

THE FUTURE OF
DSWM-INTEGRATING A
SUSTAINABLE SOLID
WASTE CAMPUS (SSWC)



A G E N D A

System Challenges

Long-term Solution

Benefits of SSWC and WTE

Proposed Sites Pros & Cons

Questions

SYSTEM CHALLENGES

Waste Generation

- Florida produces nearly twice the waste as the national average of 4.4 pounds per day
- Waste generation growing annually at nearly 6%
- Miami-Dade County generates approximately 5 million tons of waste, annually.
- DSWM handles slightly over 2 million tons of that waste.

Inoperable WTE Facility

- Annually one million tons of waste previously incinerated now being landfilled.

Landfills Capacity

- North Dade and South Dade Landfills expected to reach capacity within the next few years.
- Reliance on private contracted capacity for future disposal of waste .

State Requires 5-Year Disposal Capacity

- State could impose moratorium on new building development if County does not meet minimum disposal capacities.



ELEMENTS OF A CIRCULAR ECONOMY

- **Recycling**

- Enhanced curbside recycling

- **Home Composting**

- **Beneficial Use of Yard Waste**

- Beneficial reuse of yard waste

- **Sustainable Solid Waste Campus (SSWC)**

- Ability to incorporate new emerging technologies (Vehicle charging, carbon capture, and waste diversion)

- **Zero Waste**

- Minimize the generation of waste and reduce reliance on landfilling
- Exploring Innovative Technologies

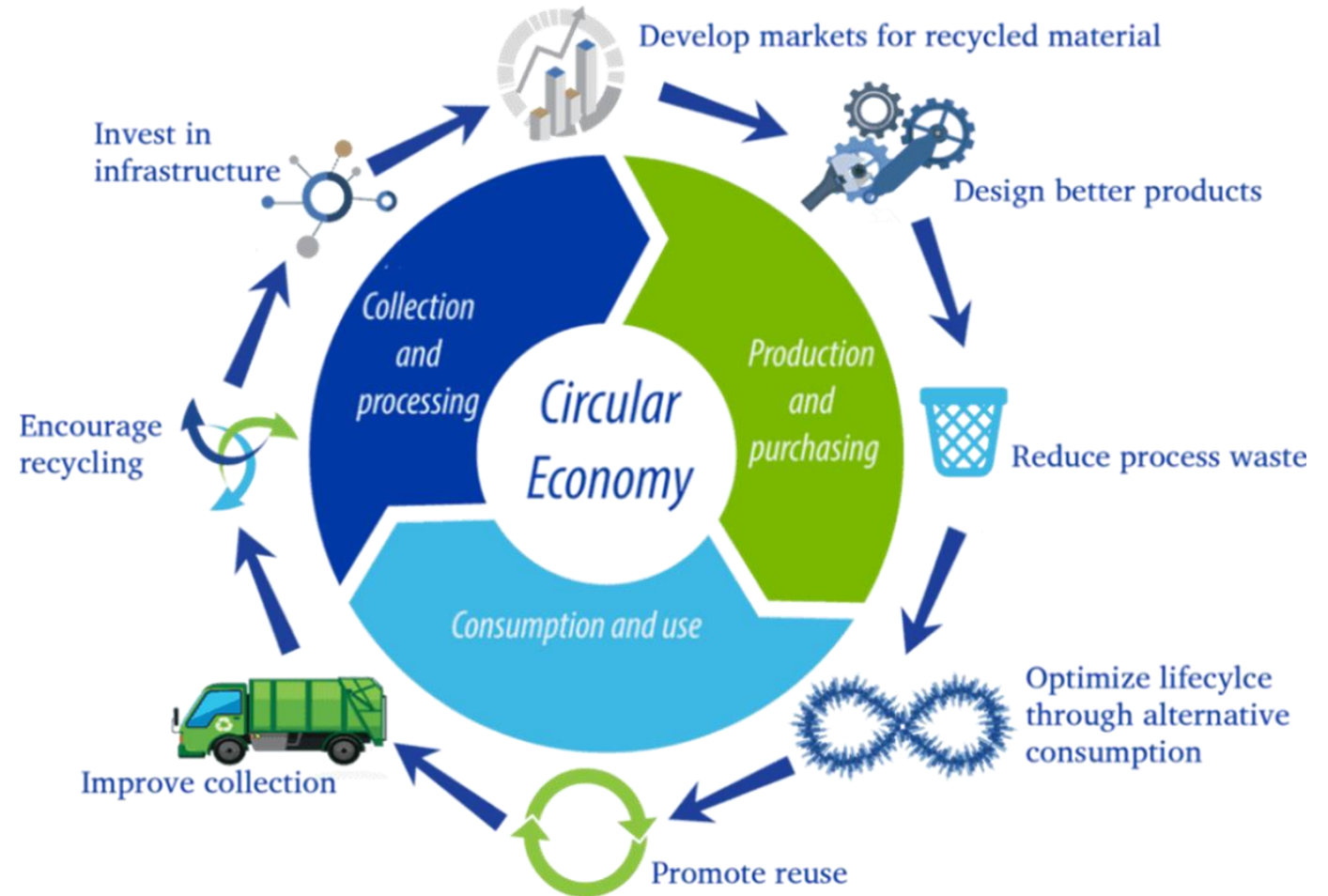
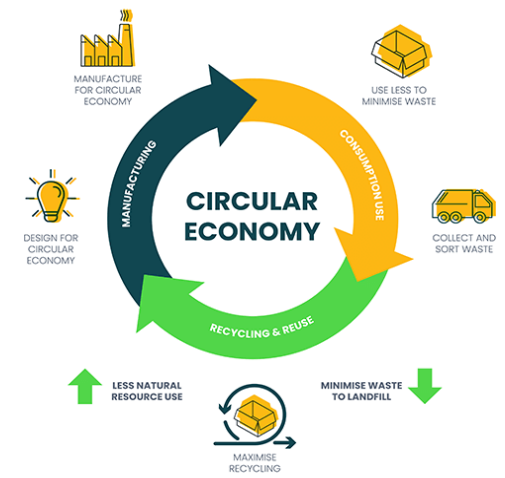


