# **Resource Conservation Plan**

# Fiscal Year 2022

Maryland-National Capital Park and Planning Commission Montgomery County Department of Parks Montgomery County Planning Department January 28, 2021

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# Introduction

The Maryland-National Capital Park and Planning Commission (M-NCPPC) in Montgomery County is responsible for the acquisition, development, and management of more than 37,000 acres of parkland, providing residents and visitors with a diverse array of recreational and leisure-time opportunities/activities; clean, safe and accessible facilities; meaningful educational opportunities; and dedication to open space and habitats for conservation and stewardship of our County's precious natural resources.

Developed by the Sustainability Office in the Facilities Management Division of the M-NCPPC Department of Parks, the Resource Conservation Plan report presents the accomplishments of the implemented energy and water-related efficiency projects/initiatives as of December 2020 and the projected plans for the balance FY21. The report also establishes strategies for FY22 to conserve energy and water resources as part of a comprehensive approach to resource management. The Resource Conservation Plan is developed to align with the M-NCPPC – Montgomery County Sustainability Plan, approved and currently implemented for FY20 - FY21.

Due to the COVID-19 pandemic, while work has continued at the Commission, operational changes to promote the health and safety of staff has impacted work programs for FY20 and FY21. Through the pandemic, staff have worked diligently to continue operations as seamless as possible in delivering on the mission of the organization to the community for which it serves.

In 2020, M-NCPPC Montgomery County opened the first government-owned office building that is to be certified LEED Platinum in the State of Maryland. This facility boasts numerous sustainable features including solar panels, high-efficiency fixtures and appliances, advanced insulation and daylighting, a green roof, geothermal heating and cooling, stormwater retention practices, and community walkability/access to public transit. This facility will provide office space for the M-NCPPC Park and Planning Commission as well as a number of other Montgomery County government functions.

The significant and serious challenges posed by global climate change led to the passage of the Montgomery County Council Emergency Climate Mobilization resolution (Resolution 18-974) in 2017. This resolution brought forth accelerated greenhouse gas reduction goals county-wide, calling for an 80% reduction in greenhouse gas emissions by 2027 and 100% elimination by 2035. M-NCPPC – Montgomery County is committed to acting responsibly and collaboratively with all local government agencies, organizations, community members, and other stakeholders toward achievement of these reduction goals. Working together will be critical to our success in battling climate change and ensuring a healthy and safe environment for future generations.

A county-wide Climate Action Plan will serve as the strategic framework for establishing the recommended actions needed to achieve the greenhouse gas reduction goals. Currently in development with input from agencies, organizations, and the public, the final Climate Action Plan will be issued in the spring/summer of 2021. M-NCPPC – Montgomery County is motivated to utilize the final Climate Action Plan as strategic guidance in reducing the carbon footprint of the organization.

In the spirit of collaborative work county-wide, the M-NCPPC Department of Parks participates in the Interagency Committee on Utilities Management (ICEUM) and works with numerous other participating agencies to share information and ideas on energy conservation, energy efficiency and other conservation measures related to utility consumption by the individual organizations. This committee meets regularly throughout the calendar year. Annually, the Committee compiles projected unit cost per utility data for each agency. While several factors impact utility unit costs for each agency, including differences in tariffs, account-type and volume pricing differences, and other factors, it is a valuable exercise to assist with the budgeting process. Utility unit cost projections for FY22 have been included on page 28 of this document for each of the participating agencies in ICEUM.

# **Utility Cost and Projections**

The Department of Parks and the Planning Department established a comprehensive utilities management program beginning in July 2003. Utility resource consumption has been reduced as a result of the projects and programs implemented by Commission staff. M-NCPPC manages a utility program consisting of over 500 utility meters across the county (water, sewer, electricity, natural gas, propane, oil).

Beginning in 2019, significant work to verify all utility meter locations and associated accounts was initiated. This process should help address meter and account validation which will lead to reduction in billing errors across the system.

### Utility Cost and Projections FY16 to FY22

The actual utility costs for FY16 through FY20, the budgeted utility costs for FY21, and the proposed FY22 budget are noted in the table below. Utility costs for the new Wheaton Headquarters building have been factored into the FY21 proposed budget.

	FY16 Actual	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Actual	FY21 Budget	FY22 Proposed Budget
PARKS DEPARTMENT	\$1,719,843	\$1,880,681	\$1,989,338	\$2,298,460	\$1,857,023	\$2,284,322	\$2,263,077
PLANNING DEPARTMENT	\$206,349	\$185,092	\$183,332	\$193,786	\$146,595	\$52,897	N/A
ENTERPRISE	1,144,540	\$1,027,069	\$948,832	\$852,379	\$781,438	\$965,900	\$910,186
PROPERTY MANAGEMENT	\$14,973	\$16,192	\$29,957	\$31,108	\$35,636	\$35,700	\$35,700
<b>BI-COUNTY</b>	\$80,777	\$73,761	\$71,996	\$73,844	\$64,120	\$82,464	\$84,776
WHEATON HQ	N/A	N/A	N/A	N/A	N/A	\$764,659	\$764,659
TOTAL:	\$3,166,482	\$3,182,795	\$3,223,455	\$3,449,577	\$2,884,811	\$4,185,942	\$4,058,398

Data obtained from M-NCPPC General Ledger and includes renewable energy credits (RECs) beginning FY19 forward

### Utility Cost and Projections FY21

The current estimate for utility costs, as of January 4, 2021, for the following Funds within the Department of Parks, Planning Department, and the shared Bi-County are depicted below. A projection for the fiscal year and approved FY21 budget are also included.

	FY21 Cost as of 1/4/2021	FY21 Projection	Budget FY21
PARKS DEPARTMENT	\$763,021	\$1,995,254	\$2,284,322
PLANNING DEPARTMENT	\$51,341	\$56,924	\$52,897
ENTERPRISE	\$379,625	\$825,886	\$965,900
PROPERTY MANAGEMENT	\$21,103	\$39,032	\$35,700
<b>BI-COUNTY</b>	\$28,272	\$73,100	\$82,464
WHEATON HQ	\$108,162	\$660,000	\$764,659
TOTAL:	\$1,351,523	\$3,650,195	\$4,185,942

Data obtained from M-NCPPC General Ledger

FY21 Cost includes renewable energy credit (REC) costs

The following table shows, per commodity, utility consumption and cost as of January 4, 2021. The cost projection depicted is for FY21. Utility consumption and cost data for each commodity is obtained from the General Ledger as well as the M-NCPPC EnergyCAP (ECAP) system.

FY21 Consumption as of 1/4/2021	Units	Utility	FY21 Cost as of 1/4/2021	Projection	Budget FY21
5,888,024	кwн	Electric	\$726,640	\$1,873,700	\$2,613,965
75,480	THERMS	Natural Gas	\$67,484	\$335,800	\$365,728
8,719	GAL	Propane	\$14,152	\$186,000	\$191,000
33,936	KGAL	Water/Sewer	\$413,304	\$920,200	\$960,960
~150*	GAL	Heating Oil (#2)	\$519	\$9,400	\$9,400
1,446,949	КWH	Solar PV	\$105,658	\$280,000	\$0**
15,500	REC	Wind REC	\$13,795	\$13,795	\$13,589
N/A	N/A	Other Utilities***	\$9,971	\$31,300	N/A
		TOTAL:	\$1,351,523	\$3,650,195	\$4,185,942

\*The volume of heating oil purchased was not posted to EnergyCAP and has been estimated for this report

\*\*FY21 Budget for Solar PV is nested in the electric budget

\*\*\*The "Other Utilities" category includes those utility costs incurred at facilities shared with other entities

The following table shows the solar energy produced and cost per the power purchase agreements for the two solar fields located at Rock Creek Regional Parks and South Germantown Recreational Park.

