# Supplemental Application for Power Plant Site Certification

# Pasco County
# Resource Recovery Facility Expansion

## Volume III

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February 2022

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# List of Acronyms and Abbreviations

| | |
|---|---|
| °F | degrees Fahrenheit |
| acfm | actual cubic feet per minute |
| ACI | Activated Carbon Injection |
| APC | Air Pollution Control |
| AQRV | Air Quality Related Values |
| ASC | advanced secondary combustion |
| BACT | Best Available Control Technology |
| Btu/lb | British thermal units per pound |
| CAA | Clean Air Act Amendments of 1970 |
| CAM | Compliance Assurance Monitoring |
| CDM | Clean Development Mechanism |
| CDS | circulating dry scrubber |
| CEMS | Continuous Emissions Monitoring System |
| CFR | Code of Federal Regulations |
| $CH_4$ | methane |
| CO | carbon monoxide |
| $CO_2e$ | carbon dioxide equivalent |
| COMS | continuous opacity monitoring system |
| CY | calendar year |
| DSI | dry sorbent injection |
| ESP | electrostatic precipitator |
| F.A.C. | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FF | fabric filter |
| FLAG | Federal Land Managers Air Quality Related Values Work Group |
| FLM | Federal Land Manager |
| ft/s | feet per second |
| g/s | grams per second |
| GAQM | Guidelines for Air Quality Models |
| GCP | good combustion practice |

| | |
|---|---|
| GEP | Good Engineering Practice |
| GHG | greenhouse gas |
| gr/cf | grains per cubic feet |
| ha | Hectare |
| HAP | hazardous air pollutant |
| HCl | hydrochloric acid |
| HF | hydrogen fluoride |
| HHV | higher heating value |
| HRSG | Heat Recovery Steam Generator |
| IPCC | Intergovernmental Panel on Climate Change |
| KBKV | Brooksville-Tampa Bay Regional Airport |
| kg/MMBtu | kilograms per million British Thermal Units |
| kg/ha/yr | kilograms per hectare per year |
| km | kilometers |
| LAER | Lowest Achievable Emission Rate |
| LCA | life cycle analysis |
| lb/hr | pounds per hour |
| LNTM | low nitrogen oxide technology |
| m | meter |
| m/s | meters per second |
| MACT | Maximum Achievable Control Technology |
| MCR | maximum continuous rating |
| MERP | Modeled Emission Rate for Precursors |
| µg/dscm | micrograms per dry standard cubic meter |
| $\mu g/m^3$ | micrograms per cubic meter |
| mg/dscm | milligrams per dry standard cubic meter |
| MW | megawatt |
| MWC | Municipal Waste Combustor |
| MSW | municipal solid waste |
| NAAQS | National Ambient Air Quality Standards |
| NAD83 | North American Datum of 1983 |
| NED | National Elevation Data |

| | |
|---|---|
| NESHAP | National Emission Standard for Hazardous Air Pollutants |
| ng/dscm | nanograms per dry standard cubic meter |
| $NH_3$ | ammonia |
| NLCD | National Land Cover Database |
| $N_2O$ | nitrous oxide |
| $NO_2$ | nitrogen dioxide |
| $NO_X$ | nitrogen oxides |
| NSPS | New Source Performance Standards |
| NSR | New Source Review |
| $O_2$ | oxygen |
| $O_3$ | ozone |
| PAC | powdered activated carbon |
| PCRRF | Pasco County Resource Recovery Facility |
| PM | particulate matter |
| $PM_{10}$ | particulate matter less than 10 microns |
| $PM_{2.5}$ | particulate matter less than 2.5 microns |
| ppmvd | parts per million by volume, dry |
| ppb | parts per billion |
| ppm | parts per million |
| PPSA | Power Plant Siting Act |
| PSD | Prevention of Significant Deterioration |
| SAM | sulfuric acid mist |
| SCR | Selective Catalytic Reduction |
| SDA | spray dryer adsorber |
| SER | significant emission rate |
| SHCCF | Shady Hills Combined Cycle Facility |
| SHGS | Shady Hills Generating Station |
| SIA | significant impact area |
| SIL | significant impact level |
| SIP | State Implementation Plan |
| SNCR | Selective Non-Catalytic Reduction |
| $SO_2$ | sulfur dioxide |

| | |
|---|---|
| $SO_4$ | sulfate |
| SSM | startup, shutdown, and malfunction |
| tpd | tons per day |
| tpy | tons per year |
| U.S. | United States |
| USEPA | United States Environmental Protection Agency |
| USGS | United States Geological Survey |
| UTM | Universal Transverse Mercator |
| VOC | volatile organic compound |
| WTE | waste to energy |

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# 1 Introduction

The Pasco County Solid Waste Resource Recovery Facility ("PCRRF" or "Facility") is proposing to expand its waste processing capacity by constructing one additional municipal waste combustor (MWC) unit (Unit #4) at the existing Facility (the "PCRRF Unit #4 Expansion" or "Project"). The Project will increase PCRRF's solid waste processing by a nominal design rated capacity of 475 tons per day (tpd) and will be constructed adjacent to the PCRRF's existing three MWC units. The construction and operation of the new Unit #4 will be reviewed pursuant to the Power Plant Siting Act (PPSA).

The proposed PCRRF Unit #4 and associated ancillary equipment (activated carbon silo, cooling tower, etc.) will implement state-of-the art air pollution control systems to comply with the best available control technology (BACT) as applicable and other air pollutant emission limits. It will also include continuous emissions monitoring (CEM) equipment as appropriate to provide ongoing compliance with federal and state air quality regulations. In accordance with state and federal air quality permitting requirements, the PCRRF is classified as an existing major source of air pollutant emissions, and potential emissions from the proposed Unit #4 are considered significant with respect to the New Source Review (NSR) permitting program. Consequently, the Project is subject to Prevention of Significant Deterioration (PSD) permitting requirements under the NSR program as described in **Section 1.2**.

Emissions of nitrogen oxides ($NO_X$) from the proposed Unit #4 will be offset by NOx emissions reduction in the three existing MWC units. New lower and federally enforceable $NO_X$ limits from the three existing units will be achieved through a combination of the existing Selective Non-Catalytic Reduction System (SNCR) and the ongoing installation of Covanta's patent pending low nitrogen oxide technology (LNTM). The proposed Unit #4 will also include LNTM and an aqueous $NH_3$ system. The netting of emissions (reduction of $NO_X$ from the three existing units and the increase from the proposed Unit #4) will result in a net decrease in nitrogen oxides ($NO_X$) emissions and the Unit #4 project will stay below the PSD triggering threshold for NOx.

## 1.1 Project Purpose and Need

Pasco County has experienced population growth and associated growth in waste generation. Adding Unit #4 with a proposed nominal design rated capacity of 475 tpd (with assumed heat content of 5,200 British Thermal Units (Btu)/pound (lb)) will help address the increased municipal solid waste (MSW) generation associated with the growing population. The planned Unit #4 will

also help extend the life of the current Pasco County landfill because of reduction in the volume of MSW placed in the landfill.

## 1.2 Regulatory Overview

The Project is located in Pasco County, Florida which is designated as attainment/unclassified with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants which have standards established.

Based on the Project potential emission estimates provided in **Section 3.0** and PSD applicability/netting analysis in **Section 4.5**, the Project has been determined to be subject to PSD review for the following criteria and noncriteria pollutants:

- Sulfur dioxide ($SO_2$);
- Particulate matter ($PM_{10}$ and $PM_{2.5}$);
- Sulfuric acid mist (SAM);
- MWC organics (as dioxins/furans);
- MWC acid gases (as $SO_2$ and HCl); and
- Greenhouse Gases (as carbon dioxide equivalent ($CO_2e$)).

In accordance with PSD requirements, a Best Available Control Technology (BACT) emission control review is presented in **Section 5.0** for the pollutants subject to PSD review. The Project will comply with the NAAQS as demonstrated through the air quality impact analysis (presented in **Section 6.0**) and applicable New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs) (see **Section 4.0**).

## 1.3 PSD Permit Application Overview

This air quality permit application has been prepared to obtain approval from the Florida Department of Environmental Protection (FDEP) for issuance of a PSD permit, which will authorize Pasco County to construct the Project. To address federal NSR and State of Florida air quality permitting requirements, this PSD permit application includes the following information and analyses:

- Project Description (**Section 2.0**) – presents descriptive information on the Project, including details of the proposed Unit #4 and ancillary equipment to be installed.
- Emissions Summary (**Section 3.0**) – provides maximum estimated air pollutant emission rates proposed for Unit #4 and the ancillary equipment.

- Regulatory Review and Applicability (**Section 4.0**) – identifies and discusses applicable federal and state air quality regulations and permitting requirements.
- Best Available Control Technology Analysis (**Section 5.0**) – presents the BACT determination for each pollutant subject to PSD review.
- Air Quality Impact Analysis (**Section 6.0**) – presents the dispersion modeling analysis to demonstrate Project compliance with air quality standards and documents additional impact analyses associated with PSD review.
- Project Site Plan and Equipment, Process Flow Diagram (**Appendix A**).
- Emission Calculations (**Appendix B**) – provides detailed emission calculations for the proposed Unit #4, ancillary equipment, and $NO_X$ netting.
- Materials Separation Plan Documentation (**Appendix C**) – presents the preliminary draft version of Pasco County's Materials Separation Plan and the January 5, 2022 public meeting notice and transcript. No comments on the preliminary draft were provided and therefore the preliminary and final draft versions of the Materials Separation Plan will be the same.
- Prior to construction of the Project, Pasco County is required to apply for and obtain a PSD Pre-construction permit from the FDEP in accordance with FDEP Form 62-213.900(1). FDEP Air Permit Application Forms include information on emission units to be installed, applicable air quality requirements, emissions estimates, and other project-related information. The permit application is being submitted using FDEP's Electronic Permit Submittal and Processing System (EPSAP).

## 1.4 Applicant Contacts

The applicant for this application is Pasco County, Florida. The primary contacts for this application are:

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# 2 Project Description

## 2.1 Overview of Existing Facility

The PCRRF began operation in May 1991. The three existing MWC units at the Facility process at a nominal design rated capacity of 1,050 tpd of solid waste having an average higher heating value of 5,000 British thermal units per pound (Btu/lb), generating up to 31.2 megawatts (MW) of renewable energy. The Facility is owned by Pasco County and operated by Covanta Pasco, Inc. It sits on 72 acres in the Shady Hills area of central Pasco County. The existing Facility has three MWC boilers (Units #1-3) sending steam to a single turbine generator with a 3-cell, wet cooling tower. The Facility typically accepts delivery of waste six days a week and processes the waste on a 24 hours per day, seven days a week basis. In calendar year (CY) 2020, the Facility generated enough electricity to power approximately 15,000 homes and earned $15 million in revenue for the County.

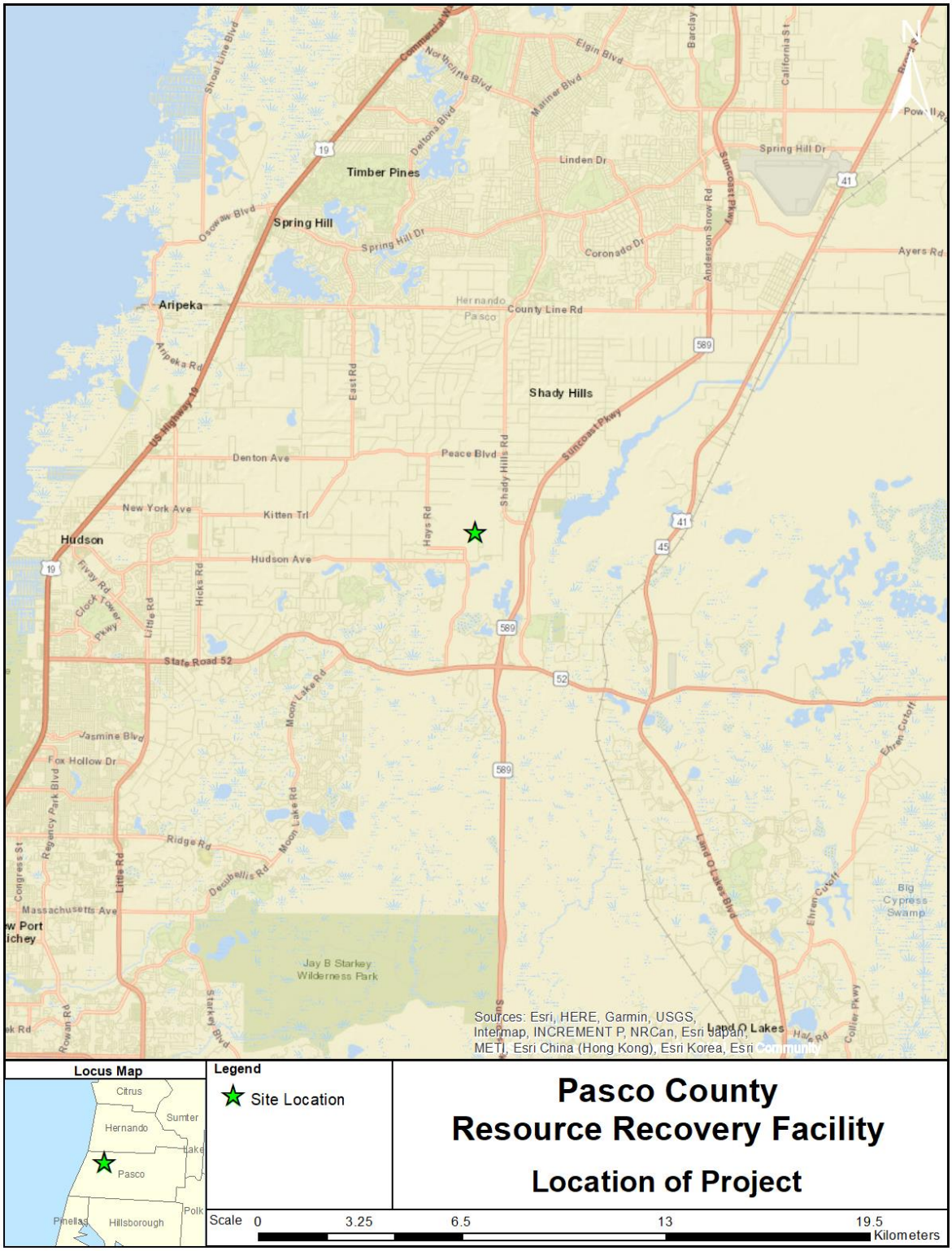
The Facility will be expanded by adding a new MWC unit, proposed Unit #4, to be constructed on the site of the existing PCRRF located at 14230 Hays Road, Spring Hill, Florida; Universal Transverse Mercator (UTM) Coordinates are Zone 17, 347.11 kilometers (km) East and 3139.21 km North; Latitude: 28° 22’ 05” North and Longitude: 82° 33’ 30” West. **Figure 2-1** shows the location of the PCRRF.

## 2.2 Overview of Proposed Expansion Project

The Project will provide a safe and environmentally acceptable method of waste disposal through thermal waste treatment and will efficiently generate electrical power via a new steam-turbine generator. The net electricity produced by the Project will be tied into the existing local grid and distributed by Duke Energy. Additionally, the expanded Facility will recover ferrous and non-ferrous metals for recycling from the bottom ash residue.

The Project will include one mass-burn municipal waste combustion unit, provided by Martin GmbH, with a nominal design rated capacity of 475 tpd of MSW with an average higher heating value (HHV) of 5,200 British thermal units per pound (Btu/lb). The Project will incorporate an independent process train with a combustion grate, boiler, air pollution control equipment, and steam generator that can continue to process refuse and generate power to the grid if the other existing process trains are not operating.

## Figure 2-1: Location of the PCRRF



The Project site plan showing the proposed revisions to the Facility layout is provided in **Appendix A**. As evident from the Project site plan, much of the existing Facility is not changing and a new stack is not required because the proposed new Unit #4 will use the existing fourth flue that was included in the original construction of the PCRRF.

**Appendix A** also contains a simplified process flow diagram and proposed equipment arrangement for the Project. Solid waste is delivered to the Facility and received within an enclosed tipping building and discharged into a concrete solid waste storage pit. Refuse mixing and handling in the refuse pit, and refuse feeding into the boilers will be handled by two refuse cranes designed to accommodate the increased processing capacity of the entire Facility.

There are no physical modifications to the existing truck scales, the tipping hall, or refuse bunker proposed as part of the Project.

Once fed into the feed hopper and down the feed chute, the refuse is charged into the furnace by a hydraulic ram feeder and then travels across a Martin reverse reciprocating stoker-grate. The grate runs are independently and variably controlled to thoroughly mix the refuse and promote complete combustion over a range of refuse characteristics.

Natural gas will be used as auxiliary fuel for periods of startup/shutdown and malfunction and if necessary, for compliance with good combustion practices (GCP) and the Project's (and Facility's) environmental permit limits. Bottom ash, grate siftings, and fly ash collected in the boiler second pass hopper (hereafter referenced as bottom ash) will be cooled in the ash discharger. Bottom ash from the ash discharger will be discharged onto the existing vibratory conveyor. The existing vibrating pan conveyor will transport the bottom ash residue material from the four (4) boilers over to the existing grizzly scalper area. The large bulky material will be removed from the bottom ash. The remaining bottom ash residue will be transferred to the residue storage building, where the ferrous and non-ferrous material will be separated.

Fly ash and reaction products from the superheater, economizer, scrubber, and baghouse hoppers of Units #1-3 and the proposed Unit #4 (hereafter referenced as fly ash) will be transported to a fly ash surge bin and conditioner by a new dedicated enclosed double-strand drag conveyor system. The fly ash conditioner will thoroughly mix and stabilize the ash with water, which then will be blended with bottom ash to create one residue stream referenced herein as combined ash. Combined residue will be loaded into vehicles by a front-end loader for transport to the disposal site.

Superheated steam will be generated in the new boiler and a steam distribution header will carry the steam to a new turbine generator, which will have a nameplate rating of approximately 15 MW. The turbine will exhaust to a water-cooled condenser. Two new cooling tower cells will be added to the Facility and used as the heat sink for the proposed Unit #4. The two cells will be constructed as an extension of the existing tower (currently three cells) and the new basin will be tied into the existing basin, which will allow for the existing tower water treatment to be used.

Flue gases from the new boiler will be directed through the new air pollution control system, referenced herein as a circulating dry scrubber system (CDS), that includes major components including a quench tower, a recirculating scrubber in series and a baghouse. Advanced secondary combustion (ASC), which is a four-row stitched design of secondary combustion air nozzles coupled with lower excess air rates, will be incorporated into the boiler and grate design to reduce unabated emissions of nitrogen oxides ($NO_X$). In addition, an aqueous ammonia ($NH_3$) based Selective Non-Catalytic Reduction (SNCR) system will provide further $NO_X$ reduction. A hydrated lime storage and injection system will be used as part of the CDS to control $SO_2$ and other acid gases (SAM and HCl). A separate carbon storage and injection system will be utilized as part of the CDS to control mercury emissions. The existing fourth flue in the Facility stack will be used for the proposed Unit #4 for safe exhaust of flue gas. It is anticipated that the existing spare flue will not require modification unless otherwise determined during design development considerations.

Major equipment not requiring direct contact with the environment will be enclosed in buildings, providing a controlled working environment and isolation from the environment. The major structures of the Facility, which already exist, consist of the refuse receiving and tipping area structure, refuse storage structure, maintenance building, control room, and residue building. The east side of the existing Air Pollution Control (APC) building (see **Appendix A**) will need to be expanded to accommodate the new fourth boiler. The expansion will expand the boiler, air pollution control, and turbine buildings, to accommodate the new combustion train, turbine generator, and ancillary equipment.

## 2.3 Ancillary Equipment

In addition to the new MWC unit and associated APC systems, supporting equipment will be installed as part of the project. This ancillary equipment includes wet cooling tower cells and hydrated lime and carbon storage silos. This equipment is further described in the sections below.

Refer to the Project site drawing in **Appendix A** and **Figure 6-5** for the anticipated locations of the ancillary equipment.

### 2.3.1 Wet Cooling Tower

The Project will include a two-cell wet cooling tower to be added to the Facility's existing three-cell tower. The new cooling tower cells will be designed to efficiently evaporate water, which absorbs heat, causing the remaining water to become colder. Water not lost to evaporation in the cooling tower will be used for non-contact cooling. This water will contain dissolved solids that will result in particulate emissions that have been factored into the total Project emissions.

### 2.3.2 Hydrated Lime Silo

Hydrated lime will be used as the reagent in the CDS system for control of acid gas emissions. To provide storage of the hydrated lime at the PCRRF, one hydrated lime silo will be installed inside of the new APC building. Since the lime silo will be constructed inside the building, it is not considered a source of particulate emissions and not part of this air permit application. Hydrated lime will be delivered to the Facility via truck shipment.

### 2.3.3 Activated Carbon Silo

Powdered Activated Carbon (PAC) will be used as the reagent in the Activated Carbon Injection (ACI) systems to reduce mercury emissions from the MWC units. A new PAC silo will be sized for either the new Unit or to serve for all 4 Units to store the PAC at the proposed PCRRF. Similar to hydrated lime as indicated above, carbon will be delivered to the Facility by truck shipment. The carbon silo will be equipped with a vent fabric filter (FF) to minimize particulate matter emissions.

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# 3 Proposed Project Emissions

This section summarizes the estimated emission rates of PSD-regulated pollutants and other pollutants for which emission standards have been established under federal New Source Performance Standards (NSPS), State Implementation Plan (SIP), BACT, or engineering judgement for the proposed Project. Estimated emission rates for proposed Unit #4 under steady-state operating conditions are presented in **Section 3.1**. Estimated emission rates for the ancillary sources of particulate emissions (storage silo, cooling tower) are provided in **Section 3.2**.

## 3.1 Proposed Unit #4 Estimated Emissions

Combustion of municipal waste results in emissions of various air pollutants such as gaseous compounds, MWC acid gases, MWC metals (particulates), and MWC organic compounds. The level of formation and control depends on numerous factors such as waste composition, combustor and APC system design, and combustor and APC operation. For example, particulate matter (PM, $PM_{10}$, and $PM_{2.5}$) and $SO_2$ emissions are primarily a function of the efficiency of the CDS system, while emissions of carbon monoxide (CO) and volatile organic compounds (VOCs) are minimized principally by combustion control.

Emissions are based on a combination of emission rates determined to be BACT (from **Section 5.0** of this application), emission rates that are dictated by regulatory limits (from **Section 4.0** of this application) or determined by engineering judgement.

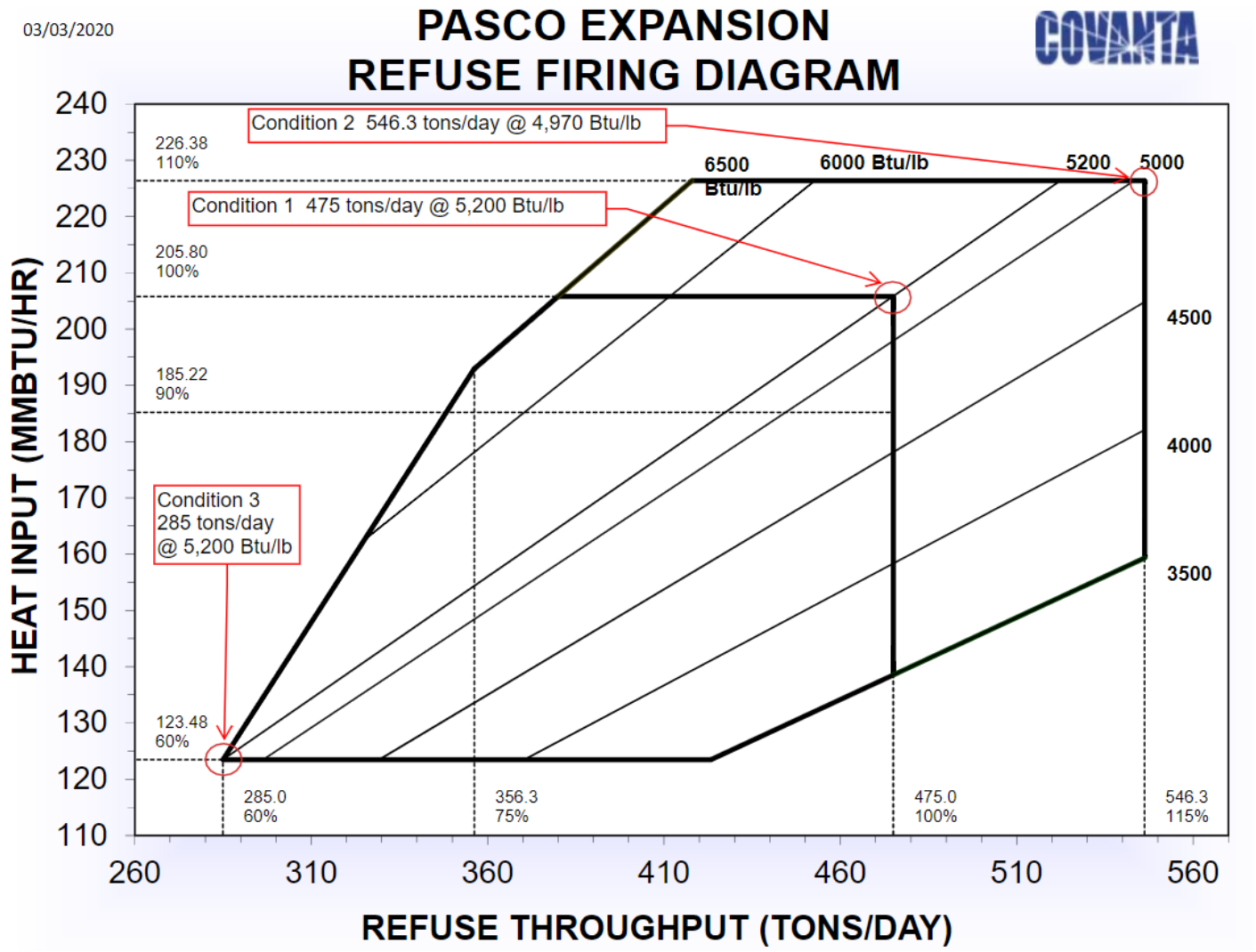
**Figure 3-1** is the solid waste firing diagram for the proposed Unit #4. Additional information on **Figure 3-1** is provided in **Appendix B**. The purpose of the firing diagram is to demonstrate how different combinations of the MSW firing rate (as tons per day) and the higher heating value (HHV) of MSW (as Btu/lb) can yield the same heat input factor (as millions of Btu/hr). The heat input factor cannot be continuously measured because the HHV and fuel firing rate are both unknowns that vary in real time. A range of HHV from 3,500 to 6,500 has been used in the design of Unit #4 including major equipment (the grate, furnace and boiler) for converting MSW to steam. In practice, a steam setpoint will automatically vary the fuel firing rate to recognize the HHV of MSW. The steam generation rate is generally proportional to heat input, but that ratio can vary with different furnace and boiler conditions.

The heat input condition of 205.8 million Btu (MMBtu)/hr is the reference for long-term operations and is not an inherent boiler limit. That condition can be attained by several operating conditions including Condition 1 (475 tons per day with MSW HHV of 5,200 Btu/lb) which is the reference condition used throughout this application for long-term average operating conditions. The design of Unit #4 also includes the potential to operate on a continuous basis with a heat input factor of 226.4 MMBtu/hr which is 10% greater than the 205.8 MMBtu/hr reference Condition 1. Condition 2 of the firing diagram (546.3 tons per day with a HHV of 4,970 Btu/lb) illustrates one operating condition that yields a heat input of 226.38 MMBtu/hr. Condition 3 (heat input of 123.48 MMBtu/hr from 285 tons per day and a HHV of 5,200) illustrates the turndown capability of Unit #4.

Subsequent sections of this application will reference operating conditions from this firing diagram. As an example, dispersion modeling in **Section 6.0** for annual emission factors and ambient impacts are based on a heat input of 205.8 MMBtu/hr whereas short-term emission factors are based on 226.38 MMBtu/hr. The low load case in Condition 3 was also included as part of the dispersion modeling demonstration.

Maximum short-term hourly and annual emissions for the proposed Unit #4 are calculated as shown in **Table 3-1**. Detailed emissions calculations are presented in **Appendix B**.

## Figure 3-1: PCRRF Unit #4 Solid Waste Firing Diagram



## Table 3-1: Proposed Unit #4 Estimated Emissions

| Pollutant | Concentration / Emission Factor[1] | | | Estimated Hourly Emissions lb/hr [2] | Estimated Annual Emissions ton/yr [3] |
|---|---|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | 24 | ppmvd (24-hr basis) | (1) | 14.21 | 56.60 |
| Nitrogen Oxides ($NO_X$) | 110 | ppmvd (24-hr basis) | (1) | 46.75 | 186.16 |
| Carbon Monoxide (CO) | 90 | ppmvd (30 day rolling) | (1) | 23.28 | 92.71 |
| Hydrogen Chloride (HCl) | 20 | ppmvd | (1) | 6.74 | 26.86 |
| Fluorides (F) | 3.5 | ppmvd | (1) | 0.65 | 2.58 |
| VOCs (as propane) | 20 | ppmvd | (1) | 8.15 | 32.45 |
| Particulate Matter (PM) | 12 | mg/dscm | (1) | 2.67 | 10.63 |
| Particulate Matter ($PM_{10}$) | 30 | mg/dscm[4] | (1,4) | 6.67 | 26.57 |
| Particulate Matter ($PM_{2.5}$) | 30 | mg/dscm[4] | (1,4) | 6.67 | 26.57 |
| Mercury (Hg) | 50 | µg/dscm | (1) | 1.11E-02 | 0.04 |
| Cadmium (Cd) | 10 | µg/dscm | (1) | 2.22E-03 | 0.01 |
| Lead (Pb) | 140 | µg/dscm | (1) | 0.031 | 0.12 |
| Total PCDD/F | 10 | ng/dscm | (1) | 2.22E-06 | 0.00 |
| Sulfuric Acid Mist (SAM) | 5 | ppmvd | (1) | 4.53 | 18.05 |
| MWC Organics (as Dioxins/Furans) | - | - | (5) | 2.22E-06 | 8.86E-06 |
| MWC Metals (as PM) | - | - | (6) | 2.67 | 10.63 |
| MWC Acid Gases ($SO_2$+HCl) | - | - | (7) | 20.96 | 83.46 |
| Carbon Dioxide Equivalent ($CO_2e$) | - | - | (8) | - | 210,459 |

(1) ppmvd = parts per million by volume, dry basis; concentrations shown reflect corrections to 7% oxygen.

(2) Hourly emissions shown reflect hourly values calculated at 110% of the design heat input for the combustor.

(3) Estimated annual emissions reflects a single MWC unit with a nominal design rated MSW processing capacity of 475 tpd and 5,200 Btu/lb.

(4) $PM_{10}$ and $PM_{2.5}$ emissions include condensables.

(5) MWC organics is as Dioxins/Furans.

(6) MWC Metal is as PM.

(7) MWC acid gases is as $SO_2$+HCl.

(8) $CO_2e$ factor as described in **Section 3.1.6**.

### 3.1.1 Unit #4 $NO_X$ Emissions

Nitrogen oxides formed during the combustion of MSW are generally classified as either thermal $NO_X$ or fuel-bound $NO_X$. Thermal $NO_X$ is formed when elemental nitrogen in the combustion air is oxidized at the high temperatures in the primary combustion zone, yielding nitrogen oxide (NO) and nitrogen dioxide ($NO_2$). The rate of formation of thermal $NO_X$ is a function of residence time and free oxygen and increases exponentially with peak flame temperatures. Thermal $NO_X$ from MSW combustion can be effectively controlled by techniques that limit available oxygen or reduce peak flame temperatures in the primary combustion zone. Fuel-bound $NO_X$ is formed by the oxidation of chemically bound nitrogen in the MSW. The rate of formation of fuel-bound $NO_X$ is primarily a function of waste-bound nitrogen content but is affected by fuel/air mixing. Proposed Unit #4 will incorporate several mechanisms to mitigate $NO_X$ emissions including; 1) good combustion practices, 2) Covanta's patent pending LNTM technology which is staged combustion with secondary air injected through nozzles located in the furnace to provide turbulent mixing to complete the combustion process, and 3) an SNCR system where aqueous ammonia is injected into the boiler to react with $NO_X$ in a temperature range of 1,600°F to 1,850°F. Lower temperatures result in poor $NO_X$ control and allow excess unreacted ammonia to exit the boiler, while higher temperatures can result in an increase in $NO_X$ emissions. Combining SNCR with good combustion practices enhances the performance of the SNCR system.

The SNCR control system would also be integrated with the combustion controls to maximize the $NO_X$ reduction and minimize ammonia slip. The amount of injected ammonia is optimized (minimized) through an automated process control system that uses stack $NO_X$ as a feedback signal. There can be periods when there is excess ammonia that does not react completely with $NO_X$. Based on operating experience at other facilities, the ammonia slip is expected to be less than 20 ppmvd @ 7%$O_2$ on an hourly basis.

Implementation of good combustion practices and SNCR for the proposed Unit #4 will be designed to achieve a $NO_X$ emission level of 110 parts per million by volume, dry (ppmvd) @ 7% $O_2$. A continuous emissions monitoring system (CEMS) will be used to monitor emissions on a 24-hour basis.

### 3.1.2 Unit #4 Acid Gas ($SO_2$/SAM/HCl) Emissions

The proposed BACT emission limits of 24 ppmvd @ 7% $O_2$ for $SO_2$, 5 ppmvd @ 7% $O_2$ for sulfuric acid mist (SAM), and 20 ppmvd @ 7% $O_2$ for HCl are used to calculate emissions of these three pollutants. These pollutants will be controlled by the CDS and FF as described in **Section 5.4.1**.

The PSD pollutant MWC Acid Gases is the sum of $SO_2$ and HCl (83.46 tpy).

Unit #4 will have a CEMS unit for monitoring $SO_2$ on a 24-hour geometric mean basis, in accordance with NSPS Subpart Eb. Emissions of HCl and SAM will be subject to stack testing to verify compliance with the proposed emission limits.

### 3.1.3 Unit #4 Organic Emissions (CO/VOC/Dioxins/Furans)

Organic compound emissions (primarily CO and VOCs) are formed because of combustion conditions within the boiler that affect incomplete combustion of hydrocarbons. CO and VOC emissions will be minimized by boiler combustion design and good combustion practices. Emission rates for Unit #4 are proposed as 90 ppmvd @ 7% $O_2$ for CO and 20 ppmvd @ 7% $O_2$ for VOCs. The VOC value is on an "as propane" basis. A CEMS for CO will be installed to monitor CO emissions on a 30-day rolling average basis. Stack testing will be conducted to verify compliance with the VOC emission limit.

The PSD pollutant MWC Organics is determined as dioxins/furans (total mass). These trace organic emissions are estimated by using the BACT emission limit of 10 nanograms per dry standard cubic meter (ng/dscm) @ 7% $O_2$. This emission limit will be subject to stack testing to verify compliance following the applicable provisions of NSPS Subpart Eb.

### 3.1.4 Unit #4 Particulate Matter and Trace Metal (Cadmium, Lead, Mercury) Emissions

The BACT limit for $PM_{10}$ and $PM_{2.5}$ of 30 mg/dscm @ 7% $O_2$ is used to calculate emissions of those two pollutants, which includes both filterable and condensable portions. As discussed in **Section 5.4.2** of the BACT analysis, the filterable component is estimated to be 12 mg/dscm @ 7% $O_2$. This filterable portion is used to estimate the emissions of PM and MWC Metals. Maximum emission concentrations for cadmium, lead, and mercury were set at the NSPS contained in 40 CFR Part 60, Subpart Eb. Cadmium will be limited to 10 micrograms per dry standard cubic meter, corrected to 7 percent oxygen (µg/dscm @ 7% $O_2$). Lead will be limited to 140 µg/dscm @ 7% $O_2$. Mercury will be limited to 50 µg/dscm @ 7% $O_2$. The control mechanism for cadmium and lead is similar to the control of filterable particulate matter. Powdered activated

carbon in combination with the control of filterable PM will be the means to control mercury emissions. The PSD pollutant MWC Metals is determined to be the same value as PM.

The particulate emissions and trace metals will be subject to stack testing to verify compliance with the proposed Project emission limits.

### 3.1.5 Unit #4 Fluoride Emissions

The BACT limit of 3.5 ppmvd @ 7% $O_2$ is used for emissions from fluorides, which are subject to stack testing to verify compliance with this limit. Fluorides are emitted as hydrogen fluoride (HF) due to the combustion of fluorinated plastics and other fluorocarbon-containing products, including floor and wall panel facings, aerosols, and blowing agents in foam cushions and insulation. The formation and control mechanisms for HF are similar to that of HCl, and like HCl, will be controlled by the CDS and FF.

### 3.1.6 Unit #4 Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions are generated as a by-product from the combustion of carbon-containing materials present in the MSW processed by PCRRF. The principal GHG is carbon dioxide ($CO_2$), which results from the combustion of wastes containing both fossil and biologically derived carbon. There may be smaller trace amounts of other GHG's including methane ($CH_4$) and nitrous oxide ($N_2O$). Collectively, all individual GHGs can be expressed as a carbon dioxide equivalent ($CO_2e$) using factors provided by United States Environmental Protection Agency (USEPA). GHG emissions from combustion of fuels in a closed system can be calculated as a function of the total heat input to the system (expressed in MMBtu/hr), total energy output from the system (expressed in lb of steam/hr), and fuel-specific $CO_2e$ emission factors (expressed in terms of kg $CO_2e$/MMBtu). These three variables can be relied upon to develop a factor for an individual (or unique) combustion unit and/or fuel that is expressed in terms of lb $CO_2e$ / pound of measured steam output. The conversion of heat input to steam is also variable due to changes in heat transfer in the boiler. The lb $CO_2e$ / lb steam factor for an operating unit reflects the effect of these variables over time.

Emissions of $CO_{2e}$ from Unit #4 were estimated in part using an analysis of the historical data reported to the USEPA Mandatory Greenhouse Gas Reporting Program (GHGRP) for the existing MWC combustors (Units #1-3), which use the "Tier 2" methodology of the GHGRP applicable to MWC units with maximum rated input capacities less than or equal to 600 tpd of MSW. The calculated average annualized value from 2010-2020 is 0.318 lb $CO_2e$ / lb measured steam. The

Tier 2 methodology incorporates the ratio of the boiler's design heat input to steam output and therefore is specific to the combustion characteristics of the existing MWC combustors. While the average value is specific to the combustion characteristics of the existing MWC combustors, it serves as an indicator of the GHG generating potential of the municipal solid waste from Pasco County.

Annual potential emissions are estimated as 210,459 tons $CO_2e$/yr using an average annualized $CO_2e$ factor of 0.31 lb of $CO_2e$ per lb of measured steam and a nominal steam generation rate of 155,000 lb of steam/hr for the proposed Unit #4. The annual tons/yr $CO_2e$ limit will apply on a 12-month rolling average basis and will be calculated using the Tier 2 methodology which is applicable to MWC units with maximum rated input capacities less than or equal to 600 tpd of MSW. Steam flow measurements will be measured with a differential pressure flow meter, calibrated in accordance with 40 CFR 60.58b per the requirements of the Tier 2 methodology. The GHG calculations are provided in **Appendix B**.

## 3.2 Ancillary Equipment Emissions

The Project will also involve construction and operation of ancillary equipment. Two new cooling tower cells will be included, as well as a storage silo for activated carbon.

### 3.2.1 Cooling Tower Emissions

The Project will involve installation of two cooling tower cells for circulating water to and from the main and bypass condensers. The mechanism for producing particulate matter (PM) from a drift droplet is evaporation. As the water in a droplet evaporates, water molecules escape from the outside surface, the droplet diameter decreases, and the dissolved solids become concentrated in the remaining liquid. This process continues with the size of the droplet decreasing and the solids concentration increasing until the solubility limits are reached and a solid precipitated material form. Eventually, the water, except for a small portion retained in the crystal structure and adsorbed in the particle surface, will evaporate, forming a solid particle.

Drift eliminators will be used to minimize the drift droplet loss from the cooling tower cells. The short-term (lb/hr) and annual (tpy) cooling tower particulate emissions are summarized in **Table 3-2**.

### Table 3-2: Cooling Tower Particulate Emissions

| Pollutant | Maximum Concentration/ Emission Factor | | Maximum Estimated Emissions | |
|---|---|---|---|---|
| | | | lb/hr | tpy |
| Cooling Tower PM | 0.0005 | Percent drift loss | 0.074 | 0.32 |
| Cooling Tower $PM_{10}$ | 0.0005 | Percent drift loss | 0.043 | 0.19 |
| Cooling Tower $PM_{2.5}$ | 0.0005 | Percent drift loss | 0.043 | 0.19 |

### 3.2.2 Storage Silo Emissions

The activated carbon will be pneumatically loaded into the storage silos from trucks. Air that is displaced during the loading operations will be vented through FFs. Hourly particulate emission rates for these sources were estimated by the design flow rate (adding the pneumatic air blower rate and the air displaced by the materials being filled), multiplying by the design outlet grain loading (0.01 grains per dry standard cubic foot [gr/dscf]), and dividing by the total material filling time. Each of the filter design flow rates has a 20% safety factor applied.

Annual particulate emission rates for these sources were estimated by multiplying the hourly emission rates by the expected number of silo filling events and the filling duration. The activated carbon truck unloading operations are expected to take two hours to complete, with an estimated 48 truck deliveries per year. It is assumed that the PM emissions are $PM_{10}$ and $PM_{2.5}$. The supporting calculations are provided in **Appendix B**. Hydrated lime silo emissions were not considered as the lime silo is to be constructed within the enclosed building.

The carbon silo particulate emissions are summarized in **Table 3-3**.

### Table 3-3: Storage Silo Emissions

| Pollutant | Maximum Concentration/ Emission Factor | | Maximum Estimated Emissions | |
|---|---|---|---|---|
| | | | lb/hr | tpy |
| Carbon Silo PM | 0.01 | gr/dscf | 0.104 | 0.005 |
| Carbon Silo $PM_{10}$ | 0.01 | gr/dscf | 0.104 | 0.005 |
| Carbon Silo $PM_{2.5}$ | 0.01 | gr/dscf | 0.104 | 0.005 |

## 3.3 Units #1-3 $NO_X$ Emissions and PSD Netting

This section introduces the details on how the Project will net out of PSD review for $NO_X$ in part by limiting the emissions from existing Units #1-3. **Section 4.5.2** provides additional information on $NO_X$ netting.

The increase in $NO_X$ emissions from the proposed Unit #4 will be offset by adopting enforceable future $NO_X$ emission limits for Units #1-3 that are lower than existing limits. The $NO_X$ netting analysis was determined through six (6) steps prescribed by USEPA. Step 1 is identifying the actual baseline emissions for Units #1-3 (as tpy) by evaluating the two-year average emissions from recent operating history of the Facility (see **Table 3-4**). The baseline emissions are within 10 years from the projected start of construction of Unit #4. Since construction of Unit #4 may not begin until 2024, the two-year period of 2019-2020 was used for the baseline $NO_X$ emissions. Step 1 identified a baseline $NO_X$ emission factor of 547.4 tpy.

### Table 3-4: Units #1-3 Historical $NO_X$ Emissions

| **$NO_X$ Baseline Actual Emissions[1] (tpy)** | | | | | | |
|---|---|---|---|---|---|---|
| **Year** | **Unit #1** | **Unit #2** | **Unit #3** | **Total** | **2-year average** | |
| 2020 | 190.0 | 188.5 | 175.48 | 554.0 | **547.4** | **2020/2019** |
| 2019 | 175.1 | 184.4 | 181.24 | 540.8 | 530.8 | 2019/2018 |
| 2018 | 169.1 | 182.3 | 169.41 | 520.8 | 527.5 | 2018/2017 |
| 2017 | 187.5 | 171.6 | 174.98 | 534.1 | 535.9 | 2017/2016 |
| 2016 | 178.8 | 183.3 | 175.74 | 537.8 | 537.2 | 2016/2015 |
| 2015 | 173.4 | 188.4 | 174.83 | 536.6 | 530.0 | 2015/2014 |
| 2014 | 181.7 | 165.4 | 176.28 | 523.3 | 531.5 | 2014/2013 |
| 2013 | 178.5 | 182.6 | 178.57 | 539.7 | | |

Step 2 involves identifying the new, lower federally enforceable $NO_X$ emission limits for Units # 1-3 that PCRRF is proposing; i.e., a new emission limit of 120 ppmvd @ 7% $O_2$ on a 24-hour block basis will be established for each of the three existing MWC units. This daily average

[1] Refer to letter from J. Gorrie to D. Read dated February 4, 2022 describing an over-reporting of annual NOx emissions. The values in Table 3-4 reflect the corrected annual emissions for $NO_X$.

concentration is equivalent to 81.19 lb/hr (total for the three existing MCW units), and 355.6 tpy on a rolling 12-month basis. The 120 ppmvd @ 7 % $O_2$ 24-hour block average is significantly lower than the existing permit limit of 205 ppmvd @ 7 % $O_2$, 24-hour block basis.

Step 3 is identifying the $NO_X$ reduction attributable to changes in Units # 1-3. That reduction in $NO_X$ is (Baseline – New Limits) which is 547.4 – 355.6 = 191.8 tpy.

Step 4 is identifying the $NO_X$ emission limit for proposed Unit #4. PCRRF is proposing a $NO_X$ emission limit of 110 ppmvd @ 7 % $O_2$ on a 24-hour block basis and annual emissions of 186.2 tpy.

Step 5 is identifying contemporaneous increases and decreases in $NO_X$ emissions which occurred during the previous 5 years. The construction and operation of three (3) diesel engines at the PCRRF within the past 5 years resulted in an increase in $NO_X$ emissions of 1.2 tpy.

Step 6 is an evaluation of the $NO_X$ emissions decrease associated with Units #1-3, the NOx increase from proposed Unit #4, and the contemporaneous increase associated with the diesel engines. As summarized in **Table 3-5**, the result is an overall reduction in $NO_X$ emissions when considering future allowable versus past actual $NO_X$ emissions with the difference being -4.4 tpy. (186.2 +1.2– 191.8 = -4.4).

### Table 3-5: Net Contemporaneous Change

| | **$NO_X$ (tpy) Units #1-3** | **$NO_X$ (tpy) Unit #4 Project** |
|---|---|---|
| Baseline Units #1-3 | 547.4 | |
| Post Project Units #1-3 Limit | 355.6 | |
| Units #1-3 Contemporaneous Decrease | -191.8 | -191.8 |
| Proposed Unit #4 | | 186.2 |
| Contemporaneous Increase (Diesel Engines) | | 1.2 |
| Net Emissions Increase | | -4.4 |

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# 4 Applicable Federal and State Regulations Review

The proposed construction and operation of Unit #4 is subject to both federal and Florida State air quality regulations. These regulations impose pre-construction permitting requirements on the proposed Project and prescribe emission standards relative to the air pollutant emissions anticipated from the Facility's operations. The air quality standards and regulations that are applicable to the Project include the following:

- National Ambient Air Quality Standards (NAAQS) established by the USEPA for criteria pollutants;
- New Source Performance Standards (NSPS), which impose emission standards on new facilities (Clean Air Act Section 111, 40 CFR Part 60);
- National Emission Standards for Hazardous Air Pollutants (NESHAP), which impose control technology standards on major sources of hazardous air pollutant (HAP) emissions (40 CFR Part 63);
- NSR permitting requirements for major sources under the federal PSD regulations. The PSD regulations under 40 CFR §52.21 and Florida Administrative Code (F.A.C.) Chapter 62-212.400 are applicable on a pollutant-specific basis to new major sources and to major modifications at existing sources located in areas that are in attainment with one or more of the NAAQS; and
- State of Florida air quality requirements under F.A.C. Chapter 62.

Detailed discussions of these regulations as they pertain to the Project and the Facility are provided in the sections below.

## 4.1 National Ambient Air Quality Standards

The Clean Air Act Amendments of 1970 (CAA) established two types of NAAQS: primary standards to protect public health and secondary standards to protect public welfare (40 CFR Part 50). The NAAQS are expressed as a concentration in air and duration of exposure, both short-term and long-term exposure. The USEPA uses geographic regions, often defined, and separated by county lines, to designate the NAAQS attainment status of an area. As defined by the CAA, an attainment area meets the NAAQS, a non-attainment area does not meet one or more of the NAAQS, and a maintenance area has attained compliance with the NAAQS (a previous non-

attainment area that is now in attainment). As with other aspects of environmental regulations, states have the authority to adopt stricter standards. The State of Florida has opted to adopt USEPA NAAQS as applicable standards in the state. Pasco County is listed as in attainment / unclassifiable for each NAAQS pollutant (40 CFR §81.310). **Table 4-1** lists the criteria pollutants and associated NAAQS.

Primary NAAQS protect public health, including the health of sensitive populations, such as the young, the elderly, and those with respiratory ailments. They are intended to protect public health with an adequate margin of safety. Secondary NAAQS provide public welfare protection. These protect against decreased visibility and damage to crops, animals, and structures. Each standard has a specified averaging period that coincides with public health and general welfare criteria. Both the primary and secondary NAAQS are updated periodically to make sure they are fully protective and based on the latest scientific information.

## 4.2 New Source Performance Standards (NSPS, 40 CFR Part 60)

Section 111 of the CAA authorizes the USEPA to develop technology-based standards that apply to specific categories of stationary sources. These standards are referred to as New Source Performance Standards (NSPS) and are found in 40 CFR Part 60. The NSPS apply to new, modified, and reconstructed affected facilities in specific source categories such as municipal waste combustors (MWC). NSPS regulations are adopted by reference as part of Florida's air quality rules under F.A.C. Chapter 62-204.800. The NSPS of primary importance for the Project are the 40 CFR 60, Subpart Eb provisions applicable to new, large MWC units. The requirements associated with these regulations that are applicable to the Project are summarized in the sections below.

## Table 4-1: Criteria Pollutant NAAQS

| Criteria Pollutant | Primary/Secondary | NAAQS | Type |
|---|---|---|---|
| Ozone ($O_3$) | Primary and Secondary | 8-hour average (in effect December 28, 2015): 0.070 parts per million (ppm) | Annual fourth-highest maximum 8-hour concentration, averaged over three years |
| Nitrogen Dioxide ($NO_2$) | Primary | 1-hour average: 100 parts per billion (ppb) | 98th percentile of 1-hour maximum concentrations, averaged over three years |
| | Primary and Secondary | 1-year average: 53 ppb | Not to be exceeded |
| Sulfur Dioxide ($SO_2$) | Primary | 1-hour average: 75 ppb | 99th percentile of 1-hour daily maximum concentrations, averaged over three years |
| | Secondary | 3-hour average: 0.5 ppm | Not to be exceeded more than once a year |
| Carbon Monoxide (CO) | Primary and Secondary | 1-hour average: 35 ppm<br>8-hour average: 9 ppm | Not to be exceeded more than once a year |
| Particulate Matter that is less than 10 micrometers in diameter ($PM_{10}$) | Primary and Secondary | 24-hour average: 150 micrograms per cubic meter ($\mu g/m^3$) | Not to be exceeded more than once a year on average over three years |
| Particulate Matter that is less than 2.5 micrometers in diameter ($PM_{2.5}$) | Primary | 1-year average: 12 $\mu g/m^3$ | Annual mean, averaged over three years |
| | Secondary | 1-year average: 15 $\mu g/m^3$ | Annual mean, averaged over three years |
| | Primary and Secondary | 24-hour average: 35 $\mu g/m^3$ | 98th percentile, averaged over 3 years |
| Lead (Pb) | Primary and Secondary | Rolling 3-month average: 0.15 $\mu g/m^3$ | Not to be exceeded |

### 4.2.1 Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources, Large Municipal Waste Combustors; Final Rule (40 CFR 60, Subpart Eb) – May 10, 2006

The 40 CFR 60, Subpart Eb provisions are applicable to MWC units with a combustion capacity greater than 250 tpd of municipal solid waste for which construction is commenced after September 20, 1994, or for which modification or reconstruction is commenced after June 19, 1996. Consequently, the Subpart Eb provisions are applicable to the proposed new Unit #4 to be installed at the PCRRF. Emission standards for various air pollutants; standards for operating practices and operator training; siting requirements (materials separation plan and siting analysis); and extensive testing, monitoring, recordkeeping and reporting requirements are prescribed by the Subpart Eb regulation. The siting requirements under 40 CFR 60.57b specify that a materials separation plan and a siting analysis be prepared for the affected facility.

Relative to these requirements, the Materials Separation Plan and associated public review documentation are provided in **Appendix C**. An advertised Public Hearing on the Preliminary Draft Materials Separation Plan was conducted on January 5, 2022. However, no comments were received and therefore, the preliminary and final draft versions of the Materials Separation Plan will be the same version. The siting analysis component is satisfied by the completion of the various air quality (dispersion modeling) and air pollution control technology (i.e., BACT) analyses documented in this permit application and the pending public review process.

Emission standards under Subpart Eb are specified for metals, acid gases, organics, and $NO_X$; and an emissions limit for CO is included as an operating practice. A summary of these emission standards is provided in **Table 4-2**.

Subpart Eb provisions require extensive testing and monitoring to demonstrate that affected MWCs are operating in compliance with applicable emissions standards. For certain pollutants, the operation of CEMS or continuous opacity monitoring systems (COMS) are required. For other pollutants, the Facility has the option of either conducting annual performance tests or operating CEMS. **Table 4-3** presents an overview of the testing and monitoring requirements prescribed under 40 CFR 60.58b.

## Table 4-2: Applicable Emission Standards for New MWCs (40 CFR 60, Subpart Eb)

| Pollutant | Emission Standard |
|---|---|
| Dioxins/Furans | 13 ng/dscm @ 7% $O_2$ |
| Cadmium (Cd) | 10 µg/dscm @ 7% $O_2$ |
| Lead (Pb) | 140 µg/dscm @ 7% $O_2$ |
| Mercury (Hg) | 50 µg/dscm @ 7% $O_2$ or 85% reduction of mercury emissions |
| Particulate Matter (PM) | 20 mg/dscm @ 7% $O_2$ |
| Hydrogen Chloride (HCl) | 25 ppmvd @ 7% $O_2$ or 95% reduction of HCl emissions |
| Sulfur Dioxide ($SO_2$) | 30 ppmvd @ 7% $O_2$ or 80% reduction of $SO_2$ emissions |
| Nitrogen Oxides ($NO_X$) | 180 ppmvd @ 7% $O_2$/150 ppmvd @ 7% $O_2$ after first year of operation |
| Opacity | 10 percent (6-minute average) |
| Carbon Monoxide (CO) | 100 ppmvd @ 7% $O_2$ |

## Table 4-3: Testing and Monitoring Requirements under NSPS Subpart Eb Requirements

| Pollutant/Parameter | Monitoring and Testing Requirements |
|---|---|
| Oxygen ($O_2$) or Carbon Dioxide ($CO_2$) | $O_2$ or $CO_2$ CEMS, initial performance evaluation (Methods 3, 3A, or 3B) |
| Particulate Matter (PM) | Initial performance test (Method 5), annual performance tests (or PM CEMS) |
| Opacity | COMS (6-minute average), initial performance test (Method 9), and annual performance tests |
| Cadmium (Cd), Lead (Pb), and Mercury (Hg) | Initial performance test (Method 29), annual performance tests (or Hg CEMS) |
| Sulfur Dioxide ($SO_2$) | $SO_2$ CEMS (24-hour daily geometric average of 1-hour average concentrations), initial performance test (Method 6, 6A, or 6C) |
| Hydrogen Chloride (HCl) | Initial performance test (Method 26 or 26A), annual performance tests |
| Dioxins/Furans | Initial performance test (Method 23), annual performance tests |
| Nitrogen Oxides ($NO_X$) | $NO_X$ CEMS (24-hour daily average of 1-hour average concentrations), initial performance test (Method 7, 7A, 7C, 7D, or 7E) |
| Carbon Monoxide (CO) | CO CEMS (4-hour block average of 1-hour average concentrations); as an alternative to CEMS, can request use of $CO_2$ measurements |
| Fugitive Ash | Initial performance test for visible emissions (Method 22), annual performance tests |
| MWC Load Level | Establish highest 4-hour average unit load from most recent dioxin/furans performance testing, continuously monitor steam flow or feed water flow |
| Temperature (at inlet to PM control device) | Establish highest 4-hour average temperature from most recent dioxin/furans performance testing, continuously monitor PM control device inlet temperature |

| Pollutant/Parameter | Monitoring and Testing Requirements |
|---|---|
| Carbon Mass Feed Rate for Activated Carbon Injection (ACI) System | Estimate average carbon feed rates during Hg and dioxin/furans performance testing from ACI system operating parameters (screw feeder speed, hopper volume/refill frequency, or another parameter)<br>Each quarter, estimate total carbon usage based on weight of carbon deliveries received and from ACI system parameters<br>Continuously monitor pneumatic injection pressure or other operational indicator (with audible and/or visual alarm) as an additional means to verify proper system operation |

Note: Each CEMS is required to comply with applicable performance specifications and quality assurance procedures (initial performance evaluations, periodic relative accuracy tests, etc.) as specified under 40 CFR 60.58b.

Subpart Eb also provides that an MWC is not to be operated at a unit load level greater than 110% of the maximum load level that was attained during the most recent successful dioxin/furan performance testing. This unit load level restriction is applicable at all times except during the annual dioxin/furan or mercury performance testing and the two weeks preceding the annual dioxin/furan or mercury testing, provided that the load limit is waived in writing by the Administrator (i.e., FDEP) during these periods.

In recognition that the MWC emission standards only apply during normal operating conditions with appropriate combustion control, the 40 CFR 60.58b(a) compliance provisions address periods of startup, shutdown, and malfunction (SSM).

During SSM events, the above emission standards do not apply for a duration limited to three hours per event. With respect to the CO emission limit, if a malfunction occurs due to a loss of boiler water level control or a loss of combustion air control, the duration is limited to 15 hours per event. During SSM periods, monitoring data are to be recorded for reporting purposes, but are to be excluded from compliance calculations.

## 4.3 National Emissions Standards for Hazardous Pollutants (NESHAP, 40 CFR Part 63)

No NESHAP regulation is applicable to the proposed Unit #4. Potentially applicable regulations are described in this section and the reasons why they are not applicable.

The proposed Unit #4 is not subject to the provisions of 40 CFR 63 Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units. Municipal solid

waste combustors subject to NSPS Subpart Eb are specifically exempted from NESHAP Subpart CCCC.

The requirements for boilers (NESHAP Subparts DDDDD and JJJJJJ) are each not applicable because the proposed Unit #4 is subject to an emission standard that was proposed under Section 129 of the CAA. NSPS Subpart Eb was implemented under Sections 111 and 129 of the CAA.

## 4.4 New Source Review (NSR)

Major stationary sources of air pollution and major modifications to major stationary sources are required by the Clean Air Act to obtain an air pollution permit before commencing construction. The process is called new source review (NSR) and is required whether the major source construction or a modification to the existing source is planned. Through the NSR permitting program, proposed sources of air pollutant emissions are required to demonstrate that their potential emissions will not directly result in an exceedance of a NAAQS or contribute significantly to a violation of a NAAQS. As previously stated, Pasco County is in attainment for each NAAQS pollutant. NSR in an attainment area such as the State of Florida requires review of PSD applicability for the Project.

### 4.4.1 PSD Review

PSD regulatory applicability is established based on an assessment of emissions associated with a given project and the existing status (major or minor source) of the subject emission source as defined by the PSD regulations. The existing PCRRF is a PSD major source. As an existing major source, a two-step process was used to determine whether the Unit #4 project is subject to PSD review. The first step is to compare the Unit #4 project annual emissions increases to the PSD significant emission rate (SER) thresholds. Pollutants that are less than the applicable SERs in this step are not subject to PSD review and are excluded from further analysis. **Table 4-4** presents a summary of the step one PSD pollutant applicability for the proposed Unit #4. The second step is to look at the net emissions increases from the remaining pollutants. **Table 4-5** is based on the net emission estimates for the proposed Unit #4, and it recognizes that the proposed project is not expected to result in increases in the emissions from the existing operations at the PCRRF. Based on the applicable SER thresholds, **Table 4-5** indicates that the Project is subject to PSD review for the following criteria and noncriteria pollutants:

- Sulfur dioxide ($SO_2$);
- Particulate matter ($PM_{10}$ and $PM_{2.5}$);

- Sulfuric acid mist (SAM);
- MWC organics (as dioxins/furans);
- MWC acid gases (as $SO_2$ + HCl); and
- Greenhouse Gases (as $CO_2e$).

### 4.4.2 PSD Netting for $NO_X$

The emissions of $NO_X$ from Unit #4 as shown in **Table 4-4** are 186.2 tpy which by itself is greater than the SER of 40 tpy, but as shown in **Table 4-5**, the net increase is less than the SER. The Project will have contemporaneous decreases in $NO_X$ emissions from the existing three MWC units. These decreases will result in an emissions cap on the existing three units of 355.6 tpy, which is 191.8 tons lower than the baseline emissions of 547.4 tons that the units actually emitted, averaged over the 24-month period of 2019-2020. The calculation of baseline emissions is discussed in **Section 3.3**. Contemporaneous increases include operation of diesel engines installed within the past five (5) years.

## Table 4-4: PSD Pollutant Applicability Summary – Step One

| Pollutant | Proposed Project Emissions Increase (tpy) | Significant Emission Rate Threshold (tpy) | Potentially Subject to PSD Review / Further Analysis Needed |
|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | 56.6 | 40 | Yes |
| Nitrogen Oxides ($NO_X$) | 186.2 | 40 | Yes |
| Carbon Monoxide (CO) | 92.7 | 100 | No |
| Fluorides (F) | 2.6 | 3 | No |
| VOCs (as propane) | 32.4 | 40 | No |
| Particulate Matter (PM) | 10.6 | 25 | No |
| Particulate Matter ($PM_{10}$) | 26.8 | 15 | Yes |
| Particulate Matter ($PM_{2.5}$) | 26.8 | 10 | Yes |
| Lead (Pb) | 0.12 | 0.60 | No |
| Sulfuric Acid Mist (SAM) | 18.0 | 7 | Yes |
| MWC Organics (as Dioxins/Furans) | 8.86E-06 | 3.5E-06 | Yes |
| MWC Metals (as PM) | 10.6 | 15 | No |
| MWC Acid Gases (as $SO_2$ + HCl) | 83.5 | 40 | Yes |
| Carbon Dioxide Equivalent (as $CO_2e$) | 210,459 | 75,000 | Yes |

## Table 4-5: PSD Pollutant Applicability Summary – Net Emissions Increases

| Pollutant | Proposed Project Emissions Increase (tpy) | Contemporaneous Changes | | Proposed Project Net Emissions Increase (tpy) | Significant Emission Rate Threshold (tpy) | Subject to PSD Review |
|---|---|---|---|---|---|---|
| | | Increases | Decreases | | | |
| Sulfur Dioxide ($SO_2$) | 56.6 | 0.02 | 0 | 56.6 | 40 | Yes |
| Nitrogen Oxides ($NO_X$) | 186.2 | 1.2 | -191.8 | -4.4 | 40 | No |
| Particulate Matter ($PM_{10}$) | 26.8 | 0.06 | 0 | 26.8 [1] | 15 | Yes |
| Particulate Matter ($PM_{2.5}$) | 26.8 | 0.06 | 0 | 26.8 [1] | 10 | Yes |
| Sulfuric Acid Mist (SAM) | 18.0 | 0 | 0 | 18.0 | 7 | Yes |
| MWC Organics (as Dioxins/Furans) | 8.86E-06 | 0 | 0 | 8.86E-06 | 3.5E-06 | Yes |
| MWC Acid Gases (as $SO_2$ + HCl) | 83.5 | 0 | 0 | 83.5 | 40 | Yes |
| Carbon Dioxide Equivalent (as $CO_2e$) | 210,459 | 2,065 | 0 | 212,524 | 75,000 | Yes |

[1] Total net emissions increases for $PM_{10}$ and $PM_{2.5}$ do not change due to rounding Project increases to one decimal place.

### 4.4.3 PSD Applicable Requirements

The Project is subject to PSD permitting requirements as indicated above. To satisfy the requirements under the applicable PSD regulation, analyses need to be performed relative to control technology requirements and to make sure the Project will not have an adverse impact on the ambient air quality in the project area. The following analyses are required under the federal PSD permitting program, 40 CFR 52.21:

- **Control technology evaluation (40 CFR 52.21 (j))** on a pollutant-specific basis to define Best Available Control Technology (BACT) for controlling Unit #4 emissions. The BACT analysis is provided in **Section 5.0** of this application document.
- **Ambient impacts evaluation (40 CFR 52.21(k))** with respect to PSD increments and the NAAQS resulting from the project-related emissions increases. If results from dispersion modeling analyses demonstrate that the Project's impacts are below established PSD significance levels, then "full impact" (multi-source) PSD increment and NAAQS analyses taking into consideration emissions from other sources in the vicinity of the Project are not required. The ambient impact evaluation is provided in **Section 6.0** of this application document.
- **Source Information (40 CFR 52.21(n)** as part of the permit application, the source submits information for the permitting authority to perform their analysis and make a determination. This information includes a description of the design capacity and operating schedule, a schedule of construction, a description of the emissions reductions and emissions estimates, and evaluation of BACT. A project description is provided in **Section 2.0** of this document, emissions reductions from netting are described in **Section 4.4.2** of this document, emissions estimates are provided in **Section 3.0** of this document, and BACT is provided in **Section 5.0** of this document.
- **Project impact on soils, vegetation, and visibility evaluation (40 CFR 52.21(o))** and an analysis of the air quality impacts relative to general commercial, residential, industrial, and other growth associated with the Project are required. The Project's air quality impact analysis relative to secondary NAAQS is provided in **Section 6.2.7** of this application document.
- **Project-related impacts evaluation (40 CFR 52.21(p))** with respect to PSD increments and Air Quality Related Values (AQRVs) at a Class I area within 100 km to the site is required. There are five (5) Class I areas within 300 km of PCRRF. The

Class I significant impact levels (SIL) were used for the evaluation of air quality impacts. In addition, dispersion modeling analyses are needed to evaluate impacts at Class II areas. The Class I and Class II project-related impacts are provided in **Section 6.3** of this application document.

## 4.5 State of Florida Air Quality Regulations

The Project is subject to State of Florida air quality standards and permitting regulations established by the FDEP under Chapter 62 of the Florida Administrative Code (F.A.C.). Additionally, the provisions under F.A.C. Section 62-204.800 incorporate (by reference) the federal regulations discussed above and general requirements for stationary sources are prescribed by F.A.C. Chapter 62-210.

### 4.5.1 F.A.C. Chapter 62-296 – Stationary Sources Emission Standards

F.A.C. Chapter 62-296 provides emission standards for various types of emission sources. F.A.C. Section 62-296.416 specifically provides requirements for WTE facilities with charging rates greater than or equal to 40 tpd. The Project at the PCRRF will be subject to these provisions. The requirements primarily focus on mercury emissions and specify that mercury emissions will either be limited to 70 µg/dscm (corrected to 7 percent oxygen) or an emissions reduction of 80 percent (by weight) has to be achieved if the mercury control is required. Both of these limits are less stringent than the 50 µg/dscm (corrected to 7 percent oxygen) or an emissions reduction of 85 percent (by weight) imposed by NSPS Subpart Eb. The state provisions require annual stack testing performance in accordance with USEPA Method 29 and test report submittal to FDEP. Consistent with the monitoring requirements specified by the 40 CFR 60, Subpart Eb federal provisions, F.A.C. Section 62-296.416(4) and (5), flue gas temperature and carbon feed rate monitoring is required.

F.A.C. Section 62-296.320(4)(c) provides requirements for unconfined particulate matter emissions. Reasonable precautions will be taken during construction and operation of the Project to prevent and/or minimize unconfined emissions of particulate matter. Dust control measures will include paving and ongoing maintenance (e.g., periodic sweeping) of Facility roadways and parking areas, application of water as a dust suppressant during construction and as needed during operations, and appropriate landscaping and maintenance of unpaved areas. Additionally, the tipping floor will be maintained under negative pressure during active periods, ash will be transferred via an enclosed conveyor system, ash will be wetted prior to storage and processing, and ash processing equipment will be located inside an enclosed building.

### 4.5.2 F.A.C. Chapter 62-212 – Preconstruction Review

F.A.C. Chapter 62-212 provides preconstruction air quality permitting requirements applicable in Florida. These rules establish preconstruction review requirements for new emission sources and modifications to existing emission sources.

#### 4.5.2.1 F.A.C. Section 62-212.400 – Prevention of Significant Deterioration

Florida's PSD requirements are codified under F.A.C. Section 62-212.400. Consistent with the federal PSD program, under Florida regulations PSD review applies to each regulated pollutant based on significant emission rate thresholds as defined under F.A.C. Section 62-210.200. For projects subject to PSD review, the provisions specify that various air quality and control technology related analyses have to be completed as required by the federal PSD regulations. Consequently, the requirements described above in **Section 4.4** are also required by the state PSD program for the Project.

A permit application containing the PSD analyses and supporting information in accordance with FDEP Form 62-213.900(1) is required to be submitted to FDEP for the Project. A permit authorizing construction of the Project will be issued only after FDEP has completed the appropriate technical review of the permit application and has determined that the Project will not adversely impact ambient air quality or violate applicable air quality regulations, and after the requisite public review procedures have been satisfied.

### 4.5.3 F.A.C. 62-213 Operating Permits for Major Sources of Air Pollution

F.A.C. Chapter 62-213 provides requirements for FDEP's operating permit programs, including the Title V operating permit program. As an existing major source of air pollutant emissions, the PCRRF currently operates under a Title V operating permit (#1010056-015-AV) issued by FDEP, with an effective date of May 27, 2021 and expiration date of May 27, 2026. To incorporate the requirements associated with the Project into the existing PCRRF Title V permit, the submittal of an operating permit application will be required. In accordance with F.A.C. Section 62-213.420, an operating permit application for the PCRRF is to be submitted within 180 days after commencing operation of the new emission units at the proposed Facility.

### 4.5.4 F.A.C. Chapter 62-297 – Emissions Monitoring for Stationary Sources

F.A.C. Chapter 62-297 defines applicable compliance test methods and performance specifications for continuous monitors operating at stationary emission sources in Florida. Since periodic stack testing will be required for the MWC units at the PCRRF and CEMS will be used to monitor compliance with applicable emission standards for various pollutants, these provisions

are applicable to the Project. Procedures, training, and certification requirements for opacity observations are specified under F.A.C. Section 62-297.320. F.A.C. Section 62-297.401 adopted by reference USEPA test methods for compliance testing purposes. Similarly, F.A.C. Section 62-297.520 provides performance specifications for continuous monitors in accordance with federal standards under 40 CFR 60, Appendix B.

## 4.6 Environmental Justice Considerations

According to the USEPA, environmental justice is the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies". This means no group of people should bear a disproportionate burden of harmful environmental consequences due to policies, programs, activities, or standards; and that the voice of every community should be considered in environmental decision making.

The PPSA application for certification of Unit #4 performed environmental justice (EJ) evaluation that included identification of low income and minority population near the proposed facility to determine potential for disproportionate impacts to EJ community. The EJ evaluation indicated that the area of interest includes low income and minority populations subject to consideration as potential EJ communities of concern. There were no tribal areas near the Project Site. Based on the analyses of impacts it was determined that environmental, health, and occupational safety impacts would be minimal, temporary, and confined to the immediate Project site. Thus, there would be no significant adverse health impacts on members of the public or significant adverse environmental impacts on the physical environment (water, air, aquatic, and terrestrial resources) and socioeconomic conditions. Therefore, based on the evaluation, there would be no disproportionately high, adverse environmental or economic effects on identified EJ community.

# 5 Best Available Control Technology Analysis

## 5.1 Technical Approach

The PCRRF Unit #4 Expansion is subject to the PSD review for the following pollutants: MWC acid gases ($SO_2$, HCl, and SAM), $PM_{10}$ and $PM_{2.5}$, MWC organics (dioxins and furans), and GHG as $CO_2e$. Pursuant to PSD requirements, the Project needs to apply BACT for these pollutants. This section documents the BACT analyses for those pollutants for which the Project is subject to PSD review. **Table 5-1** provides a summary of emission units and associated pollutant categories.

### Table 5-1: BACT Pollutants

| Emission Units | BACT Analysis Pollutant Categories |
|---|---|
| Municipal Waste Combustor #4 | Particulate matter ($PM_{10}$ and $PM_{2.5}$) |
| | Sulfur Dioxide ($SO_2$) |
| | MWC acid gases (as $SO_2$ and HCl) and Sulfuric Acid Mist (SAM) |
| | MWC organics (as dioxins/furans) |
| | Greenhouse Gases ($CO_2e$) |
| Storage Silo (activated carbon) Vent | Particulate matter ($PM_{10}$ and $PM_{2.5}$) |
| Cooling Towers | Particulate matter ($PM_{10}$ and $PM_{2.5}$) |

The proposed emission limits for proposed Unit #4 are summarized in **Table 5-2**. The summary also provides the proposed control technologies designed to comply with BACT.

### Table 5-2: Proposed Design/Control Technologies and Emission Limits for Pasco Expansion

| Emission Unit | Pollutant | Emission Limit | Design/Control Technology |
|---|---|---|---|
| Unit #4 | Sulfur Dioxide ($SO_2$) | 24 ppmvd[1] (24-hour) | Circulating Dry Scrubber (CDS)/Fabric Filter (FF) |
| | Particulate Matter ≤ 10 microns ($PM_{10}$) | 30 mg/dscm[1,2] | FF |
| | Particulate Matter ≤ 2.5 microns ($PM_{2.5}$) | 30 mg/dscm[1,2] | FF |
| | MWC Acid Gases ($SO_2$/HCl) | HCl – 20 ppmvd (24-hour)[1] | CDS/FF |
| | MWC Organics (Dioxins/Furans) | 10 ng/dscm[1] (total mass) | Activated Carbon Injection (ACI), CDS/FF |
| | Sulfuric Acid Mist (SAM) | 5 ppmvd[1] | CDS/FF |
| | Greenhouse Gases (as $CO_2e$) | 210,459 tpy[3] (12-month rolling) | Combustion Improvements |
| Carbon Silo | $PM_{10}$ | 0.01 gr/dscf design basis | FF |
| | $PM_{2.5}$ | | |
| Cooling Tower | $PM_{10}$ | 0.0005% drift eliminator design basis | Drift eliminator |
| | $PM_{2.5}$ | | |

[1] Limits shown reflect concentrations corrected to 7% oxygen;
ppmvd = parts per million by volume, dry; and mg/dscm = milligrams per dry standard cubic meter,
ng/dscm = nanograms per dry standard cubic meter.
[2] $PM_{10}$ and $PM_{2.5}$ emissions include condensables.
[3] Maximum estimated annual emissions reflect a single MWC unit with a nominal rated Municipal Solid Waste (MSW) processing capacity of 475 tpd and 5,200 Btu/lb.

## 5.2 Top Down BACT Analysis

The USEPA requires that applicants for a PSD pre-construction permit conduct a BACT analysis for the regulated pollutants for which there is a net significant increase in attainment pollutants from a major modification to demonstrate compliance with the control technology requirements of the PSD regulations under 40 CFR 52.21(j)(2). According to 40 CFR 52.21(b)(12), BACT is defined as:

> "an emissions limitation based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant."

In no event can application of BACT result in emissions of a pollutant that would exceed those allowed by applicable requirements in the NSPS under 40 CFR Part 60, or NESHAP under 40 CFR Parts 61 and 63.

The USEPA requires a "top down" approach to the BACT analysis. The process begins with the identification of the alternative control technologies available for the source category based on a review of: (1) those technologies required by previous BACT determinations made by the USEPA or the various state agencies and (2) those technologies applied in practice to the same source category or similar source category by means of technology transfer. The available control technologies are then evaluated to determine whether they are technically feasible for the given application. Those control technologies found to be technically infeasible are eliminated from further consideration, while the remaining technologies are ranked by their performance levels, from the highest to the lowest performance level.

The technically feasible control technologies are then evaluated on the basis of their economic, energy, and non-air quality environmental impacts. If an alternative technology, starting with the highest performance level, is eliminated based on one or more of these criteria, the control technology with the next highest performance level is evaluated until a control technology qualifies as BACT. Historically, the cost effectiveness of alternative control technologies in reducing air pollutant emissions is the principal criteria used by USEPA in their BACT determinations.

## 5.3 Previous BACT/Lowest Achievable Emission Rate (LAER) Determinations

Federal and state data sources were reviewed for the Project to determine the control technologies that have been applied to MWCs around the country. The review focused on the types of air pollution control technologies used in these applications, the design and performance of each control technology, and the incentive for implementing the preferred control measures. In identifying available control technologies for each regulated pollutant, the review considered the following databases:

- Federal and state clearinghouses for air pollution control technology determinations;
- Air pollutants emission limits established in a State Implementation Plan (SIP); and
- National database of recently approved PSD permits for MWCs.

Each of these databases has certain limitations that hinder either identifying the control devices currently employed at the Facility or determining the performance levels actually achieved in practice by each control device. **Table 5-3** provides a summary of the BACT/Lowest Achievable Emission Rate (LAER) determinations made by the USEPA or state agencies for MWC projects around the country that have been constructed and operated. The Energy Answers Arecibo project in Puerto Rico (permitted April 10, 2014) is not included in the table because this project was never constructed and the emission limits were not demonstrated in practice.

On December 19, 1995, the USEPA promulgated the NSPS for large MWC units under 40 CFR 60, Subpart Eb. These standards apply to new, modified, or reconstructed MWC units with an MSW processing capacity of more than 250 tpd for which construction commenced after September 20, 1994, or for which modification or reconstruction commenced after June 19, 1995. On May 10, 2006, the USEPA promulgated updates to these Standards (USEPA, 2006). The revised NSPS establishes emission limitations for particulate matter, opacity, $SO_2$, NOx, CO, HCl, Pb, Cd, Hg, and dioxins/furans, as well as requirements for operator certification, operating manuals, and compliance testing, monitoring, recordkeeping, and reporting. **Table 5-4** presents the proposed emission limitations, along with the associated averaging period for the proposed Unit #4. The Project, at a minimum, will comply with the NSPS for large MWC units under 40 CFR 60, Subpart Eb.

## Table 5-3: Summary of BACT/LAER Determinations for Recently Approved MWC Facilities

| Facility | State | Date Issued | Rated Capacity | Control Technologies | Emission Limits | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $SO_2$ (ppmvd) | $PM_{10}$ (mg/dscm) | $PM_{2.5}$ (mg/dscm) | SAM (ppmvd) | MWC Organics (Dioxins/Furans) (ng/dscm) | HCl (ppmvd) | GHG ($CO_2e$) | Sulfuric Acid Mist (ppmvd) |
| Palm Beach Renewable Energy Park (FL-0234) | FL | December 23, 2010 | 1,000 tpd/each (3 MSW combustor units) | Selective Catalytic Reduction (SCR), Spray Dryer Absorber with Fabric Filter System | 24.0 | 12.0 (USEPA Method 5 filterable only) | 12.0 (USEPA Method 5 filterable only) | NA | 10.0 | 20.0 | NA | 5.0 |
| Hillsborough County Resource Recovery Facility (FL-0284) | FL | November 3, 2006 | 600 tpd MSW combustor unit | Good Combustion Practices, Spray Dryer Absorber, and Fabric Filter | 26.0 or 80% reduction | NA | NA | 25.0 | 13.0 | 25.0 or 95% reduction | NA | NA |
| Lee County WTE Facility (FL-0258) | FL | October 13, 2003 | 660 tpd MSW combustor unit | Furnace design/ temperature control, Dry Scrubber, Fabric Filter System | NA | 20.6 (USEPA Method 5 filterable only) | NA | 15.0 | 13.0 | 25.0 | NA | NA |
| Riley Energy Systems of Lisbon Corporation Resource Recovery Facility (CT-0144) | CT | November 21, 2001 | 250 tpd /each municipal waste combustors (2 units) | Selective Non-Catalytic Reduction (SNCR), Fabric Filter System | 16.95 lb/hr | 2.25 lb/hr (TSP) | NA | 2 lb/hr | 2.5E-6 lb/hr | 6 lb/hr | NA | NA |

### Table 5-4: Proposed BACT Limits for the Pasco Expansion Project (Unit #4 Addition)

| Pollutant | Proposed Limits[1] | Averaging Period | PSD BACT |
|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | 24 ppmvd | 24-hour geometric mean | Yes |
| Sulfur Dioxide ($SO_2$) – as MWC Acid Gas | 24 ppmvd | 24-hour geometric mean | Yes |
| Hydrogen Chloride (HCl) – as MWC Acid Gas | 20 ppmvd | Average of 3 stack test runs | Yes |
| Particulate Matter ($PM_{10}$)[1,2] | 30 mg/dscm | Average of 3 stack test runs | Yes |
| Particulate Matter ($PM_{2.5}$)[1,2] | 30 mg/dscm | Average of 3 stack test runs | Yes |
| Sulfuric Acid Mist (SAM) | 5 ppmvd | Average of 3 stack test runs | Yes |
| MWC Organics (as Dioxins/Furans) | 10.0 ng/dscm (total mass) | Average of 3 stack test runs | Yes |
| Carbon Dioxide Equivalent ($CO_2e$)[3] | 210,459 tons per year (tpy) | 12-month rolling total | Yes |

[1] Limits shown reflect concentrations corrected to 7% oxygen.

[2] $PM_{10}$ and $PM_{2.5}$ emissions include condensables.

[3] Includes sum of both fossil and biogenic derived $CO_2$.

## 5.4 Municipal Waste Combustor BACT

Pasco County proposes to incorporate the following control technologies into the Facility design to minimize the emissions of regulated air pollutants for which the Expansion Project is subject to PSD review:

- $PM_{10}$ and $PM_{2.5}$ are proposed to be controlled by the high-efficiency FF;
- $SO_2$, SAM, MWC acid gases, and MWC Organics are proposed to be controlled by CDS in combination with FF;
- MWC organics (dioxins and furans) are proposed to be controlled by good combustion practices (GCP), CDS/FF, and ACI; and

- Greenhouse Gases (as $CO_2e$) are proposed to be controlled using efficient design of the MWC unit to improve combustion process.

The PSD required BACT analyses first identify the alternative air pollution control technologies available to minimize air emissions from the proposed Unit #4, then evaluate the technical feasibility of applying each of these technologies to the proposed unit, document the performance levels achievable by each of the technologies, and finally assess the economic, energy, and non-air quality environmental impacts associated with these technologies.

### 5.4.1 Sulfur Dioxide, Sulfuric Acid, and MWC Acid Gas Emissions

The sulfur that contributes to pollutant emissions from solid waste combustion is chemically bound to other compounds. During combustion, a fraction of these elements escape from the furnace as gaseous sulfur compounds, while the remainder leave as bottom or fly ash. Oxidizing or reducing furnace conditions directly influence the types of sulfur compounds that may form during combustion. Excess oxygen conditions, typical of a solid waste combustor, generally result in the formation of $SO_2$ and $SO_3$, while reducing conditions result in hydrogen sulfide ($H_2S$), carbonyl sulfide, and potentially elemental sulfur. Because the proposed Unit #4 will be operated under excess oxygen conditions, reduced forms of sulfur are unlikely to form, and therefore emissions of reduced sulfur compounds will be negligible.

Sulfur dioxide is the most common sulfur compound released from the combustion process. Some portion of the $SO_2$, when released into the atmosphere, reacts with atmospheric water vapor to form sulfuric acid and sulfuric acid mist (SAM). Sulfuric acid and SAM may further react to form sulfate salts, resulting in particulate emissions.

Halogens (chlorine and fluorine) are also chemically bound to other compounds. A portion of these elements are released during combustion and escape the furnace in various forms. Similar to sulfur, chlorine and fluorine react to form HCl and HF. The formation of these acid gases in the atmosphere in higher quantities may result in reduced visibility, material corrosion, and sensitive organ irritation in humans and animals, and can add to acid rain/fog problems.

#### 5.4.1.1 Identification of Technologies to Control Acid Gases

The emissions of $SO_2$ and other acid gases from solid waste combustion can be reduced through the application of acid gas scrubbing devices. There are four general types of acid gas absorption systems commonly in use for MWC units, including wet scrubbers, spray dryer adsorbers (SDA), dry sorbent injection (DSI), and CDS. Although the specific operation of each of these scrubbing techniques differs significantly, each device incorporates the use of an alkaline reagent to

neutralize acid gases in the flue gas stream. Wet scrubbers and SDAs subject flue gas to a sorbent water solution or slurry, while DSI and CDS introduce dry sorbent into the flue gas. These acid gas control technologies are evaluated below in terms of their application to the proposed Unit #4.

**Wet Scrubber**

In the United States (U.S.), in the past 20 years, state or federal regulatory agencies have not considered wet scrubber controls in developing regulations for MWC facilities or in permitting. The USEPA's Municipal Waste Combustion Study (USEPA, 1987), the background information document to the 1991 Subpart Ea NSPS for MWC, and the preamble to the NSPS, do not evaluate wet scrubbing systems. In developing the 1995 NSPS for new and existing MWCs, the USEPA determined that use of spray dryer absorbers upstream of either electrostatic precipitators (ESPs) or FFs represents Maximum Achievable Control Technology (MACT). Therefore, wet scrubber systems are excluded from further evaluation as the potential BACT level of control for acid gases.

**Spray Dryer Absorber (SDA)**

The SDA is located upstream of the particulate collection device. The spray dryer is the first step of a two-step process for mitigating acid gas emissions. The baghouse or ESP located after the spray dryer is the second step.

Step 1 occurs in the spray dryer vessel where flue gases are mixed with a finely atomized alkaline lime slurry. Lime slurry is injected into the SDA through either a rotary atomizer or dual fluid nozzles, with the amount of lime slurry being modulated to maintain compliance with stack setpoints. $SO_2$ and other acid gases diffuse into water droplets where they react with free calcium from the lime slurry. The result is a particle comprised of hydrated lime and calcium salts. The reduction in flue gas temperature provided by the evaporating water has been shown to be a major factor influencing the removal of acid gases. As a result of the scrubbing process, a relatively dry, free-flowing residue is produced consisting of unreacted lime, salts (most prevalent being $CaCl_2$, $CaSO_3$, and $CaSO_4$), and fly ash. The largest of these particles are separated from the gas in the absorbing chamber by gravity and fall to the bottom. The smaller particles are carried to the particulate control device for separation from the flue gas.

Step 2 occurs when the FF is used as the particulate control device. The dry reaction products from the spray dryer are collected by the filter bags and form a porous layer that is referenced as filter cake. The unreacted lime in the filter cake creates additional mitigation of SAM, HCl, HF, dioxins, and mercury.

**Dry Sorbent Injection (DSI)**

DSI can be divided into three types:

- Furnace sorbent injection;
- Economizer sorbent injection; and
- Duct sorbent injection.

Each of these three technologies also uses a two-step process with the first step being reactions between acid gases and dry sorbent in flue gas passages and the second step being reactions in the filter cake of the baghouse.

The simplest technology is furnace sorbent injection, where a dry sorbent is injected into the furnace to react with the $SO_2$ in the flue gas. The finely grained sorbent is distributed quickly and evenly over the entire cross section in the upper part of the furnace. Commercially available hydrated lime ($Ca(OH)_2$), is used as sorbent. The sorbent reacts with $SO_2$ to form $CaSO_4$ .and HCl reacts to form $CaCl_2$. This is later captured in a FF together with unused sorbent and fly ash. Potential disadvantages of furnace sorbent injection include fouling and erosion of convective heat transfer surfaces by the injected sorbent (USEPA, 1989).

In an economizer and duct sorbent injection process, hydrated lime is injected into flue gas at a lower temperature. Test data have demonstrated that, in contrast to the furnace sorbent injection process, $Ca(OH)_2$ reacts directly with $SO_2$ since the temperature is too low to dehydrate $Ca(OH)_2$ completely.

There are many factors that influence the performance of a duct sorbent injection process. These include sorbent reactivity, quantity of injected sorbent, relative humidity of the flue gas, gas and solids residence time in the duct, and quantity of recycled, unreacted sorbent from the particulate control device. Finally, when designing an economizer or duct sorbent injection system, a good working knowledge of the flow conditions in the flue gas ductwork is important.

**Circulating Dry Scrubber (CDS)**

A CDS, also known as a dry recirculation system, is a two-step process with the first step being where fresh, dry, hydrated lime and recirculated residue is mixed with flue gas. This first step may occur in one vessel where water, the reagents, and the recirculated residue are injected or it may occur in two vessels, one for evaporating water and one for mixing fresh reagent and recirculated residue. In both cases the mass rate of fresh and recirculated lime can be separately adjusted to

maintain stack setpoints that comply with permit conditions. The second step in the CDS process is the filter cake on the filter bags in the baghouse.

The CDS system works by bringing together large amounts of dry solids, atomized water, hydrated lime, and flue gas inside a circulating bed reactor or a dedicated reactor/mixing vessel for neutralizing $SO_2$, acid gases, and sulfuric acid mist (SAM). A small amount of water is injected separately in the reactor to reduce flue gas temperature to an optimum value that promotes reaction of solids, including fresh and recirculated residue, with the flue gas constituents. The water is evaporated in the reactor with cooled flue gas exiting the reactor and transported to a FF that captures the solid reaction products. The CDS provides separate control of the injection rate of fresh lime and recirculated residue, thereby providing options on how to most effectively maintain compliance with stack emission limits. The primary advantage of the CDS system compared with a spray dryer or conventional dry injection system is the recirculation of residue from the baghouse to the recirculation reactor.

The recirculation of residue (i.e., reaction products and unreacted lime) increases the total amount of lime for abatement of acid gases and also provides three opportunities for improved acid gas control through improved contact between acid gases and reagent, including: 1) where fresh lime and residue are injected, 2) the ductwork which functions as a transport reactor due to the large amount of residue in suspension, promoting a high level of contact between reagent and acid gases, and 3) the filter cake which has a larger amount of unreacted reagent due to the large amount of recirculated residue.

There are several CDS designs available; however, each of these designs includes evaporation of water to maintain a desired flue gas temperature that optimizes acid gas control, a mechanical and/or pneumatic system for recirculating a large fraction of the total residue, and a separate system for injecting fresh reagent. Each CDS system promotes the same reaction products ($CaSO_3$, $CaSO_4$ and $CaCl_2$). The process control system allows for adjustment of fresh reagent dosage rates and recirculated rates for compliance with stack setpoints.

#### 5.4.1.2 Technical Feasibility

With the exception of wet scrubber, the remaining three technologies: SDA, DSI, and CDS, are considered technically feasible options for the Project. They are evaluated and ranked in the following section.

#### 5.4.1.3 Evaluation and Ranking of Control Technologies

The following discussion focuses on relative advantages and performance of each system for controlling $SO_2$, sulfuric acid and SAM, and MWC acid gases from the MWC.

**DSI**

Because the dry sorbent can be injected directly into an existing furnace or duct work, capital costs for installation of the system are minimal. Due to low capital costs, a dry sorbent injection may be ideal for retrofitting older combustion facilities that have no acid gas controls and where control goals are modest. DSI can typically achieve $SO_2$ control efficiencies ranging from 50 to 70%. The major disadvantages of a dry sorbent injection system for use on a new MWC unit like proposed Unit #4 are:

- Dry sorbent injection scrubbers provide lower $SO_2$ removal efficiencies than SDA and CDS;
- DSI may not be able to effectively manage large variability in uncontrolled acid gas concentrations to stack acid gas limits associated with BACT;
- More waste is produced by a dry injection scrubber in comparison to an SDA or CDS system because of the large quantities of sorbent that has to be injected; and
- The use of a larger quantity of sorbent than that used in an SDA or CDS system results in the need for more frequent FF cleaning, which accelerates wear-out of the filter bags.

Until such time as improved sorbents and processes are developed and demonstrated on full-scale MSW combustion facilities, DSI alone cannot be considered BACT for control of $SO_2$ and acid gases because of lower control efficiencies and minimal application to U.S. facilities.

**SDA**

The advantages of an SDA system include:

- SDA system uses a small amount of water, which evaporates and does not require treatment;
- SDA system may be easily used with currently available particulate control devices;
- SDA systems provide effective $SO_2$ and other acid gas control; and with the use of an efficient particulate control device, SDAs also can reduce emissions of organics and metals; and
- SDA systems produce a dry waste, which is easier to handle, transport, and dispose.

Significant disadvantages of SDA systems include potential clogging of atomizers or spray nozzles and reagent accumulation on the SDA walls. In the U.S., SDAs have been applied in

combination with either FFs or ESPs on waste-to-energy facilities to comply with either 40 CFR 60, Subpart Eb or Subpart Cb. These installations have been demonstrated to consistently achieve $SO_2$ removal efficiencies of 80% to > 90% and HCl removal efficiencies > 90%. Spray dryers may have difficulty continuously achieving BACT limits with highly variable inlets because a spray dryer cannot inject as much lime reagent as a CDS. It must be noted that in order for a SDA to be effective in controlling a wide range of acid gas emissions, the flue gas temperature at the economizer outlet (ie SDA inlet) must be large enough to enable evaporation of a significant amount of lime slurry. A higher flue gas temperature at the economizer outlet causes a lower overall energy efficiency because less heat is recovered for steam production.

**CDS**

CDS systems have been used in coal-fired applications where higher sulfur fuels are combusted and at municipal waste combustors where MSW inherently has variable levels of sulfur and chlorides. Advantages offered by CDS when compared to SDA and DSI include:

- High solids contact and residence time for mixing of dry lime hydrate reagent with acid gases;
- Thorough mixing of gases and solids;
- Large amount of available lime from the combination of fresh lime and recirculated residue would exceed the stoichiometric ratio of lime and acid gases relative to a spray dryer or dry lime injection system providing better utilization of lime with higher control efficiency;
- Relatively larger amount of powdered activated carbon (PAC) for mitigation of mercury and dioxin/furans due to fresh and recirculated PAC
- Atomization of water instead of slurry; and
- High system availability due to management of dry lime versus wet slurry.

CDS systems have been applied to power plants, steel mills, refineries, waste-to-energy plants, and combined heat and power plants. $SO_2$ and HCl removal efficiencies at 98% or greater are reported by several vendors. These systems are also capable of effectively reducing highly variable inlet concentrations to a low stack limit. CDS systems have been used extensively in the MWC industry in Europe.

Covanta's Durham York Energy Center located in Ontario, Canada is a prime example of the use of a CDS system outside the U.S. for controlling HCl, $SO_2$, SAM, and other acid gas emissions since 2015 to levels equal to those proposed for the Project. European experience managing

emissions from refuse derived fuel, mechanical biological treatment, and traditional MSW for decades have also proven the ability of CDS to provide continuous compliance with stringent stack limits at modern WTE facilities.

Based on the evaluation and relative advantages of the control systems discussed above, they are ranked below based on their expected control efficiencies for removal of $SO_2$, sulfuric acid, and MWC acid gases.

