## MONTGOMERY COUNTY GREEN GOVERNMENT REPORT

Superior Government Service With The Smallest Possible Environmental Footprint









Montgomery County DEPARTMENT OF GENERAL SERVICES









Report includes new information about FY18 green government

operations that became available after the publication of the

previous report. Data may have been updated from the FY18

report as more accurate data has become available.

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## MESSAGE FROM MONTGOMERY COUNTY EXECUTIVE MARC ELRICH

I am proud to share the 2022 Green Government Report for Montgomery County. During the last fiscal year, County departments continued their efforts to reduce greenhouse gas (GHG) emissions in our facilities and fleets, maintain low emissions advanced energy generation, implement energy and water savings projects in County facilities, and reduce waste while saving on utility costs.

Montgomery County has already taken bold steps to address climate change which have made us a national leader in environmental sustainability. Our climate action plan is one of the most aggressive in the Country and we have made significant process towards our goals. I believe that local government must be the catalyst for change and challenge businesses and residents to act. By implementing policies, programs and initiatives that have set the tone for people to follow, we were able to accomplish the following in 2022:

- Received over \$10.8 million in grants and utility incentives to help fund advanced energy and energy efficiency projects since FY13.
- Completed over 50% of the County's first "Resiliency Hub" serving low to moderate income (LMI) residents at Scotland Neighborhood Recreation Center.
- Completed over 50% of the County's third, but most complex to date, "Microgrid" at the Brookville Maintenance Facility (a.k.a. ""Smart Bus Depot")
- Designed additional microgrid projects such as the Animal Services and Adoption Center, Oaks Landfill, and the Equipment Maintenance & Transit Operation Center.
- Continued in developing the first County owned and maintained "Net Zero Initiative" at Holiday Park Senior Center.
- Initiated phase one of the County's fleet "Zero Emission Transition Plan"- by developing electric bus technical specifications and a Request for Proposals (RFP) to procure 100 more electric buses.
- Responded to the June 2022 "Comprehensive Building Carbonization" by identifying County facilities capable of supporting additional Solar, Resiliency Hubs, and EV Charging projects.
- Responded to the unanimously passed May 2022 " "Building Energy Performance Standard" (BEPS):
  - Mobilized 18 County facilities for BEPS compliance utilizing Monitoring Based Commissioning (MBCx)-50% of project funded with utility incentives. The MBCx project at the Executive Office Building has delivered substantial GHG emission savings while delivering over \$600k in utility savings FY20- FY22.
  - Completed 18 lighting and lighting controls projects.

Our Climate Action Plan, which we completed in June 2021, has been our roadmap. The Climate Action Plan strives to combat the climate emergency and meet our goal of 100% reduction of GHG emissions by 2035. The plan will serve as our guide as we continue our efforts to improve energy efficiency in our buildings, procure more electric vehicles and install large-scale solar in 2023. In fact, the County has more than 150 energy projects planned for County facilities over the next few years as well as plans to procure more electric buses to continue electrification of the bus fleet. We are also pursuing public-private partnerships to install a Smart Energy Depot at Brookville Bus Dept and a 6-megawatt solar project at Oaks Landfill.

The progress that we have made is exciting, but there is still a great deal of work to do. It is my hope that this report will inspire you to seek out ways to get more involved. Climate change is a threat to our very existence and we all must play a role in turning the curve in the right direction. The more people, businesses and organizations that help, the closer we will be to reaching our 2035 goal and saving our quality of life.

I look forward to working with you as we continue to make progress in combating the climate emergency and preserving Montgomery County 's natural resources.





# **CLIMATE & EMISSIONS**



Nationally Recognized Award-Winning Microgrid at Public Safety Headquarters

As part of the Montgomery County Department of General Services, the Office of Energy and Sustainability (OES) was established in September 2014 under Bill No. 6-14. The OES mission is to ensure Montgomery County government operations protect the environment, conserve resources, and integrate sustainability into decision-making at every level.

Protecting the environment is a broad aspect of the OES mission and has increased in intensity as reflected in the Emergency Climate Mobilization Bill No. 18-974 adopted in December 2017. In the bill Montgomery County Council called upon the national Administration, Congress, the State, and other local governments to join Montgomery County, to use all available powers and resources to:

- Declare a climate emergency and initiate a massive global mobilization to restore a safe climate and build a sustainable economy; and
- Transform the climate by reducing greenhouse gas emissions by 80% by 2027 and reaching 100% elimination by 2035 and initiate largescale efforts to remove excess carbon from the atmosphere.

