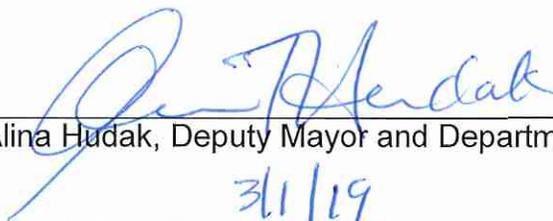




DEPARTMENT OF SOLID WASTE MANAGEMENT BUSINESS PLAN

Fiscal Years: 2019 and 2020
(10/1/2018 through 9/30/2020)

Approved by:



Alina Hudak, Deputy Mayor and Department Director
3/1/19

Date

Plan Date: February 27, 2019

Delivering Excellence Every Day



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DEPARTMENT OVERVIEW

The Department of Solid Waste Management (DSWM) has served the community for 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 1,100 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 County Department of Solid Waste Management (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

- **Transfer:** 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
- **Disposal:** 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)
- **Mosquito Control:** Provide integrated mosquito prevention, control, education and outreach
- **Permits:** Issue permits to landscapers, tire generators, and waste haulers
- **Permits (RRMF):** Evaluate Department of Regulatory and Economic Resources (RER) 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

- **Collection and Disposal:** Provide waste collection and disposal services to over 330,000 residential households in the Solid Waste Collection Service Area, which includes residents of the Unincorporated Municipal Service Area and nine municipalities
- **Recycling:** Provide single-stream residential curbside recycling service to nearly 350,000 households in the Solid Waste Collection Service Area and nine municipalities serviced through interlocal agreements
- **Centers:** Manage and operate 13 Trash and Recycling Centers (TRCs) located throughout the Solid Waste Collection Service Area
- **Enforcement:** Enforce Miami-Dade County Code regulations that promote clean, safe and attractive neighborhoods and encourage recycling
- **Bulky:** Provide two bulky waste pick-ups each year scheduled at the customer's convenience
- **Debris:** Oversee debris removal within the Solid Waste Collection Service Area following storms and hurricanes.

Environmental Protection

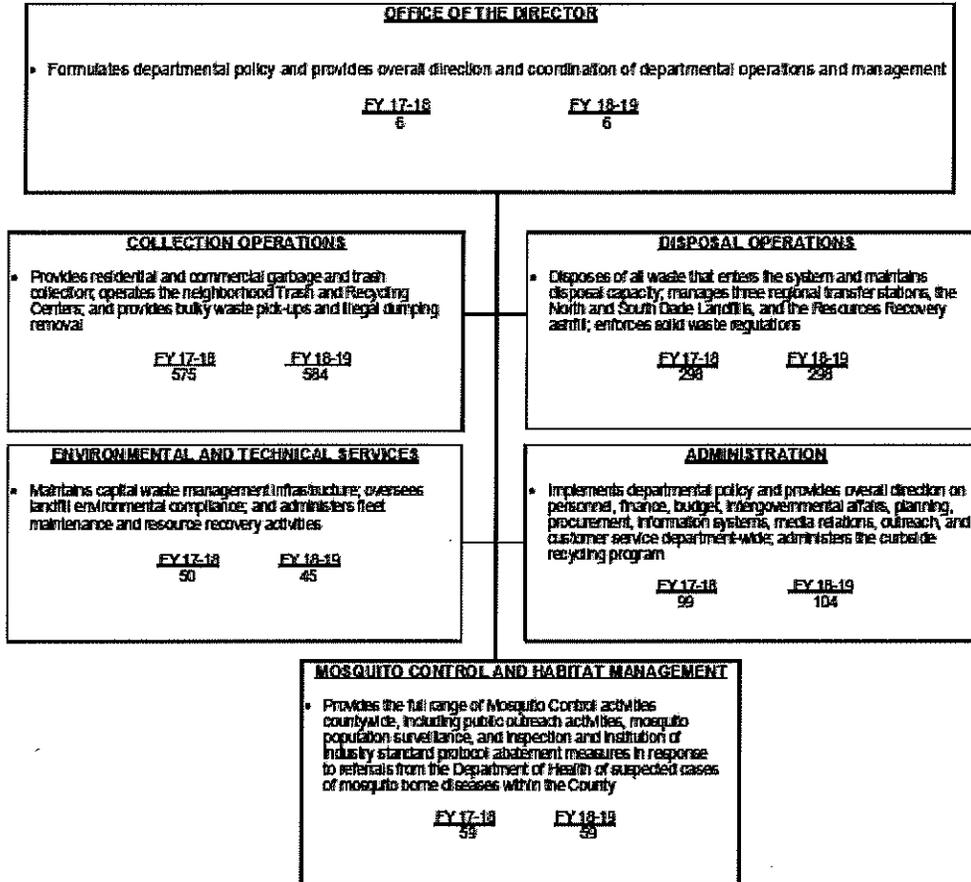
- **Waste-to-Energy:** Oversee operation of the Resources Recovery Facility (RRF), which accepts approximately 70% of all the waste handled by the DSWM system-wide. The volume of the incoming waste accepted at the RRF is reduced by over 90% through the following processes:
 - o Recovery of metals for recycling
 - o Conversion of waste to either refuse-derived fuel that is then used to generate electricity for on-site consumption and export to the power grid, or biomass fuel, which is sold to cogeneration facilities.
- **Home Chemical:** 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
- **Litter:** Conduct litter clean-up, bus stop and hot spot programs targeting popular illegal dumping sites
- **Regulatory Compliance:** Maintain environmental compliance with federal, state and local waste-related regulations, including post-closure care of landfills for 30 years