- CDS/FF – greater than 95% $SO_2$ removal and 99%+ acid gas removal;
- SDA/FF – 80 to 95% $SO_2$ removal and 95 to 99% acid gas removal; and
- DSI – 50 to 90% $SO_2$ removal and 90 to 95% acid gas removal.

The CDS removal efficiency is important when correlated to its ability to effectively manage variable levels of $SO_2$ and HCl to a stack setpoint for each.

#### 5.4.1.4 Selection of BACT

NSPS Subpart Eb sets emission limits for $SO_2$ as the lesser of 30 ppmvd at 7% $O_2$ or 80% control and HCl as the lesser of 25 ppmvd at 7% $O_2$ or 95% control. BACT for the control of $SO_2$ and acid gases for the proposed Unit #4 is determined to be the CDS/FF option. Consistent with the BACT determination for the Palm Beach Renewable Energy Park 2, the CDS system will be designed to achieve an outlet $SO_2$ concentration of 24 ppmvd corrected to 7% $O_2$, an outlet HCl concentration of 20 ppmvd corrected to 7% $O_2$, and an outlet SAM concentration of 5 ppmvd corrected to 7% $O_2$.

### 5.4.2 Particulate Matter ($PM_{2.5}$/$PM_{10}$) Emissions)

Particulate matter emissions from MWC units are the result of the entrainment of noncombustible material in the make-up air and the MSW, the incomplete combustion of fuel, and the entrainment of reaction products in the APC system. Particulate emissions can be quantified by type (filterable and condensable) and size (total PM, $PM_{10}$, and $PM_{2.5}$). The filterable portion of the particulate generally consists of noncombustible inert matter, unburned combustibles, inorganic oxides, and metals. The condensable portion includes acid gases and semi-volatile organics. Downstream of the furnace, the CDS circulates residue that includes unreacted hydrated lime, salt-based reaction products, and powdered activated carbon (PAC). The recirculated residue increases the particulate loading in the flue gas but also provides for more effective control of many pollutants.

When discussing particulate matter, the reference method used to determine emissions needs to be included. Particulate matter (without a reference to the size) is measured using USEPA

Reference Method 5. Method 5 only analyzes the front-half or solid filterable portion of particulate matter. As regulated NSR pollutants under 40 CFR 52.21(b)(50)(i)(a), $PM_{10}$ and $PM_{2.5}$ need to include both filterable and condensable components. The filterable component is measured using Method 201A (or, in some cases, Method 5 if it is assumed that the filterable PM has a mean diameter of 10 microns and less). The condensable fraction of $PM_{10}$ and $PM_{2.5}$ is measured using Method 202.

#### 5.4.2.1 Particulate Control Technologies

Particulate control technologies available for MWC units are FFs and electrostatic precipitators (ESPs). These control technologies are evaluated below in terms of their application to MWC units.

**Fabric Filters (FF)**

FFs provide effective control of solid particulate through several mechanisms: (1) the fabric itself, which is typically a felt, (2) surface treatment and/or laminate, and (3) filter cake, which provides for inertial impaction of particulate entrained in flue gas. The filter cake will consist of fresh lime and carbon reagent and recirculated residue. The dust cake that forms on the filter from the collected particulate can significantly increase collection efficiency. FFs are frequently referred to as baghouses because the fabric is usually configured in cylindrical bags. Groups of bags are placed in compartments or modules to allow for: (1) online cleaning of filter bags and (2) online servicing and/or replacement of some of the bags without shutting down the entire FF.

The size of an FF at a MWC unit, including the total number of filter bags and modules, is determined by the choice of air-to-cloth ratio, or the ratio of volumetric air flow to cloth area, the particulate loading, and the cleaning method. A high particulate loading requires the use of a larger FF so that the filer bags can be effectively cleaned.

**Electrostatic Precipitators (ESP)**

An ESP is a particulate control device that uses electrical forces applied to electrodes exposed to the emission flow to move particles entrained within an exhaust stream onto collector plates. The voltage applied to the electrodes causes the gas between the electrodes to break down electrically, an action known as a “corona.” The entrained particles are given an electrical charge when they pass through a corona, a region where gaseous ions flow. Electrodes in the center of the flow lane are maintained at high voltage and generate the electrical field that forces the particles to the collector plates. The electrodes are usually given a negative polarity because a

negative corona supports a higher voltage than does a positive corona before sparking occurs. The ions generated in the corona follow electric field lines from the wires to the collecting plates. Therefore, each wire establishes a charging zone through which the particles pass. As larger particles absorb many times more ions than small particles, the electrical forces are much stronger on larger particles. The collector plates are periodically impacted or "rapped" by various mechanical means to dislodge the particulate, which slides downward into a hopper, where it is collected. The collection hopper is evacuated periodically, as it becomes full. Dust is removed through a valve into a dust-handling system, such as a pneumatic conveyor, and is then disposed of in an appropriate manner.

Certain types of losses affect control efficiency. The rapping that dislodges the accumulated layer also releases some of the particles back into the gas stream. These re-entrained particles are then collected again in later sections, but the particles re-entrained in the last section are not collected and escape the unit. Further, part of the gas may flow around the charging zones through the clearances required for the non-electrified internal components at the top of the ESP. This is called “sneakage” and places an upper limit on the collection efficiency.

Another major factor in performance is the resistivity of the collected material. Because the particles form a continuous layer on the ESP plates, the ion current passes through the layer to reach the ground plates. This current creates an electric field in the layer, which can become strong enough to cause local electrical breakdown known as “back corona.” Back corona is prevalent when the resistivity of the layer is high, which reduces the collection ability of the unit because the back corona causes difficulties in charging the particles. At low resistivities, the particles are held on the plates so loosely that particle re-entrainment becomes much more significant.

#### 5.4.2.2 Technical Feasibility

Both FF and ESP technologies are considered as feasible options for the Project. They are evaluated and ranked in the following section.

#### 5.4.2.3 Evaluation and Ranking of Control Technologies

The following discussion focuses on relative advantages and performance of each system for controlling particulate emissions from the MWC.

**FF**

FFs in general provide the highest collection efficiencies for both coarse and fine particulates and are relatively insensitive to fluctuations in gas stream conditions. In addition, the pressure drop can be maintained at a relatively constant value to provide steady state operating conditions that promote effective control of the solid filterable particulate and inorganic salts. FFs also support secondary removal of $SO_2$, HCl, and other acid gases though accumulation of a filter cake layer, which allows additional reactivity time for the sorbent.

**ESPs**

Compared to FFs, ESPs are generally less effective at controlling fine particulate and are limited in their ability to provide secondary control of other pollutants, such as acid gases or mercury. In general, ESPs are not suited for use in combustion units that are highly variable because they are very sensitive to fluctuations in gas stream conditions. In addition, certain particulates are difficult to collect due to extremely high or low resistivity characteristics.

Based on the evaluation and relative advantages of ESPs and FFs discussed above, they are ranked below based on their expected control efficiencies for removal of particulate matter emissions.

- FF – 99 to 99.9% $PM_{10}$ & $PM_{2.5}$ removal, additional control of acid gases with filter cake, no high voltage required, indifferent to electrical resistivity.
- ESP – 50 to 99.9% $PM_{10}$ & $PM_{2.5}$ removal, no additional control of acid gases, high voltage required, particulate electrical resistivity affects collection.

### 5.4.2.4 Selection of BACT

Particulate matter ($PM_{10}/PM_{2.5}$) emissions from the proposed Unit #4 are recommended to be controlled by FFs. FFs have been demonstrated to achieve the highest particulate collection efficiencies, especially for fine particulate, compared to alternative particulate control devices. FFs also provide secondary removal of MWC acid gases, as well as collection of MWC organics. FFs are successfully being used on Units #1-3 to control emissions. Accordingly, FFs are considered representative of BACT for $PM_{10}/PM_{2.5}$ and BACT for MWC metal emissions from proposed Unit# 4.

NSPS Subpart Eb sets emission limits for particulate matter as 20 mg/dscm, corrected to 7% $O_2$, as tested by USEPA Method 5. Based on a review of available control technologies for particulate emissions from MWC units and past BACT determinations, the lowest sustainable filterable $PM_{10}/PM_{2.5}$ loading that has been demonstrated in practice and can be expected for the proposed

Unit #4 is 12 mg/dscm corrected to 7% $O_2$ (filterable $PM_{10}/PM_{2.5}$ measured via Method 201A) based on the Palm Beach Renewable Energy Park. This limit is lower than the comparable NSPS limit, which uses Method 5 to determine compliance with filterable particulate matter. Total $PM_{10}/PM_{2.5}$ loading will be 30 mg/dscm corrected to 7% $O_2$ (filterable and condensable $PM_{10}/PM_{2.5}$ measured via Method 201A and Method 202, respectively) based on the H-Power Resource Recovery Venture Unit 3 located in Honolulu, HI. This total particulate matter limit is not directly comparable to the NSPS Eb limit, because the NSPS limit does not include condensable particulate matter.

### 5.4.3 MWC Organics (Dioxins and Furans Emissions)

Dioxins and furans are formed by several chemical processes from the furnace throughout the boiler and can exist in the vapor phase or condensed and adsorbed on fine particulates.

#### 5.4.3.1 Dioxin/Furan Control Technologies

Good Combustion Practices (GCPs) are important in reducing the formation of dioxins and furans by thermal destruction of organic compounds that can be the precursors of dioxins and furans. GCPs incorporate system design and operating techniques that, when applied with appropriate flue gas cleaning techniques, have demonstrated the minimization of emissions from the combustion of MSW. Verification of GCP on a continuous basis is accomplished by monitoring a selected subset of combustion operating parameters: CO in the flue gases, maximum operating load (steam production rates), and the temperature of the flue gas at the inlet to the FF. Based on test data from MWCs, GCPs and a spray dryer and FF system using PAC have been demonstrated to achieve dioxin/furan outlet concentrations of 10 ng/dscm corrected to 7% $O_2$.

Post-combustion controls, including the CDS reactor with water evaporation, baghouse, injection of powdered activated carbon (PAC), and CD recirculation equipment, will provide effective control of dioxin/furan emissions, especially when combined together as a dry recirculation system where residue with PAC is recirculated. As previously stated, dioxins and furans can exist in the vapor phase or as fine particles. There are multiple steps to maintain dioxin emissions below the proposed limit, including:

1. The CDS reactor will evaporate water to maintain flue gas temperature at a desired setpoint;
2. The PAC system will be operated to maintain a continuous injection of fresh PAC;
3. The baghouse will maintain a filter cake that will include fresh and recirculated PAC;

4. The recirculation equipment will maintain recirculation of residue from the baghouse to the CDS reactor to provide an elevated amount of PAC relative to the fresh PAC injection rate;
5. Ductwork and the CDS reactor will function as a transport reactor where there will be a large amount of entrained residue that provides a large amount of surface area for adsorbing gas phase dioxins and furans; and
6. The baghouse will provide effective control of solid phase particulate, including fine particulate, where gas phase dioxins and furans are most likely to condense.

#### 5.4.3.2 Technical Feasibility

GCP is considered a feasible option for the Project. Post-combustion air pollution control equipment, including the CDS system, is a known and proven technique and is also considered technically feasible.

#### 5.4.3.3 Evaluation and Ranking of Control Technologies

Pasco County is committed to using GCP and best management practices for maintenance and operations to minimize dioxin/furan emissions transported to the air pollution control equipment. The project will also use the CDS system as an air pollution control system that provides control of dioxin/furan emissions through multiple processes. Given that this is the top level of dioxin/furan control and that the proposed Unit #4 design incorporates the controls discussed above, an evaluation and ranking of alternative control technologies is not needed.

#### 5.4.3.4 Selection of BACT

Because no alternative dioxin/furan control technologies have been deemed necessary for MWC units, the combination of GCP to minimize dioxin/furan formation and transport to the CDS system, is considered representative of BACT for dioxin/furan emissions from the proposed Unit #4.

The NSPS Subpart Eb emission limit for dioxins/furans is 13 ng/dscm (total mass) at 7% $O_2$. Based on a review of available control technologies for dioxin/furan emissions from MWC units, we conclude that the lowest sustainable outlet dioxin/furan concentration that has been demonstrated in practice and can be expected for the proposed Unit# 4 is 10 ng/dscm corrected to 7% $O_2$ (total mass). The proposed limit of 10 ng/dscm is lower than the promulgated federal NSPS Subpart Eb limit of 13 ng/dscm, both at 7 % $O_2$.

### 5.4.4 Greenhouse Gas Emissions (as $CO_2e$)

Nearly all of the GHG emissions from the combustion of MSW in MWCs are in the form of $CO_2$ as a result of the oxidation of carbon contained in the waste. The combustion processes also generate negligible amounts of $N_2O$ and $CH_4$.

MSW is comprised of components that include biogenic and anthropogenic carbon, with the majority of carbon in MSW being of biogenic origin. As a result, most of the $CO_2$ emissions generated from the combustion process are biogenic. Flue gas from the existing PCRFF units was sampled and analyzed for its biogenic/anthropogenic split in 2019 -2020 and results indicated an average biogenic $CO_2$ emission of 62.4% of total $CO_2$. Test results are from the radiocarbon analysis of quarterly stack gas samples collected and analyzed in compliance with USEPA's GHG Reporting Rule, 40 CFR §98. $CH_4$ and $N_2O$ emissions have represented approximately 2% of total GHG emissions, including biogenic $CO_2$, reported to the USEPA from 2019 - 2020, as calculated using default emission factors specified by USEPA.

#### 5.4.4.1 Identification of Technologies to Control GHG

Three options were identified to reduce GHG emissions from combustion of MSW remaining after the Pasco County Solid Waste Management Plan has been implemented. These control options are evaluated below in terms of their application to the proposed Unit #4.

**Carbon capture and sequestration**

Carbon capture and sequestration (CCS) is a three-step process that includes:

- Capture of GHG emissions (primarily $CO_2$) from the waste combustion gases;
- Transportation of captured $CO_2$ to a suitable sequestration site; and
- Sequestration of the captured $CO_2$ at the suitable site.

The feasibility of utilizing this option is dependent on all three steps. If any one of the steps is not feasible, then this option is considered technically infeasible.

**Gasification or pyrolysis of MSW**

Gasification/pyrolysis are energy intensive processes that convert MSW to syngas which is subsequently combusted.

**Maximizing combustion efficiency**

Recycling is not included as an alternative control option because it is an existing component of the Pasco County solid waste management plan, with the proposed Project managing MSW not recycled. Any material recycled will be replaced with MSW not recycled. As a result, there is no net change in tons burned or the potential GHG emissions realized with recycling.

### 5.4.4.2 Evaluation and Ranking of Control Technologies

**CCS**

There are a variety of physical/chemical separation processes in the development phase for separating $CO_2$ from flue gas, however none have been demonstrated on a full-scale basis on WTE flue gas streams or any other industrial or utility applications. The absence of a full-scale operating unit also impacts the ability to estimate reasonable and accurate energy and environmental impacts.

Additionally, infrastructure does not exist for managing and implementing the transport of separated $CO_2$ to an existing $CO_2$ disposal/management system, therefore transport and management of separated $CO_2$ would require separate permits for either onsite or offsite storage, neither of which has been demonstrated on a long-term basis.

CCS is therefore considered as technically infeasible for Unit #4.

**Gasification / Pyrolysis**

Mass burn waterwall (MBWW) technology utilizing a moving grate, is regulated by 40 CFR Part 60, subpart Eb. The Eb definition of a municipal waste combustion unit includes gasification/pyrolysis technology, ensuring that the technology would be subject to the same emission and performance standards. While there have been many efforts to achieve continuous operation of either a gasification or pyrolysis system on a small-scale basis, currently there is no availability of technology to implement it full scale for the proposed Project. A USEPA report, *Assessment of Municipal Waste Energy Recovery Technologies, Final Report* (USEPA 2020), reveals significant challenges with technical viability currently, including the following:

- “Conversion technology facilities are not well established in the US, and an inventory updating the number of facilities in the US that is presented in this report shows a decline in the number of facilities with economics and lack of viable feedstock being a major challenge and resulting in facility closures.”

- "A key challenge for conversion technologies as compared to conventional WTE and landfill disposal is the need for consistent and quality feedstock for the process to work effectively, and in many cases, the limited feedstocks accepted (e.g., plastic, specific plastic resins, organic materials)."

Gasification/pyrolysis is therefore considered technically infeasible for a full-scale operation of proposed Unit #4.

**Combustion Improvements**

USEPA's *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions From Bioenergy Production* (USEPA 2011; Section I) states that "utilization of biomass fuel alone is BACT for a bioenergy facility" with USEPA's *Framework Addressing Biogenic Carbon Emissions from Stationary Sources* (USEPA 2014) and Appendix N documenting that conversion of biogenic carbon avoids conversion to methane, a potent GHG with a 20-year global warming potential of 84 if it were landfilled. The conversion of carbon to electricity through the improved combustion process also generates more electricity than landfill gas to energy on a ton of MSW basis.

Energy efficiency is a parameter that evaluates the actual energy output (steam or electrical energy) of a system relative to the gross input (heat input as MMBtu/hr). In the case of a WTE facility, conversion of energy input to energy output is a function of the facility design and its operation and maintenance program to maintain system integrity. When evaluated relative to $CO_2$, a system with higher combustion efficiency would have less $CO_2$ per unit of energy than a system with lower combustion efficiency.

The proposed Project is a nominal design rated capacity of 475 ton per day municipal waste combustor that would be the fourth unit at PCRRF. While proposed Unit #4 is a stand-alone unit when considering its design and operation, it is not completely stand-alone because it will share certain infrastructure with the existing facility (MSW storage pit, water treatment, etc.). This evaluation has considered proposed Unit #4 as a stand-alone unit when considering the conversion of carbon in MSW to available and useable energy such as steam which would then be converted to electricity by a new turbine. However, Unit #4 steam generation will match the same steam conditions (temperature and pressure) as the existing Facility.

The proposed Unit #4 would include a large number of design improvements over the existing units that would provide for improved combustion efficiency relative to the existing units. **Table 5-5** provides a high-level summary of the more significant improvements.

### Table 5-5: Combustion Improvements for Proposed Unit #4

| Item | Combustion Improvement | Mechanism |
|---|---|---|
| 1 | Lower excess air rate | Less flue gas is generated and as a result, less heat is removed from the furnace. |
| 2 | Automatic combustion controls | Improved system to optimize stability in steam production while managing CO and $NO_X$. |
| 3 | Increased economizer heating surface and higher feedwater temperature to steam drum | Lower flue gas outlet temperature means more energy is recovered and available for steam generation. |
| 4 | Improved steam soot blower design and operation | Maintains heat transfer by controlling material buildup on tubes. |
| 5 | Improvements to thermal insulation of all boiler components | Reduces heat loss to ambient which means more energy is available for steam generation. |
| 6 | New state of the art turbine | Improved turbine efficiency will maximize conversion of steam to electricity. |
| 7 | Natural gas auxiliary burners | More efficient burners will reduce fuel requirements during startup and shutdown. |

There are also additional improvements on a component specific basis (reduced cooling tower drift, variable frequency motor drives, etc.).

*Operation and Maintenance (O&M)*

The O&M procedures that have been effective at the existing facility for over 30 years will be updated and customized for proposed Unit #4. The purpose of O&M procedure is to maintain equipment integrity over the long-term so that the system performance is maintained. O&M procedures are organized into two sections; Standard Operating procedures and Routine Maintenance Repair and Replacement (RMR&R).

*Standard Operating Procedures (SOPs)*

SOPs are incorporated in the Facility Operating Manual that includes eight (8) major sections including Operating Plan, Environmental Compliance Plan, Spill Prevention, Fire & General Emergency Plan, Crisis Plan, Waste Control Plan, Hazard Communication Program, and System Descriptions. The Facility also has an on-going Quality Assurance/Quality Control Program (QA/QC) that monitors several key conditions or adverse trends. The QA/QC program monitors key operating data and plant activities, supplemented by the periodic, firsthand inspection of the facility operations to review and evaluate information and data for trends or indications of:

- Declining equipment performance or reliability;
- Potential equipment failures; and
- Recurring problems or failures.

The Facility is operated by a staff of full time Covanta employees that are organized into three (3) major groups or departments:1) Management/Administration, 2) Operations and 3) Maintenance. Personnel in each group will have all necessary certifications. A comprehensive training program is used ensure that certifications are maintained on a timely basis.

*Routine Repair and Replacement*

Routine maintenance will be performed to maintain system integrity and when necessary, equipment will be repaired and/or replaced.

Combustion Improvements are considered technically feasible for Unit #4.

#### 5.4.4.3 Selection of BACT

Based on the evaluation of various control options, it was determined that the CCS and Gasification/Pyrolysis of MSW are infeasible. Therefore, the facility proposes to use combustion improvements as a BACT to minimize GHG emissions and enhance energy production. GHG emissions are anticipated to contribute to long-term environmental consequences on a global scale and not anticipated to have a localized impact. NAAQS are not established for GHGs in the Tailoring Rule and a dispersion modeling analysis for GHG emissions is not required due to the global nature of impacts from GHG emissions and therefore, the facility proposes only annual limit for Unit #4. Also, since the mix of fuels will vary significantly from day to day and week to week, the facility proposes to document compliance on a 12-month rolling average basis.

Therefore, based on the estimated emissions presented in **Section 3.0**, the facility proposes to use an emission limit of 210,459 tons of $CO_2e$ on a 12-month rolling total basis as a BACT for Unit #4 and to demonstrate compliance. Boiler and combustion efficiency design considerations for the proposed Unit #4 will be sufficient to allow the new unit to emit at the lower range of reported and quantified $CO_2e$ emissions from the combustion of municipal solid waste generated in Pasco County. The facility proposes to report emissions using the "Tier 2" calculation methodology from 40 CFR Part 98 Subpart C equations to demonstrate compliance with this limit on a 12-month rolling basis.

### 5.4.5 BACT Analysis for Ancillary Equipment

Following is a brief discussion of the control technology evaluation for the ancillary equipment associated with the Project, such as storage silo for activated carbon and the two additional cooling tower cells.

#### 5.4.5.1 BACT Analysis for PM Emissions from the Activated Carbon Storage Silo

Carbon will be used in the air pollution control systems for the MWC and stored at the Facility in a storage silo for use in controlling mercury, dioxins, and furans emissions by the ACI system.

**Silo Vent**

The carbon silo will be filled on an intermittent basis and particulate emissions will be limited to the periods when the silo is being filled. The silo will be equipped with a FF (dust collector) mounted on the roof of the silo to control particulate emissions. The FF will be designed to discharge collected dust directly back into the storage silo.

**Technical Feasibility**

FF is considered a feasible option for the Project to control particulate emissions from the carbon storage silo.

**Evaluation and Ranking of Control Technologies**

As vent-equipped FFs is the top control technique currently used for storage silos, evaluation of alternate technologies and ranking is not needed.

**Selection of BACT**

A silo vent FF will be used to control emissions from the activated carbon silo associated with the proposed equipment. Particulate emissions are expected to be very low (less than 0.01 tpy) due to the use of the FFs and the limited number of filling events.

### 5.4.5.2 BACT Analysis for PM Emissions from the Cooling Towers

Particulate from cooling towers is generated by the presence of dissolved and suspended solids in the cooling tower circulation water, which is potentially lost as “drift” or moisture droplets that are suspended in the cooling tower exhaust. A portion of the water droplets emitted from the tower exhausts will evaporate, leaving the suspended or dissolved solids in the atmosphere.

**Drift Eliminators**

Particulate emissions from cooling towers can be controlled by minimizing the amount of water drift that occurs and/or minimizing the concentration of dissolved solids in the water. This can be accomplished by using high efficiency drift eliminators, a decreased number of cycles of circulating water concentration, or a combination of both. The number of cycles of circulating water concentration is limited by the amount of water available for use, since lower levels of concentration require increased cooling tower blowdown and more water intake to offset the blowdown.

**Technical Feasibility**

A review of drift eliminators as a particulate control technology for cooling towers concluded that they are technically feasible.

**Evaluation and Ranking of Control Technologies**

There are no significant energy, environmental, or economic impacts that would prevent the use of drift eliminators as a particulate control technology as presented in this evaluation.

**Selected BACT**

The proposed cooling tower BACT for this Project is the use of drift eliminators for particulate control, with a cooling tower design drift rate of 0.0005%.

# 6 Air Quality Impact Assessment

Air dispersion modeling analyses were performed in support of the air permit application for the Project to demonstrate modeled compliance with the NAAQS and PSD increments for the Project PSD significant emissions increases of $SO_2$, $PM_{10}$, and $PM_{2.5}$. Modeling methods and assumptions, including model selection and options, meteorological data, source parameters used in the modeling analyses, and modeling results are presented in the subsections below.

The model analyses were based on USEPA modeling guidance, as well as the pre-application meeting held with FDEP on December 17, 2020, subsequent email and telephone communications with FDEP, and the modeling protocol approved by FDEP on June 9, 2021.

The dispersion modeling addressed the following new emission sources associated with the Project:

- Proposed Unit #4, which will exhaust through the existing fourth flue in the Facility's stack;
- New carbon silo; and
- Two new cooling tower cells.

The Project also includes a new lime silo. However, because it will be located inside a building and will not exhaust to the atmosphere, it was not required to be included in the dispersion modeling.

## 6.1 Modeling Approach

### 6.1.1 Model Selection and Options

USEPA has updated the AERMOD model (USEPA, 2017) to Version 21112 and released this version to the public in May 2021. Currently, this version of AERMOD is the preferred computer air dispersion model for conducting refined near-field (i.e., within 50 kilometers (km)) modeling analyses.

PCRRF used this version of AERMOD and the model regulatory default options. PCRFF also used the CALPUFF model (Version 5.8.5) for modeling of deposition in the Chassahowitzka National Wildlife Area (i.e., Class I Area). CALPUFF is generally used for long-range transport between 50 and 300 km from a source. While CALPUFF is no longer included on the list of preferred models in the USEPA's Guidelines for Air Quality Models (GAQM) (USEPA, 2017), it is

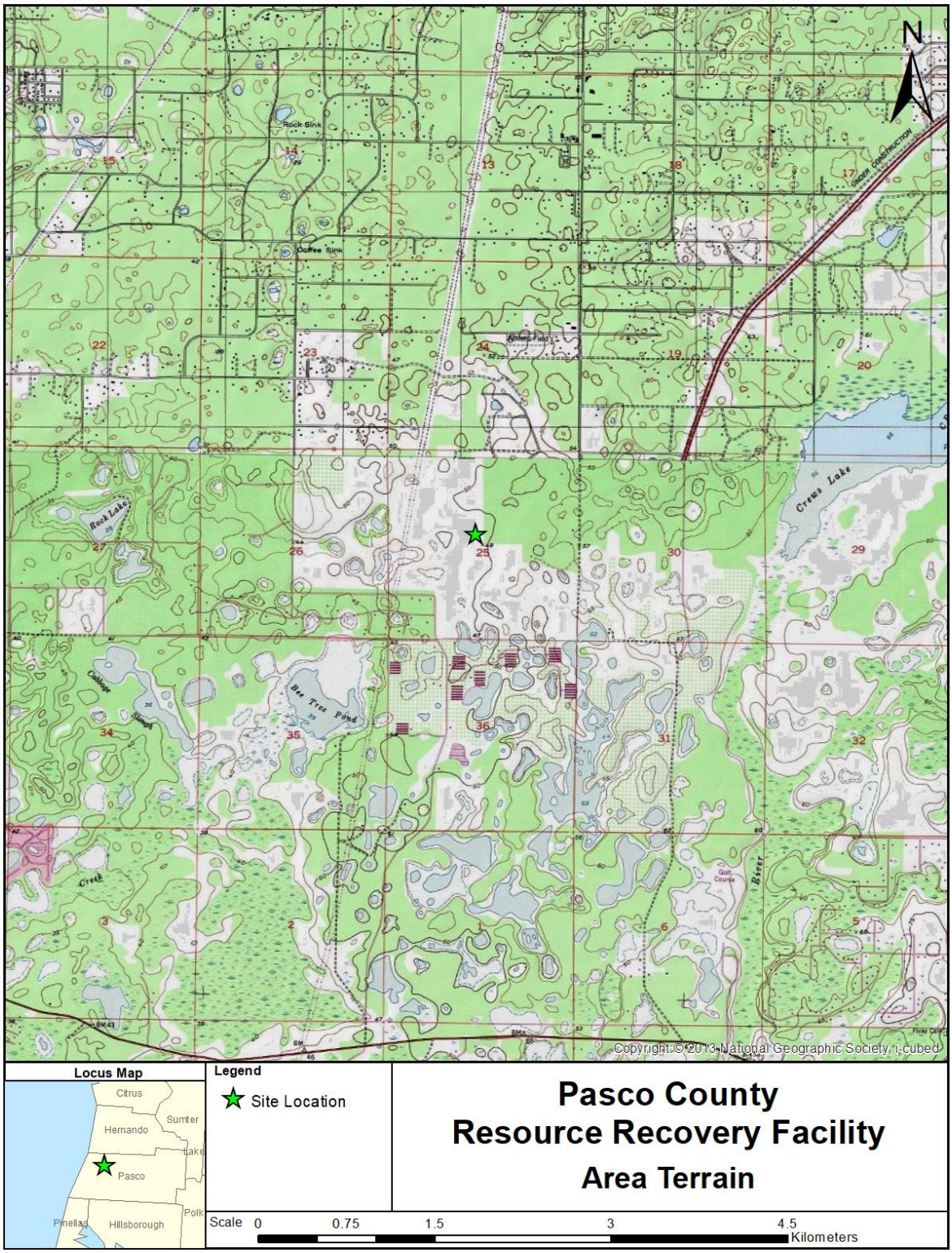
approved by the Federal Land Managers (FLMs) for use as a screening level model in Class I Area air quality related values (AQRV) analyses.

### 6.1.2 Dispersion Environment

Terrain immediately surrounding the proposed Project is generally flat, surrounded by a mixture of industrial areas, undeveloped land, small bodies of water, and residential areas (see **Figure 6-1**). The dispersion environment for a proposed application is classified as rural or urban. This classification was performed based on the results of an Auer land-use analysis, which requires an examination of the area within a 3-km radius of the proposed Project. If more than 50% of the total area consists of I1, I2, C1, R2, and R3 types, then the area is considered urban.

Following USEPA's guidance in Section 7.2.1.1 of the GAQM, the 2016 land cover was obtained from the United States Geological Survey (USGS) (MLRC, n.d.). Land cover data within a 3-km radius around the Project area was downloaded from USGS. **Table 6-1** shows the 2016 National Land Cover Database (NLCD) and corresponding Auer land use categories. **Figure 6-2** displays a map of 2016 land use categories within the 3-km radius of the Project. The I1, I2, C1, R2, and R3 types total approximately 4% of the total area; consequently, the area is classified as "rural" under the Auer technique, and the Project did not require use the AERMOD urban model option.

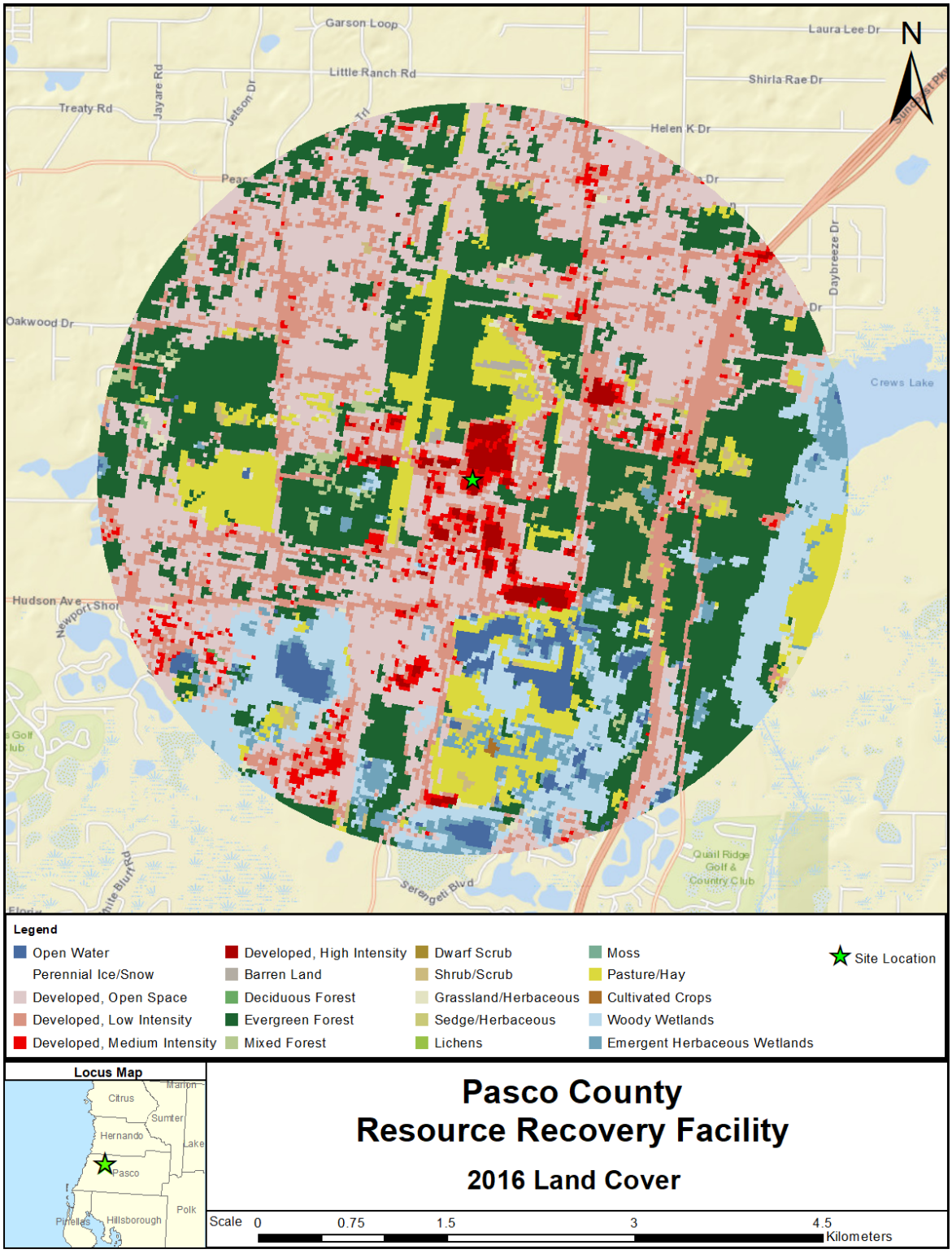
## Figure 6-1: Project Location and Surrounding Topography



## Table 6-1: Land Cover Classification

| 2016 NLCD Classification | | Percentage of Total Area | Auer Land Use Classification | | Rural or Urban |
|---|---|---|---|---|---|
| 11 | Open Water | 2% | A5 | Water surfaces | Rural |
| 12 | Perennial Ice/Snow | 0% | A5 | Water surfaces | Rural |
| 21 | Developed, Open Space | 28% | A1 | Metropolitan Natural | Rural |
| 22 | Developed, Low Intensity | 15% | R1 | Common Residential | Rural |
| 23 | Developed, Medium Intensity | 3% | I1,I2,C1,R2,R3 | Industrial / Commercial / Compact Residential | Urban |
| 24 | Developed, High Intensity | 1% | I1,I2,C1,R2,R3 | Industrial / Commercial / Compact Residential | Urban |
| 31 | Barren Land | 0% | A3 | Undeveloped (Grasses/Shrub) | Rural |
| 41 | Deciduous Forest | 0% | A4 | Undeveloped (Wooded) | Rural |
| 42 | Evergreen Forest | 28% | A4 | Undeveloped (Wooded) | Rural |
| 43 | Mixed Forest | 1% | A4 | Undeveloped (Wooded) | Rural |
| 52 | Shrub/Scrub | 1% | A3 | Undeveloped (Grasses/Shrub) | Rural |
| 71 | Grassland/Herbaceous | 1% | A3 | Undeveloped (Grasses/Shrub) | Rural |
| 81 | Pasture/Hay | 8% | A2 | Agricultural | Rural |
| 82 | Cultivated Crops | 0% | A2 | Agricultural | Rural |
| 90 | Woody Wetlands | 9% | A4 | Undeveloped (Wooded) | Rural |
| 95 | Emergent Herbaceous Wetlands | 3% | A3 | Undeveloped (Grasses/Shrub) | Rural |

## Figure 6-2: Land Cover in the Project Area



### 6.1.3 Meteorological Data

FDEP has generated 32 meteorological datasets using AERMET (Version 19191) to be used in PSD modeling analyses (FDEP, n.d.). Due to its proximity to the PCRRF (15 km), similar surrounding land use (see **Table 6-2**), and similar distance from the Gulf coast, the Brooksville-Tampa Bay Regional Airport (KBKV), formerly known as Hernando County Airport, was used for the modeling analysis. A five-year wind rose is provided as **Figure 6-3** and the location of the airport relative to the PCRRF is shown on **Figure 6-4**.

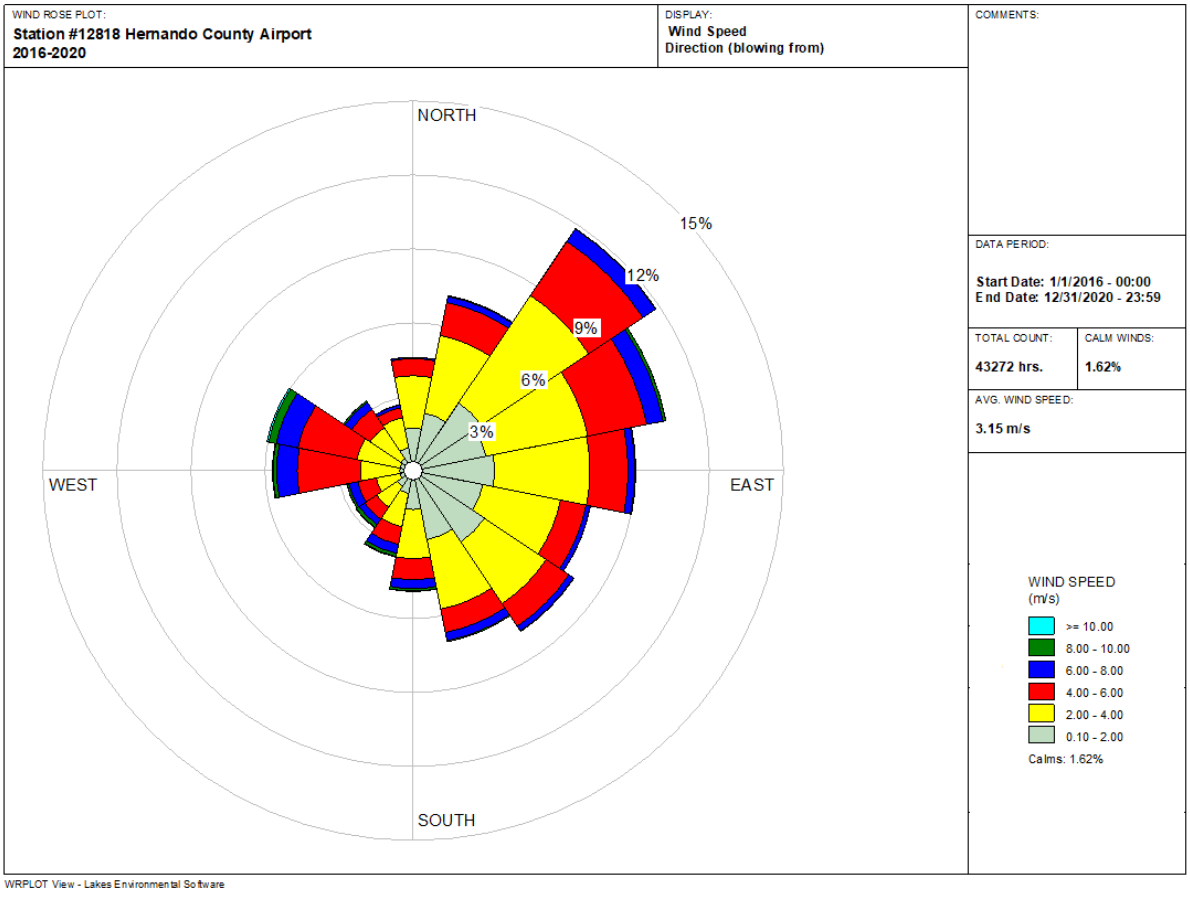
**Table 6-2: Annual Average Land Use Parameter Comparison**

| Location | Albedo | Bowen Ratio | Surface Roughness |
|---|---|---|---|
| KBKV ASOS Station[1] | 0.16 | 0.58 | 0.0469 |
| PCRRF[2] | 0.15 | 0.47 | 0.0918 |

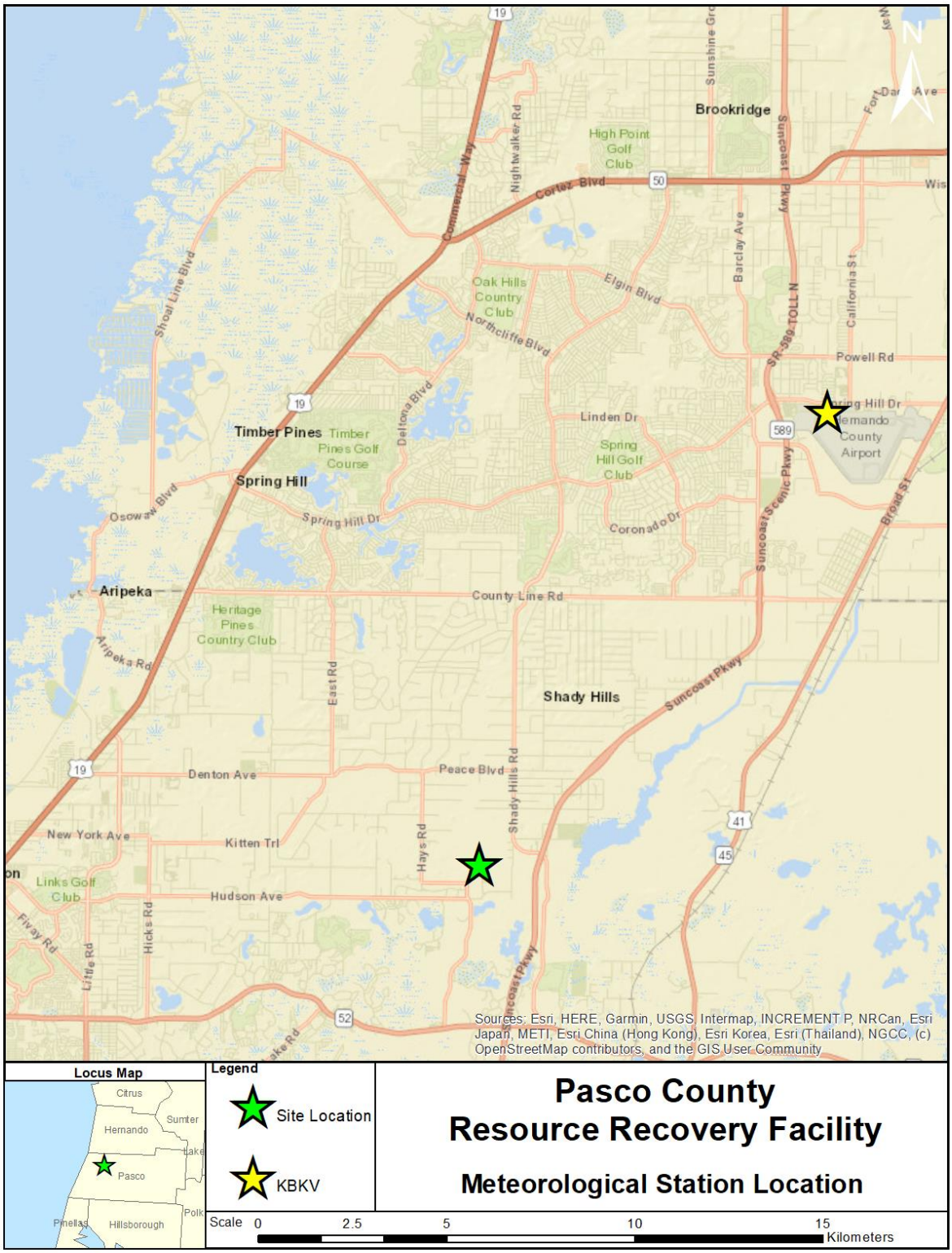
Notes:

1. Provided by FDEP.
2. Derived annually for twelve (12) 30-degree wind sectors using AERSURFACE (Version 20060) and 2016 NLCD data.

## Figure 6-3: Wind Rose for Hernando County Airport (2016-2020)



## Figure 6-4: Location of Brooksville-Tampa Bay Regional Airport Met Station



### 6.1.4 Good Engineering Practice Stack Height Analysis

A Good Engineering Practice (GEP) stack height analysis was performed based on the proposed Project design to determine the potential for building-induced aerodynamic downwash for the modeled stacks. The analysis procedures described in USEPA's Guidelines for Determination of Good Engineering Practice Stack Height, Stack Height Regulations (40 CFR 51), and current Model Clearinghouse guidance were used.

The GEP formula height is based on the observed phenomena of disturbed atmospheric flow in the immediate vicinity of a structure resulting in higher ground level concentrations at a closer proximity to the building than would otherwise occur. It identifies the minimum stack height at which significant aerodynamic downwash is avoided. The GEP formula stack height (Equation 1), as defined in the 1985 final regulations, is calculated from:

$$H_{GEP} = H_{BLDG} + 1.5L$$

Where:

$H_{GEP}$ is the maximum GEP stack height;

$H_{BLDG}$ is the height of the nearby structure; and

L is the lesser dimension (height or projected width) of the nearby structure.

Both the height and width of the structure are determined from the frontal area of the structure projected onto a plane perpendicular to the direction of the wind. In each instance, the GEP stack height is based on the plane projections of a nearby building that result in the greatest justifiable height. For purposes of the GEP analysis, "nearby" refers to the "sphere of influence," defined as five times the height or width of the building, whichever is less, downwind from the trailing edge of the structure. In the case where a stack is not influenced by nearby structures, the maximum GEP stack height is defined as 65 meters.

The MWC stack height is greater than 65 meters at 83.82 meters (275 feet). The boiler building expansion is the controlling building height at 35.05 meters (115 feet). The Equation 1 height is 87.63 meters (287.5 feet). Therefore, the GEP analysis shows that the stack is greater than 65 meters, but less than the Equation 1 height; therefore, the stack was modeled at its actual height.

In addition, the USEPA's Building Profile Input Program (BPIP; Version 04274) version that is appropriate for use with PRIME algorithms in AERMOD was used to incorporate downwash effects in the model for each modeled stack. The building dimensions of each structure were

input in the BPIP program to determine direction-specific building data. PRIME addresses the entire structure of the wake, from the cavity immediately downwind of the building, to the far wake. Buildings included in the modeling are shown on **Figure 6-5**.

### 6.1.5 Receptors and Terrain Analysis

A Class II receptor grid was created based on UTM North American Datum 83 (NAD83) Zone 17 coordinates and includes receptor densities of:

- 50-meter spacing along the ambient boundary;
- 100-meter spacing from the ambient boundary to 2.5 kilometers;
- 250-meter spacing from 2.5 to 5 kilometers;
- 500-meter spacing from 5 to 10 kilometers;
- 1,000-meter spacing from 10 to 15 kilometers; and
- 2,500-meter spacing from 15 to 20 kilometers.

Ambient air is that portion of the atmosphere, external to buildings, to which the general public has access. The ambient boundary for the Project is shown on **Figure 6-6**, and follows the fence surrounding the PCRRF property excluding the Duke Energy Florida owned properties north of the substation on Hays Road and the northern portion of the electrical transmission line.

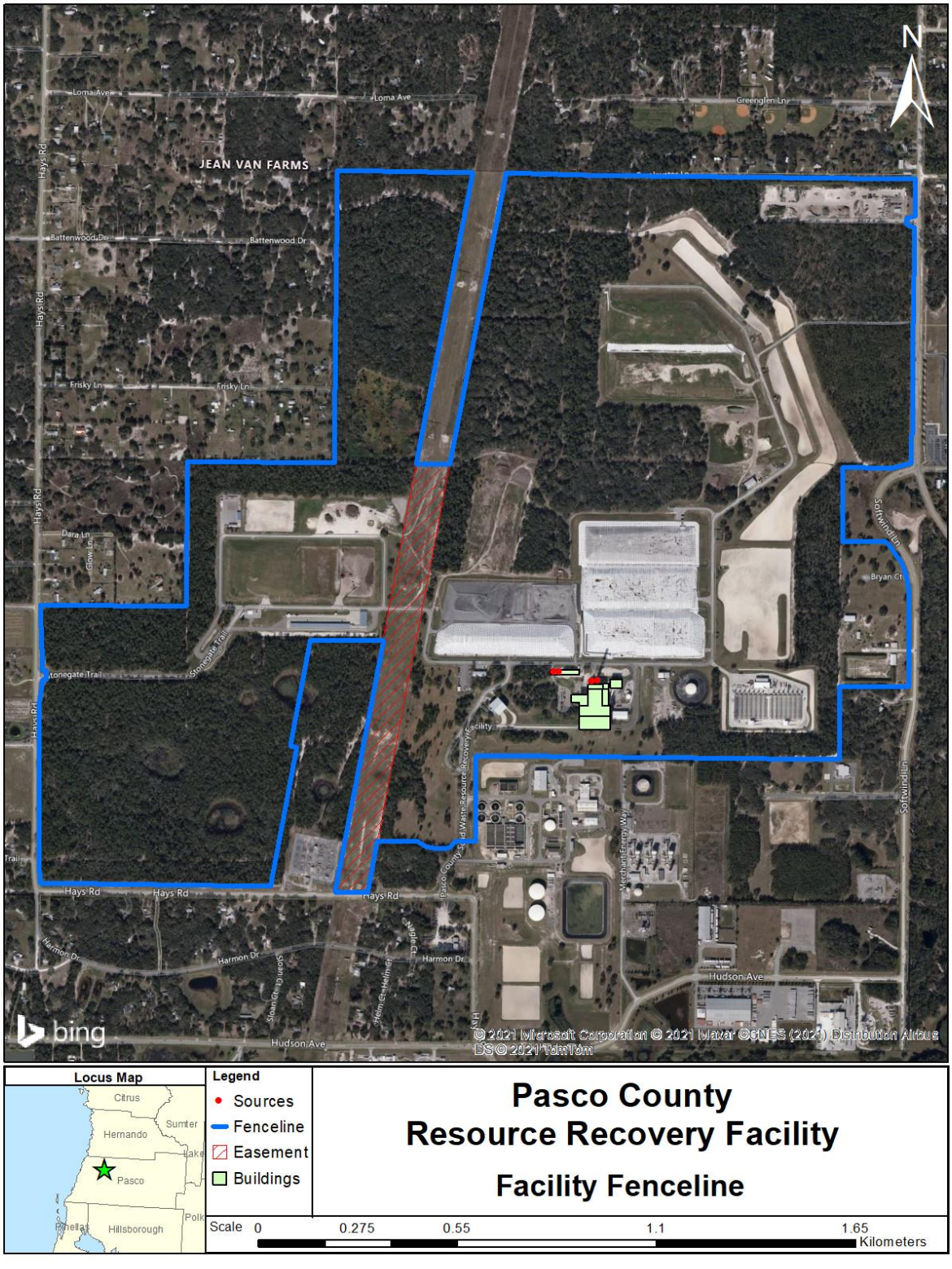
A Duke Energy Florida electrical transmission line easement is located on the PCRRF property. Since Duke Energy Florida has access to this portion of the Property within the ambient air boundary, receptors spaced at 50 meters were added to the easement area.

To the west of the main Facility, within the ambient air boundary, is the West Pasco Solid Waste Facility drop-off site. Here, citizens of Pasco County can drop off their household garbage, recycling, construction and demolition debris, waste tires, yard debris, household chemicals, appliances, and electronics recycling. Citizens are also allowed to drop off large items like furniture in the tipping building of the main Facility. Since these areas allow the public for a short amount of time, receptors were added to these areas for short-term averaging periods only (i.e. less than 24 hours). These short-term receptors are shown on **Figure 6-7**, along with the rest of the near-field receptor grid.

An overview of the entire receptor grid is shown on **Figure 6-8**. The extent of this grid was sufficient to capture maximum impacts in the Class II area. Also, the maximum modeled impacts occurred in areas where the receptor spacing was less than or equal to 100 meters.

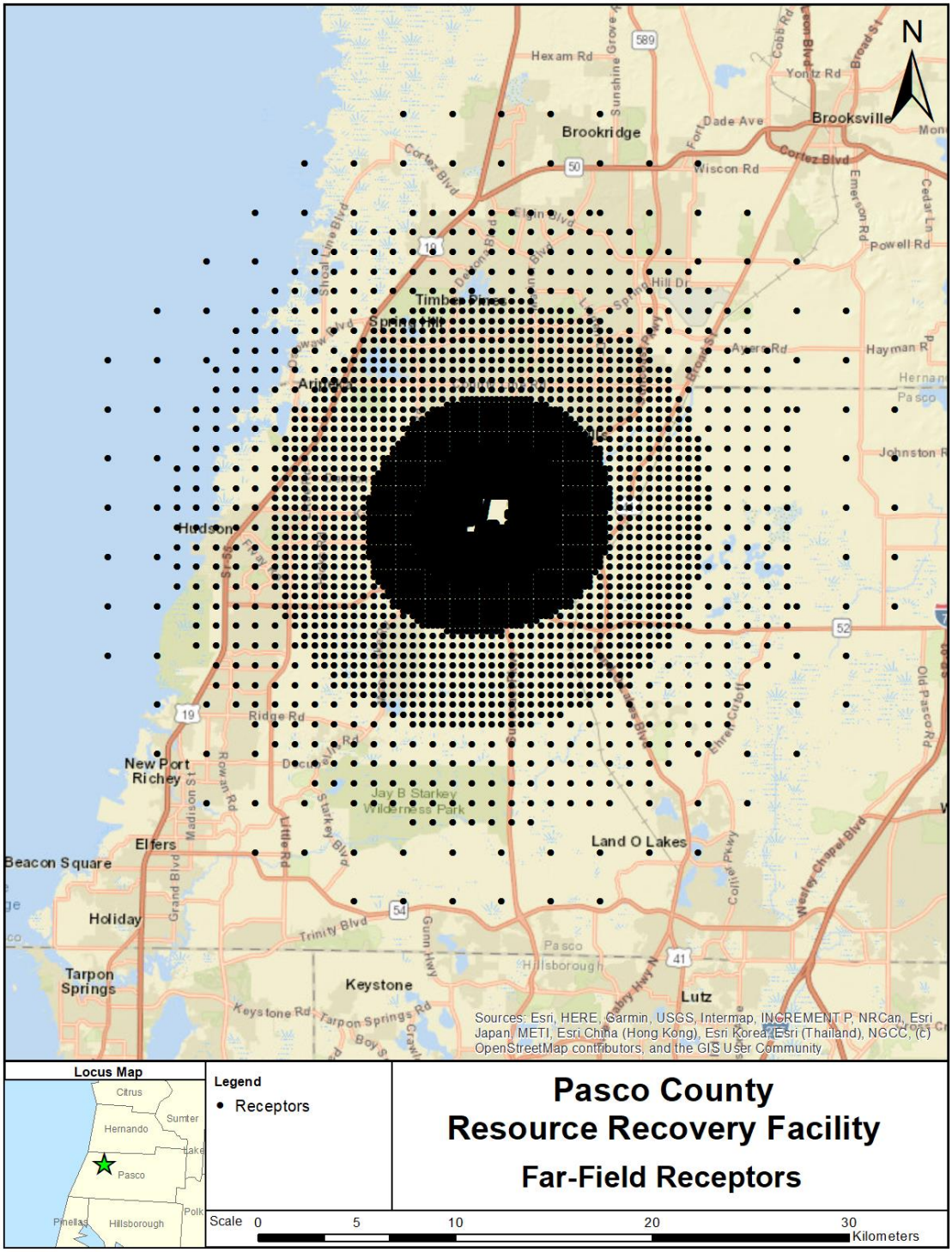
## Figure 6-5: Facility Layout

## Figure 6-6: Facility Fenceline



## Figure 6-7: Near-field Receptors

## Figure 6-8: Far-field Receptors



AERMAP (Version 18081), the AERMOD terrain preprocessor program, was used to calculate terrain elevations and critical hill heights for the modeled receptors (NAD83 datum and zone 17) using National Elevation Data (NED). The dataset downloaded from the USGS National Map (USGS, n.d.) consisted of 1/3 arc second (~10 m resolution) NED. Per the AERMAP User's Guide, the domain was sufficient to include each significant node such that the terrain features that exceed a 10% elevation slope from a given receptor are considered.

### 6.1.6 Preconstruction Monitoring

The PSD regulations require that a PSD permit application contain an analysis of existing air quality for regulated pollutants that the source has the potential to emit in significant amounts. The definition of existing air quality can be satisfied by air measurements from either a state-operated or private network, or by a pre-construction monitoring program that is specifically designed to collect data in the vicinity of the proposed source. PCRRF used monitoring data from monitors in FDEP's ambient air monitoring network to satisfy the preconstruction monitoring requirements.

The monitors listed in **Table 6-3** and shown on **Figure 6-9** were selected as conservatively representative of the Project site. The Woodlawn (Pinellas County), Azalea Park (Pinellas County), and Sydney (Hillsborough County) monitors are the closest monitors with valid 2017-2019 design values for each pollutant and are likely conservative relative to the PCRRF site because they are closer to urban areas than the PCRRF.

**Table 6-4** compares the population, emissions, and population density between Pasco, Pinellas, and Hillsborough Counties. Even though the $PM_{10}$ and $PM_{2.5}$ emissions are greater in Pasco County, they are more spread out, whereas in Pinellas County, the emissions occur in a more compact area. The $SO_2$ emissions from Hillsborough County are much higher than Pasco County. Therefore, the $PM_{10}$, $PM_{2.5}$, and $SO_2$ monitors are a conservative representation of background concentrations for the PCRRF.

## Table 6-3: Monitor Design Values

| Pollutant | Averaging Period | 2018-2020 Design Value | Background Monitor | County |
|---|---|---|---|---|
| $PM_{10}$[1] | 24-hour | 58 µg/m$^3$ | 12-103-0012 Woodlawn | Pinellas |
| $PM_{2.5}$[2] | 24-hour | 17 µg/m$^3$ | 12-103-0018 Azalea Park | Pinellas |
| | Annual | 7.6 µg/m$^3$ | | |
| $SO_2$[2] | 1-hour | 9 ppb | 12-057-3002 Sydney | Hillsborough |
| | 3-hour | | | |

[1]Monitor Values Report | Air Data: Air Quality Data Collected at Outdoor Monitors Across the U.S. | USEPA (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report)

[2]Design Values 2019 (arcgis.com) (https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=bc6f3a961ea14013afb2e0d0e450b0d1)

## Table 6-4: County Population and Emissions

| County | 2018 Population[1] | NEI17 Emissions (tons)[2] | | | Population Density (persons/miles$^2$)[1] |
|---|---|---|---|---|---|
| | | $PM_{10}$ | $PM_{2.5}$ | $SO_2$ | |
| Pasco | 539,630 | 8,301 | 2,848 | 190 | 722 |
| Pinellas | 975,280 | 4,198 | 2,008 | -- | 3,562 |
| Hillsborough | 1,436,888 | -- | -- | 8,244 | 1,406 |

[1]National Association of Counties – County Explorer https://ce.naco.org/

[2] 2017 National Emissions Inventory (NEI) Data | Air Emissions Inventories | USEPA (https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data

## Figure 6-9: Background Monitor Locations

## 6.2 Class II Modeling Analyses

The Class II modeling was conducted as a two-step analysis. First, modeling was conducted for multiple operating loads for the primary Project emission source, proposed Unit #4 (**Section 4.1**), for $SO_2$, $PM_{10}$, and $PM_{2.5}$. After establishing the worst-case stack operating load for each pollutant, a Significant Impact Level (SIL) analysis was conducted using only the Project emission increases from the new sources (**Section 4.3**). If modeled concentrations exceeded the SIL for a pollutant and averaging period, a cumulative impacts analysis was performed as explained in **Section 4.4** using additional Facility sources along with the consideration of nearby offsite sources and a measure of ambient background to represent non-modeled sources.

### 6.2.1 Load Analysis

A load analysis was performed for proposed Unit #4's emission increases of $SO_2$, $PM_{10}$, and $PM_{2.5}$, to determine the worst-case stack parameters for each pollutant and averaging period. Stack parameters corresponding to 60%, 100%, and 110% of the heat input at the nominal condition (475 tpd at 5,200 Btu/lb) was completed using an emission rate of 1 gram per second (g/s) were modeled to obtain a concentration per emission rate value in micrograms per cubic meter ($\mu g/m^3$) per g/s. This value was then multiplied by the emission rate in g/s for each load to obtain a concentration in $\mu g/m^3$.

The emission rates and stack parameters for the load analysis are shown in **Table 6-5**. The maximum modeled concentration per averaging period is shown in **Table 6-6**. The stack parameters and emission rate for the 100% load resulted in the highest modeled concentration for the 24-hour averaging period, for all pollutants. The 110% load resulted in the highest modeled concentrations for the 1-hour, 3-hour, and annual averaging periods, for all pollutants. These worst-case loads were used in the subsequent SIL analyses.

### Table 6-5: Load Analysis Stack Parameters and Emission Rates

| Operating Load | Stack Height (feet) | Exit Temperature (°F) | Exhaust Flow (acfm) | Stack Diameter (feet) | Emission Rate (lb/hr) | | |
|---|---|---|---|---|---|---|---|
| | | | | | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| 110% | 275 | 270 | 110,320 | 4.7 | 14.2 | 6.7 | 6.7 |
| 100% | 275 | 270 | 100,305 | 4.7 | 12.9 | 6.1 | 6.1 |
| 60% | 275 | 270 | 60,183 | 4.7 | 8.0 | 3.8 | 3.8 |

### Table 6-6: Maximum Modeled Concentration per Averaging Period

| Operating Load | Maximum Modeled Concentration (µg/m³) [1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $SO_2$ 1-hour | $SO_2$ 3-hour | $SO_2$ 24-hour | $SO_2$ Annual | $PM_{2.5}$ 24-hour | $PM_{2.5}$ Annual | $PM_{10}$ 24-hour | $PM_{10}$ Annual |
| 110% | **4.11** | **2.93** | 0.956 | **0.110** | 0.449 | **0.052** | 0.449 | **0.052** |
| 100% | 3.88 | 2.85 | **0.985** | 0.107 | **0.462** | 0.050 | **0.462** | 0.050 |
| 60% | 3.11 | 2.17 | 0.915 | 0.092 | 0.430 | 0.043 | 0.430 | 0.043 |

[1] Highest concentration over the three load conditions noted in "**bold**".

### 6.2.2 Class II Area Secondary Pollutant Analysis

In April 2019, USEPA released the final Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) (USEPA, 2019) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (USEPA-454/R-19-003) (MERP Guidance). A first-tier analysis uses the relationships between precursor emissions and concentrations of ozone and $PM_{2.5}$ that were developed using USEPA modeling of hypothetical sources known as MERPs. A MERP is the level of precursor emissions that would hypothetically result in the formation of ozone and $PM_{2.5}$ at a concentration equal to the Class II SIL.

Since the Project is not subject to PSD review for $NO_X$ or VOC, an assessment of the ozone NAAQS is not required. In addition, consideration of the Project $NO_X$ emissions as part of

secondary $PM_{2.5}$ is not required. Consideration of the Project $SO_2$ emissions as part of the secondary $PM_{2.5}$ analysis is required and described below.

The most conservative $SO_2$ MERP values for the Southeast Climate Zone are shown in **Table 6-7**.

**Table 6-7: Most Conservative MERP Values for the Southeast Climate Zone**

| Precursor | Climate Zone | 24-hour $PM_{2.5}$ | Annual $PM_{2.5}$ |
|---|---|---|---|
| $SO_2$ | Southeast | 367 | 859 |

The equation below was used to estimate the Project's secondary $PM_{2.5}$ impacts associated with the Project's $SO_2$ emissions. The equation uses the emissions increases of $SO_2$ due to the Project along with the MERPs shown in **Table 6-7**. As stated, only $SO_2$ precursors were considered in this assessment as that is the only pollutant with emissions increases greater than or equal to the PSD SERs.

$$\left(\left(\frac{SO2_{Em}}{SO2_{MERP}}\right)\right) * Class\ II\ SIL$$

Where:

- $SO_{2Em}$ is the Project related $SO_2$ emissions (tpy)
- $SO_{2MERP}$ is the most conservative MERP value for the Southeast
- Class II SIL is the $PM_{2.5}$ significant impact level (µg/m$^3$)

The estimated Class II secondary $PM_{2.5}$ concentrations for 24-hour and annual are shown below.

$$24-hour\ Secondary\ PM2.5 = \left(\left(\frac{62.2\ tpy}{367\ tpy}\right)\right) * 1.2\ \mu g/m3 = 0.203\ \mu g/m3$$

$$Annual\ Secondary\ PM2.5 = \left(\left(\frac{62.2\ tpy}{859\ tpy}\right)\right) * 0.2\ \mu g/m3 = 0.014\ \mu g/m3$$

These secondary impact concentrations were added to the maximum modeled concentrations in subsequent Class II analyses before comparison to other standards.

### 6.2.3 Class II SIL Analysis

A Class II area SIL analysis was conducted to determine if modeled concentrations for the Project sources exceed the SILs for $SO_2$, $PM_{10}$, and $PM_{2.5}$. The new and modified sources were included in the SIL modeling analysis. As discussed in **Section 6.2.1**, Unit #4 was represented at worst-case operating loads, which modeling indicated was 100% load for the 24-hour averaging period for all pollutants, and 110% load for the 1-hour, 3-hour, and annual averaging periods for all pollutants. Source parameters for the modeled sources are included in **Table 6-8**.

The maximum potential short-term and long-term emissions for the modeled sources are shown in **Table 6-9**. The new carbon silo is expected to have 48 fill events per year, each lasting 2 hours. Therefore, the carbon silo's annual emissions were calculated using 96 hours per year (48 fill events times 2 hours). Annual emissions for the other sources were calculated using 8,760 hours per year. This is particularly conservative for Unit #4 because it will not continuously operate at 110% load year-round. The modeled emission rates are provided in **Table 6-9**.

**Table 6-8: SIL Analysis Source Parameters**

| Source Description | UTM Zone 17 Coordinates | | Base Elevation (feet) | Stack Height (feet) | Exit Temperature (°F) | Exit Velocity (ft/s) [2] | Stack Diameter (feet) |
|---|---|---|---|---|---|---|---|
| | Easting (m) [1] | Northing (m) | | | | | |
| Unit #4 (110% load)[3] | 347124.85 | 3139197.75 | 49.2 | 275 | 270 | 106.0 | 4.7 |
| Unit #4 (100% load)[4] | 347124.85 | 3139197.75 | 49.2 | 275 | 270 | 96.4 | 4.7 |
| New Cooling Tower Cell | 347019.67 | 3139221.11 | 49.2 | 40 | Ambient | 12.2 | 28 |
| New Cooling Tower Cell | 347004.82 | 3139221.27 | 49.2 | 40 | Ambient | 12.2 | 28 |
| New Carbon Silo | 347109.33 | 3139195.05 | 49.2 | 44 | Ambient | 50.0 | 0.7 |

[1] m = meter

[2] ft/s = feet per second

[3] 110% load used for 1-hour and 3-hour $SO_2$ as well as all annual average modeling.

[4] 100% load used for 24-hour modeling for all pollutants.

## Table 6-9: SIL Analysis Emission Rates

| Source | Emission Rates | | | | | |
|---|---|---|---|---|---|---|
| | $PM_{10}$ | | $PM_{2.5}$ | | $SO_2$ | |
| | (lb/hr) | (tpy)[1] | (lb/hr) | (tpy)[1] | (lb/hr) | (tpy) |
| Unit #4 (110% load)[2] | NA | 29.2 | NA | 29.2 | 14.2 | 62.2 |
| Unit #4 (100% load)[3] | 6.06 | NA | 6.06 | NA | 12.9 | NA |
| New Cooling Tower Cell | 0.02 | 0.09 | 0.02 | 0.09 | -- | -- |
| New Cooling Tower Cell | 0.02 | 0.09 | 0.02 | 0.09 | -- | -- |
| New Carbon Silo | 0.104 | 0.005 | 0.104 | 0.005 | -- | -- |

NA = Not Applicable

[1] The carbon silo annual emissions were calculated using 96 hours per year; the other sources used 8,760 hours per year. Note that this is particularly conservative for Unit #4 because it will not actually operate continuously at 110% load year-round. As noted in **Section 3.1**, estimated annual emissions are actually 56.6 tpy of $SO_2$ and 26.6 tpy each of $PM_{10}$ and $PM_{2.5}$.

[2] 110% load used for 1-hour and 3-hour $SO_2$ as well as all annual average modeling for conservatism.

[3] 100% load used for 24-hour modeling for all pollutants.

The maximum modeled concentrations due to the Project's emission increases described above, plus secondary $PM_{2.5}$ impacts, are compared to the SILs in **Table 6-10** below. The modeled concentrations of all pollutants and averaging periods are less than their SILs; thus, no further modeling is required because, by definition, those pollutants and averaging periods cannot cause or contribute to a violation of the NAAQS or exceedance of the PSD increments.

### Table 6-10: Class II SIL Modeling Results

| Pollutant | Averaging Period | Maximum Modeled Concentration ($\mu g/m^3$) | Secondary $PM_{2.5}$ Concentration ($\mu g/m^3$) | Total Concentration ($\mu g/m^3$) | Class II SIL ($\mu g/m^3$)[1] | Above the SIL? |
|---|---|---|---|---|---|---|
| $PM_{10}$ | 24-hour | 1.29 | -- | 1.29 | 5 | No |
| | Annual | 0.08 | -- | 0.08 | 1 | No |
| $PM_{2.5}$ | 24-hour | 0.94 | 0.203 | 1.15 | 1.2 | No |
| | Annual | 0.07 | 0.014 | 0.08 | 0.2 | No |
| $SO_2$ | 1-hour | 3.09 | -- | 3.09 | 7.86 | No |
| | 3-hour | 2.82 | -- | 2.82 | 25 | No |
| | 24-hour | 0.99 | -- | 0.99 | 5 | No |
| | Annual | 0.11 | -- | 0.11 | 1 | No |

[1]From FDEP *PSD Air Quality Modeling Best Practices* Table 2 (FDEP, 2020).

## 6.2.4 Additional Impacts Analysis

In accordance with PSD requirements, additional impacts are addressed for projects subject to PSD review. The various components of the additional impact analyses are discussed below.

### 6.2.4.1 Growth Analysis

A growth analysis examines the potential emissions from secondary sources associated with the proposed Project. While these activities are not directly involved in Project operation, the emissions involve those that can reasonably be expected to occur, for instance, industrial, commercial, and residential growth that will occur in the Project area due to the Project itself. Secondary emissions do not include emissions that come directly from a mobile source, such as emissions from the tailpipe of an on-road motor vehicle or the propulsion of a train. They also do not include sources that do not impact the same general area as the source under review.

Once operational, the Project is expected to employ ten additional permanent personnel. This incremental increase will be negligible as a source of secondary growth from the Project, and thus further analysis is not required.

### 6.2.4.2 Soils, Vegetation, and Wildlife Analysis

An analysis of the Project's potential impact on soils, vegetation, and wildlife in the vicinity of the Facility was performed in accordance with the procedures recommended in USEPA's *A Screening Procedure for Impacts of Air Pollution Sources on Plants, Soils and Animals* (EPA-450/2-81-078) (USEPA, 1980). The highest predicted impacts from the Project used in the SIL analysis were compared to the secondary NAAQS and screening concentrations listed in the above-referenced document (USEPA, 1980), which are summarized in **Table 6-11** to demonstrate compliance.

**Table 6-11: Soils, Vegetation, and Wildlife Screening Concentrations**

| Pollutant | Averaging Period | Modeled Concentration (µg/m$^3$) | Secondary NAAQS (µg/m$^3$) | USEPA 1980 Screening Concentration (µg/m$^3$) |
|---|---|---|---|---|
| $SO_2$ | 1-hour | 3.09 | - | 917 |
| | 3-hour | 2.82 | 1,300 | 786 |
| | Annual | 0.11 | - | 18 |

## 6.3 Class I Modeling Analyses

PSD regulations require that facilities within 100 km of a mandatory federal Class I area perform a modeling evaluation of the ambient air quality in terms of Class I PSD Increments and AQRVs. In addition, large projects beyond 100 km (but less than 300 km) from the nearest Class I area may be requested to conduct an evaluation of air quality impacts by the FLMs.

There are five Class I areas within 300 km of the PCRRF (**Figure 6-10**). These Class I areas and their distances from the PCRRF are as follows:

1. Chassahowitzka Wilderness Area, approximately 27 km;
2. Saint Marks Wilderness Area, approximately 234 km;
3. Okefenokee Wilderness Area, approximately 244 km;
4. Bradwell Bay Wilderness Area, approximately 274 km; and
5. Everglades National Park, approximately 296 km.

### 6.3.1 Class I Area Secondary Pollutant Analysis

A Class I Area secondary pollutant analysis was performed similarly to the Class II analysis, except that Class I SIL values were used.

The equation below was used to estimate the Project's secondary $PM_{2.5}$ impacts. The equation uses the emissions increases of $SO_2$ due to the project, along with the MERPs shown in **Table 6-7**. As stated, only $SO_2$ as a precursor was considered in this assessment as that is the only pollutant with emissions increases greater than or equal to the PSD SERs.

$$\left(\left(\frac{SO2_{Em}}{SO2_{MERP}}\right)\right) * Class\ I\ SIL$$

Where:

*$SO2_{Em}$* is the Project related $SO_2$ emissions (tpy)

*$SO2_{MERP}$* is the most conservative MERP value for the Southeast

*Class I SIL* is the $PM_{2.5}$ significant impact level ($\mu g/m^3$)

The estimated Class I secondary $PM_{2.5}$ concentrations for 24-hour and annual are shown below.

$$24-hour\ Secondary\ PM2.5 = \left(\left(\frac{62.2\ tpy}{367\ tpy}\right)\right) * 0.27\ \mu g/m3 = 0.046\ \mu g/m3$$

$$Annual\ Secondary\ PM2.5 = \left(\left(\frac{62.2\ tpy}{859\ tpy}\right)\right) * 0.05\ \mu g/m3 = 0.004\ \mu g/m3$$

These secondary impact concentrations were added to the maximum modeled concentrations in subsequent Class I analyses before comparison to the standards.

### 6.3.2 Class I SIL Analysis

In accordance with the GAQM (Section 4.2.c.i) (USEPA, 2017), because AERMOD was used for the Project's near-field assessment, it can be used as a screening-level analysis to estimate the Project's potential for a significant modeled impact at the Class I areas listed above and shown on **Figure 6-10**. As such, AERMOD was used as a screening analysis with the meteorological data described in **Section 6.1.3** and with a radial arc of receptors located 50 km from the proposed Project. Receptors along the 50 km arc were placed every 1 degree. In addition, since the

Chassahowitzka Wilderness Area is located less than 50 km from the PCRRF, receptors also covered the entire Wilderness Area (**Figure 6-11**).

As shown in **Table 6-12**, the maximum modeled concentrations over all receptors were less than the Class I area SILs, demonstrating the Project will not cause or contribute to a violation of the Class I PSD increments, and no further analysis was required. The secondary $PM_{2.5}$ concentrations described in **Section 5.1** were also included to estimate the total $PM_{2.5}$ concentration.

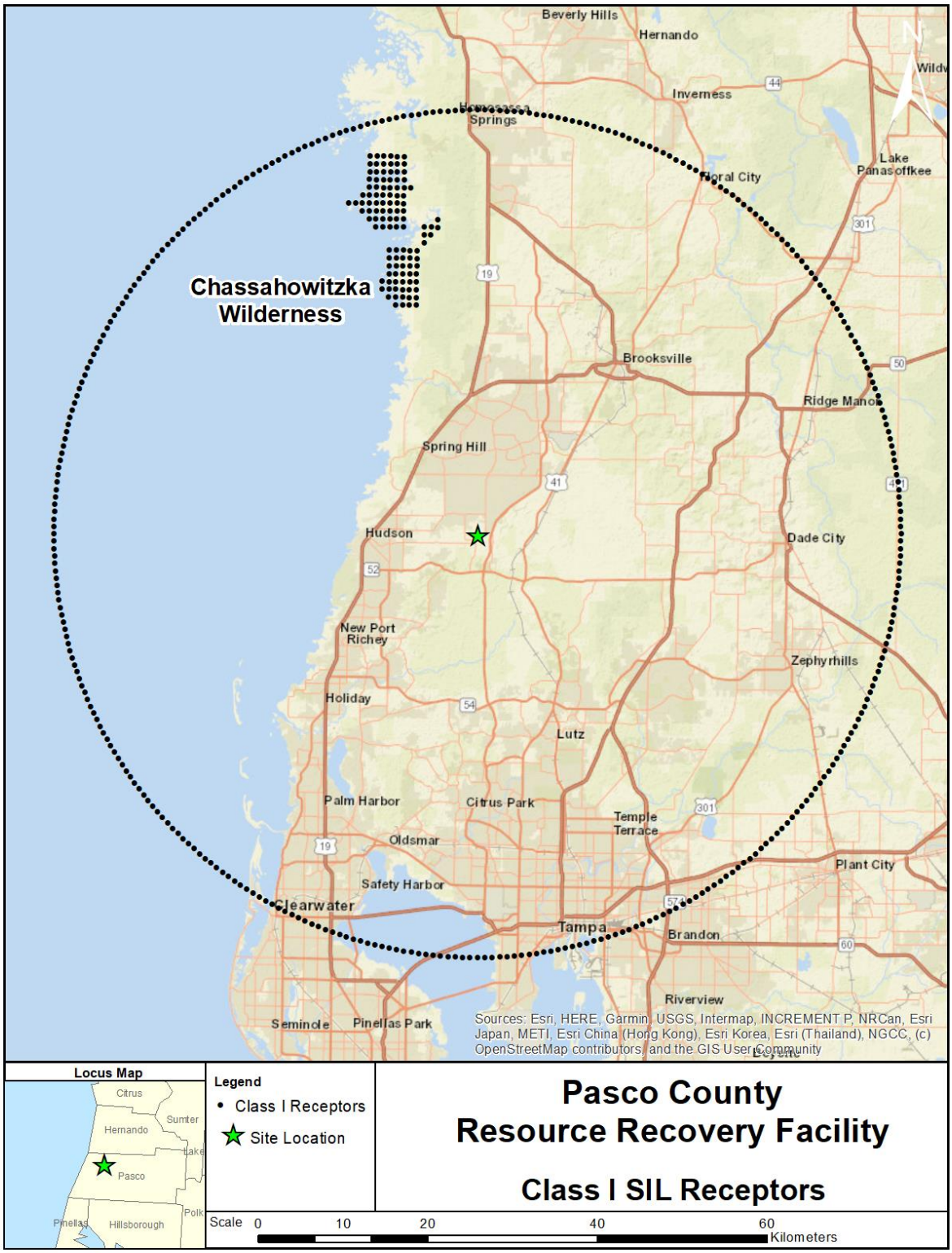
### Table 6-12: Class I SIL Modeling Results

| Pollutant | Averaging Period | Maximum Facility Concentration (µg/m³) | Secondary $PM_{2.5}$ Concentration (µg/m³) | Total Concentration (µg/m³) | Class I SIL (µg/m³)[1] | Above the SIL? |
|---|---|---|---|---|---|---|
| $PM_{10}$ | 24-hour | 0.02 | -- | 0.02 | 0.3 | No |
| | Annual | 0.002 | -- | 0.002 | 0.2 | No |
| $PM_{2.5}$ | 24-hour | 0.02 | 0.046 | 0.06 | 0.27 | No |
| | Annual | 0.002 | 0.004 | 0.006 | 0.05 | No |
| $SO_2$ | 3-hour | 0.25 | -- | 0.25 | 1.0 | No |
| | 24-hour | 0.05 | -- | 0.05 | 0.2 | No |
| | Annual | 0.004 | -- | 0.004 | 0.1 | No |

[1] From FDEP *PSD Air Quality Modeling Best Practices* Table 5 (FDEP, 2020).

## Figure 6-10: Class I Areas within 300 km of the Project

## Figure 6-11: Class I Area SIL Analysis Receptors



### 6.3.3 Class I AQRV Analyses

FLMs are charged to protect the AQRVs, including visibility and deposition, of Class I areas. The FLM AQRV Workgroup's (FLAG) guidance document for completing an AQRV analysis (FLM, 2010) was used to develop the AQRV analysis methodology.

FDEP requires an evaluation of the potential impacts of the proposed project for the portion of a Class I area located within 50 km of the project, and to areas between 50 and 300 km from the project that do not meet the FLAG (FLM, 2010) screening criteria.

#### 6.3.3.1 Class I Areas Within 50 km

**Visibility**

The Chassahowitzka Wilderness Area is less than 50 km from the PCRRF. Therefore, a visible plume analysis was conducted with the most current version of USEPA's screening model VISCREEN to determine if project emissions during normal operations have the potential to cause visibility impairment.

The analysis was conducted in accordance with USEPA's *Workbook for Plume Visual Impacts Screening and Analysis (Revised)* (Workbook) (USEPA, 1992). The VISCREEN model was applied to estimate two visual impact parameters, plume perceptibility ($\Delta E$) and plume contrast (Cp). Screening-level guidance indicates that values above 2.0 for $\Delta E$ and +/- 0.05 for Cp are considered perceptible.

According to FDEP guidance (FDEP, 2020), Florida has no protected integral vistas; therefore, VISCREEN results looking out from the Chassahowitzka Wilderness Area can be excluded from the analysis. The VISCREEN results for Chassahowitzka Wilderness Area against a terrain background can also be excluded since it is in a coastal area with no terrain features and very low terrain.

The VISCREEN model Workbook offers two levels of analysis. Level 1 screening analysis is the most simplified and conservative approach, employing worst-case default meteorological data. Level 2 analysis allows refinement of meteorological conditions and site-specific conditions such as complex terrain. Initially, the Level 1 analysis was conducted and indicated $\Delta E$ and Cp values were above the screening thresholds. Therefore, a Level 2 analysis was performed.

The Level 2 analysis was conducted with five years of surface observations and stability classes from the Brooksville-Tampa Bay Regional Airport (KBKV). Terrain elevation differences between the stack top (83.82 m) and Chassahowitzka Wilderness Area maximum elevation within the sector (approximately 43 m) is less than 500 meters.

Inputs to VISCREEN include emissions of particulates, $NO_x$, primary $NO_2$, soot, and primary sulfate ($SO_4$); distance to observer in the Class I area, distance to the nearest and farthest points in the Class I area, background visual range, wind speed, stability index, and ozone background. Since Project emissions of $NO_x$ are less than the PSD SER, only emissions of particulates and sulfate ($SO_4$) were included in the visibility analysis.

The 22.5 degree (°) wind direction sector that would transport emissions from the PCRRF toward the Chassahowitzka Wilderness Area chosen for the analysis, along with the closest distance from the Class I Area to the PCRRF, are shown in **Table 6-13**. The location of the Chassahowitzka Wilderness Area relative to the PCRRF is shown on **Figure 6-12**.

### Table 6-13: VISCREEN Level 2 Input Data

| 22.5° Wind Sector | Closest Distance to the Source (km) | Furthest Distance from the Source (km) | Level 2 Worst Case Stability Class | Level 2 Worst Case Wind Speed (m/s) |
|---|---|---|---|---|
| 154.25 – 176.75 | 27 | 47 | D | 2 |

Based on this information, and the five years of meteorological data, a table of joint frequency of occurrence of wind speed, wind direction, and stability class was developed as outlined in the Workbook (USEPA, 1992). The dispersion conditions, defined by wind speed and stability class, were ranked by evaluating the product of $\sigma_y$, $\sigma_z$, and u, where $\sigma_y$ and $\sigma_z$ are the Pasquill-Gifford horizontal and vertical diffusion coefficients for the given stability class and downwind distance and u is the wind speed. The dispersion conditions were then ranked in ascending order according to the value of $\sigma_y\sigma_z u$, as shown in **Table 6-14**.

According to the Workbook (USEPA, 1992), VISCREEN is to be applied with the worst-case meteorological conditions that have a $\sigma_y\sigma_z u$ product with a cumulative probability of one percent. That is, the dispersion condition is selected such that the sum of all the frequencies of occurrence

## Figure 6-12: VISCREEN Level 2 Analysis Wind Sector

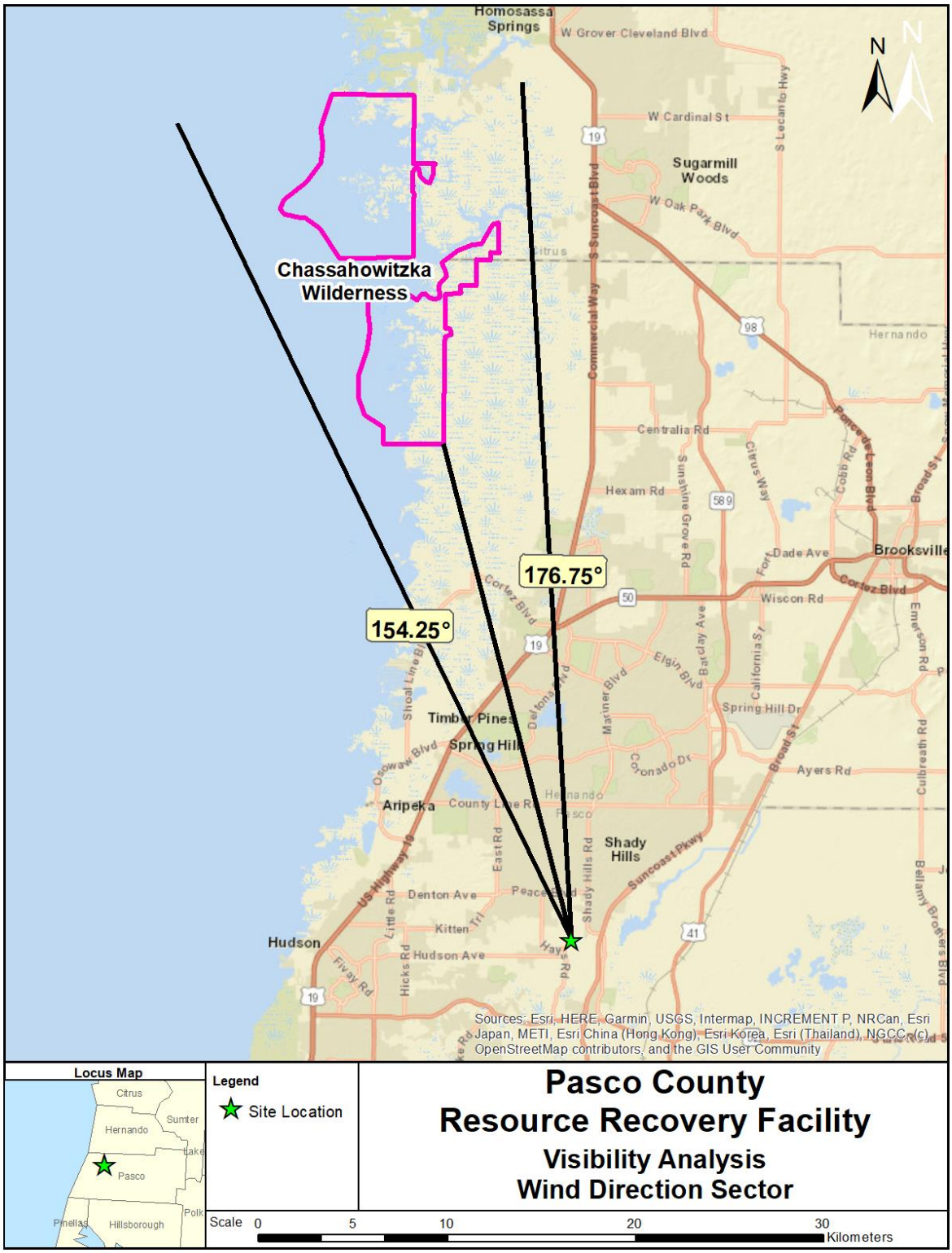


**Table 6-14: Dispersion Condition Frequency Analysis**

| Dispersion Condition | | $\sigma_y\sigma_z u$ | Transport Time | Frequency by Time of Day (%) | | | | Cumulative Frequency by Time of Day (%) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stability Class | Wind Speed (m/s) | ($m^3/s$) | (hours) | 0-6 | 6-12 | 12-18 | 18-24 | 0-6 | 6-12 | 12-18 | 18-24 |
| F | 1 | 43,390 | 15 | 0.894 | 0.137 | 0.000 | 0.502 | 0.000 | 0.000 | 0.000 | 0.000 |
| F | 2 | 86,780 | 5 | 2.976 | 0.210 | 0.018 | 1.972 | 2.976 | 0.210 | 0.018 | 1.972 |
| E | 1 | 119,881 | 15 | 0.000 | 0.027 | 0.000 | 0.009 | 2.976 | 0.210 | 0.018 | 1.972 |
| F | 3 | 130,170 | 3 | 0.183 | 0.027 | 0.000 | 0.100 | 3.158 | 0.237 | 0.018 | 2.072 |
| E | 2 | 239,761 | 5 | 0.000 | 0.146 | 0.000 | 0.009 | 3.158 | 0.383 | 0.018 | 2.081 |
| D | 1 | 309,588 | 15 | 0.000 | 0.009 | 0.000 | 0.000 | 3.158 | 0.383 | 0.018 | 2.081 |
| E | 3 | 359,642 | 3 | 1.223 | 0.183 | 0.027 | 1.250 | 4.381 | 0.566 | 0.046 | 3.332 |
| E | 4 | 479,522 | 2 | 0.539 | 0.155 | 0.018 | 0.557 | 4.920 | 0.721 | 0.064 | 3.888 |
| E | 5 | 599,403 | 2 | 0.338 | 0.082 | 0.009 | 0.256 | 5.257 | 0.803 | 0.073 | 4.144 |
| **D** | **2** | 619,176 | 5 | 0.000 | 0.265 | 0.000 | 0.018 | 5.257 | **1.068** | 0.073 | 4.162 |
| D | 3 | 928,764 | 3 | 0.000 | 0.438 | 0.100 | 0.119 | 5.257 | 1.506 | 0.173 | 4.281 |
| D | 4 | 1,238,352 | 2 | 0.000 | 0.849 | 0.374 | 0.046 | 5.257 | 2.355 | 0.548 | 4.326 |
| D | 5 | 1,547,940 | 2 | 0.000 | 0.922 | 0.511 | 0.018 | 5.257 | 3.277 | 1.059 | 4.345 |
| D | 6 | 1,857,529 | 1 | 0.000 | 0.666 | 0.429 | 0.000 | 5.257 | 3.943 | 1.488 | 4.345 |
| D | 7 | 2,167,117 | 1 | 0.000 | 0.465 | 0.237 | 0.000 | 5.257 | 4.409 | 1.725 | 4.345 |
| D | 8 | 2,476,705 | 1 | 0.000 | 0.246 | 0.055 | 0.000 | 5.257 | 4.655 | 1.780 | 4.345 |

Notes: m/s = meters/second $m^3/s$ = cubic meters/second

of conditions worse than this condition totals one percent. Note that as recommended by the Workbook, dispersion conditions that result in greater than 12 hours of plume transport time are discounted from the analysis, since it is unlikely that steady-state plume conditions would persist for more than 12 hours.

According to **Table 6-14**, the worst-case daylight (6 AM – 6 PM) dispersion conditions with cumulative frequency of 1 percent are D stability, 2 meters per second (m/s). Therefore, VISCREEN was applied with D stability, and a wind speed of 2 m/sec. According to FLAG guidance (FLM, 2010). the annual average background visual range recommended for the Chassahowitzka Wilderness Area is 172 kilometers (km).

The VISCREEN results are summarized in **Table 6-15** using Project emissions. The results are below the significance criteria. Therefore, the plume is expected to be imperceptible against background sky.

**Table 6-15: VISCREEN Model Results**

| Background | Distance (km) | Plume Perceptibility (DE) | | | Plume Contrast ($C_p$) | | |
|---|---|---|---|---|---|---|---|
| | | VISCREEN[1] | | Criteria | VISCREEN[1] | | Criteria |
| | | Theta 10 | Theta 140 | | Theta 10 | Theta 140 | |
| Sky | 47.0 | 0.384 | 0.111 | 2.0 | 0.007 | -0.004 | 0.05 |

[1]VISCREEN results are provided for the two VISCREEN default worst-case theta angles. The two theta angles represent the sun being in front of the observer (theta = 10 degrees) or behind the observer (theta = 140 degrees).

[2]A negative $C_p$ means the plume has a darker contrast than the background sky.

### Deposition

CALPUFF and CALPOST were applied to obtain upper limit estimates of annual wet and dry deposition of sulfur compounds in kilograms per hectare per year (kg/ha/yr) associated with emissions from the Project at the Chassahowitzka Wilderness Area. Deposition of nitrogen compounds were not performed since the Project $NO_x$ emissions are less than the PSD SER. Specifically, CALPUFF was used to model both wet and dry deposition of $SO_2$ and $SO_4$ to estimate the maximum annual wet and dry deposition of sulfur at the Class I area.

The deposition results compared to the thresholds are shown in **Table 6-16**.

### Table 6-16: Deposition Thresholds

| Pollutant | Maximum Modeled Value (kg/ha/yr) | Threshold[1] (kg/ha/yr) |
|---|---|---|
| Sulfur | 0.003 | 0.01 |

[1]From FDEP *PSD Air Quality Modeling Best Practices* Table 10 (FDEP, 2020).

#### 6.3.3.2 Class I Areas Beyond 50 km

The FLAG 2010 guidance (FLM, 2010) allows for the use of a screening analysis for Class I Areas located between 50 and 300 km from the Project. This screening analysis is known as the Q/D method. Q is the potential Project emissions of visibility-impairing pollutants ($SO_2$, $NO_2$, $PM_{10}$, and sulfuric acid mist) in tons per year (tpy), based on maximum allowable 24-hour emission limits. D is the distance in kilometers to each Class I area. Note that $NO_2$ emissions were not included in the calculation of Q since the Project emissions are less than the PSD SER. If the Q/D ratio is less than 10, no further AQRV analysis is required for that Class I area.

The results of the Q/D analysis are shown in **Table 6-17**. The values are less than 1 for every Class I Area.

