Department of Solid Waste Management
Business Plan

Fiscal Years: 2021 and 2022
(10/1/2020 through 9/30/2022)

Approved by:

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3/19/21

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4/19/2021

Plan Date: March 8, 2021
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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 2.8 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
Neighborhood Services

- **Collection and Disposal:** Provide waste collection and disposal services to over 340,000 residential households in the Waste Collection Service Area (WCSA), 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 WCSA and nine municipalities serviced through interlocal agreements.

- **Drop-Off Centers:** Manage and operate 13 Trash and Recycling Centers (TRCs) located throughout the WCSA.

- **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 WCSA following emergencies such as storms and hurricanes.

Environmental Protection

- **Energy-from-Waste (EfW):** 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 waste incinerated at the RRF is reduced by about 90% through the following processes:
  - Recovery of metals for recycling
  - Conversion of waste to refuse-derived fuel that is then used to generate electricity for on-site consumption and export to the power grid.

- **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 county landfills.

- **Landfill Remediation:** Protect groundwater by funding and overseeing remediation of inactive landfills.
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- **Landfill Gas:** Protect air quality by capturing and burning methane, a powerful Greenhouse gas that is converted to a less potent form through combustion.

- **Education and Outreach:** Provide a robust education and outreach program to raise residents’ awareness of residents’ proper use of their waste services, litter and illegal dumping prevention efforts, proper 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. Additionally, the department is responsible for comprehensive education and outreach for countywide mosquito control services, providing residents with information needed to prevent mosquito breeding and to protect themselves from mosquito bites and associated mosquito-borne viruses.

- **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

**Our Customers**

The Department’s key customers and/or market segments are County and municipal residents within the WCSA, private solid waste haulers, 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

- **Waste Collection Service Area:** Households within the 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
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- **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

- **Peer Agencies:** Other city and county governments across the country that exchange comparative operational and financial data with the Department for research and analysis projects

**Internal customers** include County 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, e-mails, customer surveys following completion of bulky waste and green waste cart service requests as well as online-service requests gathered through the County’s 311 Contact Center, website, and telephone apps, as well as direct letters, e-mails, calls and requests. Garbage, bulky waste, and recycling collection service complaints are measured on the DSWM scorecard in the Strategic Management System (SMS). Direct and immediate feedback enables management to identify problems and act quickly to effectively address and improve performance.
## Departmental Business Plan and Outlook

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### OFFICE OF THE DIRECTOR
Formulates departmental policy, implements County policy and provides overall direction and coordination of departmental operations and management

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### COLLECTION OPERATIONS
Provides residential and commercial garbage and trash collection; operates the neighborhood Trash and Recycling Centers; and provides bulky waste pick-ups and illegal dumping removal

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### DISPOSAL OPERATIONS
Disposes of all waste that enters the system and maintains disposal capacity; manages three regional transfer stations, the North and South Dade Landfills and the Resources Recovery ashfill; enforces solid waste regulations

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### ENVIRONMENTAL AND TECHNICAL SERVICES
Maintains capital waste management infrastructure, oversees landfill environmental compliance and administers facility maintenance and resource recovery activities

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### ADMINISTRATION
Implements departmental policy and provides overall direction on personnel, finance, budget, intergovernmental affairs, planning, procurement, information systems, media relations, outreach and customer service department-wide; administers the curbside recycling program and fleet maintenance

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### MOSQUITO CONTROL AND HABITAT MANAGEMENT
Provides the full range of Mosquito Control activities countywide, including public outreach activities, mosquito population surveillance and inspection and institution of standard protocol abatement measures in response to referrals from the Department of Health of suspected cases of mosquito borne diseases within the County

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The FY 2020-21 total number of full-time equivalent positions is 1112.25
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**Strategic Alignment Summary**

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

- **Safe, Healthy and Attractive Neighborhoods and Communities (NI1)**
  - Promote livable and beautiful neighborhoods NI1-1
  - Protect the community from public nuisances and incidents that threaten public health NI1-4

- **Continuity of Clean Water and Community Sanitation (NI2)**
  - Provide adequate and sustainable solid waste collection and disposal NI2-3

- **Protected and Restored Environmental Resources (NI3)**
  - Maintain air quality NI3-1
  - Protect and maintain surface and drinking water sources NI3-2
  - Preserve and enhance natural areas and green spaces NI3-4