- **Landfill Remediation:** Protect groundwater by funding and overseeing remediation of inactive legacy landfills
- **Landfill Gas:** Protect air resources by capturing and burning methane, a powerful Greenhouse gas that is converted to a less potent form through incineration.
- **Education and Outreach:** Provide education and outreach on litter and illegal dumping prevention, proper solid waste and home chemical management, and guidelines designed to avoid contamination of recyclables and increase recycling program participation. Participate in WE+LAB (Water and Energy Learning and Behavior) workshops that teach residents about water and energy conservation, recycling and pollution prevention.
- **Wetlands:** Create, restore, and maintain coastal and freshwater wetlands that provide habitat for native plants and a variety of wildlife at the Resources Recovery Facility, 58th Street, South Dade, and Old South Dade Landfills.



FY 2018 - 19 Adopted Budget and Multi-Year Capital Plan

TABLE OF ORGANIZATION



The FY 2018-19 total number of full-time equivalent positions is 1,108.25



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**

Effective Emergency and Disaster Management (PS3)

- Identify and protect critical infrastructure to ensure continuity of operations **PS3-1**
-
- **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:

- **County Residents:** All residents of Miami-Dade County, who benefit from mosquito prevention, control, education and outreach services
- **Collection Service Area:** Households within the Solid Waste Collection Service Area, which includes the unincorporated area and the following nine municipalities: Aventura, Doral, Miami Gardens, 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
- **Cities:** 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
- **Permitted Businesses:** Businesses that are issued general, landscaping, or waste tire permits by the DSWM
- **Community Stakeholders:** Community stakeholders such as homeowner associations, civic groups, and schools.
- **Haulers:** Private solid waste haulers operating throughout the County that make deliveries to DSWM disposal facilities
- **Municipal Departments:** Municipal waste collection departments from older, established cities that existed prior to the establishment of Miami-Dade County in 1957
- **Peer Agencies:** 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.

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 Contact and Service Center(s), as well as direct letters, e-mails, calls and requests, and is measured on the DSWM scorecard in Active Strategy Enterprise (ASE). Direct and immediate feedback enables management to identify problems and act quickly to effectively address and improve performance.

