

THERE IS  
NO SUCH THING  
AS TRASH.  
EVERYTHING  
IS OF VALUE.



A COMPREHENSIVE REVIEW OF THE LEE COUNTY SOLID WASTE SYSTEM





Lee County utilizes an  
Integrated Solid Waste Management model  
focused on four “R”s.

**REDUCE  
REUSE  
RECYCLE  
RECOVER**

And you can too!





## MANAGING THE WASTE WE PRODUCE



As the population grows, so does the amount of trash. On average, each person generates about 4.4 pounds of trash each day. Too few people know what happens to the trash once it's picked up from a curb or from behind a business. Where does all the trash go?

Each type of material that passes through the gates of the Resource Recovery Facility in Buckingham is identified and directed to the proper processing facility. The Lee County Solid Waste (LCSW) division strives to ensure that every part of the waste stream is used to its full potential.

“ It isn't waste until you waste it. ”



**REDUCE**

**REFUSE**

**RECYCLE/  
COMPOST**

**RECOVER**  
WASTE-TO-ENERGY

**DISPOSE/  
LANDFILL**



## WASTE HIERARCHY

Lee County follows the Environmental Protection Agency's waste management hierarchy to sort and utilize every piece of waste material in an environmentally safe, reliable and efficient manner.



## REDUCE

Reduce the amount of material headed for final disposal through aggressive diversion programs and resident participation.

Reduce truck traffic and gasoline usage with strategically placed waste transfer stations.

Reduce the volume of material to be landfilled through the Waste-to-Energy process.

## RECYCLE/COMPOST

Offer many recycling opportunities:

- Curbside recycling
- Business recycling
- Construction & demolition recycling
- Process yard waste & biosolids into OrganicLee compost

## DISPOSE/LANDFILL

Landfill material that shouldn't be burned or is too big to be processed.

## REUSE

Reuse paints and household chemicals by offering them back to the public at the Reuse Center.

Reuse ground yard waste as mulch and as a compost feedstock.

## RECOVER / WASTE-TO-ENERGY

Generate electricity from low-value waste through the Waste-to-Energy process.

Recover ferrous & non-ferrous metals from the WTE ash.





## WASTE AS A RESOURCE

Unlike other parts of the United States that use landfills as the final destination, Lee County's Integrated Waste Management System provides a financially responsible and environmentally sound approach to handling the community's waste stream, allowing Lee County's residents to retain the value of their waste. Each component of the system is designed to find the best use for incoming waste and minimize the amount sent to the landfill.





## The Lee County Solid Waste Management System includes the following components:

- Waste-to-Energy facility
- Countywide curbside recycling program
- Material recovery facility
- Construction and demolition debris recycling facility
- Household chemical waste drop-off facility
- Free reuse center
- Yard waste processing operation
- Compost production facility
- Five mulch distribution locations
- Two transfer stations in Hendry County and one in Lee County
- Lee/Hendry landfill

## WASTE-TO-ENERGY THE CORNERSTONE OF LEE COUNTY'S INTEGRATED SOLID WASTE MANAGEMENT SYSTEM

All of the household garbage collected in Lee and Hendry Counties eventually ends up at the Lee County Resource Recovery Facility. The WTE facility provides the opportunity to recover energy from trash in the Integrated System. More than 800 trucks a day bring garbage to the tipping floor for disposal. Operators use cranes outfitted with grapple claws to lift the garbage from the storage pit and lower it into combustion unit feed hoppers. This process is repeated 24 hours per day, seven days a week. And it's been happening for 25 years.

Utilizing the waste-to-energy process allows Lee County to reduce the volume of waste sent to the landfill by 90 percent. The facility processes 1,836 tons per day of solid waste while generating up to 60 megawatts of clean, renewable energy with approximately 45 megawatts sold on the open market. The entire Buckingham Campus is powered completely by this electricity and the remaining 85 percent is sold on the open market for the best price available each hour of each day. The electricity generated by burning Lee County waste is enough to continuously power 30,000 homes.



////////// that generates //////////

60  of clean,  
renewable  
MW  ENERGY

●●● making enough to ●●●



continuously power  
**30,000  
HOMES**





## WTE FACILITY OPERATIONS COMBUSTION

It starts with trucks delivering waste that is weighed at the scale house and monitored for safety. Once an inspector has cleared them, the trucks enter an enclosed tipping area where they unload the waste into a concrete storage pit. The overhead crane mixes all the waste and removes large objects that cannot be processed.

The crane lifts the waste to the furnace hoppers located above the back wall of the pit. Once in the furnace, the waste travels on moving metal grates. A minimum temperature of 1,800 degrees Fahrenheit is used, assuring complete combustion and leaving little chance of releasing unburned pollutants.





## CREATING ENERGY

Steam from boilers power two turbine generators, producing electricity to run plant equipment.

## POLLUTION CONTROL

The Resource Recovery Plant (WTE) is equipped with extensive air pollution control systems. Lee County's plant is the first operational plant in the United States to be built with a permanent activated carbon injection system for controlling mercury emissions. The environmental control systems were designed with the more stringent 1990 Clean Air Act in mind and emissions met the standards without any modification. Facility emissions are continuously monitored and strictly regulated by state and federal agencies.

