



Montgomery County

Resource Conservation Plan

Fiscal Year 2018

Department of Parks

Department of Planning

Final Report

January 12, 2017

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RESOURCE CONSERVATION PLAN

The Maryland-National Capital Park and Planning Commission

Montgomery County

Department of Parks

Department of Planning

1. INTRODUCTION

The Maryland-National Capital Park and Planning Commission is responsible for the acquisition, development, and management of more than 36,640 acres of parkland, providing residents and visitors with outstanding recreational opportunities, facilities, and open space for natural resources stewardship.

The Department of Parks and Department of Planning established a comprehensive utilities management program in July 2003. Utility resources consumption and costs have been reduced as a result of the projects and programs implemented by the Commission staff.

The goal of the comprehensive Resource Conservation Plan is to establish programs and projects that will efficiently use energy and water resources to fulfill the mission of the Commission to serve the citizens and visitors of Montgomery County.

The Resource Conservation Plan strives to improve operations and maintenance practices to efficiently use electricity, natural gas, propane, and water to provide the programs by the Departments.

This report presents the accomplishments as of December 31, 2016 and the plans for the balance of the 2017 Fiscal Year.

The Maryland-National Capital Park and Planning Commission has continued to reduce costs based on the implementation of programs and projects completed in Fiscal Year 2017.

The report establishes plans for the 2018 Fiscal Year to conserve energy and water resources as part of a comprehensive Resource Conservation Plan.

2. FISCAL YEAR RESULTS – 2016

July 2015 to June 2016

Goals Achieved:

- Implemented projects focused on heating and air conditioning system replacements for equipment in operation for over 20 years
- Expansion of the building automation controls and energy management systems capabilities in the primary staff office, support, and maintenance buildings
- Expanded the exterior lighting retrofit program to use LED technology
- Integrated program as part of the Sustainability Practice
- Initiated an opportunity to construct two solar renewable energy projects

Projects and Programs Completed Fiscal Year 2016

- North Chevy Chase Recreational Center – Upgraded the air conditioning system to a high efficiency 18 SEER system with a 95% efficiency gas furnace
- Wheaton Maintenance Yard Offices - Upgraded the air conditioning system to a high efficiency 18 SEER system with a 95% efficiency gas furnace
- Clarksburg Neighborhood Park- Upgraded the air conditioning system to a high efficiency 18 SEER system including an air handler with a variable speed fan system
- Water heater replacements with new code compliant energy saver heaters
- Exterior Parking Lot Lighting replacements with LED fixtures
 - Georgian Forest - Six Fixtures
 - Westmoreland Hills - Five Fixtures
 - Cabin John – Three Fixtures
 - Randolph Hills – Six Fixtures
 - Buck Branch – Five Fixtures
 - Pinecrest – Three Fixtures
 - Nolte – Five Fixtures
 - Clarksburg – Ten Fixtures
 - Blueberry Hill – Seven Fixtures
 - Ednor – Three Fixtures
 - Leaman – Four fixtures
 - Seven Locks Local – Four Fixtures
 - Toby Town – Four Fixtures
 - Tilden Woods Local Park- Three Fixtures

- Waverly/Schuylkill – Eleven Fixtures
- Wall Lane – Twenty-six Fixtures
- Flower Avenue – Six Fixtures
- Needwood Boat – Two Fixtures
- Spencerville Local – Eight Fixtures
- Germantown Square – Six Fixtures
- Sundown Local – Four Fixtures

Budget Results for Fiscal Year 2016:

DIVISION NAME	FY 2016 Costs	Budget	Difference
ENTERPRISE	\$941,966.49	\$1,162,200	\$220,234
PLANNING DEPARTMENT	\$179,329.79	\$224,000	\$44,670
PROPERTY MANAGEMENT	\$8,351.90	\$0	-\$8,352
PARKS DEPARTMENT	\$1,938,485.00	\$2,108,345	\$169,860
Report Totals FY 2016	\$3,068,133.18	\$3,494,545	\$426,412

Expenditures for Fiscal Year 2016:

Programs Energy Management:	\$44,400.00
Projects Local:	\$37,000.00
Projects Non-local:	\$40,000.00
Water Projects Non-local:	\$25,000.00
<u>Water Projects Local:</u>	<u>\$25,000.00</u>
Total in FY 2016:	\$171,400.00

3. RESULTS TO DATE - FISCAL YEAR 2017

July 2016 to June 2017

The results of the current program year as of December 2016 is as follows:

Goals:

- Finalize the Contracts for Implementation of solar renewable energy projects
- Expand the exterior lighting retrofit program to use LED technology
- Integrate program as part of the Sustainability Practice
- Seek project grant opportunities
- Investigate small scale solar opportunities