- **Effective Emergency and Disaster Management (PS3)**
  - Increase countywide preparedness PS3-1
  - Ensure recovery after community and countywide shocks and stresses PS3-2

- **Accessible, Fair and Responsible Government (GG1)**
  - Provide easy access to information and services GG1-1

- **Excellent, Engaged and Resilient Workforce (GG2)**
  - Attract and hire new talent GG2-1
  - Promote employee development and leadership GG2-2
  - Ensure an inclusive and diverse workforce GG2-3

- **Effective Leadership and Management Practices (GG4)**
  - Effectively allocate and utilize resources to meet current and future operating and capital needs GG4-2
  - Reduce County government’s greenhouse gas emissions and resource consumption GG4-3
### Alignment of Selected Scorecard Measures to Resilience

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<th>Scorecard Measures</th>
<th>Resilience Driver</th>
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<tr>
<td>Percentage of Automated and Manual Garbage Routes completed on time</td>
<td>HW1: Meets Basic Needs</td>
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<td>Average Bulky Waste Response Time in Calendar Days</td>
<td>HW1: Meets Basic Needs</td>
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<tr>
<td>Average Illegal Dumping Pick-up Response Time</td>
<td>HW1: Meets Basic Needs</td>
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<tr>
<td>Response to Mosquito Nuisance Complaints within 48 Hours</td>
<td>LS2: Empower a Broad Range of Stakeholders</td>
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<tr>
<td>Total Residential Enforcement Actions</td>
<td>HW1: Meets Basic Needs</td>
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**Resilience Drivers:**
- LS1: Promote Leadership and Effective Management
- LS2: Empower a Broad Range of Stakeholders
- LS3: Foster Long-Term and Integrated Planning
- HW1: Meets Basic Needs
- HW2: Supports Livelihoods and Employment
- HW3: Ensures Public Health Services
- ES1: Promote Cohesive and Engaged Communities
- ES2: Ensure Social Stability, Security, and Justice
- ES3: Foster Economic Prosperity
- IE1: Provide and Enhances Protective Natural and Man-Made Assets
- IE2: Ensure Continuity of Critical Services
- IE3: Provide Reliable Communication and Mobility
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 Board of County Commissioners (BCC) approved a residential waste collection fee increase of $25, from $439 to $464 per household, which included $19 per household to cover the cost of basic services and an additional $6 per household to combat illegal dumping. In September 2019, the BCC approved an additional $20 increase, bringing the FY 2019-20 fee to $484 per year, to absorb inflationary operating costs and the estimated costs of collective bargaining negotiations. Unfortunately, due to the impact of Hurricane Irma, which struck Miami-Dade County in September of 2017, the DSWM anticipates unreimbursed expenses of approximately $10M between its two funds. To date, the DSWM has recovered roughly $146 million from the Federal Emergency Management Agency (FEMA), through the Florida Division of Emergency Management (FDEM). We continue working with both FEMA and FDEM on additional reimbursements, potentially totaling $5 million. In addition, the COVID-19 pandemic has significantly impacted commercial and residential waste generation. In 2020, the Department saw an increase of over $10M in disposal costs on its Collections operations. Staff believes this is due to a shift in tonnage from commercial accounts to residential accounts, likely sparked by the increase in work-from-home arrangements. Federal funding through the CARES act offset the 2020 disposal costs and there is hope that additional stimulus funding will help with 2021 expenses. However, if the tonnage distribution does not return to pre-pandemic levels, the Department anticipates the need for a household fee increase to cover the new level of disposal generated by residential accounts.

Purchase of Land: The DSWM purchased a 10-acre parcel of vacant land located immediately south of the Resources Recovery Facility (RRF) that provides a buffer zone, which will help to prevent residential development encroachment. The Department continues to assess the availability of property west of RRF, east of the North Dade Landfill and west of the South Dade Landfill.

Additional Waste Disposal Capacity: Cell 4 at the South Dade Landfill is nearing the end of its available capacity. Cell 5 has a design capacity of 4,400,000 tons and is ready for waste acceptance once Cell 4 reaches capacity. For the DSWM’s system to be self-reliant, there must be a pursuit of vertical landfill expansions and continuity of contracts with third party entities to secure additional disposal capacity.
Energy-from-Waste: The DSWM has an Operations and Management (O&M) agreement in effect with Covanta Dade Renewable Energy, LLC for the operation of the County’s Resources Recovery Facility that is up for option-to-renew (OTR) in 2023 with three more OTRs through 2043, if desired. The Department has begun to focus on the renewal of this agreement and policy decisions regarding energy-from-waste. Construction of a future mass burn facility is also being analyzed.

