803 pounds with an average yearly total of 145,750 pounds.

### Full Service Restaurants



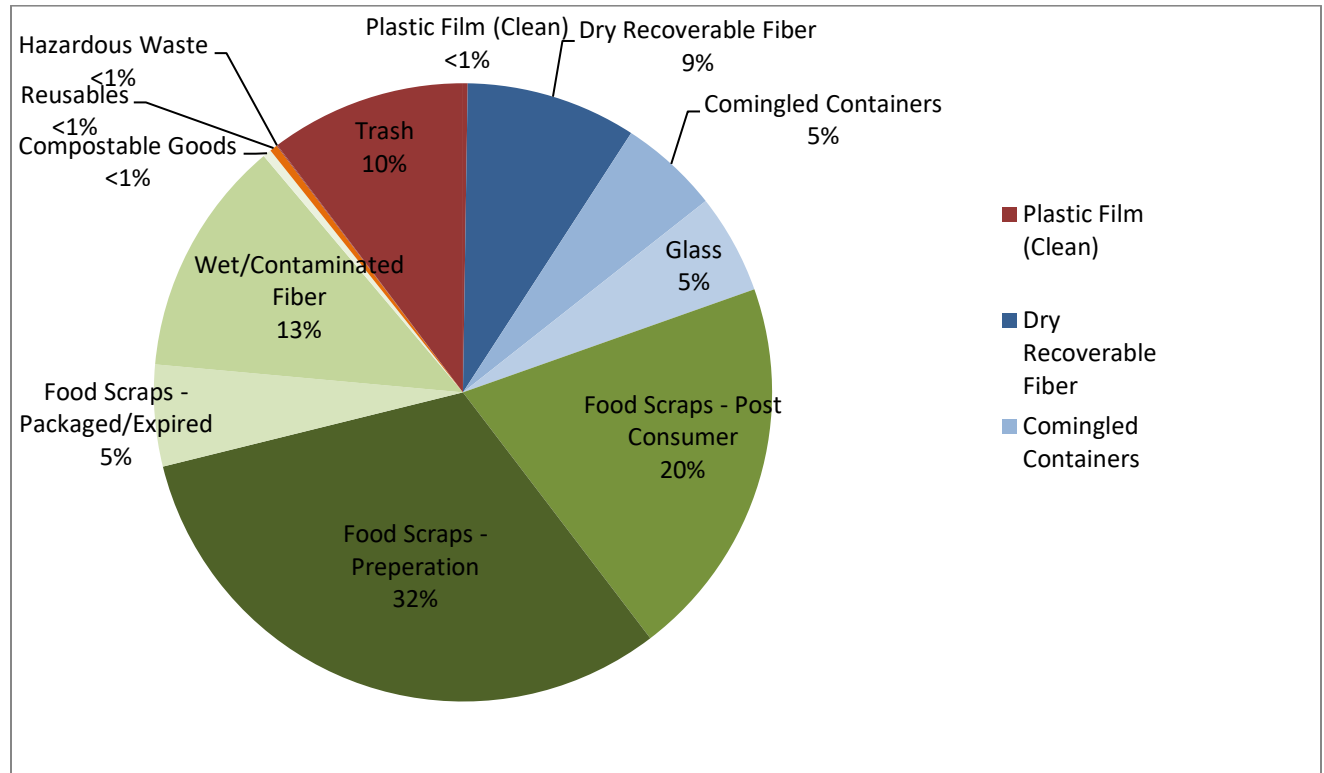
### Overall Findings

There are several important differences between the full service and quick service restaurants that were noted in these audits. The first difference between the two restaurant categories is the amount of waste generated. On average, quick service restaurants generate less overall waste than full service restaurants. Second there is a difference in diversion rates and contamination rates. It is important to note, a reason for this difference is that quick service restaurants are in general, diverting more recyclables from the waste stream than full service restaurants. In these audits, it was found quick service restaurants had higher contamination rates of their recycle stream than the full-service

restaurants. Which ultimately affects both diversion and contamination rates. Another difference is the makeup of the waste stream for full service and quick service restaurants.

Despite these differences, across all the restaurants it was found that food scraps comprised most of the waste stream. The pie chart below shows the average waste stream composition across the 10 restaurants. This indicates that there is room for improvement in diverting both recyclables and organics from the restaurant waste stream.

**Overall findings**



**Recommendations for improvement**

Based on the information provided from the waste audits, the primary area for improvement is to decrease the amount of organic waste going to the landfill. City staff is using this information to determine the total amount of restaurant organic waste currently being sent to the landfill and is advising the consideration of future city ordinances that are aimed at increasing landfill diversion. Additional best practices to reduce organic waste include increasing access to composting options, and education and outreach efforts on source reduction. In the future, there is also the hope that City staff conducting waste sorts will have an opportunity to further aid restaurants in determining the composition of the organic waste being thrown away as a way to continue to increase diversion opportunities.