



# DEPARTMENT OF SOLID WASTE MANAGEMENT BUSINESS PLAN

**Fiscal Years: 2017 and 2018**  
(10/1/2016 through 9/30/2018)

Approved by:

A handwritten signature in black ink, appearing to read "Alina Hudak".

Alina Hudak, Deputy Mayor and Department Director

August 1, 2017  
Date

Plan Date: July 20, 2017

*Delivering Excellence Every Day*



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## DEPARTMENT OVERVIEW

The Department of Solid Waste Management (DSWM) has served the community for nearly 60 years, beginning with its establishment as a collections entity in 1959 and ultimately merging with the disposal arm originally managed by the Public Works Department. Today, the DSWM is the largest government owned and operated waste collection and disposal system in the southeastern United States, serving a County population of approximately 2.7 million residents and a geographic area of over 300 square miles. The DSWM has significant responsibility for overseeing the management of waste and recyclables generated within County borders in an environmentally responsible manner. Over 1,000 employees, including drivers, collectors, engineers, code enforcement officers, environmental compliance staff and other professional and technical employees, work together to accomplish the Department's mission. In addition to the traditional tasks of waste collection and disposal, the Department oversees mosquito control countywide.

### Department Mission

The mission of the Miami-Dade Department of Solid Waste Management Department (DSWM) is to provide our customers with exceptional waste collection, recycling, disposal and mosquito control services that protect, preserve, and improve our environment and the quality of life in our community.

### Major Duties, Services and Programs:

The DSWM's major duties, services and programs currently provided are as follows:

#### County-wide Services

- Operate three waste transfer facilities (the Northeast, West, and Central Transfer Stations) to minimize travel distance and transport time, reduce traffic congestion and better enable the County to meet its waste delivery obligations
- Operate three waste disposal facilities located in the north, central and south regions of the county (North Dade Landfill, Resources Recovery Ashfill and South Dade Landfill)
- Provide integrated mosquito prevention, control, education and outreach
- Issue permits to landscapers, tire generators, and waste haulers
- Evaluate Resource Recovery and Management permit applications for impacts on the County's ability to meet financial obligations, operating conditions, and regulatory requirements pertaining to existing solid waste management facilities.

#### Neighborhood Services

- Provide waste collection and disposal services to more than 338,000 residential households in the solid waste collection service area, which consists of residents of the Unincorporated Municipal Service Area and nine municipalities



- Provide single-stream residential curbside recycling service to nearly 350,000 households located in the Solid Waste Collection Service Area and nine municipalities serviced through interlocal agreements
- Manage and operate 13 Trash and Recycling Centers (TRCs) located throughout the Solid Waste Collection Service Area
- Enforce Miami-Dade County Code regulations that promote clean, safe and attractive neighborhoods and encourage recycling
- Provide two bulky waste pick-ups each year scheduled at the customer's convenience
- Assume major responsibility for debris removal following storms and hurricanes

### **Environmental Protection**

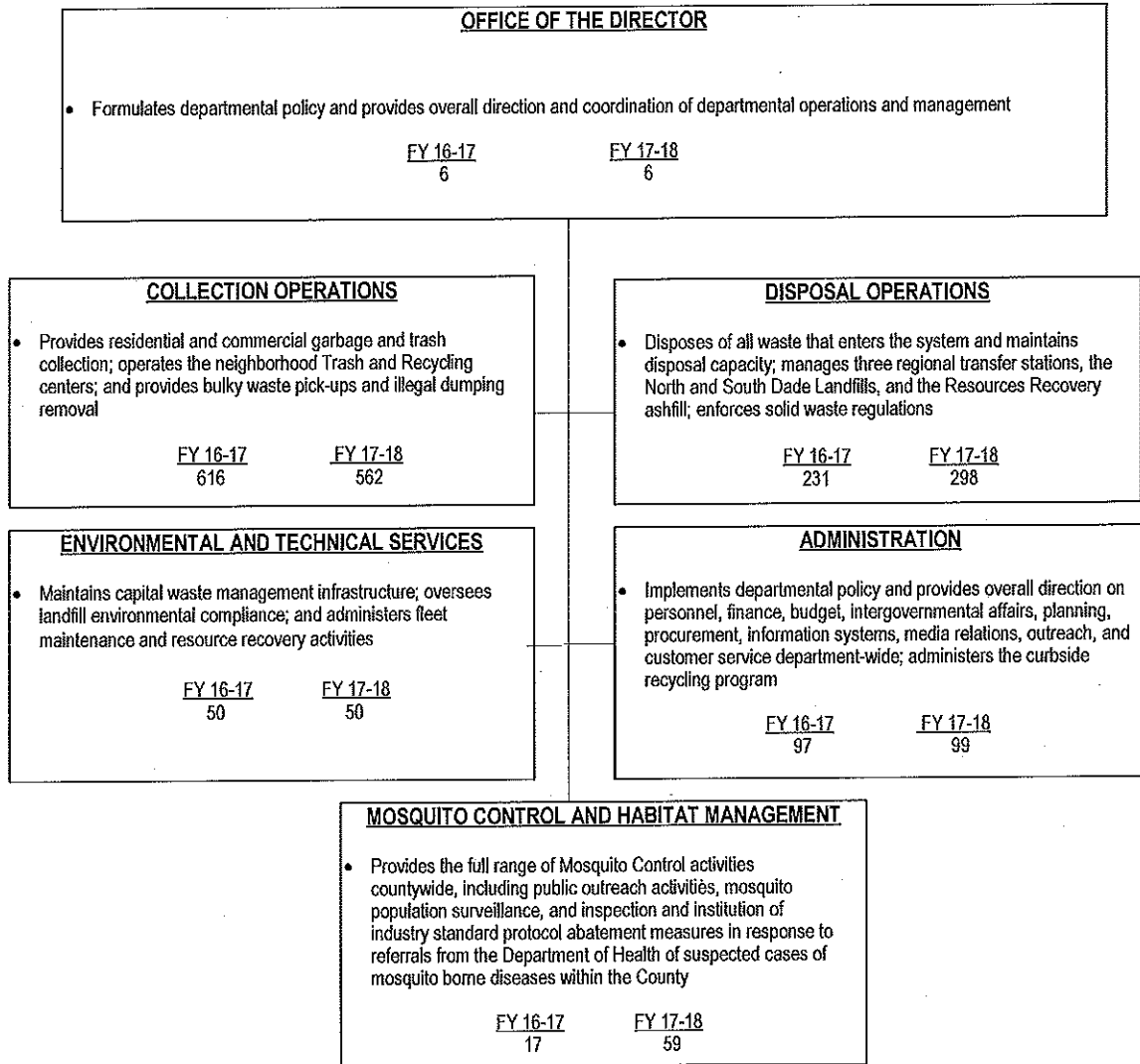
- Oversee operation of the Resources Recovery Facility, where
  - Metals are recovered for recycling
  - Solid waste is converted to
    - ❖ Refuse-Derived Fuel that is used to generate electricity for on-site consumption or export to the power grid; and
    - ❖ Biomass fuel, which is sold to cogeneration facilities in Central Florida
- Operate two household chemical and electronic waste collection centers that are designed to divert hazardous materials from the residential waste stream and prevent groundwater contamination
- Conduct litter clean-up, bus stop and hot spot programs targeting popular illegal dumping sites
- Maintain environmental compliance with federal, state and local waste-related regulations, including post-closure care of landfills for 30 years after the closure is accepted by the US Environmental Protection Agency and the Florida Department of Environmental Protection
- Protect groundwater by funding and overseeing remediation of inactive legacy landfills
- Protect air and water resources by capturing landfill gas for use as fuel and installing groundwater remediation systems
- Provide recycling education and outreach for commercial and multi-family customers
- Participate in WE+LAB (Water and Energy Learning and Behavior) workshops that teach residents about water and energy conservation, recycling and pollution prevention