Mosquito Control Funding: The 60-year-old Mosquito Control Building requires replacement in order to provide adequate workspace for staff and incorporate a testing laboratory and implement modern environmental controls. A new proposed facility would feature employee amenities including an emergency shower station, maintenance shop, lab, chemical and trap storage, and a battery charging station. Replacement 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 and Dengue viruses. This project will be funded through the Countywide Infrastructure Improvement Program (CIIP). Total project cost is $7.330 million ($4.622 million in FY2020-21).

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 340,000 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 privatizing their waste collection services. Privatization can limit the Department’s ability to monitor a Contract City’s compliance with their waste delivery obligation to the County, because Contract City waste is commingled with waste from other entities serviced by the private hauler. To minimize any potential tonnage decreases resulting
from such municipal collection privatizations all prospective hauler agreements require contract city tons to be reported separately 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 to provide convenient drop-off locations for customers to bring their used motor oil for recycling, from the current three TRCs to six (6) locations and expect to have the infrastructure in place by March 2021
- Expansion of the home chemical program at TRCs that contain adequate space and meet the environmental requirements
- Appointment based bulky pick-ups (limited to 450 stops/day) will allow requests to be routed and picked up on date provided to customer, for a faster response time while minimizing the length of time trash is set out at the curbside
- 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 countywide problem. As a result of the household waste fee increase approved by the BCC in September 2017, the Department implemented an initiative. Four new bulky crews were established and assigned to pro-actively remove illegal dumping from identified hot spots. The Enforcement Division updates the hot spot list as needed and submits the locations to the Trash Division for regular removal of illegally dumped debris from these sites. Information received from regular zone patrols and surveillance efforts help determine the best resource to suppress illegal dumping activity. The use of game cameras and
wireless cameras have been added to live feed cameras to increase coverage in remote areas and have become an effective tool in the fight against illegal dumping. The Board of County Commissioners have implemented recommendations made by the Illegal Dumping Task Force, including the creation of the Miami-Dade Police Department’s, Illegal Dumping Unit (a part of the Agricultural Section). Since the implementation of the Illegal Dumping Unit in January 2020, the increased collaboration with the DSWM’s Special Investigation Unit has led to better communication, combined use of resources, and working cases jointly. Due to the efforts from both units, the Department has recorded 19 felony arrest cases from January 2020 to present.

A “Dirty Crimes Carry Fines” education and outreach campaign, instituted by the DSMW, is advertised throughout the community via billboards, 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 the 311Direct or DSWM apps, which are mobile telephone applications that enable users or residents and visitors of Miami-Dade County to report neighborhood problems and code violations to the 311 Contact Center. The DSWM will also continue to promote the department supported “Let’s Clean Things Up” community pride program that incorporates messages that promote litter and illegal dumping prevention and proper use of available waste services. 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 that come from the Department’s Energy-from-Waste (EfW) facility have steadily declined since 2013 as a result of the 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. 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. The Department continues to pursue other energy revenue opportunities, including submitting proposals to Reedy Creek and Mt. Dora for the sale of power. Other potential opportunities (i.e., self-wheeling) may require legislative or administrative changes at the State level or consolidation of County facilities on the same property to benefit from the energy generated. Simultaneously, with the expiration of the PPA and the completion of the payback for the bonds, there was no net benefit or loss.

Achievement of Milestones
Before the end of FY 2020-21, the DSWM anticipates having received well over $140 million in FEMA reimbursements for debris cleanup and repairs associated with Hurricane Irma (September 2017).

The Department of Solid Waste Management (DSWM), was awarded a grant in the amount of $1,852,500 to implement the “Miami-Dade County Department of Solid Waste Management Refuse Vehicle Replacement Project.” Funding will be used to assist with the purchase of twenty-three (23) Automated Garbage Side Loader vehicles and two (2) Truck Tractors. These new, cleaner diesel vehicles will achieve a reduction in fuel consumption and emissions. The implementation of this project will allow the DSWM to continue the enhancement of its fleet with improved technology, and a cleaner fuel alternative, while assisting the United States Department of Environmental Protection Agency in meeting its goal to achieve significant reductions in diesel emissions and helping to optimize public health in Miami-Dade County.