### Table 6-17: Class I Area Q/D Analysis

| Class I Area | $SO_2$ (tpy) | $PM_{10}$ (tpy) | SAM (tpy) | Q (tpy) | D (km) | Q/D |
|---|---|---|---|---|---|---|
| Saint Marks Wilderness Area | 62.2 | 29.2 | 19.8 | 111.3 | 234 | 0.5 |
| Okefenokee Wilderness Area | | | | | 244 | 0.5 |
| Bradwell Bay Wilderness Area | | | | | 274 | 0.4 |
| Everglades National Park | | | | | 296 | 0.4 |

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# Appendix A
# Project Site Plan, Equipment and Process Flow Diagram

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# A.1 – Project Site Plan

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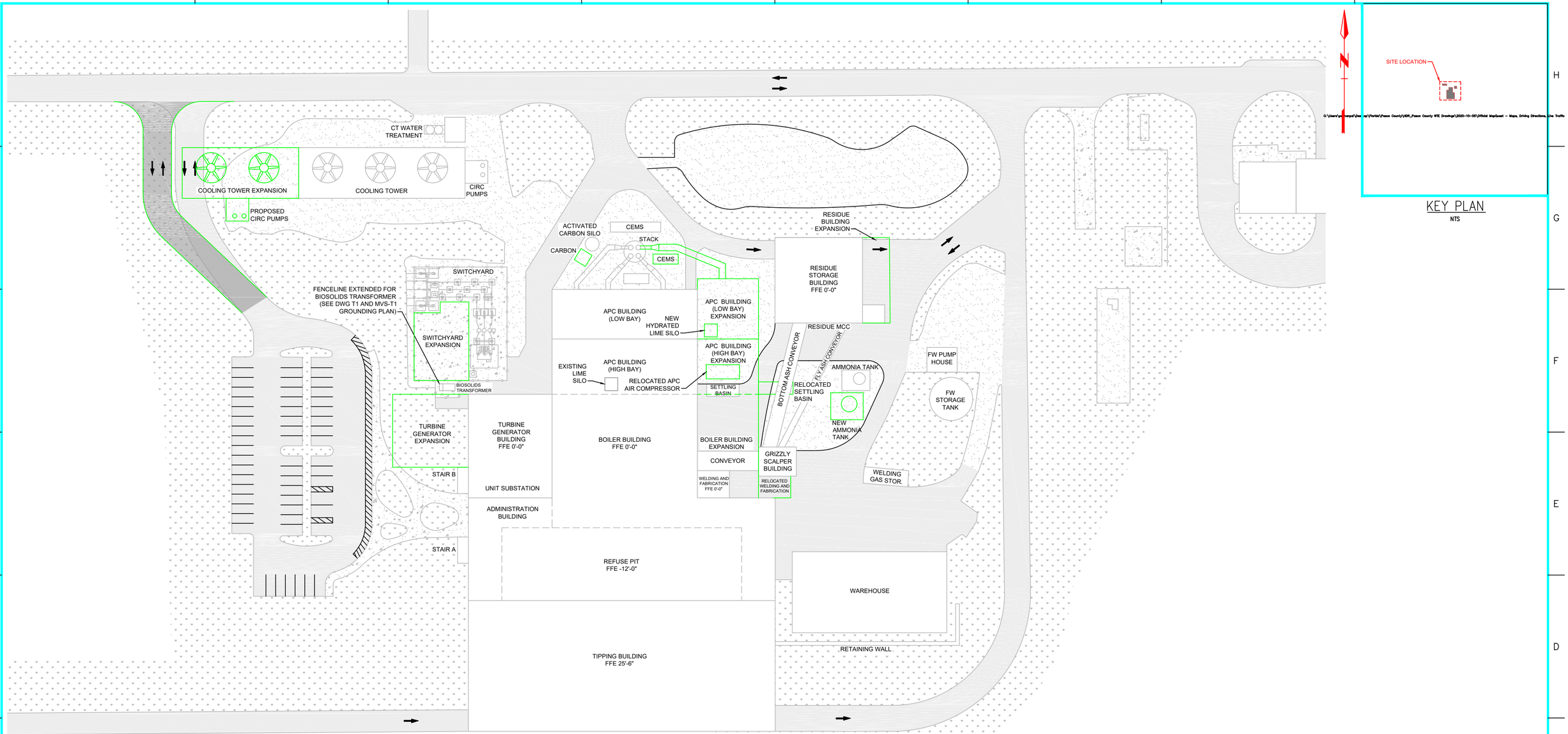


| BUILDING | | LENGTH (N/S) | WIDTH (E/W) | HEIGHT |
|---|---|---|---|---|
| EXPANSION BOILER BUILDING | | 108' | 60' | 115' |
| EXPANSION APC BUILDING | QUENCH | 55' | 60' | 115' |
| | BAGHOUSE | 60' | 60' | 90' |
| EXPANSION RESIDUE STORAGE BUILDING | | 85' | 110' | 50' |
| EXPANSION TURBINE GENERATOR BUILDING | | 65' | 80' | 72' |
| REFUSE PIT BUILDING | | 89' | 280' | 110' |
| EXPANSION SWITCHYARD | | 105' | 30' | 20' |
| EXPANSION COOLING TOWER | | 50' | 98' | 36' |
| MODIFIED SETTLING BASIN | | 12' | 35' | 3' |
| EXISTING BOILER BUILDING | | 98' | 136' | 110' |
| EXISTING APC BUILDING | QUENCH | 55' | 136' | 110' |
| | BAGHOUSE | 48' | 136' | 60' |
| EXISTING TURBINE GENERATOR BUILDING | | 98' | 80' | 72' |
| EXISTING COOLING TOWER | | 50' | 155' | 36' |

NOTES:
1. DRAWING IS A CONCEPTUAL LAYOUT FOR DISCUSSION PURPOSES.
2. 0.0' ELEVATION IS GROUND FLOOR OF EXISTING PLANT.
3. ALL DIMENSIONS ARE APPROXIMATE.
4. PARKING CAPACITY AND ROADWAYS NEED TO BE EVALUATED.

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0 100 200ft

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# PASCO COUNTY RESOURCE RECOVERY FACILITY EXPANSION UNIT 4 PROJECT

## PROPOSED SITE PLAN

COVANTA ENERGY for a cleaner world
COVANTA ENGINEERING SERVICES, INC.
445 SOUTH STREET
MORRISTOWN, NEW JERSEY 07960

| APPROVED | DATE | DRAWING NO. | SHT. NO. | REV. |
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RM-100-4 01/20/12 PF: 1=1 "ARCH C"

# A.2 – Project Equipment

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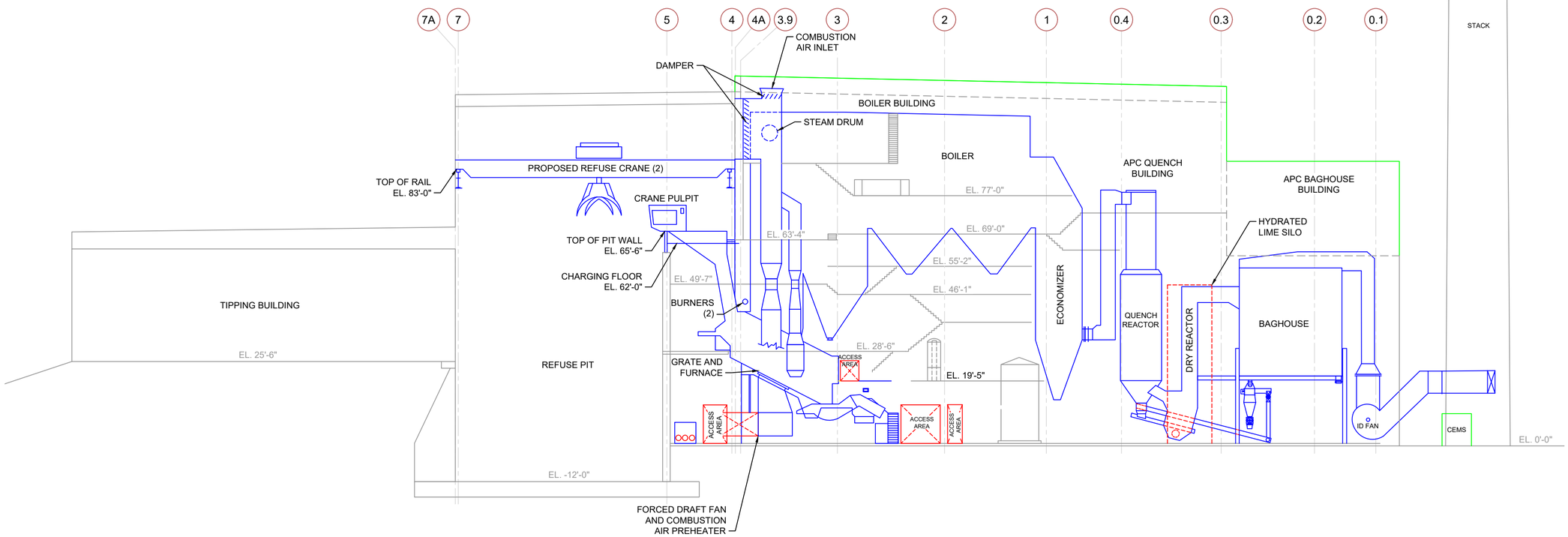
SOUTH

NORTH




SECTION LOOKING WEST

NOTE:
WHERE POSSIBLE FOR ADEQUATE ACCESS TO ALL EQUIPMENT AND INSTRUMENTS, MATCH BASE PLANT PLATFORMS. WHERE THIS IS NOT POSSIBLE, PROVIDE ACCESS RAMPS FROM BASE PLANT TO EXPANSION PLANT.

0 50 100ft

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# PASCO COUNTY RESOURCE RECOVERY FACILITY EXPANSION UNIT 4 PROJECT

## EXPANSION GENERAL ARRANGEMENT CROSS-SECTION

COVANTA ENERGY for a cleaner world

COVANTA ENGINEERING SERVICES, INC.
445 SOUTH STREET
MORRISTOWN, NEW JERSEY 07960

| APPROVED | DATE | DRAWING NO. | SHT. NO. | REV. |
|---|---|---|---|---|
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RM-100-4 01/20/12 PF: 1=1 "ARCH C"

# A.3 – Process Flow Diagram

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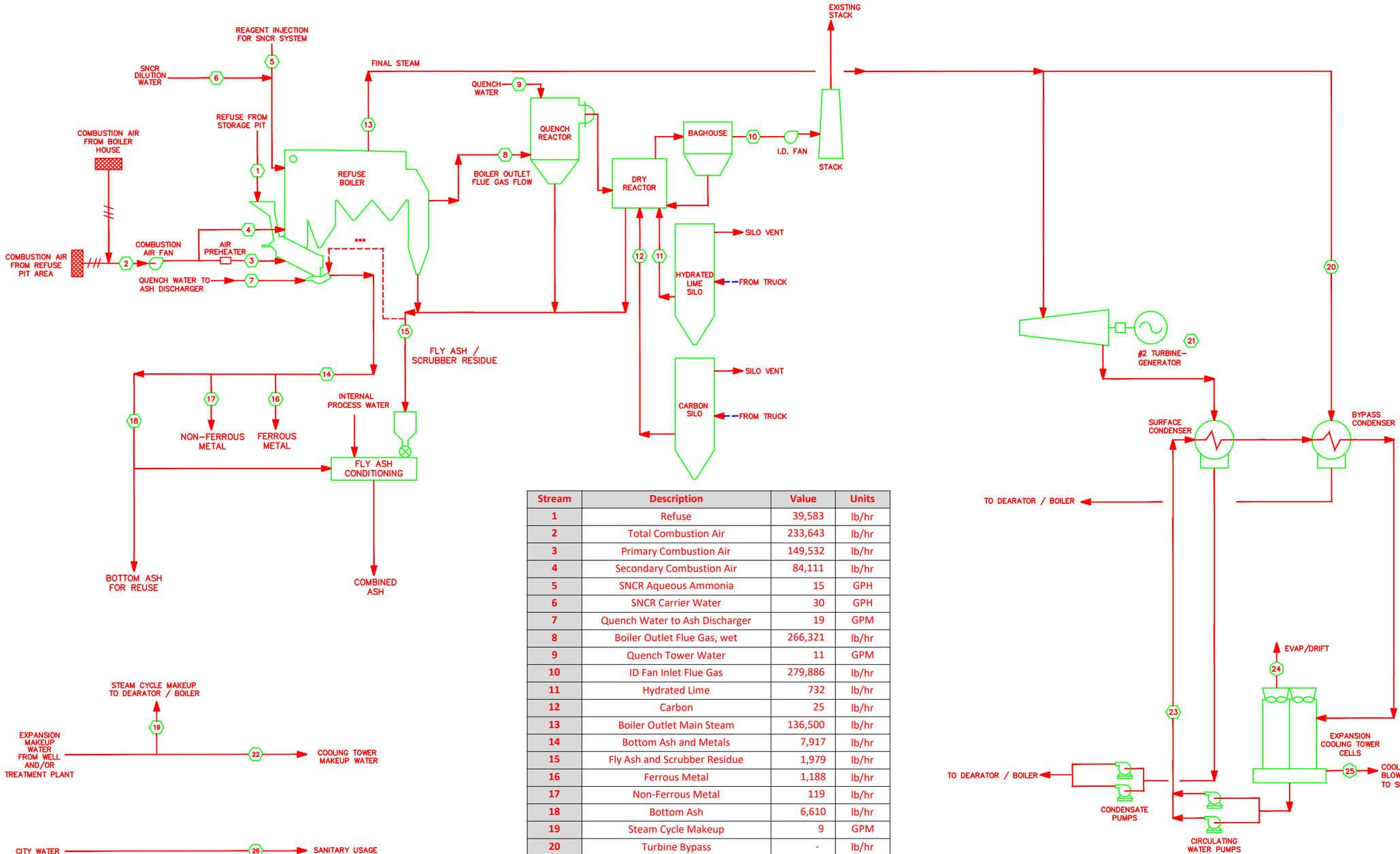


| Stream | Description | Value | Units |
|---|---|---|---|
| 1 | Refuse | 39,583 | lb/hr |
| 2 | Total Combustion Air | 233,643 | lb/hr |
| 3 | Primary Combustion Air | 149,532 | lb/hr |
| 4 | Secondary Combustion Air | 84,111 | lb/hr |
| 5 | SNCR Aqueous Ammonia | 15 | GPH |
| 6 | SNCR Carrier Water | 30 | GPH |
| 7 | Quench Water to Ash Discharger | 19 | GPM |
| 8 | Boiler Outlet Flue Gas, wet | 266,321 | lb/hr |
| 9 | Quench Tower Water | 11 | GPM |
| 10 | ID Fan Inlet Flue Gas | 279,886 | lb/hr |
| 11 | Hydrated Lime | 732 | lb/hr |
| 12 | Carbon | 25 | lb/hr |
| 13 | Boiler Outlet Main Steam | 136,500 | lb/hr |
| 14 | Bottom Ash and Metals | 7,917 | lb/hr |
| 15 | Fly Ash and Scrubber Residue | 1,979 | lb/hr |
| 16 | Ferrous Metal | 1,188 | lb/hr |
| 17 | Non-Ferrous Metal | 119 | lb/hr |
| 18 | Bottom Ash | 6,610 | lb/hr |
| 19 | Steam Cycle Makeup | 9 | GPM |
| 20 | Turbine Bypass | - | lb/hr |
| 21 | Turbine Output | 15 | MW |
| 22 | Cooling Tower Makeup | 287 | GPM |
| 23 | Circulating Water | 10,756 | GPM |
| 24 | Cooling Tower Evaporation and Drift | 216 | GPM |
| 25 | Cooling Tower Blowdown | 72 | GPM |
| 26 | City Water | 1 | GPM |

NOTES:
THIS PFD IS FOR NAMEPLATE 475 TPD AT 5,200 BTU/LB WASTE. SPECIFIC EQUIPMENT SIZING WILL BE LARGER. THESE VALUES ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE DETAILED DESIGN.

INCLUSIVE TO STREAM 24, COOLING TOWER DRIFT IS 0.11 GPM AND WINDAGE IS 0.54 GPM

*** ALTERNATIVE FLY ASH TO ASH DISCHARGER

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|---|---|
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# PASCO COUNTY RESOURCE RECOVERY FACILITY EXPANSION UNIT 4 PROJECT

## PROCESS FLOW DIAGRAM

COVANTA ENERGY
For a cleaner world
COVANTA ENGINEERING SERVICES, INC.
445 SOUTH STREET
MORRISTOWN, NEW JERSEY 07960

| APPROVED | DATE | DRAWING NO. | SHT. NO. | REV. |
|---|---|---|---|---|
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# Appendix B
# Emissions Calculations and Supporting Information

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**Table B-1**
**Summary of Project Emissions Estimates and PSD Applicability**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| **Project Emissions** | **Project Emissions Increase, ton/yr** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **$SO_2$** | **PM** | **$PM_{10}$** | **$PM_{2.5}$** | **$NO_x$** | **CO** | **SAM** | **F** | **MWC Organics (as Dioxins/ Furans)** | **MWC Metals (as PM)** | **MWC Acid Gases (as $SO_2$ + HCl)** | **Pb** | **VOC** | **$CO_2e$** |
| Unit #4 | 56.6 | 10.6 | 26.6 | 26.6 | 186.2 | 92.7 | 18.0 | 2.6 | 8.86E-06 | 10.6 | 83.5 | 0.12 | 32.4 | 210,459 |
| Cooling Tower Cells | - | 0.3 | 0.2 | 0.2 | - | - | - | - | - | - | - | - | - | - |
| Carbon Silo | - | 0.005 | 0.005 | 0.005 | - | - | - | - | - | - | - | - | - | - |
| **Unit #4 and Ancillary Emission Sources** | **56.6** | **11.0** | **26.8** | **26.8** | **186.2** | **92.7** | **18.0** | **2.6** | **8.86E-06** | **10.6** | **83.5** | **0.12** | **32.4** | **210,459** |
| PSD Significant Emission Rates | 40 | 25 | 15 | 10 | 40 | 100 | 7 | 3 | 3.5E-06 | 15 | 40 | 0.60 | 40 | 75,000 |
| Need to Review Net Emissions Increase? | **YES** | **NO** | **YES** | **YES** | **YES** | **NO** | **YES** | **NO** | **YES** | **NO** | **YES** | **NO** | **NO** | **YES** |
| | | | | | | | | | | | | | | |
| **Net Emission Increase Analysis** | **$SO_2$** | **PM** | **$PM_{10}$** | **$PM_{2.5}$** | **$NO_x$** | **CO** | **SAM** | **F** | **MWC Organics (as Dioxins/ Furans)** | **MWC Metals (as PM)** | **MWC Acid Gases (as $SO_2$ + HCl)** | **Pb** | **VOC** | **$CO_2e$** |
| **Project Offsets from Units #1 -3 (Contemporaneous Decreases)** | | | | | | | | | | | | | | |
| Post- NOx Reduction Project Actuals | - | - | - | - | 355.6 | - | - | - | - | - | - | - | - | - |
| Baseline Actuals - Units #1-3 | - | - | - | - | -547.4 | - | - | - | - | - | - | - | - | - |
| **Contempraneous Emission Decreases** | **-** | | **-** | **-** | **-191.8** | | **-** | | **-** | | **-** | | | **-** |
| **Diesel Engine Contempraneous Increases** | | | | | | | | | | | | | | |
| Three non-emergency diesel engines | 0.02 | - | 0.06 | 0.06 | 1.2 | - | - | - | - | - | 0.02 | - | - | 2,065 |
| **Contempraneous Emission Increases** | **0.02** | **-** | **0.06** | **0.06** | **1.2** | **-** | **-** | **-** | **-** | **-** | **0.02** | **-** | **-** | **2,065** |
| | | | | | | | | | | | | | | |
| Unit #4 and Ancillary Emission Sources | 56.6 | - | 26.8 | 26.8 | 186.2 | - | 18.0 | - | 8.86E-06 | - | 83.5 | - | - | 210,459 |
| Contempraneous Emission Decreases | - | | - | - | -191.8 | | - | | - | | - | | | - |
| Contempraneous Emission Increases | 0.02 | | 0.06 | 0.06 | 1.2 | | - | | - | | 0.02 | | | 2,065 |
| **Total Project Net Emission Increases** | **56.6** | **-** | **26.8** | **26.8** | **-4.4** | **-** | **18.0** | **-** | **0.0** | **-** | **83.48** | **-** | **-** | **212,524** |
| PSD Significant Emission Rates | 40 | - | 15 | 10 | 40 | - | 7 | - | 3.5E-06 | - | 40 | - | - | 75,000 |
| Major PSD Review Required | **YES** | - | **YES** | **YES** | **NO** | - | **YES** | - | **YES** | - | **YES** | - | - | **YES** |

**Table B-2**
**Unit No. 4 Municipal Waste Combustor (MWC) Potential Emissions Calculations**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| Figure 3-1 Firing Diagram Condition | | Condition 3 | Condition 2 | Condition 1 |
|---|---|---|---|---|
| Estimated Exhaust Parameters | Units | Min. Load Case | Short-Term | Annualized |
| Design Capacity | ton per day | 285 | 547 | 475 |
| Design Heating Value | Btu/lb | 5200 | 4970 | 5200 |
| Design Heat Input | MMBtu/hr | 123.5 | 226.4 | 205.8 |
| Design Heat Input Nominal Load | % | 60% | 110% | 100% |
| Exhaust Temperature | ºF | 270 | 270 | 270 |
| Exhaust Moisture | % | 16.34 | 16.34 | 16.34 |
| Exhaust Oxygen (dry basis) | % | 8.54 | 8.54 | 8.54 |
| Exhaust Flow | acfm | 60,183 | 110,320 | 100,305 |
| Exhaust Flow | dscfm | 36,417 | 66,755 | 60,695 |
| Corrected Exhaust Flow | dscfm (7% oxygen) | 33,509 | 59,363 | 53,974 |
| Steam production | lb/hr | 84,098 | 171,400 | 155,000 |

(1) Exhaust flow parameters provided by Covanta for low load, short-term, and annualized conditions.

| Pollutant | Concentration/ Emission Factor(1) | | | 60% Min Case Emissions lb/hr | Estimated Hourly Emissions lb/hr(2) | Annual Estimated Emissions ton/yr(3) |
|---|---|---|---|---|---|---|
| Sulfur Dioxide ($SO_2$) | 24 | $ppm_{vd}$ (24-hr basis) | (1) | 8.02 | 14.21 | 56.60 |
| Nitrogen Oxides ($NO_x$) | 110 | $ppm_{vd}$ (24-hr basis) | (1) | 26.39 | 46.75 | 186.16 |
| Carbon Monoxide (CO) | 90 | $ppm_{vd}$ (30 day rolling) | (1) | 13.14 | 23.28 | 92.71 |
| Hydrogen Chloride (HCl) | 20 | $ppm_{vd}$ | (1) | 3.81 | 6.74 | 26.86 |
| Fluorides (F) | 3.5 | $ppm_{vd}$ | (1) | 0.37 | 0.65 | 2.58 |
| VOCs (as propane) | 20 | $ppm_{vd}$ | (1) | 4.60 | 8.15 | 32.45 |
| Particulate Matter (PM) | 12 | mg/dscm | (1) | 1.51 | 2.67 | 10.63 |
| Particulate Matter ($PM_{10}$) | 30 | mg/dscm(4) | (1,4) | 3.77 | 6.67 | 26.57 |
| Particulate Matter ($PM_{2.5}$) | 30 | mg/dscm(4) | (1,4) | 3.77 | 6.67 | 26.57 |
| Mercury (Hg) | 50 | µg/dscm | (1) | 6.28E-03 | 1.11E-02 | 0.04 |
| Cadmium (Cd) | 10 | µg/dscm | (1) | 1.26E-03 | 2.22E-03 | 0.01 |
| Lead (Pb) | 140 | µg/dscm | (1) | 0.018 | 0.031 | 0.12 |
| Total PCDD/F | 10 | ng/dscm | (1) | 1.26E-06 | 2.22E-06 | 0.00 |
| Sulfuric Acid Mist (SAM) | 5 | $ppm_{vd}$ | (1) | 2.56 | 4.53 | 18.05 |
| MWC Organics (as Dioxins/Furans) | - | - | (5) | 1.26E-06 | 2.22E-06 | 8.86E-06 |
| MWC Metals (as PM) | - | - | (6) | 1.51 | 2.67 | 10.63 |
| MWC Acid Gases ($SO_2$+HCl) | - | - | (7) | 11.83 | 20.96 | 83.46 |
| Carbon Dioxide Equivalent ($CO_2e$) | 0.31 | lb $CO_2e$/lb steam | (8) | 26,070 | 53,134 | 210,459 |

**Notes**

(1) Limits shown reflect concentrations corrected to 7% oxygen.
(2) Hourly emissions shown reflect hourly values calculated at 110% of the design heat input for the combustor.
(3) Estimated annual emissions reflects a single MWC unit with a nominal rated MSW processing capacity of 475 tpd and 5,200 Btu/lb.
(4) $PM_{10}$ and $PM_{2.5}$ emissions include condensables.
(5) MWC organics is as Dioxins/Furans.
(6) MWC Metal is as PM.
(7) MWC acid gases is as $SO_2$+HCl.
(8) CO2e factor based from Covanta experience with operating Pasco Units #1-3.

**Table B-2**
**Unit No. 4 Municipal Waste Combustor (MWC) Potential Emissions Calculations**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

**Example Emissions Calculations**

*Calculating exhaust flow corrected to 7% oxygen:*

Exhaust flow corrected to 7% oxygen = 66755 dscfm × (20.9 - 8.54) / (20.9 - 7)
= 59363 dscfm corrected to 7% oxygen

*Calculating emissions from ppm concentrations:*

Estimated Hourly $SO_2$ Emissions = 59,363 dscfm at 7% oxygen × 24 $ppm_{vd}$ × $10^{-6}$ / 0.7302 atm-$ft^3$ / lbmol-R × 1 / (460 + 68) R
× 64.1 lb/lbmol × 60 min/hr
= 14.21 lb/hr

Estimated Annual $SO_2$ Emissions = 53,974 dscfm at 7% oxygen × 24 $ppm_{vd}$ × $10^{-6}$ / 0.7302 atm-$ft^3$ / lbmol-R × 1 / (460 + 68) R
× 64.1 lb/lbmol × 60 min/hr
= 12.92 lb/hr / 2,000 lb/ton × 8,760 hr/yr
= 56.60 tpy

*Calculating emissions from mg/dscm concentrations:*

Estimated Hourly PM Emissions = 59,363 dscfm at 7% oxygen × 12 mg/dscm × $m^3$ / 35.31 $ft^3$ × 60 min/hr × g / 1,000 mg × lb / 453.6 g
= 2.67 lb/hr

*Calculating emissions from ug/dscm concentrations:*

Estimated Hourly Hg Emissions = 59,363 dscfm at 7% oxygen × 50 ug/dscm × $m^3$ / 35.31 $ft^3$ × 60 min/hr × g / $10^6$ ug × lb / 453.6 g
= 0.01 lb/hr

*Calculating emissions from $CO_2e$:*

Estimated Annual $CO_2e$ Emissions 0.31 lb CO2e/lb steam * 155000 lbs steam/hr x 8,760 hr/yr / 2,000 lb/ton
= 210,459 ton/yr

**Table B-3**
**Cooling Tower Potential Emissions Calculations**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

New Tower (two cells)

| | | |
|---|---|---|
| Total dissolved solids [1] = | 2,300 | ppm |
| Recirculation rate [2] = | 12,907 | gpm |
| Recirculation rate = | 6,435,530 | lb/hr |
| Drift loss = | 0.065 | gpm |
| Drift loss % | 0.0005% | |
| Drift loss = | 32.18 | lb water/hr |
| PM = | 0.074 | lb/hr |
| | 0.32 | tpy |
| $PM_{10}/PM_{2.5}$ [3] = | 0.043 | lb/hr |
| | 0.19 | tpy |

[1] Representative concentration from Certificate of Analysis, 6/19/19.

[2] Covanta design mass balance + 20% margin of safety

[3] *Estimating Realistic PM-10 Emissions for Cooling Towers* , Reisman and Frisbie, 2002. Correlation estimates 58.5% of 2,300 ppm TDS will be emitted as PM-10

[4] Design recirculation rate for purchased tower.

**Table B-4**
**Carbon Silo Potential Emissions Calculations**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| **Estimated Carbon Storage Operating Data** | | |
|---|---|---|
| Storage Capacity | 1,500 | $ft^3$ |
| Filling Frequency | 48 | fill events/yr |
| Filling Duration | 2 | hrs/fill event |
| Air Blower Size | 1,000 | $ft^3$/min |
| Carbon Added | 40,000 | lb/fill event |
| Carbon Density | 32 | lb/$ft^3$ |
| Carbon Volume Added | 1,250 | $ft^3$/fill event |
| Air Volume through Fabric Filter | 121,250 | $ft^3$/fill event |
| | 60,625 | $ft^3$/hr |
| Safety Factor | 20% | percent |

| **Pollutant** | **Emission Factor** | **Maximum Estimated Emissions** | |
|---|---|---|---|
| | **gr/dscf** | **lb/hr** | **ton/yr** |
| Particulate Matter (PM) | 0.01 | 0.104 | 0.005 |
| Particulate Matter ($PM_{10}$) | 0.01 | 0.104 | 0.005 |
| Particulate Matter ($PM_{2.5}$) | 0.01 | 0.104 | 0.005 |

**Example Emissions Calculations**

*Calculating air volume through fabric filter:*

Air Volume through Fabric Filter = 1000 $ft^3$/min × 60 min/hr × 2.0 hr/event + 1,250 $ft^3$/event
= 121,250 $ft^3$/event / 2.0 hr/event
= 60,625 $ft^3$/hr

*Calculating emissions from gr/dscf emission factors:*

Estimated Maximum Hourly PM Emissions = 60,625 $ft^3$/hr × 0.01 gr/dscf × 1 lb / 7,000 gr × (1 + 20%)
= 0.104 lb/hr

Estimated Maximum Annual PM Emissions = 0.104 lb/hr × 2.0 hr/event × 48 event/yr / 2,000 lb/ton
= 0.005 ton/yr

**Table B-5**
**Units #1-3 Municipal Waste Combustors (MWC) NOx Emissions Calculations**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| **Estimated Exhaust Parameters (Units 1-3, each)** | | |
|---|---|---|
| Design Capacity | 350 | ton per day |
| Exhaust Temperature | 250 | ºF |
| Exhaust Moisture | 18.7 | % |
| Exhaust Oxygen (dry basis) | 11.70 | % |
| Exhaust Flow | 85,300 | acfm |
| Exhaust Flow [(1)] | 47,600 | dscfm |
| Corrected Exhaust Flow | 31,505 | dscfm (7% oxygen) |

[(1)] Title V renewal application airflow specifications used for existing source airflow rates

| **Pollutant** | **Maximum Concentration[(1)]** | | **Maximum Estimated Emissions[(2)]** | | | |
|---|---|---|---|---|---|---|
| | | | **Per Unit** | | **Total** | |
| | | | **lb/hr** | **ton/yr** | **lb/hr** | **ton/yr** |
| Nitrogen Oxides ($NO_x$) | 120 | $ppm_{vd}$ (24-hr basis) | 27.06 | 118.5 | 81.19 | 355.6 |

**References**

[(1)] Concentrations corrected to 7% oxygen.

[(2)] Maximum estimated emissions reflects a single MWC unit with a nominal rated MSW processing capacity 350 tpd.

**Example Emissions Calculations**

*Calculating exhaust flow corrected to 7% oxygen:*

Exhaust flow corrected to 7% oxygen = 47,600 dscfm × (20.9 -11.7) / (20.9 - 7)
31505 dscfm corrected to 7% oxygen

*Calculating emissions from ppm concentrations:*

Estimated Maximum Hourly NOx Emissions = 48,936 dscfm at 7% oxygen × 120 $ppm_{vd}$ × $10^{-6}$ × 46 lb/lbmol × 60 min/hr / ( 0.7302 atm-$ft^3$ * lbmol-R × 1 × (460 + 68) R )
27.06 lb/hr (per unit)
27.06 lb/hr × 3 = 81.19 lb/hr (Units 1-3 total)

Estimated Maximum Annual NOx Emissions 27.06 lb/hr / 2,000 lb/ton × 8,760 hr/yr
118.5 ton/yr (per unit)
118.5 ton/yr × 3 = 355.6 ton/yr (Units 1-3 total)

**Table B-6**
**Unit #1-3 Municipal Waste Combustors (MWC) Baseline Actual NOx Emissions**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| NOx Baseline Actual Emissions (tpy) | | | | | | |
|---|---|---|---|---|---|---|
| **Year** | **U1** | **U2** | **U3** | **Total** | **2-year average** | |
| 2020 | 190.0 | 188.5 | 175.48 | 554.0 | 547.4 | 2020/2019 |
| 2019 | 175.1 | 184.4 | 181.24 | 540.8 | 530.8 | 2019/2018 |
| 2018 | 169.1 | 182.3 | 169.41 | 520.8 | 527.5 | 2018/2017 |
| 2017 | 187.5 | 171.6 | 174.98 | 534.1 | 535.9 | 2017/2016 |
| 2016 | 178.8 | 183.3 | 175.74 | 537.8 | 537.2 | 2016/2015 |
| 2015 | 173.4 | 188.4 | 174.83 | 536.6 | 530.0 | 2015/2014 |
| 2014 | 181.7 | 165.4 | 176.28 | 523.3 | 531.5 | 2014/2013 |
| 2013 | 178.5 | 182.6 | 178.57 | 539.7 | | 2013/2012 |

**Table B-7**
**Diesel Engine Contemporaneous Emissions Increases**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| EU ID | Engine | Engine Make | Model | Man. Date | Duty | Horsepower Rating | Equivalent kW Rating | Fuel | Pollutant | Emission Factor [a, b, c] | | (ton/year) [d] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Group 2: "New" stationary CI RICE less than or equal to 500 HP** | | | | | | | | | | | | |
| 012 | Trommel | Deutz | TCD 3.6 | 2018 | Continuous | 121 | 90.22 | 15 ppmw sulfur diesel | NOx | 0.4 | g/kW-hr | 0.35 |
| | | | | | | | | | PM | 0.02 | g/kW-hr | 0.017 |
| | | | | | | | | | SOx | 1.2E-05 | lbs/hp-hr | 0.01 |
| | | | | | | | | | $CO_2$ | 1.15 | lbs/hp-hr | 609.48 |
| 013 | Power Screen | Caterpillar | C 4.4 | 2017 | Continuous | 174 | 129.75 | 15 ppmw sulfur diesel | NOx | 0.4 | g/kW-hr | 0.50 |
| | | | | | | | | | PM | 0.02 | g/kW-hr | 0.025 |
| | | | | | | | | | SOx | 1.2E-05 | lbs/hp-hr | 0.01 |
| | | | | | | | | | $CO_2$ | 1.15 | lbs/hp-hr | 876.44 |
| 014 | Generator - Office Trailer | Isuzu | 4JJIX | 2018 | Continuous | 115 | 85.75 | 15 ppmw sulfur diesel | NOx | 0.4 | g/kW-hr | 0.33 |
| | | | | | | | | | PM | 0.02 | g/kW-hr | 0.017 |
| | | | | | | | | | SOx | 1.2E-05 | lbs/hp-hr | 0.01 |
| | | | | | | | | | $CO_2$ | 1.15 | lbs/hp-hr | 579.26 |

[a] Emission factors for NOxand PM are from NSPS Subpart IIII requirements. PM used as both $PM_{10}$ and $PM_{2.5}$.

[b] Emission factor for SO2 is based on sulfur content equation from AP-42 Section 3.4, Table, 3.4-1, 8.09 E-03 * % sulfur.

[c] Emission factor for CO2 is based on AP-42 Section 3.3, Table 3.3.1.

[d] Assumes continuous operation 8,760 hrs per year.

Engines Contemporaneous Increase (ton/yr)

| | |
|---|---|
| NOx | 1.2 |
| PM | 0.06 |
| $SO_2$ | 0.02 |
| $CO_2$ | 2065 |

**Table B-8**
**Existing Units #1-3 Historical GHG Reported Emissions**
**Municipal Waste Combustor Unit #4 Project**
**Pasco County Resource Recovery Facility (Spring Hill, FL)**

| Year | GHGRP Reported Total $CO_2$ (mt) | GHGRP Reported Total $CH_4$ (mt) | GHGRP Reported Total $N_2O$ (mt) | Calculated Total GHG/$CO_2e$ (mt) [1] | Steam Generation (klbs) | lb $CO_2e$ / lb steam [2] |
|---|---|---|---|---|---|---|
| 2010 | 291,223 | 102.6 | 13.5 | 297,798 | 2,071,319 | 0.317 |
| 2011 | 292,517 | 103.0 | 13.5 | 299,124 | 2,080,873 | 0.317 |
| 2012 | 291,225 | 102.5 | 13.5 | 297,804 | 2,071,503 | 0.317 |
| 2013 | 289,000 | 101.8 | 13.4 | 295,524 | 2,056,087 | 0.317 |
| 2014 | 286,684 | 100.9 | 13.2 | 293,151 | 2,046,718 | 0.316 |
| 2015 | 300,059 | 105.7 | 13.9 | 306,834 | 2,135,149 | 0.317 |
| 2016 | 300,548 | 105.9 | 13.9 | 307,334 | 2,200,730 | 0.308 |
| 2017 | 310,540 | 109.4 | 14.4 | 317,551 | 2,205,899 | 0.317 |
| 2018 | 311,883 | 110.3 | 14.5 | 318,950 | 2,215,289 | 0.317 |
| 2019 | 322,506 | 108.6 | 14.2 | 329,467 | 2,183,305 | 0.333 |
| 2020 | 324,781 | 109.0 | 14.3 | 331,766 | 2,289,572 | 0.319 |
| | | | | | **2010-2020 Average :** | **0.318** |

**Notes**

[1] Calculated using GWPs from Part 98, Table A-1; $CH_4 = 25$; $N_2O = 298$

$GHG/CO_2e = CO_2 + ( 25 * CH_4 ) + ( 298 * N_2O )$

[2] lb $CO_2e$ / lb steam = mt $CO_2e$ * 2204.6 lbs / mt / ( klbs. steam * 1000 lbs./klbs. )

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# Appendix C

# Materials Separation Plan, January 5, 2022 Public Meeting Notice and Meeting Transcript

# C.1 – Materials Separation Plan

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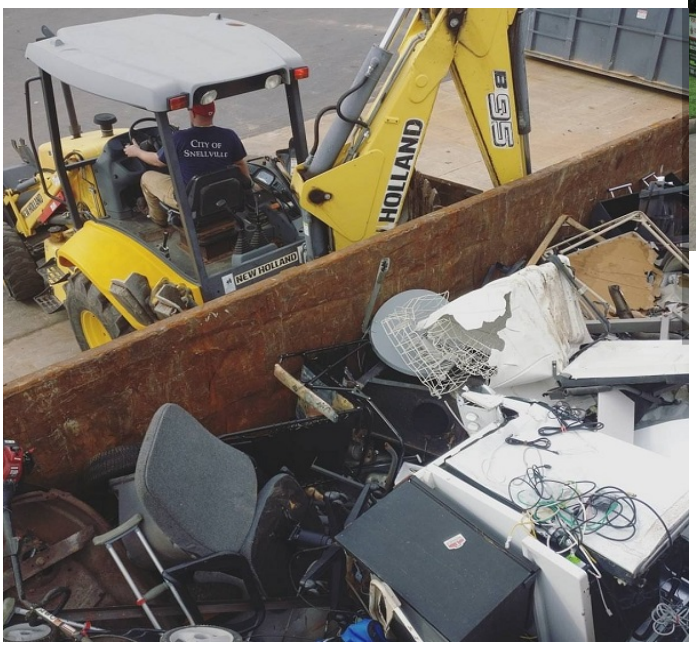
# Materials Separation Plan

PRELIMINARY DRAFT

November 2021

PASCO COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.




JMG ENGINEERING INC

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A. Landfill Depletion Model
B. Waste Stream Characteristics and Quantities
C. Recycling Promotional Literature

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# 1.0 INTRODUCTION

## 1.1 Purpose

This document is the Preliminary Draft Materials Separation Plan for Pasco County (County). The County has prepared this document because the County intends to expand the combustion capacity of the Pasco County Resource Recovery Facility (PCRRF or Facility). This Preliminary Draft Materials Separation Plan has been prepared in compliance with the requirements set forth at 40 CFR 60.57b, which applies to Large Municipal Waste Combustion Facilities.

## 1.2 Background

Pasco County utilizes an Integrated Solid Waste Management System to manage the solid waste generated within the County's borders. Major components of the Integrated Solid Waste Management System include the Resource Recovery Facility, a Transfer Station for recyclable materials, a Class I landfill, a Class III landfill, a Transfer Station for solid waste, and multiple support operations and facilities, which are described more fully in Section 2. The primary goal of the Integrated Solid Waste Management System is to provide the County's residents with environmentally-sound, cost effective facilities for the collection, management, recycling, and/or disposal of the solid waste and recyclable materials generated in the County. The PCRRF is the centerpiece of the County's solid waste disposal system. The PCRRF reduces the volume of the solid waste received by the County and thus the PCRRF maximizes the remaining life of the County's landfill(s) through waste volume reduction. It also provides an additional revenue stream for the County, through metal recovery and electricity sales[1], which help reduce the cost of the overall system. The goal of this Preliminary Draft Materials Separation Plan is to describe the materials separation programs and approaches that the County will use to enhance the recycling of source separated materials. In this manner, the County intends to enhance the County's Integrated Solid Waste Management System.

The Pasco County Resource Recovery Facility has been operational since 1991 and has a rated capacity of approximately 1,050 tons-per-day (tpd). However, over the past several years, the PCRRF has been forced to divert processible waste from the Facility because the tonnage received exceeds the rated capacity of the Facility. This situation has resulted in significant amounts of solid waste being delivered to landfills for disposal[2]. Due to the growing need for additional processing capacity at the Facility as a result of recent and projected increases in population, the County seeks to expand the Facility's processing capacity by approximately 475 tons per day and minimize landfilling.

[1] (CDM Smith, 2015)
[2] (JMG Engineering, 2020)

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# 2.0 Solid Waste Management System Summary

## 2.1 Description of Pasco County Solid Waste

The Pasco County Solid Waste Department is a component of the larger Public Infrastructure Branch within Pasco County Government. The mission of the Public Infrastructure Branch is to provide the Pasco County community, customers, and future generations with high quality, efficient, and innovative water, wastewater, and solid waste services. The Solid Waste/Resource Recovery system is a self-supporting enterprise operation that is funded through user fees and system revenues. The Solid Waste Department derives its authority pursuant to Chapter 90 of the Code of Ordinances for Pasco County, Florida.

The Solid Waste Department is responsible for managing the processes by which solid waste is collected, transported, stored, separated, and processed. This includes having a planned program for long term management and maintenance of the approved operating facilities regulated by applicable governing agencies, such as the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA). The department actively seeks out alternative methods to reduce the total volume of waste generated in addition to its ongoing mission to educate the public on the importance of recycling countywide.

## 2.2 Description of the Service Area

Pasco County is located on Florida's west coast in the northern section of the Tampa-St. Petersburg-Clearwater Metropolitan Statistical Area (see **Figure 2-1**). The County comprises a total of approximately 868 square miles with a land area of 747 square miles (US Census Bureau, 2019). The County is bordered on the north by Hernando County, on the east by Sumter County and Polk County, on the south by Hillsborough County and Pinellas County, and on the west by the Gulf of Mexico.

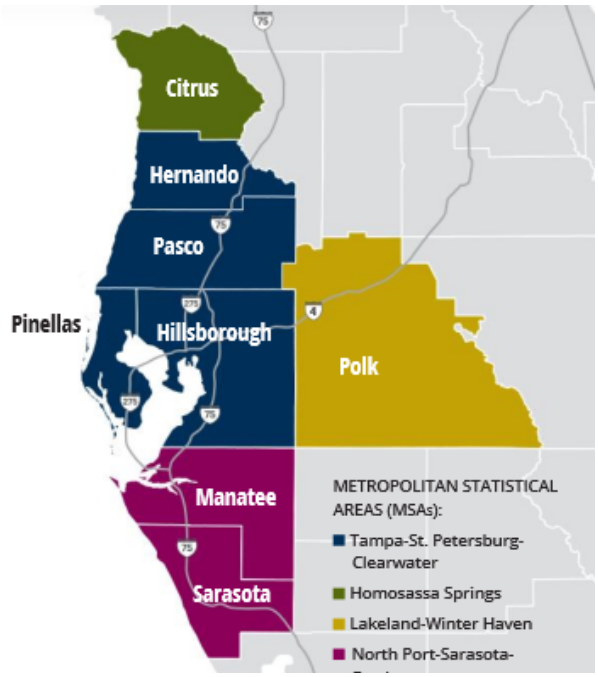



*Figure 2-1*
*Tampa/St.Pete/Clearwater MSA*

Incorporated municipalities within the service area include Port Richey, New Port Richey, Dade City, Zephyrhills, St. Leo, and San Antonio. Major highways include Interstate 75, US-301, US-98, US-41 and US-19, as well as SR-52, SR-54, SR-56 and SR-589 (Suncoast Parkway).

The County population in 2010 was approximately 464,697 (US Census Bureau, 2010). That number is projected to grow to approximately 586,071 by the year 2025 (University of Florida, 2019). The County is generally defined as existing of five geographical regions. The southern and western geographical regions are expected to have the greatest population growth. This is mainly due to the areas'

proximity to the Tampa-St. Petersburg-Clearwater economic centers and convenient access to major roadways.

## 2.3 Solid Waste System Agreements

Pasco County's Integrated Solid Waste Management System has achieved success in managing the County's solid waste needs through collaboration with the private sector and through agreements with other governmental jurisdictions. Provisions include:

- **Section 90-32, Pasco County Code of Ordinances** – requires that all solid waste generated within the County be disposed in the County's solid waste disposal and resource recovery system (with certain exception for wastes such as hazardous materials or recyclable waste)
- **Licensing of Private Sector Haulers** – residential curbside collection and commercial dumpster collection is provided as an "open market" system whereby individual residents, Homeowners Associations (HOAs), Community Development Districts (CDDs), and commercial businesses are free to contract with any hauler licensed to do business in the County. Minimum service standards for licensed haulers are established in Section 90-63 of the Pasco County Code of Ordinances. A list of the current licensed haulers is provided below:
    - Waste Connections
    - County Sanitation & Recycling
    - All Haul
    - J.D. Parker & Sons (Waste Pro)
    - Republic
    - Waste Aid
    - Waste Management of Pasco
    - City of Zephyrhills

- **Construction and Demolition Debris** - Residents and businesses within the unincorporated area of Pasco County may contract with permitted roll-off haulers to properly dispose of construction and demolition debris. In addition to the C&D Landfill owned and operated by Pasco County, private sector C&D landfills exist within the County.

- **Interlocal Agreements -** Interlocal agreements are executed with nearby municipal partners that wish to have Pasco County provide solid waste disposal and recycling services. At the present time, an Interlocal Agreement is in effect between Pasco County and Hernando County. Pasco County has entered into discussions with Hillsborough County and Pinellas County to establish Interlocal Agreements with them.

## 2.4 Solid Waste System Components

Pasco County has built an Integrated Solid Waste Management System of facilities and programs that combine solid waste collection, recycling, converting waste to energy through combustion, and landfilling to manage the MSW and accomplish its material separation goals. Pasco County's System includes the following facilities:

- Pasco County Resource Recovery Facility
- A Class I Ash Disposal Landfill
- A Class I MSW Disposal Landfill
- A Class III C&D Disposal Landfill
- A Household Hazardous Waste Facility
- A Waste Tire Processing Operation
- A Yard Waste Processing Operation
- A Solid Waste Transfer Station
- A Recyclable Materials Transfer Station
- Two Citizen Drop-Off Facilities
- A Regional Wastewater Residuals (sludge/biosolids) Fertilizer Production Facility

### 2.4.1 Solid Waste Disposal

The Pasco County Resource Recovery Facility serves as the cornerstone of the County's Integrated Solid Waste Management System. The Facility processes 1,050 tons per day of municipal solid waste and has served the County's primary disposal needs since 1991. The Facility is operated by Covanta Pasco, Inc. under a Service Agreement contract in effect through 2024.

The Facility is a component of the County's West Pasco Solid Waste campus located at 14230 Hays Road in Spring Hill. Other facilities/operations at the West Pasco Campus include Class I (MSW) and Class III (C&D) Landfills, a Class I Ash Monofill, Used Tire and Wood Waste Receiving and Processing operations, a large Citizen's Drop-Off Facility, Household Hazardous Waste and E-waste Drop Off and Recycling Center, and a Recycled Materials Transfer Station.

To increase the efficiency of receiving waste for disposal at the West Pasco campus, the County also operates the East Pasco Transfer Station and Citizen Drop-Off Center off of Handcart Road south of Dade City. The East Pasco Transfer Station (which is currently being expanded) receives waste predominantly from households and business located east of Interstate 75. Collection trucks and self-haulers unload waste at the Transfer Station, and the waste is then hauled to the West Pasco campus for disposal. The East Pasco Transfer Station also serves as a convenient by-pass mechanism for periods when the Resource Recovery Facility is operating at reduced capacity (such as during times of Facility maintenance). During such times, waste received from the east side of the County can easily and efficiently be transported to out-of-county disposal locations. Because the County's comprehensive growth plan discourages landfilling of waste, such out-of-county transfers of waste are intentionally limited. **Figure 2-2** depicts the historical trend of waste disposal in Pasco County.

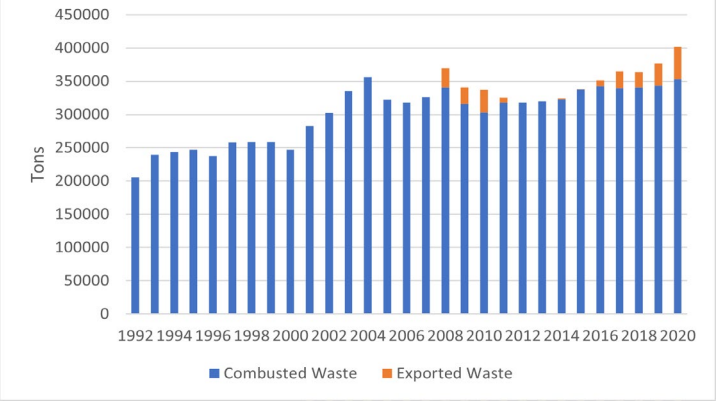



*Figure 2-2*
*Historical Disposal Rates*

### 2.4.2 Solid Waste Collection

Pasco County utilizes an open-market for residential curbside collection services. Collection is accomplished through a non-compulsory subscription between individual residents, Homeowner's Associations (HOAs) or Community Development Districts (CDDs) and any hauler licensed to do business in Pasco County. The residents pay either the licensed hauler directly or they pay their HOA or CDD, which then pays the hauler on their behalf. To obtain a license, each hauler must abide by certain service standards established by County Ordinance, such as collection frequency, providing recyclable waste collection, and a maximum fee for service. Residents and businesses that do not subscribe to a curbside collection service with one of the licensed haulers may obtain dumpster service from one of the haulers or self-haul to either of the County's Citizen Drop-off Centers.

### 2.4.3 Recyclable Material Collection and Management

Pasco County has maintained a Recycling Program since 1992. The County currently offers recycling for aluminum and metal food cans, mixed paper, cardboard, and plastic containers #1, 2, 3, 4, 5, and 7. These items are collected both curbside and at several drop-off sites throughout the County. Single stream recycling is picked up by licensed haulers and brought to the Transfer Station at the West Pasco Campus before being shipped to an out-of-county, private-sector Material Recovery Facility for recycling separation and, ultimately, remanufacturing.

The residential curbside recycling program has undergone several improvements over the last two years. Through updates to the relevant ordinance in June of 2019, recycling pickups have increased from twice-a-month to once-a-week as a part of minimum service standards for trash haulers. This update to the ordinance also mandated recycling carts be provided by trash haulers to residents upon request. Further, the updated ordinance removed glass from the list of materials that are accepted for recycling. This change was made to reduce the amount of contamination (broken glass) in the County's recyclable materials. This change will enhance the value of the County's recyclables and thus ensure a robust end-market for those recyclables. In addition to a growing curbside recycling program, Pasco County requires that local trash haulers provide commercial recycling to businesses and multi-family complexes upon request, as per a 2020 revision of the Solid Waste Ordinance.

Pasco County recognizes the importance of recycling materials beyond traditional curbside recycling. To that end, the Pasco County Household Hazardous Waste recycling program is responsible for receiving and recycling over 300 tons of materials each year, including batteries, lightbulbs, antifreeze, motor oil, and electronics. Furthermore, the West Pasco Solid Waste Campus mulches over 3,000 tons of yard waste pear year for use on site and as landfill cover. The Resource Recovery Facility also recovers both ferrous and non-ferrous metals for recycling. In 2019, 9,948 tons of ferrous and 1,126 tons of non-ferrous metals were recycled from the WTE facility. Several thousand tons of ash residue from the Resource Recovery Facility are used for beneficial purposes each year. For example, the ash residue is used as an aggregate in cement production and as road base material. In both cases, the ash residue is used as a substitute for mined limerock.

The private recycling sector of Pasco is also robust. A major construction and demolition debris recycler (PAW Materials) is based in Pasco County and in 2019 recycled 190,556 tons of concrete, yard waste, and metals. The company anticipates opening a second location in Pasco, which will only enhance the County's overall recycling rate. Coastal Landfill, another private business based in Pasco, recycled 63,390 tons of concrete, yard waste, and metals in 2019. Finally, approximately 100,000 tons of traditional

recycling generated by Pasco's businesses, from grocery stores to smaller scrap metal dealers, was accounted for in 2019.

## 2.5 Solid Waste and Recyclable Materials Quantities

The Florida Legislature, through the Energy, Climate Change and Economic Security Act of 2008, established a statewide weight-based recycling goal of 75% by 2020. The Act instituted the 75% recycling goal, directed the Florida Department of Environmental Protection (DEP) to establish a reporting protocol and directed counties to report annually. The Legislature also established interim recycling goals of 40% by 2012, 50% by 2014, 60% by 2016 and 70% by 2018.

Pasco County encourages the conservation of resources by diverting materials from disposal through recovery, recycling, reuse, and reduction and is committed to achieving the goals of Energy, Climate Change and Economic Security Act. The County's recycling program has been recognized for excellence by associations such as Sustainable Florida. The County has consistently ranked within the top 10 of all Florida counties for its recycling rate.

**Figure 2-3** presents Pasco County's historical recycling rate since 2012, as determined in compliance with the DEP's reporting protocol. Pasco County has consistently achieved a recycling rate in excess of 50% since 2012 and is poised to increase that rate through two measures within the DEP's reporting protocol – *recovery* and *reuse*. Expansion of the Resource Recovery Facility will reduce the practice of landfilling waste during periods when the Facility is operating at capacity. It also will increase the amount energy recovered from waste generated in Pasco County. Simultaneously, reuse of the resulting ash residue as an engineered aggregate will reduce the practice of landfilling waste.

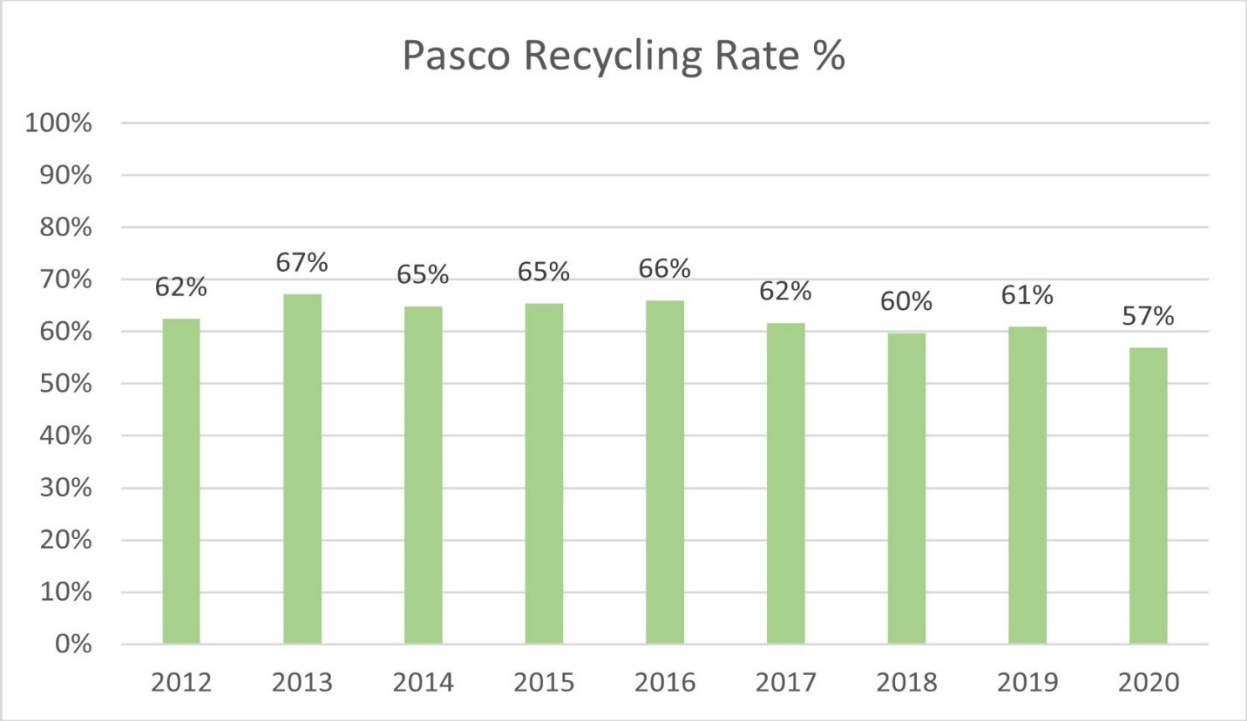



*Figure 2-3*
*Pasco County Recycling Rate*

# 3.0 Materials Separation Plan

Pasco County has identified a number of policies and goals to assist in the effective implementation of its material separation and recycling system. These policies are incorporated into the County's Comprehensive Planning and Growth Management Plan (commonly referred to as the "Comp Plan"). The following is a summary of the most significant parts of the County's Comp Plan that provide for the successful implementation of the materials separation plan.

- **Integrated Solid Waste Management**

  **Policy** - Utilize the principles of Integrated Solid Waste Management (as defined by the United States Environmental Protection Agency) to conserve landfill capacity, while recovering energy and material resources from the solid waste stream through a well planned and operated system using source reduction, recycling, composting, combustion and landfilling.

- **Recycling**

  **Policy** - Provide programs and facilities to recover recyclable materials from the solid waste stream within the County. Recycling programs include materials which may be effectively recovered and marketed as commodities.

- **Combustion**

  **Policy** - Utilize combustion, with the recovery of energy, to manage those portions of the solid waste stream which cannot be efficiently managed through waste reduction or recycling.

- **Reuse**

  **Policy** – Beneficially utilize combustion residue as an FDEP-approved roadway construction material in lieu of placing the material in a landfill.

- **Landfill**

  **Policy** - Utilize landfill disposal for the wastes and residues remaining after applying waste reduction, recycling, combustion technologies to the waste stream.

- **Special Wastes**

  **Policy** - Implement special waste management programs for those wastes identified as special wastes, and also for any wastes managed by the County which require testing, documentation or special handling to assure operational compliance and worker safety (such as biological wastes).

- **Hazardous Wastes**

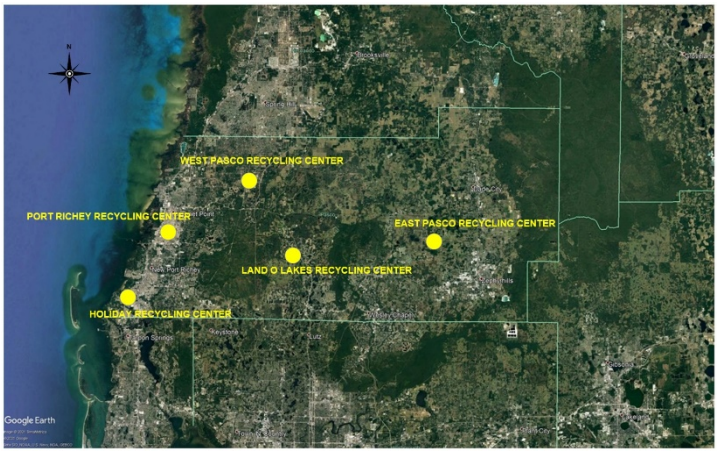
  **Policy** - Encourage the proper and responsible management of hazardous wastes within the County. To the maximum extent practicable, the potential for the improper introduction of hazardous wastes into the environmental shall be minimized.

## 3.1 Materials Separation Plan Components/Programs

### 3.1.1 Residential Recycling Program

Pasco County utilizes an open-market system for residential recycling. The Residential Curbside Recycling Program is available to single-family residential units or multifamily units being serviced as a single-family. The service is provided not by the County, but by the private sector waste haulers that are licensed to operate in Pasco County. A condition of receiving a license to operate as a waste hauler in Pasco County is that once per week curbside recycling collection must be provided. In addition to the curbside recycling program of the licensed haulers, Pasco County operates several drop off centers for citizens and businesses that choose to self haul.

Mixed recycled materials that are collected by the licensed haulers and at the drop off centers are transported to the County's Recycling Transfer Station located at the Resource Recovery Facility. The 14,000 square foot facility transfers the recycled materials to a privately owned and operated Materials Recovery Facility located in Pinellas County.




### 3.1.2 Ferrous and Non-Ferrous Metal Processing Program

The Ferrous Processing operation recovers ferrous metals (such as metal cans) and non-ferrous metals (such as aluminum) from the combustion residue at the Recovery Facility. The metals are stockpiled within the Residue Storage Building of the Resource Recovery Facility until a sufficient amount has accumulated for export. The ferrous metal is screened with a trommel at the ash monofill to reduce the amount of ash contamination, then sold to steel mills out of state. The non-ferrous metal is also sold to metals processors out of state.

In 2020, more than 11,000 tons of ferrous and non-ferrous metals were collected and

separated by Pasco County. The vast majority of those metals present in the waste stream were recycled, instead of being buried in the landfill.

### 3.1.3 Construction and Demolition Debris Recycling in Pasco County

There are two private sector entities that offer recycling of construction and demolition debris in Pasco County. PAW Materials, located in Odessa, accepts Construction & Demolition (C&D) debris and processes it into materials such as concrete rip rap and pipe bedding material. Similarly, Angelo's Recycled Materials, located near Dade City, produces recycled C&D materials such as aggregates and recycled asphalt.

### 3.1.4 Yard Waste Recycling Program

Horticultural or yard waste includes vegetative materials resulting from landscaping maintenance or land clearing operations, and includes grass clippings, palm fronds, tree and shrub trimmings, trees and tree stumps. The County accepts these materials at the West Pasco campus and stockpiles them until a sufficient quantity has accumulated to be shredded. The shredded material is utilized in County parks and offered at no chanrge to the public.

### 3.1.5 Household Hazardous Waste Program

Pasco County accepts Household Hazardous Waste (HHW) at the Citizen Drop Off Centers located at the East Pasco campus and the West Pasco campus. The West Pasco Citizen Drop Off Center is located at 14606 Hays Road, adjacent to the Class III Landfill. HHW is accepted Tuesday, Thursday and Saturday from 8:00 am to 4:00 pm. The East Pasco Citizen Drop Off Center is located at 9626 Handcart Road, adjacent to the Transfer Station. HHW is accepted at the East Pasco site every Wednesday and the second Saturday of each month, from 8:00 am to 4:00 pm.

Household Hazardous Waste includes, but is not limited to, ordinary household cleaning chemicals, fertilizers, pesticides, paint thinner, paint remover, fluorescent bulbs, household batteries, vehicle batteries, pool chemicals and vehicle fluids.

### 3.1.6 Waste Tire Program

Waste tires are accepted from citizens at the West Pasco campus. The tires are stockpiled under the authority of an FDEP-issued Waste Tire Permit until a sufficient quantity has been accumulated. The tires are then transported to the private Angelo's Class III Landfill near Dade City for shredding and disposal and/or beneficial use such as landfill cover.

### 3.1.7 Disaster Debris Management Program

The County maintains six separate locations for managing debris generated by natural disasters such as hurricanes and tropical storms. The locations are strategically located throughout the County so as to provide the public and disaster cleanup contractors with a nearby location to stage waste before it is moved to an appropriate disposal location.

### 3.1.8 Whites Goods Recycling Program

The County accepts white goods (such as refrigerators, washing machines, and household appliances) at the West Pasco campus. Refrigerants are evacuated from appliances that contain them and shipped off site for recovery or proper destruction. The scrap metal is

then sold to third party vendors for recycling.

### 3.1.9 Beneficial Utilization of Combustion Ash

In 2014, the Florida Department of Environmental Protection granted a standing authorization to Pasco County to beneficially utilize combustion ash as a construction material under limited conditions. To date, the County has utilized the ash as a limerock replacement on various roadway projects and is continuing to identify candidate projects for use of the material. In addition to road way uses, the County is exploring additional beneficial uses that will extend the life of the landfill by diverting ash from it.

# APPENDIX A

# LANDFILL DEPLETION MODEL

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# Pasco County Utilities

## Remaining Disposal Capacity and Site Life Calculations
## Pasco County Resource Recovery Facility

## Reporting Year 2020

February 2021

Prepared For:

Pasco County Utilities

Prepared By:

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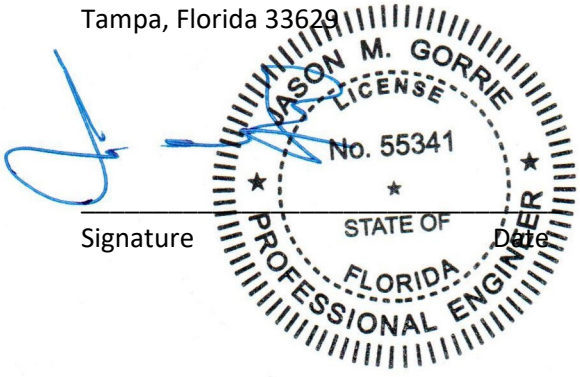



Signature Date

# 1.0 Purpose of Report

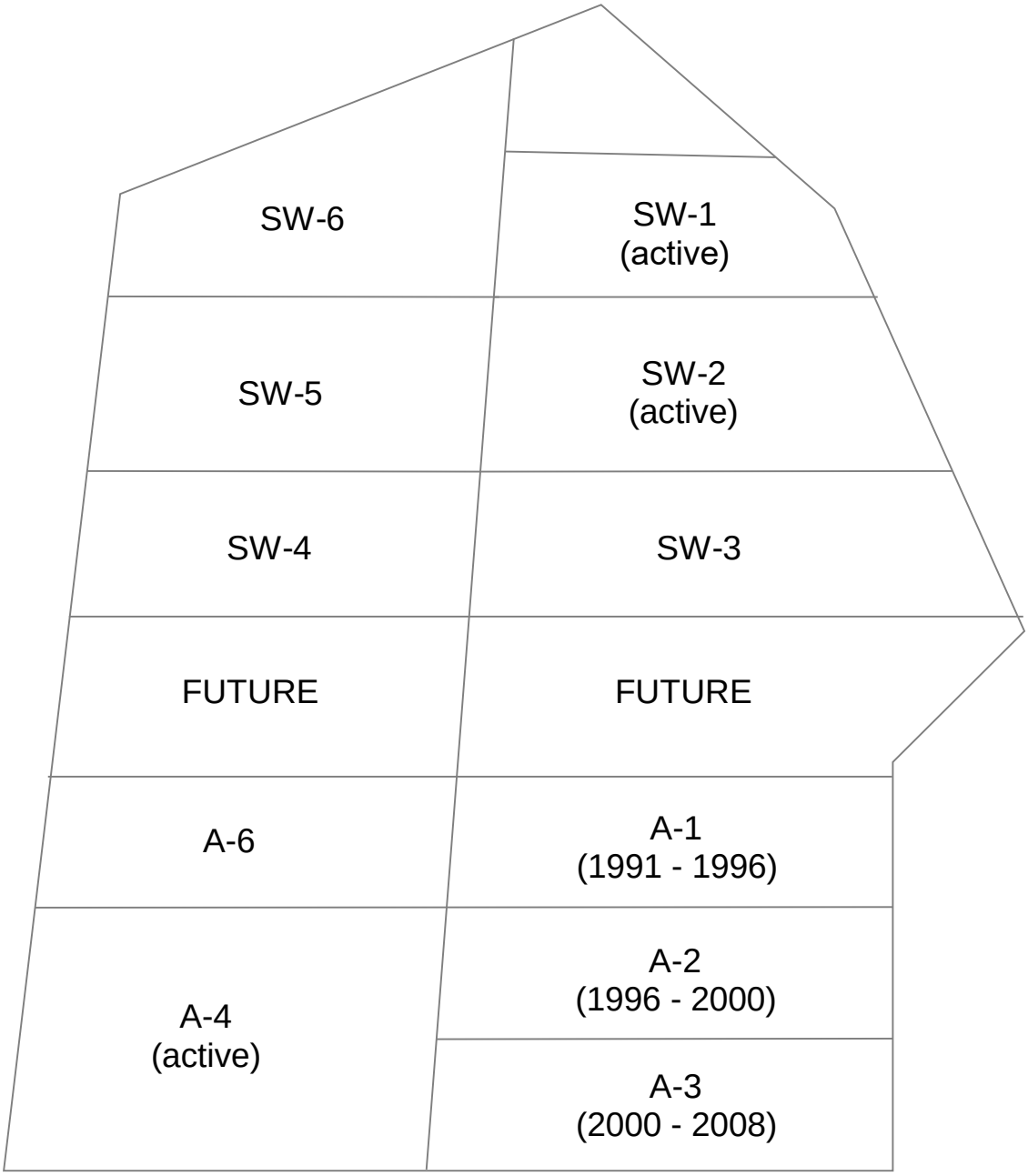
Rule 62-701.500(13)(c) of the Florida Administrative Code (FAC) requires landfill owners and operators to annually prepare an estimate of the remaining life and capacity (in cubic yards) of the existing, constructed landfill and an annual estimate of the life and capacity of other permitted areas not yet constructed. For the purposes of this Report, the "existing, constructed landfill" is considered to be the currently active portions of the site designated as A-4 (for combustion ash) and SW-1/SW-2 (for unprocessed municipal solid waste.) The remaining useful life of disposal cell A-4 is presented in **Section 3.0**. The remaining useful life of disposal cell SW-1/SW-2 is presented in **Section 4.0**. Finally, the remaining useful life of future disposal cells permitted by Power Plant Siting Act Conditions of Certification PA 87-23C are presented in **Section 5**.

# 2.0 Assumptions Used in Report

- The primary disposal mechanism for municipal solid waste generated within Pasco County is the Pasco County Resource Recovery Facility. The Resource Recovery Facility is permitted to combust approximately 1,050 tons per day of municipal solid waste. Residue from the combustion of the municipal solid waste (hereinafter referred to as "ash") is disposed in those areas identified in **Figure 1** as "Ash Disposal Cells." As of the writing of this Report, disposal cells A-1, A-2, and A-3 are temporarily inactive and not receiving ash. While these cells are not currently receiving ash and are temporarily capped with a tarp to minimize leachate generation, they are still available for additional disposal in the future. Disposal cell A-4 is the currently active disposal cell for ash residue and receives all ash generated by the Resource Recovery Facility[1].

- The actual mass value of waste that can be processed by the Resource Recovery Facility is variable due to the heating value of the waste. Drier waste and waste containing larger amounts of plastics has a higher heating value, resulting in less mass throughput through the Resource Recovery Facility. Wetter waste and waste containing less plastics has a lower heating value, resulting in more mass throughput through the Resource Recovery Facility. The heating value of the waste (measured in British thermal units per pound of waste, or Btu/lb) has been observed to be gradually increasing over the course of several years, resulting in a slightly lower mass throughput capability of the Resource Recovery Facility. For purposes of this Report, it is assumed that the annual solid waste mass throughput capacity of the Resource Recovery Facility will remain at 1,050 tons per day for the foreseeable future. Assuming no changes in facility availability, the Resource Recovery Facility is capable of processing approximately 331,000 tons per years given the 1,050 tons per day design capacity, 90% availability and a standard higher heating value of 4,800 Btu per pound. (CDM Smith, 2015)

[1] The Florida Department of Environmental Protection has authorized Pasco County to beneficially utilize a significant portion of the ash generated by the Resource Recovery Facility. For purposes of this Report, it is conservatively assumed that all ash will be placed in the Ash Disposal Cells and not beneficially utilized. It should be noted that future beneficial reuse projects undertaken in accordance with the FDEP's approval could substantially reduce the amount of ash placed in the Ash Disposal Cells in future years.




LEGEND

A-x Ash Disposal Cells
SW-x Solid Waste Disposal Cells

JMG ENGINEERING INC

**FIGURE 1**

Class I Landfill Footprint

2019 Useful Life
Estimate Pasco County
Class I Landfill

- The quantity of ash generated by the combustion process at the Resource Recovery Facility is relatively consistent at 23% (by mass) of the municipal solid waste combusted. (Pasco County Utilities, 2018) Previous studies by Covanta and others have demonstrated that the density of the ash is also relatively consistent over protracted periods at 2,200 pounds per cubic yard. Municipal solid waste that is bypassed from the Resource Recovery Facility and placed in the solid waste disposal cells is assumed to have a compacted density of approximately 1,100 pounds per cubic yard.

- It is widely recognized that the population of Pasco County is growing. Future waste generation rates were estimated in 2015 based on population projections generated by the University of Florida's Bureau of Economic and Business Research. These numbers are relied upon in this Report and presented in Table 1.

- The projections presented in this Report rely on multiple assumptions (such as population growth, WTE Facility combustion efficiency, landfill operation efficiency, planned future combustion capacity, etc.) The predicted dates are considered to be accurate to ± 3 years.

### 2.1 Permitted Disposal Capacity

Construction and operation of the disposal cells at the site is governed by Power Plant Siting Act Conditions of Certification PA87-23C. The permitted maximum elevation of the currently active Ash Disposal Cell (A-4) is 120 feet NGVD. In 2015, CDM-Smith estimated the total volume available for disposal in cell A-4 to be 1,254,269 cubic yards (CDM-Smith, 2015).

In February of 2020, the FDEP approved a modification to the Landfill Operations Plan that allows for a new fill sequence that combines existing disposal cells SW-1 and SW-2 into a common disposal cell. The modification also increased the maximum elevation of the combined cell from 101 feet NGVD to 121 feet NGVD. This new fill sequence and maximum permitted height result in an estimated total volume available for disposal of approximately 1.6 million cubic yards.

## 3.0 Useful Remaining Life of Cell A-4

The currently permitted capacity of Ash Disposal Cell A-4 is considered to be 1,254,269 cubic yards. As of January 2021, all six subcells are considered to be "active", however, only subcells 4 and 5 are receiving ash for disposal. Subcell 6 is being utilized for ash and metals processing only. In order to estimate the current volume of waste in place in Cell A-4, D.C. Johnson Associates conducted a topographic survey of the active cell in December 2020. The elevation contours of the A4 disposal cell are depicted at **Attachment 1**.

Using the elevations reported on the topographic survey in conjunction with the known elevations of the liner system, it is possible to estimate the volume of ash in place in cell A-4. Mathematically, the volume under a function is defined by the double integral:

$$\int_{x-min}^{x-max} \int_{y-min}^{y-max} f(x,y)dx\,dy$$

To determine the function f(x, y) defining the shape of the landfill surfaces, JMG Engineering relied upon the volume calculation algorithms of the surface mapping software program Surfer® 13. The total volume of ash calculated to be currently in place in A-4 is approximately 500,948 cubic yards.

Given the permitted volumetric capacity of 1,254,269 cubic yards and subtracting the 527,702 cubic yards calculated from the 2020 survey to be currently in place, approximately 726,567 cubic yards of airspace remains available for disposal. Municipal waste combustor ash has an approximate density of 2,200 pounds per cubic yard. Using the assumed density, the 726,567 remaining cubic yards can accommodate approximately 799,224 tons of ash.

**Table 1** below shows the projected ash generation rate as a function of anticipated Resource Recovery Facility capacity. Because the waste-to-energy facility is currently operating at its maximum capacity, no changes in the ash generation rate are expected in the immediate future. However, it is anticipated that the planned Facility expansion will be complete by the year 2026 and will result in an increased ash generation rate of approximately 87,000 cubic yards beginning in Calendar Year 2027. As shown in Table 1, this increased ash generation rate **will consume the remaining available airspace of A4 by approximately 2029.**

## 4.0 Useful Remaining Life of Cell SW-2

The calculation procedures used to estimate the remaining useful life for disposal cell SW-1/SW-2 are identical to those described above for disposal cell A-4. Utilizing the surveyed elevations provided by Pasco County Engineering Services Department (see **Attachment 2**), the Surfer 13® algorithms determined that the volume of solid waste present in SW-1/SW-2 at the beginning of the fiscal year is approximately 790,780 cubic yards (see **Attachment 4**).

The new permitted volumetric capacity of SW-1/SW-2 is assumed to be 1.6 million cubic yards (see **Attachment 6**). Subtracting the 790,780 cubic yards calculated to be currently in place, approximately 809,220 cubic yards of airspace remains available for disposal.

The intent of the solid waste cells (inclusive of SW-1/SW-2) as stated in the original application for Power Plant Siting Certification is to accommodate solid waste deliveries in excess of the Resource Recovery Facility's capacity. As stated previously, the Resource Recovery Facility is operating at capacity. This necessitates periodic (and temporary) diversions during times when the Resource Recovery Facility must operate at reduced capacity to facilitate maintenance activities. The rate of waste placement in SW-1/SW-2 is also heavily dependent upon year-to-year budget decisions about the amount of waste to haul out of County for disposal.

**Table 1** below shows the projected waste diversion volume as a function of anticipated Resource Recovery Facility capacity and future population growth[2]. Using an assumed density of 1,100 pounds per cubic yard for municipal solid waste compacted in-place (USEPA, 2016), and further assuming that daily cover equivalent to 15% (by volume) per year will be utilized, it is estimated that remaining airspace will be consumed at the rate identified in Table 1. Accordingly, **the estimated remaining useful life of cell**

[2] The diversion rates listed in Table 1 are conservative. The actual diversion rate is expected to be less than that presented in Table 1 because the Resource Recovery Facility has demonstrated an ability to process waste in excess of the 331,000 tons per year listed in the 2015 Solid Waste Master Plan.

**SW-1/SW-2 (as currently designed and permitted) is at least 10 years using a combination of exporting waste out-of-county and disposal in SW-1/SW-2[3].**

## 5.0 Useful Remaining Life of Future Disposal Cells

As shown in Figure 1, several acres of permitted disposal space remain available for future use by the County. At present, liner and leachate collection systems have been constructed for the following disposal cells: SW-1, SW-2, A-1, A-2, A-3, and A-4. Because these lined cells are adjacent to each other, it is possible to maximize the airspace over existing lined areas by utilizing the interstitial space (or valley) between the existing cells. Such a practice will delay the need for construction of additional liner and leachate collection systems.

Finally, those cells identified in Figure 1 as SW-3, SW-4, SW-5, and SW-6 are sited and permitted as disposal areas but are yet to be constructed. Assuming that the ultimate capacity of these yet-to-be constructed cells will have an approximate capacity of 750,000 cubic yards each[4], an additional 3 million cubic yards of disposal volume for MSW remains available to Pasco County. This equates to roughly 13 years of disposal capacity at the reasonably foreseeable MSW disposal rates anticipated in the future, as depicted in **Table 2**. Use of these permitted cells for disposal of ash (rather than uncombusted MSW) from the Resource Recovery Facility) will prolong the remaining useful life even further.

[3] Rapid population growth has necessitated increased reliance on out-of-county hauling. It is assumed that out-of-county hauling will continue to be heavily relied upon until the waste-to-energy expansion is completed in 2025.
[4] It is assumed that landfill operators will be able to achieve greater compaction efficiencies and lower daily cover application rates if it becomes necessary to operate the solid waste disposal cells in a permanent (rather than intermittent) fashion, resulting in a larger disposal capacity than is currently achieved in SW-1/SW-2.

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**Table 1**

**Estimated Waste Generation Rates, Waste Disposal Rates, and Remaining Disposal Capacity**

| | Resource Recovery Facility | | | A-4 Disposal Cell | | | SW-1/SW-2 Disposal Cell | | | | | Hauled Out-of County | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fiscal Year (Oct - Sep) | Projected Total Waste Received[1] (tons) | Estimated Waste Processed[1a] (tons) | Estimated Ash Generation Rate (tons) | (yds$^3$)[5] | Estimated Ash In Place at Beginning of Fiscal Year (yds$^3$) | Estimated Waste Placement Rate (yds$^3$) | Estimated Remaining Disposal Capacity at End of Fiscal Year[3] (yds$^3$) | Estimated Waste In Place at Beginning of Fiscal Year[9] (yds$^3$) | Estimated Waste Placement Rate (tons) | Estimated Waste Placement Rate (yds$^3$)[6] | Estimated Daily Cover Application Rate (yds$^3$) | Estimated Remaining Disposal Capacity at End of Fiscal Year[4] (yds$^3$) | Estimated Waste Transferred[8] (tons) | Estimated Waste Transferred (yds$^3$)[2] |
| 2018[7] | 378,733 | 341,122 | 85,875 | 78,068 | 346,700 | 78,068 | 836,000 | 219,261 | 15,093 | 27,442 | 4,116 | 403,000 | 22,518 | 150,120 |
| 2019[7a] | 386,807 | 342,994 | 83,477 | 75,889 | 418,000 | 75,889 | 760,380 | 250,819 | 10,306 | 18,738 | 2,811 | 381,451 | 33,507 | 223,380 |
| 2020[7b] | 411,616 | 352,875 | 81,161 | 73,783 | 500,948 | 73,783 | 726,567 | 768,591 | 9,639 | 17,525 | 2,629 | 809,220 | 49,102 | 327,347 |
| 2021 | 450,000 | 331,000 | 76,130 | 69,209 | 527,702 | 69,209 | 657,358 | 790,780 | 24,000 | 43,636 | 6,545 | 740,598 | 95,000 | 633,333 |
| 2022 | 460,000 | 331,000 | 76,130 | 69,209 | 596,911 | 69,209 | 588,149 | 840,962 | 29,000 | 52,727 | 7,909 | 679,962 | 100,000 | 666,667 |
| 2023 | 475,000 | 331,000 | 76,130 | 69,209 | 666,120 | 69,209 | 518,940 | 901,598 | 44,000 | 80,000 | 12,000 | 587,962 | 100,000 | 666,667 |
| 2024 | 485,000 | 331,000 | 76,130 | 69,209 | 735,329 | 69,209 | 449,731 | 993,598 | 54,000 | 98,182 | 14,727 | 475,053 | 100,000 | 666,667 |
| 2025 | 495,000 | 331,000 | 76,130 | 69,209 | 804,538 | 69,209 | 380,522 | 1,106,507 | 64,000 | 116,364 | 17,455 | 341,235 | 100,000 | 666,667 |
| 2026 | 505,000 | 331,000 | 76,130 | 69,209 | 873,747 | 69,209 | 311,312 | 1,240,325 | 74,000 | 134,545 | 20,182 | 186,507 | 100,000 | 666,667 |
| 2027 | 515,000 | 515,000 | 118,450 | 107,682 | 942,957 | 107,682 | 203,631 | 1,395,053 | 0 | 0 | 0 | 186,507 | 0 | 0 |
| 2028 | 525,000 | 520,000 | 119,600 | 108,727 | 1,050,638 | 108,727 | 94,903 | 1,395,053 | 5,000 | 9,091 | 1,364 | 176,053 | 0 | 0 |
| 2029 | 530,000 | 520,000 | 119,600 | 108,727 | 1,159,366 | 47,874 | 47,029 | 1,405,507 | 10,000 | 18,182 | 2,727 | 155,144 | 0 | 0 |
| 2030 | 545,000 | 520,000 | 119,600 | 108,727 | | | | 1,426,416 | 25,000 | 45,455 | 6,818 | 102,871 | 0 | 0 |
| 2031 | 550,000 | 520,000 | 119,600 | 108,727 | | | | 1,478,689 | 30,000 | 54,545 | 8,182 | 40,144 | 0 | 0 |

[1] Source: Integrated Solid Waste Management System Master Plan Update, Figure 3-2, CDM-Smith,2019, except where noted

[1a] Source: Integrated Solid Waste Management System Master Plan Update, Section 3, CDM-Smith,2019

[2] assume density of uncompacted mixed MSW to be 300 lbs/cu. yd

[3] assume total capacity of A4 is 1,254,269 cu. yds.

[4] assume total capacity of SW1/SW2 is 900,000 cu. yds. prior to 2020, 1.6 million after 2020 (following FDEP Modification)

[5] assume density of ash to be 2,200 lbs/cu. yd.

[6] assume density of compacted mixed MSW to be 1,100 lbs/cu. yd.