- Create, restore, and maintain coastal and freshwater wetlands that provide habitat for native plants and a variety of wildlife at the Resources Recovery Facility and the 58<sup>th</sup> Street, South Dade, and Old South Dade Landfills.



**TABLE OF ORGANIZATION**



The FY 2017-18 total number of full-time equivalent positions is 1,087.25



### **Strategic Alignment Summary**

The DSWM supports the following strategic goals and outcomes through the delivery of its integrated waste management collection, recycling and disposal programs. In addition, the DSWM supports other plan goals and objectives by utilizing technology, administering various programs and adhering to established policies and procedures.

- **Effective Infrastructure Services (NI2)**
  - Provide adequate solid waste disposal capacity that meets adopted level-of service standard **NI2-3**
  
- **Protected and Restored Environmental Resources (NI3)**
  - Maintain air quality **NI3-1**
  - Protect groundwater and drinking water wellfield areas **NI3-3**
  - Preserve and enhance natural areas (**NI3-6**)
  
- **Safe, Healthy and Attractive Neighborhoods and Communities (NI4)**
  - Promote livable and beautiful neighborhoods **NI4-2**
  
- **Friendly Government (GG1)**
  - Provide easy access to information and services **GG1-1**
  - Develop customer-oriented organization **GG1-2**
  - Improve relations between communities and governments **GG1-4**
  
- **Excellent, Engaged Workforce (GG2)**
  - Attract and hire new talent **GG2-1**
  - Develop and retain excellent employees and leaders **GG2-2**
  - Ensure an inclusive workforce that reflects diversity **GG2-3**
  
- **Efficient and Effective Service Delivery through Technology (GG3)**
  - Ensure available and reliable systems **GG3-1**
  - Effectively deploy technology solutions **GG3-2**
  
- **Effective Management Practices (GG4)**
  - Effectively allocate and utilize resources to meet current and future operating and capital needs **GG4-2**
  
- **Green Government (GG6)**
  - Reduce County government's greenhouse gas emissions and resource consumption **GG6-1**



### **Our Customers**

The Department's key customers and/or market segments are County and municipal residents, private waste collection companies, municipal waste collection operations, commercial establishments, and other County departments. Our customers demand and receive effective, efficient, courteous, and consistent service.

### **Customers Served**

#### **External customers include:**

- All residents of Miami-Dade County, who benefit from mosquito prevention, control, education and outreach services
- Households within the Solid Waste Collection Service Area, which includes the unincorporated area and the following nine municipalities: Aventura, Doral, Miami Gardens, City of Sunny Isles Beach, Cutler Bay, Miami Lakes, Opa Locka, Palmetto Bay and Pinecrest
- Commercial and multi-family account holders in the Solid Waste Collection Service Area
- The following nine municipalities with interlocal recycling agreements: El Portal, Florida City, Medley, Miami Beach, Miami Springs, North Bay Village, South Miami, Virginia Gardens, and West Miami
- Businesses that are issued general, landscaping, or waste tire permits by the DSWM
- Community stakeholders such as homeowner associations
- Private solid waste haulers operating throughout the County that make deliveries to DSWM disposal facilities
- Municipal waste collection departments from older, established cities that existed prior to the establishment of Miami-Dade County in 1957
- Other city and county governments across the country who exchange comparative operational and financial data with the Department for research and analysis projects

**Internal customers** include elected officials/policy makers and other County departments that receive DSWM service

### **Customer Trends**

The DSWM's authority to provide waste collection and recycling services is established in the Miami-Dade County Code. In order to provide these services, DSWM must construct or





maintain an extensive infrastructure, which requires major capital investment and includes, associated debt service. Such debt service will be incurred regardless of tonnage intake. Therefore, conservation of the System customer base is crucial. There are indications of a consistent, gradual increase in customer demand for waste collection and disposal services in the moderate economic recovery currently taking place.