Since 2016, the Montgomery County government, through the direct efforts of OES and DGS divisions, has achieved carbon neutrality by investing in the following GHG emission reduction initiatives:

- Secured alternative funding (i.e., Federal/ state grants, utility incentives, Power Purchase Agreements, Private Public Partnerships, and Energy Performance Contracts)
- Implemented numerous nationally recognized and award-winning advanced energy projects
- Implemented over 100 award-winning energy efficiency projects
- Annually purchased 100% of its annual electricity consumption from clean wind generation through renewable energy credits to offset the balance of County facilities and County fleet GHG emissions.

As the County approves funding to accelerate efforts to reduce GHG emissions (i.e., more advanced energy and energy efficiency projects), the need to purchase renewable energy credits will decrease. Also, these GHG emission reduction projects will improve County services and protect the environment while striving to expand local energy reduction businesses in Montgomery County.

## **Greenhouse Gas Emissions**

Between FY17 and FY22, Montgomery County has delivered the following GHG savings.

- County-Owned Facilities have reduced GHG emissions by 20% even though the County-Owned Facilities portfolio has grown by 8%.
- County Streetlights and Traffic Signals have reduced GHG emissions by 16%
- County Fleet has reduced GHG emissions by 3%
- Overall, County-Owned Facilities, Streetlights, Traffic Signals, and County Fleet have reduced GHG emissions by 12%.



#### Total GHG Emissions (MTCO2e) by Group

Notes:

- 1. \*County Declared "Climate Emergency" December 2017.
- 2. County-Owned Facilities include County facilities, Parking Garages, Parking Lots, Park & Ride. County-Owned Facilities DOES NOT include Montgomery County Public Schools, Volunteer Fire Stations, and Leased facilities.

## **Greenhouse Gas Emissions County-Owned Facilities**

Although County-Owned Facilities have reduced GHG emissions by 20%, the results are more impressive when County-Owned Facilities newer than FY14 are omitted. Getting to the 80% GHG reduction goal would require creative policies, as well as, significant capital funding, and alternative funding (i.e., a combination of Energy Performance Contracting, federal/ state grants, and utility incentives) for Advanced Energy Projects and Energy Efficiency Projects. The following graph depicts how County-Owned Facilities are performing toward the 80% GHG reduction goal by 2027. Results are attributed to County approved funding for Advanced Energy Projects and Energy Efficiency Projects.



Notes:

- Numerical figures represent GHG emissions measured in Metric Tons CO2 equivalent (MTCO<sub>2</sub>e).
- County-Owned Facilities include County Offices, Police Stations, Non-Volunteer Fire Stations, Recreation, Libraries, Health and Human Services, Regional Offices, Corrections, Park & Ride, Garages, and Parking Lots. Does not include Volunteer Fire Stations and Leased facilities.
- 80% GHG Reduction Goal by 2027 is 20,259 MTCO2e- assuming baseline data set.

## Greenhouse Gas Emissions County Fleet

Reducing GHG emissions for County Fleet requires complex planning, massive infrastructure buildout, capital funding, and grant capture as reflected in the upcoming Brookeville Smart Energy Bus Depot project. As the existing fossil fuel-powered County Fleet comes offline, the "NetZero Transition Plan" will replace with low GHG emitting vehicles. The following graph depicts how County Fleet is performing toward the 80% GHG reduction goal by 2027. Results are attributed to County approved funding to electrify the County Fleet.



#### Notes:

- 1. Numerical figures represent GHG emissions measured in Metric Tons CO2 equivalent (MTCO<sub>2</sub>e).
- 2. 80% GHG Reduction Goal by 2027 is 27,402 MTCO2e- assuming baseline data set.

## Greenhouse Gas Emission Streetlight & Traffic Signals

Reducing GHG emissions for County Streetlight and Traffic Signals is challenging as these County assets are required for safe driving conditions throughout the County. Over the last five years, DOT has installed energy-efficient LED Streetlights throughout the County while collecting over \$4.5M in Pepco incentives to help fund the project. Getting to the 80% GHG reduction goal would require Streetlight pole mounted and ground mounted Solar PV. The following graph depicts how County Streetlights and Traffic Signals are performing toward the 80% GHG reduction goal by 2027.

#### **Streetlights Upgrade**

200 streetlights were upgraded to Led in FY22, resulting in the following annual reductions:

• \$8,000 in energy costs





LED Streetlight Upgrades



#### Notes:

- 1. Numerical figures represent GHG emissions measured in Metric Tons CO2 equivalent (MTCO<sub>2</sub>e).
- 2. 80% GHG Reduction Goal by 2027 is 4,459 MTCO2e- assuming baseline data set.

#### **Advanced Energy Projects**

Advanced energy projects are defined as any tangible project, or energy asset which utilizes waste heat generates energy on-site, and or stores energy for future use or transmission. Advanced energy projects can potentially result in energy savings, energy cost savings, and/or GHG emission reductions.