[7] 2018 Values are actual values as reported by Pasco County, 1/17/19 Memorandum from J. Chamberlain to M. Carballa

[7a] 2019 Values are actual values as reported by Pasco County, 1/24/20 Memorandum from T. Treshler to M. Carballa

[7b] 2020 Values are actual values as reported by Pasco County, 1/29/2021 Memorandum from J. Chamerlain to M. Carballa

[8] Assumes that favorable pricing will result in decision to haul out of county through 2025

[9] pre-2020 values are for SW2 only. 2020 values and beyond are combined SW1 and SW2

**TABLE 2**

**Future Cells SW-3, SW-4, SW-5, and SW-6**

| Year | Projected Total Waste Received[1] (tons) | Estimated Waste Placement Rate[2] (tons) | Estimated Waste Placement Rate ($yds^3$) | Estimated Daily Cover Application Rate ($yds^3$)[6] | Estimated Remaining Disposal Capacity at End of Calendar Year[4] ($yds^3$) |
|---|---|---|---|---|---|
| 2026 | 400,000 | 69,000 | 98,571 | 9,857 | 2,891,571 |
| 2027 | 410,000 | 79,000 | 112,857 | 11,286 | 2,767,429 |
| 2028 | 425,000 | 94,000 | 134,286 | 13,429 | 2,619,714 |
| 2029 | 435,000 | 104,000 | 148,571 | 14,857 | 2,456,286 |
| 2030 | 450,000 | 119,000 | 170,000 | 17,000 | 2,269,286 |
| 2031 | 452,000 | 121,000 | 172,857 | 17,286 | 2,079,143 |
| 2032 | 460,000 | 129,000 | 184,286 | 18,429 | 1,876,429 |
| 2033 | 475,000 | 144,000 | 205,714 | 20,571 | 1,650,143 |
| 2034 | 480,000 | 149,000 | 212,857 | 21,286 | 1,416,000 |
| 2035 | 490,000 | 159,000 | 227,143 | 22,714 | 1,166,143 |
| 2036 | 500,000 | 169,000 | 241,429 | 24,143 | 900,571 |
| 2037 | 510,000 | 179,000 | 255,714 | 25,571 | 619,286 |
| 2038 | 520,000 | 189,000 | 270,000 | 27,000 | 322,286 |
| 2039 | 530,000 | 199,000 | 284,286 | 28,429 | 9,571 |
| 2040 | 530,000 | | | | |
| 2041 | 530,000 | | | | |

[1] Source: Integrated Solid Waste Management System Master Plan, Figure 2-3, CDM-Smith,2015

[2] Projected Total Waste Delivered minus 331,000 tons processed in WTE Facility

## References

CDM Smith. (2015). *Integrated Solid Waste Management System Master Plan.*

CDM-Smith. (2015). *Annual Remaining Disposal Capacity and Site Life Calculations.*

Pasco County Utilities. (2018). *Waste to Energy Tonnage Report.*

USEPA. (2016). *Volume to Weight Conversion Factors, Office of Resource Conservation and Recovery.*

## Attachments

Attachment 1: A-4 Topographic Contours
Attachment 2: SW-2 Topographic Contours
Attachment 3: A-4 Grid Volume Computations
Attachment 4: SW-2 Grid Volume Computations
Attachment 5: Waste Placement Records
Attachment 6: SW-1/SW-2 Grid Volume Calculations at Buildout

# ATTACHMENT 1

# A-4 Contours

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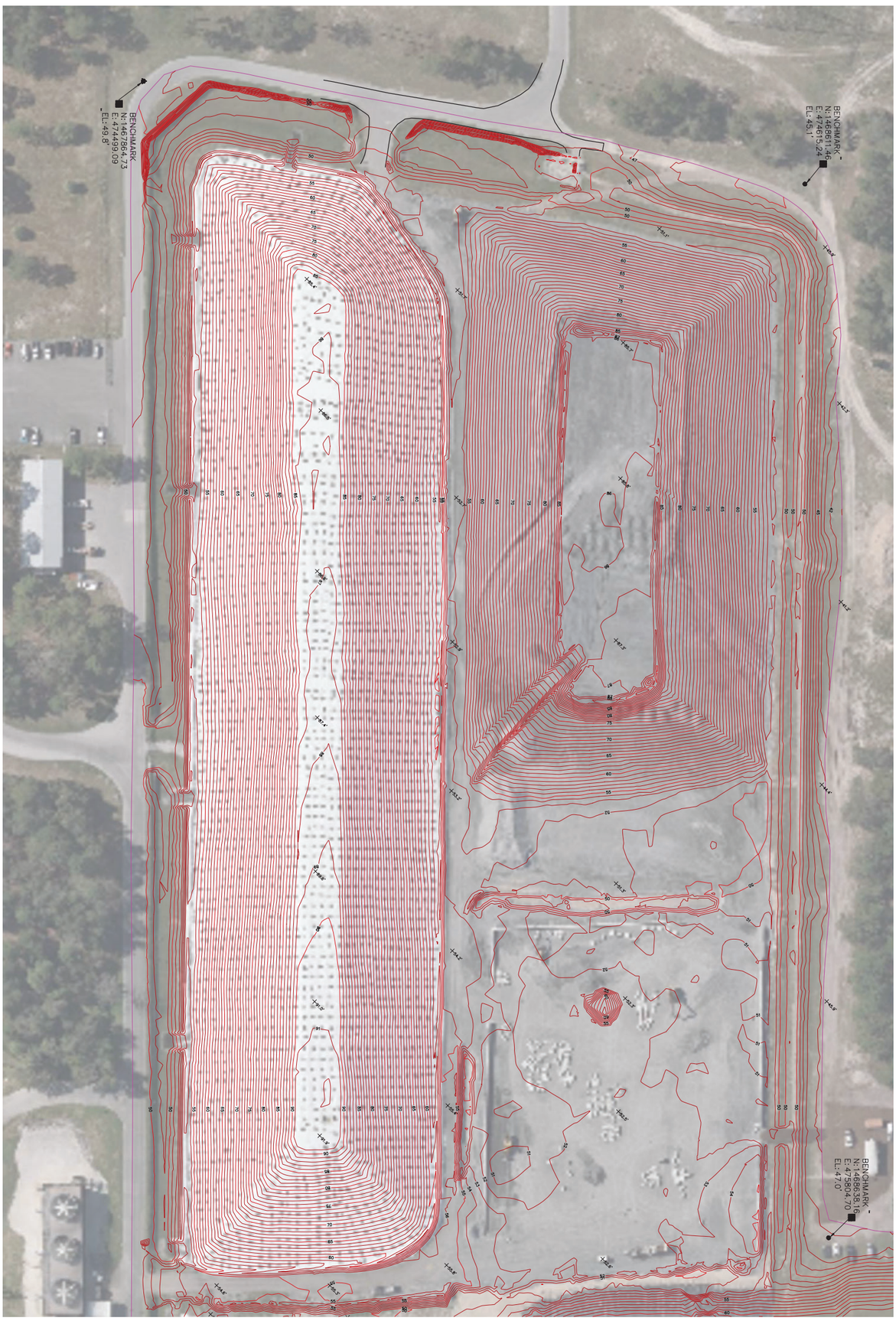


LEGEND

● = 5/8" CAPPED IRON ROD
■ = PERMANENT CONTROL POINT
▲ = VERTICAL CONTROL BENCHMARK
+49.8 = SPOT ELEVATION

SCALE 1" = 60'
0 30 60 120

W S N E

D.C. JOHNSON ASSOCIATES SURVEYING AND MAPPING

SHEET NO: 2 of 4
SCALE: 1" = 60'

Topographic Survey

PREPARED FOR:
Pasco County Solid Waste Department

Pasco Waste, Area 2-A

PROJECT NO: 2019-430A01.BG00002

SEC: 25 | TWP: 24 S | RNG: 17 E | COUNTY: Pasco


D.C. JOHNSON ASSOCIATES
SURVEYING AND MAPPING
Licensed Business No. 4514
11911 S. Curley Street
San Antonio, FL 33576
Phone: (352) 588-2768
Email: survey@dcjohnson.com
www.dcjohnson.com


DATE OF FIELD SURVEY: 12/08/2020

# ATTACHMENT 2
# SW-1/SW-2 Contours

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SHEET NO. 4 of 4

SCALE: 1" = 60'

Topographic Survey

PREPARED FOR:

Pasco County Solid Waste Department

Pasco Waste, Area 3

PROJECT NO: 2019-430A01.BG00002

| SEC: 25 | TWP: 24 S | RNG: 17 E | COUNTY: Pasco |
|---|---|---|---|


DC JOHNSON ASSOCIATES
SURVEYING AND MAPPING
Licensed Business No. 4514
11911 S. Curley Street
San Antonio, FL 33576
Phone: (352) 588-2768
Email: survey@dcjohnson.com
www.dcjohnson.com


DATE OF FIELD SURVEY: 12/08/2020

# ATTACHMENT 3
# A-4 Grid Volume Calculations

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# Grid Volume Computations

Thu Jan 28 09:59:11 2021

## Upper Surface

| | |
|---|---|
| Grid File Name: | C:\Users\jason\OD\Pasco\Compliance Assistance (TO 1-21)\Landfill Useful Life\A4\A4.grd |
| Grid Size: | 100 rows x 56 columns |
| X Minimum: | 1467848.532 |
| X Maximum: | 1469323.447 |
| X Spacing: | 26.816636363637 |
| Y Minimum: | 474481.9094 |
| Y Maximum: | 477118.2186 |
| Y Spacing: | 26.629385858586 |
| Z Minimum: | 46.592538060014 |
| Z Maximum: | 92.101721084065 |

## Lower Surface

Level Surface defined by Z = 48

## Volumes

Z Scale Factor: 1

**Total Volumes by:**

| | |
|---|---|
| Trapezoidal Rule: | 14247974.407198 $ft^3$ = 527,702 $yd^3$ |
| Simpson's Rule: | 14265467.861175 |
| Simpson's 3/8 Rule: | 14238541.784814 |

**Cut & Fill Volumes**

| | |
|---|---|
| Positive Volume [Cut]: | 14249272.220779 |
| Negative Volume [Fill]: | 1297.8135807952 |
| Net Volume [Cut-Fill]: | 14247974.407198 |

## Areas

**Planar Areas**

| | |
|---|---|
| Positive Planar Area [Cut]: | 799092.89514411 |

| | |
|---|---|
| Negative Planar Area [Fill]: | 353.87359279496 |
| Blanked Planar Area: | 3088885.2149812 |
| Total Planar Area: | 3888331.9837181 |

**Surface Areas**

| | |
|---|---|
| Positive Surface Area [Cut]: | 818494.96799657 |
| Negative Surface Area [Fill]: | 359.6395368378 |

# ATTACHMENT 4
# SW-1/SW-2 Grid Volume Calculations

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# Grid Volume Computations

Fri Jan 22 09:03:02 2021

## Upper Surface

Grid File Name: C:\Users\jason\OD\Pasco\Compliance Assistance (TO 1-21)\Landfill Useful Life\SW_1_2\North-DTM-122020_PNEZ.grd
Grid Size: 100 rows x 68 columns

X Minimum: 1470204.206
X Maximum: 1471266.639
X Spacing: 15.857208955223

Y Minimum: 476046.9577
Y Maximum: 477605.5718
Y Spacing: 15.743576767676

Z Minimum: 44.848883161958
Z Maximum: 84.139509551541

## Lower Surface

Level Surface defined by Z = 48

## Volumes

Z Scale Factor: 1

**Total Volumes by:**

Trapezoidal Rule: 21351076.328541 $ft^3$ = 790,781 $yd^3$
Simpson's Rule: 21349009.73972
Simpson's 3/8 Rule: 21357497.993799

**Cut & Fill Volumes**

Positive Volume [Cut]: 21374118.033243
Negative Volume [Fill]: 23041.704702385
Net Volume [Cut-Fill]: 21351076.328541

## Areas

**Planar Areas**

Positive Planar Area [Cut]: 1134613.7606947

| | |
|---|---|
| Negative Planar Area [Fill]: | 16144.164512222 |
| Blanked Planar Area: | 505165.12889821 |
| Total Planar Area: | 1655923.0541052 |

**Surface Areas**

| | |
|---|---|
| Positive Surface Area [Cut]: | 1149765.842992 |
| Negative Surface Area [Fill]: | 16277.120580001 |

# ATTACHMENT 5

# Waste Placement Records

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PASCO COUNTY FLORIDA

**PUBLIC INFRASTRUCTURE BRANCH**
Solid Waste and Resource Recovery

**INTEROFFICE MEMORANDUM**

DATE: January 29, 2021

TO: Michael J. Carballa, P. E., BCEE, Assistant County Administrator (Public Infrastructure)

THRU: Justin Grant, MPA, Fiscal and Business Administration Director

FROM: Joanne Chamberlain, Accountant II

FILE: UT21-0208

SUBJECT: Quarterly Tonnage Report, Waste-to-Energy Facility, December, 2020

REFERENCES:

Attached are the latest monthly totals for Solid Waste and Ash processed at the Pasco County Waste-To-Energy Facility. This report is provided quarterly, but presented by month, with daily averages.

| | Oct | Nov | Dec | |
|---|---|---|---|---|
| Current Quarter's ratio of ash to waste by month: | 23% | 24% | 24% | |
| This Fiscal Year's monthly average ratio ash to waste = | | | | 23% |
| Current Quarter's processable waste by month: | 26,230 | 30,070 | 32,256 | Tons |
| Current Quarter's Recycling totals by month: | 753.21 | 294.21 | 867.60 | ** Tons |

*** as of October 2011, this figure is based on Recycling hauled out*

**FY 2021 WASTE SUMMARY:**

88,557 Tons of MSW delivered to the Waste-to-Energy Facility to date
3,215 Tons Bypassed to SW Cells (Not Included in WTE Report Tonnage)
13,506 Tons Hauled Out of County (Not Included in WTE Tonnage)
105,278 **Total MSW to date for Fiscal Year**

**PAST MSW ACTIVITY:**

| FY 16 | FY 17 | FY 18 | FY 19 | FY 20 | |
|---|---|---|---|---|---|
| 354,273 | 364,947 | 378,733 | 386,807 | 411,616 | *Total MSW for Fiscal Year* |
| 342,645 | 339,615 | 341,122 | 342,994 | 352,875 | *Tons of MSW delivered to the Waste-to-Energy Facility during FY* |
| 3,156 | 0 | 15,093 | 10,306 | 9,639 | *Tons of MSW Bypassed to the SW Cells during FY* |
| 8,472 | 25,333 | 22,518 | 33,507 | 49,102 | *Tons of MSW Hauled out of the County during FY* |

cc: Justin Roessler, P.E., Public Infrastructure, Interim Solid Waste Director
Tim Treshler, Public Infrastructure, Sr. Project Manager Solid Waste
Rachelle Dobbs, Recycling Supervisor

*Mission: Providing our community, customers, and future generations with high quality, efficient, and innovative water, wastewater, and solid waste services*

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct-18 | 24,600.84 | 793.58 | 3,896.68 | 145 | 3,077.07 | 99.26 | 27,677.91 | 892.84 | 0.00 | 0.00 | 27,677.91 | 892.84 | 6,679.64 | 215.47 | 0.24 | 617.46 | 15.54 | 21.67 |
| Nov-18 | 23,792.76 | 793.09 | 237.05 | 326 | 7,013.06 | 233.77 | 30,805.82 | 1,026.86 | 0.00 | 0.00 | 30,805.82 | 1,026.86 | 7,128.17 | 237.61 | 0.23 | 705.13 | 23.55 | 21.75 |
| Dec-18 | 24,223.27 | 781.40 | 0.00 | 341 | 7,461.50 | 240.69 | 31,684.77 | 1,022.09 | 0.00 | 0.00 | 31,684.77 | 1,022.09 | 7,299.03 | 235.45 | 0.23 | 731.47 | 22.85 | 21.71 |
| Jan-19 | 25,700.47 | 829.05 | 3,473.97 | 207 | 4,523.45 | 145.92 | 30,223.92 | 974.97 | 0.00 | 0.00 | 30,223.92 | 974.97 | 7,545.85 | 243.41 | 0.25 | 845.16 | 23.32 | 21.74 |
| Feb-19 | 13,947.11 | 498.11 | 6,189.62 | 45 | 954.93 | 34.10 | 14,902.04 | 532.22 | 0.00 | 0.00 | 14,902.04 | 532.22 | 5,806.39 | 207.37 | 0.39 | 772.80 | 17.15 | 21.32 |
| Mar-19 | 23,558.92 | 759.97 | 3,590.30 | 195 | 4,184.45 | 134.98 | 27,743.37 | 894.95 | 0.00 | 0.00 | 27,743.37 | 894.95 | 4,848.22 | 156.39 | 0.17 | 801.16 | 15.61 | 21.12 |
| Apr-19 | 25,790.72 | 859.69 | 4,571.55 | 155 | 3,379.31 | 112.64 | 29,170.03 | 972.33 | 0.00 | 0.00 | 29,170.03 | 972.33 | 7,467.67 | 248.92 | 0.26 | 746.37 | 23.51 | 21.24 |
| May-19 | 25,337.26 | 817.33 | 1,164.82 | 297 | 6,385.45 | 205.98 | 31,722.71 | 1,023.31 | 0.00 | 0.00 | 31,722.71 | 1,023.31 | 7,565.51 | 244.05 | 0.24 | 753.53 | 22.85 | 21.15 |
| Jun-19 | 23,179.88 | 772.66 | 6,106.18 | 62 | 1,307.23 | 43.57 | 24,487.11 | 816.24 | 0.00 | 0.00 | 24,487.11 | 816.24 | 7,232.09 | 241.07 | 0.30 | 657.88 | 21.38 | 21.20 |
| Jul-19 | 26,746.94 | 862.80 | 2,620.19 | 258 | 5,599.82 | 180.64 | 32,346.76 | 1,043.44 | 0.00 | 0.00 | 32,346.76 | 1,043.44 | 8,233.49 | 265.60 | 0.25 | 630.30 | 23.10 | 21.25 |
| Aug-19 | 25,772.25 | 831.36 | 0.00 | 358 | 7,866.53 | 253.76 | 33,638.78 | 1,085.12 | 0.00 | 0.00 | 33,638.78 | 1,085.12 | 7,882.45 | 254.27 | 0.23 | 655.80 | 24.00 | 21.35 |
| Sep-19 | 23,118.96 | 770.63 | 1,656.47 | 250 | 5,471.99 | 182.40 | 28,590.95 | 953.03 | 0.00 | 0.00 | 28,590.95 | 953.03 | 7,424.42 | 247.48 | 0.26 | 594.08 | 24.00 | 21.41 |
| Total 19 | 285,769.38 | | 33,506.83 | 2,639 | 57,224.79 | | 342,994.17 | | 0.00 | | 342,994.17 | | 85,112.93 | | | 8,511.14 | 256.86 | |
| Average19 | 23,814.12 | 780.81 | 2,792.24 | 220 | 4,768.73 | 155.64 | 28,582.85 | 936.45 | 0.00 | 0.00 | 28,582.85 | 936.45 | 7,092.74 | 233.09 | 0.25 | 709.26 | 21.41 | |
| Oct-19 | 25,083.98 | 809.16 | 5,499.96 | 91 | 2,006.06 | 64.71 | 27,090.04 | 873.87 | 0.00 | 0.00 | 27,090.04 | 873.87 | 6,368.82 | 205.45 | 0.24 | 691.25 | 16.19 | 21.46 |
| Nov-19 | 23,373.85 | 779.13 | 2,083.07 | 231 | 5,238.45 | 174.62 | 28,612.30 | 953.74 | 0.00 | 0.00 | 28,612.30 | 953.74 | 7,892.60 | 263.09 | 0.28 | 627.57 | 23.72 | 21.47 |
| Dec-19 | 26,528.40 | 855.75 | 4,127.65 | 201 | 4,404.19 | 142.07 | 30,932.59 | 997.83 | 0.00 | 0.00 | 30,932.59 | 997.83 | 7,909.93 | 255.16 | 0.26 | 582.16 | 23.59 | 21.54 |
| Jan-20 | 26,052.32 | 840.40 | 6,138.30 | 90 | 1,943.25 | 62.69 | 27,995.57 | 903.08 | 0.00 | 0.00 | 27,995.57 | 903.08 | 7,859.24 | 253.52 | 0.28 | 774.90 | 23.50 | 21.55 |
| Feb-20 | 24,525.08 | 845.69 | 5,615.27 | 84 | 1,816.83 | 62.65 | 26,341.91 | 908.34 | 0.00 | 0.00 | 26,341.91 | 908.34 | 7,396.71 | 255.06 | 0.28 | 595.05 | 23.13 | 22.05 |
| Mar-20 | 26,594.43 | 857.88 | 6,151.85 | 97 | 2,142.69 | 69.12 | 28,737.12 | 927.00 | 0.00 | 0.00 | 28,737.12 | 927.00 | 6,131.77 | 197.80 | 0.21 | 433.80 | 16.63 | 22.13 |
| Apr-20 | 26,495.03 | 854.68 | 5,477.19 | 107 | 2,314.56 | 74.66 | 28,809.59 | 929.34 | 0.00 | 0.00 | 28,809.59 | 929.34 | 7,918.16 | 255.42 | 0.27 | 166.63 | 23.73 | 22.15 |
| May-20 | 23,903.90 | 824.27 | 2,792.35 | 231 | 4,947.23 | 170.59 | 28,851.13 | 994.87 | 0.00 | 0.00 | 28,851.13 | 994.87 | 7,532.58 | 259.74 | 0.26 | 0.00 | 23.79 | 22.23 |
| Jun-20 | 22,107.23 | 713.14 | 4,015.32 | 203 | 4,369.26 | 140.94 | 26,476.49 | 854.08 | 0.00 | 0.00 | 26,476.49 | 854.08 | 7,228.25 | 233.17 | 0.27 | 78.10 | 22.89 | 22.36 |
| Jul-20 | 28,114.96 | 906.93 | 2,423.04 | 273 | 5,882.57 | 189.76 | 33,997.53 | 1,096.69 | 0.00 | 0.00 | 33,997.53 | 1,096.69 | 7,467.56 | 240.89 | 0.22 | 745.93 | 22.99 | 22.35 |
| Aug-20 | 29,366.37 | 1,012.63 | 0.00 | 231 | 4,947.23 | 170.59 | 34,313.60 | 1,183.23 | 0.00 | 0.00 | 34,313.60 | 1,183.23 | 7,128.44 | 245.81 | 0.21 | 619.51 | 22.39 | 22.21 |
| Sep-20 | 27,026.56 | 871.82 | 4,777.97 | 170 | 3,690.34 | 119.04 | 30,716.90 | 990.87 | 0.00 | 0.00 | 30,716.90 | 990.87 | 7,460.15 | 240.65 | 0.24 | 732.02 | 22.53 | 22.09 |
| Total 20 | 309,172.11 | | 49,101.97 | 2,009 | 43,702.66 | | 352,874.77 | | 0.00 | | 352,874.77 | | 88,294.21 | | | 6,046.92 | 265.08 | |
| Average20 | 25,764.34 | 847.62 | 4,091.83 | 167 | 3,641.89 | 120.12 | 29,406.23 | 967.75 | 0.00 | 0.00 | 29,406.23 | 967.75 | 7,357.85 | 242.15 | 0.25 | 503.91 | 19.96 | |
| Oct-20 | 23,106.39 | 745.37 | 4,938.54 | 146 | 3,123.85 | 100.77 | 26,230.24 | 846.14 | 0.00 | 0.00 | 26,230.24 | 846.14 | 5,959.95 | 192.26 | 0.23 | 753.21 | 15.11 | 22.00 |
| Nov-20 | 26,360.03 | 878.67 | 4,626.82 | 163 | 3,710.28 | 123.68 | 30,070.31 | 1,002.34 | 0.00 | 0.00 | 30,070.31 | 1,002.34 | 7,117.53 | 237.25 | 0.24 | 294.21 | 23.00 | 21.94 |
| Dec-20 | 27,599.69 | 890.31 | 3,940.92 | 205 | 4,656.68 | 150.22 | 32,256.37 | 1,040.53 | 0.00 | 0.00 | 32,256.37 | 1,040.53 | 7,710.85 | 248.74 | 0.24 | 867.60 | 23.33 | 21.92 |
| Jan-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Feb-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Mar-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Apr-21 | 0.00 | | | | | | | | | | | | | | | | | |
| May-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Jun-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Jul-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Aug-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Sep-21 | 0.00 | | | | | | | | | | | | | | | | | |
| Total 20 | 77,066.11 | | 13,506.28 | 514 | 11,490.81 | | 88,556.92 | | 0.00 | | 88,556.92 | | 20,788.33 | | | 1,915.02 | 61.44 | |
| Average20 | 6,422.18 | 838.12 | 4,502.09 | 171 | 3,830.27 | 124.89 | 29,518.97 | 963.00 | 0.00 | 0.00 | 29,518.97 | 963.00 | 6,929.44 | 226.08 | 0.23 | 638.34 | 19.05 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct-15 | 24,937.97 | 804.45 | 0.00 | 154 | 3,283.94 | 105.93 | 28,221.91 | 910.38 | 0.00 | 0.00 | 28,221.91 | 910.38 | 5,722.23 | 184.59 | 0.20 | 242.49 | 16.36 | 21.56 |
| Nov-15 | 21,212.18 | 707.07 | 0.00 | 289 | 6,119.90 | 204.00 | 27,332.08 | 911.07 | 0.00 | 0.00 | 27,332.08 | 911.07 | 6,211.75 | 207.06 | 0.23 | 277.10 | 20.52 | 21.42 |
| Dec-15 | 23,363.61 | 753.66 | 0.00 | 331 | 7,027.99 | 226.71 | 30,391.60 | 980.37 | 0.00 | 0.00 | 30,391.60 | 980.37 | 6,816.88 | 219.90 | 0.22 | 314.57 | 22.92 | 21.45 |
| Jan-16 | 21,319.66 | 687.73 | 0.00 | 310 | 6,660.51 | 214.86 | 27,980.17 | 902.59 | 0.00 | 0.00 | 27,980.17 | 902.59 | 6,804.52 | 219.50 | 0.24 | 369.65 | 24.08 | 21.50 |
| Feb-16 | 22,431.16 | 773.49 | 1,965.80 | 217 | 4,573.26 | 157.70 | 27,004.42 | 931.19 | 0.00 | 0.00 | 27,004.42 | 931.19 | 7,066.59 | 243.68 | 0.26 | 320.57 | 24.34 | 21.60 |
| Mar-16 | 21,436.39 | 691.50 | 2,519.61 | 227 | 4,944.41 | 159.50 | 26,380.80 | 850.99 | 0.00 | 0.00 | 26,380.80 | 850.99 | 5,035.65 | 162.44 | 0.19 | 338.00 | 16.26 | 21.84 |
| Apr-16 | 23,519.62 | 758.70 | 2,169.59 | 214 | 4,628.04 | 149.29 | 28,147.66 | 907.99 | 0.00 | 0.00 | 28,147.66 | 907.99 | 7,246.98 | 233.77 | 0.26 | 380.67 | 23.93 | 21.86 |
| May-16 | 22,973.64 | 741.09 | 0.00 | 297 | 6,432.42 | 207.50 | 29,406.06 | 948.58 | 0.00 | 0.00 | 29,406.06 | 948.58 | 7,403.66 | 238.83 | 0.25 | 320.36 | 25.13 | 21.97 |
| Jun-16 | 23,128.06 | 770.94 | 0.00 | 294 | 6,339.22 | 211.31 | 29,467.28 | 982.24 | 0.00 | 0.00 | 29,467.28 | 982.24 | 6,755.87 | 225.20 | 0.23 | 310.80 | 23.37 | 22.11 |
| Jul-16 | 22,538.24 | 727.04 | 0.00 | 261 | 5,639.20 | 181.91 | 28,177.44 | 908.95 | 0.00 | 0.00 | 28,177.44 | 908.95 | 7,123.25 | 229.78 | 0.25 | 410.75 | 24.01 | 22.19 |
| Aug-16 | 24,625.37 | 794.37 | 0.00 | 291 | 6,464.41 | 208.53 | 31,089.78 | 1,002.90 | 0.00 | 0.00 | 31,089.78 | 1,002.90 | 7,207.85 | 232.51 | 0.23 | 432.41 | 23.36 | 22.24 |
| Sep-16 | 24,636.62 | 821.22 | 1,816.52 | 202 | 4,409.67 | 146.99 | 29,046.29 | 968.21 | 0.00 | 0.00 | 29,046.29 | 968.21 | 6,535.09 | 217.84 | 0.22 | 491.41 | 23.38 | 22.30 |
| Total 16 | 276,122.52 | | 8,471.52 | 3,087 | 66,522.97 | | 342,645.49 | | 0.00 | | 342,645.49 | | 79,930.32 | | | 4,208.78 | 267.66 | |
| Average16 | 23,010.21 | 752.60 | 705.96 | 257 | 5,543.58 | 181.18 | 28,553.79 | 933.79 | 0.00 | 0.00 | 28,553.79 | 933.79 | 6,660.86 | 217.92 | 0.23 | 350.73 | 22.30 | |
| Oct-16 | 21,923.70 | 707.22 | 2,659.78 | 172 | 3,445.44 | 111.14 | 25,369.14 | 818.36 | 0.00 | 0.00 | 25,369.14 | 818.36 | 4,977.41 | 160.56 | 0.20 | 443.92 | 13.52 | 22.07 |
| Nov-16 | 22,282.13 | 742.74 | 376.12 | 286 | 6,156.94 | 205.23 | 28,439.07 | 947.97 | 0.00 | 0.00 | 28,439.07 | 947.97 | 6,637.72 | 221.26 | 0.23 | 479.86 | 23.37 | 22.31 |
| Dec-16 | 23,348.17 | 777.53 | 0.00 | 297 | 6,432.85 | 214.43 | 29,781.02 | 991.96 | 0.00 | 0.00 | 29,781.02 | 991.96 | 7,376.60 | 245.89 | 0.25 | 613.61 | 24.50 | 22.44 |
| Jan-17 | 23,821.58 | 768.44 | 3,930.89 | 145 | 3,172.49 | 102.34 | 26,994.07 | 870.78 | 0.00 | 0.00 | 26,994.07 | 870.78 | 7,236.77 | 233.44 | 0.27 | 606.18 | 24.06 | 22.44 |
| Feb-17 | 21,706.46 | 775.23 | 4,585.43 | 73 | 1,589.20 | 56.76 | 23,295.66 | 831.99 | 0.00 | 0.00 | 23,295.66 | 831.99 | 6,531.49 | 233.27 | 0.28 | 554.80 | 23.33 | 22.35 |
| Mar-17 | 24,697.21 | 796.68 | 4,203.76 | 136 | 2,962.96 | 95.58 | 27,660.17 | 892.26 | 0.00 | 0.00 | 27,660.17 | 892.26 | 5,283.94 | 170.45 | 0.19 | 644.39 | 13.16 | 22.09 |
| Apr-17 | 22,053.22 | 735.11 | 2,533.75 | 173 | 3,783.57 | 126.12 | 25,836.79 | 861.23 | 0.00 | 0.00 | 25,836.79 | 861.23 | 6,607.75 | 220.26 | 0.26 | 646.18 | 24.04 | 22.10 |
| May-17 | 25,110.57 | 810.02 | 686.63 | 275 | 6,019.41 | 194.17 | 31,129.98 | 1,004.19 | 0.00 | 0.00 | 31,129.98 | 1,004.19 | 7,289.76 | 235.15 | 0.23 | 562.42 | 24.21 | 22.03 |
| Jun-17 | 24,995.93 | 833.20 | 2,382.53 | 199 | 4,181.86 | 139.40 | 29,177.79 | 972.59 | 0.00 | 0.00 | 29,177.79 | 972.59 | 6,941.19 | 231.37 | 0.24 | 651.40 | 23.56 | 22.04 |
| Jul-17 | 23,458.33 | 756.72 | 0.00 | 285 | 6,195.25 | 199.85 | 29,653.58 | 956.57 | 0.00 | 0.00 | 29,653.58 | 956.57 | 6,650.33 | 214.53 | 0.22 | 528.04 | 23.56 | 22.00 |
| Aug-17 | 24,691.01 | 796.48 | 0.00 | 301 | 6,597.06 | 212.81 | 31,288.07 | 1,009.29 | 0.00 | 0.00 | 31,288.07 | 1,009.29 | 6,682.40 | 215.56 | 0.21 | 588.33 | 23.12 | 21.98 |
| Sep-17 | 27,257.46 | 908.58 | 3,973.78 | 172 | 3,731.96 | 124.40 | 30,989.42 | 1,032.98 | 0.00 | 0.00 | 30,989.42 | 1,032.98 | 7,167.68 | 238.92 | 0.23 | 333.24 | 22.61 | 21.92 |
| Total 17 | 285,345.77 | | 25,332.67 | 2,514 | 54,268.99 | | 339,614.76 | | 0.00 | | 339,614.76 | | 79,383.04 | | | 6,652.37 | 263.05 | |
| Average17 | 23,778.81 | 784.00 | 2,111.06 | 210 | 4,522.42 | 148.52 | 28,301.23 | 932.51 | 0.00 | 0.00 | 28,301.23 | 932.51 | 6,615.25 | 218.39 | 0.23 | 554.36 | 21.92 | |
| Oct-17 | 24,449.62 | 788.70 | 6,574.18 | 6 | 112.67 | 3.63 | 24,562.29 | 792.33 | 0.00 | 0.00 | 24,562.29 | 792.33 | 5,305.45 | 171.14 | 0.22 | 526.36 | 14.98 | 22.04 |
| Nov-17 | 24,249.26 | 808.31 | 792.68 | 279 | 6,017.67 | 200.59 | 30,266.93 | 1,008.90 | 0.00 | 0.00 | 30,266.93 | 1,008.90 | 7,044.69 | 234.82 | 0.23 | 575.01 | 22.53 | 21.97 |
| Dec-17 | 22,843.90 | 736.90 | 2,640.50 | 194 | 4,148.95 | 133.84 | 26,992.85 | 870.74 | 0.00 | 0.00 | 26,992.85 | 870.74 | 6,734.91 | 217.26 | 0.25 | 732.89 | 23.34 | 21.88 |
| Jan-18 | 24,956.87 | 805.06 | 6,028.07 | 70 | 1,493.72 | 48.18 | 26,450.59 | 853.24 | 0.00 | 0.00 | 26,450.59 | 853.24 | 7,556.99 | 243.77 | 0.29 | 707.45 | 23.05 | 21.79 |
| Feb-18 | 23,198.79 | 773.29 | 4,020.45 | 138 | 2,988.39 | 99.61 | 26,187.18 | 872.91 | 0.00 | 0.00 | 26,187.18 | 872.91 | 6,747.48 | 224.92 | 0.26 | 668.03 | 22.14 | 21.69 |
| Mar-18 | 20,373.50 | 657.21 | 2,462.18 | 236 | 5,034.89 | 162.42 | 25,408.39 | 819.63 | 0.00 | 0.00 | 25,408.39 | 819.63 | 6,010.38 | 193.88 | 0.24 | 705.98 | 18.02 | 22.10 |
| Apr-18 | 23,294.37 | 776.48 | 0.00 | 335 | 7,223.91 | 240.80 | 30,518.28 | 1,017.28 | 0.00 | 0.00 | 30,518.28 | 1,017.28 | 6,652.15 | 221.74 | 0.22 | 661.48 | 22.08 | 21.93 |
| May-18 | 20,009.94 | 645.48 | 0.00 | 333 | 7,230.65 | 233.25 | 27,240.59 | 878.73 | 0.00 | 0.00 | 27,240.59 | 878.73 | 7,930.52 | 255.82 | 0.29 | 689.93 | 23.94 | 21.91 |
| Jun-18 | 24,149.13 | 804.97 | 0.00 | 305 | 6,614.11 | 220.47 | 30,763.24 | 1,025.44 | 0.00 | 0.00 | 30,763.24 | 1,025.44 | 6,940.41 | 231.35 | 0.23 | 715.46 | 20.79 | 21.68 |
| Jul-18 | 23,012.73 | 767.09 | 0.00 | 332 | 7,214.64 | 240.49 | 30,227.37 | 1,007.58 | 0.00 | 0.00 | 30,227.37 | 1,007.58 | 7,428.73 | 247.62 | 0.25 | 570.31 | 22.44 | 21.59 |
| Aug-18 | 26,262.28 | 847.17 | 0.00 | 330 | 7,154.50 | 230.79 | 33,416.78 | 1,077.96 | 0.00 | 0.00 | 33,416.78 | 1,077.96 | 7,765.86 | 250.51 | 0.23 | 682.98 | 22.79 | 21.56 |
| Sep-18 | 22,850.11 | 761.67 | 0.00 | 291 | 6,237.35 | 207.91 | 29,087.46 | 969.58 | 0.00 | 0.00 | 29,087.46 | 969.58 | 7,735.40 | 257.85 | 0.27 | 637.65 | 23.38 | 21.62 |
| Total 18 | 279,650.50 | | 22,518.06 | 2,849 | 61,471.45 | | 341,121.95 | | 0.00 | | 341,121.95 | | 83,852.97 | | | 7,873.53 | 259.48 | |
| Average18 | 23,304.21 | 764.36 | 1,876.51 | 237 | 5,122.62 | 168.50 | 28,426.83 | 932.86 | 0.00 | 0.00 | 28,426.83 | 932.86 | 6,987.75 | 229.22 | 0.25 | 656.13 | 21.62 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct-12 | 21,498.02 | 693.48 | 0.00 | 229 | 5,055.93 | 163.09 | 26,553.95 | 856.58 | 0.00 | 0.00 | 26,553.95 | 856.58 | 5,040.41 | 162.59 | 0.19 | 331.58 | 15.58 | 20.78 |
| Nov-12 | 20,844.04 | 694.80 | 0.00 | 229 | 4,965.76 | 165.53 | 25,809.80 | 860.33 | 0.00 | 0.00 | 25,809.80 | 860.33 | 6,731.67 | 224.39 | 0.26 | 318.34 | 23.72 | 20.79 |
| Dec-12 | 20,729.48 | 668.69 | 0.00 | 227 | 4,985.57 | 160.82 | 25,717.05 | 829.52 | 0.00 | 0.00 | 25,717.05 | 829.52 | 7,238.16 | 233.49 | 0.28 | 323.13 | 23.40 | 20.84 |
| Jan-13 | 22,137.05 | 714.10 | 0.00 | 268 | 5,973.72 | 192.70 | 28,110.77 | 906.80 | 0.00 | 0.00 | 28,110.77 | 906.80 | 6,662.24 | 214.91 | 0.24 | 396.93 | 22.09 | 20.77 |
| Feb-13 | 19,637.04 | 701.32 | 0.00 | 223 | 4,893.85 | 174.78 | 24,530.89 | 876.10 | 0.00 | 0.00 | 24,530.89 | 876.10 | 5,728.97 | 204.61 | 0.23 | 377.74 | 20.71 | 20.93 |
| Mar-13 | 21,053.51 | 679.15 | 0.00 | 249 | 5,496.08 | 177.29 | 26,549.59 | 856.44 | 0.00 | 0.00 | 26,549.59 | 856.44 | 4,993.54 | 161.08 | 0.19 | 325.66 | 15.23 | 20.69 |
| Apr-13 | 22,463.81 | 748.79 | 0.00 | 273 | 6,063.50 | 202.12 | 28,527.31 | 950.91 | 0.00 | 0.00 | 28,527.31 | 950.91 | 6,920.64 | 230.69 | 0.24 | 387.15 | 23.19 | 20.62 |
| May-13 | 21,483.10 | 693.00 | 0.00 | 242 | 5,535.85 | 178.58 | 27,018.95 | 871.58 | 0.00 | 0.00 | 27,018.95 | 871.58 | 7,292.25 | 235.23 | 0.27 | 309.15 | 23.91 | 20.61 |
| Jun-13 | 20,707.27 | 690.24 | 0.00 | 233 | 5,155.19 | 171.84 | 25,862.46 | 862.08 | 0.00 | 0.00 | 25,862.46 | 862.08 | 6,161.26 | 205.38 | 0.24 | 311.20 | 21.81 | 20.56 |
| Jul-13 | 23,842.30 | 769.11 | 0.00 | 255 | 5,650.76 | 182.28 | 29,493.06 | 951.39 | 0.00 | 0.00 | 29,493.06 | 951.39 | 7,323.12 | 236.23 | 0.25 | 347.37 | 21.68 | 20.66 |
| Aug-13 | 21,388.94 | 689.97 | 0.00 | 242 | 5,335.15 | 172.10 | 26,724.09 | 862.07 | 0.00 | 0.00 | 26,724.09 | 862.07 | 6,504.90 | 209.84 | 0.24 | 352.82 | 19.94 | 20.78 |
| Sep-13 | 19,995.74 | 666.52 | 0.00 | 228 | 4,982.89 | 166.10 | 24,978.63 | 832.62 | 0.00 | 0.00 | 24,978.63 | 832.62 | 6,263.23 | 208.77 | 0.25 | 363.11 | 19.56 | 20.90 |
| Total 13 | 255,780.30 | | 0.00 | 2,898 | 64,094.25 | | 319,876.55 | | 0.00 | | 319,876.55 | | 76,860.39 | | | 4,144.18 | 250.83 | |
| Average13 | 21,315.03 | 700.77 | 0.00 | 242 | 5,341.19 | 175.60 | 26,656.38 | 876.37 | 0.00 | 0.00 | 26,656.38 | 876.37 | 6,405.03 | 210.60 | 0.24 | 345.35 | 20.90 | |
| Oct-13 | 20,927.91 | 675.09 | 0.00 | 249 | 5,524.55 | 178.21 | 26,452.46 | 853.31 | 0.00 | 0.00 | 26,452.46 | 853.31 | 4,973.40 | 160.43 | 0.19 | 369.17 | 14.86 | 20.84 |
| Nov-13 | 19,773.80 | 659.13 | 0.00 | 233 | 5,204.16 | 173.47 | 24,977.96 | 832.60 | 0.00 | 0.00 | 24,977.96 | 832.60 | 7,047.89 | 234.93 | 0.28 | 347.08 | 22.80 | 20.77 |
| Dec-13 | 21,364.24 | 689.17 | 0.00 | 285 | 6,337.92 | 204.45 | 27,702.16 | 893.62 | 0.00 | 0.00 | 27,702.16 | 893.62 | 6,995.33 | 225.66 | 0.25 | 326.87 | 23.04 | 20.74 |
| Jan-14 | 20,790.92 | 670.67 | 0.00 | 275 | 6,080.30 | 196.14 | 26,871.22 | 866.81 | 0.00 | 0.00 | 26,871.22 | 866.81 | 5,930.14 | 191.29 | 0.22 | 450.74 | 21.92 | 20.72 |
| Feb-14 | 19,309.22 | 689.62 | 0.00 | 250 | 5,587.86 | 199.57 | 24,897.08 | 889.18 | 0.00 | 0.00 | 24,897.08 | 889.18 | 5,920.55 | 211.45 | 0.24 | 408.79 | 20.66 | 20.72 |
| Mar-14 | 21,090.88 | 680.35 | 0.00 | 296 | 6,721.84 | 216.83 | 27,812.72 | 897.18 | 0.00 | 0.00 | 27,812.72 | 897.18 | 3,442.29 | 111.04 | 0.12 | 388.59 | 0.62 | 19.50 |
| Apr-14 | 21,120.22 | 704.01 | 0.00 | 284 | 6,383.33 | 212.78 | 27,503.55 | 916.79 | 0.00 | 0.00 | 27,503.55 | 916.79 | 6,396.24 | 213.21 | 0.23 | 753.21 | 21.88 | 19.39 |
| May-14 | 21,381.58 | 689.73 | 0.00 | 253 | 5,703.43 | 183.98 | 27,085.01 | 873.71 | 0.00 | 0.00 | 27,085.01 | 873.71 | 6,892.66 | 222.34 | 0.25 | 294.21 | 22.91 | 19.31 |
| Jun-14 | 24,209.24 | 806.97 | 1,195.50 | 206 | 4,522.63 | 150.75 | 28,731.87 | 957.73 | 0.00 | 0.00 | 28,731.87 | 957.73 | 6,651.99 | 221.73 | 0.23 | 867.60 | 21.67 | 19.29 |
| Jul-14 | 22,068.26 | 711.88 | 0.00 | 258 | 5,791.77 | 186.83 | 27,860.03 | 898.71 | 0.00 | 0.00 | 27,860.03 | 898.71 | 7,760.80 | 250.35 | 0.28 | 353.23 | 23.37 | 19.44 |
| Aug-14 | 20,218.17 | 652.20 | 0.00 | 250 | 5,443.54 | 175.60 | 25,661.71 | 827.80 | 0.00 | 0.00 | 25,661.71 | 827.80 | 6,905.28 | 222.75 | 0.27 | 381.22 | 23.47 | 19.73 |
| Sep-14 | 21,765.65 | 725.52 | 0.00 | 255 | 5,743.53 | 191.45 | 27,509.18 | 916.97 | 0.00 | 0.00 | 27,509.18 | 916.97 | 6,548.30 | 218.28 | 0.24 | 340.22 | 21.76 | 19.91 |
| Total 14 | 254,020.09 | | 1,195.50 | 3,094 | 69,044.86 | | 323,064.95 | | 0.00 | | 323,064.95 | | 75,464.87 | | | 5,280.93 | 238.96 | |
| Average14 | 21,168.34 | 696.20 | 99.63 | 258 | 5,753.74 | 189.17 | 26,922.08 | 885.37 | 0.00 | 0.00 | 26,922.08 | 885.37 | 6,288.74 | 206.96 | 0.23 | 440.08 | 19.91 | |
| Oct-14 | 21,440.98 | 691.64 | 0.00 | 275 | 5,861.08 | 189.07 | 27,302.06 | 880.71 | 0.00 | 0.00 | 27,302.06 | 880.71 | 5,237.49 | 168.95 | 0.19 | 327.40 | 14.83 | 19.91 |
| Nov-14 | 19,182.38 | 639.41 | 0.00 | 245 | 5,354.51 | 178.48 | 24,536.89 | 817.90 | 0.00 | 0.00 | 24,536.89 | 817.90 | 6,067.99 | 202.27 | 0.25 | 420.39 | 22.20 | 19.86 |
| Dec-14 | 23,630.53 | 762.28 | 0.00 | 317 | 6,870.62 | 221.63 | 30,501.15 | 983.91 | 0.00 | 0.00 | 30,501.15 | 983.91 | 6,530.63 | 210.67 | 0.21 | 407.98 | 22.50 | 19.82 |
| Jan-15 | 22,255.21 | 717.91 | 0.00 | 293 | 6,387.76 | 206.06 | 28,642.97 | 923.97 | 0.00 | 0.00 | 28,642.97 | 923.97 | 6,548.92 | 211.26 | 0.23 | 495.71 | 23.53 | 19.95 |
| Feb-15 | 19,681.98 | 702.93 | 0.00 | 267 | 5,884.78 | 210.17 | 25,566.76 | 913.10 | 0.00 | 0.00 | 25,566.76 | 913.10 | 6,337.37 | 226.33 | 0.25 | 357.17 | 23.06 | 20.15 |
| Mar-15 | 24,028.75 | 775.12 | 575.06 | 294 | 6,644.36 | 214.33 | 30,673.11 | 989.46 | 0.00 | 0.00 | 30,673.11 | 989.46 | 4,654.86 | 150.16 | 0.15 | 384.56 | 13.36 | 21.21 |
| Apr-15 | 22,126.72 | 737.56 | 0.00 | 299 | 6,798.35 | 226.61 | 28,925.07 | 964.17 | 0.00 | 0.00 | 28,925.07 | 964.17 | 6,528.72 | 217.62 | 0.23 | 390.91 | 23.72 | 21.37 |
| May-15 | 21,425.59 | 691.15 | 0.00 | 259 | 5,766.89 | 186.03 | 27,192.48 | 877.18 | 0.00 | 0.00 | 27,192.48 | 877.18 | 7,091.90 | 228.77 | 0.26 | 398.13 | 23.81 | 21.44 |
| Jun-15 | 22,612.79 | 753.76 | 0.00 | 276 | 6,124.56 | 204.15 | 28,737.35 | 957.91 | 0.00 | 0.00 | 28,737.35 | 957.91 | 6,338.58 | 211.29 | 0.22 | 337.63 | 21.71 | 21.44 |
| Jul-15 | 23,316.57 | 752.15 | 0.00 | 266 | 6,001.41 | 193.59 | 29,317.98 | 945.74 | 0.00 | 0.00 | 29,317.98 | 945.74 | 7,085.65 | 228.57 | 0.24 | 341.88 | 23.09 | 21.42 |
| Aug-15 | 22,541.07 | 727.13 | 0.00 | 269 | 6,158.58 | 198.66 | 28,699.65 | 925.80 | 0.00 | 0.00 | 28,699.65 | 925.80 | 7,039.96 | 227.10 | 0.25 | 363.26 | 22.74 | 21.36 |
| Sep-15 | 21,834.43 | 727.81 | 0.00 | 252 | 5,691.75 | 189.73 | 27,526.18 | 917.54 | 0.00 | 0.00 | 27,526.18 | 917.54 | 7,259.31 | 241.98 | 0.26 | 348.07 | 22.57 | 21.43 |
| Total 15 | 264,077.00 | | 575.06 | 3,312 | 73,544.65 | | 337,621.65 | | 0.00 | | 337,621.65 | | 76,721.38 | | | 4,573.09 | 257.14 | |
| Average15 | 22,006.42 | 723.24 | 47.92 | 276 | 6,128.72 | 201.54 | 28,135.14 | 924.78 | 0.00 | 0.00 | 28,135.14 | 924.78 | 6,393.45 | 210.41 | 0.23 | 381.09 | 21.43 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct-09 | 21,180.31 | 683.24 | 579.65 | 224 | 4,689.85 | 151.29 | 25,870.16 | 834.52 | 1,131.26 | 36.49 | 27,001.42 | 871.01 | 4,986.25 | 160.85 | 0.18 | 276.07 | 12.28 | 19.50 |
| Nov-09 | 18,327.79 | 610.93 | 5,462.28 | 39 | 835.06 | 27.84 | 19,162.85 | 638.76 | 1,557.75 | 51.93 | 20,720.60 | 690.69 | 5,685.49 | 189.52 | 0.27 | 253.02 | 15.08 | 19.05 |
| Dec-09 | 24,929.69 | 804.18 | 3,528.17 | 125 | 2,738.73 | 88.35 | 27,668.42 | 892.53 | 1,738.08 | 56.07 | 29,406.50 | 948.60 | 8,889.75 | 286.77 | 0.30 | 317.48 | 24.14 | 19.20 |
| Jan-10 | 20,943.53 | 675.60 | 3,765.62 | 102 | 2,280.66 | 73.57 | 23,224.19 | 749.17 | 1,684.42 | 54.34 | 24,908.61 | 803.50 | 6,716.77 | 216.67 | 0.27 | 332.22 | 22.04 | 19.29 |
| Feb-10 | 20,347.53 | 726.70 | 3,163.23 | 110 | 2,447.53 | 87.41 | 22,795.06 | 814.11 | 1,659.21 | 59.26 | 24,454.27 | 873.37 | 6,700.33 | 239.30 | 0.27 | 309.11 | 22.70 | 19.35 |
| Mar-10 | 25,477.85 | 821.87 | 4,766.10 | 117 | 2,572.59 | 82.99 | 28,050.44 | 904.85 | 2,013.48 | 64.95 | 30,063.92 | 969.80 | 7,149.46 | 230.63 | 0.24 | 327.01 | 20.86 | 20.09 |
| Apr-10 | 21,496.75 | 716.56 | 8,074.10 | 5 | 112.08 | 3.74 | 21,608.83 | 720.29 | 1,870.88 | 62.36 | 23,479.71 | 782.66 | 4,223.04 | 140.77 | 0.18 | 304.74 | 10.55 | 19.00 |
| May-10 | 25,555.46 | 824.37 | 3,285.96 | 116 | 2,468.65 | 79.63 | 28,024.11 | 904.00 | 1,742.49 | 56.21 | 29,766.60 | 960.21 | 9,038.49 | 291.56 | 0.30 | 273.65 | 23.61 | 19.15 |
| Jun-10 | 21,996.23 | 733.21 | 0.00 | 246 | 5,364.54 | 178.82 | 27,360.77 | 912.03 | 1,829.57 | 60.99 | 29,190.34 | 973.01 | 7,315.29 | 243.84 | 0.25 | 278.81 | 23.18 | 19.28 |
| Jul-10 | 22,219.65 | 716.76 | 0.00 | 231 | 4,975.42 | 160.50 | 27,195.07 | 877.26 | 1,836.12 | 59.23 | 29,031.19 | 936.49 | 7,407.31 | 238.95 | 0.26 | 289.54 | 22.37 | 19.85 |
| Aug-10 | 23,004.90 | 742.09 | 0.00 | 229 | 5,080.87 | 163.90 | 28,085.77 | 905.99 | 1,849.12 | 59.65 | 29,934.89 | 965.64 | 7,295.74 | 235.35 | 0.24 | 267.65 | 21.30 | 19.97 |
| Sep-10 | 20,800.48 | 693.35 | 1,806.35 | 136 | 3,003.45 | 100.12 | 23,803.93 | 793.46 | 1,596.96 | 53.23 | 25,400.89 | 846.70 | 7,326.15 | 244.21 | 0.29 | 280.57 | 23.26 | 20.11 |
| Total 10 | 266,280.17 | | 34,431.46 | 1,680 | 36,569.43 | | 302,849.60 | | 20,509.34 | | 323,358.94 | | 82,734.07 | | | 3,509.87 | 241.37 | |
| Average10 | 22,190.01 | 729.07 | 2,869.29 | 140 | 3,047.45 | 99.84 | 25,237.47 | 828.92 | 1,709.11 | 56.22 | 26,946.58 | 885.14 | 6,894.51 | 226.53 | 0.26 | 292.49 | 20.11 | |
| Oct-10 | 17,909.66 | 577.73 | 4,346.34 | 13 | 265.02 | 8.55 | 18,175.27 | 586.28 | 0.59 | 0.02 | 18,175.27 | 586.30 | 4,160.13 | 134.20 | 0.23 | 270.18 | 11.72 | 20.07 |
| Nov-10 | 24,637.35 | 821.25 | 466.74 | 111 | 2,439.91 | 81.33 | 27,077.26 | 902.58 | 0.00 | 0.00 | 27,077.26 | 902.58 | 7,310.48 | 243.68 | 0.27 | 276.20 | 23.88 | 20.80 |
| Dec-10 | 23,650.70 | 762.93 | 0.00 | 241 | 5,245.42 | 169.21 | 28,896.12 | 932.13 | 0.00 | 0.00 | 28,896.12 | 932.13 | 8,022.12 | 258.78 | 0.28 | 309.78 | 21.71 | 20.60 |
| Jan-11 | 21,474.94 | 692.74 | 0.00 | 262 | 5,853.45 | 188.82 | 27,328.39 | 881.56 | 0.00 | 0.00 | 27,328.39 | 881.56 | 6,763.71 | 218.18 | 0.25 | 309.38 | 21.58 | 20.56 |
| Feb-11 | 20,480.04 | 731.43 | 0.00 | 240 | 5,323.67 | 190.13 | 25,803.71 | 921.56 | 0.00 | 0.00 | 25,803.71 | 921.56 | 6,542.47 | 233.66 | 0.25 | 275.50 | 23.79 | 20.65 |
| Mar-11 | 21,972.72 | 708.80 | 0.00 | 312 | 6,941.55 | 223.92 | 28,914.27 | 932.72 | 0.00 | 0.00 | 28,914.27 | 932.72 | 6,453.41 | 208.17 | 0.22 | 332.08 | 19.85 | 20.57 |
| Apr-11 | 23,416.69 | 780.56 | 2,531.82 | 161 | 3,517.21 | 117.24 | 26,933.90 | 897.80 | 0.00 | 0.00 | 26,933.90 | 897.80 | 5,201.95 | 173.40 | 0.19 | 310.28 | 13.43 | 20.81 |
| May-11 | 26,260.08 | 847.10 | 0.00 | 232 | 5,062.33 | 163.30 | 31,322.41 | 1,010.40 | 0.00 | 0.00 | 31,322.41 | 1,010.40 | 8,953.86 | 288.83 | 0.29 | 286.99 | 24.24 | 20.86 |
| Jun-11 | 20,625.71 | 687.52 | 0.00 | 226 | 5,006.81 | 166.89 | 25,632.52 | 854.42 | 0.00 | 0.00 | 25,632.52 | 854.42 | 7,263.76 | 242.13 | 0.28 | 291.88 | 23.28 | 20.87 |
| Jul-11 | 20,129.21 | 649.33 | 0.00 | 220 | 4,870.67 | 157.12 | 24,999.88 | 806.45 | 0.00 | 0.00 | 24,999.88 | 806.45 | 6,671.64 | 215.21 | 0.27 | 268.21 | 21.80 | 20.82 |
| Aug-11 | 22,198.98 | 716.10 | 0.00 | 231 | 5,118.22 | 165.10 | 27,317.20 | 881.20 | 0.00 | 0.00 | 27,317.20 | 881.20 | 7,165.84 | 231.16 | 0.26 | 285.02 | 20.21 | 20.73 |
| Sep-11 | 20,698.35 | 689.95 | 0.00 | 216 | 4,756.15 | 158.54 | 25,454.50 | 848.48 | 0.00 | 0.00 | 25,454.50 | 848.48 | 6,748.25 | 224.94 | 0.27 | 274.12 | 22.09 | 20.63 |
| Total 11 | 263,454.43 | | 7,344.90 | 2,465 | 54,400.41 | | 317,855.43 | | 0.59 | | 317,855.43 | | 81,257.62 | | | 3,489.62 | 247.58 | |
| Average11 | 21,954.54 | 722.12 | 612.08 | 205 | 4,533.37 | 149.18 | 26,487.95 | 871.30 | 0.05 | 0.00 | 26,487.95 | 871.30 | 6,771.47 | 222.70 | 0.25 | 290.80 | 20.63 | |
| Oct-11 | 19,732.17 | 636.52 | 0.00 | 217 | 4,776.34 | 154.08 | 24,508.51 | 790.60 | 0.00 | 0.00 | 24,508.51 | 790.60 | 4,764.54 | 153.69 | 0.19 | 245.48 | 13.45 | 20.78 |
| Nov-11 | 20,731.22 | 691.04 | 0.00 | 231 | 5,110.60 | 170.35 | 25,841.82 | 861.39 | 0.00 | 0.00 | 25,841.82 | 861.39 | 6,727.09 | 224.24 | 0.26 | 290.48 | 23.56 | 20.75 |
| Dec-11 | 20,739.42 | 669.01 | 0.00 | 239 | 5,259.97 | 169.68 | 25,999.39 | 838.69 | 0.00 | 0.00 | 25,999.39 | 838.69 | 7,200.92 | 232.29 | 0.28 | 342.21 | 22.88 | 20.85 |
| Jan-12 | 20,797.58 | 670.89 | 0.00 | 250 | 5,451.30 | 175.85 | 26,248.88 | 846.74 | 0.00 | 0.00 | 26,248.88 | 846.74 | 6,908.97 | 222.87 | 0.26 | 341.10 | 22.86 | 20.95 |
| Feb-12 | 20,373.11 | 702.52 | 0.00 | 236 | 5,277.71 | 181.99 | 25,650.82 | 884.51 | 0.00 | 0.00 | 25,650.82 | 884.51 | 5,951.54 | 205.23 | 0.23 | 281.42 | 18.85 | 20.54 |
| Mar-12 | 22,771.24 | 734.56 | 0.00 | 273 | 6,050.52 | 195.18 | 28,821.76 | 929.73 | 0.00 | 0.00 | 28,821.76 | 929.73 | 5,655.72 | 182.44 | 0.20 | 353.28 | 18.08 | 20.39 |
| Apr-12 | 21,028.65 | 700.96 | 0.00 | 243 | 5,393.95 | 179.80 | 26,422.60 | 880.75 | 0.00 | 0.00 | 26,422.60 | 880.75 | 6,815.60 | 227.19 | 0.26 | 327.72 | 23.99 | 21.27 |
| May-12 | 21,680.33 | 699.37 | 0.00 | 230 | 5,057.24 | 163.14 | 26,737.57 | 862.50 | 0.00 | 0.00 | 26,737.57 | 862.50 | 7,157.43 | 230.88 | 0.27 | 319.76 | 24.13 | 21.26 |
| Jun-12 | 22,920.46 | 764.02 | 0.00 | 226 | 4,978.70 | 165.96 | 27,899.16 | 929.97 | 0.00 | 0.00 | 27,899.16 | 929.97 | 6,790.95 | 226.37 | 0.24 | 344.62 | 22.37 | 21.19 |
| Jul-12 | 23,225.72 | 749.22 | 0.00 | 228 | 5,061.49 | 163.27 | 28,287.21 | 912.49 | 0.00 | 0.00 | 28,287.21 | 912.49 | 6,623.27 | 213.65 | 0.23 | 307.82 | 20.47 | 21.08 |
| Aug-12 | 22,545.47 | 727.27 | 0.00 | 227 | 5,022.33 | 162.01 | 27,567.80 | 889.28 | 0.00 | 0.00 | 27,567.80 | 889.28 | 5,953.22 | 192.04 | 0.22 | 306.89 | 18.48 | 20.93 |
| Sep-12 | 19,741.69 | 658.06 | 0.00 | 197 | 4,383.66 | 146.12 | 24,125.35 | 804.18 | 0.00 | 0.00 | 24,125.35 | 804.18 | 5,776.06 | 192.54 | 0.24 | 255.44 | 18.12 | 20.60 |
| Total 12 | 256,287.06 | | 0.00 | 2,797 | 61,823.81 | | 318,110.87 | | 0.00 | | 318,110.87 | | 76,325.31 | | | 3,716.22 | 247.23 | |
| Average12 | 21,357.26 | 700.29 | 0.00 | 233 | 5,151.98 | 168.95 | 26,509.24 | 869.24 | 0.00 | 0.00 | 26,509.24 | 869.24 | 6,360.44 | 208.62 | 0.24 | 309.69 | 20.60 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct 06 | 10,546.93 | 340.22 | | 276 | 5,215.40 | 168.24 | 15,762.33 | 508.46 | 0.00 | 0.00 | 15,762.33 | 508.46 | 4,030.48 | 130.02 | 0.26 | 228.88 | 8.45 | 19.92 |
| Nov 06 | 25,296.95 | 843.23 | | 288 | 5,709.93 | 190.33 | 31,006.88 | 1,033.56 | 0.00 | 0.00 | 31,006.88 | 1,033.56 | 7,683.51 | 256.12 | 0.25 | 225.47 | 22.40 | 19.87 |
| Dec 06 | 19,857.49 | 640.56 | | 281 | 5,633.48 | 181.73 | 25,490.97 | 822.29 | 0.00 | 0.00 | 25,490.97 | 822.29 | 7,966.88 | 257.00 | 0.31 | 259.18 | 22.57 | 19.81 |
| Jan 07 | 22,938.13 | 739.94 | | 356 | 7,247.13 | 233.78 | 30,185.26 | 973.72 | 0.00 | 0.00 | 30,185.26 | 973.72 | 8,224.81 | 265.32 | 0.27 | 243.61 | 21.63 | 19.78 |
| Feb 07 | 13,576.88 | 484.89 | | 310 | 6,240.02 | 222.86 | 19,816.90 | 707.75 | 0.00 | 0.00 | 19,816.90 | 707.75 | 5,483.85 | 195.85 | 0.28 | 208.40 | 13.77 | 20.38 |
| Mar 07 | 19,791.48 | 638.43 | | 350 | 7,066.48 | 227.95 | 26,857.96 | 866.39 | 0.00 | 0.00 | 26,857.96 | 866.39 | 7,836.05 | 252.78 | 0.29 | 244.80 | 23.23 | 20.40 |
| Apr 07 | 22,508.49 | 750.28 | | 353 | 6,675.67 | 222.52 | 29,184.16 | 972.81 | 0.00 | 0.00 | 29,184.16 | 972.81 | 8,589.91 | 286.33 | 0.29 | 226.46 | 24.82 | 20.55 |
| May 07 | 24,610.06 | 793.87 | | 337 | 6,272.69 | 202.34 | 30,882.75 | 996.22 | 0.00 | 0.00 | 30,882.75 | 996.22 | 8,418.52 | 271.57 | 0.27 | 229.16 | 23.27 | 20.48 |
| Jun 07 | 23,005.95 | 766.87 | | 299 | 5,877.92 | 195.93 | 28,883.87 | 962.80 | 0.00 | 0.00 | 28,883.87 | 962.80 | 7,970.70 | 265.69 | 0.28 | 212.60 | 22.41 | 20.49 |
| Jul 07 | 24,871.95 | 802.32 | | 317 | 6,419.59 | 207.08 | 31,291.54 | 1,009.40 | 0.00 | 0.00 | 31,291.54 | 1,009.40 | 8,066.03 | 260.19 | 0.26 | 231.48 | 21.54 | 20.35 |
| Aug 07 | 25,329.78 | 817.09 | | 306 | 6,188.37 | 199.62 | 31,518.15 | 1,016.71 | 0.00 | 0.00 | 31,518.15 | 1,016.71 | 8,224.14 | 265.29 | 0.26 | 232.59 | 23.27 | 20.55 |
| Sep 07 | 19,561.70 | 652.06 | | 273 | 5,513.92 | 183.80 | 25,075.62 | 835.85 | 0.00 | 0.00 | 25,075.62 | 835.85 | 7,737.57 | 257.92 | 0.31 | 214.03 | 22.62 | 20.83 |
| Total 07 | 251,895.79 | | | 3,746 | 74,060.60 | | 325,956.39 | | 0.00 | | 325,956.39 | | 90,232.45 | | | 2,756.66 | 249.97 | |
| Average07 | 20,991.32 | 689.15 | | 312 | 6,171.72 | 203.02 | 27,163.03 | 892.16 | 0.00 | 0.00 | 27,163.03 | 892.16 | 7,519.37 | 247.01 | 0.28 | 229.72 | 20.83 | |
| Oct-07 | 23,045.19 | 743.39 | 1,192.10 | 264 | 5,314.99 | 171.45 | 28,360.18 | 914.84 | 0.00 | 0.00 | 28,360.18 | 914.84 | 6,414.49 | 206.92 | 0.23 | 236.18 | 16.26 | 21.48 |
| Nov-07 | 24,251.52 | 808.38 | 2,144.93 | 187 | 3,926.72 | 130.89 | 28,178.24 | 939.27 | 0.00 | 0.00 | 28,178.24 | 939.27 | 8,458.92 | 281.96 | 0.30 | 222.26 | 24.72 | 21.67 |
| Dec-07 | 24,771.61 | 799.08 | 1,151.92 | 258 | 5,225.58 | 168.57 | 29,997.19 | 967.65 | 0.00 | 0.00 | 29,997.19 | 967.65 | 7,999.79 | 258.06 | 0.27 | 268.78 | 23.93 | 21.79 |
| Jan-08 | 28,076.22 | 905.68 | 3,115.75 | 106 | 2,179.14 | 70.29 | 30,255.36 | 975.98 | 0.00 | 0.00 | 30,255.36 | 975.98 | 7,498.77 | 241.90 | 0.25 | 302.92 | 22.44 | 21.86 |
| Feb-08 | 24,399.87 | 841.37 | 4,912.95 | 72 | 1,553.42 | 53.57 | 25,953.29 | 894.94 | 0.00 | 0.00 | 25,953.29 | 894.94 | 7,618.26 | 262.70 | 0.29 | 272.48 | 24.00 | 22.71 |
| Mar-08 | 26,275.89 | 847.61 | 3,002.83 | 197 | 4,112.23 | 132.65 | 30,388.12 | 980.26 | 0.00 | 0.00 | 30,388.12 | 980.26 | 7,653.65 | 246.89 | 0.25 | 288.24 | 21.89 | 22.60 |
| Apr-08 | 25,885.92 | 862.86 | 6,682.62 | 3 | 6.98 | 0.23 | 25,892.90 | 863.10 | 0.00 | 0.00 | 25,892.90 | 863.10 | 5,242.98 | 174.77 | 0.20 | 281.17 | 14.77 | 21.76 |
| May-08 | 24,052.97 | 775.90 | 3,833.15 | 88 | 1,892.19 | 61.04 | 25,945.16 | 836.94 | 0.00 | 0.00 | 25,945.16 | 836.94 | 8,597.32 | 277.33 | 0.33 | 189.34 | 24.11 | 21.83 |
| Jun-08 | 23,703.87 | 790.13 | 1,478.31 | 183 | 3,914.60 | 130.49 | 27,618.47 | 920.62 | 0.00 | 0.00 | 27,618.47 | 920.62 | 8,001.32 | 266.71 | 0.29 | 274.88 | 24.52 | 22.00 |
| Jul-08 | 26,972.89 | 870.09 | 157.74 | 271 | 5,652.08 | 182.33 | 32,624.97 | 1,052.42 | 0.00 | 0.00 | 32,624.97 | 1,052.42 | 7,842.84 | 252.99 | 0.24 | 287.84 | 20.65 | 21.93 |
| Aug-08 | 23,829.86 | 768.71 | 669.07 | 220 | 4,596.17 | 148.26 | 28,426.03 | 916.97 | 0.00 | 0.00 | 28,426.03 | 916.97 | 7,686.09 | 247.94 | 0.27 | 260.51 | 23.18 | 21.92 |
| Sep-08 | 22,866.26 | 762.21 | 993.43 | 196 | 4,022.79 | 134.09 | 26,889.05 | 896.30 | 0.00 | 0.00 | 26,889.05 | 896.30 | 7,762.61 | 258.75 | 0.29 | 261.42 | 21.78 | 21.85 |
| Total 08 | 298,132.07 | | 29,334.80 | 2,045 | 42,396.89 | | 340,528.96 | | 0.00 | | 340,528.96 | | 90,777.04 | | | 3,146.02 | 262.25 | |
| Average08 | 24,844.34 | 814.62 | 2,444.57 | 170 | 3,533.07 | 115.32 | 28,377.41 | 929.94 | 0.00 | 0.00 | 28,377.41 | 929.94 | 7,564.75 | 248.08 | 0.27 | 262.17 | 21.85 | |
| Oct-08 | 23,076.17 | 744.39 | 678.06 | 232 | 4,672.71 | 150.73 | 27,748.88 | 895.13 | 0.00 | 0.00 | 27,748.88 | 895.13 | 6,658.72 | 214.80 | 0.24 | 274.34 | 16.38 | 21.86 |
| Nov-08 | 20,314.76 | 677.16 | 914.67 | 199 | 3,869.03 | 128.97 | 24,183.79 | 806.13 | 0.00 | 0.00 | 24,183.79 | 806.13 | 6,493.18 | 216.44 | 0.27 | 247.67 | 20.39 | 21.50 |
| Dec-08 | 23,992.83 | 773.96 | 1,663.04 | 222 | 4,607.44 | 148.63 | 28,600.27 | 922.59 | 0.00 | 0.00 | 28,600.27 | 922.59 | 7,869.64 | 253.86 | 0.28 | 308.95 | 22.42 | 21.38 |
| Jan-09 | 22,781.73 | 734.89 | 1,121.99 | 237 | 4,844.33 | 156.27 | 27,626.06 | 891.16 | 0.00 | 0.00 | 27,626.06 | 891.16 | 7,102.45 | 229.11 | 0.26 | 342.73 | 20.99 | 21.26 |
| Feb-09 | 20,852.55 | 744.73 | 2,120.20 | 165 | 3,418.60 | 122.09 | 24,271.15 | 866.83 | 0.00 | 0.00 | 24,271.15 | 866.83 | 6,939.37 | 247.83 | 0.29 | 301.51 | 21.97 | 21.09 |
| Mar-09 | 24,253.15 | 782.36 | 6,136.12 | 19 | 371.68 | 11.99 | 24,624.83 | 794.35 | 0.00 | 0.00 | 24,624.83 | 794.35 | 5,046.67 | 162.80 | 0.20 | 359.08 | 12.01 | 20.26 |
| Apr-09 | 23,567.97 | 785.60 | 5,857.72 | 15 | 323.12 | 10.77 | 23,891.09 | 796.37 | 0.00 | 0.00 | 23,891.09 | 796.37 | 7,662.90 | 255.43 | 0.32 | 350.98 | 23.58 | 21.00 |
| May-09 | 22,748.11 | 733.81 | 2,690.24 | 128 | 2,799.55 | 90.31 | 25,547.66 | 824.12 | 0.00 | 0.00 | 25,547.66 | 824.12 | 7,428.22 | 239.62 | 0.29 | 300.49 | 21.85 | 20.81 |
| Jun-09 | 23,749.43 | 791.65 | 1,940.37 | 167 | 3,608.95 | 120.30 | 27,358.38 | 911.95 | 0.00 | 0.00 | 27,358.38 | 911.95 | 7,840.18 | 261.34 | 0.29 | 291.82 | 21.55 | 20.56 |
| Jul-09 | 23,644.42 | 762.72 | 1,582.57 | 179 | 3,939.89 | 127.09 | 27,584.31 | 889.82 | 0.00 | 0.00 | 27,584.31 | 889.82 | 5,920.28 | 190.98 | 0.21 | 293.20 | 15.53 | 20.13 |
| Aug-09 | 22,195.97 | 716.00 | 50.57 | 247 | 5,256.84 | 169.58 | 27,452.81 | 885.57 | 0.00 | 0.00 | 27,452.81 | 885.57 | 7,131.12 | 230.04 | 0.26 | 265.84 | 19.88 | 19.86 |
| Sep-09 | 21,699.70 | 723.32 | 0.00 | 252 | 5,332.18 | 177.74 | 27,031.88 | 901.06 | 0.00 | 0.00 | 27,031.88 | 901.06 | 7,141.74 | 238.06 | 0.26 | 261.98 | 21.53 | 19.84 |
| Total 09 | 272,876.79 | | 24,755.55 | 2,062 | 43,044.32 | | 315,921.11 | | 0.00 | | 315,921.11 | | 83,234.47 | | | 3,598.59 | 238.06 | |
| Average09 | 22,739.73 | 747.55 | 2,062.96 | 172 | 3,587.03 | 117.87 | 26,326.76 | 865.42 | 0.00 | 0.00 | 26,326.76 | 865.42 | 6,936.21 | 228.36 | 0.26 | 299.88 | 19.84 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO TONNAGE HAULED OUT (Info Only) | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct 03 | 21,907.80 | 706.70 | | 294 | 6,350.01 | 204.84 | 28,257.81 | 911.54 | 0.00 | 0.00 | 28,257.81 | 911.54 | 9,230.21 | 297.75 | 0.33 | 187.25 | 23.50 | 21.63 |
| Nov 03 | 20,972.68 | 699.09 | | 275 | 5,933.04 | 197.77 | 26,905.72 | 896.86 | 0.00 | 0.00 | 26,905.72 | 896.86 | 8,164.05 | 272.14 | 0.30 | 167.03 | 23.40 | 21.88 |
| Dec 03 | 22,771.81 | 734.57 | | 332 | 6,967.23 | 224.75 | 29,739.04 | 959.32 | 0.00 | 0.00 | 29,739.04 | 959.32 | 8,143.00 | 262.68 | 0.27 | 208.89 | 23.09 | 21.81 |
| Jan 04 | 22,552.24 | 727.49 | | 343 | 7,337.80 | 236.70 | 29,890.04 | 964.19 | 0.00 | 0.00 | 29,890.04 | 964.19 | 8,120.39 | 261.95 | 0.27 | 228.03 | 23.28 | 22.33 |
| Feb 04 | 21,419.69 | 764.99 | | 323 | 6,905.32 | 246.62 | 28,325.01 | 1,011.61 | 0.00 | 0.00 | 28,325.01 | 1,011.61 | 7,641.34 | 272.91 | 0.27 | 204.61 | 20.94 | 22.29 |
| Mar 04 | 22,345.65 | 720.83 | | 414 | 8,820.53 | 284.53 | 31,166.18 | 1,005.36 | 0.00 | 0.00 | 31,166.18 | 1,005.36 | 6,353.84 | 204.96 | 0.20 | 238.11 | 14.96 | 21.60 |
| Apr 04 | 21,089.12 | 702.97 | | 380 | 8,077.21 | 269.24 | 29,166.33 | 972.21 | 0.00 | 0.00 | 29,166.33 | 972.21 | 8,135.55 | 271.19 | 0.28 | 231.78 | 23.16 | 21.65 |
| May 04 | 21,556.48 | 695.37 | | 335 | 7,157.13 | 230.88 | 28,713.61 | 926.25 | 0.00 | 0.00 | 28,713.61 | 926.25 | 8,478.76 | 273.51 | 0.30 | 193.86 | 22.89 | 21.64 |
| Jun 04 | 22,481.91 | 749.40 | | 332 | 7,290.70 | 243.02 | 29,772.61 | 992.42 | 0.00 | 0.00 | 29,772.61 | 992.42 | 8,077.51 | 269.25 | 0.27 | 200.61 | 21.65 | 21.55 |
| Jul 04 | 22,884.54 | 738.21 | | 327 | 7,170.58 | 231.31 | 30,055.12 | 969.52 | 0.00 | 0.00 | 30,055.12 | 969.52 | 8,506.18 | 274.39 | 0.28 | 191.95 | 21.55 | 21.48 |
| Aug 04 | 23,184.54 | 747.89 | | 325 | 7,294.42 | 235.30 | 30,478.96 | 983.19 | 0.00 | 0.00 | 30,478.96 | 983.19 | 8,806.05 | 284.07 | 0.29 | 192.36 | 22.99 | 22.11 |
| Sep 04 | 25,976.59 | 837.95 | | 358 | 8,038.00 | 259.29 | 34,014.59 | 1,097.24 | 0.00 | 0.00 | 34,014.59 | 1,097.24 | 7,673.00 | 247.52 | 0.23 | 209.19 | 21.14 | 21.88 |
| Total 04 | 269,143.05 | | | 4,038 | 87,341.97 | | 356,485.02 | | 0.00 | | 356,485.02 | | 97,329.88 | | | 2,453.67 | 262.55 | |
| Average04 | 22,428.59 | 735.46 | | 337 | 7,278.50 | 238.69 | 29,707.09 | 974.14 | 0.00 | 0.00 | 29,707.09 | 974.14 | 8,110.82 | 266.02 | 0.27 | 204.47 | 21.88 | |
| Oct 04 | 11,736.44 | 378.59 | | 348 | 7,596.30 | 245.04 | 19,332.74 | 623.64 | 0.00 | 0.00 | 19,332.74 | 623.64 | 5,604.91 | 180.80 | 0.29 | 203.23 | 13.96 | 21.08 |
| Nov 04 | 20,613.33 | 687.11 | | 355 | 7,711.99 | 257.07 | 28,325.32 | 944.18 | 0.00 | 0.00 | 28,325.32 | 944.18 | 7,959.89 | 265.33 | 0.28 | 190.51 | 22.07 | 20.97 |
| Dec 04 | 16,018.98 | 516.74 | | 383 | 7,825.57 | 252.44 | 23,844.55 | 769.18 | 0.00 | 0.00 | 23,844.55 | 769.18 | 8,656.58 | 279.24 | 0.36 | 212.85 | 22.86 | 20.95 |
| Jan 05 | 16,927.80 | 546.06 | | 362 | 7,795.85 | 251.48 | 24,723.65 | 797.54 | 0.00 | 0.00 | 24,723.65 | 797.54 | 7,976.42 | 257.30 | 0.32 | 236.81 | 21.39 | 20.80 |
| Feb 05 | 21,715.73 | 700.51 | | 156 | 3,703.64 | 119.47 | 25,419.37 | 819.98 | 0.00 | 0.00 | 25,419.37 | 819.98 | 7,553.34 | 243.66 | 0.30 | 204.62 | 21.34 | 20.83 |
| Mar 05 | 10,396.45 | 335.37 | | 416 | 8,951.55 | 288.76 | 19,348.00 | 624.13 | 0.00 | 0.00 | 19,348.00 | 624.13 | 5,046.05 | 162.78 | 0.26 | 230.44 | 10.64 | 20.47 |
| Apr 05 | 16,988.68 | 566.29 | | 377 | 7,981.43 | 266.05 | 24,970.11 | 832.34 | 0.00 | 0.00 | 24,970.11 | 832.34 | 7,970.34 | 265.68 | 0.32 | 225.52 | 22.19 | 20.39 |
| May 05 | 23,638.44 | 787.95 | | 353 | 6,962.90 | 232.10 | 30,601.34 | 1,020.04 | 0.00 | 0.00 | 30,601.34 | 1,020.04 | 8,921.38 | 297.38 | 0.29 | 221.92 | 23.44 | 20.43 |
| Jun 05 | 25,477.24 | 849.24 | | 329 | 6,904.78 | 230.16 | 32,382.02 | 1,079.40 | 0.00 | 0.00 | 32,382.02 | 1,079.40 | 8,355.30 | 278.51 | 0.26 | 211.55 | 21.72 | 20.44 |
| Jul 05 | 24,432.32 | 814.41 | | 319 | 6,790.55 | 226.35 | 31,222.87 | 1,040.76 | 0.00 | 0.00 | 31,222.87 | 1,040.76 | 8,620.73 | 287.36 | 0.28 | 198.12 | 22.74 | 20.54 |
| Aug 05 | 25,750.36 | 830.66 | | 330 | 6,977.37 | 225.08 | 32,727.73 | 1,055.73 | 0.00 | 0.00 | 32,727.73 | 1,055.73 | 8,946.38 | 288.59 | 0.27 | 211.78 | 22.68 | 20.51 |
| Sep 05 | 23,243.76 | 774.79 | | 284 | 6,030.38 | 201.01 | 29,274.14 | 975.80 | 0.00 | 0.00 | 29,274.14 | 975.80 | 8,071.52 | 269.05 | 0.28 | 209.33 | 22.45 | 20.62 |
| Total 05 | 236,939.53 | | | 4,012 | 85,232.31 | | 322,171.84 | | 0.00 | | 322,171.84 | | 93,682.84 | | | 2,556.68 | 247.48 | |
| Average05 | 19,744.96 | 648.98 | | 334 | 7,102.69 | 232.92 | 26,847.65 | 881.89 | 0.00 | 0.00 | 26,847.65 | 881.89 | 7,806.90 | 256.31 | 0.29 | 213.06 | 20.62 | |
| Oct 05 | 15,396.01 | 496.65 | | 284 | 6,085.76 | 196.31 | 22,602.52 | 692.96 | 0.00 | 0.00 | 22,602.52 | 692.96 | 5,620.72 | 181.31 | 0.26 | 210.69 | 13.34 | 20.57 |
| Nov 05 | 27,035.70 | 901.19 | | 66 | 817.45 | 27.25 | 27,853.15 | 928.44 | 0.00 | 0.00 | 27,853.15 | 928.44 | 8,211.93 | 273.73 | 0.29 | 226.55 | 22.98 | 20.65 |
| Dec 05 | 30,948.94 | 998.35 | | 27 | 138.81 | 4.48 | 31,087.75 | 1,002.83 | 0.00 | 0.00 | 31,087.75 | 1,002.83 | 8,190.64 | 264.21 | 0.26 | 232.48 | 23.34 | 20.69 |
| Jan 06 | 21,468.13 | 692.52 | | 22 | 98.10 | 3.16 | 21,566.23 | 695.68 | 0.00 | 0.00 | 21,566.23 | 695.68 | 7,913.01 | 255.26 | 0.37 | 250.93 | 22.03 | 20.74 |
| Feb 06 | 14,635.31 | 522.69 | | 19 | 102.16 | 3.65 | 14,737.47 | 526.34 | 0.00 | 0.00 | 14,737.47 | 526.34 | 4,476.19 | 159.86 | 0.30 | 208.37 | 6.53 | 19.51 |
| Mar 06 | 25,897.81 | 835.41 | | 337 | 6,908.60 | 222.86 | 32,806.41 | 1,058.27 | 0.00 | 0.00 | 32,806.41 | 1,058.27 | 7,786.17 | 251.17 | 0.24 | 262.62 | 22.92 | 20.53 |
| Apr 06 | 18,632.38 | 621.08 | | 292 | 5,941.64 | 198.05 | 24,574.02 | 819.13 | 0.00 | 0.00 | 24,574.02 | 819.13 | 7,631.53 | 254.38 | 0.31 | 238.33 | 23.10 | 20.61 |
| May 06 | 25,526.66 | 823.44 | | 308 | 6,116.43 | 197.30 | 31,643.09 | 1,020.74 | 0.00 | 0.00 | 31,643.09 | 1,020.74 | 8,877.02 | 197.30 | 0.19 | 232.74 | 24.05 | 20.66 |
| Jun 06 | 22,036.18 | 734.54 | | 282 | 5,648.05 | 188.27 | 27,684.23 | 922.81 | 0.00 | 0.00 | 27,684.23 | 922.81 | 7,877.40 | 262.58 | 0.28 | 220.05 | 22.38 | 20.71 |
| Jul 06 | 25,419.09 | 819.97 | | 251 | 5,144.73 | 165.96 | 30,563.82 | 985.93 | 0.00 | 0.00 | 30,563.82 | 985.93 | 8,473.91 | 273.35 | 0.28 | 210.32 | 23.10 | 20.74 |
| Aug 06 | 24,626.89 | 794.42 | | 263 | 5,414.21 | 174.65 | 30,041.10 | 969.07 | 0.00 | 0.00 | 30,041.10 | 969.07 | 7,794.06 | 251.42 | 0.26 | 254.41 | 20.97 | 20.60 |
| Sep 06 | 17,854.76 | 595.16 | | 255 | 5,193.99 | 173.13 | 23,048.75 | 768.29 | 0.00 | 0.00 | 23,048.75 | 768.29 | 7,284.48 | 242.82 | 0.32 | 249.71 | 19.19 | 20.33 |
| Total 06 | 269,477.86 | | | 2,406 | 47,609.93 | | 318,208.54 | | 0.00 | | 318,208.54 | | 90,137.06 | | | 2,797.20 | 243.94 | |
| Average06 | 22,456.49 | 736.28 | | 201 | 3,967.49 | 129.59 | 26,517.38 | 865.87 | 0.00 | 0.00 | 26,517.38 | 865.87 | 7,511.42 | 238.95 | 0.28 | 233.10 | 20.33 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PLANT CITY WASTE | PLANT CITY DAILY AVG | HILLSBOROUGH WASTE | HILLSBOROUGH DAILY AVG | SUMTER WASTE | SUMTER DAILY AVG | CITRUS WASTE | CITRUS DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct 00 | 17,608.74 | 568.02 | 334 | 5,053.61 | 163.02 | 22,662.35 | 731.04 | 2,924.19 | 94.33 | 2,118.51 | 68.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,705.05 | 893.71 | 5,435.60 | 175.34 | 0.20 | 183.12 | 14.05 | 18.80 |
| Nov 00 | 17,291.86 | 576.40 | 369 | 5,892.07 | 196.40 | 23,183.93 | 772.80 | 2,733.58 | 91.12 | 2,066.29 | 68.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,983.80 | 932.79 | 8,294.53 | 276.48 | 0.30 | 193.41 | 25.84 | 19.50 |
| Dec 00 | 16,628.92 | 536.42 | 360 | 5,721.84 | 184.58 | 22,350.76 | 720.99 | 2,725.21 | 87.91 | 2,061.24 | 66.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,137.21 | 875.39 | 7,743.33 | 249.78 | 0.29 | 200.16 | 23.89 | 19.59 |
| Jan 01 | 18,736.13 | 604.39 | 399 | 6,358.17 | 205.10 | 25,094.30 | 809.49 | 3,192.44 | 102.98 | 2,256.93 | 72.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30,543.67 | 985.28 | 8,585.58 | 276.95 | 0.28 | 232.66 | 24.25 | 20.19 |
| Feb 01 | 18,491.68 | 660.42 | 371 | 6,013.80 | 214.78 | 24,505.48 | 875.20 | 2,932.30 | 104.73 | 2,020.83 | 72.17 | 0.00 | 0.00 | 22.63 | 0.81 | 0.00 | 0.00 | 29,458.61 | 1,052.09 | 7,550.85 | 269.67 | 0.26 | 209.70 | 25.09 | 20.62 |
| Mar 01 | 18,389.54 | 593.21 | 456 | 7,374.52 | 237.89 | 25,764.06 | 831.10 | 3,158.57 | 101.89 | 2,595.95 | 83.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31,518.58 | 1,016.73 | 8,125.29 | 262.11 | 0.26 | 240.79 | 22.30 | 21.05 |
| Apr 01 | 16,385.88 | 546.20 | 393 | 6,267.91 | 208.93 | 22,653.79 | 755.13 | 3,057.81 | 101.93 | 2,194.39 | 73.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,905.99 | 930.20 | 7,918.56 | 263.95 | 0.28 | 219.32 | 22.93 | 21.78 |
| May 01 | 8,777.52 | 283.15 | 382 | 5,991.90 | 193.29 | 14,769.42 | 476.43 | 1,569.90 | 50.64 | 2,176.86 | 70.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18,516.18 | 597.30 | 5,701.30 | 183.91 | 0.31 | 208.60 | 14.98 | 21.68 |
| Jun 01 | 18,992.74 | 633.09 | 364 | 5,573.56 | 185.79 | 24,566.30 | 818.88 | 0.00 | 0.00 | 2,315.43 | 77.18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,881.73 | 896.06 | 7,934.15 | 264.47 | 0.30 | 190.56 | 22.31 | 21.84 |
| Jul 01 | 20,798.19 | 670.91 | 371 | 5,624.45 | 181.43 | 26,422.64 | 852.34 | 0.00 | 0.00 | 2,437.41 | 78.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,860.05 | 930.97 | 8,766.29 | 282.78 | 0.30 | 187.53 | 21.88 | 21.69 |
| Aug 01 | 20,775.34 | 670.17 | 385 | 5,621.69 | 181.34 | 26,397.03 | 851.52 | 0.00 | 0.00 | 2,501.88 | 80.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,898.91 | 932.22 | 8,426.93 | 271.84 | 0.29 | 197.70 | 21.48 | 21.82 |
| Sep 01 | 19,161.68 | 638.72 | 348 | 5,209.76 | 173.66 | 24,371.44 | 812.38 | 0.00 | 0.00 | 2,200.55 | 73.35 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,571.99 | 885.73 | 8,176.71 | 272.56 | 0.31 | 169.00 | 22.82 | 21.82 |
| Total 01 | 212,038.22 | | 4,532 | 70,703.28 | | 282,741.50 | | 22,294.00 | | 26,946.27 | | 0.00 | | 22.63 | | 0.00 | | 331,981.77 | | 92,659.12 | | | 2,432.55 | 261.81 | |
| Average01 | 17,669.85 | 581.76 | 378 | 5,891.94 | 193.85 | 23,561.79 | 775.61 | 1,857.83 | 61.29 | 2,245.52 | 73.80 | 0.00 | 0.00 | 1.89 | 0.07 | 0.00 | 0.00 | 27,665.15 | 910.71 | 7,721.59 | 254.15 | 0.28 | 202.71 | 21.82 | |
| Oct 01 | 20,379.01 | 657.39 | 370 | 5,534.50 | 178.53 | 25,913.51 | 835.92 | 0.00 | 0.00 | 2,305.17 | 74.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,218.68 | 910.28 | 6,727.09 | 217.00 | 0.24 | 188.14 | 14.87 | 21.89 |
| Nov 01 | 18,791.62 | 626.39 | 366 | 5,662.29 | 188.74 | 24,453.91 | 815.13 | 0.00 | 0.00 | 2,205.50 | 73.52 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,659.41 | 888.65 | 7,414.02 | 247.13 | 0.28 | 197.67 | 22.10 | 21.57 |
| Dec 01 | 18,995.06 | 612.74 | 372 | 5,716.14 | 184.39 | 24,711.20 | 797.14 | 0.00 | 0.00 | 2,282.05 | 73.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,993.25 | 870.75 | 8,014.20 | 258.52 | 0.30 | 186.97 | 23.87 | 21.57 |
| Jan 02 | 21,146.97 | 682.16 | 416 | 6,597.23 | 212.81 | 27,744.20 | 894.97 | 0.00 | 0.00 | 2,393.67 | 77.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30,137.87 | 972.19 | 8,124.15 | 262.07 | 0.27 | 235.98 | 21.87 | 21.37 |
| Feb 02 | 19,033.84 | 679.78 | 362 | 5,827.00 | 208.11 | 24,860.84 | 887.89 | 0.00 | 0.00 | 2,225.23 | 79.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,086.07 | 967.36 | 7,355.20 | 262.69 | 0.27 | 199.16 | 22.72 | 21.18 |
| Mar 02 | 21,388.13 | 689.94 | 424 | 6,647.97 | 214.45 | 28,036.10 | 904.39 | 0.00 | 0.00 | 2,487.14 | 80.23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30,523.24 | 984.62 | 7,455.75 | 240.51 | 0.24 | 214.94 | 21.88 | 21.14 |
| Apr 02 | 22,061.82 | 735.39 | 419 | 6,475.94 | 215.86 | 28,537.76 | 951.26 | 0.00 | 0.00 | 2,600.72 | 86.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31,138.48 | 1,037.95 | 8,089.54 | 269.65 | 0.26 | 248.63 | 22.04 | 21.07 |
| May 02 | 17,538.90 | 565.77 | 383 | 5,691.56 | 183.60 | 23,230.46 | 749.37 | 0.00 | 0.00 | 2,522.53 | 81.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,752.99 | 830.74 | 7,265.80 | 234.38 | 0.28 | 207.91 | 19.31 | 21.43 |
| Jun 02 | 6,827.76 | 227.59 | 395 | 6,082.16 | 202.74 | 12,909.92 | 430.33 | 0.00 | 0.00 | 2,468.99 | 82.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 15,378.91 | 512.63 | 3,610.66 | 120.36 | 0.23 | 183.79 | 6.95 | 20.15 |
| Jul 02 | 21,292.03 | 686.84 | 426 | 6,691.30 | 215.85 | 27,983.33 | 902.69 | 0.00 | 0.00 | 2,608.19 | 84.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30,591.52 | 986.82 | 8,632.40 | 278.46 | 0.28 | 196.93 | 21.76 | 20.14 |
| Aug 02 | 21,366.64 | 689.25 | 392 | 6,022.19 | 194.26 | 27,388.83 | 883.51 | 0.00 | 0.00 | 2,464.26 | 79.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,853.09 | 963.00 | 8,373.36 | 270.11 | 0.28 | 196.70 | 21.82 | 20.17 |
| Sep 02 | 20,926.76 | 675.06 | 374 | 5,845.75 | 188.57 | 26,772.51 | 863.63 | 0.00 | 0.00 | 2,277.03 | 73.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,049.54 | 937.08 | 8,687.89 | 280.25 | 0.30 | 193.45 | 23.21 | 20.20 |
| Total 02 | 229,748.54 | | 4,699 | 72,794.03 | | 302,542.57 | | 0.00 | | 28,840.48 | | 0.00 | | 0.00 | | 0.00 | | 331,383.05 | | 89,750.06 | | | 2,450.27 | 242.38 | |
| Average02 | 19,145.71 | 627.36 | 392 | 6,066.17 | 198.99 | 25,211.88 | 826.35 | 0.00 | 0.00 | 2,403.37 | 78.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,615.25 | 905.17 | 7,479.17 | 245.09 | 0.27 | 204.19 | 20.20 | |
| Oct 02 | 20,783.03 | 670.42 | 418 | 6,563.13 | 211.71 | 27,346.16 | 882.13 | 0.00 | 0.00 | 2,512.95 | 81.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,859.11 | 963.20 | 7,165.25 | 231.14 | 0.24 | 210.48 | 14.65 | 20.18 |
| Nov 02 | 19,402.73 | 646.76 | 384 | 6,155.20 | 205.17 | 25,557.93 | 851.93 | 0.00 | 0.00 | 2,150.71 | 71.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,708.64 | 923.62 | 7,566.44 | 252.21 | 0.27 | 208.35 | 20.47 | 20.04 |
| Dec 02 | 21,642.76 | 698.15 | 395 | 6,785.42 | 218.88 | 28,428.18 | 917.04 | 0.00 | 0.00 | 2,675.91 | 86.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31,104.09 | 1,003.36 | 8,505.26 | 274.36 | 0.27 | 198.68 | 23.87 | 20.04 |
| Jan 03 | 20,844.62 | 672.41 | 320 | 6,628.12 | 213.81 | 27,472.74 | 886.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,472.74 | 886.22 | 6,768.12 | 218.33 | 0.25 | 236.83 | 17.06 | 19.64 |
| Feb 03 | 20,124.34 | 718.73 | 307 | 6,451.19 | 230.40 | 26,575.53 | 949.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,575.53 | 949.13 | 7,267.98 | 259.57 | 0.27 | 211.58 | 21.43 | 19.54 |
| Mar 03 | 24,129.00 | 778.35 | 389 | 8,205.28 | 264.69 | 32,334.28 | 1,043.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32,334.28 | 1,043.04 | 8,936.85 | 288.29 | 0.28 | 229.31 | 23.30 | 19.65 |
| Apr 03 | 22,272.56 | 742.42 | 335 | 6,934.84 | 231.16 | 29,207.40 | 973.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,207.40 | 973.58 | 8,212.96 | 273.77 | 0.28 | 232.25 | 22.51 | 19.69 |
| May 03 | 21,440.00 | 691.61 | 311 | 6,373.03 | 205.58 | 27,813.03 | 897.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,813.03 | 897.19 | 8,507.66 | 274.44 | 0.31 | 203.34 | 22.98 | 20.00 |
| Jun 03 | 21,341.82 | 711.39 | 292 | 6,111.42 | 203.71 | 27,453.24 | 915.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,453.24 | 915.11 | 8,796.12 | 293.20 | 0.32 | 176.59 | 22.72 | 21.31 |
| Jul 03 | 22,393.41 | 746.45 | 307 | 6,476.41 | 215.88 | 28,869.82 | 962.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,869.82 | 962.33 | 9,105.20 | 303.51 | 0.32 | 181.15 | 22.47 | 21.37 |
| Aug 03 | 20,996.35 | 699.88 | 288 | 6,052.84 | 201.76 | 27,049.19 | 901.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,049.19 | 901.64 | 6,455.99 | 215.20 | 0.24 | 180.28 | 15.43 | 20.84 |
| Sep 03 | 21,239.93 | 708.00 | 294 | 6,179.85 | 206.00 | 27,419.78 | 913.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,419.78 | 913.99 | 9,332.65 | 311.09 | 0.34 | 182.61 | 23.88 | 20.90 |
| Total 03 | 256,610.55 | | 4,040 | 78,916.73 | | 335,527.28 | | 0.00 | | 7,339.57 | | 0.00 | | 0.00 | | 0.00 | | 342,866.85 | | 96,620.48 | | | 2,451.45 | 250.76 | |
| Average03 | 21,384.21 | 707.05 | 337 | 6,576.39 | 217.40 | 27,960.61 | 924.44 | 0.00 | 0.00 | 611.63 | 19.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,572.24 | 944.37 | 8,051.71 | 266.26 | 0.28 | 204.29 | 20.90 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PLANT CITY WASTE | PLANT CITY DAILY AVG | HILLSBOROUGH WASTE | HILLSBOROUGH DAILY AVG | SUMTER WASTE | SUMTER DAILY AVG | CITRUS WASTE | CITRUS DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct 97 | 15,513.19 | 500.43 | 319 | 5,216.93 | 168.29 | 20,730.12 | 668.71 | 3,119.90 | 100.64 | 1,936.72 | 62.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,786.74 | 831.83 | 5,223.16 | 168.49 | 0.20 | 235.81 | 14.49 | 20.28 |
| Nov 97 | 14,299.33 | 476.64 | 304 | 5,155.36 | 171.85 | 19,454.69 | 648.49 | 3,034.16 | 101.14 | 1,706.09 | 56.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,194.94 | 806.50 | 5,852.15 | 195.07 | 0.24 | 230.99 | 19.14 | 20.27 |
| Dec 97 | 13,768.74 | 444.15 | 361 | 5,930.27 | 191.30 | 19,699.01 | 635.45 | 3,188.62 | 102.86 | 2,273.56 | 73.34 | 0.00 | 0.00 | 423.40 | 13.66 | 0.00 | 0.00 | 25,584.59 | 825.31 | 5,362.75 | 172.99 | 0.21 | 278.83 | 15.14 | 19.49 |
| Jan 98 | 13,853.89 | 446.90 | 367 | 6,275.10 | 202.42 | 20,128.99 | 649.32 | 3,079.81 | 99.35 | 2,045.54 | 65.99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,254.34 | 814.66 | 6,292.45 | 202.98 | 0.25 | 315.48 | 18.76 | 19.05 |
| Feb 98 | 16,107.24 | 575.26 | 353 | 5,767.77 | 205.99 | 21,875.01 | 781.25 | 3,194.20 | 114.08 | 1,930.89 | 68.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,000.10 | 964.29 | 5,368.49 | 191.73 | 0.20 | 254.59 | 17.69 | 18.70 |
| Mar 98 | 13,627.77 | 439.61 | 395 | 6,359.52 | 205.15 | 19,987.29 | 644.75 | 3,042.53 | 98.15 | 2,326.96 | 75.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,356.78 | 817.96 | 5,561.54 | 179.40 | 0.22 | 297.38 | 15.66 | 18.42 |
| Apr 98 | 11,339.37 | 377.98 | 341 | 5,784.79 | 192.83 | 17,124.16 | 570.81 | 3,094.58 | 103.15 | 1,925.08 | 64.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22,143.82 | 738.13 | 5,821.09 | 194.04 | 0.26 | 300.49 | 17.16 | 18.15 |
| May 98 | 13,124.30 | 423.36 | 273 | 4,855.94 | 156.64 | 17,980.24 | 580.01 | 3,002.16 | 96.84 | 1,883.42 | 60.76 | 0.00 | 0.00 | 110.49 | 3.56 | 0.00 | 0.00 | 22,865.82 | 737.61 | 6,529.26 | 210.62 | 0.29 | 247.54 | 20.18 | 18.04 |
| Jun 98 | 21,583.05 | 719.44 | 301 | 4,656.96 | 155.23 | 26,240.01 | 874.67 | 3,055.19 | 101.84 | 2,062.02 | 68.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31,357.22 | 1,045.24 | 8,580.40 | 286.01 | 0.27 | 239.95 | 22.71 | 18.47 |
| Jul 98 | 18,401.73 | 593.60 | 326 | 5,104.27 | 164.65 | 23,506.00 | 758.26 | 3,262.17 | 105.23 | 2,086.57 | 67.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,854.74 | 930.80 | 7,506.85 | 242.16 | 0.26 | 234.88 | 19.58 | 18.38 |
| Aug 98 | 19,112.60 | 616.54 | 290 | 4,594.11 | 148.20 | 23,706.71 | 764.73 | 3,104.06 | 100.13 | 1,949.60 | 62.89 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,760.37 | 927.75 | 8,059.42 | 259.98 | 0.28 | 207.90 | 20.56 | 18.39 |
| Sep 98 | 23,347.27 | 778.24 | 307 | 4,900.80 | 163.36 | 28,248.07 | 941.60 | 3,131.08 | 104.37 | 2,050.15 | 68.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 33,429.30 | 1,114.31 | 7,765.87 | 258.86 | 0.23 | 210.17 | 18.96 | 18.34 |
| Total 98 | 194,078.48 | | 3,937 | 64,601.82 | | 258,680.30 | | 37,308.46 | | 24,176.60 | | 0.00 | | 533.89 | | 0.00 | | 320,588.76 | | 77,923.43 | | | 3,054.01 | 220.02 | |
| Average98 | 16,173.21 | 532.68 | 328 | 5,383.49 | 177.16 | 21,556.69 | 709.84 | 3,109.04 | 102.32 | 2,014.72 | 66.24 | 0.00 | 0.00 | 44.49 | 1.44 | 0.00 | 0.00 | 26,715.73 | 879.53 | 6,493.62 | 213.53 | 0.24 | 254.50 | 18.34 | |
| Oct 98 | 14,667.38 | 473.14 | 317 | 5,107.30 | 164.75 | 19,774.68 | 637.89 | 2,929.82 | 94.51 | 1,988.08 | 64.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,692.58 | 796.53 | 6,323.34 | 203.98 | 0.26 | 219.57 | 17.11 | 18.55 |
| Nov 98 | 14,754.34 | 491.81 | 312 | 5,098.87 | 169.96 | 19,853.21 | 661.77 | 2,929.13 | 97.64 | 1,949.52 | 64.98 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,731.86 | 824.40 | 7,269.20 | 242.31 | 0.29 | 204.33 | 21.52 | 18.75 |
| Dec 98 | 21,597.22 | 696.68 | 367 | 5,761.07 | 185.84 | 27,358.29 | 882.53 | 3,148.87 | 101.58 | 2,088.04 | 67.36 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32,595.20 | 1,051.46 | 8,356.99 | 269.58 | 0.26 | 240.60 | 23.85 | 19.48 |
| Jan 99 | 17,213.04 | 555.26 | 351 | 5,723.07 | 184.62 | 22,936.11 | 739.87 | 3,111.49 | 100.37 | 1,975.48 | 63.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,023.08 | 903.97 | 7,548.65 | 243.50 | 0.27 | 251.26 | 22.75 | 19.81 |
| Feb 99 | 15,919.94 | 568.57 | 333 | 5,460.20 | 195.01 | 21,380.14 | 763.58 | 2,969.13 | 106.04 | 1,851.58 | 66.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,200.85 | 935.74 | 6,737.37 | 240.62 | 0.26 | 221.26 | 22.75 | 20.23 |
| Mar 99 | 12,498.81 | 403.19 | 416 | 6,696.45 | 216.01 | 19,195.26 | 619.20 | 3,151.08 | 101.65 | 2,419.25 | 78.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,765.59 | 798.89 | 7,002.06 | 225.87 | 0.28 | 260.11 | 19.30 | 20.53 |
| Apr 99 | 12,625.31 | 420.84 | 377 | 6,176.59 | 205.89 | 18,801.90 | 626.73 | 3,106.92 | 103.56 | 2,042.14 | 68.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23,950.96 | 798.37 | 5,684.31 | 189.48 | 0.24 | 248.91 | 16.06 | 20.44 |
| May 99 | 12,938.85 | 417.38 | 354 | 5,686.16 | 183.42 | 18,625.01 | 600.81 | 2,963.97 | 95.61 | 2,084.93 | 67.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23,673.91 | 763.67 | 7,435.24 | 239.85 | 0.31 | 203.95 | 22.21 | 20.61 |
| Jun 99 | 17,857.04 | 595.23 | 359 | 5,885.79 | 196.19 | 23,742.83 | 791.43 | 3,137.76 | 104.59 | 2,251.67 | 75.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,132.26 | 971.08 | 7,227.83 | 240.93 | 0.25 | 218.98 | 20.74 | 20.45 |
| Jul 99 | 17,240.03 | 556.13 | 339 | 5,395.02 | 174.03 | 22,635.05 | 730.16 | 3,148.72 | 101.57 | 2,188.11 | 70.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,971.88 | 902.32 | 8,449.44 | 272.56 | 0.30 | 209.04 | 21.75 | 20.63 |
| Aug 99 | 16,893.97 | 544.97 | 340 | 5,375.33 | 173.40 | 22,269.30 | 718.36 | 3,100.81 | 100.03 | 2,209.71 | 71.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,579.82 | 889.67 | 7,690.56 | 248.08 | 0.28 | 186.89 | 19.29 | 20.52 |
| Sep 99 | 16,875.70 | 562.52 | 320 | 5,075.23 | 169.17 | 21,950.93 | 731.70 | 2,982.89 | 99.43 | 2,007.74 | 66.92 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,941.56 | 898.05 | 7,057.90 | 235.26 | 0.26 | 187.61 | 18.57 | 20.49 |
| Total 99 | 191,081.63 | | 4,185 | 67,441.08 | | 258,522.71 | | 36,680.59 | | 25,056.25 | | 0.00 | | 0.00 | | 0.00 | | 320,259.55 | | 86,782.89 | | | 2,652.51 | 245.90 | |
| Average99 | 15,923.47 | 523.81 | 349 | 5,620.09 | 184.86 | 21,543.56 | 708.67 | 3,056.72 | 100.55 | 2,088.02 | 68.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,688.30 | 877.85 | 7,231.91 | 237.67 | 0.27 | 221.04 | 20.49 | |
| Oct 99 | 16,738.73 | 539.96 | 314 | 5,112.79 | 164.93 | 21,851.52 | 704.89 | 2,859.87 | 92.25 | 1,943.69 | 62.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,655.08 | 859.84 | 6,832.63 | 220.41 | 0.26 | 207.51 | 19.73 | 20.71 |
| Nov 99 | 17,242.98 | 574.77 | 357 | 5,864.02 | 195.47 | 23,107.00 | 770.23 | 3,037.05 | 101.24 | 2,172.97 | 72.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,317.02 | 943.90 | 6,693.56 | 223.12 | 0.24 | 214.00 | 17.47 | 20.37 |
| Dec 99 | 16,957.57 | 547.02 | 385 | 5,315.04 | 171.45 | 22,272.61 | 718.47 | 3,038.67 | 98.02 | 2,169.89 | 70.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,953.58 | 901.73 | 7,544.87 | 243.38 | 0.27 | 225.58 | 22.80 | 20.29 |
| Jan 00 | 12,242.34 | 394.91 | 398 | 5,282.65 | 170.41 | 17,524.99 | 565.32 | 3,095.89 | 99.87 | 2,153.40 | 69.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22,774.28 | 734.65 | 5,889.26 | 189.98 | 0.26 | 232.19 | 17.09 | 19.81 |
| Feb 00 | 16,712.88 | 576.31 | 369 | 5,689.54 | 196.19 | 22,402.42 | 772.50 | 3,040.37 | 104.84 | 2,199.44 | 75.84 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,651.06 | 953.48 | 6,731.59 | 232.12 | 0.24 | 224.02 | 19.85 | 19.57 |
| Mar 00 | 11,229.95 | 362.26 | 437 | 7,051.21 | 227.46 | 18,281.16 | 589.71 | 3,051.84 | 98.45 | 2,612.41 | 84.27 | 0.00 | 0.00 | 344.35 | 11.11 | 0.00 | 0.00 | 23,945.41 | 772.43 | 6,118.54 | 197.37 | 0.26 | 234.57 | 17.18 | 19.40 |
| Apr 00 | 7,270.13 | 242.34 | 360 | 5,817.43 | 193.91 | 13,087.56 | 436.25 | 3,113.98 | 103.80 | 2,154.97 | 71.83 | 0.00 | 0.00 | 745.56 | 24.85 | 0.00 | 0.00 | 18,356.51 | 611.88 | 5,211.05 | 173.70 | 0.28 | 203.28 | 14.17 | 19.24 |
| May 00 | 9,788.71 | 315.76 | 355 | 5,511.32 | 177.78 | 15,300.03 | 493.55 | 3,108.73 | 100.28 | 2,305.37 | 74.37 | 0.00 | 0.00 | 61.88 | 2.00 | 0.00 | 0.00 | 20,714.13 | 668.20 | 6,240.40 | 201.30 | 0.30 | 212.88 | 16.22 | 18.74 |
| Jun 00 | 15,809.18 | 526.97 | 356 | 5,510.25 | 183.68 | 21,319.43 | 710.65 | 3,044.94 | 101.50 | 2,392.46 | 79.75 | 0.00 | 0.00 | 0.00 | 0.00 | 1.33 | 0.04 | 26,758.16 | 891.94 | 7,323.91 | 244.13 | 0.27 | 201.77 | 20.35 | 18.71 |
| Jul 00 | 18,885.82 | 609.22 | 337 | 5,295.40 | 170.82 | 24,181.22 | 780.04 | 3,034.37 | 97.88 | 2,214.45 | 71.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 29,430.04 | 949.36 | 9,161.76 | 295.54 | 0.31 | 177.34 | 23.74 | 18.87 |
| Aug 00 | 19,200.72 | 619.38 | 357 | 5,619.19 | 181.26 | 24,819.91 | 800.64 | 3,089.27 | 99.65 | 2,369.22 | 76.43 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 30,278.40 | 976.72 | 7,895.82 | 254.70 | 0.26 | 192.78 | 19.83 | 18.92 |
| Sep 00 | 17,725.67 | 590.86 | 320 | 5,115.02 | 170.50 | 22,840.69 | 761.36 | 3,052.37 | 101.75 | 2,109.21 | 70.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,002.27 | 933.41 | 8,350.79 | 278.36 | 0.30 | 177.28 | 22.88 | 20.82 |
| Total 00 | 179,804.68 | | 4,345 | 67,183.86 | | 246,988.54 | | 36,567.35 | | 26,797.48 | | 0.00 | | 1,151.79 | | 1.33 | | 310,835.94 | | 83,994.18 | | | 2,503.20 | 231.31 | |
| Average00 | 14,983.72 | 491.65 | 362 | 5,598.66 | 183.66 | 20,582.38 | 675.30 | 3,047.28 | 99.96 | 2,233.12 | 73.24 | 0.00 | 0.00 | 95.98 | 3.16 | 0.11 | 0.00 | 25,903.00 | 849.80 | 6,999.52 | 229.51 | 0.27 | 208.60 | 19.28 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO | | EAST PASCO | | | | | HERNANDO | | PLANT CITY | | HILLSBOROUGH | | SUMTER | | CITRUS | | PROCESSABLE WASTE | | ASH | | % | RECYCLING | MEGA | WATTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS | DAILY AVG | LOADS | TONS | DAILY AVG | TOTAL PASCO | DAILY AVG | WASTE | DAILY AVG | WASTE | DAILY AVG | WASTE | DAILY AVG | WASTE | DAILY AVG | WASTE | DAILY AVG | TOTAL TONS | DAILY AVG | TOTAL TONS | DAILY AVG | ASH/ MSW | TOTAL TONS | MONTHLY GEN. | 12 MONTH ROLLING AVERAGE |
| Oct 94 | 14,407.73 | 464.77 | 351 | 4,671.27 | 150.69 | 19,079.00 | 615.45 | 3,982.91 | 128.48 | 1,890.34 | 60.98 | 98.64 | 3.18 | 0.00 | 0.00 | 0.00 | 0.00 | 25,050.89 | 808.09 | 5,579.46 | 179.98 | 0.22 | 288.76 | 16.86 | 20.36 |
| Nov 94 | 15,177.29 | 505.91 | 372 | 4,197.78 | 139.93 | 19,375.07 | 645.84 | 4,263.10 | 142.10 | 1,962.63 | 65.42 | 708.69 | 23.62 | 0.00 | 0.00 | 0.00 | 0.00 | 26,309.49 | 876.98 | 5,486.86 | 182.90 | 0.21 | 291.18 | 18.18 | 20.37 |
| Dec 94 | 14,446.17 | 466.01 | 343 | 4,139.39 | 133.53 | 18,585.56 | 599.53 | 4,313.13 | 139.13 | 1,992.92 | 64.29 | 0.00 | 0.00 | 0.00 | 0.00 | 255.16 | 8.23 | 25,146.77 | 811.19 | 5,728.08 | 184.78 | 0.23 | 327.20 | 17.68 | 19.86 |
| Jan 95 | 15,532.24 | 501.04 | 383 | 5,158.95 | 166.42 | 20,691.19 | 667.46 | 4,199.45 | 135.47 | 1,985.48 | 64.05 | 0.00 | 0.00 | 0.00 | 0.00 | 610.19 | 19.68 | 27,486.31 | 886.66 | 6,217.08 | 200.55 | 0.23 | 372.24 | 22.07 | 20.06 |
| Feb 95 | 13,835.23 | 494.12 | 352 | 4,772.94 | 170.46 | 18,608.17 | 664.58 | 4,119.76 | 147.13 | 1,832.32 | 65.44 | 0.00 | 0.00 | 0.00 | 0.00 | 149.69 | 5.35 | 24,709.94 | 882.50 | 5,672.81 | 202.60 | 0.23 | 367.19 | 21.93 | 19.79 |
| Mar 95 | 15,822.50 | 510.40 | 449 | 6,424.61 | 207.25 | 22,247.11 | 717.65 | 4,478.00 | 144.45 | 2,384.91 | 76.93 | 0.00 | 0.00 | 0.00 | 0.00 | 178.47 | 5.76 | 29,288.49 | 944.79 | 6,549.00 | 211.26 | 0.22 | 363.29 | 20.92 | 19.77 |
| Apr 95 | 13,789.48 | 459.65 | 348 | 5,157.32 | 171.91 | 18,946.80 | 631.56 | 4,120.89 | 137.36 | 1,826.70 | 60.89 | 0.00 | 0.00 | 0.00 | 0.00 | 171.93 | 5.73 | 25,066.32 | 835.54 | 5,928.42 | 197.61 | 0.24 | 302.73 | 19.38 | 19.76 |
| May 95 | 15,618.54 | 503.82 | 388 | 5,002.19 | 161.36 | 20,620.73 | 665.18 | 4,389.81 | 141.61 | 2,193.90 | 70.77 | 0.00 | 0.00 | 0.00 | 0.00 | 123.46 | 3.98 | 27,327.90 | 881.55 | 8,208.70 | 264.80 | 0.30 | 330.18 | 24.40 | 19.72 |
| Jun 95 | 19,424.06 | 647.47 | 381 | 5,111.87 | 170.40 | 24,535.93 | 817.86 | 4,293.56 | 143.12 | 2,148.55 | 71.62 | 0.00 | 0.00 | 0.00 | 0.00 | 139.01 | 4.63 | 31,117.05 | 1,037.24 | 7,353.06 | 245.10 | 0.24 | 251.31 | 22.19 | 19.71 |
| Jul 95 | 19,479.32 | 628.37 | 318 | 4,535.67 | 146.31 | 24,014.99 | 774.68 | 3,934.16 | 126.91 | 1,887.64 | 60.89 | 0.00 | 0.00 | 0.00 | 0.00 | 88.58 | 2.86 | 29,925.37 | 965.33 | 7,734.42 | 249.50 | 0.26 | 295.78 | 22.60 | 20.01 |
| Aug 95 | 15,858.49 | 511.56 | 330 | 5,149.31 | 166.11 | 21,007.80 | 677.67 | 4,494.02 | 144.97 | 2,020.03 | 65.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,521.85 | 887.80 | 6,870.29 | 221.62 | 0.25 | 254.67 | 21.08 | 20.20 |
| Sep 95 | 14,737.82 | 491.26 | 289 | 4,611.45 | 153.72 | 19,349.27 | 644.98 | 4,095.58 | 136.52 | 1,850.68 | 61.69 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,295.53 | 843.18 | 6,634.04 | 221.13 | 0.26 | 247.85 | 20.31 | 20.63 |
| Total 95 | 188,128.87 | | 4,304 | 58,932.75 | | 247,061.62 | | 50,684.37 | | 23,976.10 | | 807.33 | | 0.00 | | 1,716.49 | | 324,245.91 | | 77,962.22 | | | 3,692.38 | 247.60 | |
| Average 95 | 15,677.41 | 515.36 | 359 | 4,911.06 | 161.51 | 20,588.47 | 676.87 | 4,223.70 | 138.94 | 1,998.01 | 65.68 | 67.28 | 2.23 | 0.00 | 0.00 | 143.04 | 4.69 | 27,020.49 | 888.40 | 6,496.85 | 213.49 | 0.24 | 307.70 | 20.63 | |
| Oct 95 | 16,079.27 | 518.69 | 320 | 5,034.19 | 162.39 | 21,113.46 | 681.08 | 3,229.60 | 104.18 | 1,959.09 | 63.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,302.15 | 848.46 | 5,541.49 | 178.76 | 0.21 | 276.19 | 16.13 | 20.57 |
| Nov 95 | 14,526.70 | 484.22 | 299 | 4,820.69 | 160.69 | 19,347.39 | 644.91 | 2,829.74 | 94.32 | 1,816.22 | 60.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23,993.35 | 799.78 | 5,378.12 | 179.27 | 0.22 | 293.26 | 17.54 | 20.52 |
| Dec 95 | 13,598.36 | 438.59 | 303 | 4,804.90 | 155.00 | 18,401.26 | 593.59 | 3,210.21 | 103.56 | 1,756.42 | 56.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23,367.89 | 753.80 | 6,041.48 | 194.89 | 0.26 | 283.84 | 20.89 | 20.79 |
| Jan 96 | 15,862.19 | 511.68 | 371 | 5,813.67 | 188.83 | 21,675.86 | 700.51 | 3,431.25 | 110.69 | 2,106.00 | 67.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,213.11 | 879.13 | 5,919.14 | 190.94 | 0.22 | 350.14 | 18.89 | 20.52 |
| Feb 96 | 14,971.99 | 482.97 | 331 | 5,176.54 | 168.73 | 20,148.53 | 651.69 | 3,047.05 | 98.29 | 1,918.30 | 61.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,113.88 | 811.87 | 6,198.76 | 199.96 | 0.25 | 314.45 | 20.50 | 20.40 |
| Mar 96 | 15,746.96 | 507.97 | 388 | 6,012.91 | 195.35 | 21,759.87 | 703.32 | 3,300.10 | 106.45 | 2,267.71 | 73.15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,327.68 | 882.93 | 5,538.52 | 178.66 | 0.20 | 313.39 | 17.81 | 20.14 |
| Apr 96 | 9,594.15 | 319.05 | 368 | 5,940.16 | 198.77 | 15,534.31 | 517.81 | 3,450.23 | 115.01 | 2,194.25 | 73.14 | 0.00 | 0.00 | 8.38 | 0.27 | 0.00 | 0.00 | 21,187.17 | 705.96 | 6,254.83 | 208.49 | 0.30 | 311.02 | 16.92 | 19.94 |
| May 96 | 15,652.22 | 504.91 | 328 | 5,282.66 | 170.41 | 20,934.88 | 675.32 | 3,328.94 | 107.39 | 2,033.24 | 65.59 | 0.00 | 0.00 | 865.56 | 27.92 | 0.00 | 0.00 | 27,162.62 | 848.29 | 7,042.57 | 227.18 | 0.27 | 313.00 | 21.83 | 19.72 |
| Jun 96 | 13,282.79 | 442.76 | 294 | 4,701.98 | 156.73 | 17,984.77 | 599.49 | 2,626.43 | 87.55 | 1,963.87 | 65.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22,575.07 | 752.50 | 6,302.25 | 210.08 | 0.28 | 247.86 | 17.50 | 19.33 |
| Jul 96 | 17,962.39 | 579.43 | 315 | 5,103.98 | 164.64 | 23,066.37 | 744.08 | 2,833.37 | 91.40 | 2,014.94 | 65.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,914.68 | 900.47 | 7,652.38 | 246.85 | 0.27 | 258.72 | 20.33 | 19.14 |
| Aug 96 | 15,468.23 | 498.98 | 294 | 4,767.27 | 153.78 | 20,235.50 | 652.76 | 2,162.20 | 69.75 | 1,880.41 | 60.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,278.11 | 783.16 | 5,805.77 | 187.28 | 0.24 | 243.24 | 15.72 | 18.70 |
| Sep 96 | 12,924.52 | 430.82 | 275 | 4,411.09 | 147.04 | 17,335.61 | 577.85 | 3,061.97 | 102.07 | 1,820.53 | 60.68 | 0.00 | 0.00 | 423.40 | 14.11 | 0.00 | 0.00 | 22,218.11 | 740.60 | 4,763.68 | 158.79 | 0.21 | 231.86 | 17.30 | 18.45 |
| Total 96 | 175,667.77 | | 3,886 | 61,870.04 | | 237,537.81 | | 36,511.09 | | 23,730.98 | | 0.00 | | 1,297.34 | | 0.00 | | 298,653.82 | | 72,438.99 | | | 3,436.97 | 221.36 | |
| Average96 | 14,638.98 | 476.67 | 324 | 5,155.84 | 168.53 | 19,794.82 | 645.20 | 3,042.59 | 99.22 | 1,977.58 | 64.49 | 0.00 | 0.00 | 108.11 | 3.53 | 0.00 | 0.00 | 24,887.82 | 808.91 | 6,036.58 | 196.76 | 0.24 | 286.41 | 18.45 | |
| Oct 96 | 8,347.99 | 269.29 | 313 | 5,152.42 | 166.21 | 13,500.41 | 435.50 | 3,413.86 | 110.12 | 1,908.43 | 61.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 18,822.70 | 607.18 | 3,416.82 | 110.22 | 0.18 | 262.32 | 9.22 | 17.87 |
| Nov 96 | 14,253.41 | 475.11 | 291 | 4,810.80 | 160.36 | 19,064.21 | 635.47 | 3,058.57 | 101.95 | 1,705.99 | 56.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 23,828.77 | 794.29 | 5,969.59 | 198.99 | 0.25 | 238.55 | 19.20 | 18.01 |
| Dec 96 | 14,937.82 | 481.87 | 331 | 5,391.65 | 173.92 | 20,329.47 | 655.79 | 3,199.32 | 103.20 | 2,043.84 | 65.93 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,572.63 | 824.92 | 7,633.12 | 246.23 | 0.30 | 253.60 | 24.50 | 18.31 |
| Jan 97 | 18,161.10 | 585.84 | 340 | 5,672.94 | 183.00 | 23,834.04 | 768.84 | 2,988.49 | 96.40 | 1,973.31 | 63.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,795.84 | 928.90 | 7,908.32 | 255.11 | 0.27 | 304.05 | 24.07 | 18.74 |
| Feb 97 | 17,896.49 | 639.16 | 330 | 5,553.84 | 198.35 | 23,450.33 | 837.51 | 3,018.93 | 107.82 | 1,846.97 | 65.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,316.23 | 1,011.29 | 6,817.52 | 243.48 | 0.24 | 272.77 | 21.95 | 18.86 |
| Mar 97 | 16,798.43 | 541.88 | 388 | 6,375.02 | 205.65 | 23,173.45 | 747.53 | 3,073.09 | 99.13 | 2,355.20 | 75.97 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,601.74 | 922.64 | 6,661.59 | 214.89 | 0.23 | 292.17 | 18.99 | 18.96 |
| Apr 97 | 16,015.13 | 533.84 | 357 | 5,977.89 | 199.26 | 21,993.02 | 733.10 | 2,994.22 | 99.81 | 1,984.78 | 66.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,972.02 | 899.07 | 6,553.14 | 218.44 | 0.24 | 312.30 | 20.33 | 19.25 |
| May 97 | 17,855.62 | 575.99 | 333 | 5,425.18 | 175.01 | 23,280.80 | 75.10 | 3,027.34 | 97.66 | 2,044.91 | 65.96 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 28,353.05 | 914.61 | 7,398.35 | 238.66 | 0.26 | 263.13 | 21.58 | 19.22 |
| Jun 97 | 15,857.61 | 528.59 | 297 | 4,737.35 | 157.91 | 20,594.96 | 686.50 | 3,017.91 | 100.60 | 1,923.47 | 64.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 25,536.34 | 851.21 | 5,971.90 | 199.06 | 0.23 | 237.52 | 17.47 | 19.22 |
| Jul 97 | 22,055.62 | 711.47 | 316 | 5,087.14 | 164.10 | 27,142.76 | 875.57 | 2,976.63 | 96.02 | 1,990.92 | 64.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 32,110.31 | 1,035.82 | 7,784.94 | 251.13 | 0.24 | 262.95 | 20.74 | 19.26 |
| Aug 97 | 17,182.96 | 554.29 | 307 | 4,975.13 | 160.49 | 22,158.09 | 714.78 | 3,024.31 | 97.56 | 1,884.15 | 60.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 27,066.55 | 873.11 | 7,293.32 | 235.27 | 0.27 | 221.49 | 20.39 | 19.65 |
| Sep 97 | 14,555.66 | 485.19 | 272 | 4,816.07 | 160.54 | 19,371.73 | 645.72 | 3,196.86 | 106.56 | 1,966.71 | 65.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 24,535.30 | 817.84 | 6,666.79 | 222.23 | 0.27 | 219.33 | 19.63 | 19.84 |
| Total 97 | 193,917.84 | | 3,875 | 63,975.43 | | 257,893.27 | | 36,989.53 | | 23,628.68 | | 0.00 | | 0.00 | | 0.00 | | 318,511.48 | | 80,075.40 | | | 3,140.18 | 238.08 | |
| Average97 | 16,159.82 | 531.88 | 323 | 5,331.29 | 175.40 | 21,491.11 | 650.95 | 3,082.46 | 101.40 | 1,969.06 | 64.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 26,542.62 | 873.41 | 6,672.95 | 219.47 | 0.25 | 261.68 | 19.84 | |