Status to Date: Completed Projects and Programs for Fiscal Year 2017

- Agricultural History Farm Park – Activity Building – Replaced 32 perimeter through the wall air conditioners with Goodman through the wall heat pumps with a high efficiency SEER rating of 11
- Brookside Gardens Conservatory - Replaced the existing Fulton boilers with four Laars Might Therms boilers creating a load redundancy for emergency boiler use
- Rockwood Skyview building – Upgraded the air conditioning system to a high efficiency 18 SEER system with a 95% efficiency gas furnace
- Tilden Woods – upgraded the toilets to low consumption toilets and installed Bradley AV30 hygienic hands free combination .38 GPM faucet, soap dispenser and hand dryer
- Exterior Parking Lot Lighting replacements with LED fixtures
 - Capital View Homewood
 - Indian Springs
 - Sligo – Dennis
 - Pilgrim Hill Local Park
 - Valley Mill Special Park
 - Olney Family Neighborhood Park
 - Stoneybrook Local

Budget Projection for Fiscal Year 2017:

DIVISION NAME	Cost update as of December 31, 2016	Projection	<u>Budget FY 2017</u>	Difference
ENTERPRISE	\$503,244.59	\$1,080,000.00	\$1,170,600	\$90,600
PLANNING DEPARTMENT	\$86,596.95	\$197,000.00	\$213,480	\$16,480
PROPERTY MANAGEMENT	\$3,104.24	\$6,200.00	\$5,690	-\$510
PARKS DEPARTMENT	\$968,630.89	\$1,990,000.00	\$2,108,345	\$118,345
Report Totals FY 2017	\$1,561,576.67	\$3,273,200.00	\$3,498,115	\$224,915

Budgeted expenditures for Fiscal Year 2017:

Programs Energy Management:	\$46,000.00
Projects Local:	\$37,000.00
Projects Non-local:	\$40,000.00
Water Projects Non-local:	\$25,000.00
<u>Water Projects Local:</u>	<u>\$25,000.00</u>
Total in FY 2017:	\$173,000.00

4. PLANNED RESOURCE CONSERVATION PLAN – FISCAL YEAR 2018

July 2017 to June 2018

The proposed program for Fiscal Year 2018 is as follows:

Goals:

- Complete the implementation of solar renewable energy projects by December 31, 2017
- Complete the exterior lighting retrofit program to use LED technology
- Identify Gray Water re-use pilot projects for irrigation
- Institute pilot program to collect rain water to use for irrigation
- Ascertain potential small scale solar application
- Conduct a comprehensive audit of the utility bills being tracked by E-CAP to validate data entered and reported for primary locations

Projects and Programs for Fiscal Year 2018

South Germantown and Rock Creek Regional Park – Complete the construction of the Solar Photovoltaic system based on the FY 2015 Request for Proposals for Power Purchase Agreement for two 2 MW systems

Park Facilities –

- Continue HVAC replacements and energy efficient upgrades
- Replace Water heaters as needed
- Brookside Gardens – upgrade the boiler
- Install Bradley low consumption hand wash units
- Agricultural History Farm Park - Install solar window tinting film to deflect heat

Recreation Centers - Install LED interior lighting and exterior wall lighting

Exterior Lighting - Install additional LED parking lot and area lighting

- Owens Local Park
- Ken-Gar Palisades Local Park
- Elsworth Urban Park
- Viers Mill
- Norwood Local
- Quince Orchard Valley
- Quince Orchard Knolls

- Sligo Avenue
- Sligo Bennington Neighborhood Park
- Damascus Recreational Park
- Olney Mill

Budget Proposal for Fiscal Year 2018 is:

DIVISION NAME	Proposed Budget 2018 (Note 1)
ENTERPRISE	\$978,750
PLANNING DEPARTMENT	\$200,300
PROPERTY MANAGEMENT	\$9,700
PARKS DEPARTMENT	\$2,155,400
TOTALS	\$3,344,150

Note 1 - The proposed budget for Fiscal Year 2018 assumes the following:

- The Department of Planning will remain at the current location in Silver Spring in FY 2018
- Central Offices for the Department of Parks will remain at the current location at the Parkside Headquarters Building in FY 2018

Proposed budget expenditures for Fiscal Year 2018:

Programs Energy Management:	\$46,900.00
Projects Local:	\$37,000.00
<u>Projects Non-local:</u>	<u>\$40,000.00</u>
Total in FY 2017:	\$123,900.00