Location	Metric	FY19	FY20	FY21 as of 12/21/20
Pock Crook Pagional Dark	Production	1,506,646 kWh	1,756,284 kWh	753,102 kWh
KOCK CIEEK REGIOIIAI PAIK	Cost	\$106,686	\$127,592	\$54,703
South Cormontown Decreational Dark	Production	1,736,005 kWh	2,006,199 kWh	693,848 kWh
South Germantown Recreational Park	Cost	\$125,806	\$147,709	\$50,995

Data obtained from M-NCPPC EnergyCAP

### Utility Cost and Consumption Changes FY21

Facility renovations, upgrades, and improvements of existing locations and parks included in the FY21 approved budget that will increase utility costs, resulting in operating budget impact across both the Department of Parks and the Planning Department, are shown in the tables below.

FY21 Utility Cost Changes – Operating Budget Impact – Montgomery Parks							
FY21 Adopted Budget	Amount	Comment					
Columbia Local Park	\$240	Water Fountain					
Josiah Henson Historic Park	\$10,000	Adds balance of funding; \$7,083 for electric; \$2,917 for water/sewer					
Ken-Gar Palisades Park	\$10,820	Water – Irrigation System					
Total:	\$21,060						

FY21 Utility Cost Changes – Operating Budget Impact – Wheaton HQ ISF –						
Montgomery Parks/Montgomery Planning/Montgomery County						
FY21 Adopted Budget Amount Comment						
Wheaton Headquarters       \$764,659       \$578,679 for electric; \$185,980 for water/sewer						

### Utility Cost and Consumption Changes FY22

Facility renovations, upgrades, and improvements of existing locations and parks included in the FY22 proposed budget that will increase utility costs, resulting in operating budget impact across both the Department of Parks and the Planning Department, are shown in the tables below.

FY22 Utility Cost Changes – Operating Budget Impact – Montgomery Parks						
FY22 Proposed Budget         Amount         Comment						
Martin Luther King Recreational Park - Irrigation	\$5,410	Water for irrigation				
Northwest Branch Ballfields Irrigation	\$8,500	Water for irrigation				
Piedmont Woods Local Park	\$1,300	Water for drinking fountain; Parking lot lights				
Total:	\$15,210					

FY22 Utility Cost Changes – Operating Budget Impact – Wheaton HQ ISF – Montgomery Parks/Montgomery Planning/Montgomery County						
FY22 Proposed Budget Amount Comment						
Wheaton Headquarters	\$764,659	\$528,679 for electric; \$50,00 for gas; \$185,980 for water/sewer				

### Renewable Energy Resources

With the accelerated greenhouse gas reduction targets passed in 2017 (Montgomery County Council Resolution 18-974), a greater focus on local renewable energy generation has taken priority. However, purchase of renewable energy certificates (REC) has also served an important role in supporting the renewable energy market and the renewable energy portfolio for M-NCPPC – Montgomery County for many years.

### Renewable Energy Certificate Purchase

M-NCPPC is committed to a clean energy purchase policy and for each year since FY16, M-NCPPC – Montgomery County has purchased wind-based renewable energy certificates (REC) equal to 100% of the total electricity consumption for the organization. The below table outlines historical wind REC purchase details for the organization since FY16.

Renewable Energy Certificate Purchase – M-NCPPC - Montgomery County								
Fiscal Year	<b>REC Volume</b>	Cost per REC	Total Cost	Vendor	Contract			
16	52,000*	\$0.67	\$34,840.00	Renewable Choice Energy	Montgomery County			
17	52,000*	\$0.71	\$36,920.00	Renewable Choice Energy	Montgomery County			
18	54,300**	\$0.48	\$26,064.00	Renewable Choice Energy (Schneider Electric)	Montgomery County			
19	54,000**	\$0.48	25,920.00	Renewable Choice Energy (Schneider Electric)	Montgomery County			
20	15,500	\$0.89	\$13,795.00	Schneider Electric	Montgomery County			
21	15,500	\$0.89	\$13,795.00	Schneider Electric	Montgomery County			

\*Agency-wide purchase to include both M-NCPPC Montgomery & Prince George's Counties

\*\*Program overcommitment

### Solar Panel Installation

A major effort to reduce organizational greenhouse gas emissions includes transition to local renewable energy generation to support the energy needs of operating the Department of Parks and the Planning Department.

To add to the growing portfolio of solar photovoltaic (pv) installations on parkland, between FY20 - FY21, a 17.4 kW rooftop solar pv system was installed at Maydale Nature Classroom located within Maydale Conservation Park. This site is Montgomery Parks' first facility designed to be net-zero. The solar panels powering building are one part of a larger effort to incorporate sustainable building design and practices at this site.





Pictured Left: Maydale Nature Classroom building profile Pictured Right: Maydale Nature Classroom solar rooftop array

The main building structure for this facility is a repurposed double-wide trailer that was once used for staff offices at a different location. By repurposing this structure, Montgomery Parks was able to keep about 24,000 lbs. of material from entering the waste stream. The building also features a rainwater harvesting system used for toilet flushing, low-flow toilets and sinks for water conservation, interior and exterior high-efficiency LED lighting, and installation of a trombe wall that provides passive heating.

Between FY20 – FY21, a small scale 1.8 kW rooftop solar pv system was installed on top of a restroom facility at Black Hill Regional Park. This system will provide heat and power for the restrooms which operate year-round.



To further reduce the environmental footprint of this facility, an underground rainwater harvesting system was also installed at this site. Rainwater is collected off the roof of the restroom facility and is utilized for toilet flushing.

Pictured Left: Solar panels on restroom building at Black Hill Regional Park

# **Energy Utilization & Consumption Allocations**

The total square footage of conditioned buildings/facilities that consume electricity and natural gas are as follows:

TOTAL CONDITIONED BUILDING SQ.FT.								
Energy	ergy FY16 FY17 FY18 FY19 FY20 FY21							
Electric	1,145,150	1,145,150	1,145,150	1,145,150	1,145,150	1,203,409		
Natural Gas	482,170	482,170	482,170	482,170	482,170	545,049		

Values currently under review and subject to change

FY21 values include the addition of M-NCPPC-controlled square footage at Wheaton HQ and removes Parkside HQ, Hillandale Offices and Montgomery Regional Office (MRO)

The energy consumption for FY17, FY18, FY19, FY20, and estimated figures for FY21 and FY22 are as follows:

TOTAL ENERGY CONSUMPTION								
Energy	FY17	FY21 Projection	FY22 RECOMMENDATION					
Electric - kWh	14,240,045	14,916,755	14,635,012	11,770,351	16,320,285	19,010,976		
Natural Gas - therms	306,052	293,530	287,277	248,144	296,135	337,671		

ENERGY CONSUMPTION - FACILITIES						
Energy	FY17	FY18	FY19	FY20	FY21 Projection	FY22 RECOMMENDATION
Electric - kWh	10,140,045	10,529,775	10,390,859	8,356,949	11,587,402	13,497,793
Natural Gas - therms	306,052	293,530	287,277	248,144	296,135	337,671

ENERGY CONSUMPTION - ATHLETIC FIELDS & EXTERIOR POLE LIGHTS						
Energy	FY17	FY18	FY19	FY20	FY21 Projection	FY22 RECOMMENDATION
Electric - kWh	4,100,000	4,387,000	4,244,153	3,413,402	4,732,883	5,513,183

Data from FY17, FY18, FY19, and FY20 are obtained from the M-NCPPC EnergyCAP (ECAP) system

# Energy Procurement, Contract Status, & Purchasing Policy

M-NCPPC has implemented a procurement program that has contracted fixed cost energy supply of electricity and natural gas service to provide long-term budget stability. Upcoming renewals are anticipated to be renegotiated six months prior to the current contract expiration dates.