The Department will receive twenty-nine (29) new automated, clean diesel, side-loading garbage trucks in 2021 to replace vehicles that had reached the end of their useful service life. This automated fleet replacement program provides waste truck drivers with the latest equipment and customers with more efficient service. In addition to the twenty-nine (29) automated side loaders, the DSWM will have another busy year. The equipment and vehicles currently on order are the following: ten (10) truck tractors, nine (9) cranes, four (4) trash trucks, six (6) roll-offs, four (4) bull dozers, two (2) front end loaders, thirty (30) aluminum trailers, seven (7) rear loading garbage trucks, four (4) small rear loaders, seven (7) heavy pieces of equipment and thirty-one (31) light vehicles. Among the benefits of having new equipment are lower repair and maintenance costs.

In September 2020, DSWM earned a bond rating increase by Fitch, from A+ to AA. This was followed in December by an increase by S&P from AA- to AA.


The Department of Solid Waste Management's County Mosquito Control and Habitat Management Division recently rolled out two new pieces of heavy equipment designed to limit mosquito breeding in our County (Buffalo Turbine and Hydraulic Sprayer). Both truck-mounted machines now serve to scatter the larvicide Bti (Bacillus thuringiensis israelensis – made from bacterial spores) as a preventive measure into the air and bodies of water. It effectively kills the mosquito larvae before they have a chance to develop into flying and biting insects, with a little to no negative impact on people, pets, and wild animals.
Opportunities

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:

**Garbage Collection and Disposal Services (County Departments):** The current County Garbage Collection and Disposal Services contract expires in November 2022, and the Department has been presented with the opportunity to begin providing waste collection and disposal services to all County facilities. Staff has begun analyzing and preparing a detailed plan that will outline how the Department intends to provide waste collection services at the various Miami-Dade County facilities.

**Trash Roll-Off/Dumpster Service:** The DSWM is exploring a new revenue stream option, trash roll-off/dumpster service. This type of service will entail the Department dropping off a dumpster/roll-off container that our customer can use at his or her leisure for small renovation projects, spring cleaning, etc. Once filled the customer would contact the department removal and disposal. In addition to the roll-off/dumpster service being a viable revenue source, this service would allow the DSWM to properly dispose of the waste and minimize potential littering and/or illegal dumping.

**Electric Garbage Truck:** The Department currently has a heavy fleet of garbage vehicles that utilize diesel fuel. Staff has been researching and learning more about the evolving technology in the refuse industry. There have been discussions with various companies (i.e., Lion Electric, Mack, Boivin Bodes, Build Your Dream, Peterbilt and Freightliner) who are involved with this new technology. Electric vehicles are now being introduced and will eventually be phased into heavy fleet. The DSWM has an interest in the electric garbage truck. As technology continues to evolve, the Department would like to test its capabilities and seek funding opportunities to support this effort. The Department is proposing a refuse vehicle replacement project through the Environmental Protection Agency (EPA), 2021 Diesel Emissions Reduction Act Program. The DSWM is seeking funding for its most essential vehicle used in daily operations. It is the intent of the DSWM to purchase and replace seven (7) Electric Automated Side Loaders and the associated charging stations. This rapidly improving technology will generate zero emissions, reduce operating noise, eliminate fuel leaks during transport, and provide residents with a far more environmentally friendly truck. In addition, since the DSWM produces electricity at its Resources Recovery Facility, an Energy-from-Waste (EfW) plant, the electric garbage vehicle could ultimately be fueled by the very garbage it collects. The electric charging station could be placed at this facility allowing DSWM to
charge its own vehicles, and as the technology improves, the DSWM could transition the fleet in phases, towards a zero emission and environmentally friendly fleet of automated side loading garbage trucks.

**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, geographic area for more efficient routing and electric charging infrastructure.