Image: Sustainable Global Resources Ltd.
Recycling Council of Ontario

BENEFITS OF A SSWC

- Creates a circular economy
- Reduces municipal solid waste (MSW) sent to landfills
- Promotes recovery and recycling of metals from MSW
- Promotes energy recovery from MSW, reducing need for use of fossil fuels to create energy
- WTE plant will power SSW Campus
- Provides for the reuse of ash from the Waste to Energy Process
- Helps meet State mandated recycling goals.
- Minimal odor and other nuisances due to modern technologies
- Proven technology for large-scale, waste processing with minimal impacts to human or ecological health
- Creates new *green* jobs
- Reduces more potent GHG emissions such as methane.
- According to the US Energy Information Administration coal power plants emit – 200% more CO2 than WTE



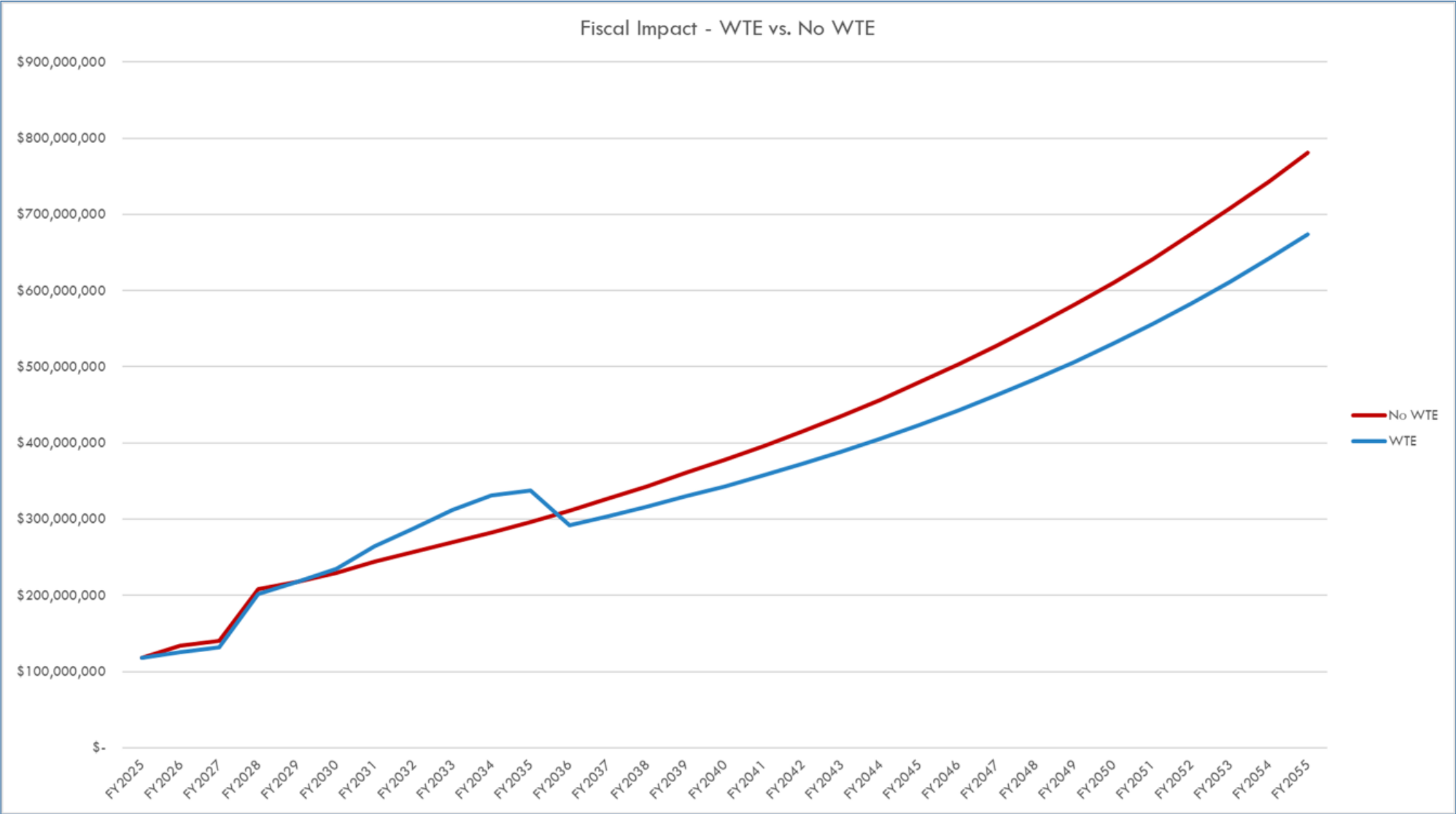
WASTE TO ENERGY: GLOBALLY & FLORIDA

	United States	Europe	Japan (100-1200 TPD)	World Wide
Number of WTE Plants	75	400	404	2,700
Number of WTE Plants in Florida (66K square miles, 22.3M population)	10 (0.05 per capita)			
Number of WTE Plants in Denmark (16.5K square miles, 5.9M population)		25 (0.42 per capita)		
Newest WTE	Palm Beach No. 2 2015	Warsaw Poland 2024		
Emission Limits	EPA	Par to EPA limits	Less restrictive	



Previous location for the WTE in Doral

PROJECTED COSTS WTE VS. NO WTE



WASTE-TO-ENERGY FACILITY POTENTIAL SITES

SUSTAINABLE SOLID WASTE CAMPUS (SSWC)

Resources Recovery Facility (RRF) Doral Site

- ±158-acre site, County-owned.
- Property is located inside the UDB.

Medley Site

- ±320-acre site, multiple parcels, single private owner.
- Property is located inside the UDB, approximately 1.5 miles north of the RRF Site.

Okeechobee Site

- ±65-acre site, multiple parcels, single private owner. Proposed as a land swap.
- Property is located outside the UDB, approximately 7.5 miles northwest of the RRF Site and 0.25 miles south of the Airport West Site.