Energy Procurement – M-NCPPC Montgomery County					
	Current Rate	Contract Term			
Electricity					
Baltimore Gas & Electric Company (BGE)	\$0.0701/kWh	June 2019 – June 2021			
РЕРСО	\$0.06714/kWh	June 2019 – June 2021			
PEPCO: SOLAR (capacity/transmission pass through)	\$0.052/kWh	June 2019 – June 2021			
Potomac Edison – 1 <sup>st</sup> Energy Corp	\$0.0580/kWh	June 2019 – June 2021			
Natural Gas					
Washington Gas	\$0.4210/therm	June 2018 – July 2021			

# **Building Benchmarking**

Beginning in 2014, Montgomery County government adopted a building benchmarking law and in 2015 amended Bill 35-15 (Environmental Sustainability – Benchmarking Amendments) requiring benchmarking of energy use at nonresidential buildings 50,000 square feet and greater. Utilizing Energy Star Portfolio Manager, these data are reported to Montgomery County government for public disclosure.

Cabin John Ice Rink is the only M-NCPPC, Montgomery County facility that currently meets the County reporting requirements for building benchmarking. This facility, located at 10610 Westlake Drive, Rockville MD 20852 is a 78,000 square foot public facility. Originally constructed in 1969, this facility offers ice skating and ice hockey classes and camps, as well as special events and skating exhibitions. The facility offers three ice rinks (NHL, Olympic, and Studio) as well as a dance studio, party rooms, a pro shop, and café.

Exterior of Cabin John Ice Rink (above) Skaters enjoying the ice rink (below)

Summarized building benchmarking data for Cabin John Ice Rink from calendar Skaters enjoying the Ice rink (below year (CY) 2016 through 2019 is depicted in the tables below. Between CY 2016 and 2019 the facility saw steady reductions in both grid electric and natural gas consumption.

Energy Type	2016	2017	2018	2019	% Difference (current vs baseline)
Grid Electricity (kWh)	2,621,590	2,742,129	2,547,612	2,067,409	<b>J</b> -21.14%
Natural Gas (therms)	84,366	76,648	73,290	60,155	<b>↓</b> -28.70%

Source and Site Energy Use Intensity (EUI) for Cabin John Ice Rink have been provided in the table below for CY 2016 through 2019, including weather normalized (WN) values for each. The Site EUI is a measure of the amount of direct energy the facility has consumed per square foot per year. Source EUI additionally accounts for energy lost due to production, transmission, and delivery to the site. The facility has operated with steady reductions in both Site and Source EUI since 2016. Given these savings, as anticipated, associated greenhouse gas emissions have also decreased nearly 24% since 2016. Over the next year, the recent facility upgrades should further reduce energy consumption and greenhouse gas emissions from the Cabin John Ice Rink.

Metric	2016	2017	2018	2019	% Difference (current vs baseline)
Site EUI (kBtu/ft2)	222.9	214.4	205.4	167.6	<b>↓</b> -24.8%
Site EUI – WN (kBtu/ft2)	222.5	214.4	203.8	167.6	<b>J</b> -24.7%
Source EUI (kBtu/ft2)	453.3	434.0	410.7	334.2	<b>↓</b> -26.3%
Source EUI – WN (kBtu/ft2)	434.8	434.0	406.1	334.2	<b>↓</b> -23.1%
Total GHG Emissions (MTCO2e)	1305.5	1285.0	1221.2	994.7	<b>↓</b> -23.8%



# Efficiency Projects on M-NCPPC, Montgomery County Parkland

Throughout the year, projects are completed to improve the efficient use of water and energy resources while still providing an exceptional level of service to the public. The overarching goals of this program include:

- Implementing projects focused on heating and air conditioning system replacements for equipment in operation for over 20 years.
- Continued expansion of building automation controls and energy management systems capabilities in primary staff office, support, and maintenance buildings.
- Exterior lighting retrofit program to utilization of LED technology.
- Making progress on programs and initiatives included in the M-NCPPC Montgomery County Sustainability Plan.
- Continued comprehensive audit of the utility bills being tracked by EnergyCAP to validate data entered and reported for primary locations.
- Installing small-scale rooftop solar photovoltaic systems to reduce our need and dependence on traditional electrical power and lower our organizational carbon footprint

### Efficiency Projects - Fiscal Year Results, FY20

In FY20 projects were completed in support of the program to efficiently utilize water and energy resources at parks and facilities. The below table depicts specific project locations and types of improvements/upgrades completed.

Project Location	Description	Efficiency Standard	Primary Shop/Team
Black Hill Regional Park: Bathhouse #2	<ul> <li>Installed 1.8 kW rooftop solar photovoltaic system to provide heat and power</li> <li>Installed 500-gallon rainwater harvesting system for toilet flushing</li> </ul>	Solar Panel Installation, High Efficiency Water- Saving Unit	Carpentry/Electric Plumbing
Blair Local Park	Installed automated control and monitoring of athletic field lighting	Improved energy efficiency through automation	Athletic Field Team, Park Development Division
Brookside Gardens: Visitors Center	Installed new variable frequency drive (VFD) grinder pump	Energy Efficient Unit	Plumbing
Cabin John Regional Park: Athletic Fields	Install automated control and monitoring of athletic field lighting	Improved energy efficiency through automation	Athletic Field Team, Park Development Division
Cabin John Regional Park: Cabin John Ice Rink	Replacement of R-22 refrigeration system for NHL and Studio Rinks with ammonia system. The ammonia system has zero global warming potential and zero ozone depletion potential	High Efficiency Appliance	Contractor led by Enterprise and Park Development Division

### **Projects Completed: FY20**

Project Location	Description	Efficiency Standard	Primary Shop/Team
Camp Seneca Special Park: Seneca Day Camp	<ul> <li>Park Offices:</li> <li>Upgraded the HVAC to a 95% efficient unit</li> <li>Reconfigured system and moved duct work to conditioned space</li> <li>Installed ductless heat pump</li> <li>Remove old grease interceptor</li> <li>Replaced kitchen sink faucet to low-flow fixture</li> </ul>	High Efficiency Appliance, High Efficiency Water Fixtures	HVAC, Plumbing
Camp Seneca Special Park: Seneca Lodge	Installed new variable frequency drive (VFD) grinder pump	Energy Efficient Unit	Plumbing
Capital View Homewood	Retrofitted 4 exterior pole lights	LED Fixtures	Electric
Colesville Local Park	Replaced terracotta sewer line with PVC	Infrastructure Upgrade	Plumbing
Darby Historical Cultural Park: Darby Store	Installed new variable frequency drive (VFD) grinder pump	Energy Efficient Unit	Plumbing
Dewey Local Park	Retrofitted 9 exterior pole lights	LED Fixtures	Electric
Jesup Blair Local Park	Install upgraded/relocated exterior drinking fountain	Maintenance Efficiency	Plumbing, Heavy Equipment
Ken-Gar Local Park	Install automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	Athletic Fields Team, Park Development Division
Olney Mill Neighborhood Park	Basketball and tennis court lighting upgrades	LED Fixtures	Electric
Maydale Nature Classroom	<ul> <li>M-NCPPC's first net-zero facility:</li> <li>Sustainably-sourced materials (Cementitious Siding, Bamboo flooring)</li> <li>Ceiling material R-43 and wall material R-30. Trombe wall installed.</li> <li>LED interior and exterior lighting</li> <li>17.4 kW rooftop solar photovoltaic system</li> <li>Ductless HVAC system</li> <li>275-gallon rainwater harvesting system</li> <li>Two 1.6 gpf toilets</li> <li>2 wall mounted low-flow sinks</li> <li>Low-flow kitchen sink faucet</li> </ul>	Solar Panel Installation, High Efficiency Water Fixtures, LED Fixtures, Improved Temperature Modulation, High Efficiency Appliance	Carpentry, Electric, Heavy Equipment, Plumbing, HVAC

