Montgomery County
Division of Solid Waste Services

Integrated MSW Management System

Presented To:
Master Plan Task Force

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June 25, 2018
Division of Solid Waste Services

Integrated Solid Waste Management System

• Division Chief
• Business Office and Administration
• Waste Reduction and Recycling
• Collections
• Transfer Station and Materials Recycling Facilities
• Resource Recovery and Compost Facilities
Division of Solid Waste Services
Business Section
June, 2018

DSWS BUSINESS SECTION

Budget Management
Revenue Management
Contract Administration
System Program Evaluation
Change/Lifecycle Management
GIS/In-House Data Integrity & Reporting
Web Presence/Social Media
Hardware & Software Support/Project Management
## FY19 Budget Overview

<table>
<thead>
<tr>
<th></th>
<th>Budget ($ mil)</th>
<th>FTEs</th>
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<tbody>
<tr>
<td>FY19 CE REC</td>
<td>$110.0</td>
<td>106.24</td>
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<td>FY18 Approved</td>
<td>$96.5</td>
<td>105.14</td>
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<table>
<thead>
<tr>
<th></th>
<th>Budget ($ mil)</th>
<th>Percentage (%)</th>
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<tr>
<td>Personnel</td>
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<tr>
<td>Total</td>
<td>$110.0</td>
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### Procurement
- Oversees the administration of about 50 contracts for Solid Waste professional and specialized services
- Encumbered about 140 requisitions for about $93 million
- Processed about 1,900 invoices for about $87 million.
Solid Waste Enterprise Funds

- **Enterprise Funds**
  - **Collection Fund** - refuse collection services
  - **Disposal Fund** - develop and maintain programs & facilities to manage all MSW generated within the County

- **Revenues Must = Expenses**
Incremental Systems Benefit Charges - Cost of recyclables collection and processing at MRF and Dickerson Compost facility; recycling outreach & education and other sector specific services

Base Systems Benefit Charges - Covers cost of maintaining basic programs and facilities

Tip Fee - Amount charged per ton of waste at the gate

Disposal Fee - Prepaid tip fee; fee for service charged to SF household on tax bill

Collection Charge - Assessed to each SF household in sub-district A who receives refuse collection by County contracted collector

Enterprise Fund Revenue
Collections Section

- Manage 3 collection contractors providing service to 217,000 single family homes and townhomes in 13 service areas

- FY18 Contracts = $23 million
Collection Contracts

- 13 collection service contracts
- Contracts are competitively bid
  - Request for Proposals
- Contract Highlights
  - Contract terms are 5 years + 2 one year renewals
  - Annual CPI increase
  - Fuel increase if fuel exceeds $5 gallon
Collection Contracts

- In FY18, 6 of the 13 contract were re-bid.
- In FY19, 5 contracts will be re-bid.
- In FY20, 2 contracts will be re-bid.
Residential Curbside Collection

- 13 Service Areas
- 500 square miles
- 217,000 SF and Townhomes

Areas 1 - 5

*Refuse and Recycling*

“Subdistrict A”  
- 92,000 homes

Areas 6 - 13

*Recycling only*

“Subdistrict B”  
- 125,000 homes
Residential Refuse Collection

Subdistrict A (County-provided Service)

- Household Refuse
  - All 92,000 homes
  - 1 x per week
    - Residents provide their own refuse containers.

(All collection services are provided weekly, and all on the same day)
Residential Refuse Collection

Subdistrict A (County-provided Service)

• Bulky Waste Collection
  • Residents call 311 or schedule online
  • Scheduled for next collection day
  • Bulky waste collected along with household waste
  • 5x per year
  • No additional charge
Residential Refuse Collection

**Subdistrict B** *(Free market (subscription) system)*

- Household Refuse
  - 125,000 homes
  - 1 - 2 x per week
    - Collector provides refuse can
  - Customer selects and pays collector for collection only
  - *(Systems Benefit Charge pre-paid to the County for disposal)*
Recycling Collection

**Sub-districts A & B**

- All Single Family and Townhomes (217,000)
- 1 x per week
- Dual Stream Collection System
  - **Paper & commingled**
    - County provides containers
    - 65 gal. cart for paper & cardboard
    - 22 gal. bin for commingled (plastic, glass, metal containers)
Recycling Collection

• Split-body Collection Vehicles
• 29 cu. yd. Split Packer

• 60% side = Paper & OCC
  • semi-automated
• 40% side = Commingled
  • Manual
Yard Trim Collection

**Sub-districts A & B**

- All Single Family and Townhomes (217,000)
- 1 x per week

**Yard Trim**

- No plastic bags
- Loose yard trim must be in labeled containers
- Limbs must be bundled or containerized
- Maximum 45 lbs. each
Yard Trim Collection