All aspects of the plant are monitored from the central control room 24 hours a day, seven days a week, 365 days a year.





## WTE FACILITY OPERATIONS METAL RECOVERY & ASH HANDLING

After combustion, the volume of waste is reduced by 90 percent. Ash is then collected and separated from leftover metals. During this process, both ferrous and non-ferrous metals are recovered. Ferrous metals are removed by a magnet and non-ferrous metals are removed using an eddy current system.







The metals are then separated for recycling. The remaining ash is transported to an ash monofill cell at the Lee/Hendry Landfill.





# RECYCLING

Lee County residents are enthusiastic recyclers which has helped the county earn the number one spot in Florida four times since Florida started tracking in 2000.





Recycling is one of the many important components in the Integrated System with 92 percent of eligible households choosing to participate in this voluntary program.

Recycling offers the county the opportunity to recover these items for secondary markets instead of just tossing them out for disposal.

Lee County residents enjoy weekly curbside collection of five recyclable commodities. Paper, metal cans, cardboard, plastic containers labeled #1-#7 and glass bottles and jars are collected (loose for easy processing) from residents' curbside cart or bin and then processed for recycling at the Material Recovery Facility (MRF). Once inside the MRF, materials are both mechanically and hand sorted, baled and sent to secondary user markets.

*Lee County  
& Recycling!*





# Education & Outreach

Ongoing education is provided to the community in many ways including presentations to school and community groups and tours of the recycling plant in action. The MRF education room provides a view of the working floor and 16 live-action cameras to give visitors a good understanding of what it takes to get recyclable commodities to market.

Visitors also learn about the pitfalls of improper recycling or "wishcycling" as it's called. Printed educational materials in English, Spanish and Creole help residents to understand the importance of proper recycling.







# DO YOU WISHCYCLE?

Dictionary

Search for a word

**wish-cy-cling**  
*/wɪʃ sɪk(ə)ɪŋɡ/*

verb

1. Tossing questionable items in the recycling bin, hoping they can somehow be recycled.

Please don't be a  
**Wishcycler!**





In Florida  
**CONSTRUCTION &  
DEMOLITION DEBRIS**  
represents

**1/3** of the  
waste stream  
by weight.



## CONSTRUCTION & DEMOLITION RECYCLING



Lee County mandates permitted construction projects recycle 50 percent of all construction and demolition (C&D) debris. C&D debris is then sorted for recoverable materials such as metal, wood, plastic, cardboard and concrete that can be salvaged, reused or recycled to divert them from landfill disposal.

In the Integrated System, this step offers a chance to recover and reuse these materials instead of just throwing them out after project completion. Lee County opened the first publically owned Construction and Demolition Debris Recycling Facility in May 2011.





Staff at the tipping area evaluates incoming loads to ensure only acceptable materials are delivered to the processing area. Items too large to fit onto processing equipment are typically handled at ground level and placed into the appropriate bin or container for final disposition. Material greater than 10 inches travels down a conveyor for hand sorting. Material less than 10 inches drops to a conveyor belt and passes under a magnet to recover any small metals. The remaining material passes through an air density separator which separates heavy inert material from waste wood, rock, concrete, stone or brick.

## Destination for Recovered Materials:



## What's left?

**Residual Screened Material (RSM):** Soil-like material that falls off the C&D material. It can be used as daily cover at the Lee/Hendry Landfill.

**Boiler Fuel:** Remaining materials (like film plastic) are sent to the WTE to produce clean renewable energy.

**Material destined for the landfill:** Sheetrock, treated lumber and large items.



# YARD WASTE RECYCLING

Horticulture waste (yard waste) is used in three different ways: as mulch, as a component of compost or as fuel for the Waste-to-Energy plant. Collectively, these actions allow the County to divert yard waste from the landfill. Help by using a trash can or paper bag when setting out yard waste at curbside.












# M U L C H

Free mulch is available to all Lee County residents at the following five locations:

-  Bonita Springs: Imperial River Boat Ramp on U.S. 41 South
-  Lehigh Acres: County Park at Williams & 5th Street
-  North Fort Myers: County Park behind the library on Old U.S. 41
-  Pine Island: Near the Wastewater Treatment Plant East on Stringfellow Road
-  Three Oaks Park: Three Oaks Parkway, across from the Three Oaks Middle School

*These locations are not attended. Bring containers and shovels to load the mulch.*



# COMPOST PRODUCTION FACILITIES

Co-located at the Lee/Hendry Landfill, Lee County operates a compost facility to manage biosolids from local wastewater treatment facilities. The 22-acre site is comprised of nine buildings, a paved curing and storage area and a paved mulch storage area. Each building includes catch basins for collection of process liquids or runoff during the composting process. Storm water around the compost facility is collected and controlled within the storm water collection network for the landfill facility.







# OrganicLee<sup>®</sup> COMPOST

Lee County takes two waste streams - shredded yard waste and processed biosolids from local wastewater treatment plants - and produces award-winning compost that is a popular soil amendment for Southwest Florida's commercial and home growers. OrganicLee Compost is available for purchase in bagged or bulk quantities.



