

## Quick Service Restaurant Waste Composition Study



September 20, 2012

Upon adoption through the ARR Director and the support from the Zero Waste Advisory Commission, the elements of this document will be considered an approved Alternative Compliance to the Administrative Rules of the Universal Recycling Ordinance within the authority of Sections 8.6.3 and 8.14.1.

## **Quick Service Definition**

A **fast food restaurant**, also known as a **quick service restaurant (QS)** within the industry itself, is a specific type of restaurant characterized both by its fast food cuisine and by minimal table service. Food served in fast food restaurants typically is offered from a limited menu; is finished and packaged to order; typically offers a drive-in or drive-thru service, and is usually available ready to take away, though seating may be provided. Fast food restaurants are usually part of a restaurant chain or franchise operation, which provisions standardized ingredients and/or partially prepared foods and supplies to each restaurant through controlled supply channels. The term "fast food" was recognized in a dictionary by Merriam–Webster in 1951.

## **Purpose**

A waste composition study of select quick service restaurants was performed March 26-31, 2012. The purpose of the study was to collect a representative sampling of outgoing solid waste (trash) from several quick service restaurants in the Austin area, sort the material into several material categories, and analyze the results to determine possible recycling and composting opportunities. The information and lessons learned from this study will be utilized to form restaurant collection standards for Phase 2 amendments of the Universal Recycling Ordinance.

## **Process**

Collection included seven full days of waste output of four distinct restaurants, including behind counter waste stream and customer discards. All waste analyzed was placed in the existing metal dumpster(s) on-site, and removed from the site daily by the existing hired hauler through a pre-arranged schedule. The material was hauled and dumped at the City of Austin Material Recovery Facility (Todd Lane) by the established contracted waste hauler. One restaurant had a separate waste audit conducted and those results have been merged with the other three restaurants for a better sample of restaurant disposal habits.

City staff, along with volunteers, sorted the collected material into several marketable categories. Categories included recyclables (cardboard, non-soiled paper, metals, glass, plastic containers, cooking oil/grease trap), compostables (food scrap, food-soiled paper, other compostable organics), and residuals (film plastic, polystyrene, non-recyclable plastics, and contaminants). Each material type was sorted into separate containers and weighed. Data was also collected from the restaurants regarding the recycled quantities of grease/grease trap wastes. This data has been incorporated into this report.

## **Analysis**

A full scale material composition analysis was generated for each site based on the week-long composition study. Incoming weights were obtained from a full length truck scale with 20 pound increment accuracy. Individual category weights were obtained from a more accurate floor scale that was accurate to .5 pound increments. The weight analysis will include liquid / moisture content by comparing incoming (wet) weight and final (dry) weight. The weights of each material category was recorded and aggregated into a waste characterization pie chart. Variations in weight are attributed to scale accuracy and to moisture within the loads.

## Summary of Findings

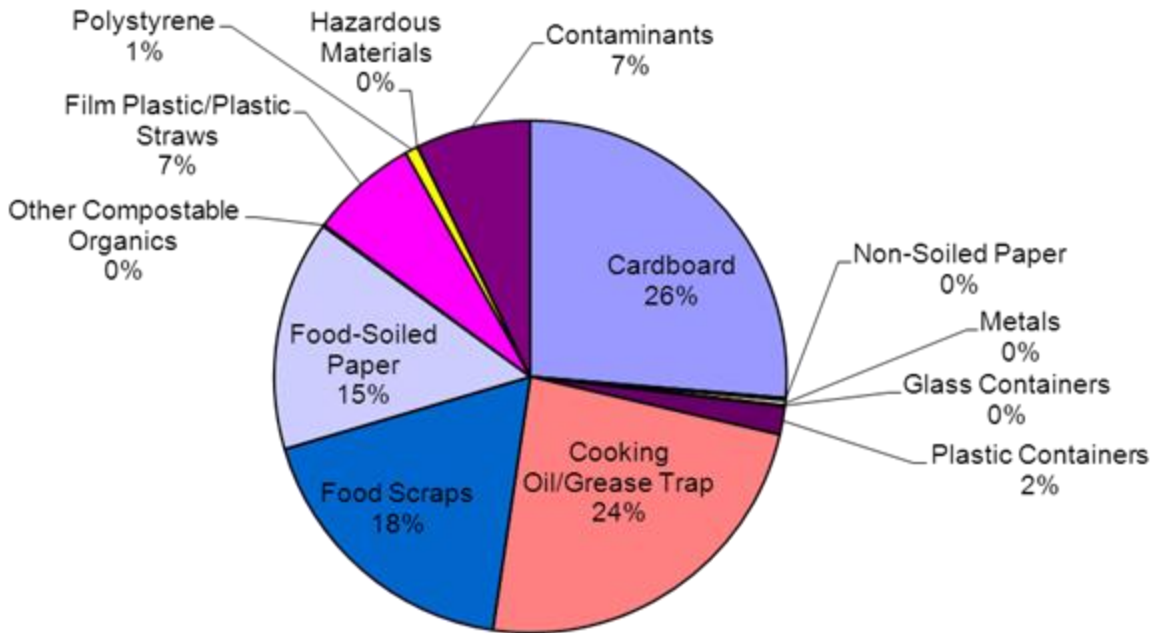
The restaurants delivered 9,727 pounds of material during the study period. Once sorted and weighed a total of 9,423.5 pounds was identified as dry weight, although much of the “dry” material included liquids from drinks and precipitation. While the difference between incoming weights and itemized weight was 303.5 pounds, not all of the variation could be attributed to liquids due to the variation in scale accuracy. The following chart shows the breakdown by the three main categories of materials.