### Customer Feedback

In the DSWM, customer feedback is direct and immediate. Customer feedback is received in the form of phone calls and e-mails gathered through the County's 311 Service Center(s), as well as direct letters, e-mails, calls and requests, and is measured on the Active Strategy Enterprise Balanced Scorecard (ASE). Direct and immediate feedback enables management to identify problems and act quickly to effectively address and improve performance.

## KEY ISSUES

### Changes in Business Environment

**Disposal Services:** The Solid Waste Management System (System) operates within a competitive environment, in that private firms provide the same or similar services. To ensure that the System remains financially stable and the County's waste delivery obligations are met, the Department utilizes several means to control the flow of waste into the System. First, the Department collects waste directly from approximately 338,000 households; second, the Department enters into long-term waste disposal agreements with municipalities, private waste disposal companies and private waste haulers at predictable rates; finally, the Department enforces Resource Recovery and Management Facility regulations that preserve the County's ability to meet financial obligations, as well as provisions in Solid Waste System Bond documents that authorize the County to disapprove the construction, acquisition or operation of private solid waste disposal facilities that may compete with the System or adversely affect operating revenues.

While the disposal volume had been adversely impacted by the economic downturn that began in 2007, more recently the tonnage levels and related revenues have stabilized and are gradually increasing.

**Privatization:** As stated under Disposal Services above, private firms provide the same or similar waste collection and disposal services as the DSWM. One of the issues faced by the Department involves municipalities with County waste disposal agreements (Contract Cities) privatizing their waste collection services. Privatization can limit the Department's ability to monitor Contract City compliance with their waste delivery obligation to the County, because Contract City waste is comingled with waste from other entities serviced by the private hauler. To minimize any potential tonnage decreases resulting from such municipal collection privatizations, the DSWM has updated its standard Contract Hauler Agreement. Tonnage



must now be reported in order to ensure that Contract Cities are meeting the terms and conditions of their waste disposal interlocal agreements.

**Collections Operation:** The Department is evaluating bulky waste pick-ups, Trash and Recycling Centers and other collection service models to address community demands and better align Departmental operations with industry standards. While the Department's satisfaction rating for customer service remains high and the complaint rate continuously remains low, feedback has been received from various stakeholders requesting more user-friendly services. The Department is exploring several collection system improvements that may require code changes and educational campaigns prior to implementation.

**Energy sales revenues:** Energy sales revenues from the Department's Waste to Energy (WTE) facility have been impacted as a result of expiration of the Power Purchase Agreement with Progressive Energy Florida, now Duke Energy. Although the County has not been able to secure another single large-scale agreement, a 12 year power purchase agreement with Homestead Energy Services for 15 megawatts (about 40% of the excess power) has been secured and became effective in the summer of 2017. The Department continues to pursue other energy revenue opportunities, some of which may require legislative or administrative changes at the State level.

**Financial Stability:** The DSWM needs to maintain financial stability in order to meet its service delivery obligations. Although the County is enjoying a moderate economic recovery and the Department continues to implement cost saving measures wherever possible, a waste fee increase is unavoidable. The residential solid waste collection fee has remained constant, at \$439, since 2006. In order for the Department to keep up with increasing costs and maintain current service levels, a fee increase will be necessary, beginning in FY2017-2018.

It is important that the DSWM maintains solid financial health with a stable bond rating outlook for its credit profile. The Department must continue to sustain adequate debt service coverage levels and strong liquidity in order to prevent negative rating pressure. This will enable the Department to maintain financial stability and ensure favorable rates when issuing future bonds.

#### Achievement of Milestones

- Successfully managed outbreaks of Zika in various Miami-Dade County neighborhoods and became the first community in the world to break the cycle of local transmission of Zika in four locations: Wynwood, south Miami Beach, north Miami Beach, and Little River
- Secured Mayoral Approval to establish and hire 42 additional positions for countywide mosquito control efforts, to include enhanced enforcement, vector control and technology initiatives



- Won a 2016 Silver Excellence Award from the Solid Waste Association of North America for the "Recycle This, Not That" multi-media public awareness campaign
- Was awarded the Government Finance Officers Association (GFOA) Certificate of Achievement for Excellence in Financial Reporting for its Comprehensive Annual Financial Reporting (CAFR), which the Department has received for more than 20 years in a row
- Placed five cleaner-burning compressed natural gas (CNG) vehicles into service, as part of a pilot program in advance of the Department's transition to CNG
- Secured 10-year operational permits from the Florida Department of Environmental Protection for the North Dade and South Dade Landfills to ensure uninterrupted service
- Secured approval to establish and fill instructor positions for an enhanced Training Unit
- Secured \$26,500,000 in funding to initiate the fleet replacement program
- Secured a 12-year Power Purchase Agreement with Homestead Energy Services for 15 megawatts of excess power generated at the WTE facility, which represents approximately 40% of the amount available