Project Location	Description	Efficiency Standard	Primary Shop/Team
Meadowbrook Maintenance Facility	Installation of charging infrastructure for electric mowers and electric vehicles	Electric Charging Station	Electric
Meadowside Nature Center	Exterior and interior lighting upgrades	LED Fixtures	Electric
MLK Recreational Park: Field #3	Installed automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	Athletic Fields Team, Park Development Division
Nolte Local Park	<ul> <li>Installed upgraded/relocated exterior drinking fountain</li> <li>Replace 400' of galvanized water line to poly-pipe in support of Community Garden</li> </ul>	Maintenance Efficiency, Infrastructure Improvement	Plumbing
North Four Corners Local Park	Installed automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	Athletic Fields Team, Park Development Division
Pinecrest Local Park	<ul> <li>Park Activity Building:</li> <li>Retrofit building interior and parking lot lighting</li> <li>Install ductless heat pump</li> <li>2 toilets retrofit from 3.5 gpf to 1.6 gpf</li> <li>2 wall mounted low-flow sinks</li> <li>Low-flow kitchen sink faucet</li> <li>Efficient electric hot water heater</li> </ul>	LED Fixtures, High Efficiency Water Fixtures, High Efficiency Appliance	Electric, HVAC, Plumbing
Quebec Terrace Neighborhood Park	Parking lot and park area retrofit	LED Fixtures	Electric
Ridge Road Recreational Park	Installed automated control and monitoring of athletic field lighting	Improved energy efficiency through automation	Athletic Fields Team, Park Development Division
Rock Creek Maintenance Facility	<ul> <li>EcoBee thermostats installed</li> <li>Installed new variable frequency drive (VFD) grinder pump</li> </ul>	Improved temperature modulation and energy savings, Energy Efficient Unit	HVAC, Plumbing
Rock Creek Regional Park	Installed new variable frequency drive (VFD) grinder pumps at Bathhouse #2, #3, #4, and Boathouse	Energy Efficient Unit	Plumbing

Project Location	Description	Efficiency Standard	Primary Shop/Team
Saddlebrook Park Police Headquarters	<ul> <li>Interior renovation for patrol and dispatch, including new restrooms: <ul> <li>Addition of R-19 insulation to concrete/masonry walls, furred over with gypsum wallboard</li> <li>LED lighting fixtures with occupancy sensors</li> <li>Install variable refrigerant flow (HVAC) to allow for heat transfer between spaces with heat recovery (more efficient than constant volume and variable air volume systems)</li> <li>Install 4 low-flow toilets (1.6 gpf)</li> <li>Install 1 high-efficiency urinal.</li> <li>Install low-flow kitchen sink faucet</li> </ul> </li> </ul>	Insulation for energy efficiency, LED Fixtures, High Efficiency Appliance, High Efficiency Water Fixtures	Carpenters, Electric, Heavy Equipment, HVAC, Plumbing
Seneca Landing Special Park: Poole's Store	<ul> <li>New R-13 insulation added to building envelope</li> <li>Full electric upgrade. Interior lighting upgraded to LED</li> <li>Installed electric heat pump</li> <li>Added bathroom with 1.6 gpf toilet</li> <li>Installed new mop sink, low- flow hand sink, and a 3 compartment sink with grease- trap</li> <li>Replaced 1,000-gallon septic tank</li> <li>Installed new variable frequency drive (VFD) grinder pump</li> </ul>	Insulation for energy efficiency, LED Fixtures, High Efficiency Appliance High Efficiency Water Fixtures, Energy Efficient Unit	Carpenters, Electric, Heavy Equipment, HVAC, Plumbing
South Germantown Recreational Park	Installed new variable frequency drive (VFD) grinder pumps at Adventure Playground bathhouse, Miracle Field, near Aquatic Center and at Maintenance Yard	Energy Efficient Unit	Plumbing

Project Location	Description	Efficiency Standard	Primary Shop/Team
Wheaton Regional Park: Athletic Bathhouse	<ul> <li>Complete building replacement:</li> <li>Standing seam metal roof with 2" insulation</li> <li>Double-glazed windows with 1" infill and thermal barriers</li> <li>Thermal insulation throughout exterior walls</li> <li>Lighting fixtures: partial LED</li> <li>Occupancy Sensors on all fixtures</li> <li>Hot water heater is more efficient than previous model</li> <li>Low-flow toilets (1.6 gpf)</li> <li>No HVAC, but designed for future addition of heat</li> </ul>	Insulation for energy efficiency, LED Fixtures, High Efficiency Appliance, High Efficiency Water Fixtures	Contractor Managed by Park Development Division
Wheaton Regional Park: Athletic Lighting	<ul> <li>Installed automated control and monitoring of athletic field lighting</li> <li>LED fixture retrofit</li> </ul>	Improved energy efficiency through automation and LED fixtures.	Athletic Fields Team, Park Development Division
White Oak Recreation Center	Installed automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	Athletic Fields Team, Park Development Division

### FY20 Projects Summarized by Type

The follow table summarizes the projects detailed above by project type. In cases where multiple measures have been taken under a single project, the various measures have been spread across the listed categories.

Project Type/Category	Completed
Energy Efficient Appliance/Unit	13
Energy Efficiency via Automation	4
EV Charging Station	1
LED Light Fixtures	11
Solar Panels	2
Maintenance Efficiency/Infrastructure Improvement	6
Water Efficiency/Advanced Water Management	11

### Utility Budget Results for FY20:

	FY20 Cost	FY20 Budget	Difference
PARKS DEPARTMENT	\$1,857,023	\$2,249,533	\$392,510
PLANNING DEPARTMENT	\$146,595	\$211,590	\$64,995
ENTERPRISE	\$781,438	\$934,000	\$152,562
PROPERTY MANAGEMENT	\$35,636	\$20,864	(\$14,772)
BI-COUNTY	\$64,120	\$92,072	\$27,952
TOTAL:	\$2,884,811	\$3,508,059	\$623,248

Data obtained from M-NCPPC General Ledger

### Expenditures for FY20:

Projects Local:	\$37,000
Projects Non-local:	\$40,000
Water Projects Non-local:	\$25 <i>,</i> 000
Water Projects Local:	\$25,000
Total in FY20:	\$127,000

### Efficiency Projects - Results to Date, FY21

The results of the current program year as of December 2020 are as follows:

#### Goals:

- > Continue to expand the exterior lighting retrofit program to use LED technology.
- Continue executing programs and initiatives included in the M-NCPPC Montgomery County Sustainability Plan.
- > Implementation of small-scale solar photovoltaic opportunities.
- Exploration of additional opportunities for stormwater and graywater harvesting for reuse (e.g. operations, irrigation, toilet flushing, other identified uses).
- Continued comprehensive audit of the utility bills being tracked by EnergyCAP to validate data entered and reported for primary locations.
- Continue updating building square footage for all facilities into the Department's Enterprise Asset Management (EAM) system as well as EnergyCAP. These data will be vital in prioritizing the implementation of energy efficiency and conservation projects as well as to help guide renewable energy projects on facilities in parkland.

In FY21 several projects have been planned, are in process, or have been completed in support of the program to efficiently utilize water and energy resources at parks and facilities. The below table depicts the details and status of specific projects, including locations and types of improvements for FY21.