KEY ISSUES

Departmental Issues

Financial Stability: The DSWM must maintain financial stability in order to both meet its service delivery obligations and assure a stable bond rating outlook for its credit profile. Negative bond rating pressure can be prevented by continuing to sustain adequate debt service coverage levels and strong liquidity. This will enable the department to maintain financial stability and ensure favorable rates when issuing future bonds.

Between 2006 and 2016, the residential solid waste collection fee remained constant, at \$439 per household. In September 2017, the BCC approved a residential waste collection fee increase of \$25, from \$439 to \$464 per household, which includes \$19 per household to cover the cost of basic services and an additional \$6 per household to combat illegal dumping. Unfortunately, due to the impact of Hurricane Irma, which struck Miami-Dade County in September of 2017, the DSWM anticipates unreimbursed expenses of approximately \$16M, creating a projected budget deficit in FY 2018-19. Upon completing the FEMA reimbursement process and solidifying its financial outlook, the DSWM will need to work with the Mayor and BCC on a plan to close its financial gap and provide longer term stability, through either service adjustments or additional



fee increases.

Purchase of Land: The DSWM currently is in the closing process for the purchase of a 10-acre parcel of vacant land located immediately south of the Resources Recovery Facility (RRF), which will facilitate creation of a buffer zone. The Department continues to assess the availability of similar property adjacent to the North Dade Landfill and South Dade Landfill.

Additional Waste Disposal Capacity: Cell 4 at the South Dade Landfill is nearing its design capacity, partially due to municipal disposal of Hurricane Irma debris. Cell 5, which has a design capacity of 4,400,000 tons, Cell 5 is being constructed in anticipation of the closure of Cell 4 in the near future and will also provide ready capacity in the event of a natural disaster. The Department is also exploring the possibility of vertical expansion at the North Dade Landfill, in an effort to maximize its disposal capacity without altering the current footprint.

Waste-to-Energy: The DSWM has an Operations and Management (O&M) agreement in effect with Covanta Dade Renewable Energy, LTD for the operation of the County's Resources Recovery Facility, The O&M agreement expires in 2023; however, there are options to renew through 2043, if desired. It is paramount that the department begin to focus on the renewal of this agreement and policy decisions regarding waste-to-energy. Construction of a future mass burn facility will need to be analyzed.

Mosquito Control Funding: There are currently 56 active mosquito control districts throughout the State, which were established pursuant to Chapter 388 of the Florida Statutes. In 1980, however, the legislature modified Chapter 388 to prohibit the creation of mosquito control districts through this Chapter, which pertains specifically to mosquito control. Special taxing districts designed to fund essential facilities and services, including mosquito control, can now only be established pursuant to Section 125.01, which pertains to the powers and duties of counties. Given the potential impact of mosquito-borne disease on public health and on the local economy, 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.

In addition to a dedicated funding source for its operations, mosquito control is in need of a new facility. The 60-year old Mosquito Control Building requires replacement or expansion in order to provide adequate work space for additional staff and incorporate modern technology. A new proposed facility would feature 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.

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 330,000 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.

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. In early 2018, the DSWM increased the amount of construction and demolition (C&D) debris accepted at TRCs from one cubic yard to three cubic yards. Impacts of the increased uptake of C&D is being monitored in order to gauge a potential increase in service demands and the need for additional capacity to accept larger quantities of C&D at many of the smaller facilities. While the Department's satisfaction rating for customer service remains high and the complaint rate continues to remain 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. These include:

- Expansion of the residential used oil collection program, which provides convenient drop-off locations for customers to bring their used motor oil for recycling, from the current three TRCs to potentially seven additional locations
- Creation of a non-DSWM service area fee for County residents to discard trash debris at TRCs, which is currently prohibited by Chapter 15
- Development of partnerships with non-profit organizations that are interested in picking up used appliances and electronics from TRCs