### Waste Audit – Composite

	Incoming Weight (lbs.)	9,727
	Itemized Weight (lbs.)	9,423.5
	Difference	303.5
		Weight (lbs.)
Recyclables	Cardboard	2,481
52.35%	Non-Soiled Paper	14.5
	Metals	29
	Glass Containers	6.5
	Plastic Containers	168
	Cooking Oil/Grease Trap	2,234
Compostables	Food Scraps	1,705
32.76%	Food-Soiled Paper	1,371.5
	Other Compostable Organics	10.5
Residuals	Film Plastic/Plastic Straws	641
14.89%	Polystyrene	77
	Hazardous Materials	1
	Contaminants/Other	684.5
	Total	9,423.5

Recyclables	4,933 lbs.	52.35 %
Compostables	3,087 lbs.	32.76 %
Residuals	1,403.5 lbs.	14.89 %

## Composite Waste Composition by Weight %



### Recyclables Summary

Cardboard consisted of approximately 26 % of the restaurants discards. The next greatest quantity of material classified as recyclable was grease/grease trap waste which made up about 24% of the load. Other recyclables were minimal and resulted from materials generated from outside the restaurant, such as glass bottles and aluminum cans. Restaurants that have only one dumpster had significant food contamination on the majority of the recyclables due to commingling of the materials.

### Compostables Summary

Compostables at the restaurant consisted of food scraps and food soiled paper. Food scraps consisted on approximately 18% of the entire study; while food soiled paper was 15% of the load. The audit did identify an additional 10.5 lbs. of yard waste that had been placed in dumpsters that appeared to have been generated from outside of the restaurants.

### Residuals Summary

Residuals made up nearly 15 % of the waste composition. This category included used and unopened condiment packages which cumulatively added to the weight of this category due to the liquid content. Film plastics and other plastics, such as plastic ware, straws, and miscellaneous plastics made up approximately 7% of the loads.

## **Material Description**

**Cardboard** – old corrugated cardboard primarily from bulk packaging

**Non-soiled paper** – Paper which includes newsprint, office paper, register receipts and unused napkins

**Metals** – Consists of aluminum, steel and tin

**Glass Containers** – Amber, flint, and green glass bottles

**Plastic Containers**- Includes PET, HDPE, PP, and PVC

**Food Scraps** – Included all pre and post consumers food wastes including meats, vegetables, desserts, bread products, coffee filters, and coffee grounds

**Yellow Grease & Grease Trap** – Includes cooking oils and “yellow grease” as well as recycled grease accumulated in grease traps and the water recycled from the grease trap

**Food Soiled Paper** – Included all paper, except cardboard, and paper cups that had been contaminated with food or liquid residue

**Other Compostable Organics** – Included wood products, such as a stirrer, and yard waste

**Film Plastic/Plastic Straws** – Includes all film plastics (LDPE, LLDPE, and HDPE), straws, plastic cutlery, and plastic stirrers