Airport West Site

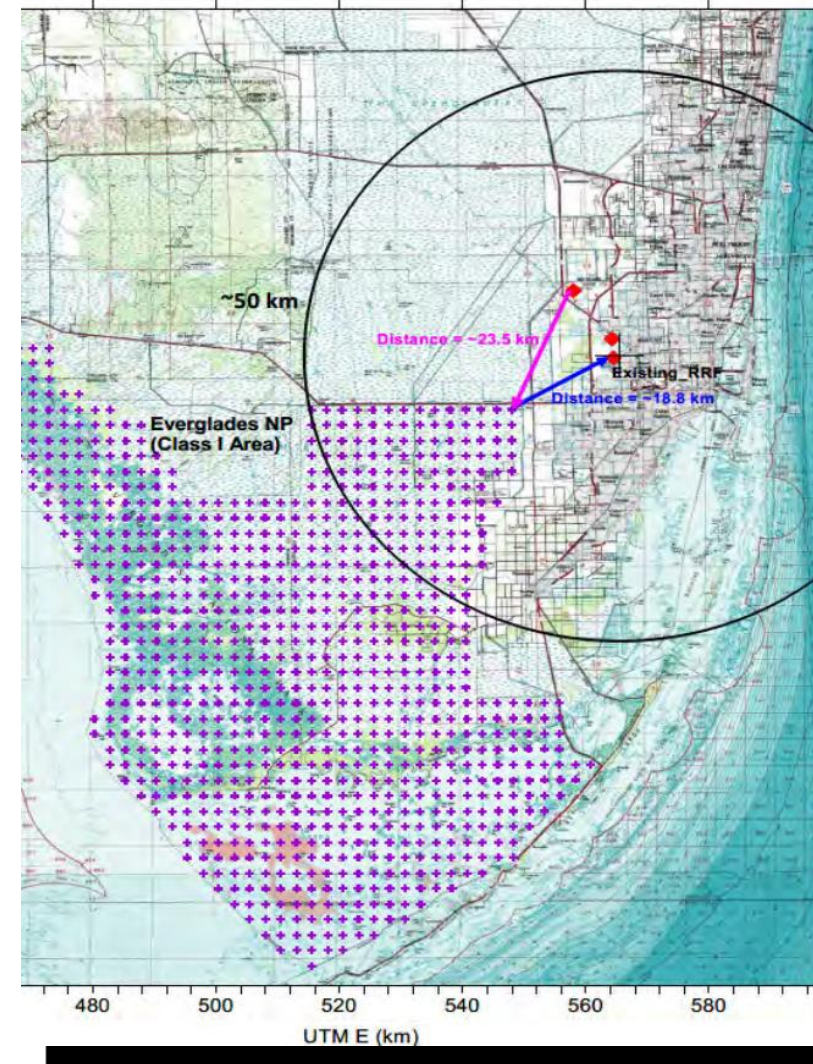
- ±416-acre site, two parcels, County-owned.
- Property is located outside the UDB, approximately 7.8 miles northwest of the RRF Site.