**Ash Re-Use:** The beneficial use of ash would reduce the need for landfill capacity and the hauling of ash offsite for disposal in the future. In 2016, the University of Florida Hinkley Center entered into a Research Service Agreement with the DSWM, on the Study of Bottom Ash from the County’s RRF, as a Substitute for Coal Ash in the Production of Cement. The Department and Covanta have been working collaboratively and Covanta partnered with Titan Pennsuco, a cement manufacturer, for this study. The report concluded that substituting the bottom ash with coal ash in the production of cement was feasible. A mobile metals plant has been constructed and will be operated by Covanta at the Resource Recovery facility. The pilot project will commence operations in February 2021 and the plant will extract metals, clinker, and processed ash; the products will all be reused as against being landfilled. Another benefit would include a positive contribution to meeting State adopted recycling goals.

**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 continue implementation and/or initiate implementation of the following Safety initiatives:

- In-house comprehensive 4-Hour Defensive Driving Training Course for Professional Truck Drivers will be provided by the departmental Safety Officers. This course will replace the 4-hour Defensive Driving course currently provided by the Internal Services Department, Risk Management Division, Office of Safety, for employees with Commercial Driver’s Licenses. The training will be conducted on a monthly basis. *Due to the COVID-19 pandemic, classes have been limited to employees who are in driver training (OJT/Training to Promotion); FY 20-21, classes will resume utilizing a virtual platform for employees who have had preventable collisions*

- FDOT refresher drug/alcohol training for CDL holders
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- Continue Supervisory Training for proper investigation and reporting of vehicle collisions and property damage incidents; projected to begin via virtual platform FY 21-22

- 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, (in process; projected to begin FY 21-22)

- Development and Implementation of a DSWM “Get Home Safe” Safety Campaign (Safety Spotlight Digital Newsletter to launch via email to all DSWM staff January 2021; all other aspects of the campaign projected to launch during FY 20-21).

Obstacles

The DSWM continues to overcome some operational and capital challenges 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. 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:** 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.

**Aging Equipment:** 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:** In August 2018, Covanta advised the Department that their Biomass Fuel Supply Agreement with Wheelabrator was terminated effective December 2018. Since that time, Covanta has not been successful in finding a replacement outlet for the sale of biomass fuel from the RRF due to lower energy prices.
The lack of outlets for biomass has resulted in additional trash being placed in County and privately-owned landfills reducing remaining disposal capacity.

**Legislative Changes/Mandates**

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

**Recycling Goal:** 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 Energy-from-Waste 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 reflects that the overall State recycling rate for 2019 was 52%. Miami-Dade County achieved a recycling rate of 26%. The DSWM will continue to monitor this legislation and enhance Miami-Dade County’s efforts to meet the 2020 75% recycling goal. In FY2020-21, DSWM staff participated in a work group along with other Florida County representatives to develop the “County-coordinated Guidance on a New State Diversion Goal and Benchmarks” and is in support of the proposed 5-part recommended approach to a new state recycling goal (work group facilitated by Willie Puz, Director of Public Affairs & Recycling, Solid Waste Authority of Palm Beach County).

**Recycling Contamination:** The DSWM supports actions to repeal House Bill 73 passed in the 2020 Legislative Session that amends Florida Statue 403.706 specifying requirements in contracts between residential recycling collectors or recovered materials processing facilities and counties or municipalities for the collection or processing of residential recycling material providing that a residential recycling collector or recovered materials processing facility is not required to collect, transport, or process contaminated recyclable material except pursuant to specified contractual requirements after a contract is executed. This type of legislation places restrictions on the Department’s ability to establish acceptable levels of recyclable materials contamination in the County’s curbside recycling program. Repealing and opposing legislative changes that would be detrimental to the sustainability of the County’s solid waste management and
recycling programs will prevent additional costs that may result in fee hikes and/or prevent the Department from meeting state-mandated recycling goals.

**EfW-Generated Electricity:** Miami-Dade County’s long term PPA expired in November 2013, at which point the EfW plant annual electrical revenues (shared with the EfW plant operator) were reduced from $30 million to approximately $8.5 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 EfW-Generated Electricity. The DSWM recommends that EfW-generated electricity be encouraged by amending the definition of “Customer-owned renewable generation” codified in F.S. 366.91 to include government owned EfW facilities utilizing municipal solid waste as fuel. Another alternative to addressing this problem includes requiring investor-owned utilities to purchase a minimum amount of WTE-generated electricity and/or allowing net metering or self-service wheeling of power from government owned WTE facilities over privately owned and operated utility transmission lines.

