



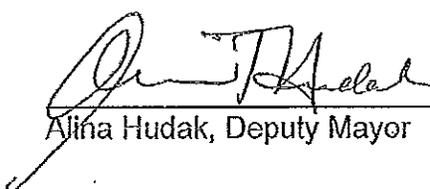
PUBLIC WORKS AND WASTE MANAGEMENT DEPARTMENT BUSINESS PLAN

Fiscal Years: 2014 and 2015
(10/1/2013 through 9/30/2015)

Approved by:



Alina Hudak, Interim Department Director

 9/29/14

Alina Hudak, Deputy Mayor

Plan Date: December 20, 2013

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DEPARTMENT OVERVIEW

Department Mission

The mission of the Miami-Dade County Public Works and Waste Management Department is to provide vital transportation infrastructure systems and services and an integrated waste management program that promote the mobility, health, safety, comfort, sustainability and prosperity of our community.

Major Duties, Services and Programs:

The Public Works and Waste Management (PWWM) Department's major duties, services and programs currently provided are:

Transportation Related Programs

- Install, operate, and maintain all traffic signalization devices countywide; install, maintain and repair all traffic control signs, street signage and pavement markings; operate and maintain all County and State-owned street lights within unlimited access roadways
- Administer the design and construction of all improvements within the public rights-of-ways
- Manage the County Stormwater Utility including drainage for flood and water quality; maintain the secondary and tertiary canal system including storm drain cleaning as required by the County's National Pollutant Discharge Elimination System (NPDES) permit
- Acquire land for rights-of-ways and road improvements; maintain all rights-of-ways maps, as well as horizontal and vertical control benchmarks
- Maintain all infrastructure along county-maintained roadways and rights-of-ways including movable and fixed bridges, swales, roadway surface repairs, guardrails, storm drainage systems and sidewalks and ensure accessibility and compliance with the Americans with Disabilities Act (ADA)
- Manage traffic County-wide by performing traffic studies and related traffic designs for roadway safety and capacity improvement
- Operate the Rickenbacker and Venetian Causeways toll facilities and maintain all the associated bridges and causeway rights-of-ways
- Assess permitting fees for work within rights-of-ways and conduct code enforcement of unpermitted work within the rights-of-ways in accordance to Miami-Dade County Code, Chapters 2 and 10

Neighborhood Related Programs

- Proactively monitor all County-maintained roadways with Neighborhood Enhancement Action Teams (NEAT) to identify and correct minor aesthetic and landscape deficiencies
- Provision of waste collection and disposal service to more than 325,000 residential households in the solid waste collection service area; providing curbside collection of garbage twice-per-week and once every other week contracted curbside recycling services
- Unlimited authorized customer access to any of the 13 Trash and Recycling Centers (TRCs) located throughout the Unincorporated Municipal Service Area and two scheduled bulky waste pick-ups each year
- Two Home Chemical Collection Centers for disposal of household chemicals by residents
- Operation of waste disposal facilities, including three landfills (North Dade, Resources Recovery Ashfill and South Dade) and contracted operation of the Resources Recovery facility (waste-to-energy-facility)
- Operation of three waste Transfer Stations to reduce travel time and better enable the County to meet its waste delivery obligations



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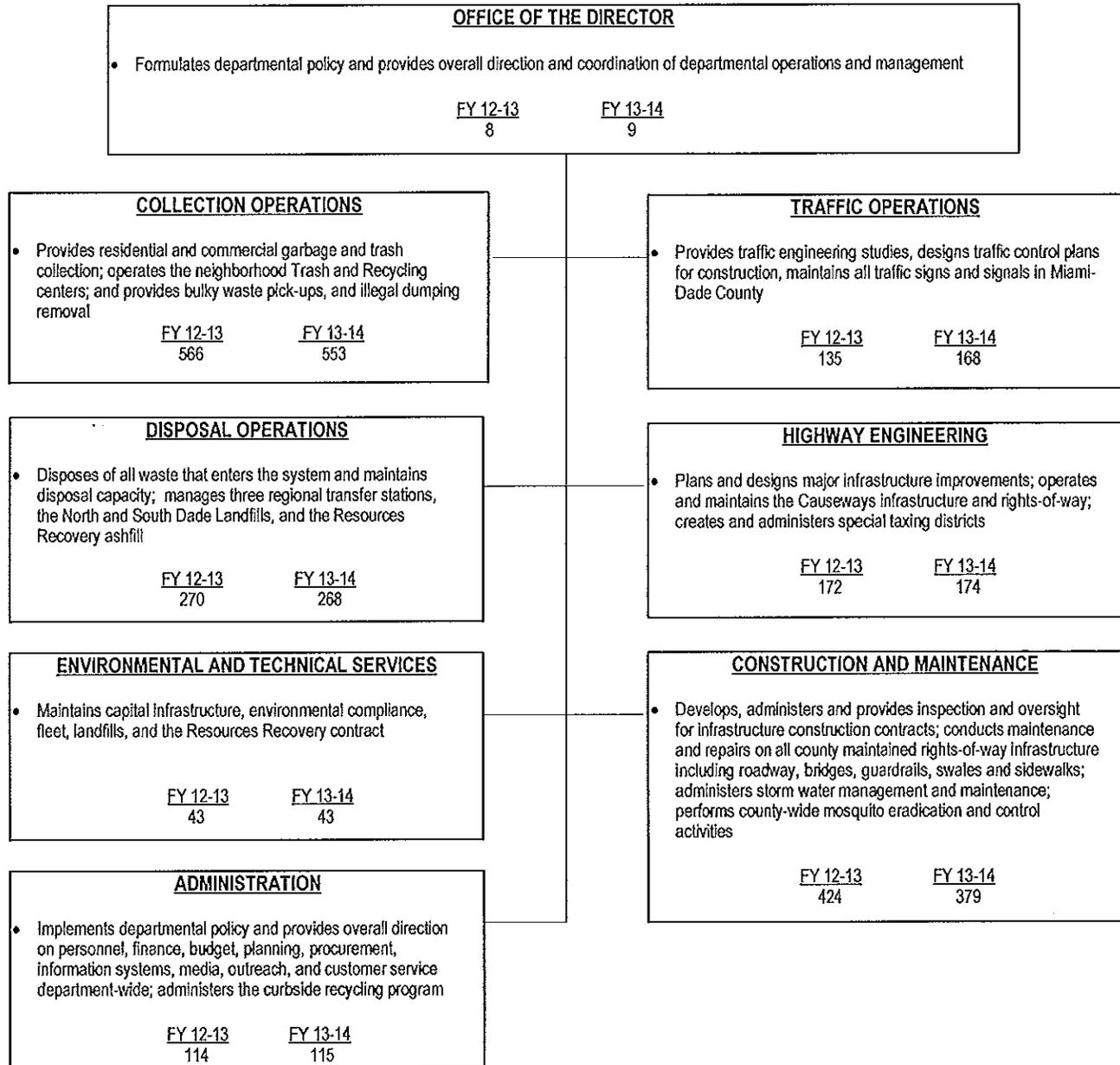
- Enforcement of Chapter 15 of the Miami-Dade County Code including: commercial and multi-family recycling education and outreach, issuing permits to general haulers, landscapers, tire generators and issuance of warnings and citations for waste related code violations
- Maintain environmental compliance with federal, state and local waste-related regulations
- Provide County-wide mosquito prevention and control services
- Create and administer all County Special Taxing Districts