Note: Processing facilities are allowed as exception to UDB restrictions



ENVIRONMENTAL CONTROLS OF A NEW WTE PLANT

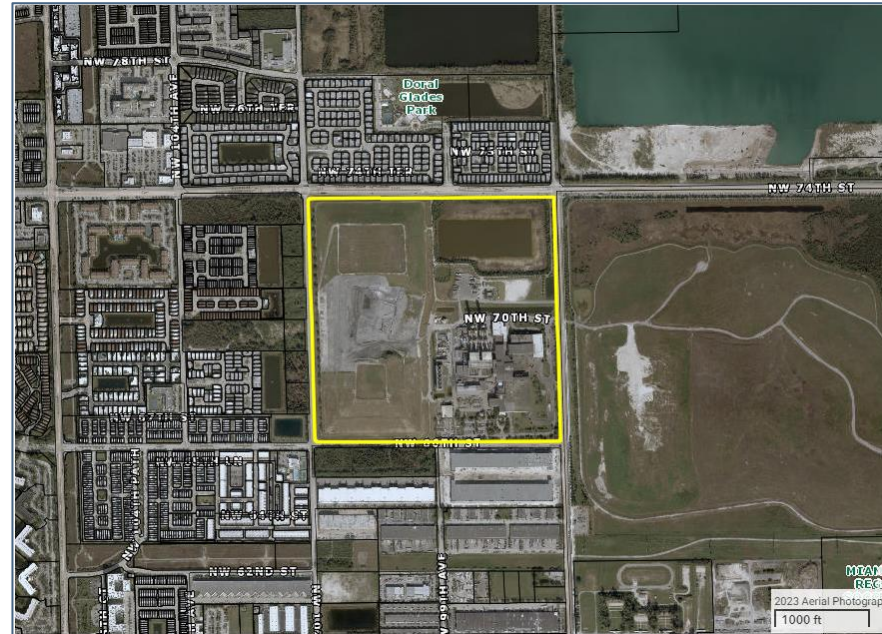
- Impacts Within or Below Regulatory Established Risk Levels.
 - Drinking water: 1M times less than USEPA cancer risk of 1 in a million and 500K times less than the EPA's Non-Cancer Hazard Index of 1.
 - Air: MDC Cancer Risk Exposure (gasoline and vehicle exhaust is 1.5 in a million) from WTE emissions is 0.02 – 0.4 in a million or 73% less.
 - Air: MDC Non-Cancer Risk is 30+ times less than USEPA Hazard Index Risk of 1 for residents.
 - Environment: Minimal Ecological Risks from WTE emissions.



RRF (Doral) Site Pros & Cons

Pros

- ±157.16-acre site, County owned.
- Inside the UDB.
- 55-acre developable area of site is large enough to site a WTE facility.
- Good access to major roads
- All utilities are available. Electrical substation adjacent to site.
- No floodplains, wetlands or endangered species concerns.
- No CERP impacts.
- No Transfer Station needed
- Existing 80-acre ash monofill on site with remaining airspace capacity.
- Previous Air permit and possible emissions credit.
- Lowest Estimated Construction Cost of \$1.489B.
- Shortest estimated development schedule of 7 years, 9 months.



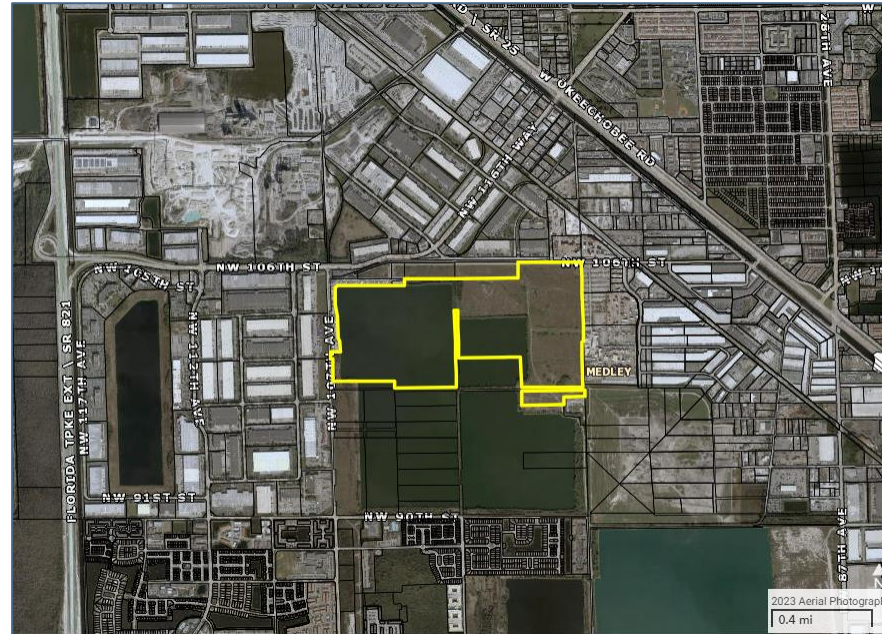
Cons

- Residential communities adjacent to the site on the north and west sides
- Closest to Everglades National Park boundary
- Demolition of existing RRF building
- WASD pump station must be retained on site
- Contamination – DERM records indicate documented contamination at the site.