## Pasco County Waste - to - Energy Tonnage Report

| MONTH/ YEAR | WEST PASCO TONS | WEST PASCO DAILY AVG | EAST PASCO LOADS | EAST PASCO TONS | EAST PASCO DAILY AVG | TOTAL PASCO | DAILY AVG | HERNANDO WASTE | HERNANDO DAILY AVG | PLANT CITY WASTE | PLANT CITY DAILY AVG | HILLSBOROUGH WASTE | HILLSBOROUGH DAILY AVG | SUMTER WASTE | SUMTER DAILY AVG | CITRUS WASTE | CITRUS DAILY AVG | PROCESSABLE WASTE TOTAL TONS | PROCESSABLE WASTE DAILY AVG | ASH TOTAL TONS | ASH DAILY AVG | % ASH/ MSW | RECYCLING TOTAL TONS | MEGA WATTS MONTHLY GEN. | MEGA WATTS 12 MONTH ROLLING AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18-28 Feb | 4,053.12 | 405.31 | | 0.00 | | 4,053.12 | 405.31 | | | | | 0.00 | 0.00 | | | | | 4,053.12 | 405.31 | | | | | | |
| Mar 91 | 16,907.78 | 545.41 | | 0.00 | | 16,907.78 | 545.41 | 3,068.83 | 98.99 | | | 6,426.51 | 207.31 | | | | | 24,611.61 | 793.92 | 6,698.98 | 216.10 | 0.27 | | 12.47 | 12.47 |
| Apr 91 | 17,718.31 | 590.61 | | 0.00 | | 17,718.31 | 590.61 | 3,178.99 | 105.97 | | | 10,825.37 | 360.85 | | | | | 31,722.72 | 1,057.42 | 8,056.29 | 268.54 | 0.25 | | 24.46 | 18.47 |
| May 91 | 15,227.39 | 491.21 | 173 | 3,192.78 | 102.99 | 18,420.17 | 594.20 | 3,246.11 | 104.71 | | | 5,963.20 | 192.36 | | | | | 27,610.76 | 890.67 | 6,401.68 | 206.51 | 0.23 | | 17.50 | 18.14 |
| Jun 91 | 12,699.35 | 423.31 | 178 | 3,329.09 | 110.97 | 16,028.44 | 534.28 | 2,903.51 | 96.78 | | | 9,774.19 | 325.81 | | | | | 28,701.27 | 956.71 | 5,991.98 | 199.73 | 0.21 | | 17.69 | 18.03 |
| Jul 91 | 15,178.62 | 489.63 | 197 | 3,724.71 | 120.15 | 18,903.33 | 609.78 | 3,242.08 | 104.58 | | | 0.00 | 0.00 | | | | | 22,243.20 | 717.52 | 5,931.36 | 191.33 | 0.27 | | 14.12 | 17.25 |
| Aug 91 | 13,557.21 | 437.33 | 197 | 3,667.97 | 118.32 | 17,225.18 | 555.65 | 3,075.85 | 99.22 | | | 0.00 | 0.00 | | | | | 21,282.58 | 686.53 | 4,913.84 | 158.51 | 0.23 | | 11.73 | 16.33 |
| Sep 91 | 12,519.74 | 417.32 | 175 | 3,224.85 | 107.50 | 15,744.59 | 524.82 | 2,821.20 | 94.04 | | | 0.00 | 0.00 | | | | | 18,560.77 | 618.69 | 5,004.74 | 166.82 | 0.27 | | 12.33 | 15.76 |
| FY 91 Total | 107,861.52 | | 920 | 17,139.40 | | 125,000.92 | | 21,536.57 | | 0.00 | | 32,989.27 | | 0.00 | | 0.00 | | 178,786.03 | | 42,998.87 | | | | | |
| Avg 91 | 13,482.69 | 475.02 | 184 | 3,427.88 | 111.99 | 15,625.12 | 545.01 | 3,076.65 | 100.61 | 0.00 | 0.00 | 4,123.66 | 135.79 | 0.00 | 0.00 | 0.00 | 0.00 | 22,348.25 | 765.85 | 6,142.70 | 201.08 | 0.22 | 0.00 | 15.76 | |
| Oct 91 | 13,330.25 | 430.01 | 205 | 3,703.70 | 119.47 | 17,033.95 | 549.48 | 3,132.10 | 101.04 | | | 0.00 | 0.00 | | | | | 20,166.05 | 650.52 | 5,014.97 | 161.77 | 0.25 | | 13.02 | 15.42 |
| Nov 91 | 12,304.70 | 410.16 | 200 | 3,640.34 | 121.34 | 15,945.04 | 531.50 | 3,011.60 | 100.39 | | | 0.00 | 0.00 | | | | | 18,956.64 | 631.89 | 4,901.05 | 163.37 | 0.26 | | 12.75 | 15.12 |
| Dec 91 | 13,358.52 | 430.92 | 222 | 4,006.46 | 129.24 | 17,364.98 | 560.16 | 3,454.76 | 111.44 | | | 362.46 | 11.69 | | | | | 21,182.20 | 683.30 | 5,260.35 | 169.69 | 0.25 | | 14.40 | 15.05 |
| Jan 92 | 12,932.55 | 417.18 | 214 | 3,927.84 | 126.70 | 16,860.39 | 543.88 | 2,981.51 | 96.18 | | | 2,184.48 | 70.47 | | | | | 22,026.38 | 710.53 | 4,336.38 | 139.95 | 0.20 | 85.10 | 12.12 | 14.78 |
| Feb 92 | 12,319.20 | 424.80 | 217 | 3,972.12 | 136.97 | 16,291.32 | 561.77 | 3,118.89 | 107.55 | | | 9,659.64 | 333.09 | | | | | 29,069.85 | 1,002.41 | 5,250.87 | 181.06 | 0.18 | 319.07 | 16.66 | 14.94 |
| Mar 92 | 14,249.17 | 459.65 | 244 | 4,552.57 | 146.86 | 18,801.74 | 606.51 | 3,276.08 | 105.68 | | | 5,315.29 | 171.46 | | | | | 27,393.11 | 883.65 | 7,176.99 | 231.52 | 0.26 | 425.94 | 23.19 | 15.83 |
| Apr 92 | 13,754.38 | 458.48 | 232 | 4,308.04 | 143.60 | 18,062.42 | 602.08 | 3,041.60 | 101.39 | | | 2,686.65 | 89.56 | | | | | 23,790.67 | 793.02 | 6,972.81 | 232.43 | 0.29 | 466.79 | 22.65 | 15.68 |
| May 92 | 12,264.69 | 395.64 | 191 | 3,520.80 | 113.57 | 15,785.49 | 509.21 | 2,813.53 | 90.76 | | | 2,313.76 | 74.64 | | | | | 20,912.78 | 674.61 | 4,830.07 | 155.81 | 0.23 | 361.03 | 14.25 | 15.41 |
| Jun 92 | 12,967.26 | 432.24 | 211 | 3,958.16 | 131.94 | 16,925.42 | 564.18 | 3,067.43 | 102.25 | | | 0.00 | 0.00 | | | | | 19,992.85 | 666.43 | 5,387.98 | 179.60 | 0.27 | 378.22 | 15.88 | 15.26 |
| Jul 92 | 13,892.87 | 448.16 | 211 | 3,911.61 | 126.18 | 17,804.48 | 574.34 | 3,071.13 | 99.07 | | | 836.46 | 26.98 | | | | | 21,712.07 | 700.39 | 4,855.30 | 156.62 | 0.22 | 348.08 | 13.43 | 15.20 |
| Aug 92 | 12,885.77 | 415.67 | 296 | 3,633.84 | 117.22 | 16,519.61 | 532.89 | 3,097.52 | 99.92 | 1,893.63 | 61.08 | 0.00 | 0.00 | | | | | 21,510.76 | 693.90 | 5,161.20 | 166.49 | 0.24 | 335.59 | 14.10 | 15.40 |
| Sep 92 | 14,007.54 | 466.92 | 266 | 3,839.77 | 127.99 | 17,847.31 | 594.91 | 2,972.44 | 99.08 | 1,205.32 | 40.18 | 0.00 | 0.00 | | | | | 22,025.07 | 734.17 | 4,768.92 | 158.96 | 0.22 | 311.06 | 14.37 | 15.57 |
| FY 92 Total | 158,266.90 | | 2,709 | 46,979.63 | | 205,242.15 | | 37,038.59 | | 3,098.95 | | 23,358.74 | | 0.00 | | 0.00 | | 268,738.43 | | 63,918.89 | | | 3,030.88 | | |
| Avg 92 | 13,188.91 | 431.27 | 226 | 3,914.97 | 128.09 | 17,103.51 | 559.37 | 3,086.55 | 100.96 | 1,549.48 | 49.98 | 1,946.56 | 64.82 | 0.00 | 0.00 | 0.00 | 0.00 | 22,394.87 | 733.43 | 5,326.57 | 174.35 | 0.24 | 336.76 | 15.57 | |
| Oct 92 | 13,820.45 | 445.82 | 307 | 3,963.59 | 127.86 | 17,784.04 | 573.68 | 3,086.68 | 99.57 | 1,835.99 | 59.23 | 0.00 | 0.00 | | | | | 22,706.71 | 732.47 | 5,732.29 | 184.91 | 0.25 | 330.65 | 18.19 | 16.00 |
| Nov 92 | 12,844.65 | 428.16 | 296 | 3,873.59 | 129.12 | 16,718.24 | 557.27 | 2,813.61 | 93.79 | 1,675.25 | 55.84 | 0.00 | 0.00 | | | | | 21,207.10 | 706.90 | 4,744.61 | 158.15 | 0.22 | 327.21 | 15.91 | 16.26 |
| Dec 92 | 13,952.95 | 450.10 | 340 | 4,524.99 | 145.97 | 18,477.94 | 596.06 | 3,172.69 | 102.34 | 1,836.21 | 59.23 | 0.00 | 0.00 | | | | | 23,486.84 | 757.64 | 6,027.57 | 194.44 | 0.26 | 394.49 | 20.61 | 16.78 |
| Jan 93 | 14,511.09 | 468.10 | 336 | 4,680.22 | 150.97 | 19,191.31 | 619.07 | 3,105.46 | 100.18 | 1,717.00 | 55.39 | 0.00 | 0.00 | | | | | 24,013.77 | 774.64 | 4,582.85 | 147.83 | 0.19 | 403.40 | 15.26 | 17.04 |
| Feb 93 | 12,860.23 | 459.29 | 329 | 4,400.40 | 157.16 | 17,260.63 | 616.45 | 2,812.66 | 100.45 | 1,754.95 | 62.68 | 10,365.70 | 370.20 | | | | | 32,193.94 | 1,149.78 | 6,677.80 | 238.49 | 0.21 | 351.45 | 25.21 | 17.75 |
| Mar 93 | 20,442.55 | 659.44 | 425 | 5,523.22 | 178.17 | 25,965.77 | 837.61 | 3,550.74 | 114.54 | 2,383.09 | 76.87 | 2,496.71 | 80.54 | | | | | 34,396.31 | 1,109.56 | 6,917.25 | 223.14 | 0.20 | 386.59 | 22.47 | 17.69 |
| Apl 93 | 14,350.83 | 478.36 | 398 | 5,385.90 | 179.53 | 19,736.73 | 657.89 | 3,029.59 | 100.99 | 2,140.29 | 71.34 | 559.56 | 18.65 | | | | | 25,466.17 | 848.87 | 6,300.48 | 210.02 | 0.25 | 393.39 | 18.14 | 17.32 |
| May 93 | 16,555.74 | 534.06 | 314 | 4,051.66 | 130.70 | 20,607.40 | 664.75 | 3,243.91 | 104.64 | 1,935.93 | 62.45 | 0.00 | 0.00 | | | | | 25,787.24 | 831.85 | 8,898.99 | 287.06 | 0.35 | 334.93 | 22.83 | 18.03 |
| Jun 93 | 17,470.90 | 582.36 | 347 | 4,486.14 | 149.54 | 21,957.04 | 731.90 | 3,100.41 | 103.35 | 2,119.67 | 70.66 | 0.00 | 0.00 | | | | | 27,177.12 | 905.90 | 7,408.24 | 246.94 | 0.27 | 300.71 | 21.80 | 18.53 |
| Jul 93 | 14,812.00 | 477.81 | 338 | 4,416.54 | 142.47 | 19,228.54 | 620.28 | 3,300.43 | 106.47 | 1,968.54 | 63.50 | 0.00 | 0.00 | | | | | 24,497.51 | 790.24 | 7,274.59 | 234.66 | 0.30 | 319.01 | 19.76 | 19.05 |
| Aug 93 | 18,830.70 | 607.44 | 329 | 4,249.85 | 139.57 | 23,157.41 | 747.01 | 3,351.78 | 108.12 | 2,012.79 | 64.93 | 0.00 | 0.00 | | | | | 28,521.98 | 917.58 | 7,098.03 | 228.97 | 0.25 | 293.33 | 16.41 | 19.25 |
| Sep 93 | 15,044.07 | 501.47 | 330 | 4,286.37 | 142.88 | 19,330.44 | 644.35 | 2,951.91 | 98.40 | 1,933.21 | 64.44 | 1,965.95 | 65.53 | | | | | 26,181.51 | 872.72 | 5,587.31 | 186.24 | 0.21 | 334.25 | 14.99 | 19.30 |
| FY 93 Total | 185,496.16 | | 4089 | 53,842.47 | | 239,415.49 | | 37,519.87 | | 23,312.92 | | 15,387.92 | | 0.00 | | 0.00 | | 315,636.20 | | 77,250.01 | | | 4,169.40 | | |
| Avg 93 | 15,458.01 | 507.70 | 341 | 4,486.87 | 147.83 | 19,951.29 | 655.53 | 3,126.66 | 102.74 | 1,942.74 | 63.88 | 1,282.33 | 44.58 | 0.00 | 0.00 | 0.00 | 0.00 | 26,303.02 | 866.51 | 6,437.50 | 211.74 | 0.25 | 347.45 | 19.30 | |
| Oct 93 | 14,000.00 | 451.61 | 326 | 4,298.58 | 138.66 | 18,298.58 | 590.28 | 4,235.13 | 136.62 | 1,789.09 | 57.71 | 1,813.68 | 58.51 | | | | | 26,136.48 | 843.11 | 6,887.85 | 222.19 | 0.26 | 315.90 | 23.28 | 19.72 |
| Nov 93 | 14,574.27 | 470.14 | 352 | 4,617.90 | 148.96 | 19,192.17 | 619.10 | 4,561.22 | 147.14 | 1,971.55 | 63.60 | 0.00 | 0.00 | | | | | 25,724.93 | 829.84 | 5,855.62 | 188.89 | 0.23 | 312.81 | 18.00 | 19.90 |
| Dec 93 | 13,755.38 | 443.72 | 346 | 4,718.35 | 152.20 | 18,473.73 | 595.93 | 4,551.29 | 146.82 | 1,761.89 | 56.84 | 1,725.87 | 55.67 | | | | | 26,512.78 | 855.25 | 7,010.32 | 226.14 | 0.26 | 369.30 | 23.85 | 20.17 |
| Jan 94 | 14,167.95 | 457.03 | 369 | 6,949.93 | 224.19 | 21,117.88 | 681.22 | 4,648.73 | 149.96 | 1,921.56 | 61.99 | 0.00 | 0.00 | | | | | 27,688.17 | 893.17 | 5,577.37 | 179.92 | 0.20 | 364.45 | 19.61 | 20.53 |
| Feb 94 | 14,072.59 | 502.59 | 366 | 6,910.14 | 246.79 | 20,982.73 | 749.38 | 4,491.73 | 160.42 | 1,937.18 | 69.19 | 2,155.68 | 76.99 | | | | | 29,567.32 | 1,055.98 | 6,626.24 | 236.65 | 0.22 | 331.84 | 25.21 | 20.53 |
| Mar 94 | 16,900.42 | 545.17 | 442 | 8,318.57 | 268.34 | 25,218.99 | 813.52 | 5,009.74 | 161.60 | 2,421.32 | 78.11 | 0.00 | 0.00 | | | | | 32,650.05 | 1,053.23 | 6,499.22 | 209.65 | 0.20 | 381.75 | 21.20 | 20.42 |
| Apr 94 | 15,211.63 | 507.05 | 379 | 5,152.22 | 171.74 | 20,363.85 | 678.80 | 4,561.16 | 152.04 | 1,972.96 | 65.79 | 0.00 | 0.00 | | | | | 26,897.97 | 896.60 | 5,090.92 | 169.90 | 0.19 | 383.49 | 19.46 | 20.53 |
| May 94 | 14,348.40 | 462.85 | 355 | 4,442.77 | 143.32 | 18,791.17 | 606.17 | 4,231.04 | 136.48 | 2,012.72 | 64.90 | 0.00 | 0.00 | | | | | 25,034.93 | 807.58 | 7,495.11 | 249.84 | 0.30 | 333.83 | 24.92 | 20.71 |
| Jun 94 | 15,189.55 | 506.32 | 388 | 4,593.54 | 153.12 | 19,783.09 | 659.44 | 4,140.54 | 138.02 | 2,233.00 | 73.69 | 0.00 | 0.00 | | | | | 26,156.63 | 871.89 | 7,229.54 | 240.98 | 0.28 | 307.13 | 22.28 | 20.75 |
| Jul 94 | 14,648.97 | 472.55 | 377 | 4,342.48 | 140.08 | 18,991.45 | 612.63 | 4,217.71 | 136.06 | 1,918.19 | 61.88 | 0.00 | 0.00 | | | | | 25,127.35 | 810.56 | 6,253.84 | 201.74 | 0.25 | 294.87 | 18.95 | 20.68 |
| Aug 94 | 18,248.70 | 588.67 | 370 | 4,773.87 | 154.00 | 23,022.57 | 742.66 | 4,684.19 | 151.10 | 2,091.30 | 67.46 | 0.00 | 0.00 | | | | | 29,798.06 | 961.23 | 6,538.58 | 210.92 | 0.22 | 293.22 | 18.80 | 20.88 |
| Sep 94 | 14,934.96 | 481.77 | 353 | 4,596.40 | 148.27 | 19,531.36 | 630.04 | 4,144.02 | 133.68 | 1,910.84 | 61.64 | 0.00 | 0.00 | | | | | 25,586.22 | 825.36 | 6,742.24 | 217.49 | 0.26 | 300.01 | 15.16 | 20.89 |
| FY 94 Avg 94 | 15,004.40 | 490.79 | 369 | 5,309.56 | 174.14 | 20,313.96 | 664.93 | 4,456.38 | 145.83 | 1,995.13 | 65.23 | 474.60 | 15.93 | 0.00 | 0.00 | 0.00 | 0.00 | 27,240.07 | 891.98 | 6,483.90 | 212.86 | 0.24 | 332.38 | 20.89 | |
| Tot 94 | 180,052.82 | | 4423 | 63,714.75 | | 243,767.57 | | 53,476.50 | | 23,941.60 | | 5,695.23 | | 0.00 | | 0.00 | | 326,880.89 | | 77,806.85 | | | 3,988.60 | | |

# APPENDIX B

# WASTESTREAM AND RECYCLABLES COMPOSITION STUDIES

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# PASCO COUNTY

# 2010/2011 WASTE AND RECYCLABLES COMPOSITION STUDY

# FINAL REPORT

**May 2011**

Prepared for:

**Pasco County**
Solid Waste and Resource Recovery Department
7530 Little Road, S-204
New Port Richey, FL 34654

Submitted by:

**Kessler Consulting, Inc.**
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*printed on recycled paper*

***Kessler Consulting, Inc. is a member of, or was awarded, the following***

# Pasco County
# 2010/2011 Waste and Recyclables Composition Study
# Final Report
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# 1.0 Introduction

## 1.1 Purpose and Scope

Pasco County (County) contracted Kessler Consulting, Inc. (KCI) to conduct a two-season Waste Composition Study (WCS) to estimate the composition of solid waste delivered to the County's Resource Recovery Facility (RRF). This waste stream consists of mixed household and commercial waste. A two-season approach was used to account for the effects of seasonal impacts, such as the growing season, tourism, transient residents, and consumer habits. The results of this study provide useful information for planning purposes, such as development of future waste reduction and recycling programs, as well as for annual reporting to the Florida Department of Environmental Protection (FDEP).

Concurrently, the County requested KCI to conduct a two-season Recyclables Composition Study (RCS) to estimate the composition of recyclable materials delivered to the County's Material Recovery Facility (MRF). This information will be useful as the County considers future modifications to its recycling program and MRF.

## 1.2 Background

The County, located on Florida's west central coast, is the State's 12th most populated county with a 2009 population of approximately 471,709.[1] It contains heavily urbanized areas on its western side, as well as areas of agricultural and sparsely populated regions. The County contains a cross section of businesses and industries. All of these factors have the potential to influence the composition of the County's waste.

The County's recycling programs will also influence the composition of waste that is disposed. The County accepts commingled containers in a blue-bag program that is available to residents with curbside collection service. The County currently accepts the following materials in its blue-bag recycling program:

- Aluminum cans;
- Tin/steel cans (food cans);
- Plastic bottles, coded SPI # 1 and # 2; and
- Clear, green, and brown glass bottles and jars.

The County also has six recycling drop-off centers located throughout the County for use by businesses and residents. In addition to the above recyclables, some drop-off centers also accept newspaper.

The County manages solid waste at its four solid waste management facilities:

- West Pasco RRF – waste-to-energy facility that accepts Class I waste.
- West Pasco Class III Landfill – accepts Class III bulk waste and construction and demolition (C&D) debris.

[1] http://quickfacts.census.gov/qfd/states/12/12101.html

- West Pasco MRF – accepts and processes recyclables from the County's blue-bag and drop-off recycling programs. Operated by Waste Services, Inc., this facility also accepts and processes other recyclables, including recyclables generated outside of Pasco County.
- East Pasco Transfer Station – accepts waste and recyclables for transfer to the West Pasco RRF or MRF.

Based on this information, KCI conducted two, eight-day sorting events at the County's facilities, seven days at the RRF and one day at the MRF. In lieu of sorting at the East Pasco Transfer Station, KCI requested that haulers re-route specified vehicles to the West Pasco facilities during the sort weeks. Section 2.0 of this report more fully explains the methodology utilized; Sections 3.0 and 4.0 present the WCS and RCS results, respectively; and Section 5.0 summarizes the study results and findings.

## 1.3 Acknowledgements

KCI would like to acknowledge and thank County staff members who assisted with this event, in particular Jennifer Seney and the staff of the RRF and MRF. KCI would also like to thank the City of Zephyrhills and Central Carting for re-routing select east Pasco loads during the sorting events. Their cooperation throughout the study enabled us to successfully and effectively complete our work.

# 2.0 Methodology

## 2.1 General Considerations

The WCS focused on the County's waste stream, which consists of mixed household and commercial waste, delivered to the RRF. Three main generator sectors and several sub-generator sectors were evaluated during the study as noted below. The RCS focused on commingled containers, with two sub-generator sectors, those collected in the blue-bag program and those collected at the drop-off centers.

| Main Generator Sectors | Sub-Generator Sectors |
|---|---|
| 1 Single-Family Residential | 1 Single-family households with curbside collection service |
| | 2 Single-family households with dumpster collection service |
| | 3 Single-family households within the City of Zephyrhills |
| 2 Multi-Family Residential | 4 Multi-family residences countywide |
| 3 Commercial | 5 Commercial businesses countywide |
| | 6 Commercial businesses within the City of Zephyrhills |
| 4 Recyclables | 7 Residential blue-bag program |
| | 8 Drop-off center program |

Two sorting events were conducted approximately six months apart to account for seasonal variability. The events were conducted on the following dates:

- Summer Event: August 9-13, 2010; and August 16-18, 2010.
- Winter Event: February 21-25, 2011 and March 1-2, 2011.

The methodology for this study followed industry-accepted standards for statistical sampling, as outlined in the *ASTM Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste (D5231-92; reapproved 2003)*. The same methodology and similar sampling and sorting procedures are discussed herein were utilized for the RCS.

## 2.2 Material Categories

KCI worked with Pasco County staff to develop a list of material categories into which waste would be sorted. A total of 30 material categories, which are listed and defined in Appendix A, were chosen for the WCS and RCS.

To develop this list of material categories, KCI reviewed the following information:

- FDEP Annual Solid Waste Management Report forms – All of the material categories used in the WCS can be correlated to those required by FDEP in the annual reporting by counties.
- Recyclable materials accepted in the County's blue-bag and drop-off center recycling programs – The WCS results will help identify the amounts of County-accepted recyclables still being disposed.

- County's 1994 WCS – To the extent practicable, KCI strived to identify material categories that would enable comparison with the 1994 study. A comparison of the material categories utilized in each study and how the results will be compared, can be found in Appendix B.

## 2.3 Locations, Equipment, and Labor

KCI conducted the sorting events at two County facilities. Based on the tonnage delivered to the County's RRF and the East Pasco Transfer Station (EPTS), KCI chose to coordinate with several haulers to have collection vehicles re-routed from EPTS to RRF in lieu of sorting at both locations.

The schedule for each sorting event was as follows:

- Seven days of sorting waste at RRF, and
- One day of sorting recyclables at MRF.

KCI provided a Sort Supervisor, Sampling Supervisor, all sorting equipment and safety gear. The County provided additional sort labor and a loader and operator to gather samples and remove waste upon completion of sorting activities.

KCI prepared and County staff reviewed and approved a site safety plan that was followed throughout the sorting events. KCI worked closely with County staff to organize the setup of each location to ensure worker safety. County and facility staff set up barricades and cones, where needed, to cordon off the sorting and sample areas to protect workers from incoming and outgoing collection vehicles. Each morning of the events, sorters were given thorough safety instructions by KCI's Sorting Supervisor to ensure safety and proper sorting. No injuries or emergencies occurred during the sorting events.

## 2.4 Sampling Schedule and Procedures

Sample selection was organized by generator sectors, with the goal of sorting a sufficient number of samples for each generator sector to achieve statistically valid results. The number of samples sorted for each sub-generator sector is presented below.

| Sub-generator Sectors | Summer | Winter |
|---|---|---|
| 1 Single-family households with curbside collection service | 19 | 18 |
| 2 Single-family households with dumpster collection service | 3 | 4 |
| 3 Single-family households within the City of Zephyrhills | 4 | 4 |
| 4 Multi-family residences countywide | 7 | 6 |
| 5 Commercial businesses countywide (excl. Zephyrhills) | 21 | 21 |
| 6 Commercial businesses within the City of Zephyrhills | 5 | 5 |
| 7 Residential blue-bag program | 6 | 6 |
| 8 Drop-off center program | 2 | 3 |
| | **67** | **67** |

KCI worked with staff from several private haulers, municipalities and the County to understand the geographic areas serviced and the amounts of waste collected by each. Route information from these haulers, combined with County tonnage data and demographic information, was used to

ensure that the loads selected for sampling were geographically distributed. Multi-family waste is seldom collected on discrete collection routes; therefore, KCI identified compactors or roll-offs from multi-family dwellings or front-end load routes servicing mainly multi-family complexes.

Several days before each sort, haulers were given an information packet containing a daily schedule of the routes that were requested for the study, as well as placards to be placed in each of the selected vehicles. The placards were used to help sort staff identify trucks scheduled for inclusion in the study.

At each facility, vehicles displaying placards were identified by sort staff. KCI's Sampling Supervisor then interviewed incoming drivers to confirm the generator sector and origin of the waste. Once a load was selected for sampling, the Sampling Supervisor noted the following information on the data recording form: hauler name and truck number, date and time, generator sector and geographic origin, scalehouse transaction number and net weight. The vehicle driver was then directed to the sampling area to tip. A representative sample of 200-300 pounds was then pulled and placed on a tarp to await sorting. Figure 2.1 depicts typical samples ready for sorting.

**Figure 2.1: Typical Waste Samples**

**Figure 2.2: Waste Sorting Activities**

## 2.5 Sorting Procedures

Selected samples were sorted into the previously defined material categories. Figure 2.2 depicts the sorting activities. After the entire sample was sorted, the Sorting Supervisor weighed and recorded the weights of each container on a data recording form. Tare weights of empty containers, recorded prior to sorting, were subtracted from the weights of the containers after sorting to obtain the net weight of each material category. The Sorting Supervisor also noted any unusual items or large quantities of materials sorted into non-specific categories such as All Other Waste. For example, in loads that contained large amounts of C&D Debris, Household Hazardous Waste, Electronics, or Other Garbage, KCI identified the types of items that comprised that category. Notations of these items are provided in the individual sample results in Appendices D-I.

## 2.6 Analytical Procedures

After each sorting event, KCI calculated the weighted average of each material category for each sub-generator and generator sector. The weighted average is calculated as follows:

> Weighted Average of <material category> = ((Percent by Weight of <material category> for 1st sample X 1st Sample Weight) + (Percent by Weight of <material category> for 2nd sample X 2nd Sample Weight) + …etc. for all samples)) / (1st Sample Weight + 2nd Sample Weight + …etc. for all samples)

Confidence intervals were calculated for each material category using a standard statistical t-test. The t-test is one the most commonly used statistical data analysis procedures for hypothesis testing, and is typically used to analyze data from waste composition studies. The confidence interval indicates that, with a 90 percent level of confidence, the actual arithmetic mean (the arithmetic mean obtained if an infinite number of samples were sorted) is within the upper and lower limits shown. This provides an understanding of how much variation occurred in the quantity of that material category found in the samples sorted.

Generally, the more homogeneous the waste stream and the greater the number of samples sorted, the higher the level of accuracy achieved and the narrower the margin between the upper and lower bounds of the confidence interval. As noted later in this report (Table 3.3 on page 12), the confidence intervals for the multi-family residential sector are generally wider than those for the single-family sector primarily because fewer multi-family samples were obtained for sorting. The confidence intervals for the commercial sector are also generally wider than those for the single-family sector because of the greater heterogeneity of the commercial waste stream (i.e., the types of waste generated by businesses can vary greatly depending on the type of business).

To obtain the composition of all waste disposed at the County's facility, the three main generators (i.e., single-family residential, multi-family residential, and commercial) were combined based upon the amount of waste each generator sector contributes to the overall waste stream, as indicated in the County's CY 2008 annual solid waste and recycling report to FDEP.

To estimate the average year-round waste composition, the same analytical procedures outlined above were conducted to combine the results from the summer and winter sorting events for each generator and sub-generator sector.

# 3.0 Waste Composition Results

## 3.1 Introduction to Results

This section presents the results of the WCS for each of the main generator sectors and sub-generators included in the study, as well as for the overall composition of waste disposed at the County's RRF. All results are expressed in percentage by weight. The percentages included in the tables and figures are the mean values for each material category. Where appropriate, the tables also provide the 90 percent confidence intervals for each material category.

When applicable, the results of this WCS were compared with the results of a similar study conducted in 1994. The material categories utilized in the 2011 WCS were slightly different from those used in the 1994 study. Material categories used in the current study were developed to provide information of particular interest or use to the County. Despite these minor differences between the two studies, useful comparisons were made. A table showing the material categories utilized in each study and how these categories were matched for comparison can be found in Appendix B.

## 3.2 Countywide Waste

Data for the three main generator sectors from both sorting events were combined to calculate the overall average composition of waste delivered to the County's RRF. The figure and tables listed below present the findings, with additional tables and figures for each sorting event provided in Appendix C.

- Figure 3.1 – pie chart graphically depicts the overall annual composition of waste delivered to the County's RRF.
- Table 3.1 – compares the results of the summer and winter sorting events.
- Table 3.2 – presents the contribution of the three generator sectors (single-family residential, multi-family residential, and commercial) to the overall countywide waste composition.
- Table 3.3 – provides the confidence intervals for each of three main generator sectors.
- Table 3.4 – provides a side-by-side comparison between the results of this WCS and the 1994 study.

Provided below is a summary of key findings regarding the overall composition of waste delivered to the County's RRF:

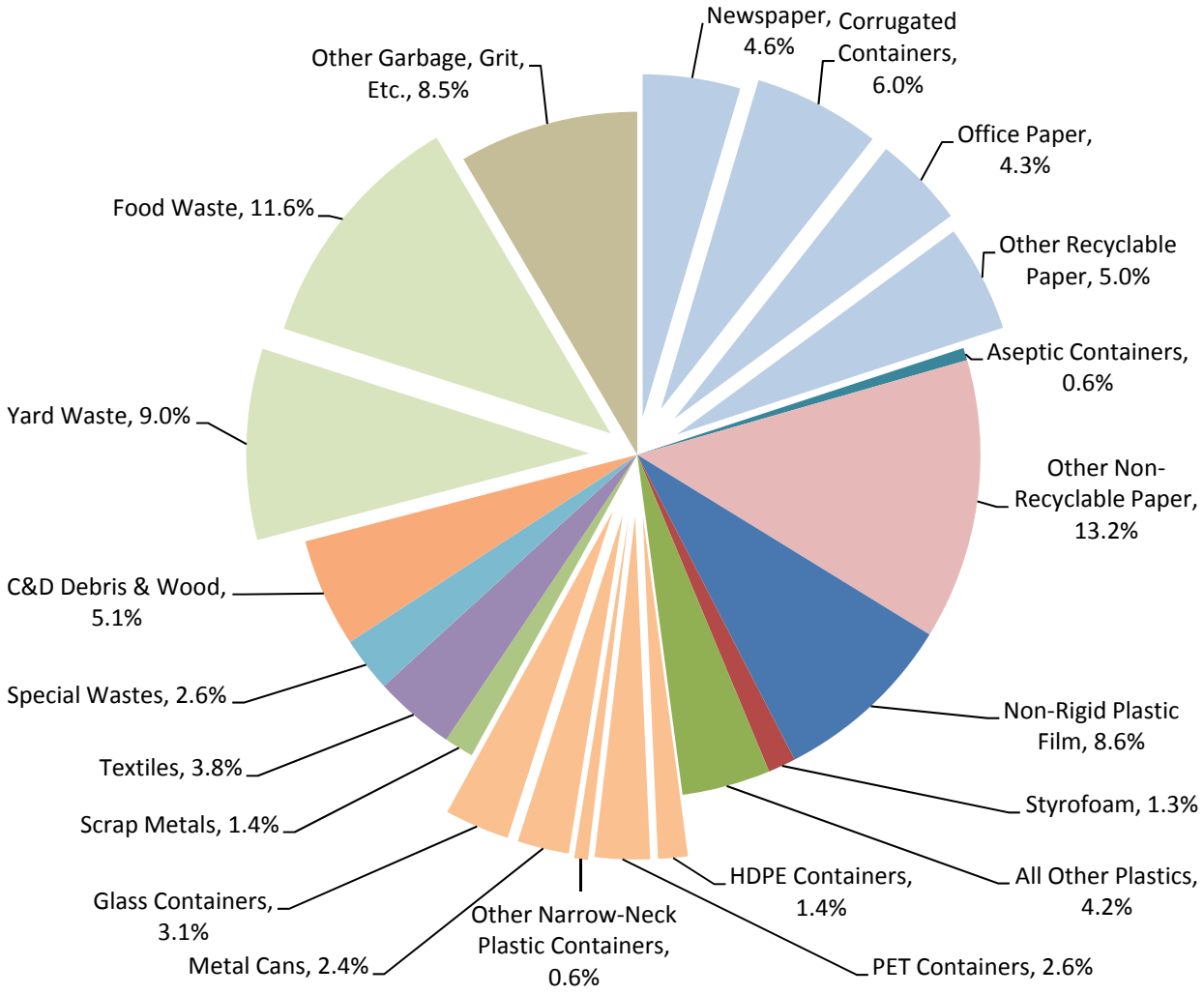
- More than 30 percent of the countywide waste stream is comprised of commonly recycled types of paper and containers, and organics (yard and food waste) constitute an additional 21 percent.
- Recyclable paper: Recyclable grades of paper constitute approximately 20 percent of countywide waste. This includes Corrugated Cardboard (6.0 percent), Newspaper (4.6 percent), Office Paper (4.3 percent), and Other Recyclable Paper (5.3 percent). Newspaper is less than half the percentage it was in 1994 (4.6 percent in 2011 versus 11.3 percent in

1994), which is consistent with the trend of smaller newspapers and greater on-line readership versus printed distribution. However, increases were observed in other paper grades, with the exception of Corrugated Cardboard, which remained fairly consistent.

- Recyclable Containers: Recyclable containers comprise approximately 10 percent of the waste stream. Glass Containers make up the largest component (3.1 percent), which is common since glass is heavier than other container types on a per-unit basis.[2] Also included in recyclable containers, in order of abundance, are PET Containers (2.6 percent), Tin/Steel Cans (1.7 percent), HPDE Containers (1.4 percent), Aluminum Cans (0.8 percent), and Other Narrow-Neck Plastic Containers (0.6 percent). Since the 1994 study, PET and HDPE containers increased substantially, which is reflective of changes in product packaging and consumer habits, such as increased consumption of bottled water and other beverages in plastic containers.
- Organics: Organic wastes comprise about 21 percent of the County's waste stream. This includes Food Waste (11.6 percent) and Yard Waste (9.0 percent). Yard Waste decreased from 14.4 percent in the 1994 study to 9.0 percent in 2011, while food waste remained fairly stable.
- Seasonal Variations: As can be seen in Table 3.1, substantially more Yard Waste was found during the winter sort (11.9 percent) as compared to the summer (6.2 percent). This is not unusual for Florida, especially since the winter sort occurred in late February/early March during a period of pleasant weather, while the summer event took place during the heat of August. Other seasonal changes include higher percentages of Corrugated Cardboard and Non-Recyclable Paper during the summer (7.0 and 15.6 percent, respectively) as compared to the winter (4.9 and 10.6 percent).
- Other Changes Since 1994: The percentage of Non-Rigid Plastic Film increased more than threefold since the 1994 study (2.4 percent in 1994 to 8.6 percent in 2011), again reflective of packaging changes. The percentage of Other Ferrous and Other Non Ferrous metals was less than half of the 1994 level (3.2 percent in 1994 to 1.4 percent in 2011), which may be indicative of the relatively high market value of metals.

[2] For example, 8 2-liter PET bottles weigh about 1 pound, but only 2 8-ounce glass containers weigh about the same. Source: US EPA, Standard Volume-to-Weight Conversion Factors.

## Figure 3.1: Composition of Countywide Waste Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table 3.1: Composition of Countywide Waste Disposed by Seasonal Sorting Event (% by weight)

| | | Summer 2010 | Winter 2011 | Combined |
|---|---|---|---|---|
| | **Material Category** | **Weighted Average** | **Weighted Average** | **Weighted Average** |
| 1 | Newspaper | 4.9% | 4.2% | **4.6%** |
| 2 | Corrugated Containers | 7.0% | 4.9% | **6.0%** |
| 3 | Office Paper | 4.2% | 4.4% | **4.3%** |
| 4 | Other Recyclable Paper | 5.3% | 4.8% | **5.0%** |
| 5 | Other Non-Recyclable Paper | 15.6% | 10.6% | **13.2%** |
| 6 | Aseptic Containers | 0.5% | 0.7% | **0.6%** |
| 7 | PET Containers | 2.7% | 2.5% | **2.6%** |
| 8 | HDPE Containers | 1.3% | 1.5% | **1.4%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.8% | 0.4% | **0.6%** |
| 10 | Non-Rigid Plastic Film | 9.2% | 8.0% | **8.6%** |
| 11 | Styrofoam | 1.3% | 1.4% | **1.3%** |
| 12 | All Other Plastics | 2.9% | 5.6% | **4.2%** |
| 13 | Tin/Steel Cans | 1.7% | 1.7% | **1.7%** |
| 14 | White Goods | 0.0% | 0.0% | **0.0%** |
| 15 | Other Ferrous | 0.7% | 0.9% | **0.8%** |
| 16 | Aluminum Cans | 0.7% | 0.8% | **0.8%** |
| 17 | Other Non-Ferrous | 0.4% | 0.8% | **0.6%** |
| 18 | Glass Containers | 2.6% | 3.6% | **3.1%** |
| 19 | Other Glass | 0.5% | 0.4% | **0.5%** |
| 20 | Textiles | 4.2% | 3.4% | **3.8%** |
| 21 | Household Hazardous Waste | 0.2% | 0.2% | **0.2%** |
| 22 | Electronics | 2.2% | 1.1% | **1.7%** |
| 23 | Household Batteries | 0.4% | 0.0% | **0.2%** |
| 24 | Wood Waste | 2.6% | 2.3% | **2.4%** |
| 25 | C&D Debris | 1.8% | 3.7% | **2.7%** |
| 26 | Tires and Rubber | 0.7% | 0.4% | **0.5%** |
| 27 | Yard Waste | 6.2% | 11.9% | **9.0%** |
| 28 | Food Waste | 12.0% | 11.3% | **11.6%** |
| 29 | All Other Garbage | 6.0% | 7.0% | **6.4%** |
| 30 | Grit | 1.4% | 1.7% | **1.6%** |
| | **TOTALS** | 100.0% | 100.0% | **100.0%** |

## Table 3.2: Composition of Countywide Waste Disposed by Generator Sector (% by weight)

| | | Single-Family | Multi-Family | Commercial | Countywide Average |
|---|---|---|---|---|---|
| | Material Category | Weighted Average | Weighted Average | Weighted Average | Weighted Average |
| 1 | Newspaper | 6.4% | 5.1% | 3.3% | 4.6% |
| 2 | Corrugated Containers | 3.8% | 4.2% | 7.6% | 6.0% |
| 3 | Office Paper | 3.8% | 3.9% | 4.7% | 4.3% |
| 4 | Other Recyclable Paper | 5.9% | 6.3% | 4.4% | 5.0% |
| 5 | Other Non-Recyclable Paper | 12.0% | 13.4% | 14.0% | 13.2% |
| 6 | Aseptic Containers | 0.3% | 0.3% | 0.8% | 0.6% |
| 7 | PET Containers | 2.9% | 3.1% | 2.3% | 2.6% |
| 8 | HDPE Containers | 1.5% | 2.3% | 1.2% | 1.4% |
| 9 | Other Narrow-Neck Plastic Containers | 0.9% | 1.0% | 0.5% | 0.6% |
| 10 | Non-Rigid Plastic Film | 7.6% | 7.5% | 9.4% | 8.6% |
| 11 | Styrofoam | 1.1% | 1.1% | 1.5% | 1.3% |
| 12 | All Other Plastics | 4.1% | 3.6% | 4.3% | 4.2% |
| 13 | Tin/Steel Cans | 1.7% | 1.4% | 1.6% | 1.7% |
| 14 | White Goods | 0.0% | 0.0% | 0.0% | 0.0% |
| 15 | Other Ferrous | 0.6% | 0.7% | 0.9% | 0.8% |
| 16 | Aluminum Cans | 0.9% | 1.0% | 0.7% | 0.8% |
| 17 | Other Non-Ferrous | 0.8% | 0.5% | 0.5% | 0.6% |
| 18 | Glass Containers | 3.0% | 5.3% | 2.9% | 3.1% |
| 19 | Other Glass | 0.7% | 0.8% | 0.3% | 0.5% |
| 20 | Textiles | 4.1% | 5.6% | 3.5% | 3.8% |
| 21 | Household Hazardous Waste | 0.0% | 0.0% | 0.3% | 0.2% |
| 22 | Electronics | 1.2% | 2.2% | 1.9% | 1.7% |
| 23 | Household Batteries | 0.2% | 0.0% | 0.3% | 0.2% |
| 24 | Wood Waste | 1.9% | 3.8% | 2.7% | 2.4% |
| 25 | C&D Debris | 2.3% | 0.3% | 3.2% | 2.7% |
| 26 | Tires and Rubber | 0.7% | 0.8% | 0.4% | 0.5% |
| 27 | Yard Waste | 13.8% | 5.9% | 6.0% | 9.0% |
| 28 | Food Waste | 9.7% | 9.7% | 13.0% | 11.6% |
| 29 | All Other Garbage | 6.4% | 7.6% | 6.4% | 6.4% |
| 30 | Grit | 1.5% | 2.4% | 1.5% | 1.6% |
| | Sector Generation Rates | 38.0% | 5.0% | 57.0% | 100.0% |

## Table 3.3: Composition of Waste Disposed by Generator Sector, with Confidence Intervals (% by weight)

| | | Single-Family Residential | | | Multi-Family Residential | | | Commercial | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Weighted Average | 90% Confidence Interval | | Weighted Average | 90% Confidence Interval | | Weighted Average | 90% Confidence Interval | |
| | Material Category | | Lower Bounds | Upper Bounds | | Lower Bounds | Upper Bounds | | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **6.4%** | 5.7% | 7.2% | **5.1%** | 2.9% | 7.3% | **3.3%** | 2.5% | 4.1% |
| 2 | Corrugated Containers | **3.8%** | 3.2% | 4.5% | **4.2%** | 2.7% | 5.8% | **7.6%** | 6.2% | 9.0% |
| 3 | Office Paper | **3.8%** | 3.1% | 4.4% | **3.9%** | 2.5% | 5.3% | **4.7%** | 3.7% | 5.8% |
| 4 | Other Recyclable Paper | **5.9%** | 5.4% | 6.3% | **6.3%** | 4.4% | 8.2% | **4.4%** | 3.9% | 4.9% |
| 5 | Other Non-Recyclable Paper | **12.0%** | 11.0% | 13.0% | **13.4%** | 11.0% | 15.9% | **14.0%** | 12.6% | 15.5% |
| 6 | Aseptic Containers | **0.3%** | 0.2% | 0.4% | **0.3%** | 0.2% | 0.4% | **0.8%** | 0.4% | 1.2% |
| 7 | PET Containers | **2.9%** | 1.9% | 3.8% | **3.1%** | 2.4% | 3.8% | **2.3%** | 2.0% | 2.6% |
| 8 | HDPE Containers | **1.5%** | 1.3% | 1.7% | **2.3%** | 1.4% | 3.3% | **1.2%** | 1.0% | 1.4% |
| 9 | Other Narrow-Neck Plastic Containers | **0.9%** | 0.5% | 1.2% | **1.0%** | 0.2% | 1.9% | **0.5%** | 0.3% | 0.6% |
| 10 | Non-Rigid Plastic Film | **7.6%** | 6.9% | 8.3% | **7.5%** | 5.8% | 9.3% | **9.4%** | 8.6% | 10.2% |
| 11 | Styrofoam | **1.1%** | 0.9% | 1.3% | **1.1%** | 0.5% | 1.6% | **1.5%** | 1.2% | 1.7% |
| 12 | All Other Plastics | **4.1%** | 3.4% | 4.8% | **3.6%** | 2.4% | 4.7% | **4.3%** | 3.3% | 5.2% |
| 13 | Tin/Steel Cans | **1.7%** | 1.5% | 2.0% | **1.4%** | 1.0% | 1.9% | **1.6%** | 1.4% | 1.9% |
| 14 | White Goods | **0.0%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.6%** | 0.4% | 0.8% | **0.7%** | 0.1% | 1.2% | **0.9%** | 0.5% | 1.3% |
| 16 | Aluminum Cans | **0.9%** | 0.7% | 1.0% | **1.0%** | 0.6% | 1.3% | **0.7%** | 0.6% | 0.8% |
| 17 | Other Non-Ferrous | **0.8%** | 0.5% | 1.1% | **0.5%** | 0.1% | 0.9% | **0.5%** | 0.3% | 0.6% |
| 18 | Glass Containers | **3.0%** | 2.6% | 3.5% | **5.3%** | 3.5% | 7.1% | **2.9%** | 2.2% | 3.5% |
| 19 | Other Glass | **0.7%** | 0.3% | 1.0% | **0.8%** | -0.2% | 1.8% | **0.3%** | 0.2% | 0.5% |
| 20 | Textiles | **4.1%** | 3.4% | 4.8% | **5.6%** | 2.9% | 8.3% | **3.5%** | 2.6% | 4.3% |
| 21 | Household Hazardous Waste | **0.0%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.3%** | 0.1% | 0.5% |
| 22 | Electronics | **1.2%** | 0.7% | 1.6% | **2.2%** | 0.8% | 3.7% | **1.9%** | 1.0% | 2.9% |
| 23 | Household Batteries | **0.2%** | 0.0% | 0.3% | **0.0%** | 0.0% | 0.0% | **0.3%** | 0.0% | 0.5% |
| 24 | Wood Waste | **1.9%** | 1.2% | 2.7% | **3.8%** | 0.5% | 7.2% | **2.7%** | 1.6% | 3.7% |
| 25 | C&D Debris | **2.3%** | 1.6% | 3.0% | **0.3%** | 0.0% | 0.6% | **3.2%** | 1.8% | 4.5% |
| 26 | Tires and Rubber | **0.7%** | 0.3% | 1.1% | **0.8%** | 0.0% | 1.7% | **0.4%** | 0.2% | 0.6% |
| 27 | Yard Waste | **13.8%** | 11.3% | 16.4% | **5.9%** | 0.6% | 11.2% | **6.0%** | 4.0% | 8.1% |
| 28 | Food Waste | **9.7%** | 8.8% | 10.6% | **9.7%** | 8.0% | 11.4% | **13.0%** | 10.6% | 15.4% |
| 29 | All Other Garbage | **6.4%** | 5.3% | 7.5% | **7.6%** | 5.4% | 9.9% | **6.4%** | 5.4% | 7.3% |
| 30 | Grit | **1.5%** | 1.0% | 2.0% | **2.4%** | 0.4% | 4.3% | **1.5%** | 1.1% | 1.9% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table 3.4: Comparison of the 2011 and 1994 Waste Composition Study Results (% by weight)

| | Material Category | 2011 Countywide Waste Weighted Average | 1994 Countywide Waste Weighted Average | Percentage Point Increase/(Decrease) |
|---|---|---|---|---|
| 1 | Newspaper | 4.6% | 11.3% | (6.7%) |
| 2 | Corrugated Cardboard | 6.0% | 6.5% | (0.5%) |
| 3 | Office Paper | 4.3% | 1.3% | 3.0% |
| 4<br>5<br>6 | Other Recyclable Paper<br>Non-Recyclable Paper<br>Aseptic Containers | 18.8% | 15.6% | 3.2% |
| 7 | PET (SPI #1) | 2.6% | 0.6% | 2.0% |
| 8 | HDPE (SPI #2) | 1.4% | 0.6% | 0.8% |
| 9<br>12 | Other Recyclable Narrow-Neck Containers<br>All Other Plastics | 4.8% | 4.6% | 0.2% |
| 11 | Styrofoam | 1.3% | 1.3% | 0.0% |
| 10 | Non-Rigid Plastic Film | 8.6% | 2.4% | 6.2% |
| 13 | Tin/Steel Cans | 1.7% | 1.7% | 0.0% |
| 14 | White Goods | 0.0% | 0.0% | 0.0% |
| 16 | Aluminum Cans | 0.8% | 0.9% | (0.1%) |
| 15<br>17 | Other Ferrous<br>Other Non-Ferrous | 1.4% | 3.2% | (1.8%) |
| 18 | Glass Containers | 3.1% | 2.7% | 0.4% |
| 19 | Other Glass | 0.5% | 2.7% | (2.2%) |
| 20 | Textiles | 3.8% | 4.0% | (0.2%) |
| 21 | Household Hazardous Waste | 0.2% | 0.3% | (0.1%) |
| 22 | Electronics (E-waste) | 1.7% | n/a | n/a |
| 23 | Household Batteries | 0.2% | 0.1% | 0.1% |
| 24<br>25 | C&D Debris<br>Wood Waste | 5.1% | 4.5% | 0.6% |
| 26 | Tires and Rubber | 0.5% | 0.5% | 0.0% |
| 27 | Yard Waste | 9.0% | 14.4% | (5.4%) |
| 28 | Food Waste | 11.6% | 12.8% | (1.2%) |
| 29<br>30 | All Other Garbage<br>Grit | 8.0% | 8.1% | (0.1%) |
| | **TOTALS** | 100.0% | 100.0% | **100.0%** |

Note: A comparison of the material categories utilized in each study and how the results have been compared can be found in Appendix B.

## 3.3 Single-Family Residential Waste

Data from the three single-family residential sub-generator sectors (single-family residences with curbside collection, single-family residences with dumpster service, and the City of Zephyrhills) were combined to calculate the overall composition of waste disposed at the County's RRF by this generator sector. Individual sample results for the three sub-generator sectors can be found in Appendices D, E, and F. The following figure and tables summarize the results:

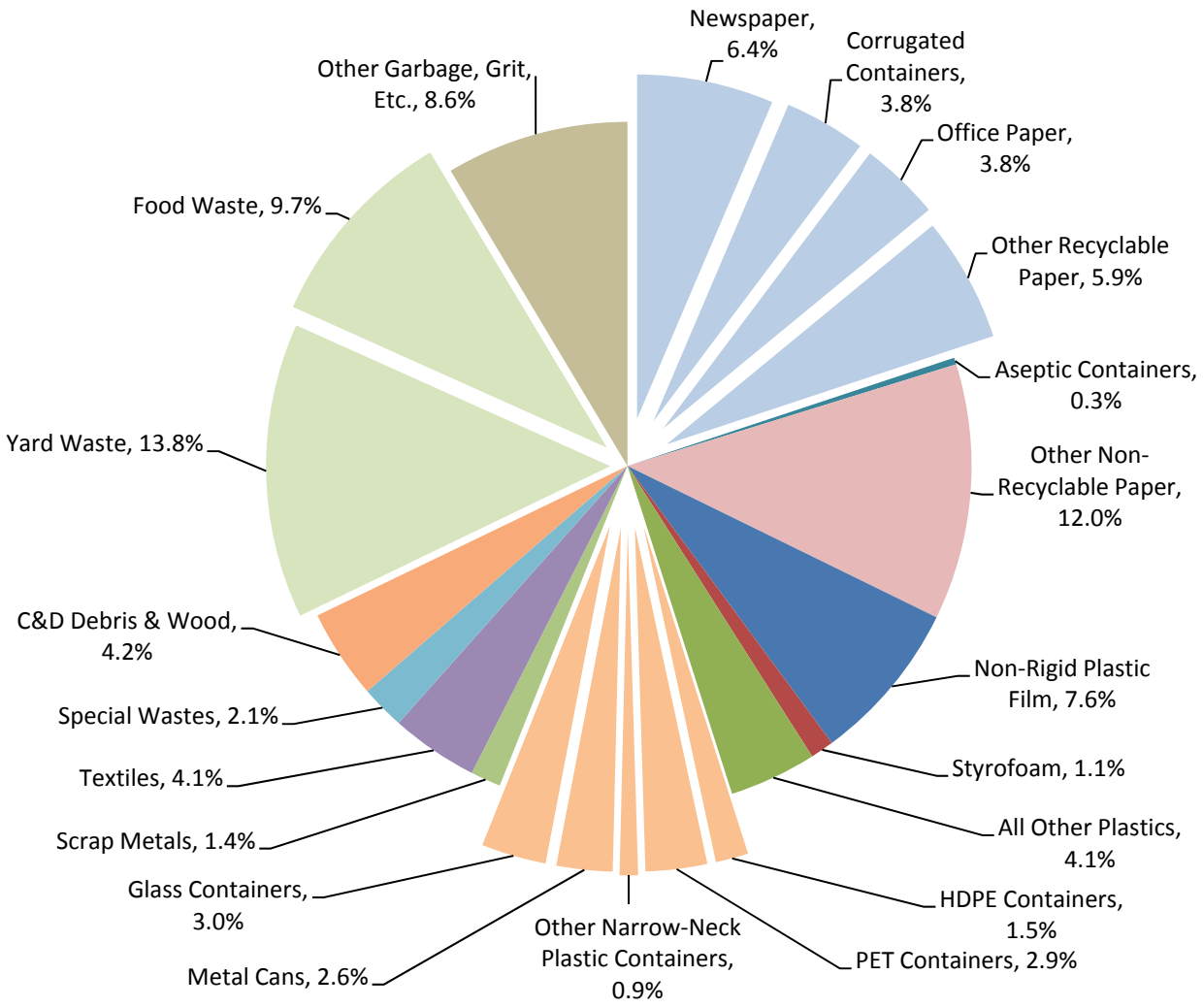
- Figure 3.2 – depicts the composition of waste disposed by all single-family residences within the County (three sub-generator sectors combined).
- Table 3.5 – compares the results of the summer, winter, and combined sorting events for all single-family residential waste.
- Table 3.6 – provides a side-by-side comparison between the results of this WCS and the 1994 study for single-family residential waste.
- Table 3.7 – presents the composition and confidence intervals for the three sub-generator sectors.

Provided below is a summary of key findings regarding the composition of single-family residential waste disposed at the County's RRF:

- Approximately 31 percent consists of commonly recycled types of paper and containers, and organics (yard and food waste) make up nearly 24 percent.
- Recyclable Paper: Recyclable grades of paper comprise approximately 20 percent. Newspaper (6.4 percent) comprises the largest component of recyclable paper, followed by Other Recyclable Paper (5.9 percent), Corrugated Cardboard (3.8 percent), and Office Paper (3.8 percent). Newspaper was less than half the percentage in 1994 (from 14.9 percent in 1994 to 6.4 percent in 2011). Little variation was seen in the total amount of recyclable paper disposed by the three sub-generators, which ranged from 19.7 to 21.0 percent; however, the make-up of that paper varied. Residents with dumpster service appear to be disposing of more Newspaper, but less Corrugated Cardboard and Office Paper. Residents in Zephyrhills seem to be disposing of less Newspaper than the other two sub-generator sectors.
- Recyclable Containers: Commingled containers comprise 11 percent of overall single-family residential waste, Glass Containers (3.0 percent) and PET Containers (2.9 percent) being the largest components. Single-family residents with curbside service and those in Zephyrhills, both of which have access to curbside blue-bag service, disposed of less commingled containers (8.5 percent and 10.4 percent, respectively) than residents with dumpster service (13.7 percent). In particular, the percentage of PET Containers was nearly double for residents with dumpster service than the other two sub-generators.
- Organics: Organic wastes constitute nearly 24 percent of overall single-family residential waste disposed. This includes Yard Waste (13.8 percent) and Food Waste (9.7 percent). A smaller percentage of yard waste (9.6 percent) was found in the waste of those residents with dumpster service, compared to residents with curbside service (14.7 percent) and residents in the City of Zephyrhills (16.5 percent). Residents with dumpster service live in the more rural areas of the County where yard waste is more likely managed onsite.

- Other Sub-Generator Differences: More C&D Debris and Wood Waste were found in the waste of residents with dumpster service (7.6 percent) compared to residents with curbside service (3.5 percent) or in Zephyrhills (3.1 percent). In addition, more electronic waste was found in the waste of residents with dumpster service (2.4 percent) compared to residents with curbside service (0.9 percent) or in Zephyrhills (1.6 percent). It may be that residents are more likely to put bulkier wastes in the dumpsters because of the larger size of the containers.
- Seasonal Variations: The most significant seasonal variations were in Yard Waste and Food Waste. The percentage of Yard Waste was higher in winter (17.9 percent in winter versus 9.8 percent in summer), and the percentage of Food Waste was lower in winter (7.9 percent in winter versus 11.5 percent in summer).
- Other Changes Since 1994: The same trends were noted as in the overall waste stream. Substantial increases were seen in the percentages of PET Containers (0.8 percent in 1994 to 2.9 percent in 2011), HDPE Containers (0.5 percent in 1994 to 1.5 percent in 2011), and Non-Rigid Plastic Film (2.2 percent in 1994 to 7.6 percent in 2011). Decreases were noted in the percentages of Newspaper (14.9 percent in 1994 to 6.4 percent in 2011) and Yard Waste (22.1 percent in 1994 to 13.8 percent in 2011).

## Figure 3.2: Composition of Single-Family Residential Waste Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table 3.5: Single-Family Residential Study Results by Seasonal Sorting Event (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **6.9%** | 5.8% | 8.0% | **5.9%** | 4.9% | 7.0% | **6.4%** | 5.7% | 7.2% |
| 2 | Corrugated Containers | **4.6%** | 3.6% | 5.6% | **3.1%** | 2.2% | 3.9% | **3.8%** | 3.2% | 4.5% |
| 3 | Office Paper | **2.7%** | 1.8% | 3.6% | **4.9%** | 4.0% | 5.8% | **3.8%** | 3.1% | 4.4% |
| 4 | Other Recyclable Paper | **6.5%** | 5.9% | 7.1% | **5.3%** | 4.5% | 6.0% | **5.9%** | 5.4% | 6.3% |
| 5 | Other Non-Recyclable Paper | **13.8%** | 12.6% | 14.9% | **10.2%** | 8.7% | 11.8% | **12.0%** | 11.0% | 13.0% |
| 6 | Aseptic Containers | **0.4%** | 0.3% | 0.5% | **0.3%** | 0.1% | 0.4% | **0.3%** | 0.2% | 0.4% |
| 7 | PET Containers | **2.9%** | 2.4% | 3.4% | **2.9%** | 0.9% | 4.8% | **2.9%** | 1.9% | 3.8% |
| 8 | HDPE Containers | **1.4%** | 1.1% | 1.6% | **1.7%** | 1.4% | 2.1% | **1.5%** | 1.3% | 1.7% |
| 9 | Other Narrow-Neck Plastic Containers | **1.1%** | 0.5% | 1.8% | **0.6%** | 0.2% | 0.9% | **0.9%** | 0.5% | 1.2% |
| 10 | Non-Rigid Plastic Film | **8.1%** | 7.2% | 8.9% | **7.2%** | 6.0% | 8.4% | **7.6%** | 6.9% | 8.3% |
| 11 | Styrofoam | **1.2%** | 0.8% | 1.5% | **1.1%** | 0.8% | 1.4% | **1.1%** | 0.9% | 1.3% |
| 12 | All Other Plastics | **3.1%** | 2.3% | 3.9% | **5.1%** | 3.9% | 6.3% | **4.1%** | 3.4% | 4.8% |
| 13 | Tin/Steel Cans | **1.9%** | 1.7% | 2.2% | **1.5%** | 1.1% | 1.9% | **1.7%** | 1.5% | 2.0% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.1%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.1% |
| 15 | Other Ferrous | **0.2%** | 0.1% | 0.3% | **1.0%** | 0.6% | 1.4% | **0.6%** | 0.4% | 0.8% |
| 16 | Aluminum Cans | **0.8%** | 0.7% | 1.0% | **0.9%** | 0.7% | 1.2% | **0.9%** | 0.7% | 1.0% |
| 17 | Other Non-Ferrous | **0.6%** | 0.3% | 1.0% | **1.0%** | 0.5% | 1.6% | **0.8%** | 0.5% | 1.1% |
| 18 | Glass Containers | **3.0%** | 2.3% | 3.8% | **3.1%** | 2.4% | 3.8% | **3.0%** | 2.6% | 3.5% |
| 19 | Other Glass | **0.9%** | 0.2% | 1.6% | **0.4%** | 0.1% | 0.7% | **0.7%** | 0.3% | 1.0% |
| 20 | Textiles | **4.4%** | 3.4% | 5.5% | **3.8%** | 2.9% | 4.6% | **4.1%** | 3.4% | 4.8% |
| 21 | Household Hazardous Waste | **0.1%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.1% |
| 22 | Electronics | **1.6%** | 0.8% | 2.5% | **0.7%** | 0.4% | 1.1% | **1.2%** | 0.7% | 1.6% |
| 23 | Household Batteries | **0.3%** | -0.1% | 0.6% | **0.1%** | 0.0% | 0.1% | **0.2%** | 0.0% | 0.3% |
| 24 | Wood Waste | **1.6%** | 1.1% | 2.2% | **2.2%** | 0.7% | 3.7% | **1.9%** | 1.2% | 2.7% |
| 25 | C&D Debris | **2.2%** | 1.2% | 3.1% | **2.4%** | 1.4% | 3.5% | **2.3%** | 1.6% | 3.0% |
| 26 | Tires and Rubber | **0.9%** | 0.3% | 1.4% | **0.5%** | 0.0% | 1.0% | **0.7%** | 0.3% | 1.1% |
| 27 | Yard Waste | **9.8%** | 7.1% | 12.5% | **17.9%** | 13.7% | 22.1% | **13.8%** | 11.3% | 16.4% |
| 28 | Food Waste | **11.5%** | 10.2% | 12.8% | **7.9%** | 6.8% | 9.1% | **9.7%** | 8.8% | 10.6% |
| 29 | All Other Garbage | **6.2%** | 4.8% | 7.6% | **6.6%** | 4.8% | 8.4% | **6.4%** | 5.3% | 7.5% |
| 30 | Grit | **1.5%** | 1.0% | 2.0% | **1.6%** | 0.6% | 2.5% | **1.5%** | 1.0% | 2.0% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

### Table 3.6: Comparison of the 2011 and 1994 Single-Family Residential WCS Results (% by weight)

| | Material Category | 2011 Single-Family Waste Weighted Average | 1994 Single-Family Waste Weighted Average | Percentage Point Increase/(Decrease) |
|---|---|---|---|---|
| 1 | Newspaper | 6.4% | 14.9% | (8.5%) |
| 2 | Corrugated Cardboard | 3.8% | 3.2% | 0.6% |
| 3 | Office Paper | 3.8% | 0.6% | 3.2% |
| 4<br>5<br>6 | Other Recyclable Paper<br>Non-Recyclable Paper<br>Aseptic Containers | 18.2% | 15.9% | 2.3% |
| 7 | PET (SPI #1) | 2.9% | 0.8% | 2.1% |
| 8 | HDPE (SPI #2) | 1.5% | 0.5% | 1.0% |
| 9<br>12 | Other Recyclable Narrow-Neck Containers<br>All Other Plastics | 5.0% | 3.6% | 1.4% |
| 11 | Styrofoam | 1.1% | 0.7% | 0.4% |
| 10 | Non-Rigid Plastic Film | 7.6% | 2.2% | 5.5% |
| 13 | Tin/Steel Cans | 1.7% | 1.6% | 0.1% |
| 14 | White Goods | 0.0% | 0.0% | 0.0% |
| 16 | Aluminum Cans | 0.9% | 0.8% | 0.1% |
| 15<br>17 | Other Ferrous<br>Other Non-Ferrous | 1.4% | 2.4% | (1.0%) |
| 18 | Glass Containers | 3.0% | 2.9% | 0.1% |
| 19 | Other Glass | 0.7% | 1.8% | (1.1%) |
| 20 | Textiles | 4.1% | 3.1% | 1.0% |
| 21 | Household Hazardous Waste | 0.0% | 0.2% | (0.2%) |
| 22 | Electronics (E-waste) | 1.2% | n/a | n/a |
| 23 | Household Batteries | 0.2% | 0.1% | 0.1% |
| 24<br>25 | C&D Debris<br>Wood Waste | 4.2% | 2.4% | 1.8% |
| 26 | Tires and Rubber | 0.7% | 0.3% | 0.4% |
| 27 | Yard Waste | 13.8% | 22.1% | (8.2%) |
| 28 | Food Waste | 9.7% | 13.0% | (3.3%) |
| 29<br>30 | All Other Garbage<br>Grit | 7.9% | 7.2% | 0.8% |
| | **TOTALS** | 100.0% | 100.0% | NA |

Note: A comparison of the material categories utilized in each study and how the results have been compared can be found in Appendix B.

## Table 3.7: Single-Family Residential Sub-Generator Sector Results with Confidence Intervals (% by weight)

| | | Single-Family Curbside | | | Single-Family Dumpster | | | City of Zephyrhills Single-Family | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **6.3%** | 5.5% | 7.1% | **7.2%** | 4.2% | 10.2% | **4.7%** | 3.3% | 6.0% |
| 2 | Corrugated Containers | **4.0%** | 3.3% | 4.8% | **2.9%** | 1.6% | 4.1% | **6.4%** | 3.9% | 9.0% |
| 3 | Office Paper | **4.0%** | 3.3% | 4.7% | **2.9%** | 1.4% | 4.4% | **4.4%** | 2.8% | 5.9% |
| 4 | Other Recyclable Paper | **5.7%** | 5.2% | 6.1% | **6.7%** | 4.2% | 9.2% | **5.5%** | 3.9% | 7.1% |
| 5 | Other Non-Recyclable Paper | **12.4%** | 11.4% | 13.5% | **9.9%** | 6.8% | 13.0% | **12.7%** | 10.4% | 15.1% |
| 6 | Aseptic Containers | **0.3%** | 0.2% | 0.3% | **0.6%** | 0.0% | 1.3% | **0.3%** | 0.1% | 0.4% |
| 7 | PET Containers | **2.5%** | 2.1% | 2.8% | **5.0%** | -2.9% | 12.9% | **2.3%** | 1.7% | 3.0% |
| 8 | HDPE Containers | **1.5%** | 1.3% | 1.8% | **1.5%** | 0.8% | 2.2% | **1.3%** | 0.7% | 1.9% |
| 9 | Other Narrow-Neck Plastic Containers | **0.8%** | 0.4% | 1.2% | **1.1%** | 0.1% | 2.1% | **0.4%** | 0.1% | 0.7% |
| 10 | Non-Rigid Plastic Film | **7.7%** | 6.9% | 8.5% | **7.2%** | 5.0% | 9.4% | **8.0%** | 7.0% | 9.0% |
| 11 | Styrofoam | **1.1%** | 0.9% | 1.3% | **1.3%** | 0.2% | 2.4% | **1.3%** | 0.9% | 1.7% |
| 12 | All Other Plastics | **4.2%** | 3.3% | 5.0% | **3.7%** | 2.3% | 5.0% | **3.6%** | 1.7% | 5.4% |
| 13 | Tin/Steel Cans | **1.7%** | 1.4% | 1.9% | **2.0%** | 1.2% | 2.9% | **2.0%** | 1.3% | 2.7% |
| 14 | White Goods | **0.0%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.7%** | 0.4% | 0.9% | **0.2%** | 0.0% | 0.4% | **1.1%** | 0.3% | 2.0% |
| 16 | Aluminum Cans | **0.9%** | 0.7% | 1.1% | **1.0%** | 0.8% | 1.2% | **0.9%** | 0.6% | 1.1% |
| 17 | Other Non-Ferrous | **0.7%** | 0.4% | 0.9% | **1.5%** | -0.5% | 3.6% | **0.9%** | 0.3% | 1.4% |
| 18 | Glass Containers | **3.1%** | 2.5% | 3.6% | **3.0%** | 2.2% | 3.8% | **1.6%** | 0.8% | 2.4% |
| 19 | Other Glass | **0.8%** | 0.3% | 1.2% | **0.2%** | -0.2% | 0.7% | **0.1%** | 0.0% | 0.2% |
| 20 | Textiles | **4.1%** | 3.5% | 4.8% | **4.1%** | 0.8% | 7.3% | **3.4%** | 2.2% | 4.5% |
| 21 | Household Hazardous Waste | **0.0%** | 0.0% | 0.1% | **0.1%** | 0.0% | 0.2% | **0.0%** | 0.0% | 0.0% |
| 22 | Electronics | **0.9%** | 0.6% | 1.3% | **2.4%** | -0.6% | 5.3% | **1.6%** | 0.4% | 2.8% |
| 23 | Household Batteries | **0.2%** | 0.0% | 0.4% | **0.1%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% |
| 24 | Wood Waste | **1.5%** | 1.0% | 2.1% | **3.8%** | -1.4% | 8.9% | **0.9%** | 0.2% | 1.6% |
| 25 | C&D Debris | **2.0%** | 1.2% | 2.7% | **3.8%** | 2.1% | 5.5% | **2.2%** | 0.7% | 3.7% |
| 26 | Tires and Rubber | **0.5%** | 0.2% | 0.8% | **1.7%** | -0.3% | 3.7% | **0.5%** | -0.4% | 1.4% |
| 27 | Yard Waste | **14.7%** | 11.9% | 17.5% | **9.6%** | 2.4% | 16.8% | **16.5%** | 10.4% | 22.6% |
| 28 | Food Waste | **9.5%** | 8.5% | 10.5% | **10.7%** | 7.3% | 14.1% | **9.3%** | 7.3% | 11.3% |
| 29 | All Other Garbage | **7.1%** | 5.9% | 8.3% | **2.9%** | 1.5% | 4.2% | **7.5%** | 4.0% | 11.1% |
| 30 | Grit | **1.2%** | 0.7% | 1.7% | **3.1%** | 0.7% | 5.6% | **0.7%** | 0.0% | 1.4% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## 3.4 Multi-Family Residential Waste

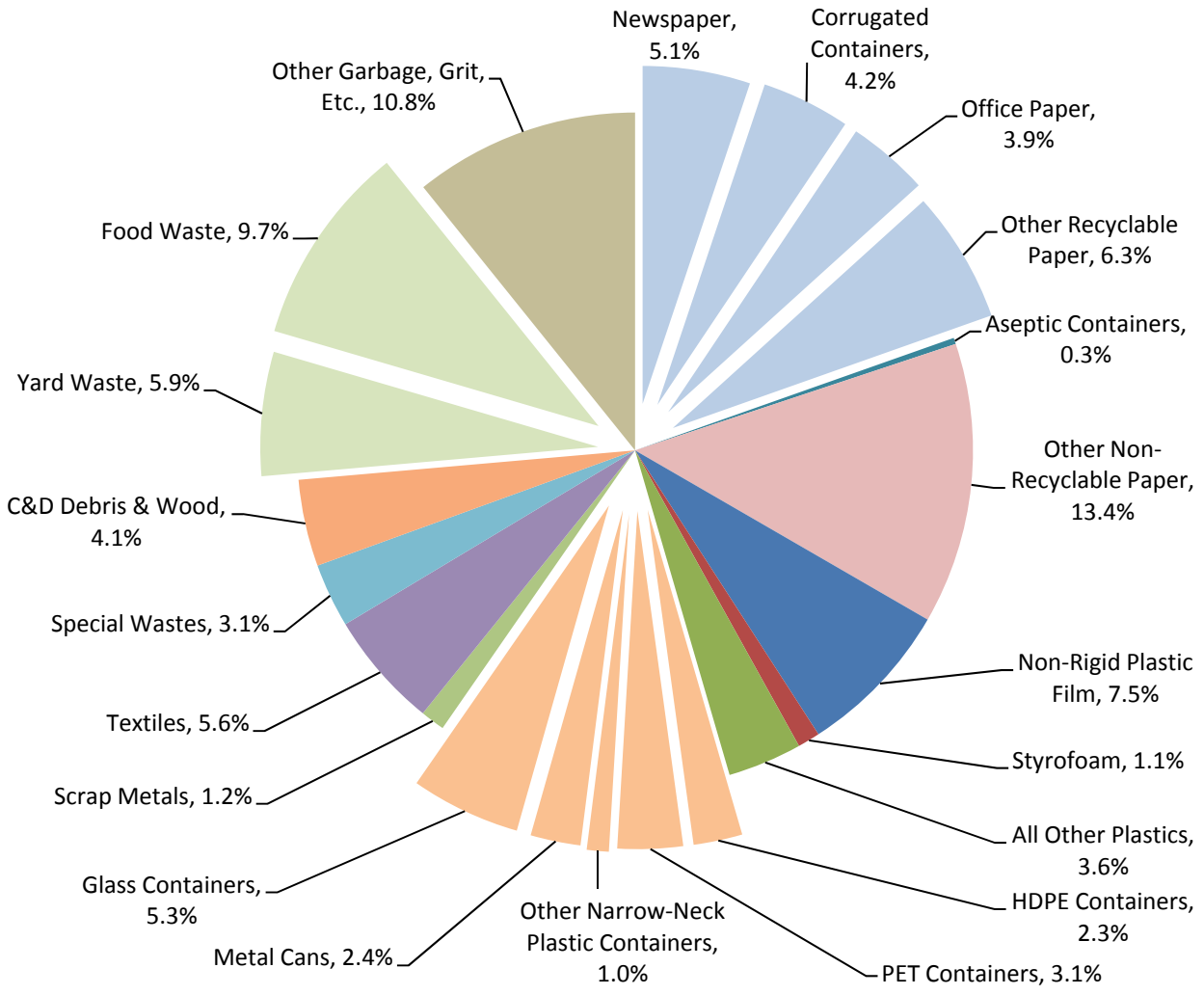
The figure and tables listed below provide the study results for multi-family residential waste disposed at the County's RRF. Individual sample results for this generator sector are provided in Appendix G.