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TABLE OF ORGANIZATION



Strategic Alignment Summary

PWWM's responsibilities include the provision of effective traffic signalization services County-wide; the planning, design, operation and maintenance of all County-owned transportation right-of-ways infrastructure; and ensuring that all right-of-ways are available, accessible, safe and effective for all users. Accordingly, the Department promotes and primarily supports the following goals and outcomes in the Miami Dade County's Strategic Plan:

- **Efficient Transportation Network (TP1)**
 - Minimize traffic congestion TP1-1
 - Expand and improve bikeway, greenway and sidewalk system TP1-2

- **Safe and Customer-friendly Transportation System (TP2)**
 - Reduce traffic accidents TP2-1
 - Improve safety for bicycles and pedestrians TP2-2

- **Well-maintained Transportation System and Infrastructure (TP3)**
 - Maintain roadway infrastructure TP3-1

PWWM also supports the following strategic goals and outcomes through the delivery of its integrated waste management collection, recycling and disposal programs; stormwater design, construction and maintenance; and the planning and design of roadway infrastructure services:

- **Effective Infrastructure Services (NI2)**
 - Provide functional and well maintained drainage to minimize flooding NI2-2
 - Provide adequate solid waste disposal capacity that meets adopted level-of service standard NI2-3
 - Provide adequate local roadway capacity NI2-4

- **Safe, Healthy and Attractive Neighborhoods and Communities (NI4)**
 - Promote livable and beautiful neighborhoods NI4-2
 - Preserve and enhance well maintained public streets and rights-of-ways NI4-3



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Our Customer

All residents and visitors of Miami-Dade County are customers of PWWM. The Department's key customers and/or market segments are County and municipal residents, commercial establishments, and other County departments. Most feedback is gathered through the County's 311 Call Center and measured on the Active Strategy Enterprise Balanced Scorecard (ASE) and/or the Resident Satisfaction Survey.

- **Customers served**

- There are more than 325,000 households within the Waste Collection Service Area, including eight municipalities (City of Aventura, the City of Doral, the City of Miami Gardens, the City of Sunny Isles Beach, the Town of Cutler Bay, the Town of Miami Lakes, the Village of Palmetto Bay and the Village of Pinecrest).
- Disposal customers include the PWWM collection operation, municipal waste collection operations and a number of private haulers throughout the entire County.
- All residents, commuters and visitors within Miami-Dade County that utilize the County maintained roadways and right-of-ways which include swales, sidewalks with street lighting, bikeways and walkways, storm drainage systems and bridges as well as the waterways traffic with bascule bridges.
- Residents in special taxing districts.
- All Miami-Dade County citizens, commuters and visitors who utilize the roadways, right-of-ways, and the Causeways.
- Internal customers such as departments which solicit survey and property acquisition services. In addition, PWWM provides contractual services to others through shared services agreements.

- **Customer Trends**

- PWWM's authority to provide its major services is established in the Miami-Dade County Code and the Home Rule Charter, therefore consistency of its customer base remains relatively constant. It is anticipated that some service sectors may increase if the economy continues to recover. As it relates to the waste customers, there are signs of a consistent increase, albeit slight, in the demand for waste collection and disposal services in the moderate economic recovery.
- Subsets of PWWM's infrastructure customers, such as bicycle riders continue to demand more safety, availability, accessibility and effective connectivity related to our roadway infrastructure services that accommodates their needs.
- Increased traffic congestion has accelerated demands for increased levels of roadway services such as traffic calming devices and increased capacity.
- **Customer Feedback:** In PWWM, customer feedback is direct and immediate. Feedback is received in the form of letters, phone calls, emails and 311 call center reports. This enables management to identify problems and act quickly to effectively address and improve performance. Additionally, Special Taxing District feedback is provided through the district security guards and homeowner associations.

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KEY ISSUES

Changes in Business Environment

Disposal Services: The PWWM disposal 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 itself collects waste from approximately 325,000 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 Sections 15-18 and 24-18 of the County Code relating to Resource Recovery and Management Facility Permitting, as well as Section 612 of Bond Ordinance 96-168 related to competitive facilities. While the disposal volume had been adversely impacted by the economy during the past few years, more recently the tonnage numbers and related revenues have stabilized and are gradually increasing. Energy sales revenues, however, have been impacted as a result of the expiration of the Power Purchase Agreement. Accordingly, the Department continues to work to identify and implement cost saving efficiencies in addition to exploring other revenue opportunities.