Plastic bags are prohibited!
The Collections Team!
Collections Field Operation

- 12 Code Enforcement Officers (Inspectors)
- 1 Program Manager

- Field supervision of contractors
- Code Enforcement
- Customer Service
- Outreach & Education
Educating our customers
Customer Service

Field Staff and/or contractor fulfills SR

Customer contacts 311 (phone or online)

Service Request to DSWS and Contractor

Collections receives and processes 450 service requests daily.
22-gallon Commingled Bin Delivery

31,559 bins delivered in 2017
65/35 Gallon Paper Cart Delivery & Repair 2017

3,837 carts delivered

6,401 carts repaired
Outreach

“Touch-A-Truck” Day
Central Operations Section
Recycling Center

Operation—FY17 Totals:

- Total commingled tonnage received - approx. 31,000 tons
- Total paper tonnage received - approx. 50,000 tons
- Actual accrued FY17 total revenue - approx. $1.8 million
- Receives about 130-140 tons per day of commingled material and processes about 10 tons per hour of commingled bottles, cans, plastic, and glass.
- Surplus material that cannot be processed in a 40-hour week of operations is exported to other recycling facilities. Approximately 12,000 tons were exported for processing in FY17
- Receives and processes about 170-200 tons per day of paper, which is sorted into bales of cardboard and mixed paper.
- The Recycling Center has received the Solid Waste Association of North America’s Division of Waste Reduction, Recycling and Composting Recycling Systems Gold Excellence Award twice.
Pre-Sort Station
Bulk Material Sorted

Light Plastics Sorting
(PET and HDPE)
Recycling Center

Commingled Processing Operations

- Opened August 1991
- $9 Million to design, build, & purchase equipment
- 130-140 tons of material collected daily
- 59 employees & contractors.
- Approx. 58,000 square feet
Recycling Center:
Paper Processing Operations

- Opened May 2017
- $3.4 Million to design, build, & Purchase Equipment in 2017
- 170 tons of material collected and processed daily
- 9 employees & contractors
- 9,947 square feet was added to the 6,750 square feet existing building for a total of 16,700 square feet
Shady Grove Road Processing Facility and Transfer Station

- Yard Trim Receiving, Grinding, Load Out
- Solid Waste Main & Annex Tipping Floors
- Recycling Center (Commingled Materials & Paper Processing Facilities)
- DOT Screening & Recycling (Soil/Concrete/Asphalt)
- HHW
- Recycling Drop-Offs
- Rail Yard with Gantry Cranes
- Public Unloading Facility (Self-Hauled Solid Waste)
Transfer Station

- Opened in June 1982
- Receives about 1,000 trucks per day through the Shady Grove truck entrance and 1,000 - 2,000 smaller vehicles per day through the Route 355 Public Unloading Facility (PUF) entrance
- Processes 550,000 - 625,000 tons per year of burnable trash; 40,000 - 60,000 tons per year of nonprocessible (nonburnable) waste; about 75,000 tons per year of natural wood and yard waste; and another 8,000 tons per year of scrap metal, electronics, and other recyclables
- Hosts Household Hazardous Waste (HHW) and ECOWISE programs on the 2nd Wednesday of the month
Main Tipping Floor of Transfer Building
Recycling Drop-Off Areas
Rail Yard for Shipping Burnable Waste to the RRF, and Yard Trim and Leaves to the Composting Facility in Dickerson
Energy Projects

Future 4-MW Solar Array at Oaks Landfill

Transfer Station: Solar Energy 280 kW
(31% of facility needs)

Oaks LF Gas-to-Energy 2.4 MW
Aerial View of Oaks Landfill
Oaks Landfill

- Operated from 1982-1997
- Facility received about 7 million tons of waste
- Closure construction was from 1998-2001
- Low level groundwater contamination resulted in public water being provided to adjacent homes
- Post-closure care and maintenance is mandated for a minimum of 30 years by federal and state laws and regulations
- Small gas control/groundwater remediation project
Postclosure care consists largely of leachate and gas management.
Oaks Landfill

2.4 MW Gas-to-Energy Facility

- Gas-to-energy facility uses approximately 900 cfm of landfill gas that is 45-50 percent methane
- Facility began operating in July 2009
- Flare is used as a back-up and to manage excess gas
Gude Landfill Aerial View
Gude Landfill

Groundwater & Surface Water Monitoring

- Results of monitoring indicate low level groundwater contamination

- All residential houses, businesses and other occupied structures are on the public water system (no potable water wells) in vicinity of landfill

- There is no known human exposure to any detected pollutants

- No toxic concentrations

- Stream sampling shows no indication of aquatic impacts (historically industrialized region of Montgomery County)
Enclosed Gas Flare
Gude Landfill