RESOURCE CONSERVATION PLAN SUMMARY

Agency	Maryland-National Capital Park and Planning Commission		
Number of Facilities	399 Facilities that have utilities	Change in number of facilities	1
Total square feet	1,207,570	Change in total ft ²	2,150 ft ²
Average operating hrs./year	Varies	Change in avg. operating hrs./year	None
Other changes effecting energy consumption	<p>The implementation of a comprehensive energy management and water conservation program for the Department of Parks by the three operating Divisions: North Parks Region, South Parks Region, and Enterprise Operations contributed to additional consumption reductions at the following park facilities.</p> <p>See the attached Montgomery Parks, MNCPPC Park Facility Highlights</p>		

RESOURCE CONSERVATION PLAN MONTGOMERY PARKS GREEN TREE

SUMMARY



MONTGOMERY PARKS, M-NCPPC

Parks Information Line – 301-495-2595

www.MontgomeryParks.org

OUR MISSION

Protect and interpret our valuable natural and cultural resources; balance the demand for recreation with the need for conservation; offer a variety of enjoyable recreational activities that encourage healthy lifestyles; and provide clean, safe, and accessible places for leisure-time activities.

PARK SYSTEM HIGHLIGHTS

Total number of parks:	418
Total owned or managed acres of parkland:	36,640
Total developed acreage:	7,731
Open and environmental preservation acreage:	28,909

TYPES OF PARKS

Local	151	Regional	5	Neighborhood Conservation Areas	41
Neighborhood	95	Recreational	11	Miscellaneous Recreation/ Non-Recreation Facilities	6
Urban	27	Special	24		
Stream Valley	36	Conservation	22		

PARK FACILITIES

Archery: 2	Driving Range (Stand Alone): 1	Picnic Shelters - Non-Permitted: 46
Athletic fields: 294	Golf Courses: 4	Picnic Shelters - Permitted: 88
Cricket Field: 8	Gymnasiums: 1	Large Group Picnic Areas: 2
Overlay football/soccer fields: 41	Historic Sites: 43	Playgrounds: 285
Basketball Courts: 215	Historic Structures: 117	Skate Park: 3
Campgrounds – Full Service: 1	Ice Rinks: 2	Splash Playground: 1
Campgrounds – Primitive: 2	Lakes: 4	Sports Center: 1
Campsites: 102	Boating Facility - Rentals: 2	Sports Pavilion: 1
Carousel: 1	Boating Landing Ramps: 3	Tai Chi Court: 1
Dog Parks: 6	Miniature Golf: 1	Tennis Centers - Indoor: 3 (20 courts)
Equestrian centers: 6	Miniature Trains: 2	Tennis Courts - Outdoor: 302
Event Centers: 4	Nature Centers: 4	Trails - Canoe: 5.4 miles
Exercise Courses: 14	Outdoor Ropes Course: 1	Trails - Natural Surface: 161.9 miles
Formal Botanical Gardens: 2	Park Activity Buildings: 28	Trails - Paved: 76.5 miles
Community Gardens: 12	Volleyball Courts: 26	

As of 12/2016
Source: EAM

Existing Measures
Programs and Projects Completed - Fiscal Years 2000 to June 2016

Measures - Existing: (implemented from FY 2000 to FY 2016)	Dates implemented	Initial cost (\$)	Annual net impact on maintenance cost (\$)	Fuel type(s) effected and units	Units saved per year	Annual cost savings (\$)
Capital Improvement Projects:						
Equipment Replacement Project	FY 2000 to FY 2016	\$526,000 est.	\$123,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	834,000 kWh, 49,600 therm & 6,100 Pounds	\$158,000 est. Annual Cost Avoidance
<u>Equipment Retrofit Projects</u> Includes MEA Grant in 2010 and DOE Grant in 2012	FY 2000 to FY 2016	\$121,000 est.	\$10,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	190,200 kWh, 11,500 therm & 600 Pounds	\$47,600 est. Annual Cost Avoidance
Controls Improvements	FY 2000 to FY 2016	\$140,000 est.	NA	Electricity and Natural Gas	284,000 kWh & 21,000 therm	\$85,000 est. Annual Cost Avoidance
<u>Lighting Projects</u> Includes MEA Grant in 2010 and DOE Grant in 2012	FY 2000 to FY 2016	\$501,000 est.	NA	Electricity	489,800 kWh	\$208,000 est. Annual Cost Avoidance
CIP Projects Sub-total		\$1,288,000 est.			1,798,000 kWh, 82,100 therm & 6,700 Pounds	\$498,600 est. Annual Cost Avoidance
Operations and Maintenance:						
Operations and Maintenance Best Management Practice and Programs	FY 2000 to FY 2016	\$458,500	\$5,000 annual	Electricity, Natural Gas, and Propane	764,000 kWh, 39,500 therm & 6,800 Pounds	\$155,000 est. Annual Cost Avoidance
Totals		\$1,746,500			2,562,000 kWh, 121,600 therm & 13,500 pounds	\$653,600 est. Annual Cost Avoidance 2.7 yrs. ROI