### Opportunities

In order to increase efficiency and maintain levels of service, the DSWM will continue to evaluate all possible opportunities that provide a net benefit to its operations, including the use of private contractors. Some potential opportunities currently in process and/or under consideration are as follows:

**Infrastructure Assessment:** Conducting a comprehensive survey of Departmental infrastructure needs will determine future requirements for transfer stations, landfills, and supporting facilities. Anticipated future requirements will be based on tonnage projections broken down by geographic area, and remaining in-house and contracted disposal capacities will be included in the survey

**Maximizing Efficiency Through Use of Technology:** Installing onboard scales on waste transfer vehicles will help reduce overtime expenditures and operating costs. The onboard scale system will reduce the number of trips to and from facilities by ensuring that each vehicle load is filled to capacity but not overfilled, as outlined in the Six Sigma process improvement study. Underweight loads are counterproductive, causing the Transfer Division to utilize more trips for a given amount of tonnage. Conversely, loads that are overweight pose a liability to the Department and promote faster wear and tear on equipment. Installation of on-board scales in 135 waste transfer vehicles began in October 2015 and was

completed in mid-2017. All waste transfer vehicles ordered in the future will be equipped with onboard scales.

**Ash Reuse:** The capital cost for construction of the most recent ashfill cell was approximately \$5 million, and this cell is projected to reach final capacity in 2030. Re-use of ash residue from the Resource Recovery Facility (RRF) would significantly reduce the need for ash landfill capacity and the hauling of ash offsite for disposal in the future. A Research Service Agreement with the University of Florida Hinkley Center to study the viability of substituting bottom ash from the Resources Recovery Facility (RRF) for coal ash in the manufacture of cement was approved by the Board of County Commissioners on March 8, 2016. The department is partnering with Titan Cement and Covanta Dade Renewable Energy on this project. If successful, this project may lead to the recycling of up to 85 percent of the ash produced at the RRF annually. The Agreement is being amended to extend the term to November 2019 and expand the scope by including two additional tasks.

**Purchase of Buffer Land:** The DSWM is exploring the possibility of purchasing vacant land in proximity to the Resources Recovery Facility (RRF). Staff has identified available properties and is working with the Internal Services Department (ISD) to acquire this land. The purchase of land near the RRF will enable the Department to create a buffer zone on the south side of the facility, with adequate acreage for a land lease for the purpose of steam power sales to a private entity. Providing a land buffer can help to minimize land use conflicts and promote the Strategic Plan goal of responsible growth.

**Safety Measures:** The Department continues to utilize the Accident Review Committee (ARC) to evaluate Departmental industrial and vehicular accidents in a timely manner and to report those findings as appropriate. In accordance with the National Safety Council, the purpose of the ARC is to decide cases fairly and consistently and to enhance the Department's safety and collision prevention efforts. The ARC also provides an additional level of review that supports the existing DSWM investigative and reporting preparation process, suggests methods to prevent reoccurrences, and promotes accident prevention.

In addition to the ARC described above, the Department will be launching the following Safety initiatives:

- In-house Comprehensive Defensive Driver Training Course for Professional Drivers
- FDOT Refresher Driver Training tailored for each driver/operator classification to enhance safe driving skills and ensure proper operation of the various types of vehicles and equipment utilized by the Department.
- Implementation of an annual Departmental Employee Rewards and Recognition Program for outstanding performance and safety practices, to include recognition of employees within the various operational Divisions on a quarterly basis.



**Employee Training:** The DSWM is in the process of hiring positions for the new Training and Education Center (TEC). The purpose of the TEC is to ensure that the Department has a pool of qualified applicants available to fill positions in a timely manner, standardized training, and continuing education for staff. The TEC will be a great benefit to the department by offering simultaneous training classes and providing a comprehensive approach for training and development initiatives, including defensive driving, workplace safety, and driver/equipment training.

### Obstacles

The DSWM has major operational and capital hurdles to resolve or overcome in order to continue to deliver quality levels of services efficiently and effectively. Some of them include:

**Retirements:** A large percentage of the current DSWM workforce, critical staff with specific technical expertise and management experience, is close to retirement. Departure of senior staff in key areas of operations and administration and the associated loss of institutional knowledge, continue to impact the continuity of operations. The DSWM tracks pending retirements of critical positions to project and plan for the replacement of employees through recruitment planning. However, timely replacements are often problematic. The Department continues to evaluate means to retain its workforce and prepare for retirements by developing innovative programs and automating HR Systems to track, monitor and analyze employee data. Other departmental efforts include training and monitoring the workforce to ensure that the skill sets necessary for the continuity of operations are maintained.

**Staffing:** The DSWM continues to evaluate staffing needs and realign resources to best address needs and reduce staffing shortfalls within operations. In addition, the Department has developed training opportunities in order to ensure that staff is adequately trained and that middle and senior level staff have the necessary competencies to be effective. The “domino-effect” of internal promotions within the Waste Bargaining Unit has significantly impacted staffing and the ability to fill positions as quickly as needed. Typically, when a senior promotional position within the Bargaining Unit (BU) is filled, at a minimum, three vacancies are created, impacting overtime costs should the Department not have qualified and trained employees ready for promotion. Department activities have been significantly affected by position eliminations or retirements, which have led to an immediate knowledge deficit in key areas.

**Aging Facilities and Equipment:** The DSWM needs to ensure future viability of aging infrastructure, including equipment and facilities. Most of the Department’s facilities are over 40 years old and therefore require upgrades and/or modifications to improve operations and extend their useful life. Of particular concern is the Mosquito Control facility, which requires replacement to accommodate a major reorganization and expansion of the division.