Project Location	Description	Efficiency Standard	Planned, In Process, or Complete	Primary Shop(s)/Team
Argyle Park	Replace plumbing fixtures, replace lighting	Water	In process	Electric,
Activity Building	fixtures	Efficiency; LED	(to be	Plumbing, Park
		Lighting	completed	Development
			in spring	Division
			2021)	
Arora Hills Local	Install waterless public restroom building	Water	In Process	Facilities
Park		Conservation		Management
				Team
Bauer Local Park	Court Lighting Replacement	LED Lighting	Planned	Park
				Development
				Division
Black Hill Regional	Replace propane tank with electric	High Efficiency	Planned	Plumbing
Park: Park Police	tankless hot water heater	Appliance	La Dua sa sa	Daul
Cabin John	Replace water line	Infrastructure	In Process	Park
Regional Park		Upgrade		Development
Contonway Local	Install solar py flower for public coll	Solar Danol	Complete	Division
Centerway Local	nistali solar pv nower for public cell	Solar Parler	Complete	Management
Pdik	phone/device charging	Installation		Toom
	Poplace and ungrade water fountain to	Maintonanco	Plannod	Plumbing
Park	frost free system	Efficiency	Flamed	Fluthbing
Faik	nost nee system	Linciency		

#### Project Status to Date: FY21

Project Location	Description	Efficiency Standard	Planned, In Process, or Complete	Primary Shop(s)/Team
Kemp Mill Estates Park Activity Building	Replace plumbing fixtures, replace lighting fixtures	Water Efficiency, LED Lighting	In Process (to be completed in spring 2021)	Electric, Plumbing, Park Development Division
Meadowbrook Local Park	Install solar pv flower for public cell phone/device charging	Solar Panel Installation	In Process	Facilities Management Team
Meadowbrook Maintenance Facility	Upgrade to new tube heaters in the work bays	Infrastructure Upgrade	Complete	HVAC
Meadowbrook Stables Restroom Renovation	Replace plumbing fixtures and lighting fixtures	Water efficiency, LED Lighting	In Process (to be completed in summer 2021)	Park Development Division
Meadowood Local Park	Court Lighting Replacement	LED Fixtures	Planned	Electric, Park Development Division
Meadowside Nature Center	<ul> <li>Replace plumbing fixtures and lighting fixtures</li> <li>Upgrade sewer line</li> </ul>	Water Efficiency; LED Lighting	In process (to be completed in spring 2021)	Electric, Plumbing, Park Development Division
MLK Recreational Park: Field #3	Install automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	Complete	Athletic Fields Team, Park Development Division
Norwood Local Park	Water and sewer line replacement	Infrastructure Upgrade	In Process	Park Development Division
Rock Creek Maintenance Facility	Conversion of unit heaters to tube heaters for more functional heating of space	High Efficiency Appliance	In Process	HVAC
Sligo Avenue Park Activity Building	Replace plumbing fixtures, replace lighting fixtures	Water efficiency, LED lighting	In Process (to be completed in summer 2021)	Park Development Division
Sligo-Dennis Local Park	Court Lighting Replacement	LED Lighting	Planned	Electric, Park Development Division

Project Location	Description	Efficiency Standard	Planned, In Process, or Complete	Primary Shop(s)/Team
Wheaton Claridge Local Park	<ul> <li>Park Activity Building:</li> <li>3 toilets retrofit from 3.5 gpf to 1.6 gpf.</li> <li>2 wall mounted low-flow sinks.</li> <li>Low-flow kitchen sink faucet and drain replacement from galvanized to PVC.</li> </ul>	High Efficiency Water Fixtures	Complete	Plumbing
Wheaton Headquarters Building	Construction of the first government owned office building that is to be certified LEED Platinum in the State of Maryland	Designed for LEED Platinum	Complete	Park Development Division
Wheaton Regional Park: Brookside Nature Center	Replace plumbing fixtures and lighting fixtures	High Efficiency Water Fixtures; LED Fixtures	In Process (to be completed in summer 2021)	Electric, Plumbing, Park Development Division
Wheaton Regional Park: Shorefield Restroom Renovation	Replace plumbing fixtures and lighting fixtures	High Efficiency Water Fixtures; LED Fixtures	In Process (to be completed in summer 2021)	Park Development Division

### FY21 Projects Summarized by Type

The follow table summarizes the projects detailed above by project type. In cases where multiple measures have been taken under a single project, the various measures have been spread across the listed categories.

Project Type/Category	Completed	In Process	Planned
Energy Efficient Appliance/Unit	1	1	1
Energy Efficiency via Automation	1		
EV Charging Station	1		
LED Light Fixtures	1	7	3
Solar Panels	2	1	
Maintenance Efficiency/Infrastructure Improvement	2	2	1
Water Efficiency/Advanced Water Management	3	8	

### **Utility Budget Projection for FY21:**

	FY21 Budget	Cost as of 1/4/2021	FY21 Annual Projection	Difference (FY21 Budget- Projection)
PARKS DEPARTMENT	\$2,284,322	\$763,021	\$1,995,254	\$289,068
PLANNING DEPARTMENT	\$52,897	\$51,341	\$56,924	(\$4,027)
ENTERPRISE	\$965,900	\$379,625	\$825,886	\$140,014
PROPERTY MANAGEMENT	\$35,700	\$21,103	\$39,032	(\$3,332)
BI-COUNTY	\$82,464	\$28,272	\$73,100	\$9,364
WHEATON HQ	\$764,659	\$108,162	\$660,000	\$104,659
TOTAL:	\$4,185,942	\$1,351,523	\$3,650,195	\$535,746

Data obtained from M-NCPPC General Ledger

### **Budgeted expenditures for FY21:**

Total in FY21:	\$127,000
Water Projects Local:	\$25,000
Water Projects Non-local:	\$25,000
Projects Non-local:	\$40,000
Projects Local:	\$37,000

### Efficiency Projects - Planned Measures, FY22

The proposed program for FY22 is as follows:

#### Goals:

- > Assess building envelopes and improve insulation where applicable.
- Continue lighting retrofit program to use LED technology inside facilities, in parking lots, along walkways and at ballfields/sports courts.
- Determine additional potential small-scale solar applications. Investigate opportunities for geo-thermal technology for heating and cooling.
- Begin prioritizing projects to eliminate on-site fossil fuel burning (natural gas, propane, heating oil) with the ultimate goal of electrifying these functions with renewable energy resources.
- > Continue maximizing HVAC and water heater efficiency through appliance and equipment upgrades.
- > Continue retrofitting plumbing fixtures to low-flow, low consumption units.
- Maintain existing and implement appropriate new opportunities stormwater and graywater harvesting for reuse (e.g. operations, irrigation, toilet flushing, other identified uses).
- Utilize ArcGIS collector to gather locational data for all utility meters on parkland. Address meter and account issues as appropriate with the utility.
- Continue to implement the comprehensive audit of the utility bills being tracked by E-CAP to validate data entered and reported for primary locations.

For FY22 several projects have been planned in support of the program to efficiently utilize water and energy resources at parks and facilities. The below table depicts the details and status of a limited number of specific projects, including locations and types of improvements for FY22.

While a few capital improvement program (CIP) projects have been identified below, due to the nature of the work in the M-NCPPC Facilities Management Division, this list is kept truncated to ensure balance between maintenance tasks that arise through the year, which have a budgetary impact, along with planned, proactive efficiency upgrades. When maintenance tasks arise for specific sites, opportunities are often taken for mobilization of staff and resources to install or upgrade appliances or equipment. This practice effectively improves efficiency and a more holistic approach to maintenance and upkeep of facilities on parkland.