Illegal Dumping: Illegal dumping and general littering is a serious problem in Miami-Dade County. To address this issue, the BCC established an Illegal Dumping Task Force charged with analyzing the impacts of illegal dumping, relevant laws and regulations, contributing factors, and formulating recommendations. The Task Force report, which was finalized in October 2018, includes several recommendations that, if implemented, would impact the way the DSWM conducts business. These recommendations are designed to provide potential illegal dumpers with a more convenient, legal disposal method, and include the following:

- Implement an access card system for non DSWM customers that would allow fee-based utilization of TRCs
- Expand or modify hours at existing TRCs, based on observed traffic patterns, and add new facilities
- Require bulky waste service and a designated area for bulky waste containers at multi-family establishments
- Examine the feasibility of conducting bulky waste sweeps in lieu of the current appointment system

Many of the recommendations proposed by the Task Force would require additional code enforcement resources in order to ensure compliance. In October 2018, the Board of County Commissioners adopted a resolution calling for a study to examine the feasibility of utilizing a sweep system for bulky waste pickups in lieu of the current appointment system. The DSWM is currently finalizing its analysis, along with support from the Office of Management and Budget, in order to determine the additional costs, heavy equipment, and personnel necessary to move to sweeps. Such a conversion would require not only revisions to the Code, but changes in standard operating and customer service procedures.

The DSWM instituted a “Dirty Crimes Carry Fines” education and outreach campaign that is advertised throughout the community via billboards and in newspaper, bus,

online, social media and radio advertising. The campaign promotes and encourages residents of the County to report illegal dumping by calling 311 or using 311Direct app, which is a mobile telephone application that enables residents of Miami-Dade County to report neighborhood problems and code violations to the 311 Answer Center. Illegal dumping will remain a high priority for the DSWM. Aggressive public awareness and outreach activities will continue in support of illegal dumping prevention, and the work of the DSWM illegal dumping crews will help contribute to improved aesthetics in Miami-Dade County.

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 (PPA) with Progressive Energy Florida, now Duke Energy. The County has not been able to secure another single large-scale PPA, but up to 40 MW are marketed by an energy broker under Covanta's oversight. A 12 year power purchase agreement with Homestead Energy Services for 15 megawatts (about 30% of the excess power) has been secured and became effective in the summer of 2017. Simultaneously with the expiration of the PPA, the payback for the bonds used to finance the construction of the plant, was completed. Considering these savings, the budgetary bottom line stays the same. The Department continues to pursue other energy revenue opportunities, some of which may require legislative or administrative changes at the State level.

Achievement of Milestones

- Four new illegal dumping crews were activated to address illegal dumping in the Department's service area. The illegal dumping crews collect illegal dumping identified by the Department's Enforcement Division, as well as removal of illegally dumped trash found at locations where illegal dumping is a recurring problem. These additional crews were allocated as part of the \$25 increase to the Department's non-ad valorem residential waste service fee that was passed by the Miami-Dade County Board of County Commissioners in 2017.
- The Department received 77 new automated, side-loading garbage trucks to replace vehicles that had reached the end of their useful service life. This automated fleet replacement program constituted a \$22 million investment in equipment that now provides waste truck drivers with the latest equipment and service customers with efficient service. The Department provides waste collection service to more than 330,000 households, twice per week.
- The Transfer Division invested in six (6) aluminum trailers to increase payload capacity. It is estimated that the Department will save over \$194,000 in the first year the trailers are utilized, in addition to reducing greenhouse gas emissions due to a smaller number of trips required to haul the same tonnage. The Department



is evaluating the durability of aluminum trailers and, if proven effective, will procure additional trailers in order to offset operating costs associated with the transportation of solid waste.