The Central Transfer Station (CTS) serves the central-eastern, most urbanized geographic area of the County, as well as the largest contract municipality, the City of Miami. This area is anticipated to experience significant population growth in the form of an urban infill high density growth pattern, as opposed to the traditional suburban low-density horizontal growth. The CTS, which normally handles over 200,000 tons annually, is manifesting wear and tear more evidently than the other two transfer stations. Surface openings and cracks have been observed in the deck of the waste vehicle ramp leading to the second story. As part of the Department's current survey of infrastructure needs, the degree of repair or replacement needed at the CTS is being carefully evaluated. Some repair and replacement scenarios call for a major reconstruction of the facility.

The South Dade Landfill Shredder Building (SB) has been utilized as a major transfer location for well over 20 years, even though the building was not designed to handle transfer operations. The SB is also demonstrating significant wear and tear. This facility is the primary means of moving waste from southern portions of the County to the RRF plant. As part of the Department's current survey of infrastructure needs, the degree of repair or replacement needed at the SB is being carefully evaluated. Some scenarios call for replacement or major retrofit of the SB building.

Landfill Gas removal systems at both the North Dade Landfill and South Dade Landfill have varying degrees of wear and tear, and will require work to bring up to standard in the coming months. The condition of the landfill gas removal systems is also being documented as part of the comprehensive infrastructure survey now under way.

**Fleet Replacement:** The Department has Multi-Year Fleet and Capital Plans in place to address the aging fleet issues. The Department needs modernization/replacement of heavy fleet in the Collections and Disposal Operations, which will be funded through lease financing. Vehicle purchases will be in accordance with the Department's 10-Year Fleet Replacement Plan. The DSWM will transition to Compressed Natural Gas (CNG) upon completion of the procurement process for CNG vehicles and fueling infrastructure. Until then, the Department will continue to purchase standard heavy fleet vehicles.

**Electric Power Purchase Agreement (PPA):** The PPA with Progress Energy Florida (PEF), now Duke, expired November 30, 2013 and the DSWM and the Resources Recovery Facility (RRF) Operator were unable to secure a replacement. Therefore, the Department began selling power to Florida Power Light and Duke on an "As-Available" basis starting December 1, 2013. The As-Available rate is the lowest rate, which is anticipated to be approximately \$20 per megawatt hour, about 75% less than the prior \$85 per megawatt hour PPA rate with PEF. The DSWM is seeking out and responding to RFPs for energy sales throughout the state, in order to find the best long-term value for the County. As a result of responding to one such RFP, the County was awarded a 12 year power purchase agreement with Homestead Energy



Services for 15 megawatts, beginning in the summer of 2017. The County is currently marketing power through a specialty company, Rainbow Energy Marketing, to obtain very short term (spot market type compensation) for the energy, in addition to sending power to the highest "As Available" offer.

**Weakness in the Energy Market:** The sale of biomass fuel from the Resources Recovery Facility (RRF) to other waste-to-energy facilities in Florida is also affected by lower energy prices. To the extent that the RRF operator requests less recyclable trash for processing into biomass fuel, the additional trash will be placed in County landfills, thus reducing remaining disposal capacity.

### Legislative Changes/Mandates

Legislative changes that can potentially affect the operations of the Department include:

**Recycling:** The DSWM opposes any efforts to revise existing Florida statutes or adopt new legislation that diminishes the ability of Florida counties to count the production of renewable energy toward achievement of the long-term recycling goal of 75% by 2020. Under existing Florida Statutes the DSWM can count Waste-to-Energy production, Landfill Gas Utilization (methane gas converted to energy), materials collected in its single stream recycling programs, as well as other recycling programming, toward the long-term recycling goal. Any changes to the Florida Statutes that disallow inclusion of renewable energy towards achievement of the goal will have an adverse impact on the DSWM and the County meeting the recycling goal. By the year 2020, the long-term goal for recycling efforts of state and local governmental entities, private companies and organizations, and the general public is to recycle at least 75% of municipal solid waste (40% by 2012, 50% by 2014, 60% by 2016, 70% by 2018, and 75% by 2020). The Florida Department of Environmental Protection's Solid Waste Annual Report states that the overall State recycling rate achieved for 2016 was 56%. The DSWM will continue to monitor this legislation and enhance Miami-Dade County's efforts to meet the incremental and ultimate 75% recycling goal.

**WTE-Generated Electricity:** Miami-Dade County's long term PPA expired in November, 2013, at which point WTE plant annual electrical revenues (shared with the WTE plant operator) were reduced from \$30.0 million to approximately \$6.5 million currently. To counteract this sharp reduction in revenues and as a public policy to reduce the state's fossil fuel consumption, the DSWM strongly supports efforts to encourage WTE-Generated Electricity. The DSWM has included an item in its State Legislative package proposing that the Florida Legislature mandate that the Public Service Commission adopt rules requiring investor-owned utilities to purchase a minimum amount of WTE-Generated Electricity.

**Municipal Waste Combustor (MWC) Maximum Achievable Control Technology (MACT) Standards:** The Environmental Protection Agency (EPA) is expected to release a revised



MWC MACT rule, which will lower acceptable emission levels of pollutants such as dioxins, mercury, nitrogen oxides and carbon monoxide. Without intervention from Covanta and client communities including the DSWM, all indications are that new standards will be developed with the problematic “pollutant-by-pollutant” methodology. Per the new rule, each waste-to-energy plant will be required to achieve the emission levels of the best performing plant for each pollutant. There are positive environmental impacts to maintaining low pollutant levels. However, if the proposed rule is approved, it will negatively impact the DSWM’s WTE facility (increased costs due to the need for new equipment/technology and payment of fines if standards are not met) to the extent of a potential shutdown. The Department has invested approximately \$500 million into the WTE facility, including \$64 million for an Air Quality Control System Retrofit project that was completed in the year 2000.