### **Planned Measures FY22**

Project Location	Description	Efficiency Standard	Funding	Primary Shop(s)/Team
Agricultural History	Install fresh air exchangers and	High Efficiency	To be determined	HVAC
Farm Park	heat pumps.	Appliance		
Calverton-Galway	Install rooftop solar photovoltaic	Solar Panel	CIP: LP Energy	Electric
Local Park	system with power backup to	Installation		
	shelter/restroom building			
Damascus	Replace plumbing and lighting	High Efficiency	PLAR - NL	Electric,
Recreational Park:	fixtures	Water Fixtures;		Plumbing, Park
Restroom C		LED Fixtures		Development
Renovation				Division

Project Location	Description	Efficiency Standard	Funding	Primary Shop(s)/Team
Laytonia Recreational Park	Install automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	To be determined	Athletic Fields Team, Park Development Division
Meadowbrook Local Park	Replace water/sewer line	Infrastructure Upgrade	PLAR LP - MR	Plumbing, Park Development Division
Meadowbrook Local Park: Park Activity Building	Replace plumbing and lighting fixtures	High Efficiency Water Fixtures; LED Fixtures	PLAR LP – PAB	Electric, Plumbing, Park Development Division
Norwood Local Park: Park Activity Building	Replace plumbing and lighting fixtures	High Efficiency Water Fixtures; LED Fixtures	PLAR LP – PAB	Electric, Plumbing, Park Development Division
Olney Manor Recreational Park: Maintenance Yard	Replace existing shed structure with pre-engineered building with solar panels on roof.	Solar Panel Installation	PLAR – NL	Electric, Park Development Division
Saddlebrook Park Police Headquarters	Replace through-the-wall A/C units with variable flow refrigerant (VFR) system and a fresh air heat exchanger in old administrative section of building	High Efficiency Appliance	Pending Funding	HVAC
South Germantown Recreation Park: Cricket Field	Install automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	To be determined	Athletic Fields Team, Park Development Division
Spencerville Local Park: Mildred Pumphrey Recreation Center	Upgrade HVAC with high efficiency heat pump with fresh air heat exchange	High Efficiency Appliance	CIP: LP Energy	HVAC
TBD	Installation of 60kW United Therapeutics donated rooftop solar pv system	Solar Panel Installation	Installation funding to be determined	Electric
Waters House Special Park: Waters House	Upgrade existing HVAC equipment	High Efficiency Appliance	Pending Funding	HVAC
Wheaton Regional Park	Replace water line to Sports Pavilion	Infrastructure Upgrade	PLAR NL-MR	Plumbing
Wheaton Regional Park: Fields 1,2,3	Install automated control irrigation with advanced water management	Improved water conservation on irrigated site through automation	To be determined	Athletic Fields Team, Park Development Division

### FY22 Projects Summarized by Type

The follow table summarizes the projects detailed above by project type. In cases where multiple measures have been taken under a single project, the various measures have been spread across the listed categories.

Project Type/Category	Planned
Energy Efficient Appliance/Unit	4
LED Light Fixtures	3
Solar Panels	3
Maintenance Efficiency/Infrastructure Improvement	2
Water Efficiency/Advanced Water Management	6

### **Utility Budget Proposal for FY22:**

	Proposed Budget FY22	
PARKS DEPARTMENT	\$2,263,077	
PLANNING DEPARTMENT	N/A	
ENTERPRISE	\$910,186	
PROPERTY MANAGEMENT	\$35,700	
BI-COUNTY	\$84,776	
WHEATON HQ	\$764,659	
TOTAL:	\$4,058,398	

### **Proposed budget expenditures for FY22:**

-

Total in FY22:	\$127,000
Water Projects Non-Local:	\$25,000
Water Projects Local:	\$25 <i>,</i> 000
Projects Non-local:	\$40,000
Projects Local:	\$37,000

# Waste Reduction and Recycling

M-NCPPC – Montgomery County operates a comprehensive and proactive waste reduction and recycling program, adhering to the business/commercial recycling standards and reporting requirements established by the Montgomery County Executive and the Recycling and Resource Management Division.

In 2020, the Montgomery County Recycling and Resource Management Division recognized Montgomery Parks as a business with an outstanding recycling and waste reduction program. This recognition is awarded to businesses or organizations that excel in their efforts to provide a high level of training and education to their customers and/or employees in an engaging manner that increases awareness and participation in their recycling and waste reduction program. The success of the recycling program relies on effective communication, education, and monitoring practices.

M-NCPPC – Montgomery County recycles mixed paper/cardboard, commingled materials of aluminum, glass, plastic, steel/tin, scrap metal and green waste (e.g. vegetation/plant material). In addition to these materials, the M-NCPPC - Montgomery County further reduces the waste stream by recycling numerous voluntary products including tires, motor oil and other hazardous waste, electronics, light bulbs, batteries, as well as construction debris including concrete and asphalt. The below graph depicts the past five years of waste stream data for the organization. Total Recycle/Reuse includes both the mandatory and voluntary recycling materials.



M-NCPPC – Montgomery County works to divert as much waste out of trash and into an appropriate recycling stream. Montgomery County has established a goal of recycling 70% of the waste stream by 2020 and the organization has worked diligently to try to achieve this goal. In 2016 and 2017, the total waste diversion rates were 67% and 68% respectively. In 2018, M-NCPPC in Montgomery County successfully surpassed the 70% goal with 73% total waste diversion and in 2019 total waste diversion for the organization dropped back to 67%. For 2020, the organization surpassed the Montgomery County goal with a total waste diversion rate of 83%.



Waste removed by volunteers from parkland.

Efforts are taken to reduce waste within our operations, however, as a public land agency, a portion of the organizational waste stream is a result of illegal dumping of various types of waste, including household trash, on parkland. These volumes become part of the total waste stream of the organization. This waste is often removed by volunteers through stream and park cleanups. Each year, on

average, more than 10,000 volunteers dedicate time to removing trash and recyclables from streams and parks. Since FY16, through this valuable support, over 450,000 pounds of trash and recyclables have been removed. In 2020, even through the COVID-19 pandemic, eager volunteers still wanted to help clean up parks through stream and park cleanups. However, due to the need to provide for safety and social distancing, larger-scale cleanup events were canceled. Volunteers still participated in cleanups on a smaller or individual basis, however, data collection on those events was more difficult to gather in 2020. The volunteer base continues to be supportive and active and the agency is committed to providing for safe opportunities to spend time on parkland.

In 2020, to further hold ourselves accountable for reducing waste and increasing diversion of recyclable materials to proper recycling streams, Montgomery Parks Facilities Management Division kicked off a new waste audit initiative. Select employees within the agency now conduct unannounced waste audits at various parks/maintenance yards to review waste sorting operations and to identify and quantify missed opportunities to recycle. Reports are generated for the site manager(s) and supervisors to help communicate findings and provide support, as needed.

To enhance communication with the public about recycling opportunities, new and improved decals were created to affix to our trash and recycling containers out in the parks. These decals were designed to be simple and eye-catching and are currently being assessed for effectiveness at several park sites county-wide.



Pictured Left: New decals developed for trash and recycling containers out in the parks. Pictured Right: The staff that operate the Montgomery Parks recycling truck take extra steps to monitor recycling dumpsters for contamination before materials are transported to the Montgomery Transfer Station.

# Fleet and Equipment

M-NCPPC – Montgomery County operates and maintains a park and planning system that offers a wide range of services and amenities for recreation and leisure, as well has habitat and natural resources for the benefit of the community. A diverse array of vehicles and equipment are required to support the operations and maintenance of this system. Vehicle types range from small sedans, to light-duty pickup trucks, to large dump trucks and specialized vehicles which serve as the backbone of our maintenance commitment.

In the FY21 Resource Conservation Plan report, it was noted that an extensive review of the Department's vehicle fleet had been conducted as an effort to improve efficiency and cost effectiveness without compromising the safety of employees or jeopardizing the standards for excellence set forth by the Department.

This review looked at vehicle type and aspects of vehicle use, including annual mileage, types of trips etc. At the time of completion of the analysis and report, M-NCPPC – Montgomery County maintained a vehicle fleet of about 600 light duty vehicles, including the M-NCPPC Park Police fleet.

From this analysis, a listing of potentially underutilized vehicles was generated for further review by senior management. Forty-three vehicles were identified as potentially underutilized, with 19 recommended for disposal and 24 for redeployment to other areas of need within the Department. Long-term total savings for disposed vehicles was estimated at over \$820,000 which accounts for avoided replacement costs, avoided maintenance costs, and proceeds from trade-in. Redeployed vehicles identified from this study will allow for savings in new vehicle purchase avoidance in an amount over \$810,000.