- The Trash Division incorporated a paperless approach called R-Visio for crane operators that service bulky piles. Crane operators use tablets to capture real-time service, notifying customers that their piles have been removed. This is part of the Department's commitment to automate operations and improve customer service.
- The Department completed a soft launch of its mobile application, which allows residents to locate nearby County facilities, request DSWM services via 311 Direct, and obtain mosquito control information.
- The Mosquito Control and Habitat Management Division increased its surveillance program throughout the County by expanding its array of mosquito traps to cover more locations in efforts to improve the monitoring of mosquito populations, enabling a better understanding of species composition and dynamics, and allowing the Division to focus on specific sites and areas for potential risk of mosquito-borne illnesses.
- Field work was completed for an innovative pilot study designed to evaluate the effectiveness of using male mosquitos infected with Wolbachia, a bacteria that resides only inside the cells of mosquitoes, as a mosquito control technique. Wild female mosquitoes that mate with Wolbachia infected males subsequently produce sterile eggs. This technology reduces the mosquito population without the use of insecticides, many of which mosquitoes have developed resistance to. The next step will be to evaluate the effectiveness of this technique and the feasibility of incorporation in the County's mosquito control program.

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:

Volkswagen Clean Air Act Settlement: The State of Florida has established a Diesel Emissions Mitigation Program that will provide funding for diesel emission reduction projects, beginning in 2019. The source of this funding is a settlement agreement stemming from Volkswagen's violation of the Clean Air Act by selling vehicles equipped with devices that thwarted emissions control. The Florida Department of Environmental Protection has confirmed that replacement of diesel powered garbage trucks with all-electric garbage trucks would be eligible for funding through this program, and the



Department will be submitting a funding request once the program framework is established.

Solid Waste Master Plan Update: The Department took advantage of the County's Equitable Distribution Program (EDP) to procure the services of HDR Engineering, Inc. for updating the 2014 Solid Waste Master Plan. The EDP facilitates increased contracting opportunities to community based Architecture and Engineering (A&E) firms, and affords County departments' access to qualified professionals for smaller projects in an expedited fashion, without necessitating a formal solicitation process. Since HDR formulated the existing Master Plan, the firm has first-hand knowledge of its contents as well as DSWM operations. Assignment of this project to HDR was financially and logistically advantageous to Miami-Dade County, since the entire project did not have to be rebid. Services provided by HDR will include updating current Master Plan data and developing alternatives for maintaining the DSWM's waste management system operational capacity over the next five to 10 years, while the County determines whether to retrofit, replace, or decommission the Resources Recovery Facility.

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.

Ash Use: The capital cost for construction of the most recent ashfill cell at the Resources Recovery Facility (RRF) was approximately \$5 million, and this cell is projected to reach final capacity in 2030. The beneficial use of ash 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 coal ash with bottom ash from the RRF in the manufacture of cement was approved by the Board of County Commissioners in March 2016 and amended in November 2017 to include two additional tasks. The amended agreement includes an assessment of the current state of international Waste-to-Energy (WTE) ash use in cement kilns around the world and a market flow analysis with respect to WTE ash, cement production, and associated mineral demand. The Department is partnering with Titan Cement and Covanta Dade Renewable Energy on this project. If the RRF ash is approved by the Florida Department of Environmental Protection as a suitable coal ash substitute, this project may lead to the recycling of a significant portion of the ash produced at the RRF annually. Other benefits include a positive contribution to meeting State adopted recycling goals and enhancing environmental protection, since waste-to-energy ash has fewer contaminants than coal ash. This project is slated for completion in November 2019.



E-waste Recycling: Fluctuations in the price of metals have traditionally driven up the cost of the County's e-waste recycling program by requiring a high demand of resources to monitor and administer contracts. The Technical Services and Environmental Affairs Division has developed contracts that are no longer subject to these fluctuations, thus reducing program costs.