#### **Advanced Energy Project Process**

The Office of Energy & Sustainability (OES) has created a process to identify and finance nationally recognized award-winning advanced energy projects at County facilities. Many of these advanced energy projects are financed through a combination of power purchase agreements (PPA), -private-public partnerships (PPP), federal/ state grants, and utility incentives. This process delivers little to no financial impact to County residents while delivering County residents significant benefits (i.e., GHG emission savings, energy cost savings, operating County facilities during power outages, etc.).

#### Microgrids

Microgrids are local power systems that use clean and low emissions energy sources, such as solar photovoltaic (PV), combined heat and power systems, batteries, and advanced controllers with built-in cybersecurity to provide power to a facility. Microgrids allow critical operations to run independently "islanding" from the power grid during electrical outages by generating clean and low-emissions power on-site. Montgomery County successfully implemented the nationally recognized and award-winning microgrids at Public Safety Headquarters and the Montgomery County Correctional Facility 2018. These microgrids helped pave the way for further microgrids within Montgomery County, like the incredibly complex and nearly completed Brookeville Smart Bus Depot which integrates solar PV, battery storage, advanced controllers, EV bus chargers, and EV buses. The anticipated construction completion is October 2023. Another microgrid project is currently underway at the County's Animal Shelter.

## Microgrid Projects Under Construction 2022

#### Brookville Maintenance Facilit (a.k.a. Brookville Smart Bus Depot)

The County has advanced its most complex GHG reduction project to date at the Brookville Maintenance Facility (aka "Brookville Smart Bus Dept"). The partially completed multiphase project is funded through a Public Private Partnership (PPP) via a Power Purchase Agreement (PPA) with AlphaStruxure.



Brookville Smart Bus Depot- first Solar PV panel installed December 2021.

AlphaStruxure designed, constructed, financed, and will own, operate, and maintain the system with no up-front cost to the County. The microgrid project combines renewable energy (Solar PV), battery backup storage, EV charging, and system controls for an interacted "microgrid" system. The microgrid system consists of 2 megawatts of solar PV, a 1.3-megawatt battery energy storage system (BESS), and 1.8 megawatts of generation supporting the County's Department of Transportation's EV "Ride-On" bus fleet. The EV Buses can provide mobile, independent, and reliable power to County residents during power outages or other weather-related emergencies for extended periods.

#### **Animal Services and Adoption Center**

This microgrid project is funded through another PPP via a PPA with GreenStruxure. GreenStruxure designed, constructed, financed, and will own, operate, and maintain the system with no upfront cost to the County. The project comprises a 500-kilowatt canopy and rooftop solar system. The facility will serve as a gathering point for local citizens to locate lost family pets during a critical, extended power outage. Moving forward, the facility will undergo multiple energy efficiency projects in FY23 (i.e., lighting upgrades, building automation systems upgrades, and monitoringbased commissioning). The completed upgrades enable independent operation during power outages or other weather-related emergencies for an extended period.

#### **Resiliency Hubs**

Montgomery County is improving its ability to anticipate and quickly adapt to extreme weather, economic downturns, and disasters. Reducing energy use through energy efficiency projects and increasing on-site power generation at crucial facilities ensures Montgomery County can keep residents safe and provide needed services during extended power outages. These resilient County facilities also relieve pressure from the power grid, reducing blackouts and brownouts during times of peak electricity use. The County is continuously increasing its efforts to enhance the resiliency and overall sustainability of government operations.

One example of this is the nearly complete "Resiliency Hub" at the Scotland Recreation Center in Potomac. Also in development is a resiliency hub site selection for an upcoming RFP FY23.

#### **Urban Heat Island Mapping Campaign**

In 2022 the County's Department of Environmental Protection (DEP), the National Oceanic and Atmospheric Administration (NOAA), the Climate Adaptation Planning and Analyst (CAPA), and almost 600 prospective volunteers partnered to create a County Urban Heat Island Map. The community heat mapping initiative intends to deliver a "story map" which will identify areas of extreme heat within the County. The story map will be useful for identifying specific target areas for GHG emission reduction efforts like Resiliency Hubs.

#### Solar PV

The County continues to operate over 7.6 megawatts (MW) of solar on 16 county facilities with roof mount, ground mount, and parking lot canopies producing enough clean energy to power over 800 homes annually. As of 2022, 21.2% of County owned, operated, and maintained facilities' electricity consumption comes from Solar on-site generation. County electricity from the grid for County facilities was about \$0.155/kWh for FY22 and County electricity from solar for County facilities remains constant at \$0.45/kWh for FY22- savings the County about \$2M for FY22. Another solar project is currently underway at the County's Oaks Landfill. Also in development is solar site selection for an upcoming RFP FY23.

#### **Combined Heat and Power (CHP)**

CHP units save energy by using waste heat produced by electricity generation. The heat byproduct is used to make hot water and steam and to heat or cool buildings. The county operates CHP units at Pre-Release Center, Public Safety Headquarters, Montgomery County Correctional Facility, and Martin Luther King Jr. Aquatic Center as part of the County's Resilient Facilities effort.