## **PRIORITY INITIATIVES**

The most important initiatives for the DSWM that are planned or ongoing for the upcoming fiscal year include:

### **Mosquito Control:**

- The DSWM is exploring innovative treatment strategies, contingent upon funding provided by the U.S. Centers for Disease Control and Prevention through the Florida Department of Health. New and emerging technologies such as Wolbachia-infected, genetically modified, and irradiated mosquitoes, all variants of the Sterile Insect Technique (SIT), will be examined to determine what role they might play in the Mosquito Control and Prevention Program going forward. In addition, the DSWM plans to continue its evaluation of the In2Care system, a pesticide auto-dissemination system, in the Wynwood and Miami Beach impact zones, which is also dependent upon available funding.
- The DSWM will continue utilizing conventional treatment methods for mosquito control in the 2017 season that include enforcement of code requirements pertaining to elimination of mosquito breeding areas, physical habitat abatement, and adulticide and larvicide treatments from truck and aerial platforms. This latter dual-treatment approach, developed in response to the 2016 Zika public health crisis, proved effective in stopping the cycle of Zika transmission by mosquitoes in the four local transmission areas.
- The 60-year old Mosquito Control Building requires replacement or expansion in order to increase work space and incorporate modern technology. A new proposed facility would include employee amenities including an emergency shower station, maintenance shop, chemical and trap storage, and a battery charging station. Renovation of the Mosquito Control Facility will allow Miami-Dade County to more effectively control the mosquito population and prevent the spread of diseases, including the Zika virus. This unfunded project is estimated to cost \$5,000,000.





- A comprehensive update and reorganization of the Mosquito Control Code (Chapter 26A – Sanitary Nuisance) is being prepared for consideration by the Board of County Commissioners. The ordinance will clarify and enhance the Department's countywide mosquito control enforcement authority, including creating a new Vector Control Plan requirement for construction sites.

**Recyclables Contamination:** A Recyclables Contamination Abatement Program is being implemented to address the problem of items such as plastic bags, hangers, hoses, etc. being misplaced in recycling containers. Contamination of the recyclable waste stream is a national problem with serious negative economic and environmental effects. The Department will be addressing this problem on the front end, with an outreach program to educate customers, and on the back end with stepped up enforcement.

**Code Revision:** Chapter 15 of the Code of Miami-Dade County is being revised to reflect current policies and best practices, as well as to incorporate updated definitions and requirements pertaining to solid waste management, including recycling, enforcement, permitting, and illegal dumping.

**Training and Career Development:** The Department has prioritized the establishment of an in-house Training and Career Development Initiative that will provide Departmental training and career development for all employees. Six (6) additional positions, to include three (3) dedicated Technical Equipment Instructors and one (1) Instructor Supervisor, have been approved in FY16-17 to provide specialized job skills, operations and safety training to employees. A primary goal is to ensure a well trained workforce and a pool of qualified candidates for succession. Reductions in preventable collisions, employee injuries and liability costs, together with overall improvements in employee performance, employee engagement and customer service, are additional goals. Until the new Training and Career Development unit is fully implemented, the Department will provide internal driver and equipment training for employees in order to fill its vacancies. In addition, the DSWM continues its strategic collaboration with the Department of Transportation and Public Works for CDL testing that augments the internal driver training program.

**Additional Waste Disposal Capacity:** Cell 5 Construction at South Dade and contracted capacity with both Waste Management Inc. of Florida and Progressive Waste Solutions (1.75 million tons total annual contracted capacity) will ensure the availability of disposal capacity sufficient to accommodate waste flows committed to the System through long-term interlocal agreements or contracts with municipalities and private waste haulers and anticipated waste flows, for a minimum of five years.

**Landfill Gas Utilization System:** The South Dade Landfill Gas Utilization Project involved construction of a pipeline to the Water and Sewer Department's South District Wastewater Plant, where landfill gas is mixed with digester gas to create fuel for on-site generators. The system is currently in operation.



**Municipal Landfill Closures:** The DSWM administers grants/interlocal agreements for closure and remediation of municipal landfills to ensure regulatory compliance. The Department is currently funding or conducting the following municipal landfill closure grant projects: Munisport, Virginia Key and Taylor Park; a County-owned site in the City of Miami Gardens is pending

**Comprehensive Landfill Closure Plan:** A resolution approving County and municipal landfill closure projects eligible for funding through the Comprehensive Landfill Closure Plan (CLCP) was approved by the Board of County Commissioners in October 2015. The CLCP includes County and municipal landfill sites that are eligible for remediation and closure funding from the Utility Service Fee (USF) and sets out the criteria, terms and timing of this funding. Several potential municipal sites are currently being evaluated for USF eligibility and inclusion in the CLCP.

**Power Purchase and Transmission Agreement:** The Power Purchase Agreement (PPA) with Duke Energy (formerly Progress Energy Florida) expired November 30, 2013 and the DSWM and the Resources Recovery Facility (RRF) Operator were unable to secure a replacement. Therefore, the Department began selling power to Florida Power and Light on an "As-Available" basis starting December 1, 2013. The "As-Available" is the lowest rate and has been averaging less than \$20 per megawatt hour; about 75% less than the prior \$85 per megawatt hour PPA rate with PEF. An "As-Available" power sales agreement has also been signed with Duke Energy, to take advantage of price differences between the two agreements as warranted. The County is also marketing power through a specialty company, Rainbow Energy Marketing, to obtain very short term (spot market type compensation) for the energy, in addition to sending power to the highest "As Available" offer. The DSWM is continuing to seek out and respond to RFPs for energy sales throughout the state to find the best long-term value for the County. As a result of responding to one such RFP, the Department was successful in being selected by the City of Homestead Electric Utility as one of its energy suppliers beginning in the summer of 2017.