- Figure 3.3 – depicts the composition of multi-family residential waste.
- Table 3.8 – presents the results of the summer, winter, and combined sorting events.
- Table 3.9 – compares the multi-family residential results of this WCS and the 1994 study.

Provided below is a summary of key findings regarding the composition of multi-family residential waste disposed at the County's RRF:

- Approximately 34 percent of the multi-family residential waste stream is comprised of recyclable paper and recyclable containers, and organics (Food and Yard Waste) make up an additional 16 percent.
- Recyclable Paper: Recyclable grades of paper comprise approximately 20 percent of multi-family residential waste. Other Recyclable Paper (6.3 percent) comprises the largest component of recyclable paper, followed by Newspaper (5.1 percent), Corrugated Cardboard (4.2 percent), and Office Paper (3.9 percent). The percentage of Newspaper in multi-family residential waste (5.1 percent) decreased by more than fivefold since the 1994 study (26.2 percent) for the reasons previously discussed.
- Recyclable Containers: Commingled containers comprise approximately 14 percent of multi-family residential waste. Glass Containers (5.3 percent) is the largest component. The same trends were noted since 1994 as were previously discussed. Substantial increases were seen in the percentage of PET Containers (0.9 percent in 1994 to 3.1 percent in 2011) and HPDE Containers (.9 percent in 1994 to 2.3 percent in 2011).
- Organics: Organic wastes constitute nearly 16 percent of multi-family residential waste. This includes Food Waste (9.7 percent) and Yard Waste (5.9 percent). As anticipated, Yard Waste makes up a smaller percentage of multi-family waste than single-family waste.
- Seasonal Variations: Increases in the percentage of all grades of recyclable paper were seen in the winter as compared to the summer, but especially in the percentage of Newspaper (7.6 percent in winter versus 3.2 percent in summer). This may be the influence of seasonal residents. The percentage of Glass Containers also increased substantially in the winter compared to the summer (3.8 percent in summer versus 7.0 percent in winter). Unlike the single-family waste stream, Yard Waste was greater in summer (7.9 percent) than in winter (3.4 percent).
- Other Changes Since 1994: In addition to the changes noted above for Newspaper and PET and HDPE Containers, the percentage of Non-Rigid Plastic Film more than tripled since 1994 (2.2 percent in 1994 to 7.5 percent in 2011).

## Figure 3.3: Composition of Multi-Family Residential Waste Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table 3.8: Multi-Family Residential Study Results by Seasonal Sorting Event (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **3.2%** | 1.7% | 4.8% | **7.6%** | 3.2% | 11.9% | **5.1%** | 2.9% | 7.3% |
| 2 | Corrugated Containers | **3.7%** | 2.2% | 5.1% | **5.0%** | 1.4% | 8.6% | **4.2%** | 2.7% | 5.8% |
| 3 | Office Paper | **3.2%** | 1.2% | 5.2% | **4.8%** | 2.4% | 7.1% | **3.9%** | 2.5% | 5.3% |
| 4 | Other Recyclable Paper | **5.7%** | 4.3% | 7.1% | **7.1%** | 2.8% | 11.4% | **6.3%** | 4.4% | 8.2% |
| 5 | Other Non-Recyclable Paper | **14.8%** | 11.1% | 18.4% | **11.8%** | 8.5% | 15.0% | **13.4%** | 11.0% | 15.9% |
| 6 | Aseptic Containers | **0.3%** | 0.1% | 0.5% | **0.3%** | 0.1% | 0.5% | **0.3%** | 0.2% | 0.4% |
| 7 | PET Containers | **3.2%** | 2.4% | 4.0% | **3.0%** | 1.6% | 4.5% | **3.1%** | 2.4% | 3.8% |
| 8 | HDPE Containers | **2.1%** | 0.9% | 3.3% | **2.7%** | 0.8% | 4.6% | **2.3%** | 1.4% | 3.3% |
| 9 | Other Narrow-Neck Plastic Containers | **1.2%** | 0.5% | 1.9% | **0.9%** | -1.2% | 2.9% | **1.0%** | 0.2% | 1.9% |
| 10 | Non-Rigid Plastic Film | **6.8%** | 4.8% | 8.8% | **8.5%** | 4.8% | 12.2% | **7.5%** | 5.8% | 9.3% |
| 11 | Styrofoam | **1.1%** | 0.0% | 2.2% | **1.0%** | 0.4% | 1.6% | **1.1%** | 0.5% | 1.6% |
| 12 | All Other Plastics | **2.8%** | 1.5% | 4.1% | **4.5%** | 2.1% | 6.8% | **3.6%** | 2.4% | 4.7% |
| 13 | Tin/Steel Cans | **1.4%** | 0.6% | 2.3% | **1.5%** | 0.8% | 2.1% | **1.4%** | 1.0% | 1.9% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.8%** | 0.0% | 1.7% | **0.4%** | -0.5% | 1.3% | **0.7%** | 0.1% | 1.2% |
| 16 | Aluminum Cans | **0.9%** | 0.7% | 1.1% | **1.1%** | 0.3% | 1.9% | **1.0%** | 0.6% | 1.3% |
| 17 | Other Non-Ferrous | **0.4%** | 0.0% | 0.7% | **0.7%** | -0.1% | 1.5% | **0.5%** | 0.1% | 0.9% |
| 18 | Glass Containers | **3.8%** | 1.5% | 6.2% | **7.0%** | 4.5% | 9.6% | **5.3%** | 3.5% | 7.1% |
| 19 | Other Glass | **1.1%** | -0.8% | 3.1% | **0.3%** | 0.0% | 0.7% | **0.8%** | -0.2% | 1.8% |
| 20 | Textiles | **7.1%** | 2.2% | 11.9% | **3.7%** | 1.3% | 6.1% | **5.6%** | 2.9% | 8.3% |
| 21 | Household Hazardous Waste | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 22 | Electronics | **3.7%** | 1.0% | 6.3% | **0.4%** | 0.1% | 0.7% | **2.2%** | 0.8% | 3.7% |
| 23 | Household Batteries | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 24 | Wood Waste | **6.6%** | 0.4% | 12.7% | **0.3%** | -0.4% | 1.1% | **3.8%** | 0.5% | 7.2% |
| 25 | C&D Debris | **0.5%** | -0.1% | 1.1% | **0.1%** | 0.0% | 0.2% | **0.3%** | 0.0% | 0.6% |
| 26 | Tires and Rubber | **1.4%** | -0.2% | 3.0% | **0.1%** | -0.2% | 0.3% | **0.8%** | 0.0% | 1.7% |
| 27 | Yard Waste | **7.9%** | -2.5% | 18.3% | **3.4%** | -0.4% | 7.2% | **5.9%** | 0.6% | 11.2% |
| 28 | Food Waste | **9.3%** | 7.0% | 11.5% | **10.2%** | 6.9% | 13.5% | **9.7%** | 8.0% | 11.4% |
| 29 | All Other Garbage | **6.1%** | 3.0% | 9.3% | **9.6%** | 6.1% | 13.0% | **7.6%** | 5.4% | 9.9% |
| 30 | Grit | **1.0%** | 0.2% | 1.7% | **4.1%** | -0.5% | 8.8% | **2.4%** | 0.4% | 4.3% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table 3.9: Comparison of the 2011 and 1994 Multi-Family Residential WCS Results (% by weight)

| | Material Category | 2011 Multi-Family Waste Weighted Average | 1994 Multi-Family Waste Weighted Average | Percentage Point Increase/(Decrease) |
|---|---|---|---|---|
| 1 | Newspaper | 5.1% | 26.2% | (21.1%) |
| 2 | Corrugated Cardboard | 4.2% | 1.0% | 3.3% |
| 3 | Office Paper | 3.9% | 0.0% | 3.9% |
| 4<br>5<br>6 | Other Recyclable Paper<br>Non-Recyclable Paper<br>Aseptic Containers | 20.1% | 18.9% | 1.2% |
| 7 | PET (SPI #1) | 3.1% | 0.9% | 2.3% |
| 8 | HDPE (SPI #2) | 2.3% | 0.9% | 1.4% |
| 9<br>12 | Other Recyclable Narrow-Neck Containers<br>All Other Plastics | 4.6% | 3.5% | 1.1% |
| 11 | Styrofoam | 1.1% | 0.6% | 0.4% |
| 10 | Non-Rigid Plastic Film | 7.5% | 2.2% | 5.3% |
| 13 | Tin/Steel Cans | 1.4% | 2.8% | (1.4%) |
| 14 | White Goods | 0.0% | 0.0% | 0.0% |
| 16 | Aluminum Cans | 1.0% | 1.5% | (0.6%) |
| 15<br>17 | Other Ferrous<br>Other Non-Ferrous | 1.2% | 1.0% | 0.2% |
| 18 | Glass Containers | 5.3% | 6.0% | (0.7%) |
| 19 | Other Glass | 0.8% | 1.7% | (0.9%) |
| 20 | Textiles | 5.6% | 1.9% | 3.7% |
| 21 | Household Hazardous Waste | 0.0% | 0.2% | (0.1%) |
| 22 | Electronics (E-waste) | 2.2% | n/a | n/a |
| 23 | Household Batteries | 0.0% | 0.3% | (0.3%) |
| 24<br>25 | C&D Debris<br>Wood Waste | 4.1% | 1.3% | 2.8% |
| 26 | Tires and Rubber | 0.8% | 0.2% | (0.6%) |
| 27 | Yard Waste | 5.9% | 4.7% | 1.2% |
| 28 | Food Waste | 9.7% | 11.3% | (1.6%) |
| 29<br>30 | All Other Garbage<br>Grit | 10.0% | 13.0% | 3.0% |
| | **TOTALS** | 100.0% | 100.0% | NA |

Note: A comparison of the material categories utilized in each study and how the results have been compared can be found in Appendix B.

## 3.5 Commercial Waste

Data from the two commercial sub-generator sectors (Zephyrhills and all other commercial waste) were combined to calculate the overall composition of commercial waste disposed at the County's RRF. The figure and tables listed below summarize the results for this generator sector. Individual sample results are provided in Appendix H (countywide) and Appendix I (Zephyrhills).

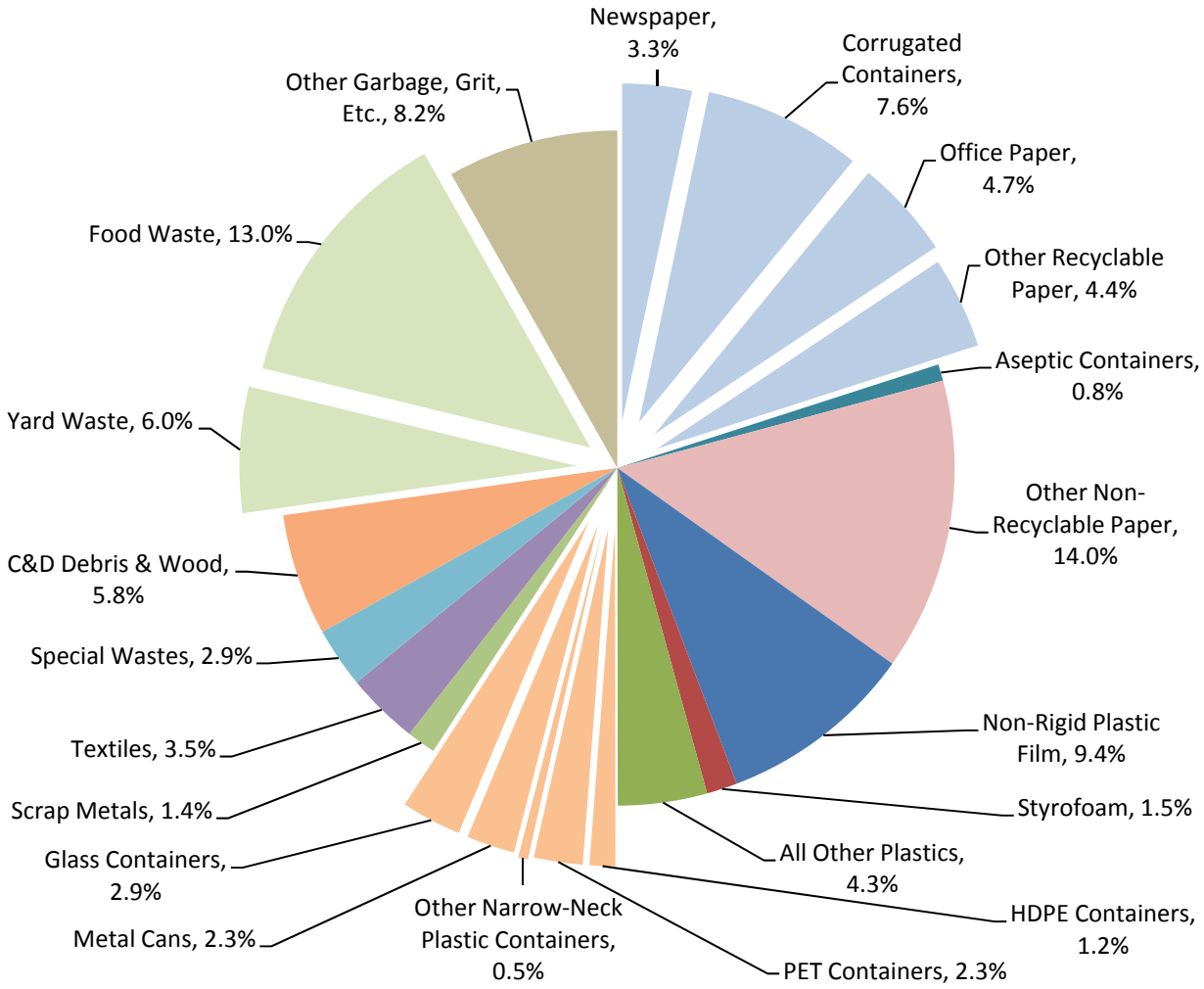
- Figure 3.4 – depicts the overall composition of commercial waste disposed at the RRF.
- Table 3.10 – presents the results of the commercial sector for the summer, winter, and combined sorting events.
- Table 3.11 – compares the commercial waste results of this WCS with the 1994 study.
- Table 3.12 – presents the composition and confidence intervals for the Zephyrhills sub-generator sector as compared to countywide commercial.

Provided below is a summary of key findings regarding the composition of commercial waste disposed at the County's RRF:

- Approximately 30 percent of the commercial waste stream is comprised of recyclable paper and recyclable containers, and another 19 percent consists of organics (Food and Yard Waste).
- Recyclable Paper: Recyclable grades of paper comprise more than 20 percent of commercial waste, with Corrugated Cardboard (7.6 percent) being the largest component. The composition of commercial waste disposed by Zephyrhills was very similar, with a slightly higher percentage of Corrugated Cardboard and slightly lower percentages of other recyclable paper grades.
- Recyclable Containers: Commingled containers comprise approximately 9 percent of commercial waste. Glass Containers (2.9 percent) and PET Containers (2.3 percent) being the largest components. Commingled containers made up nearly 8 percent of the commercial waste disposed by Zephyrhills, with PET Containers (2.5 percent) and Tin/Steel Cans (2.3 percent) being the largest categories.
- Organics: Food waste constitutes a substantial amount of the commercial waste stream countywide (13.0 percent) and in Zephyrhills (14.6 percent). Yard Waste contributes 6.0 percent to the countywide commercial waste stream and 5.3 percent to the Zephyrhills' commercial stream.
- Seasonal Variations: The percentages of C&D Debris, All Other Plastics, and Glass Containers were higher in winter, while the percentage of Non-Rigid Plastic Film was higher in summer. These variations may be more a function of commercial load selection and the heterogeneity of commercial waste in general rather than seasonal fluctuations. The types of waste generated by businesses can vary greatly depending upon each business's operations, making commercial waste typically more heterogeneous than residential waste. To strive for a broad cross-section of commercial waste, different commercial loads are targeted for sampling during the two seasonal study events, and the results of each event are influenced by the load and sample selection.

- Changes Since 1994: Consistent with what was noted in the other generator sectors, the percentage of Newspaper (5.7 percent in 1994 to 3.3 percent in 2011) decreased, and the percentages of PET Containers (0.4 percent in 1994 to 2.3 percent in 2011), HDPE Containers (0.6 percent in 1994 to 1.2 percent in 2011), and Non-Rigid Plastic Film (2.7 percent in 1994 to 9.4 percent in 2011) substantially increased. In addition, the percentages of Corrugated Cardboard (11.0 percent in 1994 to 7.6 percent in 2011) and Ferrous and Non-Ferrous Metals (4.4 percent in 1994 to 1.4 percent in 2011) also decreased, indicative of the value of these commodities and possible increased recovery.

**Figure 3.4: Composition of Commercial Waste Disposed at RRF (% by weight)**




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table 3.10: Commercial Sector Study Results by Seasonal Sorting Event (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **3.8%** | 2.3% | 5.2% | **2.8%** | 1.9% | 3.6% | **3.3%** | 2.5% | 4.1% |
| 2 | Corrugated Containers | **8.8%** | 6.6% | 11.0% | **6.2%** | 4.3% | 8.1% | **7.6%** | 6.2% | 9.0% |
| 3 | Office Paper | **5.3%** | 3.4% | 7.2% | **4.1%** | 3.1% | 5.2% | **4.7%** | 3.7% | 5.8% |
| 4 | Other Recyclable Paper | **4.5%** | 3.9% | 5.0% | **4.3%** | 3.3% | 5.2% | **4.4%** | 3.9% | 4.9% |
| 5 | Other Non-Recyclable Paper | **16.9%** | 14.5% | 19.2% | **10.7%** | 9.3% | 12.1% | **14.0%** | 12.6% | 15.5% |
| 6 | Aseptic Containers | **0.6%** | 0.3% | 0.9% | **1.0%** | 0.3% | 1.7% | **0.8%** | 0.4% | 1.2% |
| 7 | PET Containers | **2.5%** | 2.1% | 2.9% | **2.2%** | 1.7% | 2.6% | **2.3%** | 2.0% | 2.6% |
| 8 | HDPE Containers | **1.3%** | 0.9% | 1.6% | **1.2%** | 1.0% | 1.4% | **1.2%** | 1.0% | 1.4% |
| 9 | Other Narrow-Neck Plastic Containers | **0.6%** | 0.4% | 0.8% | **0.3%** | 0.1% | 0.5% | **0.5%** | 0.3% | 0.6% |
| 10 | Non-Rigid Plastic Film | **10.3%** | 9.1% | 11.4% | **8.4%** | 7.2% | 9.7% | **9.4%** | 8.6% | 10.2% |
| 11 | Styrofoam | **1.3%** | 1.0% | 1.7% | **1.6%** | 1.2% | 2.0% | **1.5%** | 1.2% | 1.7% |
| 12 | All Other Plastics | **2.7%** | 1.5% | 4.0% | **6.0%** | 4.8% | 7.2% | **4.3%** | 3.3% | 5.2% |
| 13 | Tin/Steel Cans | **1.6%** | 1.2% | 1.9% | **1.7%** | 1.3% | 2.1% | **1.6%** | 1.4% | 1.9% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **1.0%** | 0.3% | 1.7% | **0.8%** | 0.3% | 1.3% | **0.9%** | 0.5% | 1.3% |
| 16 | Aluminum Cans | **0.6%** | 0.5% | 0.8% | **0.7%** | 0.5% | 0.9% | **0.7%** | 0.6% | 0.8% |
| 17 | Other Non-Ferrous | **0.3%** | 0.2% | 0.5% | **0.6%** | 0.3% | 0.9% | **0.5%** | 0.3% | 0.6% |
| 18 | Glass Containers | **2.2%** | 1.5% | 3.0% | **3.6%** | 2.4% | 4.8% | **2.9%** | 2.2% | 3.5% |
| 19 | Other Glass | **0.3%** | 0.1% | 0.4% | **0.4%** | 0.1% | 0.6% | **0.3%** | 0.2% | 0.5% |
| 20 | Textiles | **3.7%** | 2.3% | 5.2% | **3.2%** | 2.1% | 4.3% | **3.5%** | 2.6% | 4.3% |
| 21 | Household Hazardous Waste | **0.3%** | -0.1% | 0.6% | **0.3%** | 0.1% | 0.5% | **0.3%** | 0.1% | 0.5% |
| 22 | Electronics | **2.5%** | 0.8% | 4.1% | **1.4%** | 0.2% | 2.5% | **1.9%** | 1.0% | 2.9% |
| 23 | Household Batteries | **0.5%** | 0.0% | 0.9% | **0.0%** | 0.0% | 0.1% | **0.3%** | 0.0% | 0.5% |
| 24 | Wood Waste | **2.8%** | 1.4% | 4.3% | **2.5%** | 0.8% | 4.1% | **2.7%** | 1.6% | 3.7% |
| 25 | C&D Debris | **1.7%** | 0.7% | 2.6% | **4.9%** | 2.3% | 7.4% | **3.2%** | 1.8% | 4.5% |
| 26 | Tires and Rubber | **0.5%** | 0.1% | 0.9% | **0.3%** | 0.1% | 0.6% | **0.4%** | 0.2% | 0.6% |
| 27 | Yard Waste | **3.7%** | 2.0% | 5.4% | **8.7%** | 4.9% | 12.5% | **6.0%** | 4.0% | 8.1% |
| 28 | Food Waste | **12.5%** | 9.7% | 15.4% | **13.6%** | 9.5% | 17.7% | **13.0%** | 10.6% | 15.4% |
| 29 | All Other Garbage | **5.8%** | 4.7% | 6.9% | **7.0%** | 5.3% | 8.6% | **6.4%** | 5.4% | 7.3% |
| 30 | Grit | **1.5%** | 0.9% | 2.0% | **1.6%** | 0.9% | 2.3% | **1.5%** | 1.1% | 1.9% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table 3.11: Comparison of the 2011 and 1994 Commercial Sector WCS Results (% by weight)

| | Material Category | 2011 Commercial Waste Weighted Average | 1994 Commercial Waste Weighted Average | Percentage Point Increase/(Decrease) |
|---|---|---|---|---|
| 1 | Newspaper | 3.3% | 5.7% | (2.4%) |
| 2 | Corrugated Cardboard | 7.6% | 11.0% | (3.4%) |
| 3 | Office Paper | 4.7% | 2.3% | 2.5% |
| 4<br>5<br>6 | Other Recyclable Paper<br>Non-Recyclable Paper<br>Aseptic Containers | 19.2% | 15.0% | 4.2% |
| 7 | PET (SPI #1) | 2.3% | 0.4% | 1.9% |
| 8 | HDPE (SPI #2) | 1.2% | 0.6% | 0.7% |
| 9<br>12 | Other Recyclable Narrow-Neck Containers<br>All Other Plastics | 4.7% | 6.0% | (1.2%) |
| 11 | Styrofoam | 1.5% | 2.2% | (0.7%) |
| 10 | Non-Rigid Plastic Film | 9.4% | 2.7% | 6.7% |
| 13 | Tin/Steel Cans | 1.6% | 1.7% | 0.0% |
| 14 | White Goods | 0.0% | 0.0% | 0.0% |
| 16 | Aluminum Cans | 0.7% | 1.1% | (0.5%) |
| 15<br>17 | Other Ferrous<br>Other Non-Ferrous | 1.4% | 4.4% | (3.0%) |
| 18 | Glass Containers | 2.9% | 2.4% | 0.5% |
| 19 | Other Glass | 0.3% | 3.8% | (3.5%) |
| 20 | Textiles | 3.5% | 5.3% | 1.8% |
| 21 | Household Hazardous Waste | 0.3% | 0.4% | (0.1%) |
| 22 | Electronics (E-waste) | 1.9% | n/a | n/a |
| 23 | Household Batteries | 0.3% | 0.1% | 0.2% |
| 24<br>25 | C&D Debris<br>Wood Waste | 5.8% | 7.3% | (1.5%) |
| 26 | Tires and Rubber | 0.4% | 0.7% | (0.3%) |
| 27 | Yard Waste | 6.0% | 5.6% | 0.5% |
| 28 | Food Waste | 13.0% | 12.8% | 0.3% |
| 29<br>30 | All Other Garbage<br>Grit | 7.9% | 8.9% | (1.0%) |
| | **TOTALS** | 100.0% | 100.0% | NA |

Note: A comparison of the material categories utilized in each study and how the results have been compared, can be found in Appendix B

## Table 3.12: Comparison of City of Zephyrhills and Countywide Commercial Sector Results (% by weight)

| | | City of Zephyrhills Commercial | | | Countywide Commercial | | |
|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **3.0%** | 1.5% | 4.5% | **3.3%** | 2.5% | 4.1% |
| 2 | Corrugated Containers | **9.3%** | 5.2% | 13.5% | **7.6%** | 6.2% | 9.0% |
| 3 | Office Paper | **3.7%** | 2.7% | 4.7% | **4.7%** | 3.7% | 5.8% |
| 4 | Other Recyclable Paper | **3.7%** | 2.6% | 4.9% | **4.4%** | 3.9% | 4.9% |
| 5 | Other Non-Recyclable Paper | **16.3%** | 11.0% | 21.7% | **14.0%** | 12.6% | 15.5% |
| 6 | Aseptic Containers | **0.7%** | -0.2% | 1.6% | **0.8%** | 0.4% | 1.2% |
| 7 | PET Containers | **2.5%** | 1.5% | 3.4% | **2.3%** | 2.0% | 2.6% |
| 8 | HDPE Containers | **1.0%** | 0.7% | 1.3% | **1.2%** | 1.0% | 1.4% |
| 9 | Other Narrow-Neck Plastic Containers | **0.6%** | 0.0% | 1.1% | **0.5%** | 0.3% | 0.6% |
| 10 | Non-Rigid Plastic Film | **11.4%** | 10.1% | 12.6% | **9.4%** | 8.6% | 10.2% |
| 11 | Styrofoam | **1.7%** | 1.0% | 2.4% | **1.5%** | 1.2% | 1.7% |
| 12 | All Other Plastics | **3.9%** | 2.2% | 5.5% | **4.3%** | 3.3% | 5.2% |
| 13 | Tin/Steel Cans | **2.3%** | 1.4% | 3.3% | **1.6%** | 1.4% | 1.9% |
| 14 | White Goods | **0.1%** | -0.1% | 0.2% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.8%** | 0.0% | 1.6% | **0.9%** | 0.5% | 1.3% |
| 16 | Aluminum Cans | **0.5%** | 0.3% | 0.7% | **0.7%** | 0.6% | 0.8% |
| 17 | Other Non-Ferrous | **0.7%** | -0.1% | 1.5% | **0.5%** | 0.3% | 0.6% |
| 18 | Glass Containers | **1.0%** | 0.6% | 1.5% | **2.9%** | 2.2% | 3.5% |
| 19 | Other Glass | **0.2%** | -0.1% | 0.5% | **0.3%** | 0.2% | 0.5% |
| 20 | Textiles | **3.3%** | 1.2% | 5.4% | **3.5%** | 2.6% | 4.3% |
| 21 | Household Hazardous Waste | **0.2%** | -0.1% | 0.4% | **0.3%** | 0.1% | 0.5% |
| 22 | Electronics | **0.5%** | -0.2% | 1.2% | **1.9%** | 1.0% | 2.9% |
| 23 | Household Batteries | **0.0%** | 0.0% | 0.1% | **0.3%** | 0.0% | 0.5% |
| 24 | Wood Waste | **0.2%** | 0.0% | 0.4% | **2.7%** | 1.6% | 3.7% |
| 25 | C&D Debris | **1.7%** | 0.5% | 2.9% | **3.2%** | 1.8% | 4.5% |
| 26 | Tires and Rubber | **0.3%** | -0.1% | 0.7% | **0.4%** | 0.2% | 0.6% |
| 27 | Yard Waste | **5.3%** | -0.6% | 11.1% | **6.0%** | 4.0% | 8.1% |
| 28 | Food Waste | **14.6%** | 10.6% | 18.7% | **13.0%** | 10.6% | 15.4% |
| 29 | All Other Garbage | **9.5%** | 6.1% | 13.0% | **6.4%** | 5.4% | 7.3% |
| 30 | Grit | **1.0%** | 0.2% | 1.9% | **1.5%** | 1.1% | 1.9% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | |

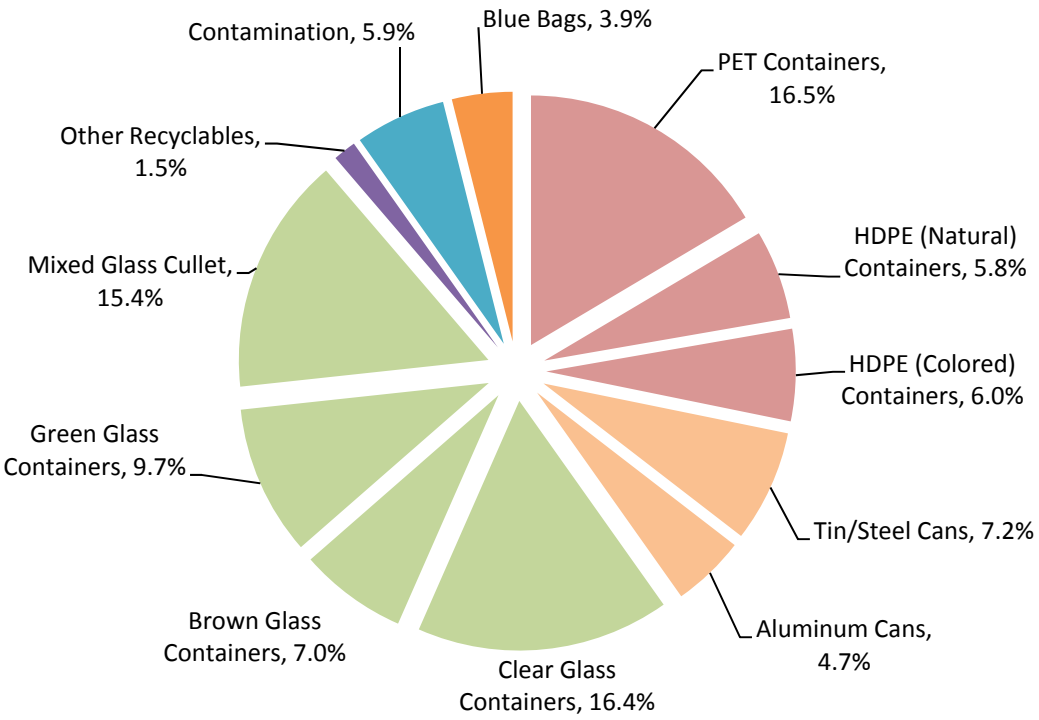
# 4.0 Recyclables Composition Results

## 4.1 Materials Collected in Blue-Bag Recycling Program

Figure 4.1 depicts the composition of recyclables collected in the County's blue-bag recycling program. Table 4.1 presents the results of the blue-bag recycling program audit from the summer, winter, and combined sorting events. Individual sample results for this generator sector are provided in Appendix J.

- By weight, Glass Containers comprise the largest portion of the blue-bag recycling stream (48.5 percent), followed by PET Containers (16.5 percent), HDPE Containers (11.8 percent), Tin/Steel Cans (7.2 percent) and Aluminum Cans (4.7 percent).
- Contamination in the blue-bag recycling stream, including recyclables not accepted in the program, is relatively high at 7.4 percent.
- The blue bags in which the recyclables are placed comprise nearly 4 percent of the material stream.

**Figure 4.1: Composition of Materials Collected in Blue-Bag Recycling Program (% by weight)**



## Table 4.1: Composition of Blue-Bag Program Materials by Seasonal Sorting Event (% by weight)

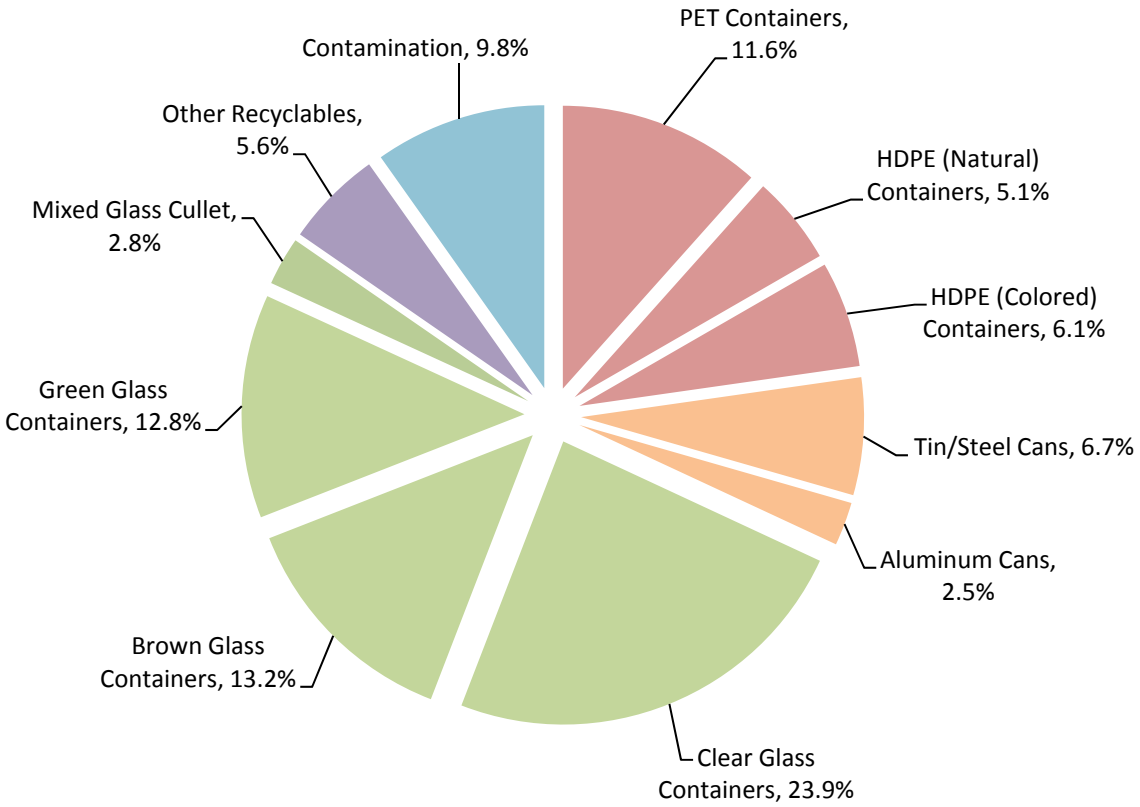
| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 7 | PET Containers | **12.8%** | 10.2% | 15.5% | **18.8%** | 17.1% | 20.4% | **16.5%** | 14.9% | 18.0% |
| 8a | HDPE (Natural) Containers | **4.9%** | 3.1% | 6.6% | **6.4%** | 4.9% | 7.9% | **5.8%** | 4.8% | 6.8% |
| 8b | HDPE (Colored) Containers | **6.0%** | 3.4% | 8.6% | **5.9%** | 4.7% | 7.2% | **6.0%** | 4.6% | 7.3% |
| 13 | Tin/Steel Cans | **7.6%** | 4.7% | 10.5% | **7.0%** | 6.4% | 7.7% | **7.2%** | 5.9% | 8.6% |
| 16 | Aluminum Cans | **5.6%** | 4.1% | 7.1% | **4.2%** | 3.3% | 5.1% | **4.7%** | 3.9% | 5.6% |
| 18a | Clear Glass Containers | **20.6%** | 16.3% | 24.8% | **13.7%** | 6.2% | 21.3% | **16.4%** | 12.5% | 20.3% |
| 18b | Brown Glass Containers | **2.8%** | -3.3% | 8.9% | **9.6%** | 4.4% | 14.9% | **7.0%** | 2.8% | 11.1% |
| 18c | Green Glass Containers | **13.3%** | 9.1% | 17.6% | **7.4%** | 0.3% | 14.5% | **9.7%** | 5.9% | 13.5% |
| 18d | Mixed Glass Cullet | **15.2%** | 9.3% | 21.0% | **15.6%** | 3.4% | 27.7% | **15.4%** | 9.5% | 21.4% |
| | **Accepted Recyclables** | **88.8%** | | | **88.7%** | | | **88.7%** | | |
| 4 | Other Recyclable Paper | **0.4%** | -0.3% | 1.1% | **0.5%** | -1.2% | 2.2% | **0.5%** | -0.4% | 1.3% |
| 6 | Aseptic Containers | **0.0%** | -0.2% | 0.2% | **0.0%** | 0.0% | 0.0% | **0.0%** | -0.1% | 0.1% |
| 9 | Other Narrow-Neck Plastic Containers | **0.3%** | 0.0% | 0.6% | **1.4%** | 1.0% | 1.8% | **1.0%** | 0.7% | 1.3% |
| 17 | Other Non-Ferrous | **0.0%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 24 | Wood Waste | **0.0%** | -0.1% | 0.2% | **0.0%** | 0.0% | 0.0% | **0.0%** | -0.1% | 0.1% |
| | **Other Recyclables** | **0.8%** | | | **1.9%** | | | **1.5%** | | |
| 11 | Styrofoam | **0.1%** | -0.2% | 0.3% | **0.0%** | 0.0% | 0.1% | **0.0%** | -0.1% | 0.2% |
| 12 | All Other Plastics | **4.2%** | 1.2% | 7.2% | **3.7%** | 1.4% | 6.0% | **3.9%** | 2.2% | 5.6% |
| 29 | All Other Garbage | **1.6%** | 0.0% | 3.1% | **2.2%** | 0.4% | 4.0% | **2.0%** | 0.8% | 3.1% |
| | **Total Contamination** | **5.8%** | | | **5.9%** | | | **5.9%** | | |
| 10 | Non-Rigid Plastic Film (Blue Bags) | **4.6%** | 3.0% | 6.1% | **3.5%** | 2.2% | 4.8% | **3.9%** | 3.0% | 4.8% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## 4.2 Materials Collected in Drop-off Recycling Program

Figure 4.2 depicts the composition of recyclables collected in the County's drop-off recycling program. Table 4.2 presents the results of the drop-off recycling program audit from the summer, winter, and combined sorting events. Individual sample results for this generator sector are also provided in Appendix J.

- Glass Containers comprise the largest portion of the drop-off recycling stream (52.7 percent), followed by PET Containers (11.6 percent), HDPE Containers (11.2 percent), Tin/Steel Cans (6.7 percent) and Aluminum Cans (2.5 percent).
- Contamination in the drop-off recycling stream, including recyclables not accepted in the program (Other Recyclables), is relatively high at 15.4 percent. This level of contamination is not uncommon in recyclables collected at drop-off centers that are unstaffed.

**Figure 4.2: Composition of Materials Collected in County's Drop-off Recycling Program (% by weight)**



## Table 4.2: Composition of Drop-off Program Material by Seasonal Sorting Event (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 7 | PET Containers | **10.7%** | 8.3% | 13.1% | **11.9%** | 5.8% | 18.1% | **11.6%** | 8.6% | 14.6% |
| 8a | HDPE (Natural) Containers | **2.6%** | 2.1% | 3.2% | **6.0%** | 3.4% | 8.5% | **5.1%** | 3.4% | 6.8% |
| 8b | HDPE (Colored) Containers | **4.2%** | 4.1% | 4.4% | **6.7%** | 5.7% | 7.8% | **6.1%** | 5.5% | 6.6% |
| 13 | Tin/Steel Cans | **6.1%** | 3.5% | 8.6% | **6.9%** | 4.4% | 9.5% | **6.7%** | 5.5% | 7.9% |
| 16 | Aluminum Cans | **1.5%** | -1.7% | 4.7% | **2.8%** | -2.0% | 7.6% | **2.5%** | -1.4% | 6.4% |
| 18a | Clear Glass Containers | **29.0%** | 25.0% | 32.9% | **22.1%** | 16.4% | 27.9% | **23.9%** | 21.6% | 26.3% |
| 18b | Brown Glass Containers | **14.0%** | 11.2% | 16.7% | **12.9%** | 2.1% | 23.7% | **13.2%** | 8.9% | 17.5% |
| 18c | Green Glass Containers | **13.2%** | 6.4% | 20.0% | **12.6%** | 9.7% | 15.6% | **12.8%** | 11.0% | 14.5% |
| 18d | Mixed Glass Cullet | **1.4%** | 1.4% | 1.4% | **3.3%** | 3.3% | 3.3% | **2.8%** | 2.8% | 2.8% |
| | **Total Accepted Recyclables** | **82.7%** | | | **85.3%** | | | **84.6%** | | |
| 1 | Newspaper | **0.0%** | 0.0% | 0.0% | **1.8%** | -4.6% | 8.2% | **1.3%** | -1.5% | 4.1% |
| 2 | Corrugated Cardboard | **1.3%** | 1.1% | 1.4% | **0.2%** | -2.3% | 2.8% | **0.5%** | -0.8% | 1.9% |
| 4 | Other Recyclable Paper | **1.0%** | 0.6% | 1.3% | **2.7%** | 2.7% | 2.7% | **2.2%** | 2.2% | 2.3% |
| 6 | Aseptic Containers | **0.0%** | -5.4% | 5.5% | **0.0%** | -4.3% | 4.3% | **0.0%** | -1.8% | 1.9% |
| 9 | Other Narrow-Neck Plastic Containers | **1.2%** | 0.5% | 1.9% | **0.6%** | -0.9% | 2.1% | **0.8%** | 0.1% | 1.4% |
| 15 | Other Ferrous Metals | **2.7%** | 2.7% | 2.7% | **0.0%** | 0.0% | 0.0% | **0.7%** | 0.7% | 0.7% |
| | **Total Accepted Recyclables** | **6.2%** | | | **5.3%** | | | **5.6%** | | |
| 10 | Non-Rigid Plastic Film | **2.1%** | 1.8% | 2.4% | **2.6%** | 2.6% | 2.6% | **2.4%** | 2.4% | 2.5% |
| 11 | Styrofoam | **0.0%** | -2.3% | 2.4% | **0.0%** | -5.5% | 5.5% | **0.0%** | -2.6% | 2.6% |
| 12 | All Other Plastics | **7.1%** | -4.5% | 18.7% | **4.9%** | 4.2% | 5.6% | **5.5%** | 4.2% | 6.8% |
| 20 | Textiles | **0.0%** | 0.0% | 0.0% | **0.2%** | -0.2% | 0.5% | **0.1%** | -0.1% | 0.3% |
| 29 | All Other Garbage | **1.9%** | -14.6% | 18.4% | **1.7%** | -1.0% | 4.4% | **1.8%** | -0.3% | 3.9% |
| | **Total Contamination** | **11.1%** | | | **9.3%** | | | **9.8%** | | |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

# 5.0 Summary of Study Results and Findings

## 5.1 Summary of Study Results

Table 5.1 presents the results of the Recyclables Composition Study (RCS) for the two RCS generator sectors: commingled containers collected in the blue-bag program and those collected at drop-off centers. Table 5.2 provides the Waste Composition Study (WCS) results, starting with the overall composition of waste disposed at the County's RRF, then the composition of waste disposed by the three main generator sectors, and finally the composition of waste disposed by the three residential sub-generator sectors and one commercial sub-generator sector included in this study. More detailed discussions of these results are provided in Section 3.0 and 4.0 of this report.

Table 5.3 combines the results of the WCS and RCS to provide the composition of materials received at the County's solid waste facilities.

**Table 5.1: Composition of Blue-Bag and Drop-Off Program Materials (% by weight)**

| | Material Category | Blue-Bag Materials | Drop-Off Materials |
|---|---|---|---|
| 7 | PET Containers | **16.5%** | **11.6%** |
| 8a | HDPE (Natural) Containers | **5.8%** | **5.1%** |
| 8b | HDPE (Colored) Containers | **6.0%** | **6.1%** |
| 13 | Tin/Steel Cans | **7.2%** | **6.7%** |
| 16 | Aluminum Cans | **4.7%** | **2.5%** |
| 18a | Clear Glass Containers | **16.4%** | **23.9%** |
| 18b | Brown Glass Containers | **7.0%** | **13.2%** |
| 18c | Green Glass Containers | **9.7%** | **12.8%** |
| 18d | Mixed Glass Cullet | **15.4%** | **2.8%** |
| | **Accepted Recyclables** | **88.7%** | **84.6%** |
| 1 | Newspaper | **0.0%** | **1.3%** |
| 2 | Corrugated Cardboard | **0.0%** | **0.5%** |
| 4 | Other Recyclable Paper | **0.5%** | **2.2%** |
| 9 | Other Narrow-Neck Plastic Containers | **1.0%** | **0.8%** |
| 15 | Other Ferrous Metals | **0.0%** | **0.7%** |
| | **Other Recyclables** | **1.5%** | **5.6%** |
| 10 | Non-Rigid Plastic Film | **0.0%** | **2.4%** |
| 12 | All Other Plastics | **3.9%** | **5.5%** |
| 20 | Textiles | **0.0%** | **0.1%** |
| 29 | All Other Garbage | **2.0%** | **1.8%** |
| | **Total Contamination** | **5.9%** | **9.8%** |
| 10 | Non-Rigid Plastic Film (Blue Bags) | **3.9%** | **NA** |
| | **TOTALS** | **100.0%** | **100.0%** |

## Table 5.2: Composition of Waste Disposed at County's RRF (% by weight)

| | Material Category | Countywide | Generator Sectors | | | Sub-Generator Sectors | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Single-Family Residential | Multi-Family Residential | Commercial | Single-Family Curbside | Single-Family Dumpster | Zephyrhills Single-Family | Zephyrhills Commercial |
| 1 | Newspaper | 4.6% | 6.4% | 5.1% | 3.3% | 6.3% | 7.2% | 4.7% | 3.0% |
| 2 | Corrugated Containers | 6.0% | 3.8% | 4.2% | 7.6% | 4.0% | 2.9% | 6.4% | 9.3% |
| 3 | Office Paper | 4.3% | 3.8% | 3.9% | 4.7% | 4.0% | 2.9% | 4.4% | 3.7% |
| 4 | Other Recyclable Paper | 5.0% | 5.9% | 6.3% | 4.4% | 5.7% | 6.7% | 5.5% | 3.7% |
| 5 | Other Non-Recyclable Paper | 13.2% | 12.0% | 13.4% | 14.0% | 12.4% | 9.9% | 12.7% | 16.3% |
| 6 | Aseptic Containers | 0.6% | 0.3% | 0.3% | 0.8% | 0.3% | 0.6% | 0.3% | 0.7% |
| 7 | PET Containers | 2.6% | 2.9% | 3.1% | 2.3% | 2.5% | 5.0% | 2.3% | 2.5% |
| 8 | HDPE Containers | 1.4% | 1.5% | 2.3% | 1.2% | 1.5% | 1.5% | 1.3% | 1.0% |
| 9 | Other Narrow-Neck Plastic Cont. | 0.6% | 0.9% | 1.0% | 0.5% | 0.8% | 1.1% | 0.4% | 0.6% |
| 10 | Non-Rigid Plastic Film | 8.6% | 7.6% | 7.5% | 9.4% | 7.7% | 7.2% | 8.0% | 11.4% |
| 11 | Styrofoam | 1.3% | 1.1% | 1.1% | 1.5% | 1.1% | 1.3% | 1.3% | 1.7% |
| 12 | All Other Plastics | 4.2% | 4.1% | 3.6% | 4.3% | 4.2% | 3.7% | 3.6% | 3.9% |
| 13 | Tin/Steel Cans | 1.7% | 1.7% | 1.4% | 1.6% | 1.7% | 2.0% | 2.0% | 2.3% |
| 14 | White Goods | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| 15 | Other Ferrous | 0.8% | 0.6% | 0.7% | 0.9% | 0.7% | 0.2% | 1.1% | 0.8% |
| 16 | Aluminum Cans | 0.8% | 0.9% | 1.0% | 0.7% | 0.9% | 1.0% | 0.9% | 0.5% |
| 17 | Other Non-Ferrous | 0.6% | 0.8% | 0.5% | 0.5% | 0.7% | 1.5% | 0.9% | 0.7% |
| 18 | Glass Containers | 3.1% | 3.0% | 5.3% | 2.9% | 3.1% | 3.0% | 1.6% | 1.0% |
| 19 | Other Glass | 0.5% | 0.7% | 0.8% | 0.3% | 0.8% | 0.2% | 0.1% | 0.2% |
| 20 | Textiles | 3.8% | 4.1% | 5.6% | 3.5% | 4.1% | 4.1% | 3.4% | 3.3% |
| 21 | Household Hazardous Waste | 0.2% | 0.0% | 0.0% | 0.3% | 0.0% | 0.1% | 0.0% | 0.2% |
| 22 | Electronics | 1.7% | 1.2% | 2.2% | 1.9% | 0.9% | 2.4% | 1.6% | 0.5% |
| 23 | Household Batteries | 0.2% | 0.2% | 0.0% | 0.3% | 0.2% | 0.1% | 0.0% | 0.0% |
| 24 | Wood Waste | 2.4% | 1.9% | 3.8% | 2.7% | 1.5% | 3.8% | 0.9% | 0.2% |
| 25 | C&D Debris | 2.7% | 2.3% | 0.3% | 3.2% | 2.0% | 3.8% | 2.2% | 1.7% |
| 26 | Tires and Rubber | 0.5% | 0.7% | 0.8% | 0.4% | 0.5% | 1.7% | 0.5% | 0.3% |
| 27 | Yard Waste | 9.0% | 13.8% | 5.9% | 6.0% | 14.7% | 9.6% | 16.5% | 5.3% |
| 28 | Food Waste | 11.6% | 9.7% | 9.7% | 13.0% | 9.5% | 10.7% | 9.3% | 14.6% |
| 29 | All Other Garbage | 6.4% | 6.4% | 7.6% | 6.4% | 7.1% | 2.9% | 7.5% | 9.5% |
| 30 | Grit | 1.6% | 1.5% | 2.4% | 1.5% | 1.2% | 3.1% | 0.7% | 1.0% |
| | TOTALS | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

## Table 5.3: Composition of Waste Received at County's Solid Waste Facilities (% by weight)[1]

| | Material Type | Incoming Tonnage | | | Total Incoming Composition | |
|---|---|---|---|---|---|---|
| | | MRF[2] | RRF[3] | Class III[4] | **Tons** | **Percent** |
| 1 | Newspaper | 207.1 | 14,726.3 | | 14,933.4 | **4.5%** |
| 2 | Corrugated Containers | 3,957.5 | 19,231.3 | | 23,188.8 | **7.1%** |
| 3 | Office Paper | | 13,922.5 | | 13,922.5 | **4.2%** |
| 4 | Other Recyclable Paper | 192.8 | 16,168.8 | | 16,361.6 | **5.0%** |
| 5 | Other Non-Recyclable Paper | | 42,422.9 | | 42,422.9 | **12.9%** |
| 6 | Aseptic Containers | | 1,888.2 | | 1,888.2 | **0.6%** |
| 7 | PET Containers | 552.4 | 8,285.9 | | 8,838.3 | **2.7%** |
| 8 | HDPE Containers | 404.4 | 4,499.8 | | 4,904.2 | **1.5%** |
| 9 | Other Narrow-neck Plastic Containers | | 2,074.6 | | 2,074.6 | **0.6%** |
| 10 | Non-Rigid Plastic Film | | 27,713.8 | | 27,713.8 | **8.4%** |
| 11 | Styrofoam | | 4,201.1 | | 4,201.1 | **1.3%** |
| 12 | All Other Plastics | | 13,378.5 | | 13,378.5 | **4.1%** |
| 13 | Tin/Steel Cans | 249.1 | 5,352.1 | | 5,601.1 | **1.7%** |
| 14 | White Goods | | 53.4 | | 53.4 | **0.0%** |
| 15 | Other Ferrous | | 2,508.3 | | 2,508.3 | **0.8%** |
| 16 | Aluminum Cans | 155.9 | 2,450.1 | | 2,606.0 | **0.8%** |
| 17 | Other Non-Ferrous | | 1,944.0 | | 1,944.0 | **0.6%** |
| 18 | Glass Containers | 1,695.7 | 9,807.5 | | 11,503.2 | **3.5%** |
| 19 | Other Glass | | 1,529.0 | | 1,529.0 | **0.5%** |
| 20 | Textiles | | 12,247.0 | | 12,247.0 | **3.7%** |
| 21 | Household Hazardous Waste | | 579.2 | | 579.2 | **0.2%** |
| 22 | Electronics | | 5,346.9 | | 5,346.9 | **1.6%** |
| 23 | Household Batteries | | 678.2 | | 678.2 | **0.2%** |
| 24 | Wood Waste | | 7,817.9 | | 7,817.9 | **2.4%** |
| 25 | C&D Debris | | 8,635.3 | 15.9 | 8,651.2 | **2.6%** |
| 26 | Tires and Rubber | | 1,698.2 | | 1,698.2 | **0.5%** |
| 27 | Yard Waste | | 28,847.3 | | 28,847.3 | **8.8%** |
| 28 | Food Waste | | 37,218.3 | | 37,218.3 | **11.3%** |
| 29 | All Other Garbage | 405.5 | 20,653.4 | | 21,058.9 | **6.4%** |
| 30 | Grit | | 4,982.2 | | 4,982.2 | **1.5%** |
| | Totals | 7,820.5 | 320,862.1 | 15.9 | 328,698.4 | **100.0%** |

Notes:

[1] Based on tonnage report received from County staff for the period of 3/31/10 – 2/28/11.

[2] MRF tonnage includes 3,957.5 tons of commercial cardboard delivered by WSI, 207.1 tons of newspaper and 192.8 tons of mixed paper collection at drop-offs, and commingled containers collected in the Blue Bag Program and at the drop-offs. The breakdown of materials contained in the Blue Bag commingled containers (3,098.8 tons) and drop-off commingled containers (364.2 tons) are calculated based on the compositions listed in Table 5.1. Tonnage does not include any out-of-county materials processed at MRF.

[3] Class I tonnage (320,862.1 tons) is distributed among material types based on countywide composition listed in Table 5.2.

[4] Class III tonnage (15.9 tons) is assumed to be C&D Debris.

## 5.2 Waste Generation Analysis

The WCS estimates the composition of waste disposed at the County's RRF. The results do not include materials diverted for recycling or composting, or waste materials processed or disposed of at non-County facilities. To determine the composition of waste generated in the County, these materials need to be added to the study results.

KCI calculated the composition of waste generated in the County based on the results of this WCS and 2009 tonnage data (the most recent year for which complete data was available) provided by the County. The results of this analysis are provided in Table 5.4. The steps the County will need to take to calculate the composition of waste generated in the County in future years are provided in Appendix K.

Column B in Table 5.4 provides the tons of material received at the RRF for disposal. The tons of County waste reportedly received at other facilities for disposal (Column C) and the tons of materials recycled at the County's recycling facility and other recycling facilities (Column D) are added to column B to obtain the total tons of waste generated in the County (Column E).

Column A provides the composition of waste disposed at the RRF, based on the results of the WCS, and Column G presents the calculated composition of waste generated in the County. The latter is significantly affected by the large quantities of C&D debris that are reportedly generated in the County. Based on the information provided to the County by FDEP, C&D debris comprises nearly 44 percent of the waste generated. This percentage is close to double the statewide average of 23 percent C&D debris,[3] and points to probable shortcomings in the state reporting system. C&D haulers may not be correctly reporting the sources of debris they deliver to a facility, or C&D facilities may not be accurately recording this information.

[3] FDEP, 2009 Solid Waste Management Report.

## Table 5.4: Estimated Composition of Waste Generated Within Pasco County (FY 2009)

| Categories | A<br>Composition of County Waste Disposed (2011 WCS) | B<br>Tons Disposed in County Facilities A x (A total) | C<br>Tons Disposed at Other Locations | D<br>Tons Recycled (2009 Data) | E<br>Total Generation (tons) B + C +D | F<br>Recycling Rate (percent) D / E | G<br>Total Composition (percent) E/(E total) |
|---|---|---|---|---|---|---|---|
| a. Newspaper | 4.6% | 14,300 | | 3,836 | 18,136 | 21.2% | 2.5% |
| b. Glass | 3.1% | 9,523 | | 539 | 10,062 | 5.4% | 1.4% |
| c. Aluminum Cans | 0.8% | 2,379 | | 1,173 | 3,552 | 33.0% | 0.5% |
| d. Plastic Bottles | 4.6% | 14,430 | | 1,174 | 15,604 | 7.5% | 2.1% |
| e. Steel Cans | 1.7% | 5,197 | | 1,461 | 6,658 | 21.9% | 0.9% |
| f. Corrugated Paper | 6.0% | 18,674 | | 34,417 | 53,092 | 64.8% | 7.2% |
| g. Office Paper | 4.3% | 13,519 | | 375 | 13,894 | 2.7% | 1.9% |
| h. Yard Trash | 9.0% | 28,012 | | 19,669 | 47,681 | 41.3% | 6.5% |
| | | | | | | | |
| a. Other Plastics | 14.1% | 43,982 | | 1,013 | 44,995 | 2.3% | 6.1% |
| b. Ferrous Metals | 0.8% | 2,436 | | 17,038 | 19,474 | 87.5% | 2.6% |
| c. White Goods | 0.0% | 52 | | 3,217 | 3,269 | 98.4% | 0.4% |
| d. Non-Ferrous metals | 0.6% | 1,888 | | 6,920 | 8,808 | 78.6% | 1.2% |
| e. Other Paper | 18.8% | 58,729 | | 1,858 | 60,587 | 3.1% | 8.2% |
| f. Textiles | 3.8% | 11,892 | | 2,347 | 14,239 | 16.5% | 1.9% |
| | | | | | | | |
| a. C&D Debris | 5.1% | 15,977 | 142,099 | 164,359 | 322,435 | 51.0% | 43.7% |
| b. Food | 11.6% | 36,141 | | 0 | 36,141 | 0.0% | 4.9% |
| c. Miscellaneous | 10.5% | 32,791 | | 8,120 | 40,911 | 19.8% | 5.5% |
| d. Tires | 0.5% | 1,649 | | 16,641 | 18,290 | 91.0% | 2.5% |
| e. Process Fuel | n/a | n/a | | 0 | 0 | n/a | n/a |
| Totals | 100.0% | 311,571 | 142,099 | 284,158 | 737,828 | 38.5% | 100.0% |

## 5.3 Heat Value Analysis

Understanding the heat value of the various material categories within the waste disposed at the County's RRF can help identify preferred materials for diversion and assist in maximizing the energy production potential of this stream. In lieu of the expense of conducting laboratory analyses, heat values, in terms of British Thermal Units (BTUs) and compiled by the U.S. Energy Information Administration (EIA) for various waste material categories, were utilized.[4]

Table 5.5 provides the EIA heat values for each material category (expressed as million BTUs per ton) and calculates the BTU value of a ton of waste with the average overall composition of waste delivered to the RRF based on the study results, as well as the BTU value of a ton of disposed solid waste based on the 1994 study results. The "Heat Contributed" column presents the amount of heat (expressed in million BTUs) each material category contributes to the heat value of a typical ton of solid waste.

Based on this analysis, the heat value of a typical ton of solid waste currently disposed at the RRF is estimated at 10.86 million BTUs. In comparison, the heat value of a ton of solid waste disposed in 1994 is estimated at 9.24 million BTUs. This is consistent with the findings of the EIA that "the heat content (per unit weight) of the waste stream has been steadily increasing over time."[5] This trend can likely be attributed to the increasing amounts of plastics in the waste stream.

Applying EIA's solid waste heat content values to the U.S. Environmental Protection Agency's waste characterization data provides an estimated heat value for one ton of solid waste ranging from 10.08 million BTUs in 1989 to 11.73 million BTUs in 2005.[6] The estimated current heat value of the County's waste (10.86 million BTUs per ton) is lower than the most recent national figure, but within a reasonable range anticipated for municipal solid waste.

[4] Energy Information Administration, *Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy*, March 2007, pages 9-10.
[5] EIA, page 5.
[6] EIA, page 5.

## Table 5.5: Heat Value of the County Waste Disposed at RRF

| | Material Categories | Heat Value (million BTU/ton) | 2010/2011 WCS | | 1994 WCS | |
|---|---|---|---|---|---|---|
| | | | Waste Composition | Heat Contributed (million BTUs) | Waste Composition | Heat Contributed (million BTUs) |
| 1 | Newspaper | 16.0 | 4.6% | **0.73** | 11.3% | **1.81** |
| 2 | Corrugated Containers | 16.5 | 6.0% | **0.99** | 6.5% | **1.07** |
| 3 | Office Paper | 6.7 | 4.3% | **0.29** | 1.3% | **0.09** |
| 4 | Other Recyclable Paper | | | | | |
| 5 | Other Non-Recyclable Paper | 6.7 | 18.8% | **1.26** | 15.6% | **1.05** |
| 6 | Aseptic Containers | | | | | |
| 7 | PET Containers | 20.5 | 2.6% | **0.53** | 0.6% | **0.12** |
| 8 | HDPE Containers | 19.0 | 1.4% | **0.27** | 0.6% | **0.11** |
| 9 | Other Narrow-neck Plastic Containers | 20.5 | 4.8% | **0.99** | 4.6% | **0.94** |
| 12 | All Other Plastics | | | | | |
| 10 | Non-Rigid Plastic Film | 38.0 | 8.6% | **3.28** | 2.4% | **0.91** |
| 11 | Styrofoam | 35.6 | 1.3% | **0.47** | 1.3% | **0.47** |
| 13 | Tin/Steel Cans | 0.0 | 1.7% | **0.00** | 1.7% | **0.00** |
| 16 | Aluminum Cans | 0.0 | 0.8% | **0.00** | 0.9% | **0.00** |
| 14 | White Goods | 0.0 | 0.0% | **0.00** | 0.0% | **0.00** |
| 15 | Other Ferrous | 0.0 | 1.4% | **0.00** | 3.2% | **0.00** |
| 17 | Other Non-Ferrous | | | | | |
| 18 | Glass Containers | 0.0 | 3.1% | **0.00** | 2.7% | **0.00** |
| 19 | Other Glass | 0.0 | 0.5% | **0.00** | 2.7% | **0.00** |
| 20 | Textiles | 13.8 | 3.8% | **0.53** | 4.0% | **0.55** |
| 21 | Household Hazardous Waste | 0.0 | 0.2% | **0.00** | 0.3% | **0.00** |
| 22 | Electronics | n/a | 1.7% | **0.00** | n/a | **n/a** |
| 23 | Household Batteries | 0.0 | 0.2% | **0.00** | 0.1% | **0.00** |
| 24 | Wood Waste | 10.0 | 2.4% | **0.24** | 4.5% | **0.45** |
| 25 | C&D Debris | n/a | 2.7% | **n/a** | n/a | **n/a** |
| 26 | Tires and Rubber | 26.9 | 0.5% | **0.14** | 0.5% | **0.14** |
| 27 | Yard Waste | 6.0 | 9.0% | **0.54** | 14.4% | **0.86** |
| 28 | Food Waste | 5.2 | 11.6% | **0.60** | 12.8% | **0.67** |
| 29 | All Other Garbage | n/a | 8.0% | **n/a** | 8.1% | **n/a** |
| 30 | Grit | | | | | |
| | TOTALS | | 100.0% | **10.86** | 100.0% | **9.24** |

## 5.4 Opportunities to Enhance Materials Recovery

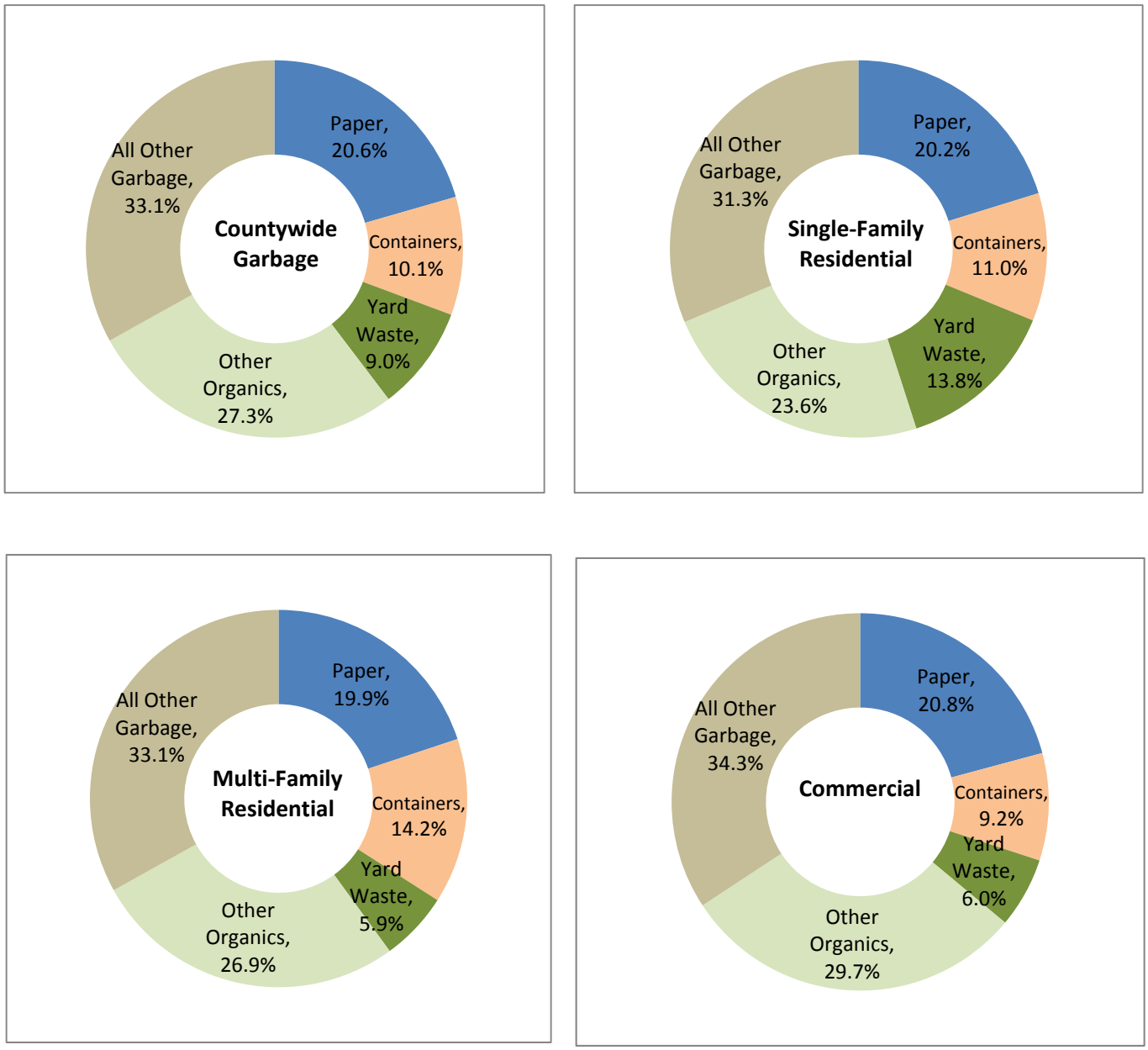
Table 5.6 identifies materials in the countywide waste disposed at the RRF, as well as in the waste from the three main generator sectors, that offer the greatest potential for recycling or composting. That is not to say that other materials could not be recovered for recycling, but these materials represent those that are most commonly recovered and for which markets and/or uses typically exist.

As shown in Table 5.6 and Figure 5.1, paper and containers that are commonly included in recycling programs comprise nearly 31 percent of the waste disposed at the RRF, ranging from 30-34 percent depending on the generator sector. Yard Waste makes up 9 percent of the waste disposed, with other material types that could potentially be composted (Food Waste, Other Non-Recyclable Paper, and Wood Waste) contributing an additional 27 percent. Recovery of organics other than yard waste is not common in Florida, although programs for source separating organics prior to collection or separating them after collection through mixed waste processing are being done in a number of communities in the United States.

**Table 5.6: Potentially Recyclable and Compostable Materials in Waste Disposed (% by weight)**

| | Material Category | Single-Family Residential | Multi-Family Residential | Commercial | Countywide |
|---|---|---|---|---|---|
| 1 | Newspaper | 6.4% | 5.1% | 3.3% | 4.6% |
| 2 | Corrugated Containers | 3.8% | 4.2% | 7.6% | 6.0% |
| 3 | Office Paper | 3.8% | 3.9% | 4.7% | 4.3% |
| 4 | Other Recyclable Paper | 5.9% | 6.3% | 4.4% | 5.0% |
| 6 | Aseptic Containers | 0.3% | 0.3% | 0.8% | 0.6% |
| | **RECYCLABLE PAPER** | **20.2%** | **19.9%** | **20.8%** | **20.6%** |
| 7 | PET Containers | 2.9% | 3.1% | 2.3% | 2.6% |
| 8 | HDPE Containers | 1.5% | 2.3% | 1.2% | 1.4% |
| 9 | Other Narrow-Neck Plastic Containers | 0.9% | 1.0% | 0.5% | 0.6% |
| 13 | Tin/Steel Cans | 1.7% | 1.4% | 1.6% | 1.7% |
| 16 | Aluminum Cans | 0.9% | 1.0% | 0.7% | 0.8% |
| 18 | Glass Containers | 3.0% | 5.3% | 2.9% | 3.1% |
| | **RECYCLABLE CONTAINERS** | **11.0%** | **14.2%** | **9.2%** | **10.1%** |
| 27 | Yard Waste | 13.8% | 5.9% | 6.0% | 9.0% |
| 28 | Food Waste | 9.7% | 9.7% | 13.0% | 11.6% |
| 5 | Other Non-Recyclable Paper | 12.0% | 13.4% | 14.0% | 13.2% |
| 24 | Wood Waste | 1.9% | 3.8% | 2.7% | 2.4% |
| | **POTENTIAL COMPOSTABLES** | **37.5%** | **32.9%** | **35.7%** | **36.2%** |
| | **COMBINED TOTAL** | **68.7%** | **66.9%** | **65.7%** | **66.9%** |

**Figure 5.1: Potentially Recyclable and Compostable Materials in Waste Disposed (% by weight)**




Prior to expanding its materials recovery efforts, the County should consider how such efforts complement its existing solid waste programs, further its solid waste management goals and objectives, and assist in achieving the State's 75 percent recycling goal by 2020. For example, the County operates the RRF and will want to ensure sufficient waste continues to flow to the facility for it to operate efficiently and to meet any tonnage or energy generation targets or requirements.

Provided below are opportunities, identified as a result of this study, to improve the County's materials recovery efforts. These opportunities are offered for the County's consideration; analysis of how they might affect existing programs and operations was beyond the scope of this project.

- **Recycling Outreach:** The high level of contamination in both the blue-bag (7.4 percent) and drop-off (15.4 percent) recyclables indicates the need for additional public education regarding recyclables accepted in the County's program. Public outreach and program promotion are needed on an ongoing basis to maintain public awareness and participation. Coordination with the private haulers is important to ensure a consistent message. If not already in place, the County might consider requiring private haulers to provide specified outreach activities as part of their collection license.
- **Include Paper in the Recycling Program:** The County is missing some of the more valuable recovered commodities by not including paper in its curbside program. According to *Waste & Recycling News*, the value of recovered newspaper in the southeast United States is currently $147 per ton. Corrugated cardboard is valued at $172 per ton, and mixed paper at $130 per ton. In comparison, the value of glass, which constitutes about half of the curbside materials collected, is valued at $3.50 to $17.50 per ton, and some processors claim they are paying to recycle glass. Recyclable paper comprises about 20 percent of the waste currently disposed at the RRF.
- **Collection and Processing Modifications:** The County could consider modifying its MRF operations to enable curbside collection of recyclables without blue bags. The bags contribute to the amount of processing residue and require a step to remove recyclables from the bags. A trend toward single stream collection and processing of recyclables is occurring nationally. A single stream facility would enable collection of both paper and containers in the same recycling bin or cart, which should substantially increase the per household recovery rate.
- **Multi-Family and Commercial Technical Assistance:** Multi-family residences and commercial businesses both offer opportunities for increase materials recovery, but programs to capture recyclables from these generator sectors require a different approach than single-family residential recycling. Direct technical assistance can help educate owners or operators of multi-family complexes and commercial businesses about the availability of recycling services, how to set up a program, and the benefits to the complex or business. The County could target the largest businesses or complexes first, or those that generate the greatest quantities of recyclables. For example, during the sorting events, some loads of commercial waste were found to contain as much as 48 percent recyclable paper (sample 22, summer sort).
- **Yard Waste Collection and Processing:** Developing a yard waste collection and processing program has the potential to reduce the waste stream by up to 9 percent. Counties with Class I landfills have been required to divert yard waste from disposal for quite some time (although this requirement was recently lifted for facilities that capture landfill gas and put it to beneficial use). Because the County has the RRF, it has not been subject to this requirement.
- **Recovery of Other Materials:** If all of the recyclable paper, containers, and yard waste were recovered for recycling or composting, nearly 40 percent of the existing waste stream would be diverted from disposal at the RRF. Of course, 100 percent participation and diversion is never accomplished, especially in voluntary programs. As a result of the State's 75 percent recycling goal, many communities in Florida are seeking to divert other materials, in addition to traditional recyclables and yard waste, from disposal. Recovery of these additional materials would require fundamental changes to the collection and processing system. Examples of approaches used by communities in the United States that claim some of the highest recycling rates include separate collection of organics (not just yard waste) and true composting systems, mandatory residential

and/or commercial recycling requirements, incentive programs such as pay-as-you-throw, or mixed waste processing (also known as dirty MRFs).

Household Hazardous Waste (HHW) represents a very small percentage (0.2 percent) of the County's waste stream. Specific items that were noted during the WCS include medical supplies, such as used tubing and hoses, syringes and needles, and partially full pharmaceuticals; used oil; and oil filters. Electronics represent 1.7 percent of the County's waste stream. Several televisions, monitors, radios, and other electronics were found during the sorting events. (See individual sample results in Appendices D-I for details regarding which loads contained HHW or electronics.) The percentages of HHW and electronics are comparable to those found in other jurisdictions in which KCI has recently conducted WCSs, but could potentially be lowered through increased public education.

In conclusion, this study provides the County with extensive information regarding the composition of waste disposed at its RRF, as well as the composition of commingled containers currently recovered through its blue-bag and drop-off recycling programs. This data will not only assist the County in more accurately reporting its waste composition to FDEP, but also represents fundamental information the County can utilize for future solid waste management planning. The study's results demonstrate the existence of substantial quantities of recyclable and compostable materials in the waste stream should the County wish to divert these materials from disposal.

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# Appendix A:
# Material Category Descriptions

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## Table A-1: Material Category Descriptions

| # | Material Categories | Description of Categories |
|---|---|---|
| 1 | **Newspaper** | Newspaper (loose, tied or shredded) including other paper normally distributed inside newspaper such as ads, flyers, etc. |
| 2 | **Corrugated Cardboard (OCC)** | Uncoated brown "cardboard" boxes with a wavy core (no plastic liners, waxy coatings). |
| 3 | **Office Paper** | Printed or unprinted paper typically generated in an office environment including white, colored, coated and uncoated papers, manila and pastel colored file folders. |
| 4 | **Other Recyclable Paper** | All magazines, catalogs, paperboard, chipboard, brown paper bags, telephone books and other printed material on glossy and non-glossy paper. |
| 5 | **Non-Recyclable Paper** | All remaining paper not categorized in other paper categories, including waxed cardboard and contaminated paper (i.e. napkins, pizza boxes, paper towels, fast-food wrappers, etc.). |
| 6 | **Aseptic Containers** | Gable top milk cartons, juice boxes, and other similar containers. |
| 7 | **Polyethylene terephthalate (PET) Narrow-Neck Containers (SPI #1)** | Clear and colored bottles or containers coded PET #1 such as soda bottles, water bottles, etc. |
| 8 | **High-Density polyethylene (HDPE) Narrow-Neck Containers (SPI #2)** | Clear/natural and pigmented bottles or containers coded HDPE #2 such as milk jugs, detergent bottles, etc. ***HDPE to be sorted into Natural and Colored categories for Recycling Samples only**** |
| 9 | **Other Recyclable Narrow-Neck Plastic Containers (SPI #3-7)** | Plastics narrow-neck containers coded 3 through 7, with the triangle label symbol. |
| 10 | **Non-Rigid Plastic Film** | Grocery bags, garbage bags, plastic sheeting, plastic wrap, visqueen, etc. |
| 11 | **Expanded Polystyrene Foam (EPS) (Styrofoam®)** | Disposable coffee cups, coolers or packaging material, which are typically white and are made of expanded polystyrene beads. Also includes food service trays and egg cartons. |
| 12 | **All Other Plastics** | Buckets, flower pots, laundry baskets, toys, large children's play equipment, plastic cups, plastic utensils, fast-food drink lids, straws, clamshell containers and plastic plates. |
| 13 | **Tin/Steel Cans** | Tin-plated steel cans, usually food containers, and aerosol cans. |
| 14 | **White Goods** | Household appliances, such as refrigerators, stoves, and salvageable items such as machinery. |

## Table A-1: Material Category Descriptions (continued)

| # | Material Categories | Description of Categories |
|---|---|---|
| 15 | **Other Ferrous** | Steel, clothes hangers, sheet metal products, pipes, miscellaneous metal scraps, and other magnetic metal items. |
| 16 | **Aluminum Cans** | Aluminum soft drink, beer, and some food cans. |
| 17 | **Other Non-Ferrous** | Scrap aluminum, aluminum foil and catering trays, and other non-magnetic metal, copper wiring and tubing, brass fixtures. |
| 18 | **Glass Containers** | Clear, Brown, and Green glass bottles and containers. ***Glass to be sorted into Clear, Brown, Green and Mixed Cullet categories for Recycling Samples only**** |
| 19 | **Other Glass** | Window panes, mirrors, ceramics, and drinking glasses. |
| 20 | **Textiles** | Clothing apparel, rags, leather, blankets, curtains, shoes, wallets, purses, belts, scrap leather. |
| 21 | **Household Hazardous Waste** | Cleaners, oil, pool chemicals, fluorescent lights, medical waste, solvents, etc. that are considered household hazardous waste. |
| 22 | **Electronics (E-waste)** | Electronic devices such as televisions, computers, cell phones, cordless telephones, PDA, handheld devices, rechargeable batteries, etc. |
| 23 | **Household Batteries** | Household batteries, including AA, AAA, C, D, 9-volt, and button types. |
| 24 | **Wood Waste** | Treated and untreated lumber, pallets and wood furniture including chairs, cabinets, dressers, etc. |
| 25 | **C&D Debris** | Construction and demolition debris that includes concrete, carpet, drywall, insulation, and roofing materials |
| 26 | **Tires and Rubber** | Small and large tires and other items made of rubber. |
| 27 | **Yard Waste** | Shrub and brush prunings, household bedding plants, weeds, leaves, grass clippings, and other landscaping and gardening wastes. |
| 28 | **Food Waste** | Meat and vegetable waste (includes coffee grinds and tea bags). |
| 29 | **All Other Garbage** | All other wastes not included in the above categories, including diapers, and products that are composite of materials such as frozen juice cans, binders, Pringle's cans, chip bags, etc. |
| 30 | **Grit** | Indistinguishable items less than 1-inch square. |

# Appendix B:
# Material Category Comparisons between the 1994 and 2011 Studies

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## Table B-1: Material Category Comparison between the 1994 and 2011 Studies

| 1994 Study | | 2011 Study | |
|---|---|---|---|
| 1 | Newspaper | 1 | Newspaper |
| 2 | Corrugated Cardboard | 2 | Corrugated Cardboard |
| 3 | Office Paper | 3 | Office Paper |
| 4 | Other Scrap Paper | 4<br>5<br>6 | Other Recyclable Paper<br>Non-Recyclable Paper<br>Aseptic Containers |
| 9 | PET Beverage | 7 | PET (SPI #1) |
| 8 | HDPE Beverage | 8 | HDPE (SPI #2) |
| 12<br>34 | Other Plastic<br>Other PET/HDPE | 9<br>12 | Other Recyclable Narrow-Neck Plastic Containers (SPI #3-7)<br>All Other Plastics |
| 10 | Polystyrene | 11 | Styrofoam |
| 11 | Film Plastic | 10 | Non-Rigid Plastic Film |
| 13 | Tin Cans | 13 | Tin/Steel Cans |
| 17 | White Goods | 14 | White Goods |
| 14 | Aluminum Cans | 16 | Aluminum Cans |
| 16<br>15<br>35 | Other Ferrous<br>Other Non Ferrous<br>Mixed Scrap | 15<br>17 | Other Ferrous<br>Other Non Ferrous |
| 5 | Glass Beverage | 18 | Glass Containers |
| 6<br>7 | Other Glass<br>Ceramic and Fines | 19 | Other Glass |
| 21<br>22 | Textiles<br>Leather | 20 | Textiles |
| 25<br>26<br>27<br>28<br>29<br>30 | Paint<br>Used Oil and Filters<br>Sharps<br>Fluorescent Bulbs<br>HHW<br>Auto Batteries | 21 | Household Hazardous Waste<br>*Notes to be made about composition of HHW category |
| | N/A | 22 | Electronics (E-waste) |
| 31 | Household Batteries | 23 | Household Batteries |
| 19 | C&D Debris | 24<br>25 | C&D Debris<br>Wood Waste |
| 23<br>24 | Tires<br>Rubber | 26 | Tires and Rubber |
| 18 | Yard Waste | 27 | Yard Waste |
| 20 | Food Waste | 28 | Food Waste |
| 32<br>33 | Diapers<br>Miscellaneous | 29<br>30 | All Other Garbage<br>Grit |

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# Appendix C:
# Countywide Results by Sorting Event

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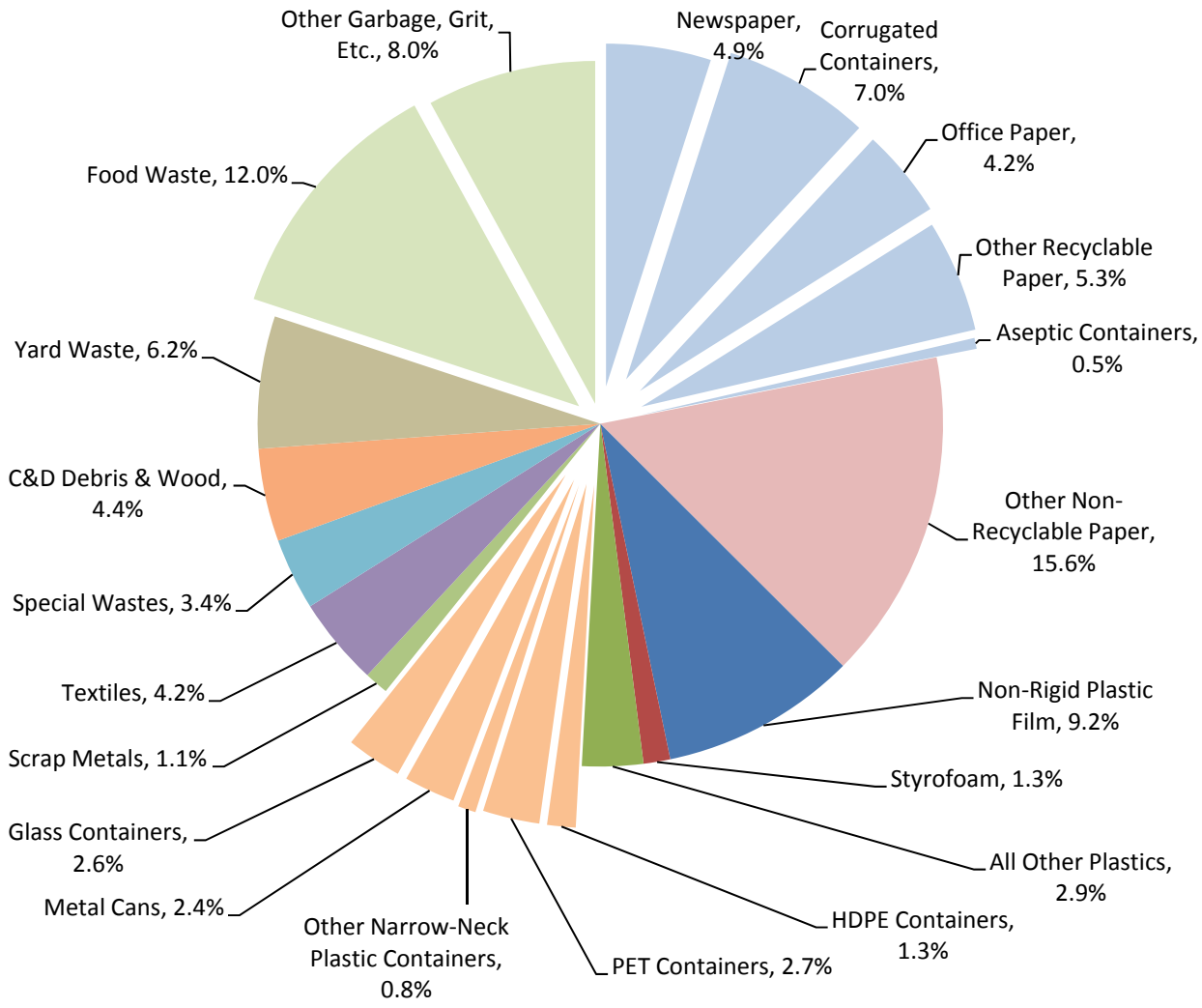
## Figure C-1: Composition of Countywide Waste Disposed at RRF, Summer Event (% by weight)

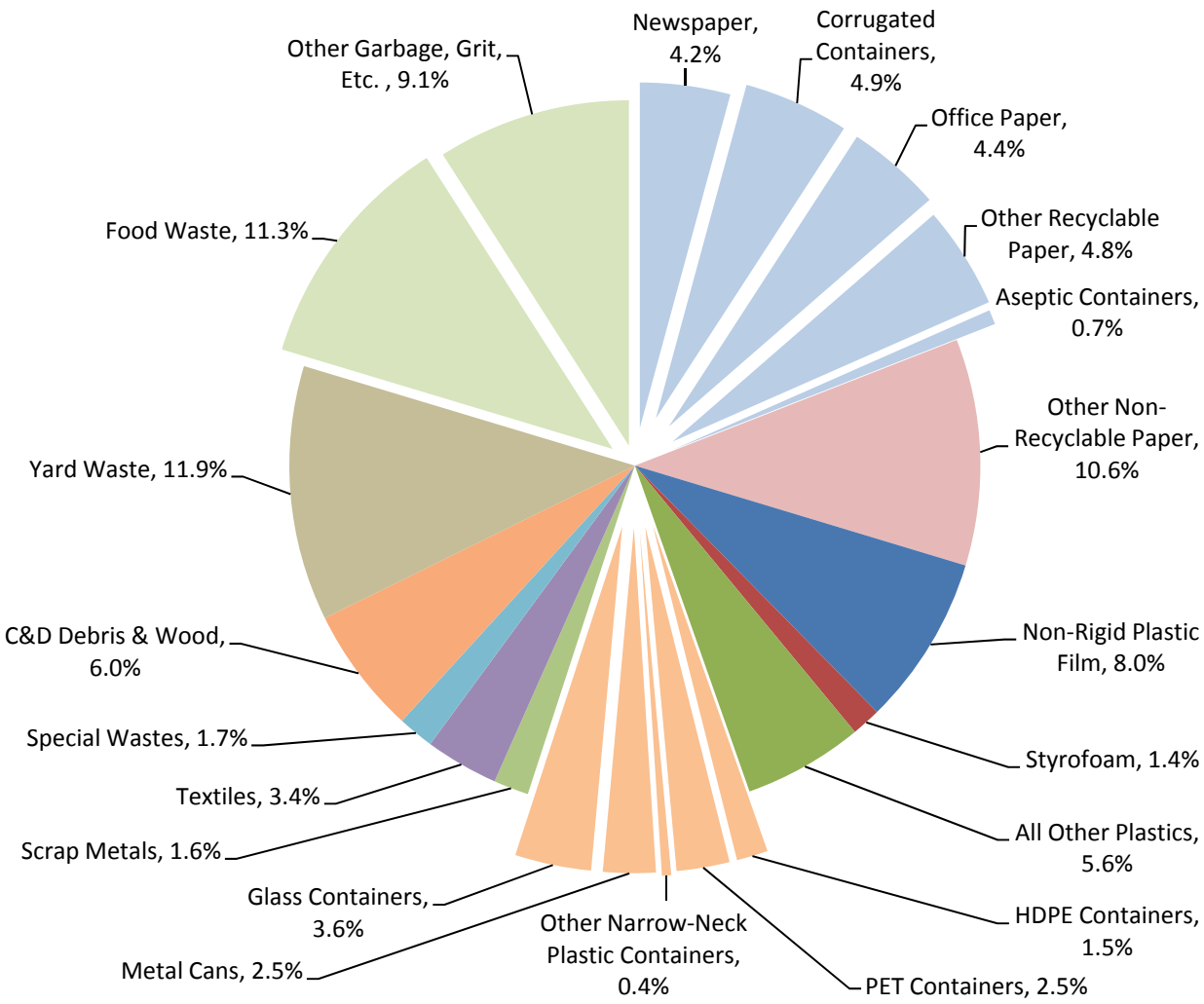



Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table C-1: Composition of Countywide Waste Disposed at RRF, Summer Event (% by weight)

| | | Single-Family | Multi-Family | Commercial | Countywide Average |
|---|---|---|---|---|---|
| | **Material Category** | **Weighted Average** | **Weighted Average** | **Weighted Average** | **Weighted Average** |
| 1 | Newspaper | **6.9%** | **3.2%** | **3.8%** | **4.9%** |
| 2 | Corrugated Containers | **4.6%** | **3.7%** | **8.8%** | **7.0%** |
| 3 | Office Paper | **2.7%** | **3.2%** | **5.3%** | **4.2%** |
| 4 | Other Recyclable Paper | **6.5%** | **5.7%** | **4.5%** | **5.3%** |
| 5 | Other Non-Recyclable Paper | **13.8%** | **14.8%** | **16.9%** | **15.6%** |
| 6 | Aseptic Containers | **0.4%** | **0.3%** | **0.6%** | **0.5%** |
| 7 | PET Containers | **2.9%** | **3.2%** | **2.5%** | **2.7%** |
| 8 | HDPE Containers | **1.4%** | **2.1%** | **1.3%** | **1.3%** |
| 9 | Other Narrow-Neck Plastic Containers | **1.1%** | **1.2%** | **0.6%** | **0.8%** |
| 10 | Non-Rigid Plastic Film | **8.1%** | **6.8%** | **10.3%** | **9.2%** |
| 11 | Styrofoam | **1.2%** | **1.1%** | **1.3%** | **1.3%** |
| 12 | All Other Plastics | **3.1%** | **2.8%** | **2.7%** | **2.9%** |
| 13 | Tin/Steel Cans | **1.9%** | **1.4%** | **1.6%** | **1.7%** |
| 14 | White Goods | **0.0%** | **0.0%** | **0.0%** | **0.0%** |
| 15 | Other Ferrous | **0.2%** | **0.8%** | **1.0%** | **0.7%** |
| 16 | Aluminum Cans | **0.8%** | **0.9%** | **0.6%** | **0.7%** |
| 17 | Other Non-Ferrous | **0.6%** | **0.4%** | **0.3%** | **0.4%** |
| 18 | Glass Containers | **3.0%** | **3.8%** | **2.2%** | **2.6%** |
| 19 | Other Glass | **0.9%** | **1.1%** | **0.3%** | **0.5%** |
| 20 | Textiles | **4.4%** | **7.1%** | **3.7%** | **4.2%** |
| 21 | Household Hazardous Waste | **0.1%** | **0.0%** | **0.3%** | **0.2%** |
| 22 | Electronics | **1.6%** | **3.7%** | **2.5%** | **2.2%** |
| 23 | Household Batteries | **0.3%** | **0.0%** | **0.5%** | **0.4%** |
| 24 | Wood Waste | **1.6%** | **6.6%** | **2.8%** | **2.6%** |
| 25 | C&D Debris | **2.2%** | **0.5%** | **1.7%** | **1.8%** |
| 26 | Tires and Rubber | **0.9%** | **1.4%** | **0.5%** | **0.7%** |
| 27 | Yard Waste | **9.8%** | **7.9%** | **3.7%** | **6.2%** |
| 28 | Food Waste | **11.5%** | **9.3%** | **12.5%** | **12.0%** |
| 29 | All Other Garbage | **6.2%** | **6.1%** | **5.8%** | **6.0%** |
| 30 | Grit | **1.5%** | **1.0%** | **1.5%** | **1.4%** |
| | Sector Generation Rates | 38.0% | 5.0% | 57.0% | 100.0% |