## **Energy Efficiency Projects**

Energy efficiency projects are defined as any existing or proposed policy, behavioral change, tangible project, or software which can potentially result in energy savings, energy cost savings, and/or GHG emission reductions.

In 2022, OES staff assisted on two pieces of legislation that have been introduced, or passed into law, both will a.) have a significant impact on building retrofits/ energy efficiency projects and b.) accelerate GHG emission reductions for existing County facilities:

- In May 2022, although pertaining to existing buildings, the Building Energy Performance Standard (BEPS) was signed into law. The BEPS sets a minimum energy performance threshold for buildings. BEPS is one of the most powerful policy tools available to drive energy improvements in existing buildings.
- In June 2022, the "Comprehensive Building Decarbonization" legislation was introduced to establish an All-electric building standard to help the County to achieve its zero-GHG emissions goal by ensuring future construction is electrified.

#### **Energy Efficiency Projects Process**

OES created an award-winning three-step process to identify cost-effective energy efficiency projects at County facilities. Many of these energy efficiency projects are financed through a combination of utility merger funds, which OES co-led state efforts to secure, federal/ state grants, and utility incentives. This three-step process delivers little to no financial impact to County residents (project simple payback usually under 5 years) while delivering County residents significant benefits (i.e., GHG emission savings, energy cost savings, the extended lifecycle of energy-consuming equipment, etc.).

**Step 1: Data Analysis:** OES closely monitors utility bill data of more than 400 buildings to identify opportunities to improve the energy efficiency of its existing facilities. To maximize financial resources, the county developed a methodology to identify and prioritize facilities with the best opportunities for energy savings and approach to completing the projects. This methodology merges energy consumption data, utility costs, maintenance logs, and building user feedback to identify and plan key energy efficiency projects.

**Step 2: Energy Audits:** OES and County facilities staff routinely conduct on-site energy audits at identified facilities for potential energy efficiency projects to confirm assumptions, collect more detailed system information, occupant interviews, and look for energy savings (i.e., Building Envelope, Lighting and Lighting Controls, Building Automation System, Monitoring Based Commissioning (MBCx), etc.

**Step 3: Energy Efficiency Projects:** Before approving any energy efficiency project for implementation, OES staff estimates a.) energy savings b.) energy cost savings c.) GHG emission savings d.) Capital Improvement Program (CIP) funds and e.) state grants and/or utility incentives.

#### Lighting and Lighting Controls (L&LC)

LED lights are substantially more energy efficient, versatile, and last longer than incandescent and compact fluorescent lights. The County upgraded to LED lighting across 20 County facilities for FY22- expecting to reduce electricity by 1.1M kWh and \$199k annually.

#### **Building Automation System Upgrades (BAS)**

A BAS serves as the nerve center for many County facilities capable of turning off HVAC systems, pumps, and fans remotely when County facilities are unoccupied. Complex BAS' can sense when systems or facilities are not in use, then shut down without compromising occupant safety or comfort. The County has upgraded about 20 county facilities over the last few years and has saved hundreds of thousands of dollars annually. Upgrading County BAS is a top initiative in years to come and is a must for Monitoring Based Commissioning (MBCx) and compliance with the Building Performance Standard law.

#### Monitoring-Based Commissioning (MBCx)

Complex BAS allows for MBCx efforts. MBCx uses continual energy data monitoring to a.) identify no-low-cost facility improvement measure savings b.) implement no-low-cost facility improvement measures and c.) ensure no-low-cost facility improvement measures deliver on anticipated electricity, natural gas, and GHG emission savings. The County completed 18 MBCx walkthroughs while capturing \$670k in utility savings for FY22 at the Executive Office Building. MBCx will capture hundreds of thousands annually in utility savings, and reduce GHG emissions while assisting with County Building Performance Standard compliance.

#### **Energy Performance Contracting (EPC)**

OES is evaluating additional County facilities under EPC as an effort to a.) accelerate efforts towards the County's 80% GHG emission reduction goal by 2027 and b.) comply with the Building Energy Performance Standard (BEPS). EPC is a proven self-funding financing mechanism that provides infrastructure improvements, energy, and water savings, monitoring and verification of effectiveness, training, maintenance, and environmental benefits.