**PRIORITY INITIATIVES**

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

**58th Street Campus Design:** The DSWM has begun the process to develop an overall conceptual plan and associated list of requirements for an entirely re-designed DSWM Campus meant to accommodate all administrative functions and support services in a single, well-laid out and attractive design that optimizes DSWM operations. As a part of this design, the DSWM will identify opportunities to share space and partner with other County Departments (such as the Internal Services Department, Fleet Division and Transportation and Public Works, Road and Bridge).

**Mosquito Control:**

- *Aedes aegypti* represents the most serious public health threat to Miami-Dade County, and the most serious challenge to Mosquito Control. It is universally recognized that this species is particularly difficult to control, exacerbated by resistance to many insecticides. The World Health Organization’s Vector Control Advisory Committee has recommended that novel techniques for control of this mosquito be investigated to determine efficacy in the field, and to identify which, if any, may be feasibly integrated into existing control programs. The DSWM has an interest in the Sterile Insect Technique (SIT). It is a variation of utilizing sterile male insects to reduce populations. The SIT uses X-rays to sterilize the males prior to
release in the environment. The principle technique is an established method, with successful results in some insect species; although success has not been achieved to date in mosquitoes. Following some technical advances however, Lee County Mosquito Control District has announced that they intend to pursue this technique, and if determined to be practicable and feasible, the method could be made available to other mosquito control agencies. A priority initiative will be to maintain close communications in this regard, and follow-up on progress being made, especially on technical and logistical issues, with a view to assessing the potential of this proposal.

- 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.

**Waste Oil Recycling Program:** In FY 2020-21, 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 has been 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 will be 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.

**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, Gwen Cherry, and a County-owned site in the City of Miami Gardens.

**Landfill Expansion:** The DSWM plans to expand the North Dade Landfill (NDL) by increasing the elevation of both the East and West Cells. This expansion maximizes the long-term capacity of the NDL. The scope of work involves hiring a consultant to provide an engineering design for the permitting of this vertical expansion.

**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 (Accounts Management/Invoicing and Billing, Customer Care, Payment Processing Lien and Legal). The phased implementation of the WCS started in FY 19-20 and continues into FY20-21. The new system provides the public with access to the following functions: 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.

**Biometric Time Clock System:** The DSWM has deployed biometric time clocks at over 30 DSWM locations. Full implementation will take place in FY20-21 since 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 (fingerprint), 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 and bulk trash pick-up orders. In FY 19-20. The system streamlines administrative processes and cuts down on manual paperwork.
additional modules for commercial collection and for litter will be implemented in FY 20-21.

**TRC Access Management System-Landscaper and Handyman Enhancement:** During the past year, the DSWM enhanced its existing software application that enables the secure screening of residential visitors to the Trash & Recycling Centers. The department completed the addition of modules to enable use of the TRCs by private landscaping companies via inclusion of a mobile payment application. The last new addition, the online payments module pending and planned for completion in FY20-21

**Waste Disposal Scale House Weighing & Billing System:** In FY 2020-21, the Department expects to complete a replacement of its weighing and billing system for its scalehouses, ensuring Payment Card Industry (PCI) compliance for the foreseeable future.

**Online/Mobile Device Applications:** The DSWM has largely deployed 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. The last components, the addition of a mobile payments function, and an account services detail function is planned for in FY20-21 and FY21-22

**Cubic Yard Calculator:** The DSWM will be providing an application that will help customers measure bulky pile volumes in FY 20-21.

**Driver Safety/Fleet Telematics:** Working with ITD and DTPW, the department has prepared a draft RFP related to a proposed onboard Driver Safety/Fleet Telematics system with a targeted FY21-22 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 worked with the Finance Department and ITD 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 year the project will be expanded to incorporate functionality with the new scale house system currently being implemented.
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. Implementation will be finalized in FY20-21

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:

Resources Recovery Facility (RRF)/Energy-from-Waste: In 2023, the contract with Covanta Dade Renewable Energy, LLC for the operation and maintenance of the RRF will come up for renewal. The Department will have to evaluate the future and planned improvements to the facility. For continued operations at the RRF, major infrastructure improvements will have to be made in the next three to five years. Based on the age of the facility, the Department will have to consider the potential for siting, permitting and constructing a new Energy-from-Waste facility in the next three to five years.