Transportation Infrastructure: The most significant issue affecting the transportation infrastructure is the availability of appropriate levels of funding for needed improvements. While there are indications of economic upturn, current funding levels impair the Department's ability to effectively and consistently address issues such as:

1. Roadway and capacity improvements to optimize traffic flow;
2. Critical improvements identified through traffic safety studies to enhance right-of-ways safety for pedestrians, cyclists and vehicular traffic;
3. ADA compliance projects;
4. Drainage improvements to reduce flooding and associated adverse impacts;
5. Technological advances to increase efficiency and effectiveness;
6. Preventive maintenance infrastructure repairs and maintenance on roadway and right-of-way infrastructure and bridges to reduce the descent into critical state of repairs
7. Capital improvement projects to replace infrastructure that has outlived its lifespan

Department revenues for public works operations and capital projects continue to be generated below historic levels. This impedes the ability of the Department to adequately address currently identified unfunded needs for infrastructure improvements totaling approximately \$1.3 billion. With limited resources, PWWM prioritizes projects in order to maximize the benefit to the community. Furthermore, the Department continues to implement programs such as ATMS, County-wide traffic safety studies and capacity improvements, the Venetian Causeway Bridge Rehabilitation and the SunPass Conversion Projects.

The lack of dedicated funding to maintain safe and effective right-of-ways will continue to compromise the Department's ability to maintain the transportation infrastructure system in a consistent state of good repair. This in turn has a direct impact to the economy and welfare of Miami-Dade County. However, moving forward, the Department will rely on identified funding sources as well as those generated from any increases in revenues experienced due to expanded building and construction industry activity.

In order to increase efficiency and maintain adequate levels of services innovative business practices are pursued and adjustments have been made to manpower resources by merging responsibilities

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and streamlining processes. However, further adjustments to manpower will likely lead to an impact to the services provided since the consolidation of duties and responsibilities has strained the span of control for existing personnel. The loss of experienced personnel through retirement and personnel reduction without comparable replacements continues to create a significant expertise gap and also impacts the Department's ability to maintain the transportation infrastructure system in a consistent state of good repair.

Achievement of Milestones

Department Reorganization: PWWM has substantially completed the milestones for the departmental merger of the back office functions. Continual adjustments are ongoing in order to realize further opportunities to streamline and improve operations without diminishing levels of service delivery.

Maintain Financial Stability: PWWM needs to maintain financial stability in order to meet its service delivery obligations as it relates to both General Fund and proprietary operations. While the economic climate has shown some signs of improvement, funding remains below adequate levels especially for critical capital improvement needs. While the Department continues to seek additional funding sources and makes every effort to implement efficiencies to maintain financial stability, the demand for a number of services and for infrastructure improvements will continue to exceed available funding.

Sustainability: PWWM will continue to implement sustainable solutions in its operations, programs and services. Critical elements of this effort include:

- **Electric Power Purchase Agreement (PPA):** PWWM generates renewable energy at its Resources Recovery Facility from a portion of the refuse it collects and that delivered by others. This form of electrical power production results in less greenhouse gas emissions than a more traditional fossil fuel plant. Waste-to-Energy is also an alternative to landfill disposal.
- **Automated Garbage Routing:** PWWM is currently in the initial stages of optimizing its garbage collection routes using a software product called Route Smart, starting in the northern part of the County and working south. The objectives for this project are to (1) balance the ending times for all routes, (2) minimize the number of total routes, and (3) maximize the number of fully automated routes in the waste collection service area and minimize the number of manual routes. The accomplishment of these goals will result in a reduced amount of vehicles on the roadways and more efficient travel times which should contribute to reduced carbon emissions.
- **Landfill Gas Utilization:** Continue implementation of Methane Landfill Gas Utilization Project at Landfills for renewable energy generation. The South Dade Landfill pipeline has been completed and tested but commercial operation is pending. At the North Dade Landfill, Ingenco is working with FPL to establish a connection to the FPL grid.
- **Stormwater Master Planning:** The Stormwater Management Program supports the Miami-Dade County's Comprehensive Development Master Plan process, the National Pollutant Discharge Elimination Systems (NPDES) Permit, the engineering and evaluation of improvements to the County's Flood Protection Level of Service and Water Quality Level of Service, and the County's local and regional efforts in climate change, sea level rise and adaptation planning.



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With increased urbanization, permeable areas are lost due to development. As a result, surface areas lose their ability to absorb rainwater. As a mitigation measure, one of the most common best management practices used to handle stormwater is the french drain system, also referred to as an exfiltration trench. They replicate natural percolation, are a cost effective solution, and have low environmental impact. Stormwater runoff passes through the exfiltration trench directly into the shallow aquifer allowing direct recharge of said aquifer making this approach greener infrastructure.

- **Solar-School Zone Flashers (SSZF):** Approximately 857 SSZFs have been installed in the County's elementary and middle school speed zones in the past two decades. For the past four years, 231 new installations have been solar powered. This program is continuing and all elementary and middle school should have SSZFs installed within the next few fiscal years. These SSZFs are programmed weekly using pager technology that offers the County a significant cost savings; however, this communication system has been prone to continual and sporadic failures which have resulted in a number of SSZF not operating properly. An effort to upgrade the School Zone Flashers scheduling and communications system to address these issues is underway.
- **Light Emitting Diodes (LED) Street Lights:** PWWM has implemented two corridors with LED street lights as a pilot study. While this technology is still evolving, the Department anticipates a result in a reduction of energy consumption and the associated carbon emissions. The technology will continue to be tracked to determine the feasibility of a future conversion program for all the County-maintained streetlights.
- **Energy Saving LED Conversion:** Following the Countywide conversion of the 12" Traffic Signal Heads to LED lighting technology, the Department continues to realize an estimated annual energy consumption reduction of 67% from pre-conversion levels and the associated resulting carbon emissions reduction.

Opportunities

In order to increase efficiency and levels of services, PWWM will continue to evaluate all possible opportunities in order to identify those that provide a net benefit to its operations including the consideration of the use of private contractors. Some potential opportunities currently in process and/or under consideration include:

- **Generating Cost Savings:** As part of ongoing efforts to fully utilize all existing assets, PWWM has identified a potential opportunity to maximize current disposal contract capacity while reducing operational cost. Currently, the Department uses the Medley Landfill during outages, plant interruptions and/or delays, and for the removal of by-products from Resource Recovery Facility to meet the minimal requirement of 100,000 tons per fiscal year. The Department can take better advantage of this agreement by maximizing the contract allowance of 250,000 tons for the hauling of by-products to the Medley Landfill rather than hauling them to a more distant location, such as the South Dade Landfill or North Dade Landfill. The airspace at Medley Landfill is currently priced at approximately \$35 per ton, while PWWM airspace is priced at \$64.85 on a contract basis and \$85.51 on a non-contract basis. Fully utilizing the Medley Landfill will provide the Department a savings in fuel, maintenance, and help conserve valuable landfill air space. The Medley Landfill is an external disposal resource that plays a significant role in the day-to-day operations of the Transfer Division.
- **Maximizing Operational Efficiencies:** The automation of the Causeway Division as a result of the Sunpass implementation will result in a 55% reduction in the workforce and related expenses.