#### Teleworking

A no-cost energy reduction measure that has delivered great success is teleworking. Teleworking efforts were significantly increased in response to COVID-19. Non-critical County facilities occupied by County employees began teleworking resulting in significant energy savings and GHG emission reductions. Noncritical County facilities were shut down, placed in hibernation, and experienced 10- 20% utility savings (i.e., electricity, natural gas, and water & sewer). The 10- 20% utility savings variance depended on building type, services conducted in the County facility, and the ability of HVAC systems and building automation systems to run off hours "hibernate" for extended periods without compromising facility infrastructure. The positive impacts of teleworking are significant when considering County facility energy savings and GHG reduction, avoided vehicle GHG emissions attributed to less travel to and from work, less time in traffic, traffic congestion, etc. Teleworking has paved the way for other energy savings/ space optimization strategies like consolidating "like services" in County facilities, sharing office space "hoteling," etc.



#### **Carbon Sequestration**

Carbon dioxide is the most produced greenhouse gas. Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.

#### **RainScapes**\*

The Department of Environmental Protection RainScapes program installed over 150 projects FY22 on private properties, including conservation landscape and rain garden projects. These practices sequester more carbon than lawns.

#### **Tree Plantings\***

- Tree Montgomery planted 1,700 trees on more than 380 separate properties in FY22, for a cumulative total of 7,450+ shade trees planted through the Spring 2022 Planting Season.
- The Montgomery County Department of Transportation as part of the Tree Maintenance program planted 1,660+ trees in the right-of-way in FY22.
- As part of Reforest Montgomery, Montgomery Planning planted 793 trees through reforestation projects in FY22 in which multiple trees were planted at a rate of at least 100 trees/acre.
- Montgomery Parks FY22 planted 1,500 trees and 1,125 shrubs on parkland.

\*Climate Action Plan Annual Report FY22

# **GREEN BUILDINGS**



The Division of Building Design and Construction (DBDC) is responsible for planning, designing, and constructing Montgomery County's public "Green Buildings" to high-performance standards while paying close attention to residents' input, and environmental and economic concerns. Public green buildings include fire stations, police stations, libraries, recreational facilities, civic buildings, service depots, and parking garages. DBDC is committed to providing leadership that will foster conservation, protection, and improvement of the environment by planning, designing, constructing, and maintaining buildings that are energy efficient, environmentally friendly, and durable, using sustainable materials and resources with carbon reduction strategies.

DBDC has a history of delivering green buildings. In 2008, all new County more than 10,000 square feet have been designated and constructed to achieve a minimum Leadership in Energy and Environmental Design (LEED) "Silver" certification. Since 2019, Montgomery County has built two LEED-certified, eight LEED Silver, and 13 LEED Gold buildings.

Since 2021, three pieces of legislation have been introduced or passed into law, which will impact building design/new construction while accelerating GHG emission reductions for Montgomery County-based buildings.

- In March 2021, legislation was presented to replace LEED requirements and adopt the International Green Construction Code (IgCC) 2018, which lowers the threshold for new commercial buildings over 5,000 square feet and addresses emphasis on energy consumption and greenhouse gas emission reductions.
- In May 2022, the Building Energy Performance Standard (BEPS) was signed into law. The BEPS sets a minimum energy performance threshold for buildings. BEPS is one of the most powerful policy tools available to drive energy improvements in existing buildings.
- In June 2022, the "Comprehensive Building Decarbonization" legislation was introduced to establish an All-electric building standard to help the County to achieve its zero-GHG emissions goal by ensuring future construction is electrified.

As always, DBDC is extremely proud to take a leadership role by embracing these pending legislations. DBDC is currently designing and retrofitting the Holiday Park Senior Center to become the first County facility within its 400+ building portfolio to become a "Zero Energy Building" (ZEB). According to the Office of Energy Efficiency and Renewable Energy, Zero energy buildings are designed and built to consume as little energy as possible. When a renewable energy source is added, ZEB can produce enough energy to meet or exceed their requirements to run.

#### **Holiday Park Senior Center**

The Holiday Park Senior Center ZEB project consists of exterior façade improvement which involves window replacement to increase energy efficiency, better thermal insulation for the building envelop, new cladding of existing brick along with solar photovoltaic (PV) panels at certain locations. This ZEB represents one of many steps supporting the County's 2035 goal of zero GHG emissions for County facilities.

#### Bethesda Volunteer Fire Station #26, Gaithersburg Volunteer Fire Station #8, and Rockville Fire Station #31

These projects consisted of the removal and replacement of outdated Heating, Ventilation, and Air Conditioning (HVAC) systems, modifications to the electrical and structural system to support the new HVAC system.



Holiday Park Senior Center Building Envelop Improvement and Solar PV projects

The new HVAC systems will achieve greater energy efficiency, lower utility costs, and gain better temperature and humidity controls for fire station rescue staff.

#### **Potomac Library Refurbishment**

This refurbishment project consisted of the following GHG emission reduction efforts; recoating the roof, installation of low-flow fixtures in new restrooms, and reconfiguring shelving allow for more natural light into the building. Each GHG emission reduction effort reduces operating costs and minimizes environmental impacts.