The implementation of many of these recommendations has been delayed due to the ongoing COVID-19 pandemic and the need to maximize the number of vehicles available to staff in order to support social distancing for travel to worksites. As operations return to normal, implementation of these recommendations will be prioritized. Currently underway are strategies and procedures designed to better right-size vehicles for the job at the time of purchase.

Beginning in 2020, the Department began a second similar review of large, heavy equipment to identify efficiencies and cost savings while promoting employee safety. The review will help the Department determine the types of heavy equipment in the inventory and their physical locations, characterization of the use of the equipment, and what opportunities might be available for more efficient use this equipment inventory.

The Department continues to prioritize hybrid and electric vehicles and equipment where feasible. As electric vehicle and equipment technology advances and more types become electrified, the organization expects to further increase this inventory during the vehicle and equipment replacement process. This aligns with the organization's Sustainability Plan and the forthcoming county-wide Climate Action Plan, and will be an important strategy in reducing greenhouse gas emissions.

# **Resource Conservation Plan Charts**

### Agency Unit Cost – FY22 Projections

FY22 utility unit cost projections for the participating agencies of the Interagency Committee on Utilities Management (ICEUM) are included in the table below. A variety of factors may impact the unity costs for each of the participating agencies and include differences in tariffs, account types, utility consumption volumes for individual accounts etc.

Agency	Montgomery College	wssc	M-NCPPC	MCPS	DGS	Range
Utility						
Electric (kWh)	\$0.1133	\$0.0895	\$0.1140	\$0.1125	\$0.1170	\$0.08595 – \$0.1170
#2 Fuel Oil (gal)	\$0.0000	\$2.220	\$3.770	\$2.500	\$2.797	\$0.0 - \$3.770
Natural Gas (therms)	\$0.830	\$0.930	\$1.153	\$0.890	\$0.895	\$0.830 - \$1.153
Propane (gal)	\$4.060	\$4.000	\$1.818	\$1.750	\$3.578	\$1.750 - \$4.060
Water & Sewer (kgal)	\$12.1800	\$0.0000	\$13.0500	\$12.8000	TBD	\$0.0 - \$13.0500

Unit cost data for M-NCPPC is estimated based on data in EnergyCAP and general projected commodity cost increases.

### Summary and Montgomery Parks Green Tree Report

Agency	Icy Maryland-National Capital Park and Planning Commission							
Number of Facilities		396 Facilities that have utilities	Change in number of facilities	-2*				
Total squ	are feet active and leased:	1,232,614	Change in total ft <sup>2</sup>	+58,279				
Average operating hrs./year		Varies	Change in avg. operating hrs./year	None				
Other ch consump	anges effecting energy otion	The implementation of a compre- conservation program for the De Facilities Management, Northern Development contributed to add facilities. The Montgomery Parks into available park amenities, fac	ehensive energy management and wa epartment of Parks by the following D n Parks, Southern Parks, Enterprise, a ditional consumption reductions at pa s Green Tree Report (below) provides cilities, and other park system highligi	iter ivisions: nd Park irk insight nts.				

\*Upon opening Wheaton HQ, 3 staffed locations have been taken out of the M-NCPPC inventory

Active square footage is subject to change as it is currently under review by the organization



#### 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: 424 Total owned or managed acres of parkland: 37,072 Total Park Boundary: 961 miles

Stream Length: 490 miles

#### TYPES OF PARKS

Conservation: 22	Neighborhood: 96	Special: 24
Local: 154	Neighborhood Conservation Area: 41	Stream Valley: 36
Miscellaneous Recreation/	Recreational: 11	Urban: 30
Non-Recreation Facilities: 5	Regional: 5	

#### PARK FACILITIES

Archery: 2 Athletic fields: 363 Basketball courts: 229 Boating Facility – Rentals: 2 Boating Landing Ramps: 3 BMX Track: 1 Campgrounds – Full Service: 1 Historic Structures: 111 Campgrounds – Primitive: 2 Campsites: 102 Carousel: 1 Community Gardens: 11 Cricket Fields: 7 Dog Parks: 6 Driving Range (Stand Alone): 1 Outdoor Rope Courses: 1 Equestrian Centers: 6

Event Centers: 4 Exercise Stations: 48 Formal Botanical Gardens: 2 Golf Courses: 4 Gymnasiums: 1 Historic Sites: 43 Ice Rinks: 2 Lakes: 4 Large Group Picnic Areas: 2 Miniature Golf: 1 Miniature Trains: 2 Nature Centers: 4 Overlay football/soccer fields: 41

Park Activity Buildings: 28 Picnic Shelters - Non-Permitted: 48 Picnic Shelters – Permitted: 88 Playgrounds: 276 Skate Parks: 3 Splash Playground: 1 Tai Chi Courts: 1 Tennis Centers - Indoor: 3 (20 courts) Tennis Courts – Outdoor: 303 Trails - Canoe: 5.4 miles Trails - Natural Surface: 201 miles Trails - Paved: 68.6 miles Volleyball: 21

#### PARK BUDGET

Adopted Operating Budget FY2020 Capital Improvements Program FY2019-2024 Capital Improvements Program FY2019-2024 \$122.0 million \$76.0 million for acquisition \$167.7 million for development

As of May 2020 Source: EAM, GIS, and the Parks Acquisition Ledger



### **Energy Conservation - Local Parks**

(P998710)

Category	M-NCPPC		Date Last	Modified					10/04	18	
SubCategory	Development	t	Administe	oring Agenc	y				M-NC	PPC	
Planning Area	Countywide		Status						Ongo	ing	
	Total	Thru FY18	Rem FY18	Total 6 Years	Y 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
		EXPEND	ITURE SC	HEDUL	E (\$00	0s)					
Planning, Design and Supervision	130	35	35	60	10	10	10	10	10	10	
Construction	365	107	96	162	27	27	27	27	27	27	
TOTAL EXPENDITURES	495	142	131	222	37	37	37	37	37	37	
M-NCPPC Bonds	495	FUNDI	NG SCHEI 131	222	000s) 37	37	37	37	37	37	
TOTAL FUNDING SOURCES	495	142	131	222	37	37	37	37	37	37	
TOTAL FUNDING SOURCES	495	142 RIATION	131 AND EXP	222 ENDITU	37 RE D	37 0ATA (	37 \$000s)	37	37	37	
TOTAL FUNDING SOURCES	495 LPPROF	142 RIATION	131 AND EXP 37	222 ENDITU Year First A	37 JRE D	37 DATA ( ation	37 \$000s)	37	37	37 FY9	9
TOTAL FUNDING SOURCES Appropriation FY 20 Request Cumulative Appropriation	495 APPROF	142 RIATION	131 AND EXP 37 310	222 PENDITU Year First A Last FY's C	37 JRE D opropria	37 DATA ( ation mate	37 \$000s)	37	37	37 FY9 495	9
TOTAL FUNDING SOURCES Appropriation FY 20 Request Cumulative Appropriation Expenditure / Encumbrances	495 APPROF	142 RIATION	131 AND EXP 37 310 150	222 ENDITU Year First A Last FY's C	37 JRE D opropria cost Estin	37 DATA ( ation mate	37 \$000s)	37	37	37 FY9 495	9

#### **PROJECT DESCRIPTION**

This project provides finds to modify existing local park buildings and facilities to control fuel and utilities consumption. The project scope encompasses planning, identifying, implementing and monitoring effective energy conservation measures at each major local park facility. Emphasis is placed upon positive and proven measures to remedy heat losses and gains through modifications to building envelope systems and through improvement and retrofit of building support systems; and modification of electrical and mechanical systems and equipment and their associated control and distribution systems.