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To achieve additional cost savings and management efficiency, consideration should be given to reorganizing and merging the Causeways Division post implementation of the Sunpass.

- **Streamlining Functions:** PWWM's Fleet Management Division will analyze the benefit of using lighter waste-hauling equipment. The modification of existing procurement contracts, in coordination with Internal Services Department, would allow the Department to purchase lighter tractors and trailers. The goal is to achieve a reduced tare weight, and increase net tonnage hauled per trip. Essentially, more solid waste can be transported with each load resulting in a reduced number of overall trips in-between disposal facilities to generate cost savings.
- **Maximizing Efficiency Through Use of Technology:** Installing onboard scales on waste transfer vehicles would help reduce overtime expenditures and operating costs. The onboard scale system will reduce the number of trips to and from facilities by ensuring that each load is filled to capacity, as outlined during last year's Six Sigma study, but not overfilled. Underweight loads are counterproductive, causing the Division to utilize more trips for a given amount of tonnage. On the flipside, loads that are overweight pose a liability to the Department and promote faster wear and tear on equipment.
- **Increased Shared Services:** Future opportunities are being explored including the option for municipalities to request increased services through cost sharing agreements with the County for canal maintenance and mosquito control activities. This option would provide enhanced assistance within municipal boundaries beyond the current level of service performed throughout the County.

Visual Inventory of Roadway Assets System (VISRA) Services to Other Municipalities:

PWWM proposes to offer its VISRA services to other municipalities through cost sharing agreements. The proposal includes, re-imaging the County roads again, updating the web module data images so users can have access to the latest images and marketing the solution to other government agencies in South Florida.

- **Maximizing Partnerships for Efficiencies:** PWWM, through partnership with other agencies, has also initiated a Community Services Program which was developed to address litter and illegal dumping. By effectively utilizing court-ordered community service hours, the Department has enhanced the ability to address litter control and illegal dumping without impacting routine staff assignments. The Department continues to consistently evaluate and make modifications to all its processes as applicable in order to provide the best level of service possible within current funding levels.

Obstacles

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

- **Personnel Matters:** Impending Retirements – PWWM currently has a large percentage of its workforce, critical staff with specific technical expertise and management experience, that are close to retirement. Departure of senior staff in key areas in operations and administration and the associated loss of institutional knowledge will impact continuity of operations should there not be adequate succession plans in place. The Department is evaluating means to monitor the retention of its workforce by developing innovative programs and automating HR Systems to track, monitor and analyze data to prepare for retirements. Additionally, the Department continues programs such as supervisory forums and a supervisory academy. Other departmental efforts include

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training and monitoring the workforce to ensure that the skill sets necessary for the continuity of operations are maintained.

- **Staffing:** PWWM continues to evaluate staffing needs and realignment of resources to appropriately address needs and reduce any overlaps within operations. In addition, the Department seeks to provide training opportunities in order to ensure that staff is adequately trained and that middle and senior level staff have the necessary competencies to be effective. The Department activities have been significantly affected by the retiring personnel bumping and the layoff process which has led to an immediate knowledge deficit in key areas.
- **Delays in the Hiring Process:** Delays in the hiring process are impacting all aspects of departmental operations. Some of the impacts include increased costs; reduced opportunities to have appropriately experienced personnel to effectively implement succession planning transitions; lack of ability to effectively perform critical tasks and deliver services; and increased operational costs through the use of overtime and temporary expenditures.
- **Aging Equipment and Facilities:** PWWM needs to ensure future viability of aging infrastructure including bridges, equipment and facilities. The Department faces challenges in performing basic critical repairs that are required to maintain safe and effective roadway infrastructure. In addition, most of our facilities are over 40 years old and therefore require upgrading and or modifications to improve operations and extend their uses. The Department has Multi-Year Fleet and Capital Plans in place to address these issues within the Waste Functions; however, plans are not in place for similar plan implementations for operational and capital funding for the public works functions.
- **Lack of Critical Vehicle Maintenance Services on ISD/Fleet Furlough Days:** Internal Services Department Fleet Management (ISD/Fleet) mechanics must take four (4) furlough days and four (4) furlough holidays each year, for a total of eight (8) days. Most of the furlough holidays are on a Monday after a holiday weekend (e.g. Columbus Day, Veteran's Day, Memorial Day, President's Day). Monday's are heavy work days for departmental operations, particularly after a holiday weekend when more waste is generated. The closure of the ISD/Fleet shops on furlough holidays has resulted in broken down vehicles being towed rather than repaired by the ISD/Fleet service mechanic, and at times a mechanic has been called back to lower the boom on a trash crane so it can be towed. Also, on the Tuesday following a furlough holiday there is a reduction in available equipment to perform functions such as waste collection and roads, bridges and canals maintenance. Further, use of the other furlough days results in fewer mechanics available to keep vehicles functioning, which degrades operational efficiency. This situation drives costs up and service levels down.
- **Electric Power Purchase Agreement (PPA):** The PPA with Progress Energy Florida (PEF) expired November 30, 2013 and PWWM 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 rate is the lowest rate, which is anticipated to be approximately \$27 per megawatt hour; about 70% less than the prior \$85 per megawatt hour PPA rate with PEF.
- **Weakness in the Energy Market:** The sale of biomass fuel from the Resources Recovery Facility (RRF) to other waste-to-energy facilities in Florida is also affected by lower energy prices. To the extent that the RRF operator requests less recyclable trash for processing into biomass fuel, the



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more trash will be placed in the County's landfills, shortening their expected life. This situation highlights the need to be prepared for future waste disposal needs as described in the Solid Waste Master Plan.