#### Nebel Street Homeless Shelter (Photos on Page 14)

This newly purchased two-story 30,000 square foot building was renovated in FY22 and changed from Commercial Office use to a Homeless Shelter with a 200-bed sleeping area, bathing, eating, computer, and administrative space. This major renovation included the following GHG emission reduction efforts; a new roof, a new and energy-efficient HVAC system, and upgraded electrical, and energyefficient Domestic Water Systems to meet the new energy code.

This project is an excellent achievement due to the close participation, commitment, and dedication of various public and private entities working together to address homelessness in our community. This project was fast-tracked (from planning to implementation) and completed within 9 months.



#### Martin Luther King Jr. Aquatic Center

The Aquatic Center had been in operation for 35 years without any major renovation/ modernization. The energy efficiency renovation, which started in the summer of 2019, focused on replacing the roof, and HVAC system, upgrading pool equipment, pool filtration and pumps, and installing LED lighting. Although the facility was reopened in December 2020, additional work was completed in FY22 (November 2021). The project achieved substantial savings by managing the construction in-house while using exiting Division of Facilities Maintenance (DFM) contracts for construction. COVID-19 provided an opportunity to close the Aquatic Center for longer than would have been possible in normal circumstances, which allowed it to complete the scope of work for the project, with less impact on the public and more efficiency.

### **Other Green Building Efforts**

The Department of Technology & Enterprise Business Solutions (TEBS) implements information technology-based Green Building efforts that reduce GHG emissions, such as:

- Behavioral Campaigns- TEBS enabled a computer policy to support both the energy savings initiative and to enhance computer security. After 10 minutes of inactivity, a user's computer screen will go to "sleep" and can be reactivated by touching the keyboard and/ or moving the mouse. After 30 minutes of inactivity, the user will be required to re-enter their password to reactivate the computer screen.
- Data Center Server Optimization Phase
  1-TEBS' Business Continuity efforts have led to significant energy savings. Consolidated and/or eliminated 67 servers from County data centers, leading to 88% Power Savingsreducing GHG emissions by 888 tons of CO2 annually.



Martin Luther King Jr. Aquatic Center Lighting and Lighting Controls project.



















Nebel Street Homeless Shelter Energy Efficiency Upgrades



## TRANSPORTATION



The Division of Fleet Management Services (DFMS) a.k.a. "County Fleet" is responsible for providing a comprehensive fleet management program that meets the needs of our county customers, leading through best practices, environmental stewardship, and sustainability. We strategically plan, acquire, maintain, and dispose of County fleet vehicles and equipment, providing the highest level of cost-effective and energy-efficient fleet operations, ensuring transparency and accountability through a dedicated, highly trained, and certified fleet staff.

#### **Green Fleet**

Through an annual sport utility vehicle (SUV) inventory, DFMS tracks the work performed with each fleet vehicle and makes recommendations for 'rightsizing' to more fuel-efficient replacements consistent with work function. Currently, the County fleet consists of 3,115 fleet vehicles and 246 SUVs (186 for public safety and 60 for administrative uses). As budget allows, DFMS continually looks for ways to eliminate lowusage vehicles and replace them with a.) more fuel-efficient vehicles or b.) mobility services such as shared-use vehicles.

The Montgomery Department of Police shas a quantity of 102 Ford Hybrid Compact Utility Vehicles (CUVs) and Dodge Chargers in the fleet with another quantity of 180 on order FY22. Anticipated miles per gallon (MPH) is 18-22 MPH for the Ford Hybrid CUVs and 12-19 MPH for the Dodge Chargers depending on driving habits.

## **Alternative Fuel Vehicles**

Montgomery County continually seeks opportunities to green the County fleet, reduce fuel consumption and use alternative fuel vehicles that emit fewer GHG emissions. The County has made extensive use of alternative fuels with the fleet currently consisting of 39.6% alternative fuel vehicles, including electric, compressed natural gas (CNG), E85 (ethanol), and hybrids. CNG is used as an effective, loweremissions alternative to diesel for transit and heavy-duty vehicles. Due to performance issues discovered in biodiesel pilots, ultra-low sulfur diesel is now used instead.