**Compressed Natural Gas Pilot Program:** This program is intended to familiarize both waste operations and the Internal Services Department Fleet Management Division with Compressed Natural Gas (CNG) vehicle operations and maintenance. The DSWM has purchased and placed into service five CNG truck tractors as part of a pilot program. The tractors are being fueled through an arrangement with the City of North Miami, however, a more efficient fueling option is currently being pursued with Waste Management Inc. of Florida at their fleet facility located in the Town of Medley. In addition, the Department is currently negotiating a contract for development of long-term CNG fueling infrastructure.

**Additional Cart Service Fee Program:** An annual per cart service fee was established in 2015 to cover the cost of providing twice-weekly curbside collection for each additional

residential waste cart over the standard issued single cart. Previously, there was a one-time fee paid for the cart itself, with no accounting for the cost of collecting and disposing of the cart contents. The Additional Cart Service Fee Program was initiated to insure that the cost of collecting and disposing of the additional cart contents is properly assigned. The enforcement component of this project will commence in late 2017, whereby additional carts that remain unfunded by the property owner after being duly notified will be removed.

### Technology Initiatives

In addition to program based initiatives, the DSWM has a number of technology initiatives that are in place or will be implemented in the near term to help support and improve operations. They are as follows:

**Waste Collection Software Replacement:** The development and integration of the Communications Department's new Citizen Relationship Management (CiRM) system and DSWM's new Waste Collection Systems (WCS) will provide bi-directional Interfaces between both ORACLE database systems. Communication's CiRM system is utilized by Miami-Dade County's 311 citizen call intake center. 311's CiRM system receives, creates and updates DSWM service requests which consist of public complaints, requests for service, garbage and trash pickup information, etc. The new CiRM will interface with DSWM's new Waste Collection System and several other departments' database systems. The new WCS will consist of three tightly integrated DSWM Operations and Administrative modules (Code Enforcement, Accounting/Billing and Trash Routing). These three WCS modules will work together seamlessly to process CiRM system service requests related to DSWM services, manage residential and commercial enforcement violations, coordinate bulky waste scheduling and manage the account billing process. Within the scope of the new WCS, the public will access the following: report/file a complaint, make online payments (bills, services, fines), verify availability of a bulky waste pick up, request bulky waste service, check status of a bulky waste order, request an inspection, complete a permit renewal application and check the status of an enforcement action. Testing will be conducted prior to full-scale implementation of the newly integrated system.

**Waste and Recycling Cart Program:** The DSWM has entered into a contract for purchase of Waste and Recycling Carts that includes work order processing and inventory management software. The DSWM is working with ITD to implement this system.

**Biometric Time Clock System:** The DSWM is an active member of a multi-department effort to procure and implement a biometric time clock system that will interface with the PeopleSoft ERP time and attendance module in order to accurately and efficiently capture employee time. The biometric feature will rely on a unique attribute (finger print), to identify and then "clock-in" the staff member. The Biometric time clock system back-end infrastructure (server, database and interface to Peoplesoft) has been set up and the anticipated time frame for completing clock installations is mid calendar year 2017.



**Vehicle Routing and Work Order Processing:** Based on the successful cost-savings achieved by the automated routing solution as applied to garbage operations (regular daily routes), the Department is proposing to use similar software to route bulky waste pick-ups (unique daily routes) in conjunction with a work order processing enhancement. The project goal is to provide automated route planning tools to create balanced workloads, optimize service sequences, generate route plan reports to help crews be more efficient, and facilitate real-time reporting of activities in the field. Eventually, use of this integrated software system can be expanded to the Enforcement, Mosquito Control, and other functions.

**Collection Center Access Management System (CCAMS) /landscaper enhancement:** This system offers a solution to build on the success of the DSWM's NACo award-winning software application that enables the secure screening of residential visitors to the Trash & Recycling Centers. The Department is proposing to develop and implement additional functionality that will automate the use of the facility by private landscaping companies and include a Home Chemical Collection Center visitor/use tracking module.

**Waste Disposal Scale House Weighing & Billing system:** A Request for Proposals for an updated system that adheres to the Payment Card Industry Data Security Standard has been drafted and will next go through the procurement process.

**On-line Payments:** This initiative will establish a system that will permit users/customers to make electronic payments (typically by credit card) over the internet on the County's website. In addition to accepting payments, the system will include the capability of issuing permits. Implementation of this system is planned for late calendar year 2017.

**Personnel Applications:** The Human Resources Division will be obtaining training and e-learning software to facilitate required trainings, along with employee engagement software and driver training simulators. This will facilitate, standardize, and simplify logistics and scheduling associated with these functions.

**Financial Reporting Software:** The Accounting Division will be obtaining software products that streamline the generation of various financial reports.

## FUTURE OUTLOOK

There are various factors that have the potential to significantly impact Departmental operations within the upcoming years. A few of these are as follows:

**Mosquito Control Funding:** Chapter 388 of the Florida Statutes was enacted in 1925 to authorize local governments to create mosquito control districts, and there are currently 56 , mosquito control districts located throughout the State. In light of the declared public health emergency that occurred in early 2016 due to the Zika virus, it is imperative that a long-term

funding mechanism be established to maintain current operations and support future enhancements needed for critical mosquito control activities.