- **Delays in Replacement of Light Fleet Vehicles:** Delays in the replacement of light fleet vehicles has led to a lack of shop loaner vehicles, which is affecting operations. PWWM is having difficulty finding transportation options for its employees that rely on automobiles and pick-up trucks to perform their work. Preventative maintenance visits are delayed due to the lack of shop loaner vehicles.
- **10-Year Fleet Replacement Plan:** PWWM is struggling to adhere to its 10-Year Fleet Replacement Plan due to delayed purchasing of diesel powered heavy fleet vehicles in advance of the proposed transition to compressed natural gas vehicles. This issue affects waste collection, transfer and disposal.
- **Compressed Natural Gas (CNG):** PWWM plans to initiate a CNG pilot program where 10 CNG powered waste transfer vehicles will be purchased and fueled using a portable fueling station located at the Resources Recovery Facility. The new CNG vehicles should be delivered toward the end of FY2013-14. This program is intended to familiarize both waste operations and Internal Services Department Fleet Management Division with CNG vehicle operations and maintenance. Once a permanent CNG fueling solution is in place, the pilot will be discontinued. This project will change the types of trucks purchased and how we operate on a daily basis. It is still too early to tell how this project will evolve and there are too many variables that must be decided before the Department can determine the true operational impact of the implementation.
- **Technology:** The PWWM needs to integrate information technology systems and continue new, innovative technological efforts that will allow the Department to operate more efficiently and effectively. In addition, the Traffic Signals and Signs Division (TS&S), facilities are antiquated and overcrowded. A new facility will require a substantial investment in technology in order to develop a Traffic Control Center that can meet the current and future needs of the County.

In addition to the facilities, there is a need to implement an information technology system at TS&S for dispatching, documenting and recording the repairs and maintenance of all traffic signals, devices, and signs. The current paper systems must be automated and will require the procurement, maintenance, and use of laptops or tablets with wireless communications. This need is becoming more critical since the TS&S' Central database, AToMs, is reaching a point where it is no longer a supported application. Additionally, the ATMS is not currently being backed up to any County-maintained system; with existing backups of the system being housed by Kimley Horn and Associates. As such County-supported backup system needs to be implemented.

The County's Traffic Signal Infrastructure is becoming increasingly vulnerable to failure. There are a large number of traffic signals that are exceeding 20 years in service. The continuous exposure to the elements has allowed the systems to deteriorate to where the traffic signal experiences frequent outages and as a result transitions to flash mode. Continued reductions in staffing no longer allows for preventive maintenance to the traffic signal system.

The ratio of traffic signals to Traffic Signal Operations Engineers is currently 238:1 (2,857 signals to 12 engineers) well short of the Federal Highway Administration (FHWA) recommendation of 75 to 100:1. By relying on the efficiencies provided by the new ATMS, PWWM has been able to overcome this staffing shortage to some degree, though this is not sustainable. The current

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staffing levels prevent PWWM from re-evaluating and re-timing traffic signals in a proactive manner. It is of critical importance that staffing be increased to meet the growing needs and challenges facing traffic movement within Miami-Dade County.

Legislative Changes/Mandates

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

- Numerical Nutrient Criteria and the Statewide Storm-Water Treat Rule Development: During FY12-13, the Department closely monitored legislation for Numerical Nutrient Criteria and the Statewide Storm-Water Treat Rule Development due to its potential to greatly affect the ability and cost of discharging storm-water into bodies of water. The EPA approved the Numerical Nutrient Criteria in late 2012, and the State approved the legislation in June 2013. Details for the implementation have yet to be provided by the State. The Department is communicating with Florida Department of Environmental Protection to discuss rule impact on MS4s. As approved, Biscayne Bay is included but the South Florida canals are not.
- Recycling Benchmarks: PWWM has been monitoring HB 7243, and opposes any efforts to change legislation that diminishes the ability of a county to count the production of renewable energy toward achievement of the long-term recycling goal. As the bill stands today, the PWWM will be able to count Waste-to-Energy production, Landfill Gas Utilization (methane gas converted to energy), materials collected in its single stream recycling programs, as well as other recycling programming, toward the long-term recycling goal. Any changes to the bill that disallows inclusion of renewable energy towards achievement of the goal will have an adverse impact on the PWWM and the County meeting the goal. By the year 2020, the long-term goal for recycling efforts of state and local governmental entities, private companies and organizations, and the general public is to recycle at least 75% of municipal solid waste (40% by 2012, 50% by 2014, 60% by 2016, 70% by 2018, and 75% by 2020). The Florida Department of Environmental Protection Annual Solid Waste Management Annual Report states that overall State recycling goal achieved for 2012 was 48%. The PWWM will continue to monitor this legislation and enhance its efforts to meet the incremental and ultimate 75% recycling goal.
- Infrastructure Improvements Adjacent to State Universities: During the FY12-13, PWWM was monitoring a draft legislative proposal from the State University System that would require local governments to pay for off-campus improvements such as sidewalks, turning lanes and traffic signals associated with university construction. The area near the Florida International University was an issue for the Department. The proposal was the result of the discontinued surcharge on local option fuel taxes and a state trust fund that previously covered the cost of these types of improvements. The Department will experience a negative fiscal impact should the proposal pass in any upcoming legislative session. Another part of the same bill calls for the implementation of a construction and demolition debris recycling program. This will also have an impact on the Department.
- Net Metering: PWWM has included an item in its State Legislative package that proposes statutory change revisions to the definitions of "Customer-owned renewable generation" and "Net metering." These revisions would allow the County to use the power it produces at its Waste-to-Energy facility to offset the electricity it purchases from the local electrical utility via net metering. This modest change will bring substantial savings to Miami-Dade County tax payers while having a minimal impact on electrical utilities in terms of revenue losses.



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- **Support to State Legislative Request of an Amendment for Stormwater Fees Legislation:**
The requested amendment to Florida Statute §403.0893, Stormwater funding/dedicated funds for stormwater management, will strengthen the existing statute language, by adding that the state, for itself and for its agencies and subdivisions, waives sovereign immunity for the express and limited purpose necessary including payment of stormwater fees due for state, state agency and state subdivision properties. This is a key issue to ensure that revenue collections from State facilities such as Miami Dade College, the Miami Dade School Board and other smaller State facilities resume and continue in a timely manner.