Medley Site Pros & Cons

Pros

- ±320.31-acre site, multiple parcels, single private owner.
- Property is located inside the UDB.
- CDMP Designation - “Industrial and Office”
- WTE facility allowed
- Lake on site may be filled and developed
- Site appears large enough to site a WTE facility, with space for additional solid waste campus facilities. Road access to US-27 and Turnpike.
- Utilities – Electrical, potable water and sanitary sewer available at site.
- No wetlands or endangered species concerns.
- No CERP impacts.
- No Transfer Station needed.



Cons

- Private ownership, land acquisition required.
- Residential communities to the southwest of the site.
- Significant geotech considerations.
- No natural gas utilities available at the site.
- Most complicated site for preliminary air modeling due to adjacent large emitters (Medley Landfill and Titan Pennsuko Facility)
- Traffic impacts on local roads will be significant, roadway improvements and additional intersection signaling may be required.
- Highest Estimated Construction Cost of \$1.610B plus Annualized Host Fees (\$6M-\$9M)
- \$2.6M per acre purchase price for 100 acres totaling additional \$260M
- Long estimated development schedule of 9 years, 9 months.

Okeechobee Site Pros & Cons

Pros

- ±64.5-acre site, privately owned. Proposed as a land swap.
- Approximately 0.25 miles south of Airport West Site and 1.6 miles from closest Miramar residential property.
- Site large enough to site a WTE facility,
- Good road access to US-27 and Turnpike.
- Site consists primarily of muck soils. Per swap proposal, Developer will make site "pad ready".
- Slightly closer to Everglades National Park.
- Access to Utilities – Electrical service available, No potable water, sanitary sewer, or natural gas utilities available at the site. All utilities will be constructed by Developer per swap proposal.



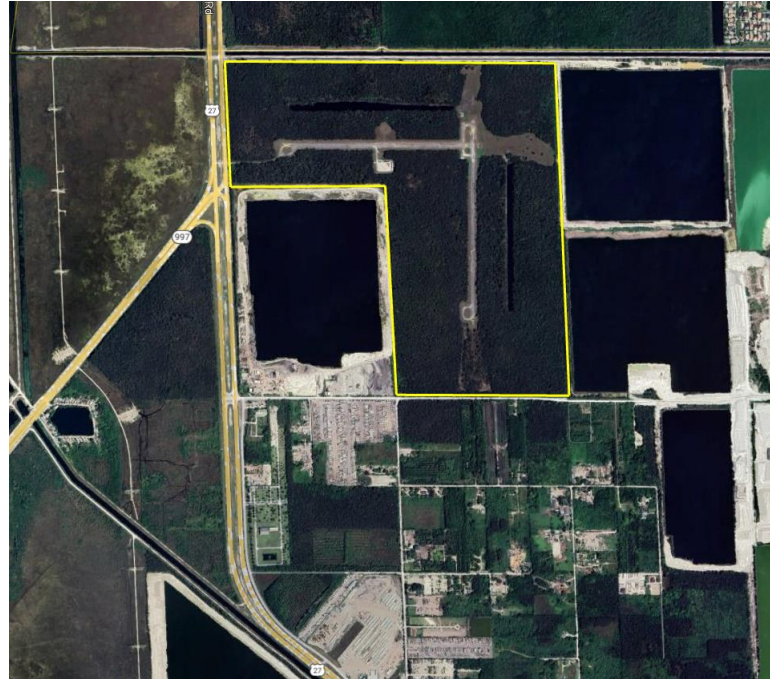
Cons

- Site not sized for sustainable campus concept, nor relocation of facilities
- Total cost for relocation of county facilities estimated at approximately \$212M
- Outside the UDB
- Site is approximately 1.6 miles from closest Miramar residents less than 0.5 miles from Miami-Dade County Agricultural zoning.
- Site is located within FEMA Flood Zone A (Undefined).
- Site will involve technical challenges with stormwater retention and discharge.
- Traffic impacts on local roads will be significant.
- Environmental concerns, including potential impacts to CERP, potential archaeological resources, wetlands, endangered species.
- Estimated Construction Cost of \$1.593B
- Parcel geometry presents site configuration challenges
- New Transfer Station required.
- Greater GHG impacts to be considered
- Longest estimated development schedule of approximately 10 years.
- Timing of swap dependent on permitting and could affect schedule.