Resource Conservation Measures Fiscal Year 2017
Being Implemented July 1, 2016 through June 30, 2017

<u>Measures - Planned:</u>	<u>Projected completion date</u>	<u>Projected initial cost (\$)</u>	<u>Projected maintenance cost (\$)</u>	<u>Fuel type(s) effected and units</u>	<u>Estimated units saved per year</u>	<u>Projected annual cost savings (\$)</u>
Capital Improvement Projects:						
Equipment Replacement Projects Local & Non-Local	Entire Year	\$90,000 est.	\$5,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	90,000 kWh, 11,600 therm	\$19,000 est. Annual Cost Avoidance
Lighting Projects Local & Non-Local	Entire Year	\$73,000 est.	NA	Electricity, and Natural Gas	150,000 kWh	\$17,000 est. Annual Cost Avoidance
CIP Projects Sub-total		\$163,000	\$5,000			\$36,000
Operations and Maintenance:						
Best Management Practices & Sustainability Programs	Entire Year	\$23,400	NA	Electricity, Natural Gas, and Propane	21,000 kWh, 400 therm	\$3,000 est. Annual Cost Avoidance
Operations and Maintenance Improvement Programs	Entire Year	\$22,600	NA	Electricity, Natural Gas, and Propane	9,000 kWh, 300 therm & 100 Pounds	\$3,000 est. Annual Cost Avoidance
O&M Total		\$46,000	NA			\$6,000
Totals		\$209,000	\$5,000			\$42,000 5.0 yr. ROI

Planned Resource Conservation Measures Fiscal Year 2018
July 1, 2017 through June 30, 2018

<u>Measures - Planned:</u>	<u>Projected completion date</u>	<u>Projected initial cost (\$)</u>	<u>Projected maintenance cost (\$)</u>	<u>Fuel type(s) effected and units</u>	<u>Estimated units saved per year</u>	<u>Projected annual cost savings (\$)</u>
Capital Improvement Projects						
Equipment Replacement Project - Local & Non-Local	Entire Year	\$50,000 est.	\$2,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	10,300 kWh, 5,000 therm	\$7,500 est. Annual Cost Avoidance
Lighting Projects- Local & Non-Local	Entire Year	\$27,000 est.	NA	Electricity	47,000 kWh	\$7,000 est. Annual Cost Avoidance
CIP Projects Sub-total		\$77,000	\$2,000			\$14,500
Operations and Maintenance						
Best Management Practices and Sustainability Programs	Entire Year	\$25,000	NA	Electricity, Natural Gas, and Propane	21,000 kWh, 500 therm & 100 Pounds	\$3,300 est. Annual Cost Avoidance
Operations and Maintenance Improvement Programs	Entire Year	\$22,000	NA	Electricity, Natural Gas, and Propane	14,000 kWh, 400 therm	\$2,200 est. Annual Cost Avoidance
O&M Total		\$47,000	NA			\$5,500
Totals		\$124,000	\$2,000			\$20,000 6.2 yrs. ROI

**Fiscal Year 2018
Utility Budget Projection by Fund /Cost**

DEPARTMENT OF PLANNING	
Electricity	\$178,300
Natural Gas	\$13,500
Water and Sewer	\$8,500
Propane	\$0
Wind Energy Fee	Included in Electric
Sub Total	\$200,300

DEPARTMENT OF PARKS	
Electricity	\$1,050,900
Natural Gas	\$229,300
Water and Sewer	\$749,000
Oil	\$2,700
Propane	\$123,500
Wind Energy Fee	Included in Electric
PPA Payment - Solar Projects January 2018	Assumes No Solar
Sub Total	\$2,155,400

DEPARTMENT OF PARKS - ENTERPRISE	
Electricity	\$722,750
Natural Gas	\$186,600
Water and Sewer	\$58,900
Propane	\$10,500
Wind Energy Fee	Included in Elect.
Sub Total	\$978,750

DEPARTMENT OF PARKS - PROPERTY MANAGEMENT	
Electricity	\$6,600
Natural Gas	\$3,100
Water and Sewer	\$0
Propane	\$0
Sub Total	\$9,700

Overall Totals	\$3,344,150
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