Safety Measures: Municipal solid waste workers have a risk of occupational injuries that is much higher than that for the general workforce. The Department strives to minimize accidents and will be launching the following Safety initiatives:

- In-house comprehensive 4-Hour Defensive Driving Training Course for Professional Truck Drivers, conducted on a monthly basis beginning January 2019.
- FDOT refresher drug/alcohol training for CDL holders.
- Supervisory Training for proper investigation and reporting of vehicle collisions and property damage incidents.
- Continued enhancement of the Human Resources Management System (HRMS) Safety Module to improve reporting capability for the Human Resources Division Safety Section with regard to employee injury, vehicle collisions and property damage.
- 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, to begin in FY19-20.

Internal Monitoring: The Department has an Audit and Compliance (A&C) unit tasked with ensuring that private haulers pay the appropriate disposal facility fees. This section is also responsible for the monitoring and facilitating compliance with Payment Card Industry (PCI) standards and Driver and Vehicle Information Database (DAVID) requirements. The DSWM is optimizing the expertise of the the A&C section staff in other aspects of the department's operations to provide routine monitoring, recommendations for process improvements and/or corrective action plans. For example, A&C staff conducted an inventory of surplus surveillance items that are currently being sold at auction.

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:

Staffing: The DSWM continues to evaluate staffing needs and realign resources to best address needs and reduce staffing shortfalls within operations. A large percentage of the current DSWM workforce, critical staff with specific technical expertise and management experience, are close to retirement. Departure of senior staff in key areas of operations and administration, and the associated loss of institutional knowledge, continue to impact continuity of operations. Department activities have been significantly affected by position eliminations or retirements, which have led to an immediate knowledge deficit in key areas. The DSWM tracks pending retirements of critical positions to project and plan for the replacement of employees through recruitment planning. However, when timely replacements are not available due to a lack of qualified and trained employees suitable for promotion, the Department incurs overtime costs. 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.

Recyclable Materials Markets: The County's recycling program is dependent on healthy markets for the collected recyclable materials. Robust markets create demand for recyclable materials and economic growth through high paying jobs. These markets are commodity driven and subject to the ebb and flow of market demands. Over the past few years, this demand has been negatively impacted by increased supply, and a decrease in end markets for collected materials. Most notably, the export market for recyclables has slowed substantially as China has virtually closed off many of its previously vibrant markets, in large part due to contamination of recyclables shipped from overseas sources. The Department has instituted recycling enforcement sweeps and an educational campaign in an effort to reduce contamination of recyclables.

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. A new facility will include modern laboratories, a safe and clean (hands-free) chemical mixing and loading plant, a separate pesticide storage building and insect rearing capability, as well showers/locker rooms to help mosquito control staff minimize the possibility of insecticide contamination by quickly cleaning and removing the chemical substance from the body.



The Central Transfer Station (CTS) serves the central-eastern, most urbanized geographic area of the County, as well as the largest contract municipality which is the City of Miami. This area is anticipated to experience significant population growth in the form of a vertical high density growth pattern, as opposed to the traditional suburban low-density horizontal growth. The CTS, which normally handles over 150,000 tons annually, is manifesting wear and tear which is more visibly evident 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 them 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: Replacing aging equipment is critical to DSWM operations. 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. Vehicle purchases are in accordance with the Department's 10-Year Fleet Replacement Plan and is being funded through lease financing.

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 \$25 per megawatt hour, about 70% 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 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 and the privately owned and operated Medley Landfill, 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 programs, 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 by 2020. The Florida Department of Environmental Protection's Solid Waste Annual Report states that the overall State recycling rate for 2016 was 56%, while Miami-Dade County's achieved a recycling rate of 43%. The DSWM will continue to monitor this legislation and enhance Miami-Dade County's efforts to meet the 2020 75% recycling goal.

WTE-Generated Electricity: Miami-Dade County's long term PPA expired in November, 2013, at which point the WTE plant annual electrical revenues (shared with the WTE plant operator) were reduced from \$30 million to approximately \$9 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.