Remediation Mandate

- Operated from 1964 to 1982
- Maryland Department of the Environment (MDE) Mandated the County to remediate the site via a Consent Order in 2013
- DEP performed a Nature and Extent Study to assess the characteristics and extent of contamination
- DEP performed an Assessment of Corrective Measures (ACM) which proposed remediation alternatives
- MDE reviewed and approved the Assessment of Corrective Measures Report (ACM) in July 2016
- Ultimate remediation goal is no Maximum Contaminant Level (MCL) exceedances for any parameter at property line and no methane gas levels above 25 percent of the Lower Explosive Limit (LEL).
Remediation Activities per ACM - Toupee Capping

Limit of Toupee Cap ~ 110 Acres (Top of Land)

Phased Construction of the Toupee Cap will be implemented.
Gude Landfill Remediation Project Schedule

- Issuance of RFP: August 4, 2017
- Proposal Evaluation/Negotiation/Award: October 2017 - February 2018
- Engineering Design/Permitting: March 2018 - June 2019
- Construction Management: July 2018 - December 2022
- Construction Procurement Services: July 2019 - December 2019
- Construction: January 2020 - December 2022
Northern Operations and Strategic Planning Section
Yard Trim Operations

- Receives close to 100 k tons of material per year
- 1/3 of Yard Waste = Brush
- Grind immediately, at Transfer Station
- All other (leaves and grass) shipped to Composting Facility
- Leafgro® = a high quality soil amendment
Dickerson Composting Facility

- 49-acre asphalt pad, 118 acres in total
- 3 stormwater management ponds
- 80,000 square foot pavilion for drying and screening finished compost

Facility Input:
- Not to exceed 77,000 tons/year
- Bagging: 650,000 bags/FY

Facility Output:
- 90% Leafgro® (61% bagged and 39% bulk),
- 10% overs. Sold to maker of Filtrex® filter socks.
- Residue <0.2%
Dickerson Composting Facility

Environmental Management System (EMS) under ISO 14001 Standard. Established in 2011, third party certified since 2013

The second yard trim composting facility certified in USA

- It is a voluntary standard that organizations can certify to.
- Beyond legal compliance
- Increase environmental awareness
- Improvement of operational and environmental practices
- Increased site cleanliness
- Zero odor complains
- Reduction of traffic and air pollution
- Reduction green house gases (GHG)
  - 31% reduction in the number of gallons processing material
  - Before April 2018, Leafgro bags were made out of conventional low-density polyethylene (fossil fuel). We switched to a sugar cane based resin which is bio-based and recyclable.
Resource Recovery Facility (RRF)

Processed 523,559 Tons in FY17
- Vs- 657,000 Ton rated capacity

Renewable Energy Generation
- 291,011 MWH, net
- Market rate electricity pricing

Ash Processing
- 161,330 tons in FY17, all recycled
Resource Recovery Facility (RRF)

Awards

2014 US EPA Clean Air Technology Excellence Award
3-Time Winner of SWANA Gold Excellence awards from: ASME, AAEE & ASCE
VPP Star for Occupational Safety and Health
Strategic Planning

• 10-year Solid Waste Plan per MDE Regulations
• Maintain the ISO 14001 Certification
• Solid Waste Stream Composition, Recycling Capture Rates Studies, and Related Analyses
• RRF Greenhouse Gas (GHG) Analysis
• RRF-Related Ambient Air Monitoring
• Other Relevant Studies
• Waste Composition Studies
  • Four seasons study, every four years
  • Update the DSWS Capture Rates analysis
Site 2 Properties

- About 850 acres
- Permitted for future landfill
- Deer Management Program
  - Maintain Agricultural Value
- Maintain Farm Ponds for monitoring
- Residential Rentals
- Property Leases
- Krigia Dandelions (rare species in MD)
Overview of Waste Reduction and Recycling in Montgomery County, Maryland
Montgomery County’s Integrated Solid Waste Management System

- Reduce Waste
- Reuse Items and Materials
- Recycle
- Compost
- Convert Waste to Energy
- Landfill
Montgomery County Recycles!

- 700 multi-family properties
  ~125,000 dwelling units
- 217,000 single-family households
- 33,000 businesses
  ~528,000 employees

More than 1.5 million residents and employees living and working in Montgomery County
The Sources of Waste

1,088,412 tons of waste generated during Calendar Year 2016

- Single-family: 38.2%
- Multi-family: 9.0%
- Commercial: 52.8%
Montgomery County’s Recycling Goal

Reduce Waste and Recycle 70% By 2020
Steady Increases in Recycling

598,782 Tons of materials recycled in CY 2016

55% recycling rate
60% waste diversion rate

Per Maryland Waste Diversion Rates & Tonnages 2/23/18
CY16 Recycling Rate by Sector