Airport West Site Pros & Cons

Pros

- ±416-acre site, two parcels, both parcels owned by the County. 180 acres available to DSWM for campus.
- Site appears large enough to site a WTE facility, with space for additional solid waste campus facilities. Good road access to US-27 and Turnpike.
- On site ash disposal may be feasible.
- Furthest from Everglades National Park boundary
- Produced most favorable preliminary air modeling results of the three sites evaluated (Existing RRF, Medley, and Airport West).



Cons

- Outside the UDB.
- Site is approximately .5 miles from nearest residential property in Miramar.
- Access to Utilities
- Site is located within FEMA Flood Zone A (Undefined).
- Site will involve technical challenges with stormwater retention and discharge.
- Traffic impacts on local roads will be significant
- Environmental concerns, including CERP impacts, potential archaeological resources, wetlands, endangered species, BBSEER issues.
- Estimated Construction Cost of \$1.602B
- New Transfer Station required
- Greater GHG impacts to be considered given transportation distance
- Estimated development schedule of 9 years, 3 months.

SUMMARY OF PROPOSED SITES

Solid Waste Sustainability Campus	Impact	Existing RRF	Medley	Airport West	Okeechobee
Residential Receptors		<0.1 mile	Adjacent to residential zoning	Approx. 0.50 miles to closest Miramar residence	Approx. 0.50 miles to MDC Approx. 1.6 miles to Broward
Urban Development Boundary (UDB)	Cost/time	Yes	Yes	No	No
Land Purchase Cost	Cost	160 Acres with 80 Acres Ash Monofill \$0	Purchase Price \$112.85M, Owner Host Fee per Ton, Medley Host Fee \$2/Ton	\$90M for 180 Acres	64.5 Acres Land Swap with County owned properties
Land Available for Campus	Cost/time	Yes	Yes	Yes	No
*Transportation Avg Distance (miles)	Cost	17.4	16.2	24.4	22.9
Existing utilities (water/sewer/power)	Cost/time	Yes	Yes	No	No – Owner to build
“Shovel Ready” Site Geotechnical	Cost/time	Yes	No	No	No – Owner to build
Air Permitting	Time	Previous Air permit and possible emissions credit	Most complex with other large emitters	Furthest from Everglades National Park, Most Favorable	2 nd furthest from Everglades National Park
Wetlands and Endangered Species Mitigation	Cost/time	No	No	Yes	Yes
Comprehensive Everglades Restoration Plan (CERP) Review	Cost/time	No	No	Yes	Yes
National Environmental Policy (NEPA) Review	Cost/time	No	No	Yes	Yes
Estimated WTE Construction Cost (Including Land Acquisition Cost)	Cost	\$1.49B	\$1.61B plus Annualized Host Fees (\$6M-\$9M)	\$1.64B	\$1.59B+ \$213M (Est Relocation of County facilities)
Estimated Modern Transfer Station Construction Cost	Cost	NA	NA	\$50,000,000	\$50,000,000
Sea Level Rise requirements in Western C-9 Canal Basin, Rule 40E-41.063	Cost/time	NA	NA	Yes	Yes
Additional Operating Cost (fleet, drivers, and transfer station operation)	Cost	No	No	New TS \$10.1M, Waste Transfer \$1.68M, Total Estimate \$11.78M Per Year	New TS \$10.1M, Waste Transfer \$1.68M, Total Estimate \$11.78M Per Year
Estimated Project Duration	Cost/Time	7 Years 9 Months	9 Years 9 Months	9 Years 3 Months	10 Years

HOW WASTE-TO-ENERGY WORKS....



Questions?



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