PRIORITY INITIATIVES

- **Causeways Improvements (Rickenbacker & Venetian):** One of PWWM's top priorities is the completion of the emergency repairs to the Bear Cut and West bridges within the Rickenbacker Causeway. These repairs will extend the life of these bridges by a minimum of 20 years allowing for proper time for the development of replacement bridges. The project includes new multi-use paths to provide seamless bicycle/pedestrian pathways on Bear Cut Bridge. It is anticipated that this project will be completed by June 2014.

The Rickenbacker and Venetian toll plaza's current toll system is being converted to the Florida Turnpike System. This conversion will achieve improved traffic flow through the toll plaza, increased efficiencies and operation savings while maintaining rates for residents and frequent commuters. It is anticipated that this project will be completed by June 2014.

- **Solid Waste Master Plan:** The Solid Waste Master Plan is completed. It is imperative that the BCC provide policy direction to the department regarding future source reduction, recycling, collection, transportation, energy recovery and disposal alternatives to ensure compliance with our state solid waste management responsibilities and also meet customer and community expectations. Approval of the Master Plan is anticipated within FY2013-14.
- **Stormwater Master Planning:** The Stormwater Management Program supports the Miami-Dade County's Comprehensive Development Master Plan process, emergency preparedness and management activities, the National Pollutant Discharge Elimination Systems (NPDES) Permit, the engineering and evaluation of improvements to the County's Flood Protection Level of Service and Water Quality Level of Service, and the County's local and regional efforts in climate change, sea level rise and adaptation planning.
- **Advance Traffic Management System (ATMS):** All of the County's signalized intersections have been migrated to the ATMS. The Department is progressing on improving the communication system supporting the ATMS system. In the current fiscal year, additional signals will be migrated to the wireless communication subsystem as a collaborative effort with the Information Technology Department. This critical effort should include the continued planning and development of an improved high capacity communication system to serve the ATMS. This effort will provide additional enhancements to further improve traffic flow on the County's arterials.
- **Red Light Running Cameras (RLRCs) and License Plate Recognition Systems (LPR):** PWWM continues to work with the Miami Dade County Police Department, on the initiation of a RLRC program, and the municipalities with installed RLRCs and LPRs to ensure that the installations operate within the parameters established by the State Legislature and do not interfere with the normal operation of the traffic signals. During this fiscal year, a number of

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municipalities have sought to implement LPRs at signalized intersections. These cameras serve to provide homeland security functions to the municipal police departments and have been installed on the County- maintained signal infrastructure. The Department has been working to develop standards for these installations in order to protect the integrity of the traffic signal infrastructure. These systems also capture live video from the intersections, which the County hopes to leverage in the future to increase efficiencies in its traffic operations.

- **Bus Priority:** As part of the ATMS, PWWM provides bus priority to Miami-Dade Transit (MDT) busses at a number of traffic signals on Kendall Drive, as well as four other corridors. The Department is working closely with the Metropolitan Planning Organization (MPO) and MDT to prioritize and develop the requirements for the system. MDT is processing an RFP to obtain the services of a consultant to design the AVL/ATMS interface and communication system that will serve the Bus Priority system.
- **Additional Waste Disposal Capacity:** Cell 5 Construction at South Dade and Cell 20 Construction at Resources Recovery Ashfill. These two projects will ensure the availability of disposal capacity sufficient to accommodate waste flows committed to the long term interlocal agreements or contracts with municipalities and private waste haulers and anticipated waste flows for a minimum of five years.
- **Landfill Gas Utilization System:** The program installed electrical generators that will export power to the bulk electric power grid. The generators sited at the North Dade and South Dade Landfills and will operate on Landfill Gas. The North Dade landfill plant is in the process of being connected to the FPL Grid. The South Dade Project pipeline construction has been completed and tested. Commercial production is pending.
- **Municipal Landfill Closures:** PWWM administers grants for closure and remediation of Municipal landfills to ensure regulatory compliance. The Department is currently funding or intends to fund the following municipal closure grant projects: Munisport Landfill, Virginia Key Landfill and Taylor Park.
- **Comprehensive Landfill Closure Plan:** The Comprehensive Landfill Closure Plan (CLCP) includes County and municipal landfill sites that are eligible for remediation and closure funding from the Utility Service Fee (USF) and sets out the criteria, terms and timing of this funding. Several potential municipal sites are currently being evaluated for USF eligibility and inclusion in the CLCP. For funding to be allocated to County and municipal projects, the CLCP must be approved by Board of County Commissioners. This document should be completed within FY2013-14.
- **Replace Existing Power Purchase and Transmission Contracts: Agreement:** The power purchase agreement (PPA) with Progress Energy Florida (PEF) expired November 30, 2013 and PWWM 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 rate is the lowest rate, which is anticipated to be approximately \$27 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 Power, to take advantage of price differences between the two agreements as warranted. PWWM is seeking out and responding to RFPs for energy sales throughout the state to find the best long-term value for the County.