PRIORITY INITIATIVES

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

Mosquito Control:

- The DSWM initiated a collaborative project, enabled by Federal funding (a Center for Disease Control grant administered by Florida Department of Health) to evaluate the efficacy of using *Wolbachia*-infected male mosquitoes in reducing populations of *Aedes aegypti*, the vector responsible for transmission of Zika, yellow fever and other human diseases. This is a novel and innovative technique for use in mosquito control, and may prove valuable in redressing a recognized absence of satisfactory control methods. Critically, the Mosquito Control Division (MCD) will evaluate the effectiveness and assess the feasibility of this variation of Sterile Insect Technique (SIT) in a metropolitan setting, with a view to incorporating this technique into the MCD's existing program in an integrated way, depending on results. 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 Mosquito Control Division will expand its currently limited capability to breed mosquito fish, thereby increasing the potential use of this natural control method in Miami-Dade County. Mosquito fish are used by the more progressive mosquito control agencies in suitable circumstances such as abandoned swimming pools, a common mosquito source in Miami-Dade. This technique represents an excellent form of biological control, eliminating the use of chemical insecticides. Because mosquito fish are endemic to our region they do not present the menace to native species that is common with invasive species such as the Burmese python, which has decimated native species in the Everglades. Mosquito fish are also very efficient predators of mosquito larvae. Utilizing this natural control method promotes the Strategic Plan goal of protecting environmental resources.

Oil Recycling Program: In FY 2018-19, the Department will expand the number of TRCs that offer waste oil recycling to residential customers. This initiative will provide increased convenience to DSWM customers and help promote the County's mission of

protecting our drinking water supply.

Recyclables Contamination: A Recyclables Contamination Abatement Program is being implemented to address the problem of items such as plastic bags, hangers, hoses, etc. being incorrectly placed in recycling containers. Contamination of the recyclable waste stream is a national problem with serious negative economic and environmental effects. The Department is 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 employees have been hired to provide specialized job skills, operations and safety training, including four dedicated Technical Equipment Instructors, a Human Resources Manager (Training and Development Manager) and a Personnel Specialist 1. The 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. The department is providing internal driver and equipment training for new 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.

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. The Department is currently funding the following municipal landfill closure grant projects: Munisport, Virginia Key, Taylor Park and a County-owned site in the City of Miami Gardens

Electric 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 \$25 per megawatt hour; about 70% 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. The DSWM continues to seek PPAs that generate steady revenues above the “As Available” rate.

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 DSWM is nearing completion of an effort to replace the outdated Mainframe Waste Collection System (WCS), a basic customer accounts and relationship management system. The new WCS will consist of several DSWM Operations and Administrative modules (Code Enforcement, Accounts Management/Invoicing and Billing, Customer Care, Payment Processing and Hauler Registration) Full implementation of the WCS will take place prior to the end of FY 18-19. Within the scope of the new system, 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.

Text Messaging: The DSWM has implemented text messaging to notify customers of the status of their waste cart servicing orders. Implementation of additional text messaging components (e.g., recycling carts, bulky waste orders, other) will take place in conjunction with the real-time processing of these services in FY18-19.

Biometric Time Clock System: The DSWM has deployed biometric time clocks at over 30 DSWM locations. Full implementation will take place after needed infrastructure improvements have been completed at the TRCs. This system interfaces with the



County ePar system and accurately and efficiently captures employee time. The biometric feature will rely on a unique attribute (finger print), to identify and then “clock-in” the staff member.

Work Order Processing/Vehicle Routing: The DSWM completed implementation of an inventory management and work order processing system for recycling cart deliveries and repairs in FY 17-18. Implementation of the system for both waste carts and bulky waste order will be completed in FY 18-19. This will streamline administrative processes and cut down on manual paperwork. It is anticipated that a GPS Routing component, which will achieve further operational efficiencies, will be added in FY 19-20.

TRC Access Management System-Landscaper and Handyman Enhancement: This project builds 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 will complete the addition of modules to enable use of the TRCs by private landscaping companies and handymen (occasional users) via inclusion of a mobile payment application.