## Figure C-2: Composition of Countywide Waste Disposed at RRF, Winter Event (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table C-2: Composition of Countywide Waste Disposed at RRF, Winter Event (% by weight)

| | | Single-Family | Multi-Family | Commercial | Countywide Average |
|---|---|---|---|---|---|
| | Material Category | Weighted Average | Weighted Average | Weighted Average | Weighted Average |
| 1 | Newspaper | 5.9% | 7.6% | 2.8% | 4.2% |
| 2 | Corrugated Containers | 3.1% | 5.0% | 6.2% | 4.9% |
| 3 | Office Paper | 4.9% | 4.8% | 4.1% | 4.4% |
| 4 | Other Recyclable Paper | 5.3% | 7.1% | 4.3% | 4.8% |
| 5 | Other Non-Recyclable Paper | 10.2% | 11.8% | 10.7% | 10.6% |
| 6 | Aseptic Containers | 0.3% | 0.3% | 1.0% | 0.7% |
| 7 | PET Containers | 2.9% | 3.0% | 2.2% | 2.5% |
| 8 | HDPE Containers | 1.7% | 2.7% | 1.2% | 1.5% |
| 9 | Other Narrow-Neck Plastic Containers | 0.6% | 0.9% | 0.3% | 0.4% |
| 10 | Non-Rigid Plastic Film | 7.2% | 8.5% | 8.4% | 8.0% |
| 11 | Styrofoam | 1.1% | 1.0% | 1.6% | 1.4% |
| 12 | All Other Plastics | 5.1% | 4.5% | 6.0% | 5.6% |
| 13 | Tin/Steel Cans | 1.5% | 1.5% | 1.7% | 1.7% |
| 14 | White Goods | 0.1% | 0.0% | 0.0% | 0.0% |
| 15 | Other Ferrous | 1.0% | 0.4% | 0.8% | 0.9% |
| 16 | Aluminum Cans | 0.9% | 1.1% | 0.7% | 0.8% |
| 17 | Other Non-Ferrous | 1.0% | 0.7% | 0.6% | 0.8% |
| 18 | Glass Containers | 3.1% | 7.0% | 3.6% | 3.6% |
| 19 | Other Glass | 0.4% | 0.3% | 0.4% | 0.4% |
| 20 | Textiles | 3.8% | 3.7% | 3.2% | 3.4% |
| 21 | Household Hazardous Waste | 0.0% | 0.0% | 0.3% | 0.2% |
| 22 | Electronics | 0.7% | 0.4% | 1.4% | 1.1% |
| 23 | Household Batteries | 0.1% | 0.0% | 0.0% | 0.0% |
| 24 | Wood Waste | 2.2% | 0.3% | 2.5% | 2.3% |
| 25 | C&D Debris | 2.4% | 0.1% | 4.9% | 3.7% |
| 26 | Tires and Rubber | 0.5% | 0.1% | 0.3% | 0.4% |
| 27 | Yard Waste | 17.9% | 3.4% | 8.7% | 11.9% |
| 28 | Food Waste | 7.9% | 10.2% | 13.6% | 11.3% |
| 29 | All Other Garbage | 6.6% | 9.6% | 7.0% | 7.0% |
| 30 | Grit | 1.6% | 4.1% | 1.6% | 1.7% |
| | Sector Generation Rates | 38.0% | 5.0% | 57.0% | 100.0% |

# Appendix D: Individual Sample Results, Single-Family Residential with Curbside Service

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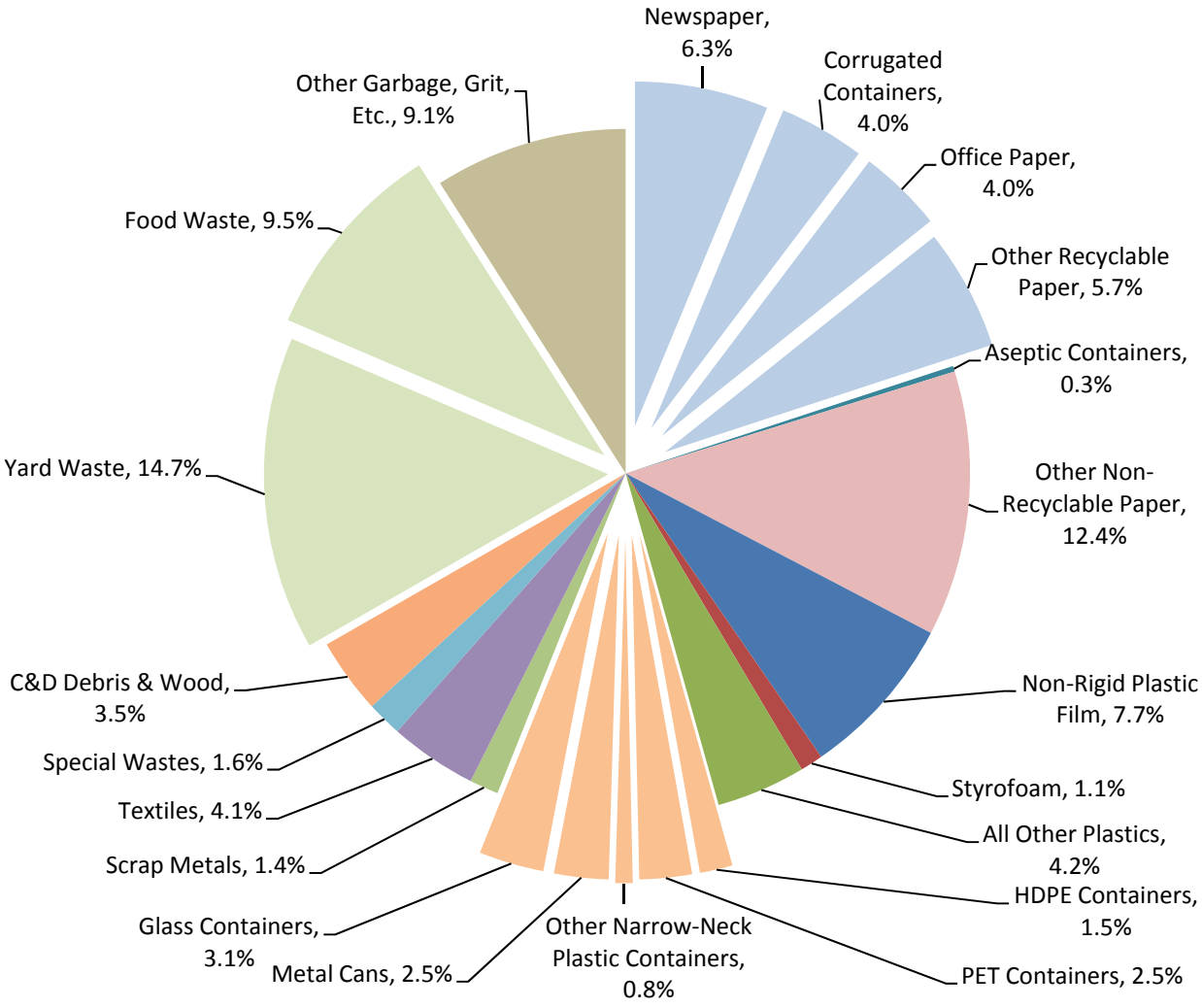
## Figure D-1: Composition of Single-Family Residential with Curbside Service Waste Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table D-1: Composition of Single-Family Residential with Curbside Service Waste Disposed at RRF (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **7.1%** | 5.9% | 8.4% | **5.4%** | 4.4% | 6.4% | **6.3%** | 5.5% | 7.1% |
| 2 | Corrugated Containers | **4.8%** | 3.7% | 6.0% | **3.2%** | 2.2% | 4.2% | **4.0%** | 3.3% | 4.8% |
| 3 | Office Paper | **2.7%** | 1.7% | 3.8% | **5.2%** | 4.3% | 6.2% | **4.0%** | 3.3% | 4.7% |
| 4 | Other Recyclable Paper | **6.3%** | 5.8% | 6.8% | **5.1%** | 4.3% | 5.8% | **5.7%** | 5.2% | 6.1% |
| 5 | Other Non-Recyclable Paper | **14.3%** | 13.1% | 15.6% | **10.5%** | 8.8% | 12.2% | **12.4%** | 11.4% | 13.5% |
| 6 | Aseptic Containers | **0.3%** | 0.2% | 0.4% | **0.2%** | 0.1% | 0.3% | **0.3%** | 0.2% | 0.3% |
| 7 | PET Containers | **3.1%** | 2.6% | 3.6% | **1.8%** | 1.5% | 2.1% | **2.5%** | 2.1% | 2.8% |
| 8 | HDPE Containers | **1.4%** | 1.1% | 1.6% | **1.7%** | 1.3% | 2.1% | **1.5%** | 1.3% | 1.8% |
| 9 | Other Narrow-Neck Plastic Containers | **1.1%** | 0.5% | 1.8% | **0.5%** | 0.1% | 0.8% | **0.8%** | 0.4% | 1.2% |
| 10 | Non-Rigid Plastic Film | **8.1%** | 7.1% | 9.1% | **7.4%** | 6.1% | 8.7% | **7.7%** | 6.9% | 8.5% |
| 11 | Styrofoam | **1.2%** | 0.9% | 1.5% | **0.9%** | 0.7% | 1.2% | **1.1%** | 0.9% | 1.3% |
| 12 | All Other Plastics | **3.2%** | 2.3% | 4.0% | **5.2%** | 3.8% | 6.7% | **4.2%** | 3.3% | 5.0% |
| 13 | Tin/Steel Cans | **1.8%** | 1.5% | 2.1% | **1.5%** | 1.1% | 2.0% | **1.7%** | 1.4% | 1.9% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.1%** | 0.0% | 0.2% | **0.0%** | 0.0% | 0.1% |
| 15 | Other Ferrous | **0.2%** | 0.1% | 0.3% | **1.2%** | 0.7% | 1.6% | **0.7%** | 0.4% | 0.9% |
| 16 | Aluminum Cans | **0.8%** | 0.6% | 1.0% | **0.9%** | 0.6% | 1.2% | **0.9%** | 0.7% | 1.1% |
| 17 | Other Non-Ferrous | **0.6%** | 0.3% | 1.0% | **0.7%** | 0.3% | 1.1% | **0.7%** | 0.4% | 0.9% |
| 18 | Glass Containers | **3.2%** | 2.3% | 4.0% | **2.9%** | 2.1% | 3.8% | **3.1%** | 2.5% | 3.6% |
| 19 | Other Glass | **1.0%** | 0.2% | 1.8% | **0.5%** | 0.2% | 0.8% | **0.8%** | 0.3% | 1.2% |
| 20 | Textiles | **4.1%** | 3.2% | 5.1% | **4.1%** | 3.1% | 5.1% | **4.1%** | 3.5% | 4.8% |
| 21 | Household Hazardous Waste | **0.1%** | 0.0% | 0.1% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.1% |
| 22 | Electronics | **1.0%** | 0.4% | 1.6% | **0.8%** | 0.4% | 1.3% | **0.9%** | 0.6% | 1.3% |
| 23 | Household Batteries | **0.3%** | -0.1% | 0.7% | **0.1%** | 0.0% | 0.1% | **0.2%** | 0.0% | 0.4% |
| 24 | Wood Waste | **1.6%** | 1.0% | 2.1% | **1.5%** | 0.5% | 2.5% | **1.5%** | 1.0% | 2.1% |
| 25 | C&D Debris | **2.0%** | 0.9% | 3.1% | **2.0%** | 0.8% | 3.2% | **2.0%** | 1.2% | 2.7% |
| 26 | Tires and Rubber | **0.4%** | 0.1% | 0.7% | **0.6%** | 0.0% | 1.2% | **0.5%** | 0.2% | 0.8% |
| 27 | Yard Waste | **9.7%** | 6.7% | 12.7% | **19.9%** | 15.4% | 24.3% | **14.7%** | 11.9% | 17.5% |
| 28 | Food Waste | **11.3%** | 9.9% | 12.8% | **7.6%** | 6.5% | 8.8% | **9.5%** | 8.5% | 10.5% |
| 29 | All Other Garbage | **6.8%** | 5.3% | 8.4% | **7.4%** | 5.4% | 9.4% | **7.1%** | 5.9% | 8.3% |
| 30 | Grit | **1.3%** | 0.8% | 1.9% | **1.0%** | 0.2% | 1.9% | **1.2%** | 0.7% | 1.7% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table D-2: Summer 2010 Single-Family Residential with Curbside Service (% by weight)

| | Hauler/Location | Waste Aid | Waste Management | Waste Management | Waste Aid | County Sanitation | Waste Express |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **4** | **5** | **6** | **7** | **8** | **15** |
| 1 | Newspaper | 4.31% | 7.02% | 12.89% | 4.88% | 8.08% | 7.98% |
| 2 | Corrugated Containers | 6.96% | 4.24% | 4.63% | 2.20% | 6.91% | 8.16% |
| 3 | Office Paper | 1.04% | 1.31% | 6.07% | 2.25% | 12.94% | 2.35% |
| 4 | Other Recyclable Paper | 5.03% | 6.97% | 8.43% | 6.95% | 7.16% | 6.02% |
| 5 | Other Non-Recyclable Paper | 7.33% | 7.75% | 10.50% | 11.58% | 14.37% | 12.89% |
| 6 | Aseptic Containers | 0.00% | 0.70% | 0.95% | 0.18% | 0.76% | 0.22% |
| 7 | PET Containers | 3.80% | 3.36% | 6.10% | 1.65% | 2.84% | 1.35% |
| 8 | HDPE Containers | 1.28% | 1.09% | 0.75% | 1.38% | 1.74% | 1.46% |
| 9 | Other Narrow-Neck Plastic Containers | 0.61% | 0.55% | 0.92% | 0.40% | 0.78% | 1.06% |
| 10 | Non-Rigid Plastic Film | 7.57% | 4.83% | 5.00% | 5.93% | 7.86% | 10.99% |
| 11 | Styrofoam | 2.87% | 0.59% | 1.05% | 0.65% | 2.89% | 0.52% |
| 12 | All Other Plastics | 0.00% | 1.29% | 1.02% | 5.95% | 2.91% | 8.85% |
| 13 | Tin/Steel Cans | 2.23% | 0.62% | 0.88% | 1.48% | 1.00% | 1.61% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.19% | 0.81% | 0.00% | 0.00% | 0.00% | 0.00% |
| 16 | Aluminum Cans | 0.54% | 0.81% | 0.80% | 0.63% | 0.30% | 0.76% |
| 17 | Other Non-Ferrous | 1.15% | 2.08% | 0.36% | 0.87% | 5.20% | 0.24% |
| 18 | Glass Containers | 2.22% | 2.08% | 1.98% | 8.54% | 3.21% | 2.80% |
| 19 | Other Glass | 0.00% | 2.83% | 1.05% | 0.49% | 0.00% | 0.00% |
| 20 | Textiles | 2.65% | 2.83% | 10.87% | 0.95% | 0.28% | 4.51% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.31% | 0.00% | 0.08% |
| 22 | Electronics | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.10% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.13% |
| 24 | Wood Waste | 5.18% | 0.82% | 0.11% | 0.17% | 0.00% | 1.27% |
| 25 | C&D Debris | 0.31% | 1.88% | 3.84% | 2.68% | 0.00% | 0.00% |
| 26 | Tires and Rubber | 0.70% | 0.36% | 0.00% | 0.00% | 0.00% | 1.16% |
| 27 | Yard Waste | 15.89% | 29.83% | 2.20% | 10.95% | 4.10% | 4.69% |
| 28 | Food Waste | 14.05% | 8.20% | 13.93% | 21.10% | 14.61% | 16.71% |
| 29 | All Other Garbage | 11.31% | 4.98% | 2.73% | 5.00% | 1.30% | 3.42% |
| 30 | Grit | 2.76% | 2.18% | 2.93% | 2.82% | 0.78% | 0.67% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

## Table D-2: Summer 2010 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | Waste Express | Waste Services | Waste Services | Central Carting | Zephyrhills | Zephyrhills |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **16** | **18** | **20** | **23** | **25** | **26** |
| 1 | Newspaper | 7.89% | 6.65% | 11.92% | 10.63% | 8.92% | 2.78% |
| 2 | Corrugated Containers | 1.13% | 4.37% | 4.10% | 2.03% | 8.16% | 11.47% |
| 3 | Office Paper | 2.10% | 3.84% | 1.04% | 0.32% | 1.90% | 2.61% |
| 4 | Other Recyclable Paper | 5.31% | 8.35% | 4.81% | 7.64% | 7.29% | 5.87% |
| 5 | Other Non-Recyclable Paper | 14.33% | 11.22% | 19.96% | 17.64% | 14.72% | 19.22% |
| 6 | Aseptic Containers | 0.22% | 0.52% | 0.57% | 0.60% | 0.31% | 0.60% |
| 7 | PET Containers | 2.15% | 3.64% | 3.95% | 1.52% | 3.79% | 2.14% |
| 8 | HDPE Containers | 0.43% | 0.68% | 2.90% | 0.35% | 2.11% | 3.08% |
| 9 | Other Narrow-Neck Plastic Containers | 0.61% | 1.15% | 1.22% | 0.50% | 1.33% | 0.71% |
| 10 | Non-Rigid Plastic Film | 10.41% | 8.19% | 9.36% | 7.94% | 5.30% | 8.42% |
| 11 | Styrofoam | 4.16% | 0.38% | 1.17% | 0.82% | 1.65% | 1.33% |
| 12 | All Other Plastics | 1.72% | 2.43% | 2.58% | 4.49% | 3.20% | 1.22% |
| 13 | Tin/Steel Cans | 2.48% | 2.64% | 1.09% | 1.02% | 2.65% | 2.02% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.00% | 0.43% | 0.00% | 0.00% |
| 16 | Aluminum Cans | 1.33% | 2.89% | 0.55% | 0.42% | 1.01% | 1.24% |
| 17 | Other Non-Ferrous | 1.09% | 0.89% | 0.39% | 0.23% | 0.29% | 0.40% |
| 18 | Glass Containers | 5.34% | 3.16% | 7.75% | 3.78% | 1.30% | 3.67% |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 1.31% | 0.11% | 0.00% |
| 20 | Textiles | 1.08% | 6.08% | 4.29% | 3.86% | 3.60% | 3.08% |
| 21 | Household Hazardous Waste | 0.00% | 0.02% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.63% | 1.61% | 0.00% | 5.94% | 0.74% | 1.87% |
| 23 | Household Batteries | 0.13% | 0.01% | 0.14% | 0.02% | 0.00% | 0.02% |
| 24 | Wood Waste | 1.32% | 0.08% | 1.31% | 4.17% | 2.95% | 1.62% |
| 25 | C&D Debris | 1.39% | 0.92% | 0.00% | 2.87% | 0.17% | 3.70% |
| 26 | Tires and Rubber | 0.04% | 0.65% | 0.00% | 0.00% | 0.13% | 3.98% |
| 27 | Yard Waste | 23.92% | 2.82% | 6.72% | 6.28% | 6.98% | 5.48% |
| 28 | Food Waste | 7.95% | 13.47% | 1.09% | 12.07% | 12.21% | 5.21% |
| 29 | All Other Garbage | 2.83% | 12.90% | 11.54% | 1.82% | 8.80% | 7.35% |
| 30 | Grit | 0.00% | 0.42% | 1.54% | 1.31% | 0.39% | 0.93% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

## Table D-2: Summer 2010 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | Seaside Sanitation | Zephyrhills | Zephyrhills | Seaside Sanitation | JD Parker | Waste Services |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **29** | **32** | **33** | **40** | **41** | **44** |
| 1 | Newspaper | 4.96% | 4.21% | 4.45% | 7.93% | 5.40% | 3.06% |
| 2 | Corrugated Containers | 1.39% | 9.69% | 3.40% | 2.03% | 8.61% | 0.70% |
| 3 | Office Paper | 0.19% | 2.49% | 3.58% | 1.33% | 1.19% | 2.58% |
| 4 | Other Recyclable Paper | 6.08% | 7.19% | 7.22% | 3.85% | 7.25% | 4.54% |
| 5 | Other Non-Recyclable Paper | 15.20% | 13.28% | 10.85% | 17.05% | 18.61% | 12.81% |
| 6 | Aseptic Containers | 0.15% | 0.00% | 0.60% | 0.30% | 0.00% | 0.00% |
| 7 | PET Containers | 2.28% | 1.53% | 1.32% | 4.42% | 2.07% | 4.84% |
| 8 | HDPE Containers | 1.15% | 1.40% | 0.32% | 2.29% | 1.32% | 0.88% |
| 9 | Other Narrow-Neck Plastic Containers | 0.57% | 0.56% | 0.00% | 0.63% | 9.77% | 0.07% |
| 10 | Non-Rigid Plastic Film | 4.80% | 7.79% | 8.20% | 12.28% | 0.47% | 8.27% |
| 11 | Styrofoam | 0.77% | 0.43% | 1.31% | 0.62% | 1.12% | 0.67% |
| 12 | All Other Plastics | 3.02% | 1.40% | 0.82% | 5.06% | 1.32% | 8.28% |
| 13 | Tin/Steel Cans | 1.78% | 1.92% | 1.63% | 2.90% | 0.00% | 1.29% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 0.63% | 0.15% | 0.00% | 0.78% | 0.55% |
| 16 | Aluminum Cans | 1.61% | 0.39% | 0.81% | 1.14% | 0.84% | 0.92% |
| 17 | Other Non-Ferrous | 0.11% | 0.04% | 1.54% | 0.11% | 0.00% | 0.38% |
| 18 | Glass Containers | 2.39% | 0.84% | 0.00% | 1.85% | 1.73% | 9.28% |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.94% | 10.89% | 0.00% |
| 20 | Textiles | 3.37% | 3.85% | 5.47% | 2.09% | 0.42% | 6.40% |
| 21 | Household Hazardous Waste | 0.07% | 0.02% | 0.00% | 0.00% | 0.66% | 0.04% |
| 22 | Electronics | 2.13% | 0.78% | 5.36% | 0.00% | 0.00% | 0.53% |
| 23 | Household Batteries | 0.13% | 0.02% | 0.00% | 0.02% | 5.18% | 0.00% |
| 24 | Wood Waste | 1.66% | 0.52% | 0.18% | 3.85% | 1.12% | 2.38% |
| 25 | C&D Debris | 13.77% | 0.73% | 0.90% | 0.34% | 0.00% | 0.29% |
| 26 | Tires and Rubber | 0.00% | 0.49% | 0.00% | 1.06% | 0.00% | 0.25% |
| 27 | Yard Waste | 0.00% | 21.74% | 29.53% | 12.17% | 5.53% | 10.61% |
| 28 | Food Waste | 12.01% | 12.52% | 11.51% | 10.53% | 8.82% | 9.33% |
| 29 | All Other Garbage | 19.87% | 4.11% | 0.85% | 4.72% | 6.90% | 7.90% |
| 30 | Grit | 0.56% | 1.45% | 0.00% | 0.53% | 0.00% | 3.15% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 29 – All Other Garbage = medical pads and a lot of diapers

## Table D-2: Summer 2010 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | JD Parker | Waste Services | Accurate | Central Carting | Seaside Sanitation | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **46** | **47** | **48** | **52** | **58** | **Weighted Avg.** |
| 1 | Newspaper | 8.29% | 3.57% | 2.50% | 15.42% | 10.99% | **7.12%** |
| 2 | Corrugated Containers | 2.94% | 7.82% | 3.53% | 5.12% | 0.67% | **4.84%** |
| 3 | Office Paper | 1.91% | 5.94% | 1.99% | 1.49% | 7.43% | **2.73%** |
| 4 | Other Recyclable Paper | 5.35% | 7.25% | 7.34% | 4.37% | 7.49% | **6.30%** |
| 5 | Other Non-Recyclable Paper | 16.09% | 13.49% | 16.64% | 17.14% | 15.62% | **14.35%** |
| 6 | Aseptic Containers | 0.40% | 0.16% | 0.00% | 0.30% | 0.09% | **0.29%** |
| 7 | PET Containers | 6.82% | 1.84% | 3.62% | 2.12% | 1.91% | **3.10%** |
| 8 | HDPE Containers | 1.36% | 1.32% | 2.16% | 0.80% | 1.43% | **1.36%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.56% | 0.25% | 1.55% | 0.25% | 0.61% | **1.14%** |
| 10 | Non-Rigid Plastic Film | 7.40% | 8.05% | 8.57% | 11.30% | 12.96% | **8.06%** |
| 11 | Styrofoam | 1.57% | 1.26% | 0.83% | 1.29% | 0.61% | **1.19%** |
| 12 | All Other Plastics | 5.43% | 5.10% | 2.36% | 0.81% | 0.82% | **3.16%** |
| 13 | Tin/Steel Cans | 2.54% | 1.77% | 1.99% | 2.28% | 2.69% | **1.80%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.00% | 0.00% | 0.86% | **0.20%** |
| 16 | Aluminum Cans | 0.68% | 0.38% | 0.18% | 0.92% | 0.75% | **0.84%** |
| 17 | Other Non-Ferrous | 0.35% | 0.10% | 1.07% | 0.66% | 1.17% | **0.65%** |
| 18 | Glass Containers | 3.02% | 4.05% | 2.81% | 2.45% | 3.11% | **3.16%** |
| 19 | Other Glass | 0.00% | 1.21% | 0.00% | 0.81% | 0.91% | **0.98%** |
| 20 | Textiles | 1.85% | 6.13% | 4.77% | 8.59% | 1.24% | **4.13%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.18% | 0.03% | 0.00% | **0.06%** |
| 22 | Electronics | 0.00% | 0.00% | 2.95% | 0.00% | 1.53% | **1.05%** |
| 23 | Household Batteries | 0.00% | 0.03% | 0.00% | 0.00% | 0.00% | **0.30%** |
| 24 | Wood Waste | 3.48% | 0.00% | 0.00% | 0.09% | 0.30% | **1.59%** |
| 25 | C&D Debris | 3.20% | 5.08% | 3.71% | 0.70% | 0.00% | **1.99%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.99% | 0.14% | 0.00% | **0.44%** |
| 27 | Yard Waste | 6.77% | 6.16% | 8.43% | 4.50% | 5.80% | **9.69%** |
| 28 | Food Waste | 15.10% | 11.94% | 12.31% | 9.75% | 7.22% | **11.31%** |
| 29 | All Other Garbage | 4.90% | 7.01% | 9.54% | 6.58% | 7.49% | **6.83%** |
| 30 | Grit | 0.00% | 0.11% | 0.00% | 2.06% | 6.32% | **1.33%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table D-3: Winter 2011 Single-Family Residential with Curbside Service (% by weight)

| | Hauler/Location | Waste Management | Waste Aid | Waste Management | Waste Express | Waste Express |
|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **2** | **5** | **7** | **14** | **16** |
| 1 | Newspaper | 9.64% | 1.09% | 6.48% | 11.24% | 6.34% |
| 2 | Corrugated Containers | 1.16% | 6.57% | 1.93% | 1.90% | 6.74% |
| 3 | Office Paper | 2.00% | 5.54% | 3.95% | 1.60% | 6.01% |
| 4 | Other Recyclable Paper | 5.07% | 4.37% | 4.43% | 6.46% | 5.75% |
| 5 | Other Non-Recyclable Paper | 7.65% | 7.68% | 1.87% | 13.13% | 11.76% |
| 6 | Aseptic Containers | 0.17% | 0.12% | 0.19% | 0.00% | 0.00% |
| 7 | PET Containers | 1.75% | 2.17% | 0.49% | 1.26% | 2.35% |
| 8 | HDPE Containers | 2.00% | 3.82% | 1.01% | 1.36% | 0.69% |
| 9 | Other Narrow-Neck Plastic Containers | 0.11% | 0.00% | 0.00% | 0.00% | 0.30% |
| 10 | Non-Rigid Plastic Film | 5.45% | 18.49% | 4.19% | 0.49% | 5.15% |
| 11 | Styrofoam | 0.85% | 0.94% | 0.53% | 1.51% | 1.36% |
| 12 | All Other Plastics | 2.00% | 4.80% | 4.59% | 5.01% | 5.56% |
| 13 | Tin/Steel Cans | 0.94% | 0.24% | 0.31% | 0.81% | 0.93% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 1.42% | 0.00% | 0.00% | 0.14% |
| 16 | Aluminum Cans | 0.79% | 1.42% | 0.78% | 0.57% | 4.43% |
| 17 | Other Non-Ferrous | 0.18% | 0.00% | 0.12% | 0.23% | 1.39% |
| 18 | Glass Containers | 2.98% | 0.00% | 4.57% | 5.74% | 0.00% |
| 19 | Other Glass | 0.00% | 3.14% | 0.00% | 0.00% | 2.75% |
| 20 | Textiles | 1.94% | 3.14% | 6.02% | 5.25% | 8.81% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.00% | 0.00% | 0.00% | 0.88% | 0.62% |
| 23 | Household Batteries | 0.06% | 0.00% | 0.00% | 0.22% | 0.13% |
| 24 | Wood Waste | 0.49% | 0.25% | 7.22% | 0.08% | 0.30% |
| 25 | C&D Debris | 0.00% | 0.46% | 1.50% | 1.53% | 0.09% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 27 | Yard Waste | 40.21% | 2.39% | 40.67% | 24.19% | 16.46% |
| 28 | Food Waste | 5.88% | 10.48% | 4.82% | 8.75% | 8.94% |
| 29 | All Other Garbage | 8.69% | 21.47% | 4.34% | 7.80% | 3.00% |
| 30 | Grit | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

## Table D-3: Winter 2011 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | Seaside Sanitation | Zephyrhills | Central Carting | Zephyrhills | County Sanitation | Waste Aid |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **25** | **30** | **31** | **32** | **33** | **34** |
| 1 | Newspaper | 8.20% | 5.64% | 2.11% | 2.94% | 7.28% | 4.12% |
| 2 | Corrugated Containers | 3.85% | 9.64% | 0.20% | 7.45% | 8.12% | 3.75% |
| 3 | Office Paper | 5.96% | 6.60% | 4.64% | 3.46% | 4.88% | 0.00% |
| 4 | Other Recyclable Paper | 2.35% | 5.42% | 7.72% | 5.51% | 6.80% | 7.09% |
| 5 | Other Non-Recyclable Paper | 6.69% | 12.07% | 9.21% | 7.63% | 14.05% | 26.04% |
| 6 | Aseptic Containers | 0.00% | 0.06% | 0.00% | 0.27% | 0.73% | 0.47% |
| 7 | PET Containers | 1.22% | 3.77% | 2.11% | 2.11% | 4.08% | 0.42% |
| 8 | HDPE Containers | 0.68% | 0.78% | 1.73% | 0.42% | 1.68% | 1.11% |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.00% | 0.00% | 0.79% | 0.94% | 0.00% |
| 10 | Non-Rigid Plastic Film | 3.28% | 7.83% | 10.83% | 6.63% | 10.28% | 9.50% |
| 11 | Styrofoam | 0.27% | 1.77% | 0.56% | 0.47% | 1.97% | 0.35% |
| 12 | All Other Plastics | 2.57% | 7.56% | 4.62% | 6.24% | 5.80% | 19.85% |
| 13 | Tin/Steel Cans | 0.25% | 0.00% | 0.00% | 2.10% | 2.42% | 1.60% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 1.61% | 2.81% | 2.14% | 0.25% | 0.00% |
| 16 | Aluminum Cans | 0.27% | 0.77% | 1.40% | 1.14% | 0.77% | 0.47% |
| 17 | Other Non-Ferrous | 0.25% | 0.81% | 0.40% | 0.34% | 1.77% | 0.61% |
| 18 | Glass Containers | 0.00% | 3.18% | 5.09% | 1.70% | 4.68% | 2.44% |
| 19 | Other Glass | 0.00% | 0.51% | 0.65% | 0.00% | 0.00% | 0.68% |
| 20 | Textiles | 5.69% | 1.20% | 0.33% | 5.97% | 1.84% | 2.72% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.00% | 2.78% | 2.39% | 0.00% | 0.00% | 0.00% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.16% | 0.04% | 0.07% | 0.00% |
| 24 | Wood Waste | 0.87% | 0.72% | 5.84% | 1.70% | 0.00% | 0.00% |
| 25 | C&D Debris | 0.81% | 2.81% | 0.51% | 6.60% | 0.13% | 0.42% |
| 26 | Tires and Rubber | 7.62% | 0.26% | 0.07% | 0.00% | 0.00% | 0.13% |
| 27 | Yard Waste | 45.34% | 6.38% | 14.28% | 20.81% | 1.45% | 13.84% |
| 28 | Food Waste | 2.04% | 10.71% | 14.20% | 6.13% | 11.11% | 4.39% |
| 29 | All Other Garbage | 1.79% | 4.19% | 3.29% | 7.41% | 6.72% | 0.00% |
| 30 | Grit | 0.00% | 2.94% | 4.85% | 0.00% | 2.17% | 0.00% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

## Table D-3: Winter 2011 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | Central Carting | Zephyrhills | Zephyrhills | J.D. Parker | Waste Services | Seaside Sanitation |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **39** | **40** | **41** | **42** | **45** | **46** |
| 1 | Newspaper | 3.16% | 4.66% | 3.55% | 0.81% | 6.16% | 7.69% |
| 2 | Corrugated Containers | 1.92% | 1.70% | 2.13% | 1.54% | 0.98% | 1.99% |
| 3 | Office Paper | 4.59% | 5.14% | 8.45% | 10.51% | 8.32% | 6.08% |
| 4 | Other Recyclable Paper | 0.00% | 0.00% | 6.53% | 5.76% | 4.70% | 8.24% |
| 5 | Other Non-Recyclable Paper | 15.94% | 14.88% | 10.29% | 11.43% | 10.76% | 11.55% |
| 6 | Aseptic Containers | 0.53% | 0.17% | 0.23% | 0.18% | 0.16% | 0.65% |
| 7 | PET Containers | 2.36% | 1.83% | 2.32% | 2.90% | 0.98% | 1.70% |
| 8 | HDPE Containers | 3.39% | 1.31% | 1.53% | 1.60% | 0.98% | 4.02% |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.00% | 0.09% | 0.59% | 1.70% | 4.34% |
| 10 | Non-Rigid Plastic Film | 8.72% | 8.95% | 10.48% | 8.06% | 5.61% | 4.80% |
| 11 | Styrofoam | 1.00% | 1.53% | 1.84% | 0.96% | 0.65% | 1.79% |
| 12 | All Other Plastics | 5.54% | 1.82% | 6.48% | 4.01% | 5.25% | 0.37% |
| 13 | Tin/Steel Cans | 2.81% | 3.76% | 1.46% | 1.72% | 1.70% | 1.64% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.81% | 0.78% | 3.70% | 0.45% | 0.22% | 2.14% |
| 16 | Aluminum Cans | 1.54% | 1.41% | 0.39% | 0.93% | 0.50% | 0.62% |
| 17 | Other Non-Ferrous | 0.93% | 2.53% | 0.43% | 0.32% | 0.51% | 0.19% |
| 18 | Glass Containers | 2.96% | 1.29% | 1.26% | 1.38% | 1.63% | 4.87% |
| 19 | Other Glass | 0.00% | 0.00% | 0.14% | 0.00% | 0.00% | 1.90% |
| 20 | Textiles | 5.72% | 1.95% | 2.09% | 2.66% | 1.55% | 1.91% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 2.91% | 1.33% | 0.00% | 0.92% | 0.00% | 0.00% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.11% | 0.42% |
| 24 | Wood Waste | 0.45% | 0.00% | 0.00% | 9.69% | 2.22% | 0.70% |
| 25 | C&D Debris | 0.00% | 3.16% | 0.00% | 12.41% | 8.25% | 0.00% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 27 | Yard Waste | 5.40% | 14.06% | 23.24% | 8.31% | 25.95% | 21.70% |
| 28 | Food Waste | 7.61% | 8.90% | 6.17% | 10.47% | 7.45% | 4.58% |
| 29 | All Other Garbage | 12.70% | 18.86% | 7.17% | 0.95% | 3.68% | 6.11% |
| 30 | Grit | 8.99% | 0.00% | 0.00% | 1.42% | 0.00% | 0.00% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 39 – Electronics = radio; Sample 42 – Electronics = radio, C&D Debris = concrete mix.

## Table D-3: Winter 2011 Single-Family Residential with Curbside Service (continued)

| | Hauler/Location | Waste Services | Seaside Sanitation | J.D. Parker | Waste Services | Waste Services | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **47** | **54** | **55** | **57** | **58** | **Weighted Avg.** |
| 1 | Newspaper | 6.02% | 8.15% | 3.31% | 3.65% | 8.28% | **5.38%** |
| 2 | Corrugated Containers | 1.57% | 4.96% | 2.39% | 1.02% | 0.98% | **3.19%** |
| 3 | Office Paper | 2.29% | 4.36% | 3.26% | 9.77% | 4.83% | **5.23%** |
| 4 | Other Recyclable Paper | 5.61% | 6.51% | 5.27% | 5.60% | 5.06% | **5.08%** |
| 5 | Other Non-Recyclable Paper | 9.52% | 8.26% | 10.42% | 8.11% | 12.74% | **10.48%** |
| 6 | Aseptic Containers | 0.34% | 0.08% | 0.03% | 0.31% | 0.63% | **0.23%** |
| 7 | PET Containers | 1.77% | 1.80% | 1.30% | 0.86% | 1.44% | **1.81%** |
| 8 | HDPE Containers | 2.51% | 1.40% | 0.90% | 0.54% | 2.96% | **1.74%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.06% | 0.00% | 0.00% | 0.23% | **0.48%** |
| 10 | Non-Rigid Plastic Film | 6.52% | 6.75% | 7.74% | 4.42% | 6.17% | **7.36%** |
| 11 | Styrofoam | 0.67% | 1.15% | 0.67% | 0.24% | 0.40% | **0.95%** |
| 12 | All Other Plastics | 3.37% | 8.79% | 4.41% | 10.65% | 5.91% | **5.24%** |
| 13 | Tin/Steel Cans | 1.77% | 2.50% | 4.69% | 0.88% | 1.86% | **1.54%** |
| 14 | White Goods | 0.00% | 0.00% | 1.36% | 0.00% | 0.00% | **0.07%** |
| 15 | Other Ferrous | 0.63% | 0.47% | 2.08% | 4.25% | 0.79% | **1.17%** |
| 16 | Aluminum Cans | 0.35% | 0.66% | 0.61% | 0.09% | 0.56% | **0.90%** |
| 17 | Other Non-Ferrous | 0.68% | 0.44% | 0.00% | 0.17% | 4.43% | **0.71%** |
| 18 | Glass Containers | 7.20% | 0.59% | 6.35% | 1.64% | 6.75% | **2.94%** |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.17% | 0.00% | **0.51%** |
| 20 | Textiles | 10.41% | 8.18% | 1.48% | 4.29% | 3.35% | **4.09%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 22 | Electronics | 0.48% | 0.00% | 1.52% | 1.23% | 3.90% | **0.83%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.06%** |
| 24 | Wood Waste | 0.58% | 0.72% | 0.00% | 0.57% | 0.14% | **1.50%** |
| 25 | C&D Debris | 0.00% | 2.51% | 0.00% | 3.38% | 0.67% | **2.00%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.56%** |
| 27 | Yard Waste | 16.03% | 22.79% | 17.76% | 30.19% | 10.21% | **19.86%** |
| 28 | Food Waste | 9.99% | 5.41% | 9.70% | 2.57% | 11.14% | **7.65%** |
| 29 | All Other Garbage | 8.38% | 3.46% | 14.77% | 5.41% | 6.59% | **7.40%** |
| 30 | Grit | 3.31% | 0.00% | 0.00% | 0.00% | 0.00% | **1.05%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

# Appendix E: Individual Sample Results, Single-Family Residential with Dumpster Service

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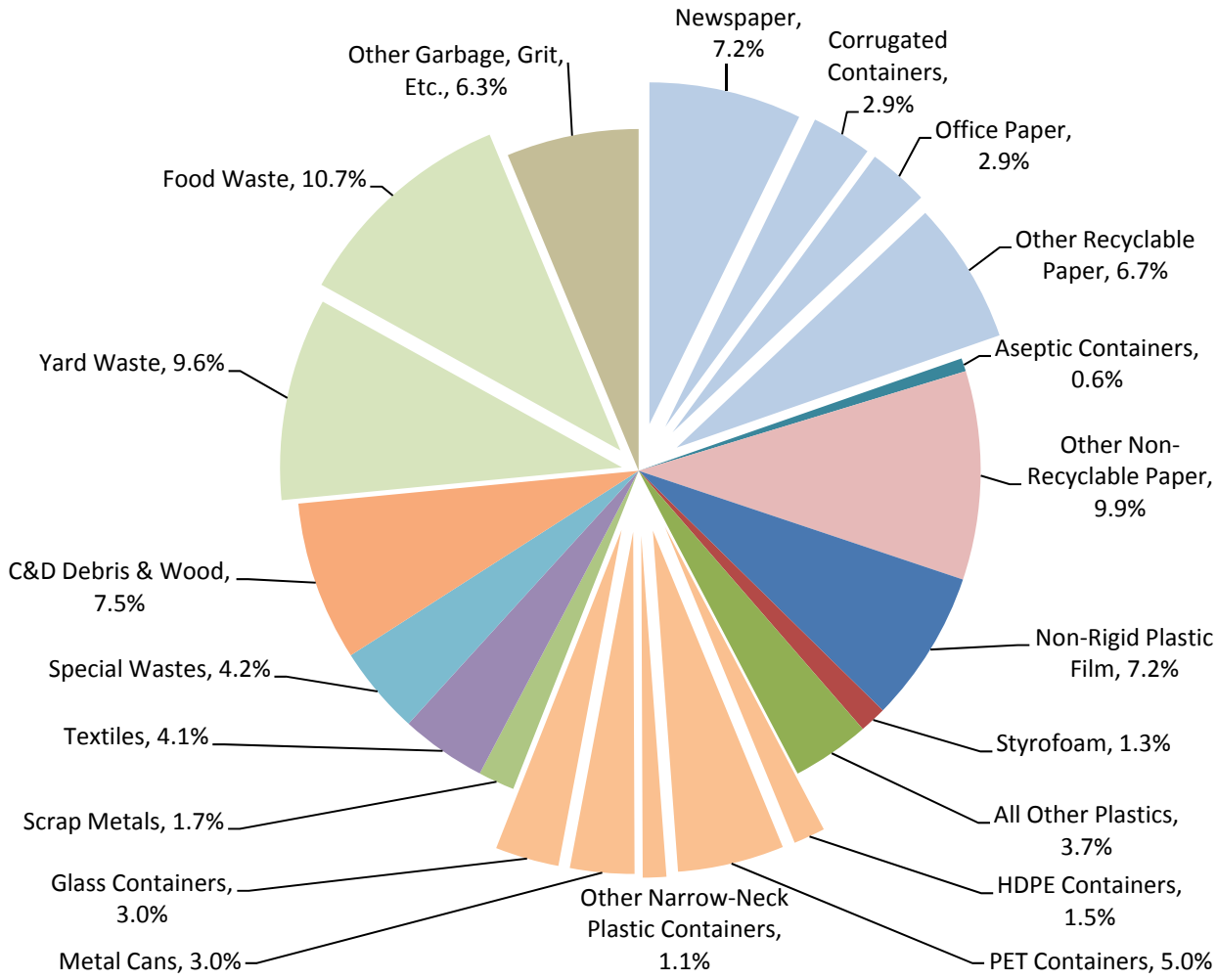
## Figure E-1: Composition of Single-Family Residential with Dumpster Service Waste Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table E-1: Composition of Single-Family Residential with Dumpster Service Waste Disposed at RRF (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **5.7%** | 2.1% | 9.2% | **8.6%** | 2.3% | 14.9% | **7.2%** | 4.2% | 10.2% |
| 2 | Corrugated Containers | **3.1%** | -0.6% | 6.9% | **2.6%** | 0.8% | 4.4% | **2.9%** | 1.6% | 4.1% |
| 3 | Office Paper | **2.4%** | -0.9% | 5.6% | **3.3%** | 0.5% | 6.1% | **2.9%** | 1.4% | 4.4% |
| 4 | Other Recyclable Paper | **7.5%** | -0.6% | 15.6% | **6.0%** | 3.1% | 9.0% | **6.7%** | 4.2% | 9.2% |
| 5 | Other Non-Recyclable Paper | **10.7%** | 4.6% | 16.7% | **9.2%** | 3.2% | 15.1% | **9.9%** | 6.8% | 13.0% |
| 6 | Aseptic Containers | **0.9%** | -0.5% | 2.3% | **0.4%** | -0.8% | 1.5% | **0.6%** | 0.0% | 1.3% |
| 7 | PET Containers | **2.0%** | 1.4% | 2.6% | **7.7%** | -8.7% | 24.1% | **5.0%** | -2.9% | 12.9% |
| 8 | HDPE Containers | **1.4%** | 0.1% | 2.7% | **1.6%** | 0.3% | 2.9% | **1.5%** | 0.8% | 2.2% |
| 9 | Other Narrow-Neck Plastic Containers | **1.2%** | -0.4% | 2.8% | **1.0%** | -1.1% | 3.2% | **1.1%** | 0.1% | 2.1% |
| 10 | Non-Rigid Plastic Film | **8.0%** | 5.2% | 10.8% | **6.5%** | 2.0% | 11.0% | **7.2%** | 5.0% | 9.4% |
| 11 | Styrofoam | **0.9%** | -0.4% | 2.2% | **1.6%** | -0.7% | 3.9% | **1.3%** | 0.2% | 2.4% |
| 12 | All Other Plastics | **2.7%** | 0.1% | 5.3% | **4.6%** | 2.4% | 6.7% | **3.7%** | 2.3% | 5.0% |
| 13 | Tin/Steel Cans | **2.6%** | 1.5% | 3.7% | **1.6%** | 0.1% | 3.0% | **2.0%** | 1.2% | 2.9% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.1%** | -0.1% | 0.2% | **0.3%** | 0.0% | 0.6% | **0.2%** | 0.0% | 0.4% |
| 16 | Aluminum Cans | **0.9%** | 0.1% | 1.6% | **1.1%** | 0.9% | 1.3% | **1.0%** | 0.8% | 1.2% |
| 17 | Other Non-Ferrous | **0.4%** | -0.7% | 1.4% | **2.6%** | -1.7% | 6.9% | **1.5%** | -0.5% | 3.6% |
| 18 | Glass Containers | **2.2%** | 1.1% | 3.3% | **3.7%** | 2.5% | 5.0% | **3.0%** | 2.2% | 3.8% |
| 19 | Other Glass | **0.4%** | -1.1% | 1.9% | **0.1%** | -0.1% | 0.2% | **0.2%** | -0.2% | 0.7% |
| 20 | Textiles | **6.1%** | -5.3% | 17.6% | **2.2%** | 0.2% | 4.2% | **4.1%** | 0.8% | 7.3% |
| 21 | Household Hazardous Waste | **0.1%** | -0.1% | 0.2% | **0.1%** | -0.1% | 0.3% | **0.1%** | 0.0% | 0.2% |
| 22 | Electronics | **4.7%** | -5.2% | 14.6% | **0.3%** | -0.3% | 0.9% | **2.4%** | -0.6% | 5.3% |
| 23 | Household Batteries | **0.1%** | 0.0% | 0.2% | **0.1%** | 0.0% | 0.2% | **0.1%** | 0.0% | 0.1% |
| 24 | Wood Waste | **2.0%** | -0.4% | 4.4% | **5.3%** | -5.5% | 16.2% | **3.8%** | -1.4% | 8.9% |
| 25 | C&D Debris | **3.1%** | 1.5% | 4.7% | **4.4%** | 0.7% | 8.1% | **3.8%** | 2.1% | 5.5% |
| 26 | Tires and Rubber | **3.2%** | -2.9% | 9.3% | **0.3%** | -0.3% | 0.9% | **1.7%** | -0.3% | 3.7% |
| 27 | Yard Waste | **10.6%** | 1.6% | 19.6% | **8.7%** | -6.6% | 24.0% | **9.6%** | 2.4% | 16.8% |
| 28 | Food Waste | **12.2%** | 8.9% | 15.5% | **9.3%** | 2.6% | 16.1% | **10.7%** | 7.3% | 14.1% |
| 29 | All Other Garbage | **2.8%** | 1.1% | 4.6% | **2.9%** | 0.0% | 5.8% | **2.9%** | 1.5% | 4.2% |
| 30 | Grit | **2.3%** | 1.3% | 3.3% | **3.9%** | -1.4% | 9.2% | **3.1%** | 0.7% | 5.6% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table E-2: Summer 2010 Single-Family Residential with Dumpster Service (% by weight)

| | Hauler/Location | Waste Services - Dumpster Service | Seaside Sanitation Dumpster Service | Seaside Sanitation Dumpster Service | |
|---|---|---|---|---|---|
| | **Material Categories sample #** | **17** | **24** | **56** | **Weighted Avg.** |
| 1 | Newspaper | 7.50% | 6.44% | 3.44% | **5.66%** |
| 2 | Corrugated Containers | 3.72% | 5.38% | 1.00% | **3.14%** |
| 3 | Office Paper | 1.80% | 0.48% | 4.27% | **2.38%** |
| 4 | Other Recyclable Paper | 12.95% | 5.04% | 4.27% | **7.47%** |
| 5 | Other Non-Recyclable Paper | 13.86% | 11.84% | 6.90% | **10.66%** |
| 6 | Aseptic Containers | 0.45% | 1.93% | 0.56% | **0.90%** |
| 7 | PET Containers | 2.14% | 1.56% | 2.14% | **1.98%** |
| 8 | HDPE Containers | 1.27% | 0.53% | 2.09% | **1.38%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.48% | 0.61% | 2.20% | **1.17%** |
| 10 | Non-Rigid Plastic Film | 9.33% | 6.04% | 8.26% | **8.01%** |
| 11 | Styrofoam | 1.72% | 0.21% | 0.71% | **0.92%** |
| 12 | All Other Plastics | 2.35% | 4.61% | 1.62% | **2.69%** |
| 13 | Tin/Steel Cans | 1.88% | 2.70% | 3.15% | **2.59%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.00% | 0.19% | 0.00% | **0.05%** |
| 16 | Aluminum Cans | 1.32% | 0.42% | 0.76% | **0.86%** |
| 17 | Other Non-Ferrous | 1.08% | 0.00% | 0.00% | **0.37%** |
| 18 | Glass Containers | 2.91% | 2.03% | 1.63% | **2.18%** |
| 19 | Other Glass | 0.00% | 1.55% | 0.00% | **0.43%** |
| 20 | Textiles | 2.20% | 1.10% | 13.35% | **6.14%** |
| 21 | Household Hazardous Waste | 0.08% | 0.18% | 0.00% | **0.08%** |
| 22 | Electronics | 1.26% | 0.31% | 10.91% | **4.67%** |
| 23 | Household Batteries | 0.11% | 0.11% | 0.00% | **0.07%** |
| 24 | Wood Waste | 0.45% | 3.15% | 2.55% | **1.99%** |
| 25 | C&D Debris | 3.11% | 4.15% | 2.24% | **3.06%** |
| 26 | Tires and Rubber | 3.50% | 7.27% | 0.00% | **3.21%** |
| 27 | Yard Waste | 5.79% | 16.48% | 10.66% | **10.58%** |
| 28 | Food Waste | 14.35% | 10.66% | 11.43% | **12.22%** |
| 29 | All Other Garbage | 1.67% | 3.51% | 3.37% | **2.82%** |
| 30 | Grit | 2.70% | 1.54% | 2.49% | **2.30%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table E-3: Winter 2011 Single-Family Residential with Dumpster Service (% by weight)

| | Hauler/Location | Waste Services - Dumpster Service | Waste Services - Dumpster Service | Seaside Sanitation Dumpster Service | Waste Services - Dumpster Service | |
|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **19** | **20** | **27** | **49** | **Weighted Avg.** |
| 1 | Newspaper | 4.96% | 7.67% | 2.93% | 15.19% | **8.58%** |
| 2 | Corrugated Containers | 3.15% | 0.39% | 2.74% | 3.88% | **2.61%** |
| 3 | Office Paper | 5.80% | 2.91% | 0.00% | 3.36% | **3.32%** |
| 4 | Other Recyclable Paper | 6.75% | 9.29% | 4.15% | 3.85% | **6.05%** |
| 5 | Other Non-Recyclable Paper | 12.56% | 1.69% | 11.63% | 11.12% | **9.16%** |
| 6 | Aseptic Containers | 0.00% | 0.02% | 2.02% | 0.12% | **0.38%** |
| 7 | PET Containers | 5.54% | 2.82% | 30.91% | 1.43% | **7.71%** |
| 8 | HDPE Containers | 0.99% | 3.22% | 0.72% | 1.24% | **1.60%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.07% | 3.72% | 0.00% | 0.23% | **1.05%** |
| 10 | Non-Rigid Plastic Film | 12.06% | 4.94% | 4.07% | 4.46% | **6.49%** |
| 11 | Styrofoam | 4.48% | 0.69% | 0.57% | 0.46% | **1.58%** |
| 12 | All Other Plastics | 7.04% | 2.52% | 4.37% | 4.27% | **4.55%** |
| 13 | Tin/Steel Cans | 0.48% | 3.13% | 0.53% | 1.69% | **1.56%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.63% | 0.20% | 0.44% | 0.00% | **0.29%** |
| 16 | Aluminum Cans | 0.87% | 1.15% | 1.28% | 1.19% | **1.11%** |
| 17 | Other Non-Ferrous | 0.26% | 0.09% | 0.40% | 7.59% | **2.58%** |
| 18 | Glass Containers | 2.44% | 4.36% | 3.10% | 4.64% | **3.74%** |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.28% | **0.09%** |
| 20 | Textiles | 1.24% | 4.71% | 1.21% | 1.54% | **2.22%** |
| 21 | Household Hazardous Waste | 0.04% | 0.29% | 0.00% | 0.00% | **0.09%** |
| 22 | Electronics | 0.00% | 1.09% | 0.00% | 0.13% | **0.32%** |
| 23 | Household Batteries | 0.00% | 0.06% | 0.00% | 0.16% | **0.07%** |
| 24 | Wood Waste | 1.16% | 2.28% | 20.61% | 3.27% | **5.33%** |
| 25 | C&D Debris | 3.00% | 7.13% | 0.00% | 5.63% | **4.41%** |
| 26 | Tires and Rubber | 0.51% | 0.00% | 1.02% | 0.00% | **0.30%** |
| 27 | Yard Waste | 1.41% | 27.75% | 0.44% | 3.55% | **8.69%** |
| 28 | Food Waste | 7.86% | 4.31% | 5.12% | 16.77% | **9.34%** |
| 29 | All Other Garbage | 6.50% | 0.96% | 1.74% | 2.17% | **2.91%** |
| 30 | Grit | 10.21% | 2.60% | 0.00% | 1.78% | **3.88%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 20 – Electronics = radio

# Appendix F:
# Individual Sample Results,
# City of Zephyrhills Single-Family Residential

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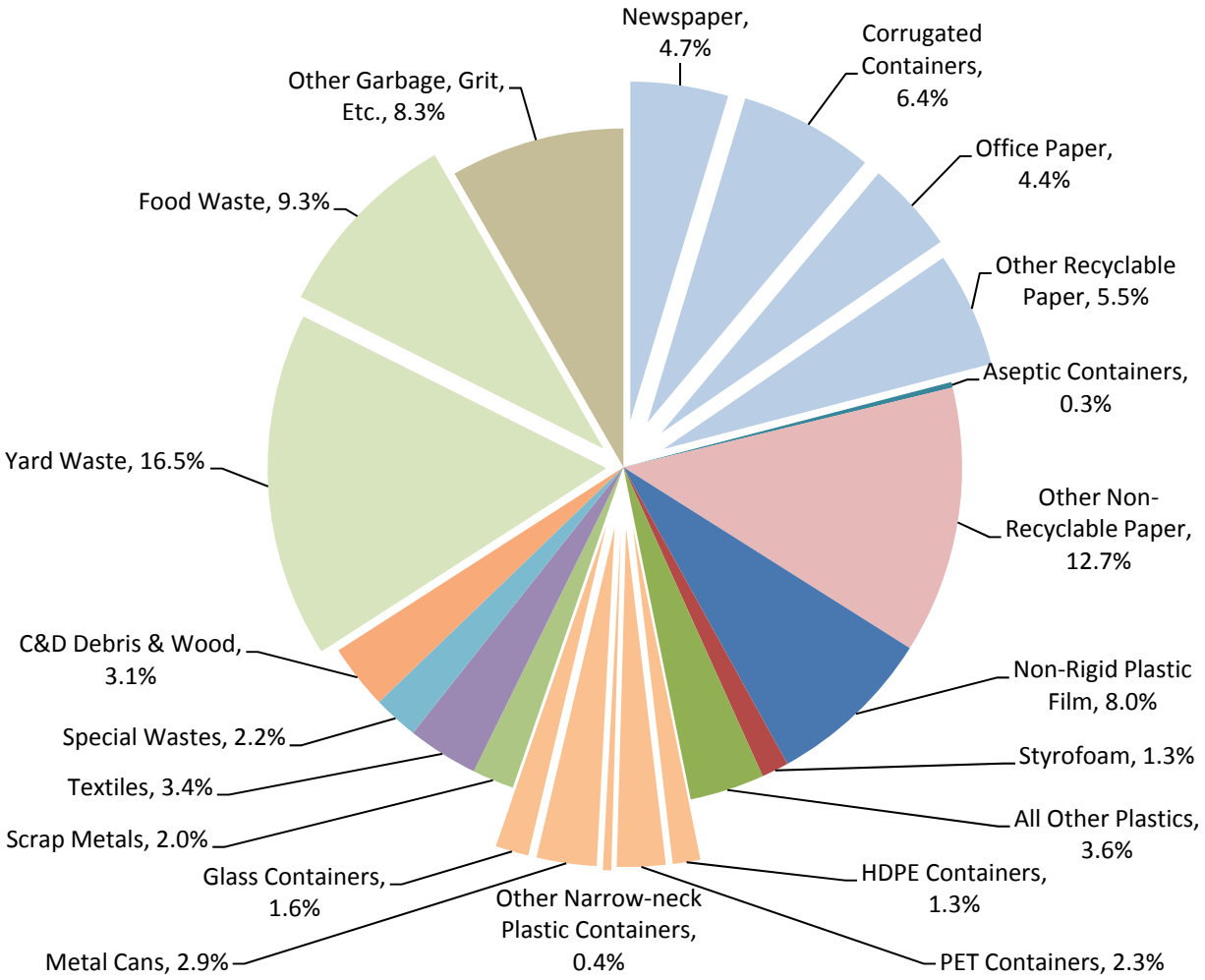
## Figure F-1: Composition of Single-Family Residential Waste within the City of Zephyrhills Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table F-1: Composition of Single-Family Residential Waste within the City of Zephyrhills Disposed at RRF (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **5.1%** | 2.0% | 8.2% | **4.2%** | 2.8% | 5.6% | **4.7%** | 3.3% | 6.0% |
| 2 | Corrugated Containers | **7.9%** | 3.9% | 12.0% | **5.0%** | 0.4% | 9.7% | **6.4%** | 3.9% | 9.0% |
| 3 | Office Paper | **2.7%** | 1.9% | 3.5% | **5.9%** | 3.4% | 8.4% | **4.4%** | 2.8% | 5.9% |
| 4 | Other Recyclable Paper | **7.0%** | 6.1% | 7.8% | **4.2%** | 0.7% | 7.6% | **5.5%** | 3.9% | 7.1% |
| 5 | Other Non-Recyclable Paper | **14.2%** | 10.0% | 18.3% | **11.4%** | 7.8% | 15.0% | **12.7%** | 10.4% | 15.1% |
| 6 | Aseptic Containers | **0.4%** | 0.0% | 0.7% | **0.2%** | 0.1% | 0.3% | **0.3%** | 0.1% | 0.4% |
| 7 | PET Containers | **2.1%** | 0.8% | 3.5% | **2.5%** | 1.5% | 3.5% | **2.3%** | 1.7% | 3.0% |
| 8 | HDPE Containers | **1.6%** | 0.2% | 3.0% | **1.0%** | 0.4% | 1.6% | **1.3%** | 0.7% | 1.9% |
| 9 | Other Narrow-Neck Plastic Containers | **0.6%** | 0.0% | 1.3% | **0.2%** | -0.2% | 0.6% | **0.4%** | 0.1% | 0.7% |
| 10 | Non-Rigid Plastic Film | **7.4%** | 5.7% | 9.1% | **8.5%** | 6.6% | 10.5% | **8.0%** | 7.0% | 9.0% |
| 11 | Styrofoam | **1.2%** | 0.5% | 1.8% | **1.4%** | 0.7% | 2.2% | **1.3%** | 0.9% | 1.7% |
| 12 | All Other Plastics | **1.6%** | 0.4% | 2.9% | **5.4%** | 2.4% | 8.3% | **3.6%** | 1.7% | 5.4% |
| 13 | Tin/Steel Cans | **2.0%** | 1.5% | 2.5% | **1.9%** | 0.1% | 3.7% | **2.0%** | 1.3% | 2.7% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 15 | Other Ferrous | **0.2%** | -0.1% | 0.6% | **2.0%** | 0.5% | 3.5% | **1.1%** | 0.3% | 2.0% |
| 16 | Aluminum Cans | **0.8%** | 0.4% | 1.3% | **0.9%** | 0.4% | 1.5% | **0.9%** | 0.6% | 1.1% |
| 17 | Other Non-Ferrous | **0.6%** | -0.2% | 1.4% | **1.1%** | -0.1% | 2.3% | **0.9%** | 0.3% | 1.4% |
| 18 | Glass Containers | **1.3%** | -0.6% | 3.1% | **1.8%** | 0.8% | 2.9% | **1.6%** | 0.8% | 2.4% |
| 19 | Other Glass | **0.0%** | 0.0% | 0.1% | **0.2%** | -0.1% | 0.4% | **0.1%** | 0.0% | 0.2% |
| 20 | Textiles | **4.1%** | 2.9% | 5.3% | **2.7%** | 0.2% | 5.3% | **3.4%** | 2.2% | 4.5% |
| 21 | Household Hazardous Waste | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 22 | Electronics | **2.3%** | -0.3% | 4.8% | **1.1%** | -0.5% | 2.6% | **1.6%** | 0.4% | 2.8% |
| 23 | Household Batteries | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% | **0.0%** | 0.0% | 0.0% |
| 24 | Wood Waste | **1.2%** | -0.2% | 2.7% | **0.6%** | -0.4% | 1.5% | **0.9%** | 0.2% | 1.6% |
| 25 | C&D Debris | **1.3%** | -0.6% | 3.1% | **3.1%** | -0.1% | 6.3% | **2.2%** | 0.7% | 3.7% |
| 26 | Tires and Rubber | **1.0%** | -1.2% | 3.2% | **0.1%** | -0.1% | 0.2% | **0.5%** | -0.4% | 1.4% |
| 27 | Yard Waste | **17.0%** | 3.3% | 30.7% | **16.0%** | 7.1% | 24.9% | **16.5%** | 10.4% | 22.6% |
| 28 | Food Waste | **10.7%** | 6.6% | 14.7% | **8.0%** | 5.4% | 10.7% | **9.3%** | 7.3% | 11.3% |
| 29 | All Other Garbage | **5.0%** | 0.8% | 9.2% | **9.8%** | 2.2% | 17.5% | **7.5%** | 4.0% | 11.1% |
| 30 | Grit | **0.7%** | -0.1% | 1.4% | **0.7%** | -1.0% | 2.4% | **0.7%** | 0.0% | 1.4% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table F-2: Summer 2010 City of Zephyrhills Single-Family Residential (% by weight)

| | Hauler/Location | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | |
|---|---|---|---|---|---|---|
| | **Material Categories** **sample #** | **25** | **26** | **32** | **33** | **Weighted Avg.** |
| 1 | Newspaper | 8.92% | 2.78% | 4.21% | 4.45% | **5.12%** |
| 2 | Corrugated Containers | 8.16% | 11.47% | 9.69% | 3.40% | **7.93%** |
| 3 | Office Paper | 1.90% | 2.61% | 2.49% | 3.58% | **2.68%** |
| 4 | Other Recyclable Paper | 7.29% | 5.87% | 7.19% | 7.22% | **6.95%** |
| 5 | Other Non-Recyclable Paper | 14.72% | 19.22% | 13.28% | 10.85% | **14.17%** |
| 6 | Aseptic Containers | 0.31% | 0.60% | 0.00% | 0.60% | **0.36%** |
| 7 | PET Containers | 3.79% | 2.14% | 1.53% | 1.32% | **2.14%** |
| 8 | HDPE Containers | 2.11% | 3.08% | 1.40% | 0.32% | **1.62%** |
| 9 | Other Narrow-Neck Plastic Containers | 1.33% | 0.71% | 0.56% | 0.00% | **0.62%** |
| 10 | Non-Rigid Plastic Film | 5.30% | 8.42% | 7.79% | 8.20% | **7.43%** |
| 11 | Styrofoam | 1.65% | 1.33% | 0.43% | 1.31% | **1.15%** |
| 12 | All Other Plastics | 3.20% | 1.22% | 1.40% | 0.82% | **1.63%** |
| 13 | Tin/Steel Cans | 2.65% | 2.02% | 1.92% | 1.63% | **2.03%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.63% | 0.15% | **0.21%** |
| 16 | Aluminum Cans | 1.01% | 1.24% | 0.39% | 0.81% | **0.83%** |
| 17 | Other Non-Ferrous | 0.29% | 0.40% | 0.04% | 1.54% | **0.59%** |
| 18 | Glass Containers | 1.30% | 3.67% | 0.84% | 0.00% | **1.30%** |
| 19 | Other Glass | 0.11% | 0.00% | 0.00% | 0.00% | **0.03%** |
| 20 | Textiles | 3.60% | 3.08% | 3.85% | 5.47% | **4.08%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.02% | 0.00% | **0.00%** |
| 22 | Electronics | 0.74% | 1.87% | 0.78% | 5.36% | **2.27%** |
| 23 | Household Batteries | 0.00% | 0.02% | 0.02% | 0.00% | **0.01%** |
| 24 | Wood Waste | 2.95% | 1.62% | 0.52% | 0.18% | **1.24%** |
| 25 | C&D Debris | 0.17% | 3.70% | 0.73% | 0.90% | **1.25%** |
| 26 | Tires and Rubber | 0.13% | 3.98% | 0.49% | 0.00% | **0.98%** |
| 27 | Yard Waste | 6.98% | 5.48% | 21.74% | 29.53% | **17.02%** |
| 28 | Food Waste | 12.21% | 5.21% | 12.52% | 11.51% | **10.66%** |
| 29 | All Other Garbage | 8.80% | 7.35% | 4.11% | 0.85% | **4.99%** |
| 30 | Grit | 0.39% | 0.93% | 1.45% | 0.00% | **0.68%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table F-3: Winter 2011 City of Zephyrhills Single-Family Residential (% by weight)

| | Hauler/Location | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | |
|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **30** | **32** | **40** | **41** | **Weighted Avg.** |
| 1 | Newspaper | 5.64% | 2.94% | 4.66% | 3.55% | **4.23%** |
| 2 | Corrugated Containers | 9.64% | 7.45% | 1.70% | 2.13% | **5.04%** |
| 3 | Office Paper | 6.60% | 3.46% | 5.14% | 8.45% | **5.91%** |
| 4 | Other Recyclable Paper | 5.42% | 5.51% | 0.00% | 6.53% | **4.16%** |
| 5 | Other Non-Recyclable Paper | 12.07% | 7.63% | 14.88% | 10.29% | **11.43%** |
| 6 | Aseptic Containers | 0.06% | 0.27% | 0.17% | 0.23% | **0.18%** |
| 7 | PET Containers | 3.77% | 2.11% | 1.83% | 2.32% | **2.48%** |
| 8 | HDPE Containers | 0.78% | 0.42% | 1.31% | 1.53% | **1.03%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.79% | 0.00% | 0.09% | **0.20%** |
| 10 | Non-Rigid Plastic Film | 7.83% | 6.63% | 8.95% | 10.48% | **8.52%** |
| 11 | Styrofoam | 1.77% | 0.47% | 1.53% | 1.84% | **1.42%** |
| 12 | All Other Plastics | 7.56% | 6.24% | 1.82% | 6.48% | **5.35%** |
| 13 | Tin/Steel Cans | 0.00% | 2.10% | 3.76% | 1.46% | **1.91%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 1.61% | 2.14% | 0.78% | 3.70% | **2.00%** |
| 16 | Aluminum Cans | 0.77% | 1.14% | 1.41% | 0.39% | **0.95%** |
| 17 | Other Non-Ferrous | 0.81% | 0.34% | 2.53% | 0.43% | **1.10%** |
| 18 | Glass Containers | 3.18% | 1.70% | 1.29% | 1.26% | **1.83%** |
| 19 | Other Glass | 0.51% | 0.00% | 0.00% | 0.14% | **0.16%** |
| 20 | Textiles | 1.20% | 5.97% | 1.95% | 2.09% | **2.72%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 22 | Electronics | 2.78% | 0.00% | 1.33% | 0.00% | **1.05%** |
| 23 | Household Batteries | 0.00% | 0.04% | 0.00% | 0.00% | **0.01%** |
| 24 | Wood Waste | 0.72% | 1.70% | 0.00% | 0.00% | **0.56%** |
| 25 | C&D Debris | 2.81% | 6.60% | 3.16% | 0.00% | **3.09%** |
| 26 | Tires and Rubber | 0.26% | 0.00% | 0.00% | 0.00% | **0.06%** |
| 27 | Yard Waste | 6.38% | 20.81% | 14.06% | 23.24% | **15.98%** |
| 28 | Food Waste | 10.71% | 6.13% | 8.90% | 6.17% | **8.04%** |
| 29 | All Other Garbage | 4.19% | 7.41% | 18.86% | 7.17% | **9.85%** |
| 30 | Grit | 2.94% | 0.00% | 0.00% | 0.00% | **0.71%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 30 – Textiles = lots of towels, C&D Debris = tile

# Appendix G:
# Individual Sample Results,
# Multi-Family Residential

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## Table G-1: Summer 2010 Individual Sample Results, Multi-Family Residential (% by weight)

| | Hauler/Location | Waste Services | Waste Services | Waste Management | Central Carting |
|---|---|---|---|---|---|
| | **Material Categories sample #** | **10** | **13** | **14** | **28** |
| 1 | Newspaper | 3.37% | 1.80% | 7.32% | 4.67% |
| 2 | Corrugated Containers | 4.02% | 6.35% | 2.94% | 0.89% |
| 3 | Office Paper | 8.23% | 5.16% | 0.98% | 0.77% |
| 4 | Other Recyclable Paper | 5.52% | 6.84% | 4.69% | 3.20% |
| 5 | Other Non-Recyclable Paper | 13.27% | 14.59% | 26.20% | 10.63% |
| 6 | Aseptic Containers | 0.64% | 0.15% | 1.03% | 0.17% |
| 7 | PET Containers | 2.68% | 4.25% | 3.44% | 1.61% |
| 8 | HDPE Containers | 1.31% | 1.50% | 0.80% | 5.53% |
| 9 | Other Narrow-Neck Plastic Containers | 2.67% | 1.76% | 0.75% | 0.21% |
| 10 | Non-Rigid Plastic Film | 9.97% | 7.17% | 2.49% | 5.22% |
| 11 | Styrofoam | 0.83% | 1.22% | 4.42% | 0.00% |
| 12 | All Other Plastics | 3.36% | 1.81% | 6.47% | 0.77% |
| 13 | Tin/Steel Cans | 3.66% | 0.69% | 0.00% | 1.68% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 2.27% | 0.10% | 0.47% | 0.00% |
| 16 | Aluminum Cans | 0.67% | 1.13% | 0.72% | 1.21% |
| 17 | Other Non-Ferrous | 1.30% | 0.25% | 0.00% | 0.00% |
| 18 | Glass Containers | 0.77% | 2.61% | 1.15% | 2.00% |
| 19 | Other Glass | 7.15% | 0.00% | 0.00% | 0.00% |
| 20 | Textiles | 0.00% | 12.06% | 15.39% | 3.47% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.06% | 0.00% |
| 22 | Electronics | 0.00% | 9.22% | 0.00% | 0.64% |
| 23 | Household Batteries | 0.00% | 0.03% | 0.00% | 0.00% |
| 24 | Wood Waste | 0.44% | 4.08% | 0.00% | 0.45% |
| 25 | C&D Debris | 0.00% | 0.00% | 0.66% | 0.00% |
| 26 | Tires and Rubber | 1.91% | 0.03% | 4.07% | 5.04% |
| 27 | Yard Waste | 0.33% | 0.13% | 0.00% | 38.72% |
| 28 | Food Waste | 10.37% | 12.48% | 9.38% | 6.73% |
| 29 | All Other Garbage | 15.26% | 2.74% | 6.58% | 4.52% |
| 30 | Grit | 0.00% | 1.87% | 0.00% | 1.85% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% |

## Table G-1: Summer 2010 Individual Sample Results, Multi-Family Residential (continued)

| | Hauler/Location | Waste Services | Waste Management | Waste Services | |
|---|---|---|---|---|---|
| | **Material Categories sample #** | **38** | **39** | **42** | **Weighted Avg.** |
| 1 | Newspaper | 1.51% | 1.75% | 4.49% | **3.24%** |
| 2 | Corrugated Containers | 4.62% | 4.44% | 1.12% | **3.66%** |
| 3 | Office Paper | 1.82% | 3.24% | 1.29% | **3.23%** |
| 4 | Other Recyclable Paper | 7.97% | 7.43% | 3.75% | **5.70%** |
| 5 | Other Non-Recyclable Paper | 14.78% | 13.45% | 16.25% | **14.77%** |
| 6 | Aseptic Containers | 0.21% | 0.19% | 0.20% | **0.30%** |
| 7 | PET Containers | 2.97% | 2.30% | 4.73% | **3.19%** |
| 8 | HDPE Containers | 2.00% | 1.18% | 1.11% | **2.07%** |
| 9 | Other Narrow-Neck Plastic Containers | 1.95% | 0.38% | 0.41% | **1.18%** |
| 10 | Non-Rigid Plastic Film | 4.25% | 8.43% | 8.53% | **6.79%** |
| 11 | Styrofoam | 0.50% | 2.02% | 0.54% | **1.13%** |
| 12 | All Other Plastics | 2.65% | 3.88% | 3.50% | **2.81%** |
| 13 | Tin/Steel Cans | 1.39% | 1.08% | 1.45% | **1.41%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.00% | 3.05% | 0.75% | **0.85%** |
| 16 | Aluminum Cans | 0.52% | 0.64% | 0.81% | **0.86%** |
| 17 | Other Non-Ferrous | 0.77% | 0.32% | 0.10% | **0.37%** |
| 18 | Glass Containers | 3.92% | 9.70% | 6.45% | **3.84%** |
| 19 | Other Glass | 0.87% | 1.20% | 0.00% | **1.14%** |
| 20 | Textiles | 14.70% | 2.27% | 2.23% | **7.06%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | **0.00%** |
| 22 | Electronics | 2.39% | 6.77% | 1.79% | **3.66%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.02% | **0.01%** |
| 24 | Wood Waste | 22.64% | 5.00% | 12.95% | **6.55%** |
| 25 | C&D Debris | 0.14% | 1.93% | 1.29% | **0.51%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | **1.40%** |
| 27 | Yard Waste | 0.00% | 3.86% | 5.81% | **7.90%** |
| 28 | Food Waste | 3.50% | 9.15% | 11.59% | **9.25%** |
| 29 | All Other Garbage | 3.92% | 4.62% | 8.86% | **6.13%** |
| 30 | Grit | 0.00% | 1.70% | 0.00% | **0.96%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 42 – All Other Garbage = lots of diapers.

## Table G-2: Winter 2011 Individual Sample Results, Multi-Family Residential (% by weight)

| | Hauler/Location | Waste Service | Waste Management | Waste Management | Waste Services |
|---|---|---|---|---|---|
| | **Material Categories sample #** | **1** | **8** | **18** | **28** |
| 1 | Newspaper | 5.64% | 9.28% | 18.52% | 5.58% |
| 2 | Corrugated Containers | 4.00% | 11.90% | 0.64% | 2.23% |
| 3 | Office Paper | 0.51% | 2.02% | 5.35% | 5.46% |
| 4 | Other Recyclable Paper | 5.11% | 6.75% | 18.27% | 4.30% |
| 5 | Other Non-Recyclable Paper | 7.78% | 8.88% | 6.81% | 11.90% |
| 6 | Aseptic Containers | 0.21% | 0.36% | 0.68% | 0.15% |
| 7 | PET Containers | 3.61% | 4.53% | 2.83% | 1.58% |
| 8 | HDPE Containers | 1.84% | 2.20% | 3.93% | 7.14% |
| 9 | Other Narrow-Neck Plastic Containers | 0.79% | 0.00% | 6.25% | 0.00% |
| 10 | Non-Rigid Plastic Film | 15.03% | 7.70% | 1.23% | 10.32% |
| 11 | Styrofoam | 1.14% | 2.08% | 1.43% | 0.00% |
| 12 | All Other Plastics | 3.18% | 5.02% | 3.11% | 0.00% |
| 13 | Tin/Steel Cans | 0.93% | 1.90% | 2.08% | 0.00% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 0.58% | 2.69% | 0.00% |
| 16 | Aluminum Cans | 0.90% | 0.81% | 0.60% | 3.01% |
| 17 | Other Non-Ferrous | 0.36% | 0.17% | 0.56% | 2.72% |
| 18 | Glass Containers | 10.94% | 5.27% | 6.63% | 6.20% |
| 19 | Other Glass | 0.00% | 1.11% | 0.12% | 0.00% |
| 20 | Textiles | 2.30% | 8.51% | 0.52% | 1.05% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.02% | 0.91% | 0.00% | 0.29% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% |
| 24 | Wood Waste | 2.15% | 0.00% | 0.00% | 0.11% |
| 25 | C&D Debris | 0.00% | 0.00% | 0.00% | 0.00% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.71% | 0.00% |
| 27 | Yard Waste | 1.53% | 0.16% | 0.00% | 0.00% |
| 28 | Food Waste | 15.03% | 10.96% | 4.26% | 13.00% |
| 29 | All Other Garbage | 17.02% | 8.92% | 11.79% | 11.09% |
| 30 | Grit | 0.00% | 0.00% | 1.00% | 13.87% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% |

## Table G-2: Winter 2011 Individual Sample Results, Multi-Family Residential (continued)

| | Hauler/Location | Waste Management | Waste Services | |
|---|---|---|---|---|
| | **Material Categories sample #** | **38** | **50** | **Weighted Average** |
| 1 | Newspaper | 5.27% | 5.33% | **7.57%** |
| 2 | Corrugated Containers | 0.16% | 6.09% | **4.97%** |
| 3 | Office Paper | 7.68% | 7.21% | **4.77%** |
| 4 | Other Recyclable Paper | 8.45% | 5.09% | **7.08%** |
| 5 | Other Non-Recyclable Paper | 12.96% | 17.42% | **11.76%** |
| 6 | Aseptic Containers | 0.47% | 0.18% | **0.30%** |
| 7 | PET Containers | 6.06% | 1.30% | **3.05%** |
| 8 | HDPE Containers | 2.28% | 0.47% | **2.68%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.38% | **0.88%** |
| 10 | Non-Rigid Plastic Film | 7.30% | 7.54% | **8.46%** |
| 11 | Styrofoam | 0.99% | 0.55% | **0.99%** |
| 12 | All Other Plastics | 8.03% | 6.57% | **4.49%** |
| 13 | Tin/Steel Cans | 1.68% | 1.96% | **1.45%** |
| 14 | White Goods | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 0.17% | 0.00% | **0.42%** |
| 16 | Aluminum Cans | 1.41% | 0.31% | **1.10%** |
| 17 | Other Non-Ferrous | 0.35% | 0.16% | **0.67%** |
| 18 | Glass Containers | 12.13% | 4.53% | **7.04%** |
| 19 | Other Glass | 0.55% | 0.19% | **0.34%** |
| 20 | Textiles | 2.56% | 4.49% | **3.72%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | **0.00%** |
| 22 | Electronics | 0.00% | 0.69% | **0.41%** |
| 23 | Household Batteries | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.00% | 0.00% | **0.34%** |
| 25 | C&D Debris | 0.11% | 0.34% | **0.10%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | **0.08%** |
| 27 | Yard Waste | 0.21% | 11.69% | **3.42%** |
| 28 | Food Waste | 11.91% | 6.88% | **10.22%** |
| 29 | All Other Garbage | 9.27% | 4.11% | **9.56%** |
| 30 | Grit | 0.00% | 6.51% | **4.12%** |
| | TOTALS | 100.00% | 100.00% | **100.00%** |

# Appendix H:
# Individual Sample Results, Commercial Sector

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## Table H-1: Summer 2010 Individual Sample Results, Commercial Sector (% by weight)

| | Hauler/Location | Waste Management | Zephyrhills | Zephyrhills | Waste Management | Waste Management | Zephyrhills | Waste Services |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **1** | **2** | **3** | **9** | **11** | **12** | **19** |
| 1 | Newspaper | 0.75% | 2.89% | 3.93% | 10.91% | 4.54% | 7.03% | 2.12% |
| 2 | Corrugated Containers | 6.70% | 8.97% | 27.37% | 3.14% | 4.56% | 6.42% | 26.36% |
| 3 | Office Paper | 2.66% | 5.40% | 6.19% | 2.26% | 3.54% | 1.12% | 0.60% |
| 4 | Other Recyclable Paper | 6.97% | 5.43% | 2.64% | 5.84% | 5.16% | 6.02% | 2.71% |
| 5 | Other Non-Recyclable Paper | 8.09% | 21.39% | 7.98% | 15.83% | 10.78% | 12.26% | 19.45% |
| 6 | Aseptic Containers | 0.07% | 0.57% | 0.03% | 0.09% | 0.26% | 0.00% | 0.80% |
| 7 | PET Containers | 1.30% | 1.35% | 0.67% | 1.86% | 2.73% | 3.99% | 2.98% |
| 8 | HDPE Containers | 0.74% | 0.37% | 1.40% | 1.40% | 1.16% | 0.52% | 0.85% |
| 9 | Other Narrow-Neck Plastic Containers | 0.93% | 3.01% | 1.29% | 1.51% | 0.68% | 0.58% | 1.49% |
| 10 | Non-Rigid Plastic Film | 7.30% | 11.82% | 11.47% | 7.27% | 7.88% | 11.72% | 8.95% |
| 11 | Styrofoam | 0.71% | 2.12% | 0.29% | 1.48% | 1.15% | 2.20% | 1.09% |
| 12 | All Other Plastics | 3.20% | 0.00% | 3.15% | 0.73% | 2.70% | 6.00% | 2.09% |
| 13 | Tin/Steel Cans | 2.18% | 3.18% | 5.07% | 2.17% | 2.34% | 1.14% | 1.19% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 1.00% | 0.00% | 0.00% | 0.00% | 4.49% | 0.00% |
| 16 | Aluminum Cans | 0.68% | 0.28% | 0.15% | 0.81% | 0.57% | 1.12% | 0.71% |
| 17 | Other Non-Ferrous | 1.56% | 0.57% | 0.40% | 0.30% | 0.27% | 0.70% | 0.00% |
| 18 | Glass Containers | 2.26% | 0.92% | 0.22% | 4.10% | 2.87% | 2.17% | 3.58% |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 1.66% |
| 20 | Textiles | 3.30% | 2.71% | 1.23% | 0.53% | 9.47% | 6.59% | 4.48% |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 5.04% | 0.00% | 0.13% | 0.00% |
| 22 | Electronics | 0.00% | 0.00% | 0.00% | 1.85% | 0.00% | 2.04% | 0.85% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.23% | 0.03% | 0.00% | 0.05% |
| 24 | Wood Waste | 4.41% | 0.00% | 0.00% | 0.00% | 11.40% | 0.52% | 0.29% |
| 25 | C&D Debris | -0.69% | 6.96% | 1.25% | 2.29% | 4.91% | 0.13% | 0.00% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.22% | 6.11% | 0.00% | 0.14% | 0.00% |
| 27 | Yard Waste | 2.22% | 0.02% | 2.36% | 9.06% | 9.95% | 0.84% | 0.33% |
| 28 | Food Waste | 40.09% | 11.68% | 9.08% | 11.55% | 2.99% | 11.78% | 8.03% |
| 29 | All Other Garbage | 4.17% | 4.93% | 13.62% | 2.96% | 5.88% | 10.20% | 5.19% |
| 30 | Grit | 0.40% | 4.44% | 0.00% | 0.67% | 4.17% | 0.19% | 4.14% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 9 – C&D Debris = carpet

## Table H-1: Summer 2010 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Central Carting | Waste Services | Waste Services | Zephyrhills | Zephyrhills | Waste Services | Waste Services |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **21** | **22** | **27** | **30** | **31** | **34** | **35** |
| 1 | Newspaper | 5.10% | 21.25% | 2.80% | 2.11% | 1.22% | 3.32% | 0.56% |
| 2 | Corrugated Containers | 1.40% | 8.01% | 5.99% | 7.07% | 8.42% | 15.38% | 7.57% |
| 3 | Office Paper | 0.00% | 15.85% | 3.38% | 1.16% | 2.55% | 3.45% | 0.00% |
| 4 | Other Recyclable Paper | 4.43% | 2.95% | 4.83% | 3.60% | 6.08% | 1.87% | 2.66% |
| 5 | Other Non-Recyclable Paper | 15.34% | 14.55% | 8.53% | 19.33% | 38.50% | 24.04% | 32.12% |
| 6 | Aseptic Containers | 0.12% | 0.46% | 0.45% | 0.00% | 0.17% | 0.26% | 0.04% |
| 7 | PET Containers | 2.84% | 2.04% | 4.11% | 4.38% | 2.46% | 2.21% | 1.67% |
| 8 | HDPE Containers | 3.85% | 0.61% | 3.32% | 0.67% | 1.48% | 2.25% | 0.81% |
| 9 | Other Narrow-Neck Plastic Containers | 0.28% | 0.21% | 0.87% | 0.58% | 0.00% | 0.17% | 0.40% |
| 10 | Non-Rigid Plastic Film | 5.34% | 12.25% | 9.65% | 8.66% | 11.09% | 10.88% | 13.95% |
| 11 | Styrofoam | 0.99% | 0.99% | 0.27% | 1.53% | 2.08% | 0.85% | 2.16% |
| 12 | All Other Plastics | 1.60% | 0.61% | 2.11% | 0.17% | 1.96% | 2.86% | 1.46% |
| 13 | Tin/Steel Cans | 1.65% | 1.97% | 1.80% | 0.99% | 1.16% | 0.30% | 0.69% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 1.37% | 0.00% | 0.00% | 1.90% | 0.00% | 9.33% | 0.00% |
| 16 | Aluminum Cans | 0.22% | 0.33% | 1.48% | 0.36% | 0.68% | 0.25% | 1.06% |
| 17 | Other Non-Ferrous | 0.00% | 0.00% | 0.00% | 0.50% | 0.00% | 0.01% | 0.06% |
| 18 | Glass Containers | 1.19% | 1.77% | 3.16% | 2.74% | 1.14% | 2.04% | 0.12% |
| 19 | Other Glass | 0.00% | 0.00% | 0.22% | 0.14% | 0.00% | 0.00% | 0.00% |
| 20 | Textiles | 13.11% | 0.47% | 9.56% | 0.29% | 0.42% | 3.17% | 6.35% |
| 21 | Household Hazardous Waste | 0.00% | 0.04% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 15.66% | 0.00% | 0.00% | 3.54% | 0.00% | 0.00% | 0.00% |
| 23 | Household Batteries | 5.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 24 | Wood Waste | 3.44% | 0.65% | 0.39% | 0.76% | 0.00% | 0.39% | 3.07% |
| 25 | C&D Debris | 0.00% | 0.21% | 0.00% | 2.61% | 0.44% | 0.00% | 1.13% |
| 26 | Tires and Rubber | 0.44% | 0.00% | 1.74% | 0.00% | 0.41% | 0.00% | 0.00% |
| 27 | Yard Waste | 0.67% | 0.22% | 13.72% | 5.28% | 0.00% | 0.23% | 0.00% |
| 28 | Food Waste | 1.90% | 7.37% | 18.24% | 26.21% | 12.69% | 12.36% | 16.28% |
| 29 | All Other Garbage | 13.21% | 7.20% | 3.39% | 4.02% | 7.05% | 4.38% | 4.46% |
| 30 | Grit | 0.00% | 0.00% | 0.00% | 1.40% | 0.00% | 0.00% | 3.37% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 22 – Newspaper = lots of baled “Suncoast News” newspapers.