**Polystyrene** – Included all polystyrene products such as cups and to go containers

**Hazardous Material** – This consists of any items containing hazardous ingredients such as cleaners, lighters, etc.

**Contaminants/Others**- This category consisted of opened and unopened condiment containers, and foreign items

## **Request for Alternative Compliance Measures for URO**

Quick Service (“Fast Food”) Restaurants are subject to Phase 2 of the Universal Recycling Ordinance (URO). A group of local Quick Service franchise representatives have been meeting since June 2011 with the intent to develop a reasonable compliance track to honor the spirit of the Universal Recycling Ordinance. The intent of this document is to authorize a permanent waiver, as authorized through section 8.7.2 of the Administrative Rules, to replace required material collection with an alternative compliance. The intent to reach the 50% and 75% diversion goals will be honored through this alternative compliance measure.

### **Composition Study**

Waste streams generated at Quick Service Restaurants are significantly different than Full-Service Restaurants. A composition study of a representative sampling of more than 120 Quick Service site locations was performed in April 2012, with the following observations:

### **Waste Composition Observations and Challenges**

- A. Pre-consumer / behind the counter generated waste streams  
The primary pre-consumer waste streams generated from behind the counter include: cardboard, food scraps, cooking oil, and plastic wrap. In many restaurants, behind the counter food scrap is minimized through operational standards.
- B. Post-consumer / lobby and outside container generated waste streams  
An average two-thirds of QS post-consumer packaging and food waste leaves the site through carry-out or drive-thru. The remaining packaging wastes disposed on site is contaminated severely through liquid and food scrap.
- C. Challenges observed include quick service restaurants having to handle wastes generated from outside the restaurant, particularly those with easy access to outdoor trash containers.

### **On-Site Sortation and Collection Challenges**

- A. Limited space availability behind counter for waste stream sortation containers.
- B. Restaurants with higher staff turnover will need to focus on additional employee training.
- C. Pre-prepared and packaged food supplies limits actual pre-consumer food waste behind counter.
- D. Restaurant patrons lack understanding of recyclable material designations.
- E. Very limited recycling opportunities in guest area.
- F. Very contaminated organics stream in guest area.

### **Outside Bin Placement Challenges**

- A. Parking lot configurations present challenges to siting more than one dumpster – very small pad size is at least 25% of the quick service sites.
- B. Potential noise and odor complaints from neighbors – quick service locations are often near residential settings.

## **Proposed Alternative Equivalent Compliance - URO Requirements**

- A. Diversion targets
  - a. 50% diversion by 2017
  - b. 75% diversion by 2020
  - c. Director's Report to ZWAC regarding Diversion QS measures in 2015, 2017, 2020.
- B. Materials proposed for 50% waste diversion collection:
  - a. Cardboard = 26% of overall waste stream
  - b. Cooking oil (yellow grease) and grease trap recycling = 24% of overall waste
  - c. 2015 Waste Composition Study to document current diversion achievement, and to determine new diversion opportunities to reach 75% diversion.
- C. Materials proposed for 75% waste diversion collection
  - a. Additional material diversions may be based site-by-site or through each individual franchise rather than full QS sector.
  - b. 2017 Waste Composition Study to study effective diversion rate, and to determine necessary operational changes to reach 75% goal.
  - c. 2020 Waste Composition Study to document achievement of 75% diversion goal.

## **Proposed Alternative Equivalent Compliance – On-site Container Placement**

As Quick Service operators commit toward the Austin City Council adopted diversion goals, it is necessary to grant a permanent waiver to city requirements (as permitted in Section 8.8.9 in the Administrative Rules) in regards to waste and recycling container placements and enclosures of each restaurant pad site. To accommodate increased diversion activity, additional containment bins will be placed on most QS locations. The QS operators recognize the necessity for proper placement and enclosure of trash dumpsters for health and safety reasons, but require an allowance of recycling dumpster placement without enclosures. In these situations, a permanent variance will be granted allowing for recycling and composting containers to be placed at each location and exempt from enclosure requirements.

## **Proposed Alternative Equivalent Compliance – Diversion Services**

Diversion achievement requires sufficient service availability. In the event of service gaps the ARR Director will discuss through QS stakeholder meetings potential remedies and present options through the Zero Waste Advisory Commission.