**Compressed Natural Gas:** The DSWM should be able to realize significant cost savings in all of its waste operations by converting its heavy fleet to compressed natural gas fueling. This will better enable the Department to minimize increases in the household waste collection fee that are required to maintain quality service.

**Encroachment of Residential Development:** Construction of new residential communities in the area surrounding the Resources Recovery Facility (RRF) has resulted in complaints relating to odor. In response, the DSWM has established an odor monitoring network to document the validity of these complaints and plans to task Covanta with hiring an engineering firm to evaluate the existing odor control system and install state-of-the-art upgrades as warranted. Another potential odor source is the privately owned Medley Landfill, located north of the RRF. The DSWM is diverting “unders” (grit-like residue that is separated out through the garbage screening process), that were being disposed of at the Medley Landfill to a regional landfill located in Okeechobee County. The DSWM is also exploring the possibility of purchasing a ten-acre parcel of vacant land located on the south side of the RRF that would serve as a buffer zone.

**Financial Stability:** The DSWM has experienced revenue shortfalls in the past few years and continues to monitor and reduce expenditures while attaining operational efficiencies that help minimize costs. The Department is currently evaluating its fees and will recommend adjustments as needed. Commercial waste collection rates and services, for example, will be restructured to better cover costs and provide improved customer service. This will require a change to Implementing Order 4-68 (Schedule of All Service Levels and Fees for Miami-Dade County Solid Waste Services).

**Annexations and Incorporations:** Potential annexation and incorporation policies can impact the DSWM. Annexations in particular have the potential to reduce the Waste Service Area and associated revenues. A smaller Waste Service Area could have a profound impact on revenues, debt service coverage and ultimately fees charged to the remaining collection customers.

#### Legislation – State and Federal

**Green House Gas Regulations:** There are two air emission requirements established by the United States Environmental Protection Agency/Florida Department of Environmental Protection (USEPA/FDEP) that may be modified and therefore, could affect DSWM facilities in the foreseeable future: Mercury and Greenhouse Gases (GHGs). GHGs subject to the air emission regulations include Carbon Dioxide, Methane and Nitrous Oxide. Effective January 1, 2010, an inventory of GHG emissions from the County’s Landfills and the Waste-to-Energy plant was required to be maintained. Data collected through the inventory will be used as a



basis for limiting (capping) GHGs from solid waste facilities. Facilities emitting over a certain threshold will be required to offset the GHGs by buying credits and/or paying a fee. To track Mercury emissions from the Waste-to Energy plant , the FDEP has advocated for requiring Continuous Emissions Monitors, which analyze stack emissions continuously on a real time basis. Currently, the stack emissions are periodically monitored by discrete stack testing.

**WTE-Generated Electricity:** Miami-Dade County's long term PPA expired in November, 2013, at which point WTE plant annual electrical revenues (shared with the WTE plant operator) were reduced from \$30.0 million to approximately \$6.5 million currently. To counteract this sharp reduction in revenues and as a public policy to reduce the state's fossil fuel consumption, the DSWM strongly supports efforts to encourage WTE-Generated Electricity. The DSWM has included an item in its State Legislative package proposing that the Florida Legislature mandate that the Public Service Commission adopt rules requiring investor-owned utilities to purchase a minimum amount of WTE-Generated Electricity.

**Revised Pollutant Standards:** The Environmental Protection Agency (EPA) is expected to release a revised Municipal Waste Combustor (MWC) Maximum Achievable Control Technology (MACT) rule that lowers emission levels of pollutants such as dioxins, mercury, nitrogen oxides and carbon monoxide. Covanta (the DSWM's Waste-to-Energy Facility Operator) has been working with EPA and Congressional members to encourage the EPA to issue a rule that is reasonable and achievable. Recent MACT rules promulgated by EPA for the Medical Waste, Cement, Utility and Industrial Boiler industries have utilized the problematic "pollutant-by-pollutant" methodology and there is reason to believe the same approach will be used for the MWC MACT rule. While the DSWM does not know exactly when the EPA plans to release these new rules, without intervention from Covanta and client communities including the DSWM, all indications are that new standards will be developed with the problematic "pollutant-by-pollutant" methodology. Per the new rule, each waste-to-energy plant must achieve the emission levels of the best performing plant for each pollutant. If this new rule becomes effective, it will have a negative financial impact on the Department.

It is important to oppose any MWC MACT rule that sets standards using the pollutant-by-pollutant methodology. The EPA should set standards by selecting facilities that have the best overall pollutant levels, and also by considering waste content and emissions variability. Setting standards by the best individual pollutant levels (which may come from various facilities) would likely result in unrealistic and unachievable emission standards, some of which could not be met by the DSWM's Waste-to-Energy facility or possibly by any other similar facility. This in turn could result in increased operational and capital costs as well as costly fines and the potential of ultimately closing down the facility.

### **Waste Tire Fee**

Funds generated from the \$1 per waste tire mitigation fee that is assessed on new tire purchases in Florida have in the past been used to provide grants for environmental services

and projects. Currently, counties with populations exceeding 100,000 are excluded from receiving these state grant funds. The State of Florida should allocate waste-related grants on a county by county basis at a level commensurate with the amount of fees paid into the mitigation fund by the residents of each county. These funds could then be used to support efforts to manage illegally dumped tires that serve as habitat for disease carrying mosquitoes, and a program to recycle used electronics. The Department is working with the Office of Intergovernmental Affairs and has included language in the legislative package to address this issue.