## Table H-1: Summer 2010 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Seaside Sanitation | Waste Services | Waste Services | Seaside Sanitation | Waste Services | Waste Services | Waste Services |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **36** | **37** | **43** | **45** | **49** | **50** | **51** |
| 1 | Newspaper | 1.14% | 1.08% | 8.42% | 2.68% | 4.16% | 5.26% | 2.35% |
| 2 | Corrugated Containers | 4.60% | 3.72% | 16.67% | 3.43% | 3.71% | 4.21% | 2.39% |
| 3 | Office Paper | 5.88% | 24.19% | 4.07% | 1.26% | 9.44% | 0.00% | 2.04% |
| 4 | Other Recyclable Paper | 5.87% | 6.95% | 4.22% | 3.55% | 4.85% | 4.17% | 4.43% |
| 5 | Other Non-Recyclable Paper | 20.15% | 18.20% | 12.63% | 11.83% | 15.95% | 14.83% | 11.54% |
| 6 | Aseptic Containers | 3.50% | 0.35% | 0.11% | 0.17% | 0.07% | 1.78% | 0.32% |
| 7 | PET Containers | 4.33% | 2.48% | 2.49% | 0.96% | 1.58% | 3.07% | 4.03% |
| 8 | HDPE Containers | 0.33% | 1.12% | 1.80% | 2.16% | 0.84% | 1.14% | 0.00% |
| 9 | Other Narrow-Neck Plastic Containers | 0.21% | 0.45% | 0.36% | 0.00% | 0.38% | 0.24% | 1.07% |
| 10 | Non-Rigid Plastic Film | 5.13% | 7.51% | 12.51% | 7.05% | 12.21% | 10.97% | 9.47% |
| 11 | Styrofoam | 3.73% | 1.38% | 1.23% | 0.49% | 0.57% | 0.35% | 0.99% |
| 12 | All Other Plastics | 0.35% | 3.11% | 3.13% | 14.72% | 0.95% | 3.91% | 0.89% |
| 13 | Tin/Steel Cans | 0.65% | 0.92% | 0.59% | 2.37% | 3.59% | 1.39% | 2.08% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 2.35% | 0.00% | 2.21% | 0.00% | 0.11% | 0.00% |
| 16 | Aluminum Cans | 0.68% | 0.18% | 1.89% | 1.16% | 0.76% | 0.34% | 0.86% |
| 17 | Other Non-Ferrous | 0.30% | 0.71% | 0.18% | 0.00% | 0.00% | 0.04% | 0.20% |
| 18 | Glass Containers | 7.21% | 0.00% | 1.82% | 10.04% | 4.07% | 1.31% | 2.77% |
| 19 | Other Glass | 1.13% | 0.00% | 0.35% | 1.95% | 0.00% | 0.00% | 0.31% |
| 20 | Textiles | 3.41% | 2.14% | 3.90% | 2.18% | 4.10% | 17.03% | 0.11% |
| 21 | Household Hazardous Waste | 0.48% | 0.52% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.00% | 0.92% | 2.70% | 0.00% | 0.00% | 1.50% | 16.15% |
| 23 | Household Batteries | 4.43% | 0.26% | 0.14% | 0.00% | 0.00% | 0.00% | 0.00% |
| 24 | Wood Waste | 4.00% | 0.00% | 4.06% | 10.06% | 0.00% | 8.10% | 13.08% |
| 25 | C&D Debris | 0.00% | 1.45% | 0.67% | 0.54% | 3.75% | 3.61% | 0.26% |
| 26 | Tires and Rubber | 0.00% | 0.21% | 0.98% | 0.81% | 0.00% | 0.00% | 0.09% |
| 27 | Yard Waste | 0.00% | 6.61% | 6.80% | 9.80% | 17.73% | 5.10% | 10.63% |
| 28 | Food Waste | 19.29% | 5.44% | 7.41% | 7.31% | 6.02% | 4.67% | 6.75% |
| 29 | All Other Garbage | 3.21% | 6.46% | 0.33% | 3.29% | 5.28% | 4.75% | 5.56% |
| 30 | Grit | 0.00% | 1.31% | 0.52% | 0.00% | 0.00% | 2.14% | 1.62% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 37 – HHW = used medical tubing; 51 – Electronics = computer monitor

## Table H-1: Summer 2010 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Waste Services | Waste Management | Waste Services | Waste Services | Seaside Sanitation | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **53** | **54** | **55** | **57** | **59** | **Weighted Avg.** |
| 1 | Newspaper | 3.17% | 0.88% | 0.46% | 1.24% | 2.85% | **3.80%** |
| 2 | Corrugated Containers | 12.52% | 8.29% | 8.60% | 4.43% | 3.04% | **8.82%** |
| 3 | Office Paper | 2.33% | 12.20% | 12.76% | 6.72% | 7.69% | **5.29%** |
| 4 | Other Recyclable Paper | 3.43% | 4.56% | 2.58% | 5.10% | 8.54% | **4.47%** |
| 5 | Other Non-Recyclable Paper | 14.00% | 9.43% | 17.37% | 16.27% | 13.15% | **16.87%** |
| 6 | Aseptic Containers | 0.76% | 0.05% | 3.74% | 0.59% | 0.07% | **0.61%** |
| 7 | PET Containers | 4.86% | 2.44% | 2.05% | 0.33% | 1.38% | **2.47%** |
| 8 | HDPE Containers | 0.48% | 2.61% | 1.02% | 0.26% | 0.84% | **1.26%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.72% | 0.46% | 0.00% | 0.00% | 0.06% | **0.62%** |
| 10 | Non-Rigid Plastic Film | 5.63% | 10.21% | 14.88% | 21.31% | 7.22% | **10.25%** |
| 11 | Styrofoam | 1.11% | 0.60% | 3.78% | 0.49% | 1.39% | **1.35%** |
| 12 | All Other Plastics | 2.67% | 5.35% | 1.09% | 0.54% | 15.23% | **2.75%** |
| 13 | Tin/Steel Cans | 0.37% | 1.76% | 0.65% | 0.22% | 2.08% | **1.56%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 2.36% | 0.22% | 0.00% | 0.00% | 2.12% | **1.03%** |
| 16 | Aluminum Cans | 0.31% | 0.79% | 0.64% | 0.17% | 0.35% | **0.64%** |
| 17 | Other Non-Ferrous | 0.09% | 0.22% | 0.23% | 1.61% | 0.24% | **0.33%** |
| 18 | Glass Containers | 1.24% | 2.38% | 0.00% | 0.39% | 2.30% | **2.25%** |
| 19 | Other Glass | 0.00% | 0.55% | 0.00% | 0.00% | 0.91% | **0.26%** |
| 20 | Textiles | 0.18% | 4.95% | 0.78% | 0.00% | 2.74% | **3.72%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.44% | 0.00% | **0.27%** |
| 22 | Electronics | 14.54% | 2.53% | 4.00% | 0.00% | 0.00% | **2.46%** |
| 23 | Household Batteries | 0.00% | 0.01% | 0.00% | 0.00% | 0.00% | **0.46%** |
| 24 | Wood Waste | 12.83% | 0.95% | 0.62% | 0.00% | 0.00% | **2.84%** |
| 25 | C&D Debris | 9.03% | 8.95% | 0.00% | 0.12% | 0.00% | **1.68%** |
| 26 | Tires and Rubber | 0.12% | 0.00% | 0.00% | 0.00% | 0.00% | **0.46%** |
| 27 | Yard Waste | 0.53% | 0.55% | 0.62% | 1.85% | 0.00% | **3.69%** |
| 28 | Food Waste | 4.26% | 11.37% | 13.38% | 21.91% | 23.09% | **12.53%** |
| 29 | All Other Garbage | 0.50% | 6.34% | 6.87% | 11.42% | 4.05% | **5.82%** |
| 30 | Grit | 1.96% | 1.35% | 3.88% | 4.59% | 0.65% | **1.45%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 53 – Electronics = computer monitor, C&D Debris = drywall

## Table H-2: Winter 2011 Individual Sample Results, Commercial Sector (% by weight)

| | Hauler/Location | Waste Management | Zephyrhills | Zephyrhills | Waste Management | Waste Management | Waste Services | Waste Management |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **3** | **4** | **6** | **9** | **10** | **11** | **12** |
| 1 | Newspaper | 0.75% | 7.84% | 1.00% | 2.71% | 4.42% | 10.15% | 3.19% |
| 2 | Corrugated Containers | 0.91% | 7.69% | 1.07% | 0.65% | 10.58% | 3.50% | 11.74% |
| 3 | Office Paper | 0.36% | 2.73% | 4.12% | 1.91% | 0.63% | 4.46% | 0.80% |
| 4 | Other Recyclable Paper | 2.67% | 2.50% | 1.79% | 3.61% | 1.60% | 4.38% | 1.76% |
| 5 | Other Non-Recyclable Paper | 8.56% | 10.80% | 9.59% | 13.17% | 7.44% | 19.01% | 13.54% |
| 6 | Aseptic Containers | 0.00% | 0.47% | 0.18% | 0.20% | 0.10% | 0.17% | 0.08% |
| 7 | PET Containers | 0.28% | 1.48% | 2.26% | 1.67% | 2.98% | 2.26% | 1.48% |
| 8 | HDPE Containers | 1.31% | 1.37% | 1.70% | 2.06% | 0.54% | 2.89% | 1.63% |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.08% | 0.00% | 0.77% | 0.17% | 0.19% | 0.00% |
| 10 | Non-Rigid Plastic Film | 11.93% | 15.03% | 9.25% | 8.16% | 6.63% | 9.21% | 5.06% |
| 11 | Styrofoam | 1.62% | 0.63% | 1.50% | 1.39% | 1.72% | 0.70% | 2.17% |
| 12 | All Other Plastics | 4.45% | 3.02% | 6.07% | 3.40% | 3.16% | 4.91% | 3.67% |
| 13 | Tin/Steel Cans | 1.11% | 0.49% | 4.98% | 1.74% | 0.27% | 2.17% | 2.52% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.31% | 0.00% | 1.77% | 0.00% | 1.62% |
| 16 | Aluminum Cans | 0.10% | 0.48% | 0.85% | 0.49% | 0.98% | 0.43% | 0.34% |
| 17 | Other Non-Ferrous | 0.37% | 0.16% | 0.00% | 0.33% | 0.41% | 0.12% | 0.12% |
| 18 | Glass Containers | 0.34% | 0.66% | 0.46% | 6.11% | 3.97% | 9.41% | 1.92% |
| 19 | Other Glass | 0.00% | 0.00% | 1.60% | 0.06% | 0.36% | 0.00% | 0.00% |
| 20 | Textiles | 0.00% | 9.84% | 0.82% | 0.75% | 2.40% | 0.33% | 7.71% |
| 21 | Household Hazardous Waste | 0.00% | 1.20% | 0.00% | 0.00% | 1.12% | 0.02% | 0.00% |
| 22 | Electronics | 0.00% | 0.05% | 0.00% | 0.24% | 15.85% | 0.65% | 0.24% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.06% | 0.00% | 0.00% |
| 24 | Wood Waste | 0.00% | 0.00% | 0.31% | 0.07% | 4.61% | 1.42% | 2.93% |
| 25 | C&D Debris | 0.00% | 2.04% | 2.53% | 16.64% | 0.44% | 1.68% | 16.00% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.51% | 0.00% | 0.00% | 0.00% | 0.15% |
| 27 | Yard Waste | 0.21% | 0.00% | 33.04% | 0.00% | 19.53% | 7.55% | 2.05% |
| 28 | Food Waste | 59.93% | 7.77% | 9.61% | 32.79% | 3.52% | 6.45% | 7.18% |
| 29 | All Other Garbage | 5.09% | 23.67% | 6.45% | 1.08% | 4.58% | 5.46% | 5.18% |
| 30 | Grit | 0.00% | 0.00% | 0.00% | 0.00% | 0.15% | 2.49% | 6.92% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 10 – Electronics = TV and unknown electronic parts

## Table H-2: Winter 2011 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Waste Services | Waste Services | Zephyrhills | Seaside Sanitation | Waste Services | Waste Services | Waste Services |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **13** | **15** | **17** | **21** | **22** | **23** | **24** |
| 1 | Newspaper | 2.70% | 6.92% | 1.14% | 0.66% | 1.47% | 1.15% | 2.49% |
| 2 | Corrugated Containers | 22.61% | 13.48% | 9.44% | 12.32% | 1.04% | 3.30% | 6.48% |
| 3 | Office Paper | 2.10% | 3.12% | 4.58% | 10.62% | 3.02% | 1.27% | 0.00% |
| 4 | Other Recyclable Paper | 2.75% | 3.71% | 3.74% | 0.92% | 2.67% | 3.26% | 8.81% |
| 5 | Other Non-Recyclable Paper | 8.99% | 7.26% | 8.01% | 13.86% | 6.58% | 6.98% | 16.86% |
| 6 | Aseptic Containers | 0.09% | 0.07% | 0.00% | 0.02% | 9.25% | 0.00% | 0.08% |
| 7 | PET Containers | 1.77% | 1.39% | 0.49% | 2.40% | 1.03% | 3.38% | 0.96% |
| 8 | HDPE Containers | 0.26% | 2.23% | 0.36% | 0.85% | 0.35% | 0.93% | 0.45% |
| 9 | Other Narrow-Neck Plastic Containers | 0.20% | 0.08% | 0.00% | 0.00% | 0.17% | 3.68% | 0.00% |
| 10 | Non-Rigid Plastic Film | 4.32% | 9.56% | 14.64% | 5.09% | 4.24% | 5.62% | 4.62% |
| 11 | Styrofoam | 4.61% | 1.44% | 3.78% | 2.67% | 4.12% | 0.73% | 0.53% |
| 12 | All Other Plastics | 2.82% | 5.83% | 7.80% | 10.55% | 12.06% | 2.04% | 14.54% |
| 13 | Tin/Steel Cans | 0.61% | 3.19% | 1.24% | 1.57% | 0.05% | 1.51% | 1.25% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 1.19% | 0.00% | 0.00% | 0.00% | 0.16% | 0.00% |
| 16 | Aluminum Cans | 0.38% | 1.48% | 0.50% | 0.95% | 0.09% | 2.47% | 0.84% |
| 17 | Other Non-Ferrous | 0.30% | 0.90% | 1.16% | 0.00% | 0.16% | 0.21% | 0.77% |
| 18 | Glass Containers | 1.03% | 1.75% | 0.90% | 3.21% | 0.24% | 4.82% | 1.06% |
| 19 | Other Glass | 0.00% | 0.96% | 0.00% | 0.00% | 0.00% | 0.04% | 0.00% |
| 20 | Textiles | 0.00% | 1.42% | 3.01% | 0.59% | 2.69% | 3.75% | 0.60% |
| 21 | Household Hazardous Waste | 0.00% | 1.41% | 0.00% | 1.43% | 0.00% | 1.64% | 0.00% |
| 22 | Electronics | 4.99% | 1.05% | 0.30% | 0.63% | 0.00% | 3.54% | 0.00% |
| 23 | Household Batteries | 0.00% | 0.09% | 0.25% | 0.00% | 0.00% | 0.19% | 0.00% |
| 24 | Wood Waste | 17.95% | 1.12% | 0.32% | 1.46% | 0.19% | 17.41% | 0.00% |
| 25 | C&D Debris | 0.79% | 2.06% | 0.44% | 0.00% | 30.94% | 14.61% | 1.12% |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.15% | 0.00% | 0.00% |
| 27 | Yard Waste | 7.29% | 0.00% | 0.00% | 10.66% | 5.23% | 7.68% | 0.00% |
| 28 | Food Waste | 7.00% | 16.59% | 27.16% | 9.01% | 7.76% | 8.39% | 25.28% |
| 29 | All Other Garbage | 4.38% | 11.70% | 8.52% | 3.15% | 2.17% | 1.24% | 13.27% |
| 30 | Grit | 2.06% | 0.00% | 2.22% | 7.40% | 4.32% | 0.00% | 0.00% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 22 – C&D Debris = tile, wood, buckets; 23 – Electronics = rechargeable batteries

## Table H-2: Winter 2011 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Waste Services | Central Carting | Central Carting | Zephyrhills | Zephyrhills | Seaside Sanitation | Waste Services |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **26** | **29** | **35** | **36** | **37** | **43** | **44** |
| 1 | Newspaper | 0.84% | 1.78% | 4.60% | 1.43% | 0.56% | 1.19% | 0.26% |
| 2 | Corrugated Containers | 2.91% | 1.82% | 2.06% | 7.68% | 1.43% | 0.94% | 8.19% |
| 3 | Office Paper | 1.27% | 0.42% | 2.61% | 4.50% | 3.69% | 13.58% | 5.79% |
| 4 | Other Recyclable Paper | 0.07% | 3.41% | 7.18% | 5.50% | 0.00% | 4.41% | 10.60% |
| 5 | Other Non-Recyclable Paper | 15.18% | 0.70% | 8.64% | 14.19% | 17.31% | 9.23% | 12.78% |
| 6 | Aseptic Containers | 2.96% | 0.22% | 0.28% | 2.24% | 4.61% | 0.25% | 1.66% |
| 7 | PET Containers | 3.37% | 0.47% | 1.69% | 4.47% | 4.74% | 2.32% | 3.01% |
| 8 | HDPE Containers | 0.95% | 0.42% | 1.57% | 0.83% | 0.62% | 1.20% | 1.06% |
| 9 | Other Narrow-Neck Plastic Containers | 0.00% | 0.00% | 0.21% | 0.15% | 0.00% | 0.00% | 0.55% |
| 10 | Non-Rigid Plastic Film | 6.05% | 3.63% | 9.23% | 9.94% | 9.70% | 3.75% | 11.41% |
| 11 | Styrofoam | 1.46% | 1.06% | 1.32% | 0.82% | 3.46% | 0.49% | 2.22% |
| 12 | All Other Plastics | 16.35% | 4.81% | 6.00% | 6.73% | 6.57% | 4.28% | 3.50% |
| 13 | Tin/Steel Cans | 2.76% | 0.00% | 1.50% | 1.81% | 2.71% | 2.32% | 1.82% |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.70% | 0.00% | 0.00% |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.43% | 1.04% | 0.56% | 1.88% | 0.00% |
| 16 | Aluminum Cans | 0.25% | 1.42% | 0.96% | 0.42% | 0.00% | 0.45% | 0.33% |
| 17 | Other Non-Ferrous | 0.46% | 0.55% | 0.95% | 0.50% | 4.46% | 0.61% | 1.06% |
| 18 | Glass Containers | 1.86% | 0.00% | 3.85% | 0.55% | 0.86% | 11.87% | 1.71% |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.00% | 0.31% | 0.22% | 1.55% |
| 20 | Textiles | 0.76% | 3.83% | 6.44% | 8.23% | 0.00% | 2.59% | 0.31% |
| 21 | Household Hazardous Waste | 0.33% | 0.00% | 0.67% | 0.00% | 0.00% | 0.00% | 0.00% |
| 22 | Electronics | 0.00% | 5.49% | 0.00% | 0.00% | 0.00% | 3.25% | 0.00% |
| 23 | Household Batteries | 0.00% | 0.00% | 0.04% | 0.02% | 0.00% | 0.07% | 0.00% |
| 24 | Wood Waste | 10.65% | 3.97% | 0.00% | 0.00% | 0.73% | 0.36% | 0.00% |
| 25 | C&D Debris | 4.49% | 16.38% | 5.15% | 0.45% | 0.00% | 0.87% | 0.00% |
| 26 | Tires and Rubber | 0.08% | 0.49% | 0.07% | 0.00% | 2.30% | 0.00% | 0.24% |
| 27 | Yard Waste | 7.32% | 47.72% | 6.84% | 8.05% | 3.77% | 18.72% | 1.26% |
| 28 | Food Waste | 13.79% | 0.00% | 17.13% | 16.12% | 19.32% | 9.32% | 25.23% |
| 29 | All Other Garbage | 5.84% | 1.43% | 6.89% | 3.38% | 9.32% | 5.83% | 3.33% |
| 30 | Grit | 0.00% | 0.00% | 3.70% | 0.96% | 2.26% | 0.00% | 2.15% |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Comments: Sample 35 – HHW = oil filter, C&D Debris = insulation

## Table H-2: Winter 2011 Individual Sample Results, Commercial Sector (continued)

| | Hauler/Location | Waste Services | Waste Services | Seaside Sanitation | Waste Services | Waste Services | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **48** | **51** | **52** | **53** | **56** | **Weighted Avg.** |
| 1 | Newspaper | 3.58% | 1.82% | 1.51% | 2.81% | 6.81% | **2.77%** |
| 2 | Corrugated Containers | 1.40% | 0.89% | 6.18% | 16.45% | 3.00% | **6.17%** |
| 3 | Office Paper | 5.35% | 8.00% | 5.29% | 4.62% | 4.08% | **4.12%** |
| 4 | Other Recyclable Paper | 3.63% | 5.29% | 5.64% | 3.95% | 11.19% | **4.27%** |
| 5 | Other Non-Recyclable Paper | 14.79% | 11.17% | 7.87% | 12.46% | 6.96% | **10.72%** |
| 6 | Aseptic Containers | 0.45% | 3.08% | 0.10% | 0.36% | 0.90% | **1.00%** |
| 7 | PET Containers | 1.67% | 5.10% | 1.67% | 2.70% | 2.76% | **2.17%** |
| 8 | HDPE Containers | 2.10% | 1.89% | 1.29% | 1.54% | 0.48% | **1.20%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.11% | 0.51% | 0.09% | 0.15% | 0.00% | **0.30%** |
| 10 | Non-Rigid Plastic Film | 15.15% | 11.97% | 3.59% | 6.34% | 11.69% | **8.43%** |
| 11 | Styrofoam | 0.51% | 1.92% | 0.53% | 0.96% | 0.53% | **1.61%** |
| 12 | All Other Plastics | 6.01% | 8.69% | 5.49% | 4.36% | 9.37% | **6.02%** |
| 13 | Tin/Steel Cans | 1.26% | 1.40% | 1.46% | 1.64% | 4.48% | **1.74%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.02%** |
| 15 | Other Ferrous | 0.16% | 0.12% | 6.15% | 0.12% | 4.77% | **0.79%** |
| 16 | Aluminum Cans | 0.72% | 0.35% | 0.45% | 0.94% | 0.19% | **0.68%** |
| 17 | Other Non-Ferrous | 0.45% | 0.84% | 0.21% | 0.34% | 1.20% | **0.63%** |
| 18 | Glass Containers | 12.43% | 6.83% | 5.85% | 5.24% | 2.29% | **3.59%** |
| 19 | Other Glass | 0.31% | 0.00% | 0.00% | 3.13% | 0.32% | **0.39%** |
| 20 | Textiles | 0.55% | 4.10% | 12.17% | 1.07% | 1.91% | **3.18%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.31%** |
| 22 | Electronics | 1.85% | 0.00% | 0.00% | 0.00% | 1.11% | **1.35%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.04% | 0.08% | 0.00% | **0.03%** |
| 24 | Wood Waste | 4.05% | 4.68% | 1.04% | 0.00% | 0.26% | **2.46%** |
| 25 | C&D Debris | 0.20% | 1.57% | 2.00% | 0.47% | 4.75% | **4.88%** |
| 26 | Tires and Rubber | 2.87% | 0.56% | 0.08% | 0.00% | 0.00% | **0.32%** |
| 27 | Yard Waste | 0.00% | 0.64% | 19.26% | 14.41% | 4.43% | **8.70%** |
| 28 | Food Waste | 5.28% | 11.96% | 5.50% | 5.32% | 11.09% | **13.61%** |
| 29 | All Other Garbage | 14.22% | 4.31% | 3.78% | 10.54% | 5.45% | **6.97%** |
| 30 | Grit | 0.90% | 2.30% | 2.77% | 0.00% | 0.00% | **1.57%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 52 – Other Ferrous = motor and shelving

# Appendix I:
# Individual Sample Results,
# City of Zephyrhills Commercial Sector

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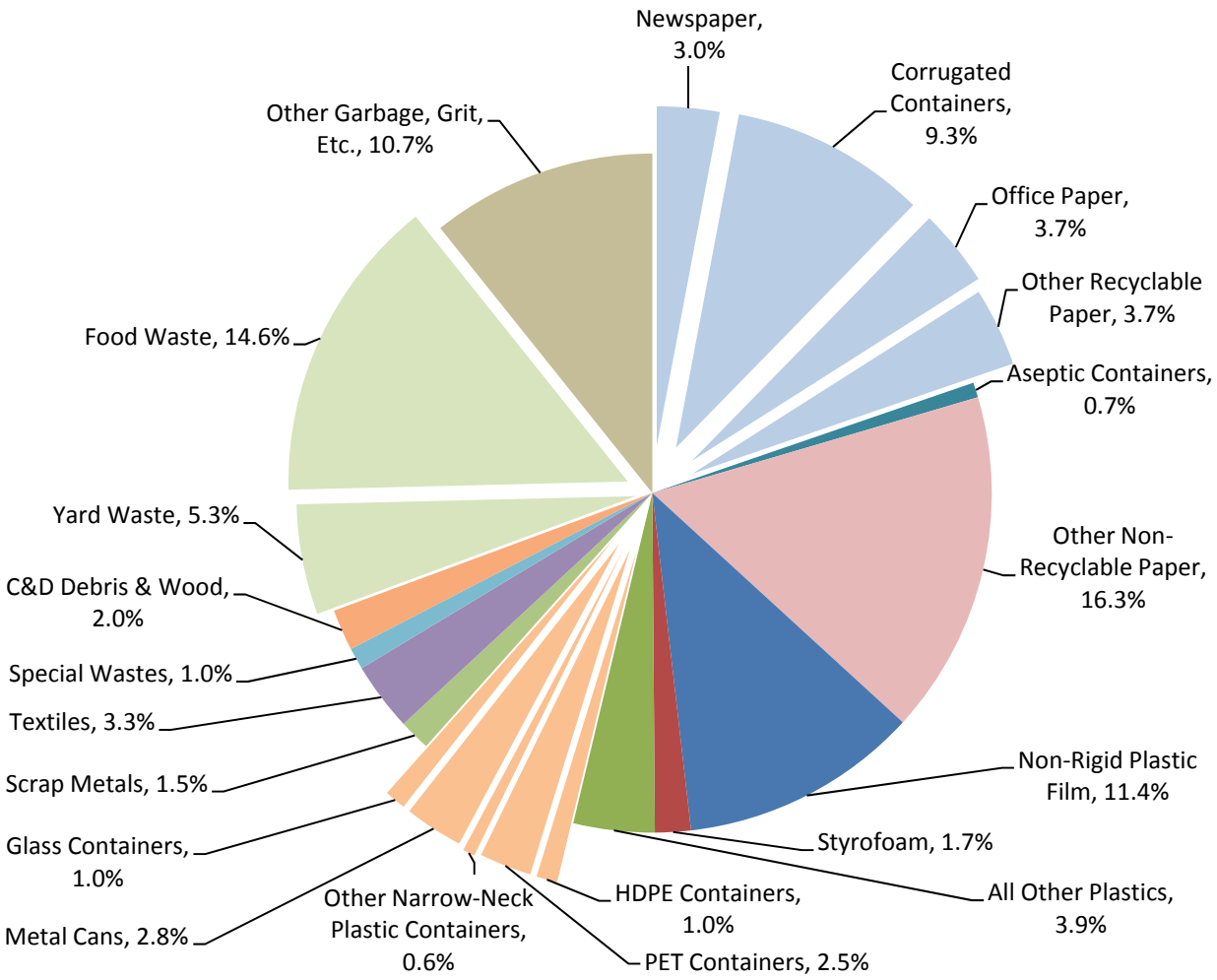
## Figure I-1: Composition of Commercial Waste within the City of Zephyrhills Disposed at RRF (% by weight)




Note: For the purpose of this chart, Special Wastes includes the categories of Household Hazardous Waste, Electronics, Household Batteries, and Tires and Rubber; Metal Cans includes the categories of Aluminum and Tin/Steel Cans; Scrap Metals includes the categories of Ferrous and Non-Ferrous Metals; and Other Garbage, Grit, Etc. includes the categories of All Other Garbage, Grit, and Other Glass.

## Table I-1: City of Zephyrhills Commercial Sector Study Results with 90 Percent Confidence Intervals (% by weight)

| | | Summer Event | | | Winter Event | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 90% Confidence Interval | | | 90% Confidence Interval | | | 90% Confidence Interval | |
| | Material Category | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds | Weighted Average | Lower Bounds | Upper Bounds |
| 1 | Newspaper | **3.1%** | 1.0% | 5.3% | **2.8%** | -0.1% | 5.7% | **3.0%** | 1.5% | 4.5% |
| 2 | Corrugated Containers | **12.7%** | 4.3% | 21.1% | **5.6%** | 1.9% | 9.4% | **9.3%** | 5.2% | 13.5% |
| 3 | Office Paper | **3.5%** | 1.2% | 5.8% | **3.9%** | 3.1% | 4.6% | **3.7%** | 2.7% | 4.7% |
| 4 | Other Recyclable Paper | **4.6%** | 3.1% | 6.1% | **2.8%** | 0.8% | 4.8% | **3.7%** | 2.6% | 4.9% |
| 5 | Other Non-Recyclable Paper | **20.5%** | 9.4% | 31.7% | **11.7%** | 8.2% | 15.3% | **16.3%** | 11.0% | 21.7% |
| 6 | Aseptic Containers | **0.1%** | -0.1% | 0.4% | **1.3%** | -0.5% | 3.2% | **0.7%** | -0.2% | 1.6% |
| 7 | PET Containers | **2.4%** | 0.9% | 3.9% | **2.6%** | 0.8% | 4.3% | **2.5%** | 1.5% | 3.4% |
| 8 | HDPE Containers | **1.0%** | 0.5% | 1.5% | **1.0%** | 0.5% | 1.6% | **1.0%** | 0.7% | 1.3% |
| 9 | Other Narrow-Neck Plastic Containers | **1.1%** | -0.1% | 2.2% | **0.1%** | 0.0% | 0.1% | **0.6%** | 0.0% | 1.1% |
| 10 | Non-Rigid Plastic Film | **10.9%** | 9.7% | 12.2% | **11.9%** | 9.2% | 14.6% | **11.4%** | 10.1% | 12.6% |
| 11 | Styrofoam | **1.5%** | 0.8% | 2.3% | **1.9%** | 0.4% | 3.3% | **1.7%** | 1.0% | 2.4% |
| 12 | All Other Plastics | **2.1%** | -0.3% | 4.4% | **5.8%** | 4.1% | 7.5% | **3.9%** | 2.2% | 5.5% |
| 13 | Tin/Steel Cans | **2.5%** | 0.8% | 4.2% | **2.2%** | 0.5% | 3.8% | **2.3%** | 1.4% | 3.3% |
| 14 | White Goods | **0.0%** | 0.0% | 0.0% | **0.1%** | -0.2% | 0.4% | **0.1%** | -0.1% | 0.2% |
| 15 | Other Ferrous | **1.2%** | -0.6% | 2.9% | **0.4%** | -0.1% | 0.8% | **0.8%** | 0.0% | 1.6% |
| 16 | Aluminum Cans | **0.5%** | 0.1% | 0.8% | **0.5%** | 0.2% | 0.8% | **0.5%** | 0.3% | 0.7% |
| 17 | Other Non-Ferrous | **0.4%** | 0.1% | 0.6% | **1.0%** | -0.7% | 2.8% | **0.7%** | -0.1% | 1.5% |
| 18 | Glass Containers | **1.3%** | 0.4% | 2.3% | **0.7%** | 0.5% | 0.9% | **1.0%** | 0.6% | 1.5% |
| 19 | Other Glass | **0.0%** | 0.0% | 0.1% | **0.4%** | -0.3% | 1.0% | **0.2%** | -0.1% | 0.5% |
| 20 | Textiles | **1.8%** | -0.7% | 4.3% | **4.9%** | 0.6% | 9.1% | **3.3%** | 1.2% | 5.4% |
| 21 | Household Hazardous Waste | **0.0%** | 0.0% | 0.1% | **0.3%** | -0.2% | 0.8% | **0.2%** | -0.1% | 0.4% |
| 22 | Electronics | **1.0%** | -0.6% | 2.5% | **0.1%** | -0.1% | 0.2% | **0.5%** | -0.2% | 1.2% |
| 23 | Household Batteries | **0.0%** | 0.0% | 0.0% | **0.0%** | -0.1% | 0.2% | **0.0%** | 0.0% | 0.1% |
| 24 | Wood Waste | **0.2%** | -0.1% | 0.6% | **0.2%** | -0.1% | 0.5% | **0.2%** | 0.0% | 0.4% |
| 25 | C&D Debris | **2.2%** | -0.5% | 4.9% | **1.2%** | 0.2% | 2.3% | **1.7%** | 0.5% | 2.9% |
| 26 | Tires and Rubber | **0.2%** | 0.0% | 0.3% | **0.5%** | -0.5% | 1.4% | **0.3%** | -0.1% | 0.7% |
| 27 | Yard Waste | **1.7%** | -0.4% | 3.9% | **9.1%** | -4.1% | 22.3% | **5.3%** | -0.6% | 11.1% |
| 28 | Food Waste | **14.2%** | 7.7% | 20.6% | **15.1%** | 7.7% | 22.6% | **14.6%** | 10.6% | 18.7% |
| 29 | All Other Garbage | **8.1%** | 4.4% | 11.9% | **11.0%** | 3.6% | 18.5% | **9.5%** | 6.1% | 13.0% |
| 30 | Grit | **1.1%** | -0.7% | 2.9% | **0.9%** | -0.1% | 2.0% | **1.0%** | 0.2% | 1.9% |
| | **TOTALS** | **100.0%** | | | **100.0%** | | | **100.0%** | | |

## Table I-2: Summer 2010 Individual Sample Results, City of Zephyrhills Commercial Sector (% by weight)

| | Hauler/Location | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **2** | **3** | **12** | **30** | **31** | **Weighted Avg.** |
| 1 | Newspaper | 2.89% | 3.93% | 7.03% | 2.11% | 1.22% | **3.14%** |
| 2 | Corrugated Containers | 8.97% | 27.37% | 6.42% | 7.07% | 8.42% | **12.71%** |
| 3 | Office Paper | 5.40% | 6.19% | 1.12% | 1.16% | 2.55% | **3.50%** |
| 4 | Other Recyclable Paper | 5.43% | 2.64% | 6.02% | 3.60% | 6.08% | **4.60%** |
| 5 | Other Non-Recyclable Paper | 21.39% | 7.98% | 12.26% | 19.33% | 38.50% | **20.53%** |
| 6 | Aseptic Containers | 0.57% | 0.03% | 0.00% | 0.00% | 0.17% | **0.15%** |
| 7 | PET Containers | 1.35% | 0.67% | 3.99% | 4.38% | 2.46% | **2.40%** |
| 8 | HDPE Containers | 0.37% | 1.40% | 0.52% | 0.67% | 1.48% | **0.97%** |
| 9 | Other Narrow-Neck Plastic Containers | 3.01% | 1.29% | 0.58% | 0.58% | 0.00% | **1.05%** |
| 10 | Non-Rigid Plastic Film | 11.82% | 11.47% | 11.72% | 8.66% | 11.09% | **10.92%** |
| 11 | Styrofoam | 2.12% | 0.29% | 2.20% | 1.53% | 2.08% | **1.55%** |
| 12 | All Other Plastics | 0.00% | 3.15% | 6.00% | 0.17% | 1.96% | **2.09%** |
| 13 | Tin/Steel Cans | 3.18% | 5.07% | 1.14% | 0.99% | 1.16% | **2.46%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 15 | Other Ferrous | 1.00% | 0.00% | 4.49% | 1.90% | 0.00% | **1.15%** |
| 16 | Aluminum Cans | 0.28% | 0.15% | 1.12% | 0.36% | 0.68% | **0.47%** |
| 17 | Other Non-Ferrous | 0.57% | 0.40% | 0.70% | 0.50% | 0.00% | **0.40%** |
| 18 | Glass Containers | 0.92% | 0.22% | 2.17% | 2.74% | 1.14% | **1.33%** |
| 19 | Other Glass | 0.00% | 0.00% | 0.00% | 0.14% | 0.00% | **0.03%** |
| 20 | Textiles | 2.71% | 1.23% | 6.59% | 0.29% | 0.42% | **1.83%** |
| 21 | Household Hazardous Waste | 0.00% | 0.00% | 0.13% | 0.00% | 0.00% | **0.02%** |
| 22 | Electronics | 0.00% | 0.00% | 2.04% | 3.54% | 0.00% | **0.97%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.00% | 0.00% | 0.52% | 0.76% | 0.00% | **0.22%** |
| 25 | C&D Debris | 6.96% | 1.25% | 0.13% | 2.61% | 0.44% | **2.20%** |
| 26 | Tires and Rubber | 0.00% | 0.22% | 0.14% | 0.00% | 0.41% | **0.17%** |
| 27 | Yard Waste | 0.02% | 2.36% | 0.84% | 5.28% | 0.00% | **1.75%** |
| 28 | Food Waste | 11.68% | 9.08% | 11.78% | 26.21% | 12.69% | **14.17%** |
| 29 | All Other Garbage | 4.93% | 13.62% | 10.20% | 4.02% | 7.05% | **8.13%** |
| 30 | Grit | 4.44% | 0.00% | 0.19% | 1.40% | 0.00% | **1.10%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table I-3: Winter 2011 Individual Sample Results, City of Zephyrhills Commercial Sector (% by weight)

| | Hauler/Location | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | Zephyrhills | |
|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **4** | **6** | **17** | **36** | **37** | **Weighted Avg.** |
| 1 | Newspaper | 7.84% | 1.00% | 1.14% | 1.43% | 0.56% | **2.79%** |
| 2 | Corrugated Containers | 7.69% | 1.07% | 9.44% | 7.68% | 1.43% | **5.64%** |
| 3 | Office Paper | 2.73% | 4.12% | 4.58% | 4.50% | 3.69% | **3.86%** |
| 4 | Other Recyclable Paper | 2.50% | 1.79% | 3.74% | 5.50% | 0.00% | **2.78%** |
| 5 | Other Non-Recyclable Paper | 10.80% | 9.59% | 8.01% | 14.19% | 17.31% | **11.74%** |
| 6 | Aseptic Containers | 0.47% | 0.18% | 0.00% | 2.24% | 4.61% | **1.32%** |
| 7 | PET Containers | 1.48% | 2.26% | 0.49% | 4.47% | 4.74% | **2.57%** |
| 8 | HDPE Containers | 1.37% | 1.70% | 0.36% | 0.83% | 0.62% | **1.03%** |
| 9 | Other Narrow-Neck Plastic Containers | 0.08% | 0.00% | 0.00% | 0.15% | 0.00% | **0.05%** |
| 10 | Non-Rigid Plastic Film | 15.03% | 9.25% | 14.64% | 9.94% | 9.70% | **11.90%** |
| 11 | Styrofoam | 0.63% | 1.50% | 3.78% | 0.82% | 3.46% | **1.86%** |
| 12 | All Other Plastics | 3.02% | 6.07% | 7.80% | 6.73% | 6.57% | **5.82%** |
| 13 | Tin/Steel Cans | 0.49% | 4.98% | 1.24% | 1.81% | 2.71% | **2.17%** |
| 14 | White Goods | 0.00% | 0.00% | 0.00% | 0.00% | 0.70% | **0.11%** |
| 15 | Other Ferrous | 0.00% | 0.31% | 0.00% | 1.04% | 0.56% | **0.36%** |
| 16 | Aluminum Cans | 0.48% | 0.85% | 0.50% | 0.42% | 0.00% | **0.47%** |
| 17 | Other Non-Ferrous | 0.16% | 0.00% | 1.16% | 0.50% | 4.46% | **1.04%** |
| 18 | Glass Containers | 0.66% | 0.46% | 0.90% | 0.55% | 0.86% | **0.67%** |
| 19 | Other Glass | 0.00% | 1.60% | 0.00% | 0.00% | 0.31% | **0.38%** |
| 20 | Textiles | 9.84% | 0.82% | 3.01% | 8.23% | 0.00% | **4.86%** |
| 21 | Household Hazardous Waste | 1.20% | 0.00% | 0.00% | 0.00% | 0.00% | **0.31%** |
| 22 | Electronics | 0.05% | 0.00% | 0.30% | 0.00% | 0.00% | **0.07%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.25% | 0.02% | 0.00% | **0.05%** |
| 24 | Wood Waste | 0.00% | 0.31% | 0.32% | 0.00% | 0.73% | **0.24%** |
| 25 | C&D Debris | 2.04% | 2.53% | 0.44% | 0.45% | 0.00% | **1.22%** |
| 26 | Tires and Rubber | 0.00% | 0.51% | 0.00% | 0.00% | 2.30% | **0.47%** |
| 27 | Yard Waste | 0.00% | 33.04% | 0.00% | 8.05% | 3.77% | **9.10%** |
| 28 | Food Waste | 7.77% | 9.61% | 27.16% | 16.12% | 19.32% | **15.13%** |
| 29 | All Other Garbage | 23.67% | 6.45% | 8.52% | 3.38% | 9.32% | **11.05%** |
| 30 | Grit | 0.00% | 0.00% | 2.22% | 0.96% | 2.26% | **0.95%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

Comments: Sample 4 – HHW = used medical supplies (tubing and pharmaceuticals)

# Appendix J:
# Individual Sample Results,
# Blue-Bag and Drop-Off Recycling Program

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## Table J-1: Summer 2010 Individual Sample Results, Blue-Bag Recycling Program (% by weight)

| | Hauler/Location | Waste Aid | Waste Express | Central Carting | Waste Services | Waste Management | Waste Services | |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **1** | **4** | **5** | **6** | **7** | **8** | **Wt. Avg.** |
| 1 | Newspaper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 2 | Corrugated Containers | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 3 | Office Paper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 4 | Other Recyclable Paper | 0.75% | 0.00% | 0.00% | 0.00% | 2.20% | 0.00% | **0.43%** |
| 5 | Other Non-Recyclable Paper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 6 | Aseptic Containers | 0.00% | 0.60% | 0.00% | 0.00% | 0.00% | 0.00% | **0.04%** |
| 7 | PET Containers | 18.13% | 15.90% | 16.62% | 16.31% | 15.58% | 8.56% | **12.83%** |
| 8 | HDPE Containers | 2.28% | 6.86% | 4.76% | 4.03% | 8.11% | 3.61% | **4.86%** |
| 9 | Other Narrow-Neck Plastic Containers | 4.02% | 7.03% | 11.53% | 8.68% | 8.05% | 2.63% | **6.01%** |
| 10 | Non-Rigid Plastic Film | 1.10% | 0.07% | 0.35% | 0.77% | 0.55% | 0.00% | **0.32%** |
| 11 | Styrofoam | 1.84% | 2.22% | 3.59% | 7.06% | 2.97% | 4.71% | **4.56%** |
| 12 | All Other Plastics | 0.04% | 0.00% | 0.79% | 0.00% | 0.00% | 0.00% | **0.07%** |
| 13 | Tin/Steel Cans | 1.36% | 11.70% | 2.09% | 5.37% | 4.29% | 2.92% | **4.17%** |
| 14 | White Goods | 3.31% | 4.59% | 9.35% | 13.28% | 7.05% | 5.30% | **7.57%** |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 16 | Aluminum Cans | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 17 | Other Non-Ferrous | 5.54% | 2.51% | 6.47% | 2.93% | 5.29% | 7.35% | **5.62%** |
| 18 | Glass Containers | 0.00% | 0.00% | 0.20% | 0.00% | 0.00% | 0.00% | **0.02%** |
| 19 | Other Glass | 30.75% | 19.46% | 25.72% | 15.89% | 19.13% | 22.24% | **20.56%** |
| 20 | Textiles | 19.02% | 0.00% | 0.00% | 0.00% | 0.00% | 5.87% | **2.82%** |
| 21 | Household Hazardous Waste | 10.58% | 19.12% | 15.19% | 3.84% | 13.50% | 16.70% | **13.34%** |
| 22 | Electronics | 1.27% | 8.36% | 3.35% | 16.83% | 10.94% | 20.11% | **15.19%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 25 | C&D Debris | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 27 | Yard Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 28 | Food Waste | 0.00% | 0.54% | 0.00% | 0.00% | 0.00% | 0.00% | **0.04%** |
| 29 | All Other Garbage | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 30 | Grit | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table J-2: Winter 2011 Individual Sample Results, Blue-Bag Recycling Program (% by weight)

| | Hauler/Location | Waste Aid | Central Carting | Waste Express | Waste Services | Waste Services | Zephyrhills | |
|---|---|---|---|---|---|---|---|---|
| | **Material Categories sample #** | **1** | **4** | **6** | **7** | **8** | **9** | **Wt. Avg.** |
| 1 | Newspaper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 2 | Corrugated Containers | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 3 | Office Paper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 4 | Other Recyclable Paper | 0.00% | 5.43% | 0.00% | 0.19% | 0.00% | 0.70% | **0.50%** |
| 5 | Other Non-Recyclable Paper | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 6 | Aseptic Containers | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 7 | PET Containers | 17.72% | 15.90% | 14.37% | 18.96% | 19.54% | 19.22% | **18.79%** |
| 8 | HDPE Containers | 5.73% | 3.66% | 2.41% | 6.92% | 6.77% | 6.67% | **6.39%** |
| 9 | Other Narrow-Neck Plastic Containers | 6.42% | 4.55% | 3.48% | 4.47% | 7.40% | 6.77% | **5.92%** |
| 10 | Non-Rigid Plastic Film | 1.11% | 1.04% | 0.93% | 1.53% | 1.88% | 0.62% | **1.40%** |
| 11 | Styrofoam | 2.68% | 1.25% | 1.62% | 2.45% | 5.81% | 2.48% | **3.51%** |
| 12 | All Other Plastics | 0.00% | 0.17% | 0.00% | 0.00% | 0.00% | 0.00% | **0.01%** |
| 13 | Tin/Steel Cans | 1.88% | 7.91% | 1.42% | 5.73% | 3.69% | 0.00% | **3.70%** |
| 14 | White Goods | 6.41% | 6.48% | 6.23% | 5.98% | 7.77% | 7.93% | **7.04%** |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 16 | Aluminum Cans | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 17 | Other Non-Ferrous | 5.34% | 3.33% | 2.82% | 4.99% | 4.54% | 2.81% | **4.18%** |
| 18 | Glass Containers | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 19 | Other Glass | 22.92% | 20.40% | 24.37% | 17.51% | 0.00% | 25.71% | **13.74%** |
| 20 | Textiles | 15.81% | 10.91% | 13.83% | 12.51% | 0.00% | 19.42% | **9.64%** |
| 21 | Household Hazardous Waste | 9.25% | 7.54% | 24.74% | 15.08% | 0.00% | 2.65% | **7.40%** |
| 22 | Electronics | 2.83% | 4.97% | 2.39% | 3.47% | 40.21% | 0.77% | **15.58%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 25 | C&D Debris | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 27 | Yard Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 28 | Food Waste | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 29 | All Other Garbage | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| 30 | Grit | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | **0.00%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | **100.00%** |

## Table J-3: Summer 2010 Individual Sample Results, Drop-off Recycling Program (% by weight)

| | Hauler/Location | Waste Services | Waste Services | |
|---|---|---|---|---|
| | **Material Categories** **sample #** | **2** | **3** | **Weighted Avg.** |
| 1 | Newspaper | 0.00% | 0.00% | **0.00%** |
| 2 | Corrugated Containers | 0.00% | 1.98% | **1.25%** |
| 3 | Office Paper | 0.00% | 0.00% | **0.00%** |
| 4 | Other Recyclable Paper | 0.95% | 1.01% | **0.99%** |
| 5 | Other Non-Recyclable Paper | 0.00% | 0.00% | **0.00%** |
| 6 | Aseptic Containers | 0.11% | 0.00% | **0.04%** |
| 7 | PET Containers | 11.80% | 10.08% | **10.71%** |
| 8 | HDPE Containers | 2.16% | 2.91% | **2.64%** |
| 9 | Other Narrow-Neck Plastic Containers | 4.13% | 4.31% | **4.24%** |
| 10 | Non-Rigid Plastic Film | 1.19% | 1.23% | **1.21%** |
| 11 | Styrofoam | 2.21% | 2.00% | **2.08%** |
| 12 | All Other Plastics | 0.09% | 0.00% | **0.03%** |
| 13 | Tin/Steel Cans | 7.58% | 6.83% | **7.10%** |
| 14 | White Goods | 8.37% | 4.71% | **6.05%** |
| 15 | Other Ferrous | 0.00% | 0.00% | **0.00%** |
| 16 | Aluminum Cans | 0.00% | 4.27% | **2.70%** |
| 17 | Other Non-Ferrous | 2.04% | 1.23% | **1.53%** |
| 18 | Glass Containers | 0.00% | 0.00% | **0.00%** |
| 19 | Other Glass | 28.34% | 29.35% | **28.98%** |
| 20 | Textiles | 13.16% | 14.42% | **13.96%** |
| 21 | Household Hazardous Waste | 12.64% | 13.51% | **13.19%** |
| 22 | Electronics | 0.00% | 2.15% | **1.36%** |
| 23 | Household Batteries | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.00% | 0.00% | **0.00%** |
| 25 | C&D Debris | 0.00% | 0.00% | **0.00%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | **0.00%** |
| 27 | Yard Waste | 0.00% | 0.00% | **0.00%** |
| 28 | Food Waste | 0.00% | 0.00% | **0.00%** |
| 29 | All Other Garbage | 0.00% | 0.00% | **0.00%** |
| 30 | Grit | 0.00% | 0.00% | **0.00%** |
| | TOTALS | 100.00% | 100.00% | **100.00%** |

## Table J-4: Winter 2011 Individual Sample Results, Drop-off Recycling Program (% by weight)

| | Hauler/Location | County | County | Waste Services | |
|---|---|---|---|---|---|
| | **Material Categories sample #** | **2** | **3** | **5** | **Weighted Avg.** |
| 1 | Newspaper | 0.00% | 0.00% | 6.54% | **1.81%** |
| 2 | Corrugated Containers | 0.00% | 0.00% | 0.89% | **0.25%** |
| 3 | Office Paper | 0.00% | 0.00% | 0.00% | **0.00%** |
| 4 | Other Recyclable Paper | 1.33% | 4.30% | 2.53% | **2.69%** |
| 5 | Other Non-Recyclable Paper | 0.00% | 0.00% | 0.00% | **0.00%** |
| 6 | Aseptic Containers | 0.00% | 0.00% | 0.00% | **0.00%** |
| 7 | PET Containers | 11.00% | 14.64% | 9.77% | **11.91%** |
| 8 | HDPE Containers | 4.95% | 9.79% | 2.63% | **5.97%** |
| 9 | Other Narrow-Neck Plastic Containers | 5.10% | 7.89% | 7.50% | **6.73%** |
| 10 | Non-Rigid Plastic Film | 1.24% | 0.00% | 0.43% | **0.59%** |
| 11 | Styrofoam | 2.91% | 3.07% | 1.42% | **2.55%** |
| 12 | All Other Plastics | 0.00% | 0.00% | 0.00% | **0.00%** |
| 13 | Tin/Steel Cans | 8.32% | 1.97% | 3.88% | **4.90%** |
| 14 | White Goods | 6.54% | 7.06% | 7.35% | **6.94%** |
| 15 | Other Ferrous | 0.00% | 0.00% | 0.00% | **0.00%** |
| 16 | Aluminum Cans | 0.00% | 0.00% | 0.00% | **0.00%** |
| 17 | Other Non-Ferrous | 3.81% | 3.24% | 0.98% | **2.83%** |
| 18 | Glass Containers | 0.00% | 0.00% | 0.00% | **0.00%** |
| 19 | Other Glass | 20.58% | 20.92% | 25.69% | **22.11%** |
| 20 | Textiles | 9.28% | 15.74% | 14.42% | **12.93%** |
| 21 | Household Hazardous Waste | 19.29% | 6.76% | 10.81% | **12.63%** |
| 22 | Electronics | 5.08% | 2.55% | 1.75% | **3.29%** |
| 23 | Household Batteries | 0.00% | 0.00% | 0.00% | **0.00%** |
| 24 | Wood Waste | 0.41% | 0.00% | 0.00% | **0.15%** |
| 25 | C&D Debris | 0.00% | 0.00% | 0.00% | **0.00%** |
| 26 | Tires and Rubber | 0.00% | 0.00% | 0.00% | **0.00%** |
| 27 | Yard Waste | 0.00% | 0.00% | 0.00% | **0.00%** |
| 28 | Food Waste | 0.00% | 0.00% | 0.00% | **0.00%** |
| 29 | All Other Garbage | 0.00% | 0.00% | 0.00% | **0.00%** |
| 30 | Grit | 0.00% | 0.00% | 0.00% | **0.00%** |
| | TOTALS | 100.00% | 100.00% | 100.00% | **100.00%** |

# Appendix K:
# Steps to Calculate Waste Generation

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# Steps to Calculate Waste Generation

Provided below are the steps the County will need to take to utilize the waste composition study (WCS) data (i.e., composition of waste disposed at the County's RRF) to calculate the composition of waste generated in the County. This explanation references FDEP's annual solid waste reporting form and the columns on such form. An example of the form and use of the calculations below is provided in Figure 5.4 of this report.

1. Convert the WCS's 30 material categories into the 19 categories utilized in the state report and insert the percentages in Column A of the state form. For the following FDEP categories, the specified WCS category percentages will need to be summed
    a. Plastic Bottles –WCS categories of PET, HDPE and All Other Narrow-Neck Containers
    b. Other Plastics –WCS categories of Non-Rigid Plastic Film, Styrofoam, and All Other Plastics
    c. Other Paper –WCS categories of Other Recyclable Paper, Other Non-recyclable Paper, and Aseptic Containers
    d. C&D Debris – WCS categories of C&D Debris and Wood Waste
    e. Miscellaneous - WCS categories of Other Glass, Household Hazardous Waste, Electronics, Household Batteries, All Other Waste, and Grit
2. Calculate the tons of each material disposed by multiplying the percentage of each material category by the total amount of waste disposed at the County's RRF in the respective year. Enter these figures in Column B.
3. Enter the total tonnage of materials disposed at Class III and non-County disposal facilities into Column C. Tonnages for non-County facilities will most likely come from the County's Certified C&D Debris Reports received from the State.
4. Enter the total tonnage of recyclables diverted from disposal into Column D. This will include materials listed on the state's Certified Recovered Materials Dealer Reports, as well as any additional recycling tonnages identified by County staff.
5. Calculate total material generation by adding total tons disposed at RRF (Column B), total tons disposed at other facilities (Column C), and total recyclables diverted (Column D). Enter the sums of these three columns in Column E.
6. Calculate individual material recycling rates and overall County recycling rate by dividing recyclables diverted (Column D) by material generation (Column E). Enter the results in Column F.
7. Calculate the composition of waste generated in the County by dividing the tons of each material generated (Column E) by the total of Column E. Enter the results in Column G.

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JonesEdmunds

PASCO COUNTY FLORIDA

OPEN SPACES. VIBRANT PLACES.

# PASCO COUNTY RECYCLING COMPOSITION STUDY

Pasco County| November 2019

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# PASCO COUNTY RECYCLING COMPOSITION STUDY

**Prepared for:**

Pasco County Public Infrastructure

14230 Hays Road

Spring Hill, Florida 34610

**Prepared by:**

Jones Edmunds & Associates, Inc.

730 NE Waldo Road

Gainesville, Florida 32641

Jones Edmunds Project No.: 16002-004-01

November 2019

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# ATTACHMENTS

Attachment 1 – Scale House Tickets
Attachment 2 – Representative's Log
Attachment 3 – Example Monthly Processing Payment Calculation

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# 1 PURPOSE

Pasco County requested the assistance of Jones Edmunds in conducting a recycling composition study (RCS) of their recovered materials. The purpose of this study is to identify the percentages of the individual commodities of recovered material that is managed by Pasco County. This report describes the procedures and results of the RCS. The previous RCS was conducted in 2017 after contract negotiations were initiated by a significant change to the County's recycling program – the inclusion of paper products in curbside recycling. Similarly, this study is being conducted as a result of glass being removed from the County's recycling program in 2019, which has prompted contract negotiations considering that glass comprises nearly 50 percent of the recycling composition by weight.

# 2 BACKGROUND

To characterize the County's recycling program this section provides relevant information regarding Pasco County and the structure of its recycling services. The current population of Pasco County is approximately 515,077 and is expected to grow at an average rate of 1 percent annually. The County participates in a competitive, open market system for waste collection by allowing residents to choose one of the eight private haulers who collect waste twice a week and recycling once a week. Additionally, several drop-off sites are open to the public that accept all materials accepted in the curbside recycling program; Table 1 lists accepted recyclable materials. Recovered materials are transferred to Waste Connections' St. Petersburg Materials Recovery Facility (MRF) at 1190 29th Street North, St. Petersburg, Florida, via open-top transfer trailers.

**Table 1 Recyclable Materials Accepted by Pasco County**

| Material Category | Material Sub-Category | Description/Examples |
|---|---|---|
| Plastics | PET Containers | Any whole polyethylene terephthalate (PET) container with a screw-neck top containing a #1 resin identification code. |
| | Natural HDPE Containers | Any whole, blow-molded, high density polyethylene (HDPE) container containing a #2 resin identification code that is unpigmented. |
| | Colored HDPE Containers | Any whole, blow-molded, high density polyethylene container containing a #2 resin identification code that is pigmented and opaque. |
| | Plastics #3 – #7 | Plastics consisting of non-PET and non-HDPE household bottles and all non-bottle containers including thermoform packaging, cups, trays, clamshells, food tubs and pots, and all large rigid plastics, primarily PE and PP containing a resin identification code of either #3 – #7. |
| | Bulky Rigid Plastics | Bulky rigid plastics consist of oversized HDPE and PP items and containers. |
| Paper | Single Newspaper and Mixed Paper | Comingle of various paper grades such as mail, paperboard, packaging, magazines, copy paper, and computer paper. |

| Material Category | Material Sub-Category | Description/Examples |
|---|---|---|
| | Old Corrugated Cardboard (OCC) | OCC = Layers of paper glued together with a fluted inner layer. |
| Metals | Steel Cans | Canned food containers such as canned vegetables, fruits, or canned pet food. |
| | Aluminum | Most commonly soda cans but can also be used pie pans or foil. |

# 3 METHODOLOGY

This section describes the procedures applied during the RCS that took place on November 9, 2019. Approximately 54,140 pounds (27.07 tons) of recyclables, designated by the County as representative samples, were delivered and subsequently weighed on the MRF's scale; the accompanying scale house tickets provided in Attachment 1 are from the County and vary slightly from the weights recorded during the study. After being unloaded on the tipping floor, each trailer was inspected to ensure that all recyclables had been deposited. Additionally, the compactor containing the residuals (unsorted, non-recyclable materials) was emptied and weighed before the study. Jones Edmunds inspected the MRF, compactor, and trailers, and documented the findings in the Representative's Log provided as Attachment 2.

Representatives from the County and Jones Edmunds were present for the duration of the RCS including the MRF Site Manager and approximately 23 operation staff. The Jones Edmunds representative observed the processing and sorting operations and collected data, specifically the weight of the individual commodities, residuals, and contamination. The notes and data collected are presented in the Representative's Log provided as Attachment 2.

## 3.1 SORTING PROCEDURE

After the mixed recyclable materials were unloaded on the MRF's tipping floor, a front-end loader then moved the materials into a feeder bin. From the feeder bin the materials moved onto an inclined conveyor where the bulky non-recyclable items were removed by hand pickers; the remaining materials then proceeded to a screen where old corrugated cardboard (OCC) was separated and deposited on the tipping floor to be baled.

The remaining stream of material was divided into two fractions: one stream being primarily glass, flattened tin and flattened plastic containers and the second stream being primarily single newspaper and mixed paper and 3-dimensional container materials (plastics and metals). The first stream was deposited onto a mini-polishing screen system where the single newspaper and mixed paper were separated from the flattened tin and plastic materials. The latter stream of materials was deposited onto a full-size polishing screen system separating the single newspaper and mixed paper materials and containers.

Hand pickers then removed any contaminants from the single newspaper and mixed paper stream before it was deposited onto the tipping floor for further processing. The containers proceeded through a mini-polishing screen system, further separating single newspaper and

mixed paper and containers; the separated material was then deposited onto the tipping floor while the containers proceeded to be further processed.

The container stream was processed through an optical sorting system removing polyethylene terephthalate (PET) plastics and the remaining plastic containers were separated into natural high-density polyethylene (HDPE) and colored HDPE by hand pickers. The remaining steel and aluminum containers were then processed through eddy current separators and magnets.

Throughout this process, Jones Edmunds observed operations and noted any contamination of the processed recyclables. Shortly after the start of operations, the bay doors for PET, HDPE (colored and natural), aluminum, and steel cans were discovered to be open, allowing for the commodities to commingle and deposit into the baler. The baler was emptied, and the commingled recyclables were brought back to the tipping floor to be processed again. The recorded notes are provided in the Representative's Log as Attachment 2

## 3.2 Weighing of Commodities

A pallet scale was used to weigh all the baled recyclables as they were processed except for the single newspaper and mixed paper and OCC bales; the scale house scale was used for these commodities to reduce the error associated with weighing each individual bale. Before weighing, Jones Edmunds noted that the scales were calibrated and recorded and totaled each commodity's weight in the Representative's Log provided as Attachment 2. At the direction of the MRF Site Manager two 4x4 wood blocks were used when weighing bales and recycling carts were used to weigh loose material that had fallen from the bales. A tare weight was recorded for the wood blocks and the recycling carts. The recycling cart empty weights were displayed on the front of the cart.

Material had "leaked" from the processing line in several areas. This material was collected in large carts and subsequently weighed. The County and the MRF Site Manager decided that the total weight of "leaked" material would be evenly distributed among all 12 categories involved in the study; refer to Table 2.

Once all materials were processed, the compactor housing the residuals was detached, weighed, and deposited on the tipping floor for analysis. The County and the MRF Site Manager decided that 25 percent of the residuals weight would be evenly redistributed among the all commodities (excluding residuals and contamination); refer to Table 2.

## 3.3 Data Interpretation

Once all materials were processed and appropriately weighed, a mass balance approach was used to determine the percentage of each commodity:

$$\frac{Weight_x\ (lbs)}{Weight_{total}\ (lbs)} x\ 100\% = \%\ Commodity_x$$

# 4 RESULTS AND DISCUSSION

Figure 1 presents the resulting composition of the County's RCS. Table 2 presents the estimated compositions of each commodity.

**Figure 1 Composition of Pasco County Recycling Stream on November 9, 2019**

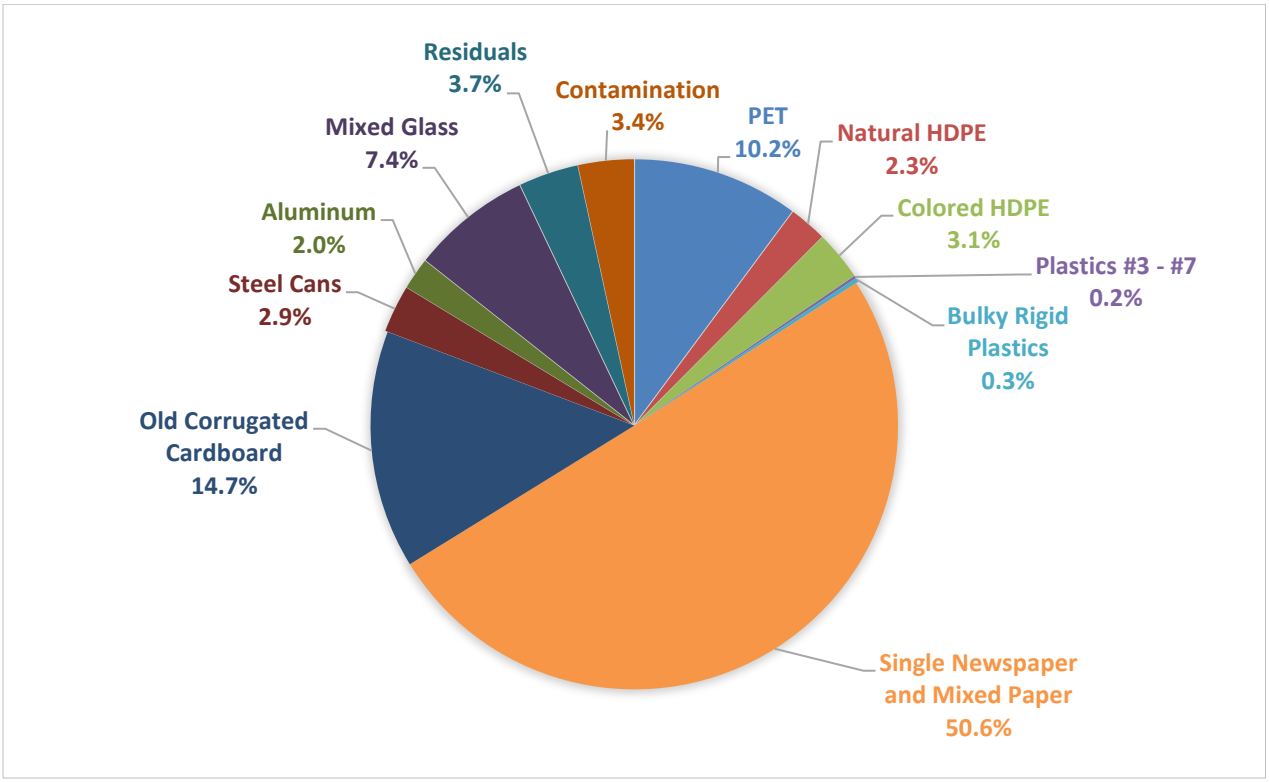



**Table 2 Individual Commodity Percentage of Recycling Stream**

| Commodity Category | Commodity Sub-Category | Commodity Weight (lb) | Percentage of Recycling Stream in 2019 (%) |
|---|---|---|---|
| Plastics | PET Containers | 5,535.69 | 10.16 |
| | Natural HDPE Containers | 1,257.69 | 2.31 |
| | Colored HDPE Containers | 1,652.69 | 3.03 |
| | Plastics #3 – #7 | 85.69 | 0.16 |
| | Bulky Rigid Plastics | 141.69 | 0.26 |
| Paper | Single Newspaper and Mixed Paper | 27,401.69 | 50.28 |
| | OCC | 7,947.69 | 14.58 |
| Metals | Steel Cans | 1,580.69 | 2.90 |
| | Aluminum | 1,063.69 | 1.95 |
| Glass | Mixed Glass | 3,985.69 | 7.31 |
| Residuals | Residuals | 1,990.73 | 3.65 |
| | Contamination | 1,856.33 | 3.41 |
| | **Total:** | 54,499.96 | 100.00 |

Table 3 compares the results of the 2017 and 2019 waste composition studies. As expected, the weight distribution was altered as a result of the significant decrease of mixed glass in the recycling stream. Consequently, there was a significant increase in the weight percentage of single newspaper and mixed paper followed by a moderate increase of the OCC weight percentage in the recycling stream. Relatively, the remaining commodity weight percentages were unaffected by removing mixed glass.

**Table 3 Comparison of the 2017 and 2019 Recycling Composition Studies**

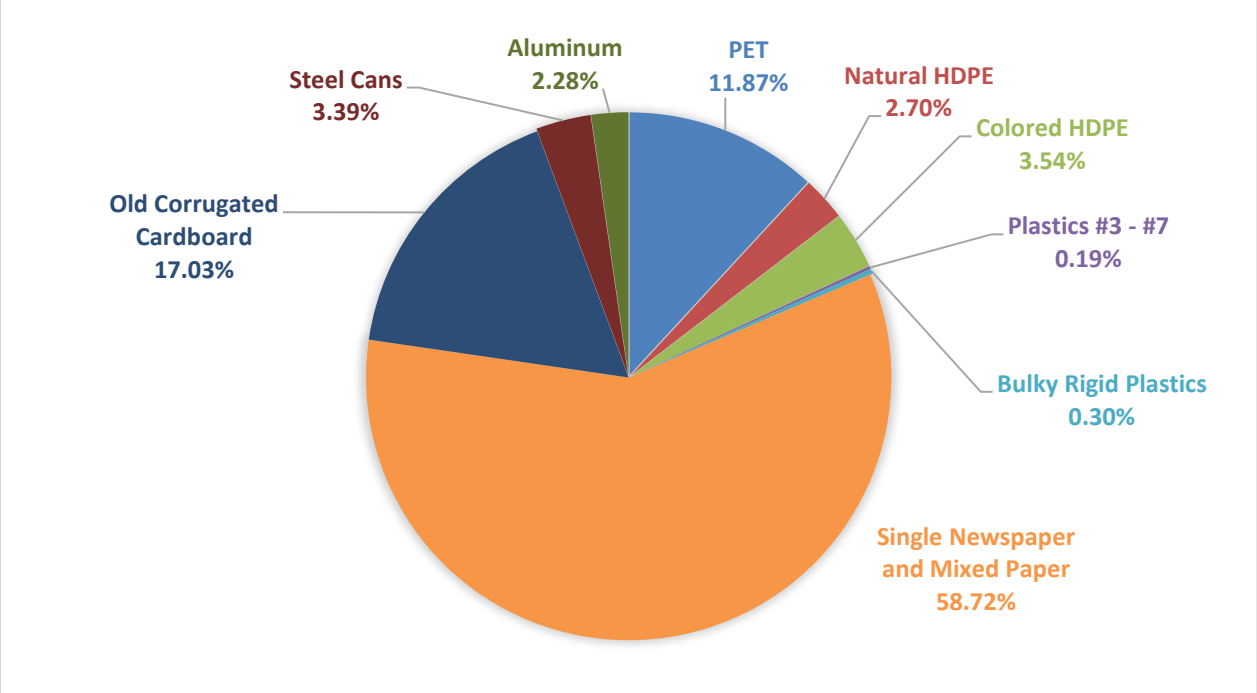
| Commodity Category | Commodity Sub-Category | Percentage of Recycling Stream in 2017 (%) | Percentage of Recycling Stream in 2019 (%) | Difference between 2017 and 2019 (%) |
|---|---|---|---|---|
| Plastics | PET Containers | 10.0 | 10.16 | 0.16 |
| | Natural HDPE Containers | 1.7 | 2.31 | 0.61 |
| | Colored HDPE Containers | 3.0 | 3.03 | 0.03 |
| | Plastics #3 – #7 | 1.4 | 0.16 | -1.24 |
| | Bulky Rigid Plastics | 0.4 | 0.26 | -0.14 |
| Paper | Single Newspaper and Mixed Paper | 31.0 | 50.28 | 19.28 |
| | OCC | 8.4 | 14.58 | 6.18 |
| Metals | Steel Cans | 2.8 | 2.90 | 0.10 |
| | Aluminum | 1.6 | 1.95 | 0.35 |
| Glass | Mixed Glass | 34.6 | 7.31 | -27.29 |
| Residuals | Residuals | 2.9 | 3.65 | 0.75 |
| | Contamination | 2.3 | 3.41 | 1.11 |

To determine the Average Market Value of the commodities listed in Table 2, the non-recyclable material (i.e., mixed glass, contamination and residuals) must be removed, and the percentages recalculated. Table 4 and Figure 2 depict the recalculation of the commodities after excluding the percentages of mixed glass, contamination, and residuals. Attachment 3 provides an example calculation utilized by the County when determining the Monthly Recyclables Processing Payment.

**Table 4 Recalculated Commodity Percentages without Non-Recyclables**

| Commodity Category | Commodity Sub-Category | Percentage of Recycling Stream in 2019 (%) |
|---|---|---|
| Plastics | PET Containers | 11.87 |
| | Natural HDPE Containers | 2.70 |
| | Colored HDPE Containers | 3.54 |
| | Plastics #3 – #7 | 0.19 |
| | Bulky Rigid Plastics | 0.30 |
| Paper | Single Newspaper and Mixed Paper | 58.72 |
| | OCC | 17.03 |
| Metals | Steel Cans | 3.39 |
| | Aluminum | 2.28 |
| | **Total:** | 100.00 |

**Figure 2 Composition of Pasco County Recycling Stream without Non-Recyclables**



# Attachment 1

# Scale House Tickets

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Varies slightly from the weight recorded at the MRF

**Waste Connections of Florida**
**St. Petersburg MRF**
1190 20th Street North
St. Petersburg, FL 33713
PH: 727-896-9600

001060
PASCO COUNTY RECYCLING
14230 HAYS RD
ATTN: JENNIFER L SENEY
CONTRACT: PASCO COUNTY RECYCLING

INVOICE
INBOUND

| SITE | TICKET # | OPERATOR |
|---|---|---|
| 38 | **117454** | raustin |

| IN | OUT | TRUCK | CONT. | LICENCE |
|---|---|---|---|---|
| 11/9/19 7:58 am | 11/9/19 7:58 am | MERRELL BROS | | |

| REFERENCE | ORIGIN |
|---|---|
| 166 | PASCO |

| | | |
|---|---|---|
| GROSS | 53,620 lb | Manual In |
| TARE | 36,240 lb | Manual Out |
| NET | 17,380 lb | |

COMMENTS:
BOL:

| QTY | UNIT | DESCRIPTION | TRACKING QTY | RATE | TAX | TOTAL |
|---|---|---|---|---|---|---|
| 8.69 | TN | Single Stream Recycle | | | | |

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

DISTRICT COPY

# MERRELL BROS.

MANIFEST # № 19937

8811 W 500 N • Kokomo, IN 46901

Office: 800-663-8830

www.merrellbros.com

| Transporter | |
|---|---|
| Company Name | Merrell Bros., Inc. |
| Driver's Name | Billy McFadin |
| Address | 8811 West 500 North |
| City, State, Zip | Kokomo, IN 46901 |
| Phone Number | 1-800-663-8830 |

| Load Information | |
|---|---|
| Type of Material | Rmo |
| Truck Number | 1166 |
| Trailer Number | WF-3 |
| Load Number | |
| Gross Weight | 53620 |
| Tare Weight | 36240 |
| Net Weight | 17380 |
| Total Wet Tons or Gallons | 8.69 |

| Generator | |
|---|---|
| FLA# | 1085548 |
| Generator's Name | MRF |
| Operator's Name | |
| Address | 14280 Hwy 60 |
| City, State, Zip | Springhill, FL 34610 |
| Phone Number | 727-856-5779 |
| Date: 11-8-19 | Time: |

| Destination | |
|---|---|
| Facility Name | WCF |
| Address | 1190 22nd N |
| City, State, Zip | St Pete, FL 33713 |
| Phone Number | |
| Date: 11-8-19 | Time: |

**Acknowledgement of Receipt of Materials:**

| Driver's Printed Name | Signature |
|---|---|
| Billy McFadin | Billy McF |

**Generator's Certification of Materials:**

| Generator's Printed Name | Signature |
|---|---|
| David Ostune | David Ostune |

**Acknowledgement of Receipt of Materials:**

| Destination's Printed Name | Signature |
|---|---|
| | |

White - Driver's Copy  Yellow - Generator's Copy  Pink - Destination's Copy

Varies slightly from the weight recorded at the MRF

**Waste Connections of Florida**
**St. Petersburg MRF**
1190 20th Street North
St. Petersburg, FL 33713
PH: 727-896-9600

001060
PASCO COUNTY RECYCLING
14230 HAYS RD
ATTN: JENNIFER L SENEY
CONTRACT: PASCO COUNTY RECYCLING

INVOICE
INBOUND

| SITE | TICKET # | OPERATOR |
|---|---|---|
| 38 | **117453** | raustin |

| IN | OUT | TRUCK | CONT. | LICENCE |
|---|---|---|---|---|
| 11/9/19 7:46 am | 11/9/19 7:46 am | MERRELL BROS | | |

| REFERENCE | ORIGIN |
|---|---|
| 156 | PASCO |

| | | |
|---|---|---|
| GROSS | 54,160 lb | Manual In |
| TARE | 35,360 lb | Manual Out |
| NET | 18,800 lb | |

COMMENTS:
BOL:

| QTY | UNIT | DESCRIPTION | TRACKING QTY | RATE | TAX | TOTAL |
|---|---|---|---|---|---|---|
| 9.40 | TN | Single Stream Recycle | | | | |

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:_____

DISTRICT COPY

# MERRELL BROS.

MANIFEST # NI 22341

8811 W 500 N • Kokomo, IN 46901

Office: 800-663-8830

www.merrellbros.com

| Transporter | |
|---|---|
| Company Name | Merrell Bros., Inc. |
| Driver's Name | SCOTT BOHSER |
| Address | 8811 West 500 North |
| City, State, Zip | Kokomo, IN 46901 |
| Phone Number | 1-800-663-8830 |

| Load Information | |
|---|---|
| Type of Material | RMD |
| Truck Number | 156 |
| Trailer Number | WF-24 |
| Load Number | |
| Gross Weight | 54,160 |
| Tare Weight | 35,360 |
| Net Weight | 18,800 |
| Total Wet Tons or Gallons | 9.40 |

| Generator | |
|---|---|
| FLA# | |
| Generator's Name | MRF |
| Operator's Name | |
| Address | 1432 Hays Rd |
| City, State, Zip | Springhill FL 34610 |
| Phone Number | |
| Date: 1-8-19 | Time: |

| Destination | |
|---|---|
| Facility Name | LCF |
| Address | 1900 58th ST. N. |
| City, State, Zip | St. Petersburg FL 33713 |
| Phone Number | |
| Date: 1-9-19 | Time: 9:35 |

**Acknowledgement of Receipt of Materials:**

| Driver's Printed Name | Signature |
|---|---|
| SCOTT BOHSER | Scott Bohser |

**Generator's Certification of Materials:**

| Generator's Printed Name | Signature |
|---|---|
| David Ostrue | David Ostrue |

**Acknowledgement of Receipt of Materials:**

| Destination's Printed Name | Signature |
|---|---|
| Ryan Anon | |

White - Driver's Copy  Yellow - Generator's Copy  Pink - Destination's Copy

Varies slightly from the weight recorded at the MRF

**Waste Connections of Florida**
**St. Petersburg MRF**
1190 20th Street North
St. Petersburg, FL 33713
PH: 727-896-9600

001060
PASCO COUNTY RECYCLING
14230 HAYS RD
ATTN: JENNIFER L SENEY
CONTRACT: PASCO COUNTY RECYCLING

INVOICE
INBOUND

| SITE | TICKET # | OPERATOR |
|---|---|---|
| 38 | **117452** | raustin |

| IN | OUT | TRUCK | CONT. | LICENCE |
|---|---|---|---|---|
| 11/9/19 7:29 am | 11/9/19 7:29 am | MERRELL BROS | | |

| REFERENCE | ORIGIN |
|---|---|
| 203 | PASCO |

| | | |
|---|---|---|
| GROSS | 53,880 lb | Manual In |
| TARE | 35,720 lb | Manual Out |
| NET | 18,160 lb | |

COMMENTS:
BOL:

| QTY | UNIT | DESCRIPTION | TRACKING QTY | RATE | TAX | TOTAL |
|---|---|---|---|---|---|---|
| 9.08 | TN | Single Stream Recycle | | | | |

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:_____

DISTRICT COPY

# MERRELL BROS.

MANIFEST # № 21522

8811 W 500 N • Kokomo, IN 46901

Office: 800-663-8830

www.merrellbros.com

| Transporter | |
|---|---|
| Company Name | Merrell Bros., Inc. |
| Driver's Name | Wayne Downing |
| Address | 8811 West 500 North |
| City, State, Zip | Kokomo, IN 46901 |
| Phone Number | 1-800-663-8830 |

| Load Information | |
|---|---|
| Type of Material | RMO |
| Truck Number | 703 |
| Trailer Number | WF-25 |
| Load Number | |
| Gross Weight | 53880 |
| Tare Weight | 35720 |
| Net Weight | 18160 |
| Total Wet Tons or Gallons | 9.08 tons |

| Generator | |
|---|---|
| FLA# | 109 55500 |
| Generator's Name | Shady Hills |
| Operator's Name | |
| Address | 14230 Hays Rd. |
| City, State, Zip | Spring Hill FL 34610 |
| Phone Number | |
| Date: 11/8/19 | Time: 4:24 pm |

| Destination | |
|---|---|
| Facility Name | Waste Connections |
| Address | 1190 70th Ave N |
| City, State, Zip | St. Pete FL 33713 |
| Phone Number | |
| Date: 11/9/19 | Time: |

**Acknowledgement of Receipt of Materials:**

| Driver's Printed Name | Signature |
|---|---|
| Wayne Downing | Wayne Downing |

**Generator's Certification of Materials:**

| Generator's Printed Name | Signature |
|---|---|
| David Ostrowe | David Ostrowe |

**Acknowledgement of Receipt of Materials:**

| Destination's Printed Name | Signature |
|---|---|
| Ryan Anson | |

White - Driver's Copy Yellow - Generator's Copy Pink - Destination's Copy

# Attachment 2

# Representative's Log

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# Representative's Log

JonesEdmunds

**Representative:** Thomas LeBlanc **Date:** 11/9/19

## I. FACILITY INSPECTION

| EQUIPMENT | CLEAN? YES | NO |
|---|---|---|
| Feeder | ☑ | ☐ |
| Conveyor / Lines | ☑ | ☐ |
| Screens | ☑ | ☐ |
| Bays / Bins | ☑ | ☐ |
| Floor | ☑ | ☐ |
| Residual Compactor | ☑ | ☐ |

**NUMBER OF STAFF** ~23

**NOTES**

The bay doors for PET, HDPE (colored & natural) were left open. All material was being commingled in baler.

Baler was emptied and all material was loaded and brought back to the tipping floor.

## II. DELIVERY *

| Vehicle ID | Scale In (lbs) | Scale Out (lbs) | Net (lbs) |
|---|---|---|---|
| 203 | 53,780 | 35,620 | 18,160 |
| 156 | 54,060 | 35,080 | 18,980 |
| 166 | 53,540 | 36,540 | 17,000 |
| — | — | — | — |

* Scale house tickets will vary slightly

**TOTAL WEIGHT** 54,140

54,140 / 2,000 = 27.07 (tons)

## III. PROCESSING

**START TIME** 8:00am

**END TIME** 10:30am (Line) 12:00pm (weighing)

**NOTES**

☑ Compactor where residuals will accumulate was emptied and weighed.
→ Empty weight = 35,800 (lbs)

☐ Loose material collected in pre-weighed bins

☐ Wood for Pallet Scale = 62 (lbs)

☐ Mixed paper & cardboard weighed on scale to reduce error

☐ Weight of loader w/o Mixed glass = 33,400 (lbs)

☐ "Leaked" material collected & redistributed amongst all categories

☐ Residuals multiplied by 0.25 then weights redistributed amongst all categories except Contamination & Residuals

## IV. WEIGHING OF COMMODITIES

**CALIBRATED?** Yes ☑ No ☐

1. Pallet Scales

| COMMODITY CATEGORY | COMMODITY SUB-CATEGORY | COMMODITY WEIGHT | % OF * RECYCLING STREAM |
|---|---|---|---|
| PLASTICS | PET Bottles | 1,469 + 1,560 + 1,506 + 846 + 40 + 29 + 19.33 + 66.36 = 5535.69 | 10.16 % |
| | Natural HDPE Bottles | 1,172 + 19.33 + 66.36 = 1,257.69 | 2.31 % |
| | Colored HDPE Bottles | 1,553 + 14 + 19.33 + 66.36 = 1,652.69 | 3.03 % |
| | Plastics #3 - #7 | 19.33 + 66.36 = 85.69 | 0.16 % |
| | Bulky Rigid Plastics | 29 + 18 + 9 + 19.33 + 66.36 = 141.69 | 0.26 % |
| PAPER | Single Newspaper and Mixed Paper | 27,280 + 36 + 19.33 + 66.36 = 27,401.69 | 50.28 % |
| | Corrugated Cardboard | 7,840 + 22 + 19.33 + 66.36 = 7,947.68 | 14.58 % |
| METALS | Steel Cans | 1,483 + 12 + 19.33 + 66.36 = 1,580.69 | 2.90 % |
| | Aluminum | 978 + 19.33 + 66.36 = 1,063.69 | 1.95 % |
| GLASS | Mixed Glass | 2,420 + 880 + 600 + 19.33 + 66.36 = 3,985.69 | 7.31 % |
| RESIDUALS | Residuals | 19.33 + 2,560 + 75 = 2,654.33<br>(0.25)(2,654.33) = 663.58/10 = 66.36 ← redistribute<br>(0.75)(2,654.3) = 1990.73 | 3.65 % |
| | Contamination | 1,829 + 8 + 19.33 = 1,856.33 | 3.41 % |

"Leaked Material": Yellow bin plus material = 111 lbs → Yellow bin = 72 lbs
Blue bin plus material = 271 lbs → Blue bin = 96 lbs

Loose "leaked" = 18 lbs

(111 - 72) + (271 - 96) + 18 = 232 → 232/12 = 19.33 → redistribute

* Percentage determined by dividing each commodity's weight by the total combined weight of commodities, which is 54,499.96 lbs.

# Attachment 3

# Example Monthly Processing Payment Calculation

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# Example Monthly Processing Payment Calculation

**Step 1.** The total tons of "Collected Materials" is divided into two categories: "Non-Recyclable Materials" and "Monthly Sellable Commodity Tonnage".

| | | |
|---|---|---|
| **Collected Materials:** | 1,000.00 | 100% |
| **Non-Recyclable Materials:** | 147.50 | 14.37% |
| **Monthly Sellable Commodity Tonnage:** | 852.50 | 85.63% |

**Step 2.** Current Market Values from recyclingmarkets.net are recorded. Material percentages are multiplied by the current market value to determine the Average Market Value (AMV) per Sellable Commodity Ton. Please note that Glass, Contamination, and Residue are not included in the material percentages as they have already been removed in Step 1.

## Monthly Sellable Commodity AMV

| Sellable Commodity | Index Description | Market Value ($/ton) | Market Value (%) | AMV ($/sellable ton) |
|---|---|---|---|---|
| Single News & mixed paper | PS 54 baled | ($2.50) | 58.72% | -1.47 |
| Corrugated Cardbd | PS 11 - baled | $47.50 | 17.03% | 8.09 |
| Aluminum Cans | Aluminum cans (loose, cents/lb, dropped off) | $590.00 | 2.28% | 13.44 |
| Steel Cans | Steel cans (sorted, loose, $/ton, dropped off) | $7.50 | 3.39% | 0.25 |
| PET | PET (baled, cents/lb, picked up) | $300.00 | 11.87% | 35.60 |
| Natural HDPE | Natural HDPE (baled, cents/lb, picked up) | $1,090.00 | 2.70% | 29.40 |
| Colored HDPE | Colored HDPE (baled, cents/lb, picked up) | $320.00 | 3.54% | 11.32 |
| Plastics #3-#7 | Comingled #3-7 (baled,cents/lb, picked up) | ($30.00) | 0.19% | -0.06 |
| Bulky Rigid Plastics | Mixed bulky rigid (baled, picked up) | $30.00 | 0.30% | 0.09 |
| | **Total:** | | **100%** | **$96.67** |

## Non-Recyclable Materials

| | |
|---|---|
| 3-Mix Glass | 7.31% |
| Contamination | 3.41% |
| Residuals | 3.65% |

NOTE: Non-Recyclable Materials are not included in the Monthly Sellable Commodity AMV material percentages because the Monthly Sellable Commodity Tonnage takes into account removal of Non-Recyclable Materials.

**Step 3.** Monthly Commodity Amount is calculated

**Step 4.** Monthly Processing Fee is calculated

**Step 5.** Monthly Recyclables Processing Payment is calculated.

| | |
|---|---|
| Monthly Commodity Amount = Monthly Sellable Commodity Tonnage x Monthly Sellable Commodity AMV | $82,408.67 |
| Monthly Processing Fee of $90 per ton of Collected materials = $90/ton x Collected Materials | $90,000.00 |
| Monthly Recyclables Processing Payment = Monthly Commodity Amount - Monthly Processing Fee | -$7,591.33 |

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APPENDIX C

PASCO COUNTY RECYCLING PROGRAM MATERIALS

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# Pasco County Weekly Curbside Recycling

*(Some restrictions apply)*

## DO YOUR PART! RECYCLE!

### *PLEASE RECYCLE:*

- Aluminum cans
- Metal food cans
- Plastic bottles, jugs and small containers coded 1, 2, 3, 4, 5 & 7
- Paper and Cardboard

PASCO
COUNTY FLORIDA
OPEN SPACES. *VIBRANT* PLACES.

For more details call your trash hauler or call Recycling at (727) 856-4539
Or go to: PascoCountyUtilities.com and search for recycling

Recycling tri-fold-PRINT-1 print ready.pdf 1 11/20/2019 2:23:07 PM

# Recycle Right! Don't Ruin Your Own Recycling!

*If it's not on the inside of this brochure, throw it away.*

***When in doubt, throw it out!***

## If you live in Pasco and you use a dumpster. . . You can bring your recycling to one of our drop-off locations:

**West Pasco Recycling Center:**
14606 Hays Road (Off S.R. 52), Spring Hill
Monday-Saturday: 7:00 a.m. to 4:30 p.m.
Additional Materials Accepted
Call for more information, 727-861-3053

**East Pasco Recycling Center:**
9626 Handcart Road, Dade City
Monday-Saturday: 7:00 a.m. to 4:00 p.m.
Additional Materials Accepted
Call for more information, 352-521-0500

**Port Richey Area Recycling:**
Embassy Waste Water Treatment Plant
9512 Crabtree Lane, Port Richey
Wednesday-Saturday: 8:00 a.m. to 5:00 p.m.

**Land O Lakes Area Recycling:**
Senior Services Center
6801 Wisteria Loop, Land O Lakes
Monday-Friday: 8:00 a.m. to 3:30 p.m.

**Holiday Area Recycling:**
Anclote Gulf Park
2305 Baillies Bluff Road, Holiday
Wednesday-Saturday: 8:00 a.m. to 5:00 p.m.

PASCO COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.

**For more information, Call:**
**Recycling Department of Pasco County**
**727-856-4539.**

# Pasco County's RESIDENTIAL CURBSIDE RECYCLING PROGRAM

# C.2 – Public Meeting Notice

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0000198249-01

# Tampa Bay Times
## Published Daily

STATE OF FLORIDA
COUNTY OF Pasco } ss

Before the undersigned authority personally appeared **Jean Mitotes** who on oath says that he/she is **Legal Advertising Representative** of the **Tampa Bay Times** a daily newspaper printed in St. Petersburg, in Pinellas County, Florida; that the attached copy of advertisement, being a Legal Notice in the matter **RE: MATERIALS SEPARATION PLAN** was published in **Tampa Bay Times: 12/5/21** in said newspaper in the issues of **Baylink Pasco**

Affiant further says the said **Tampa Bay Times** is a newspaper published in Pasco County, Florida and that the said newspaper has heretofore been continuously published in said Pasco County, Florida each day and has been entered as a second class mail matter at the post office in said Pasco County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement, and affiant further says that he/she neither paid not promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

**Signature Affiant**

Sworn to and subscribed before me this **12/05/2021**

**Signature of Notary Public**

Personally known X or produced identification

Type of identification produced

JESSICA ATTARD
Commission # GG 300660
Expires March 28, 2023
Bonded Thru Budget Notary Services

LEGAL NOTICE LEGAL NOTICE

# NOTICE OF PUBLIC MEETING CONCERNING PASCO COUNTY'S PRELIMINARY DRAFT MATERIALS SEPARATION PLAN

Pasco County operates an integrated solid waste management system, which uses recycling, waste-to- energy, and landfilling to manage the municipal solid waste generated in the County. Through this system, the County has been able to divert solid waste from the landfill and process it in an environmentally responsible manner. However, the County has determined that it does not have enough processing capacity in its existing facilities to satisfy the County's future needs. Accordingly, the County intends to expand its existing Resource Recovery Facility located at 14230 Hays Road. In accordance with 40 CFR 60.57b, Siting Requirements, the County has prepared a Preliminary Draft Materials Separation Plan, which describes the material separation and recycling techniques the County uses in its integrated municipal solid waste management system.

Notice is hereby given that the County will conduct a Public Meeting to present and discuss the County's Preliminary Draft Materials Separation Plan in accordance with 40 CFR 60.57b. The County will receive written and oral comments from the public regarding the Preliminary Draft Materials Separation Plan at this Public Meeting.

**Location of Public Meeting:** Pasco County Resource Recovery Facility,(Covanta Building) Administrative Offices, 3rd floor conference room, 14230 Hays Road, Spring Hill, FL 34610.

**Date and Time of Public Meeting:** 1:00 p.m. on Wednesday, January 5, 2022.

**Public Comment Period:** The County will accept written public comments regarding the Pasco County Preliminary Draft Materials Separation Plan beginning today and continuing through January 12, 2022. Written comments may be submitted by mail to the County at the following address: Solid Waste Director, Pasco County, 14230 Hays Road, Spring Hill, FL 34610.

**Locations where Preliminary Draft Materials Separation Plan may be viewed and normal business hours:** The Preliminary Draft Materials Separation Plan will be available for review beginning today at the Pasco County public libraries identified below. The library locations and hours of operation are listed below. The Preliminary Draft Materials Separation Plan also will be available for inspection at the County's Resource Recovery Facility, Administrative Offices, 14230 Hays Road, from 9:00 a.m. until 5:00 p.m., Monday through Friday, except County holidays.

**Responses to public comments on the Preliminary Draft Materials Separation Plan:** The County will review and respond to all of the public comments it receives concerning the Preliminary Draft Materials Separation Plan. Thereafter, the County will prepare a Final Draft Materials Separation Plan. The Final Draft Materials Separation Plan, and a summary of the County's responses to public comments, will be made available for inspection at the libraries listed below and the County's Resource Recovery Facility. It is anticipated that these documents will be available for inspection in February 2022.

**AGENDA FOR THE PUBLIC MEETING**

The County has prepared the following agenda for its public meeting concerning the Preliminary Draft Materials Separation Plan:

A. Introductions
B. The size of the service area for Pasco County's Resource Recovery Facility
C. The amount of waste generated in the service area
D. The types and estimated amounts of materials proposed for separation
E. The types and amounts of residual waste proposed for disposal
F. Alternate disposal methods for residual waste
G. Locations for reviewing the Final Draft Materials Separation Plan and responses to public comments
H. Public comments and questions

**Locations and hours of operation for Pasco County Public Libraries**

| Public Library Name and Location | Hours of Operation |
|---|---|
| **Centennial Park Branch Library**<br>5740 Moog Road<br>Holiday, FL 34690 | M-TU 10 AM to 8 PM<br>W-TH 10 AM to 6 PM<br>F-SA 10 AM to 5 PM<br>SUN Closed |
| **Hudson Regional Library**<br>8012 Library Rd.<br>Hudson, FL 34667 | M-TU 10 AM to 6 PM<br>W-TH 10 AM to 8 PM<br>F-SA 10 AM to 5 PM<br>SUN Closed |
| **New River Branch Library**<br>34043 SR 54<br>Wesley Chapel, FL 33543 | M 10 AM to 6 PM<br>TU 10 AM to 8 PM<br>W 10 AM to 6 PM<br>TH 10 Am to 8 PM<br>F-SA 10 AM to 5 PM<br>SUN Closed |
| **Regency Park Branch Library**<br>9701 Little Road<br>New Port Richey, FL 64654 | M-TU 10 AM to 8 PM<br>W-TH 10 AM to 6 PM<br>F-SA 10 AM to 5 PM<br>SUN Closed |
| **Starkey Ranch Theatre Library Cultural Center**<br>12118 Lake Blanche Dr.<br>Odessa, FL 33556 | M-TU 10 AM to 6 PM<br>W-TH 10 AM to 8 PM<br>F-SA 10 AM to 5 PM<br>SUN 1 PM to 5 PM |
| **Zephyrhills Public Library**<br>5347 8th Street<br>Zephyrhills, FL 33542 | M Closed<br>TU - TH 9 AM to 6 PM<br>F 9 AM to 5 PM<br>SAT 9 AM to 12 PM<br>SUN Closed |

12/05/2021

# C.3 – Public Meeting Transcript

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TOMORROW'S TECHNOLOGY TODAY

PUBLIC MEETING CONCERNING PASCO COUNTY'S
PRELIMINARY DRAFT MATERIALS SEPARATION PLAN
PASCO COUNTY PUBLIC MEETING

**COPY**

_____/

PUBLIC MEETING BEFORE THE PASCO COUNTY COMMUNITY

DATE: JANUARY 5, 2022

REPORTER: SIERRA THOMAS

PLACE: 14230 HAYS ROAD
SPRING HILL, FLORIDA 34610

APPEARANCES

ON BEHALF OF PASCO COUNTY:

David S. Dee, Esquire
Gardner, Bist, Bowden, Dee, LaVia, Wright, Perry & Harper
1300 Thomaswood Drive
Tallahassee, Florida 32308
Telephone No.: (850) 385-0070
Facsimile No.: (850) 385-5416
E-mail: ddee@gbwlegal.com

Also Present:

Jason Gorrie, P.E
Justin Roessler, PhD, P.E.
John Power - JMG Employee
Tim Treshler - Senior Program Manager for Solid Waste
Diane Pace - Project Coordinator for Pasco County

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EXHIBITS


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|---|---|
| 1 - Notice of Public Meeting | 7 |
| 2 - Preliminary Draft Material Separation Plan PowerPoint | 7 |

STIPULATION

The public meeting before the Pasco County Community taken at Pasco County Resource Recovery Facility, 14230 Hays Road, Spring Hill, Florida 34610 on Wednesday the 5th day of January 2022 at approximately 1:12 p.m.; said deposition was taken pursuant to the Florida Rules of Civil Procedure.

PROCEEDINGS

COURT REPORTER: On record.

MR. DEE: Okay. My name's David Dee. I'm an environmental law attorney from Tallahassee. I've been hired by Pasco County to help Pasco County obtain the environmental permits for the expansion of the Pasco County Resource Recovery Facility on Hays Road near Spring Hill. I'm here today because the county is scheduled -- has scheduled a public meeting to discuss the county's preliminary draft materials separation plan. With me today is Justin Roessler. Would you, please?

MR. ROESSLER: Hey, good afternoon. I'm Justin Roessler. I'm the solid waste director here with Pasco County. Again, the purpose of this meeting is to present the draft material separation plan and receive any feedback. The county has advertised this, and we'll provide a notice along with the transcript.

MR. DEE: Jason, would you introduce yourself, please?

MR. GORRIE: Yep. I'm Jason Gorrie with JMG Engineering. We have been contracted by the county to prepare the environmental permits for the expansion of the waste energy facility and this

preliminary draft material separation plan is a component of those permits.

MR. POWER: My name is John Power. I'm with the JMG Engineering.

MR. TRESHLER: Tim Treshler. I'm senior program manager for solid waste with Pasco County.

MS. PACE: Diane Pace, project coordinator for Pasco County.

MR. DEE: All of us are here to receive public comments and to present the material separation plan for the public. Jason has prepared the plan. Jason, it's my understanding you've also prepared a PowerPoint presentation for today's meeting?

MR. GORRIE: Correct, and the -- the plan was distributed to all county libraries approximately 40 days ago.

MR. DEE: Now, it's my understanding that as you indicated, Justin, the county published notice in the Pasco County Times, I believe, on December 5th?

MR. ROESSLER: That is correct.

MR. DEE: Concerning today's public meeting. For the purposes of this record, I'd like to give you a copy of the public proof of publication and ask you to attach it to the transcript of today's

meeting as Exhibit 1.

(EXHIBIT 1 MARKED FOR IDENTIFICATION)

COURT REPORTER: Thank you.

MR. DEE: And Jason, you mentioned that you prepared a PowerPoint presentation. I'm going to ask the court reporter to attach your PowerPoint presentation to transcript as Exhibit 2. Now, it's currently 1:15, the public meeting was scheduled to begin at 1:00. There are no members of the public that are here to offer comments. So at this point, I think we can adjourn the meeting.

(EXHIBIT 2 MARKED FOR IDENTIFICATION)

(PUBLIC MEETING CONCLUDED AT 1:15 P.M.)

C E R T I F I C A T E

STATE OF FLORIDA)

COUNTY OF ORANGE)

I, SIERRA THOMAS, Court Reporter and Notary Public for the State of Florida at Large, do hereby certify that I was authorized to and did report the foregoing proceeding, and that said transcript is a true record of the said proceeding.

I FURTHER CERTIFY that I am not of counsel for, related to, or employed by any of the parties or attorneys involved herein, nor am I financially interested in said action.

Submitted on: January 14, 2022.

SIERRA THOMAS

Court Reporter, Notary Public

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