## TOPAZ COURT SOLID WASTE ANNEX

The Topaz Court Solid Waste Annex is a key step in the Integrated System and is available to Lee County residents as part of their annual solid waste assessment.

Dropping off of items such as old paints, fertilizer, pesticides and anything marked combustible or corrosive is easy, convenient and provides a safe disposal option at the drive-through location. Solvents, oil-based paints, garden pesticides and herbicides can pollute underground water resources if disposed of improperly.

Residents can drop off unwanted household products such as latex paint, various aerosol cans, pesticides, pool and spa maintenance chemicals, propane tanks, fluorescent light bulbs and other chemicals. They are brought to the main storage area for sorting and consolidation by Lee County employees. Those items that are still usable are moved two doors down to the Reuse Center and offered back to the community at no charge.

Located at 6441 Topaz Court in Fort Myers, the facility is available to residents 8 a.m. to 5 p.m. Monday through Friday and the first Saturday of each month (except holidays) from 8 a.m. to noon.







## PROCESSING HOUSEHOLD CHEMICAL WASTE (HCW)

All products left at the Topaz facility are processed for recycling or disposal. On average, almost 1,900 residential customers make use of this disposal site each month. Solid Waste Technicians consolidate chemicals into 55 gallon drums and 5 gallon pails for transport via a contracted waste handler to an approved recycling or disposal facility.

Approximately 90 percent of the materials brought to the HCW drop off facility are recycled.



in dumpsters, compactors or curbside.

in the household garbage for pick up by the garbage company.

down a storm drain or into soil.





As of December 2018, Lee County Solid Waste offers residents a self-serve location where they can pick up, at no charge, items such as paint, household cleaners and pesticides that someone else no longer needs.

The center, also located at the Topaz Court Solid Waste Annex, is open 8 a.m. to 5 p.m. Monday through Friday and 8 a.m. to noon on the first Saturday of each month (excluding holidays).

**Reuse**  
CENTER





## ELECTRONICS RECYCLING

Lee County offers residents convenient, responsible recycling of common electronic items: computers, all components, printers, copiers, scanners, televisions, etc. at this facility.

Please erase all personal data from devices before recycling them. Once the device is received at the Topaz facility, to ensure data security in the recycling process, Lee County contracts with industry-approved electronics recyclers who erase or destroy hard drives and memory-containing devices and break down each item to recover reusable or recyclable components.





## LEE/HENDRY LANDFILL

Remaining waste that cannot be reused, recycled or burned for energy is sent to the Lee/Hendry Landfill. The landfill is approximately 25 miles from the Lee County Resource Recovery facility and is the final step in the Integrated System.

Encompassing approximately 1,860 acres, the facility was initially developed in 1994 to provide disposal capacity for excess municipal solid waste (MSW) and combustion ash from the WTE facility. The facility is projected to provide landfill disposal for about 40 years.

Designed to minimize environmental impact, great attention was given to landscaping and gas and water pollution control at the landfill. Operational procedures require covering daily refuse, which reduces the possibility of fire, odor and gas migration. No burning is allowed on site. Although there are no odor or gas issues and the facility operates below the New Source Performance Standards (NSPS) threshold for gas collection and control systems, Lee County has developed initial plans for landfill gas management in the event the landfill gas must be addressed in the future.





# OPERATIONS

The landfill has several different types of disposal areas each designed to hold a different kind of waste. Each disposal area, or cell, is lined with high-density polyethylene (HDPE) and outfitted with a drainage system to collect any liquids (leachate) that come off the material in the disposal cell. The majority of Lee County's landfilled waste is ash from the Waste-to-Energy plant and 36 acres are a dedicated ash monofill.

There are an additional 38 acres for regular garbage (MSW) in a cell permitted as Class I. Construction and demolition debris that is inappropriate for the Waste-to-Energy Plant due to size or composition is brought to the 25 acres of the landfill permitted as Class III. There are 155 remaining acres available for development. To support the disposal areas, three sets of leachate ponds collect and store leachate from the individual areas. Total storage capacity is approximately 9 million gallons.

All of the disposal areas have environmental safeguards incorporated into their design. These include detection systems within each disposal cell that are monitored continuously for any leaks, and monitoring wells around the site that are sampled semi-annually to test groundwater quality.



## TRANSFER STATIONS

To reduce the county's carbon footprint and vehicle traffic, Lee County Solid Waste utilizes three transfer stations – two in Hendry County and one in Lee County.

These two-story buildings are used as receiving facilities for waste collection vehicles, allowing the drivers to quickly get back on their routes.

Waste material is consolidated into tractor trailers before heading to the appropriate processing facilities. Material is generally moved out of the transfer station the same day it is received.







# LEADER IN SUSTAINABILITY

The Lee County Integrated Waste Management System has been widely recognized as one of the most sustainable systems in the country.

Government officials from around the United States and the Caribbean have toured the Buckingham Campus as they research new methods for handling their own waste stream.





[www.leegov.com/solidwaste](http://www.leegov.com/solidwaste)  
239-533-8000