#### COST CHANGE

In FY19, added FY23 and FY24 to this ongoing level of effort project.

#### FISCAL NOTE

Prior year partial capitalization of expenditures through FY16 totaled \$531,000.

#### DISCLOSURES

Expenditures will continue indefinitely.

### CIP: Energy Conservation – Non-Local Parks

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### Energy Conservation - Non-Local Parks

(P998711)

Category	M-NCPPC		Date Last	Modified					10/01/	18	
SubCategory	Development		Administe	ring Agenc	y				M-NC	PPC	
Planning Area	Countywide		Status						Ongo	ing	
	Total	Thru FY18	Rem FY18	Total 6 Years	Y 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
		EXPEND	TURE SC	HEDUL	E (\$000	s)					
Planning, Design and Supervision	40	10	-	30	5	5	5	5	5	5	
Construction	350	57	83	210	35	35	35	35	35	35	
TOTAL EXPENDITURES	390	67	83	240	40	40	40	40	40	40	
G.O. Bonds	390	FUNDIN 67	NG SCHEI	240 DULE	000s) 40	40	40	40	40	40	
TOTAL FUNDING SOURCES	390	67	83	240	40	40	40	40	40	40	
		RIATION	AND EXP	ENDITU	RED		(000s)				
Appropriation FY 20 Request			40	Year First A	\ppropriat	on				FY9	9
Cumulative Appropriation			190	Last FY's C	ost Estim	ate				390	
Expenditure / Encumbrances			67								
Unencumbered Balance			123								

#### **PROJECT DESCRIPTION**

This project provides funds to modify existing non-local park buildings and facilities to control fuel and utilities consumption. The project scope encompasses planning, identifying, implementing and monitoring effective energy conservation measures at each major non-local park facility. Emphasis is placed upon positive and proven measures to remedy heat losses and gains through modifications to building envelope systems and through improvement and retrofit of building support systems; and modification of electrical and mechanical systems and equipment and associated control and distribution systems.

#### COST CHANGE

In FY19, added FY23 and FY24 to this ongoing level of effort project.

#### FISCAL NOTE

Prior year partial capitalization of expenditures through FY16 totaled \$792,000.

#### DISCLOSURES

Expenditures will continue indefinitely.

# Existing Measures FY00 – FY20

Existing Measures FY00 to FY19	Initial Cost	Annual Net Impact on Maintenance	Energy Type(s)	Units Saved Per Year	Annual Cost Savings			
Capital Improvement Program (CIP)								
Equipment Replacement Projects Local & Non-Local	\$595,930 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			
Equipment Retrofit Projects Includes MEA Grant in 2010 and DOE Grant in 2012	\$378,482 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			
Control Improvements	\$140,000 est.	N/A	Electricity and Natural Gas	284,000 kWh & 21,000 therm	\$85,000 est. Annual Cost Avoidance			
Lighting Projects Includes MEA Grant in 2010 and DOE Grant in 2012	\$501,000 est.	N/A	Electricity	489,800 kWh	\$208,000 est. Annual Cost Avoidance			
Sub Total:	\$2,035,376 est.			1,798,000 kWh, 82,100 therm & 6,700 Pounds	\$498,600 est. Annual Cost Avoidance			
Operations and Main	ntenance							
Operations and Maintenance Best Management Practice and Programs FY00-FY19	\$551,400	\$5,000 annual	Electricity, Natural Gas, and Propane	764,000 kWh, 39,500 therm & 6,800 Pounds	\$155,000 est. Annual Cost Avoidance			
Overall Total:	\$2,586,776			2,562,000 kWh, 121,600 therm & 13,500 pounds	\$653,600 est. Annual Cost Avoidance 2.7 yrs. Return on Investment (ROI)			

### New Measures FY21

New Measures FY20	Projected Initial Cost	Annual Net Impact on	Energy Type(s)	Estimated Units Saved	Projected Annual Cost
		Maintenance		Per Year	Savings
Capital Improveme	nt Program (CIP)				
Equipment Replacement Projects Local & Non-Local	\$70,000 est.	\$5,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	79,000 kWh, 11,600 therm	\$10,800 est. Annual Cost Avoidance
Control Improvements	\$20,000 est.	N/A	Electricity	30,000 kWh	\$4,200 est. Annual Cost Avoidance
Lighting Projects Local & Non-Local	N/A	N/A	Electricity	39,000 kWh	\$5,300 est. Annual Cost Avoidance
Sub-total:	\$90,000 est.	\$5,000			\$20,300
Operations and Ma	intenance				
Best Management Practices and Sustainability Programs	\$29,500	N/A	Electricity, Natural Gas, and Propane	21,000 kWh, 400 therm	\$3,000 est. Annual Cost Avoidance
Operations and Maintenance Improvement Programs	\$24,500	N/A	Electricity, Natural Gas, and Propane	9,000 kWh, 300 therm & 100 Pounds	\$3,000 est. Annual Cost Avoidance
Sub Total:	\$54,000	N/A			\$6,000
Overall Total:	\$259,000	\$5,000			\$26,300 5.0 yr. Return on Investment (ROI)

# Planned Measures FY22

Planned Measures FY21	Projected Initial Cost	Projected Maintenance Cost	Energy Type(s)	Estimated Units Saved Per Year	Projected Annual Cost Savings
Capital Improveme	ent Program (CIP)				
Equipment Replacement Projects Local & Non-Local	\$42,000 est.	\$2,000 on Annual Service Costs	Electricity, Natural Gas, and Propane	10,300 kWh, 5,000 therm	\$7,500 est. Annual Cost Avoidance
Control Improvements	\$15,000 est.	N/A	Electricity (Solar)	30,000 kWh	\$4,200 est. Annual Cost Avoidance
Lighting Projects Local & Non-Local	\$35,000 est.	N/A	Electricity	47,000 kWh	\$7,000 est. Annual Cost Avoidance
Sub-total:	\$92,000 est.	\$2,000			\$18,700
Operations and Ma	aintenance				
Best Management Practices and Sustainability Programs	\$29,500	N/A	Electricity, Natural Gas, and Propane	21,000 kWh, 500 therm & 100 Pounds	\$3,300 est. Annual Cost Avoidance
Operations and Maintenance Improvement Programs	\$24,500	N/A	Electricity, Natural Gas, and Propane	14,000 kWh, 400 therm	\$2,200 est. Annual Cost Avoidance
Sub Total:	\$54,000	N/A			\$5,500
Overall Total:	\$146,000	\$2,000			\$24,200 6.2 yrs. Return on Investment (ROI)

# Proposed Utility Budget by Fund/Cost - FY22

DEPARTMENT OF PARKS	
Electricity	\$853,340
Water and Sewer	\$714,484
Natural Gas	\$216,000
Propane	\$167,015
Heating Oil (#2)	\$5,400
Other Utilities	\$21,300
Solar PV (PPA)	\$277,538
Wind REC	\$8,000
Sub Total	\$2,263,077

DEPARTMENT OF PARKS - ENTERPRISE	
Electricity	\$703,000
Natural Gas	\$114,200
Water and Sewer	\$76,800
Propane	\$12,000
Wind REC	\$4,186
Sub Total	\$910,186

DEPARTMENT OF PARKS - PROPERTY MANAGEMENT				
Electricity	\$17,000			
Natural Gas	\$2,700			
Heating Oil	\$4,000			
Propane	\$1,000			
Water and Sewer	\$1,000			
Other Utilities	\$10,000			
Sub Total	\$35,700			

WHEATON HEADQUARTERS	
Electricity	\$528,679
Natural Gas	\$50,000
Water and Sewer	\$185,980
Sub Total	\$764,659

BI-COUNTY	
Electricity	\$80,594
Water and Sewer	\$4,182
Sub Total	\$84,776

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