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- **Flood Control, Flood Insurance Savings, and Management of the Federal Emergency Management Agency (FEMA Community Rating System (CRS) Program):** County residents saved over \$21 million on flood insurance in 2013. These savings represent an average of over \$120 on flood insurance premium reduction per unincorporated Miami-Dade County flood insurance policy in the special flood hazard areas. These total savings were provided to Miami-Dade property owners due to the County receiving a rating of five (5) from a scale of one (best rating) to ten (lowest rating), in the CRS Program from FEMA. This is a remarkable accomplishment for the County which is currently in the top 6% of all CRS participating communities nationwide. Only ten (10) of the CRS participating communities (from a total of 1,419) currently have a better CRS rating than unincorporated Miami-Dade County. As a result, unincorporated Miami-Dade County is one of the top communities in the County in terms of insurance premium savings received by residents. The current County CRS rating generally results in a 25% discount on flood insurance premiums for properties in special flood hazard areas of unincorporated Miami-Dade County. Premiums for properties outside the special flood hazard zones generally receive a 10% discount. Since 2003, Miami-Dade County has continued to receive the excellent CRS rating of five (5) from FEMA thanks to its efforts to improve and maintain the local stormwater and flood control system.
- **Garbage Collection Routing Solution:** PWWM is currently implementing automated routing of garbage collection routes using software developed by Route Smart Technology, Inc. This software creates new and also edits existing geographical garbage routes to provide more efficient garbage collection service to customers (October 2013 – September 2014). This process includes evaluation of manual routes and conversion to automated routes, where possible, to improve efficiency (on-going).
- **Waste Product Recycling Cart Program:** PWWM is exploring the purchase of an inventory management software for the Waste and Recycling Cart Program: a) to enhance inventory management to ensure continuous availability of carts and the Department's capability to properly deliver, retrieve, repair and refurbish carts for our 325,000 service area customers and 31,000 municipal recycling customers, and b) to enhance staffing efficiency to ensure adequate operation (September 2014).
- **Safety Studies at Municipal High Crash Locations:** PWWM is conducting in-house studies funded through the MPO to identify the top 20 high-crash locations within municipalities in order to perform comprehensive safety studies to evaluate and determine countermeasures. The project has an estimated end date of June 2014.
- **Pedestrian and Vehicular Traffic Safety and Flow Improvements:** PWWM reviews more than 4,000 traffic related requests per year and conducts engineering studies in-house. Solutions are implemented for a large volume of traffic related problems that enhance mobility and reduce travel delay as well as increase the safety of numerous users. In addition, 24-hour and 72-hour machine counts are provided to the traffic engineers. This allows them to monitor traffic patterns and trends throughout Miami-Dade County for planning new facilities, timing and refining of traffic signal operations, selection of optimum traffic controls, development needs, and highway planning and design.
- **Safe Routes to Schools Project:** Through Safe Routes to School and FDOT Grants, PWWM implements improvements in the rights-of-way including installation of school flashing signs, school feedback signs, school related pavement markings and signage to ensure safety for the students walking to and from school. To date, PWWM has previously completed improvements along 32

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schools and currently has improvements scheduled for 22 additional schools anticipated to be completed by September 2015.

- **Nesbitt ADA Compliance Retrofitting:** PWWM is tasked with implementing ADA improvements in compliance with the ADA Act of 1990 whereby the Department's main responsibility is to remove sidewalk obstructions in the path of travel to a bus stop (existing sidewalks on the block where the bus stop is located) and to install the needed curb cuts on the designated sidewalks wherever physically feasible.
- **Compressed Natural Gas Pilot:** PWWM plans to initiate a compressed natural gas (CNG) pilot program where ten (10) CNG powered waste transfer vehicles will be purchased and fueled using a portable fueling station located at the Resources Recovery Facility. The new CNG vehicles should be delivered toward the end of FY2013-14. This program is intended to familiarize both waste operations and Internal Services Department Fleet Management Division with CNG vehicle operations and maintenance. Once a permanent CNG fueling solution is in place, the pilot will be discontinued.

Technology Initiatives:

- **Waste Collection System Replacement:** The development and integration of the Community Information and Outreach Department's (CIAO) new CiRM system and PWWM's new Waste Collection Systems (WCS) will provide bi-directional Interfaces between both ORACLE database systems. CIAO's CiRM system is Miami-Dade County's 311 citizen call intake center (in development). 311's CiRM system will receive, create and update PWWM service requests which consist of public complaints, requests for service, Garbage and Trash pickup information, etc. The new CiRM will interface with PWWM's new Waste Collection System and several other departments' database systems. The new WCS consists of three tightly integrated PWWM Operations and Administrative modules (Code Enforcement, Accounting/Billing and Trash Routing). These three WCS modules will work seamlessly together to process CiRM system service requests related to PWWM services, to manage residential and commercial Enforcement violations and to coordinate Bulky Waste scheduling. It will also manage the account billing process. Within the scope of the new WCS, the public will access the following: report/file a complaint, online payments (bills, services, fines), verify availability of a bulky waste pick up, request bulky waste service, check status of the bulky waste order, request an inspection, complete a permit renewal application and check the status of an enforcement action. The new WCS is under development. Two Java contractors are spearheading the programming code and are bringing up-to-speed the divisional staff who were Java trained. The development is 30% completed with expected delivery in 2015.
- **Visual Inventory of Roadway Assets System (VISIRA):** VISIRA system is a GIS image based asset inventory and pavement management solution for the County. The system is comprised of a survey vehicle that collects roadway images with its respective on-board hardware, software and vehicle cameras. The images collected in 2008 were used to create a GIS layers for road signs, sidewalks, ADA access points, bridges and streetlights on County maintained roads. The images can also be used to capture additional assets such as guardrails, trees, waste collection bins, manholes, inlets, curb and gutter, pavement condition and fire hydrants. This solution also provides an effective way of verifying the accuracy of the data collected.
- **Biometric Time Clock System:** The PWWM is an active member of a multi-department effort to procure and implement a biometric time clock system that will interface with the PeopleSoft ERP time and attendance module in order to accurately and efficiently capture employee time. The

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biometric feature will rely on a unique attribute of the user, such as a hand print, finger print, facial, iris or retina recognition, to identify and then "clock-in" the staff member. The Biometric time clock system is expected to be underway by mid FY13-14.

FUTURE OUTLOOK

There are various factors that and have the potential to significantly impact on Departmental operations within the upcoming years. Below are a few of those significant factors:

- **Light Speed Building:** The Department must prioritize the design and construction of new facilities for the Traffic Signals and Signs Division at the Lightspeed Building. The existing Traffic Signals and Signs facilities, including the Traffic Control Center, were constructed in the mid 1970's and will be required to undergo 40 year certification in the coming years. The continued postponement of maintenance and required upgrades to the facilities have left the facilities in poor condition and vulnerable to the failing their 40 year certification. Further, the facilities were built prior to more stringent building codes and are vulnerable to storm events as well as security threats. In addition, in 2006, PWWM contributed \$4.7M in People's Transportation Plan funds for the purchase of the Lightspeed Building with the intent of housing the Traffic Signal and Signs Division and implementing a new Traffic Control Center. The failure of the County to progress in the implementation of the design, construction, and relocation of the Traffic Signals and Signs Division to the Lightspeed was the only finding in the 2010 Audit Report of the Charter County Transportation System Surtax conducted by the County's Audit Management Services.
- **The Solid Waste Management Master Plan:** A key component of Solid Waste Master Plan implementation in the near to medium term will be the transfer of waste to non-county disposal facilities. The department needs to better balance the higher out-of-pocket costs to utilize non-county disposal facilities against its lower internal marginal costs to use County-owned landfill space. Continued reliance on artificially low internal disposal rates is not sustainable in the long-term, as remaining disposal capacity in County-owned landfills continues to be depleted. Balancing of external and internal costs will allow the County to more gradually transition from current heavy reliance on its own disposal capacity to increased reliance on outside sources, which more accurately reflect the true cost of waste disposal replacement. The Department needs to begin analyzing and evaluating the best methodologies to economically transfer waste longer distances and incorporate the results of that analysis into our capital and fleet planning.
- **Power Purchase Agreement:** PWWM's ability to secure a replacement power purchase agreement (PPA) that provides a financial return similar to the prior PPA is essential to the long-term economic viability of the Resources Recovery Facility (RRF). The most straight forward means to accomplish this is to amend Florida Statutes to change the definition of "Net Metering" to include power produced by local government owned waste-to-energy facilities. This would allow the County to exclude from its electric bill energy produced by the Resources Recovery Facility that is exported to the electrical grid, thereby providing discounted power to County departments and funding the RRF operation at a sustainable level. This concept is the department's highest state legislative priority.
- **Compressed Natural Gas:** PWWM should be able to realize significant cost savings in all its waste operations by converting its heavy fleet to compressed natural gas fueling. This will better enable the Department to minimize increases in the household waste collection fee. In the meantime, the Department will continue to purchase hybrid diesel garbage collection vehicles, which also have lower operational costs.

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- **State Changes to National Pollutant Discharge Elimination System Permit Requirements:** The State of Florida changes to the current requirements to the NPDES permit may obligate the Department to increase maintenance frequencies which in turn would require additional staffing and purchasing of capital equipment. Ongoing deliberations have been in effect for approximately two (2) years. These changes will affect the Storm Water Utility's staffing and operational methodology. Future opportunities are being explored including the option for municipalities to request an increase of canal maintenance services through their maintenance cost sharing agreements with the County.
- **Infrastructure Improvements:** PWWM continues to face a lack of adequate funding to implement improvements for vehicular and pedestrian traffic safety and flow, for the continued implementation of the ATMS, and for other capital improvement projects that are critical to the safety and welfare of all users. The Department will continue to pursue funding, including federal and state sources, to help address the current \$1.3 billion of identified unfunded needs.
- **Other Significant Impacts:** Some of the other factors that have the potential to impact PWWM's operations and levels of service delivery include:
 1. The completion of cell 5 at the South Dade Landfill, which provides an increase in landfill disposal capacity;
 2. New construction of residential communities within the surrounding area of the Resources Recovery Facility may create land use conflicts relating to odor, dust, traffic etc;
 3. A number of Disposal Contracts with municipalities and private haulers will expire in 2015. Although PWWM has secured nearly 60% of the municipal tonnage through agreement extensions, the remaining tonnage is still at risk; and
 4. Potential annexation and incorporation policies can impact PWWM. Annexations in particular have the potential to reduce the Waste Service Area and the associated revenues. This could have a profound impact on revenues, debt service coverage and ultimately fees charged to the remaining collection customers.

Legislation – Environmental:

- **National Pollutant Discharge Elimination System Permit Progress:** Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. State of Florida changes to the current requirements of NPDES permit may obligate the Department to increase maintenance frequencies which would result in additional staff and capital equipment purchases. Ongoing deliberations have been in effect for nearly two years.
- **Waste to Energy:** Additionally, there are several potential legislative changes at the Federal and State levels that will affect PWWM's operations as it relates to recycling and renewable/clean energy. A comprehensive legislative request regarding Renewable Energy reflects the PWWM's ongoing efforts to both preserve waste-to-energy's inclusion in applicable definitions of "renewable energy" and "green energy" and to provide incentives and other support for the production of such renewable energy. The Department is working with the Office of Intergovernmental Affairs and has included language in the legislative package to address these issues.
- **Green House Gas Regulations:** There are two air emission requirements established by the United States Environmental Protection Agency/Florida Department of Environmental Protection (USEPA/FDEP) that may be modified and therefore, could affect our facilities in the foreseeable future, (Mercury (Hg) and Greenhouse gases (GHGs)). The GHG regulations include Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O). Effective January 1, 2010, an inventory of

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GHG emissions from the County's Landfills and the Waste-to-Energy plant must be kept. Data collected through the inventory will be used as a basis for limiting (capping) GHGs from solid waste facilities. Facilities emitting over a certain threshold will have to offset the GHGs by buying credits and/or paying a fee. The FDEP has advocated the position to require continuous emissions monitors (CEM's), which are devices that analyze stack emissions continuously on a real time basis, to track Hg emissions from the Waste-to Energy plant. Currently, the stack emissions are monitored by discrete stack testing periodically.

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

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

Local Legislative Issues

- **Forecasting Future Need for Stormwater Utility Fee Increases:** The current Miami-Dade County Stormwater Utility Fee for the UMSA service territory is \$4.00 per month per Equivalent Residential Unit (ERU). The fee has not changed since fiscal year 2004. Further analysis will be needed to forecast if increases may be needed by fiscal year 2015. Another issue of interest which could be critical to continue the advancement of the Stormwater Management Program, is the future updates to Chapter 11C of the Miami-Dade County Code which will allow the County to improve the current CRS classification resulting in additional discounts in Flood Insurance premiums for UMSA residents.

Financial Stability: The PWWM has experienced some revenue shortfalls and continues to monitor and reduce expenditures while attaining operational efficiencies that help minimize cost. Reductions in the General Fund support continues to impact the Public Works operation staffing and capital project needs. The Department submitted grant funding requests in this year's legislative package and will continue to seek additional funding sources to supplement operations and maintain financial stability.

- **New Technology:** PWWM will continue to explore and implement new IT technology such as implementation of an E-ticketing mobile automated and enforcement routing, customer information

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management systems, and enhancement of the waste collection system and the GIS application for traffic engineering improvement.

- **Succession Planning:** PWWM currently has a large percentage of its workforce that is eligible to retire within the next three to five years. The Department has implemented many programs to react to this oncoming issue such as succession planning, supervisory forums, supervisory academy and continues to push training efforts in the wake of budgetary constraints. The Department continues to monitor its workforce to ensure that the skill sets necessary for the continuity of operation are maintained.