## County Fleet Zero Emission Transition Plan 2022

- DFMS completed the 1st phase of the County Fleet Zero Emission Transition Plan. The transition plan will assist DFMS by identifying vehicles that are capable of being transitioned to zero emissions as well as the additional capital funding necessary to meet the County's GHG emission goals- an 80% reduction by 2027 and a 100% reduction by 2035.
- DFMS developed a technical specification for the County's electric bus program and a Request for Proposals (RFP) to procure
   100 electric buses over the next three years (2023- 2025) as part of a Federal Transit Administration (FTA) Bus and Facilities Grant. Buses will operate out of the Brookville "Smart Bus" Depot to fully leverage the microgrid currently under construction. These buses are scheduled to be purchased with FY23-FY26 funding.
- DFMS and Montgomery County Department of Transportation (MCDOT) secured via the Federal Transit Administration (FTA) a Low or No Emissions Bus Grant for 13 Hydrogen Fuel Cell Electric Buses and a Hydrogen fuel station to support a new bus service scheduled to run out of the Gaithersburg Depot. The project includes the development of green hydrogen through electrolysis with the electricity being provided by a microgrid. The project is scheduled to start in early 2023 with completion in 2026.
- Electric buses- infrastructure is currently being installed at the Brookville Smart Bus Depot and the Equipment Maintenance and Transit Operation Center (EMTOC) to support the charging of 14 electric buses. Service using the first electric buses began in 2020 with plans to purchase more electric buses in the next few years.



Electric Bus charging at Brookville Maintenance Facility (aka "Smart Bus Depot")



Electric vehicle Ford MACH-EV at "Poolesville Day" in support of Electric Vehicle Car show.

## **Fuel Use**

The transportation sector accounts for 29% of total U.S. GHG emissions. Alternative fuels such as CNG, E85 (ethanol), and electric generate fewer GHG emissions than gasoline and diesel. (Source www.EPA.gov)

## Electric Vehicle (EV) Charging\*

Public and private entities throughout Montgomery County added 160 Level 2 Electric Vehicle (EV) public charging stations and 38 Direct Current Fast Charging (DCFC) Electric Vehicle (EV) public charging stations, with a cumulative total of 456 Level 2 EV charging stations and 92 DCFC EV charging stations distributed throughout the County by the end of FY22. Of the totals provided, DFMS has 25 EV charging stations with 49 charging ports.

## **Commuting Green**

Montgomery County offers several benefits and green commuting options to reduce the environmental impact of employee commutes:

- Free access to "Ride On" bus service;
- Discounted Capital Bike share membership;
- Access to Commuter Connections regional ride-sharing program; and
- Reimbursement for regular public transit use through the Montgomery County "Get In" program.
- Telework Program- the Office of Human Resources (OHR) manages a telework program that empowers departments to efficiently complete their work. Depending on operational need, eligible positions may telework up to five days per week or on an asneeded basis. In FY22, over 3,200 employees participated in the telework program, reducing vehicle GHG emissions, County facility GHG emissions, waste, and operating costs.

#### Teleconferencing

- Montgomery County Department of Technology & Enterprise Business Solutions (TEBS) assures County staff have the tools they need to collaborate and work remotely, including Microsoft Teams. These platforms served as the communication backbone during COVID-19 as many County staff teleworked. Since COVID-19, many Departments with staff in multiple locations have replaced in-person meetings and training with online platforms.
- MCPL reduces transportation-related GHG emissions by utilizing "teleconferencing" platforms like Microsoft Teams, Zoom, and Skype. Examples include migrating on-site training classes to online training classes and replacing on-site meetings with virtual meetings.

## **Alternative Transportation Options**

Montgomery County Department of Transportation (MCDOT) is committed to providing County residents with many alternative transportation options in and around the County. From encouraging pedestrian and bike use to offering commuter services, to providing reliable bus commuting options; MCDOT offers some form of cost-effective, GHG emission-reducing option for everyone.

## Encourage Pedestrian and Bikeway Use

Montgomery County Department of Transportation (MCDOT) is committed to providing County residents and visitors with the safest path necessary to walk and bike around the County. Walking and biking not only deliver health benefits but also reduces GHG emissions attributed to vehicle use.

• See MCDOTs pedestrian and bikeway projects underway here.

- See the interactive "Montgomery County Bikeways Map" here.
- Bike to Work Day- register at www.biketoworkmetrodc.org

#### **Commuter Services**

MCDOT is committed to providing many rideshare options:

- **Carpool Options:** Free assistance in forming a carpool convenient to County residents' homes and offices, including potential poolmates. It just takes as few as two to be a carpool.
- Vanpool Options: Free assistance in forming a vanpool convenient to County residents' homes and offices, including potential poolmates. It takes as few as six people to share a van to work
- Park & Ride Lots: Free Park-and-Ride Commuter Lots with connecting buses allow area residents to meet your carpool or jump onto public transportation.
- HOV Lanes: It takes as few as two in a car to use HOV Lanes on I-270.

#### **Bus Commuting**

MCDOT is committed to providing bus commuting options that reduce vehicle GHG emissions and cars on the road:

- Ride On Extra Service
- A limited-stop with faster service along state Route 355.
- 20-minute frequency of service during peak rush hour periods
- Buses feature Free WiFi access and USB charging ports
- Connection to 50% of the transit services network including the MARC rail, MTA buses, Metrobus, Metrorail, and 44 Ride On routes
- Flash Bus Rapid Transit Network: Flash is in limited-stop, branded bus service currently planned for 5 corridors within Montgomery County. The project will transform mobility options by connecting riders to activity and employment centers. The service will also improve passenger transit mobility and coincide with bicycle and pedestrian improvements along the corridors making it easier and safer to get to flash stations. The stations are designed to make boarding vehicles easier, improve travel time, and increase transit equity while reducing County vehicle use and GHG emissions.