Montgomery County, MD Division of Solid Waste Services 2/23/18
Waste Reduction and Recycling
Section
**Mandatory Recycling and Reporting**

**Executive Regulations:**
- ER 1-15
- ER 18-04
- ER 7-12
Waste Reduction & Recycling Section

- Residential Recycling
- Multi-Family Residential Recycling
- Business, Commercial, Non-Residential Recycling
- Recycling Volunteers
- Recycling Investigations and Compliance
- Outreach and Education (All Sectors)
- Technical Assistance and Training
- Waste Reduction and Reuse
- Recycling Regulations
- Grasscycling and Composting
- Food Scraps Recycling
- Buying Recycled
Major Efforts of the Section

- Strategies/programs/initiatives/activities to reduce waste and increase recycling
- Implementation of recycling regulations
- Education, training and technical assistance
- Enforcement of regulations
- Strategic communications and work with the media
Direct Education to the Community

In FY17, the Section participated in 265 events and reached 33,880 residents and employees.
“Teach Your Children Well”
Site Visits & Consultations for Businesses and Multi-Family Properties

- Conduct a waste assessment
  - What’s generated?
  - What’s in the trash?
  - What’s in the recycling?
- Identify waste reduction opportunities
- Identify reuse opportunities
- Identify recycling opportunities & opportunities to increase recycling
- Provide recommendations
Site Visits

**SORRT Site Visits**

- Fiscal Year: FY06 to FY17
- Number of Site Visits: 8.172 to 11.374

**TRRAC Site Visits**

- Fiscal Year: FY07 to FY17
- Number of Site Visits: 3,186 to 3,275
Education and Training For Businesses

- SORRT Seminars
- On-site Presentations and Workshops
- Employee Training Sessions
- Employee Events
- Educational Materials
Educational Events for Businesses

Audience Reached at Business Events

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of People</th>
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<tr>
<td>FY06</td>
<td>9,780</td>
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<td>11,145</td>
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<td>10,747</td>
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<td>FY12</td>
<td>9,532</td>
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<td>FY13</td>
<td>8,253</td>
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<tr>
<td>FY14</td>
<td>11,151</td>
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<tr>
<td>FY15</td>
<td>11,517</td>
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<tr>
<td>FY16</td>
<td>8,194</td>
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Multilingual Educational Materials and Presentations at Multi-Family Properties

Examples of community presentations in variety of languages

Educational materials available in multiple languages

Korean
Chinese
Russian

Mandarin
English
Amharic
French
Japanese
Russian
Spanish
Vietnamese
Persian
Korean
Portuguese
Educational Events for Multi-family Properties

![Image of educational events]

![Image of audience members]

![Image of exhibitor setup]

**Audience Reached at Multi-Family Events**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Number of People</th>
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<td>FY07</td>
<td>1,420</td>
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<td>2,500</td>
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<td>3,489</td>
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<td>5,423</td>
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<td>3,986</td>
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<td>1,463</td>
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<td>FY16</td>
<td>2,641</td>
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<tr>
<td>FY17</td>
<td>1,877</td>
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Investigations & Enforcement

Ensure compliance with requirements

Investigate what happens with waste and recyclables

Compliance is the goal. Actions may include: verbal discussions; Notices of Violations; Citations (including fines and/or abatement orders)
Grasscycling and Composting: Education to Manage at the Source

- Training Workshops/Seminars
- Website
- Electronic newsletters
- Educational events
- Work with lawn service providers
- Compost demonstration sites
- Educational materials and translations
- Compost bin distribution locations & hours (22 total)
Compost Bins for Residents

![Compost Bin Distribution Graph](chart)

**Compost Bin Distribution**

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<th>Fiscal Year</th>
<th>Number of Compost Bins</th>
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<td>2,314</td>
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<td>5,803</td>
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<td>5,902</td>
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<td>5,228</td>
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<td>3,828</td>
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<td>FY16</td>
<td>2,933</td>
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<tr>
<td>FY17</td>
<td>2,610</td>
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Recycling Volunteer Program

Recycling Volunteer Coordinator:

- Recruits volunteers
- Trains volunteers
- Coordinates volunteer activities
- Creates and organizes events
- Solicits and schedules volunteers
- Plans appreciation and recognition event

Recycling Volunteers extend our reach to the community!
In FY17, our Recycling Volunteers donated time and service equal to $32,867.25.
Food Scraps Recycling Program

- 1 Program Manager I (FY19 position) to manage Commercial Food Scraps Recycling Program
  - Secure processing capacity
  - Develop incentives
  - Implement and direct initiatives and activities
  - Develop and plan future initiatives

- Minor modifications to Transfer Station Annex, if necessary

- Education and technical assistance to residents of single-family homes; increase awareness and understanding of food scraps recycling; assess level of interest