Waste Disposal Scale House Weighing & Billing system: A Request for Proposal (RFP) for a new disposal weighing and billing software system that adheres to the Payment Card Industry Data Security Standard and provides for other business process improvements is planned for FY18-19 with implementation to follow.

Online/Mobile Device Applications: The DSWM is deploying online and mobile applications that will facilitate service delivery to customers. These include a series of news/events/contacts/ listings, a collection service schedule, an online payments function, a hauler/landscaper registration process, a facility locator, a complaints/illegal dumping reporting app, a service request app and a route tracker.

Personnel Applications: The DSWM will be obtaining training and e-learning software to streamline administration of this function in FY 18-19. This will facilitate, standardize, and simplify logistics and scheduling associated with training.

Cubic Yard Calculator: The DSWM will be providing an application that will help customers measure bulky pile volumes in FY 18-19.

Driver Safety Pilot: The department is planning to conduct a vehicle-based driving safety video pilot project with vendors in early calendar year 2019 in preparation for a planned FY 19-20 implementation. This system will provide a video recording of “triggered” incidents or events, will upload those clips for analysis and will receive data back in a full service website. The reports, data and video accessed via the website would then form the basis for a targeted driver training/coaching program. Similar



programs have improved safety performance and generated savings from fewer accidents, driver exonerations, improved fuel economy and reduced maintenance and repairs.

Payment Card Industry (or PCI) Security Standard Compliance: The DSWM is working with the Finance Department and ITD to finalize efforts to achieve compliance with PCI security standards. These standards establish protocols regarding the processing, storage, and transmission of credit card related data in order to reduce the incidence of fraud and identify theft. This project will upgrade the current scale house system payment card processing devices to the new EMV chip credit card readers at 12 workstations. The new interface (Elavon's Converge/Simplify Interface with the current scale house application) is PCI compliant per County policy.

Electronic Data Management System (EDMS): EDMS is a document storage solution for the Enforcement Division. EDMS will facilitate enforcement account case history needs and allow their officers to have a centralized storage and review repository for their photos, letters and other related enforcement items. This application will interface with the new Waste Collection System and Enforcement e-Ticketing applications.

Citizen Bulky Trash Overage Electronic Signature Form: This application, programmed for an FY 18-19 implementation, will provide for automated customer approvals for bulky trash overage pickup fees, improving on the current process that requires customers to sign and mail back a paper form to DSWM's Accounting Division, ultimately delaying pickup.

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 Collaborations/Scientific Investigations: The DSWM plans to build on existing scientific collaborations with research institutions to further scientific knowledge and understanding of mosquito biology and behavior, enhance the professional profile of MCD through peer-reviewed publications, and establish valuable links with local and international academic institutions. Such collaborative investigations have the potential to improve control methods in ways not anticipated and identify new avenues for research, and will also serve to boost staff morale and promote self-motivation within the organization

Encroachment of Residential Development: Construction of residential communities in the area surrounding the Resources Recovery Facility (RRF) has resulted in



complaints relating to odor. In response, the DSWM established an odor monitoring program and tasked Covanta with hiring an engineering firm to evaluate the existing odor control system and make necessary upgrades. Another potential odor source is the privately owned Medley Landfill, located north of the RRF. The DSWM diverted "unders" (grit-like residue that is separated out through the garbage screening process), that were being disposed of at the Medley Landfill, a potential odor source located north of RRF, to a regional landfill located in Okeechobee County in order to minimize the potential for odors from these "unders".

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. Although the BCC approved a residential waste collection fee increase last fiscal year, the Department continues to evaluate 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 Collection Service Area and associated revenues. A smaller Waste Collection Service Area could have a profound impact on revenues, debt service coverage and ultimately fees charged to the remaining collection customers. The cumulative impact of annexations that have taken place since 1996, and that are anticipated to occur in the future, will spread additional debt service over a smaller revenue pool, resulting in increased fees to remaining customers.

Legislation

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 and allow net metering and/or self-wheeling.