Curbside Recycling Program: The recycling collections contracts will end on September 30, 2022 and can only be renewed for a period of 180 days beyond the contract expiration date. The contract for recyclable materials processing and marketing will expire on March 30, 2023 and there are no provisions for extension or renewal. The Department has initiated work with a consultant to explore future recycling opportunities/options that can be considered once the current collection and processing contracts expire.

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. The DSWM currently has an agreement with the University of Miami for a collaboration that involves Operational Mosquito Surveillance and Control. Collaborative research will build upon on-going efforts to address key questions which are essential to the Mosquito Control Division. This collaboration will include close coordination, planning and field and lab work with
the Mosquito Control leadership and staff. Outcomes will include collaboratively-developed internal reports, presentations and joint publications.

**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 made upgrades to the existing odor control system. Additionally, the Department will be reviewing alternatives to develop buffers around the RRF as well as the North Dade and South Dade landfills.

**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. The Department will also look into adjusting certain disposal rates, such as the Alternate Daily Cover rate. These actions will require Board approval of an updated Implementing Order 4-68 (Schedule of All Service Levels and Fees for Miami-Dade County Solid Waste Services).

**Technology:** The DSWM is committing to improving operational efficiency through investment in technology. In FY 2018-19, the Department completed two pilots of a Driver Safety system using vehicle telematics and video cameras to improve driver performance through coaching. After a formal procurement process, DSWM anticipated the first phase of this technology to roll out in FY 2021-22. This system will then evolve into a unified driver interface, using a mounted tablet providing turn-by-turn routing, work order processing, audio communication, sign-in and sign-out, pre-trip inspection, and post-trip inspection. Similarly, the Department will continue to expand its use of handheld and mobile devices, combined with GIS applications, and work order systems to speed routing and service order completion, improve reporting, and increase employee productivity in other divisions, such as Home Chemical Collection and the Truck Wash.

**Annexations and Incorporations:** Potential annexation and incorporation policies can impact the DSWM. Ordinance 96-30 was enacted to protect DSWM’s system and financial integrity from Incorporations and Annexations. 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

EfW-Generated Electricity: Miami-Dade County’s long term PPA expired in November, 2013, at which point EfW plant annual electrical revenues (shared with the EfW plant operator) were reduced from $30.0 million to approximately $8.5 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 backs efforts to encourage EfW-generated electricity and has included an item in its legislative package to support such actions.
Attachment 1

Business Plan Report
## Departmental Business Plan and Outlook

**Department Name:** Department of Solid Waste Management  
**FY2020-21 & FY2021-22**

### Business Plan Report

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Objective Name</th>
<th>Principal Objective Name</th>
<th>Desired Objective Name</th>
<th>Action</th>
<th>FY2020-21</th>
<th>FY2021-22</th>
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<td>Customer</td>
<td>Improve Program that promotes health &amp; safety of employees</td>
<td>ES-1: Promote health and safety of employees</td>
<td>Percentage of employees reporting improvements</td>
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<td>80%</td>
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<td>Recycle</td>
<td>Contain citizen's recycling efforts</td>
<td>ES-2: Reduce waste and reduce waste generated</td>
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<td>Internal</td>
<td>Increase Employee Engagement</td>
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<td>Total Employee Engagement</td>
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### Strategic Initiatives

- **Customer Focus:** Focus on improving program that promotes health and safety of employees.
- **Recycle Focus:** Reduce waste and reduce waste generated.
- **Remote Area Focus:** Improve service to remote areas.
- **Financial Focus:** Reduce costs of operations.
- **Waste Focus:** Increase recycle rates.
- **Internal Focus:** Increase employee engagement.

### Key Performance Indicators (KPIs)

- Total Operating Expenses
- Total Recycling Rates
- Total Employee Engagement

### Target Outcomes

- Improve program that promotes health and safety of employees.
- Reduce waste and reduce waste generated.
- Improve service to remote areas.
- Reduce costs of operations.
- Increase recycle rates.
- Increase employee engagement.

### Action Plan

- **FY2020-21:**
  - Implement new safety protocols.
  - Launch recycling campaign.
- **FY2021-22:**
  - Enhance remote area service delivery.
  - Conduct cost-saving workshops.
  - Increase recycling awareness programs.

### Delivering Excellence Every Day

- Focus on continuous improvement.
- Engage stakeholders in decision-making processes.
- Utilize data-driven approaches for better outcomes.

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**Notes:** Contains any Solid Waste Management.