# WATER CONSERVATION



According to the EPA, less than 1% of the earth's water is available for human use. Demand for fresh water is increasing, but the supply will remain constant.

#### **Water Conservation Projects**

Montgomery County Office of Energy & Sustainability (OES) and the Division of Facilities Management (DFM) collaborate to conserve water use at existing County facilities. OES audits high water use then alerts DFM to investigate onsite and address the high-water use. Additionally, DFM responds to and resolves on-site plumbing calls and installs water-efficient fixtures if needed.

• OES audits over 2,500 monthly water utility bills for high-water use; any water utility bill which reflects a 20% higher water use compared to the same billing period of the previous year.

- In 2022, DFM responded to over 2,600 plumbing calls at County facilities at an expense of \$565,899- many of these plumbing calls resulted in fixing/minimizing water use.
- DFM installs low-flow fixtures, such as faucet aerators, water-saving shower heads, toilets, and urinals to reduce water use and costs while remaining efficient and effective.
- These combined efforts reduced water use by 32.6 million gallons; saving the County \$684,000 (FY22 compared to FY17 baseline).

## Water Submetering Program

DFM and OES collaborated on a water submetering program in FY14. The program has delivered an astounding \$1.16M over the last eight years with FY22 delivering \$254k in water savings- the most annual water savings since program implementation.

Submeters provide an accurate reading on the water discharge and are instrumental in detecting leaks and operational issues that can lead to unusually high-water usage and waste. In the operation of cooling towers, much of the water used evaporates and never enters back into the stormwater system. Similarly, much of the water used in pools will evaporate before being discharged to the sewer for treatment. Submeters measure how much of the water enters the cooling tower or pool and how much water enters the sewer system, then deducts the sewer treatment cost for the water that evaporates, saving significant costs on utility bills. County has installed water submeters on 10 cooling towers at County facilities and two County pools.

#### County Facility Water Use Per SqFt



## County Pool Water Use Per SqFt



#### 20 | Green Government Report: Montgomery County

#### Other Water Conservation Efforts Washdown of Parking Garages

Montgomery County Department of Transportation's (MCDOT) Division of Parking Management reduces pollutants washing into local streams and rivers, MCDOT washes and degreases parking spaces and all garages twice a year to remove oil, gasoline, and other residues. The washdown water goes through a sand filtration system to remove contaminants and particulates before processed water goes into the storm drain system. More information regarding this effort can be found here.

#### **Stormwater Management**

Montgomery County Department of Environmental Protection (DEP) installs new stormwater treatment structures, including rain gardens and bioswales, on older facilities that were not previously being treated by today's standards. Stormwater management practices include:

#### **Green Streets**

Montgomery County Department of Environmental Protection (DEP) oversees "Green Streets" efforts. Green Streets are roadway landscaping designs built in the grassy area along County-owned streets. The stormwater runoff is diverted into an inlet opening in the curb and filtered through a mixture of highly permeable soils. The water is then stored in an underlying gravel layer before percolating into the groundwater and entering the storm drain system. \*DEP completed FY22 the construction of Glenmont Forest Green Streets, with 53 rain gardens, bioretention gardens, and tree boxes.

#### Stormwater Management (SWM) Facilities

Stormwater Management (SWM) is the process where DEP slows, soaks in, or stores stormwater to help reduce the amount of pollution entering our waterways. Montgomery County uses above and below-ground structures (called "stormwater management facilities") to remove pollutants from the stormwater before the water gets to streams. SWMs use plants and infiltration to treat stormwater, these facilities are reducing flooding, removing pollution, recharging the groundwater supply, protecting local stream banks and public health. DEP inspects and maintains more than 2,000 SWM structures on County property.

\*In FY22, DEP continued developing the final design for the Wheaton Dam Flood Mitigation project and secured funding from the Maryland Department of Natural Resources (\$110,000) to expand and enhance forested buffers and existing tree canopy on 7.7 acres around the Wheaton Regional Stormwater Management Facility and Wheaton Branch, a tributary to Sligo Creek and the Anacostia River.

\*Climate Action Plan Annual Report FY22





## **WASTE REDUCTION**



Montgomery County continues to reduce the amount of waste going to landfills by decreasing use, reusing, recycling, and composting. DEP and DGS work together to ensure that employees are educated on how to recycle correctly, recycling bins are labeled and placed in convenient locations throughout facilities and all recyclable materials are identified and recycled. In addition to paper and commingled recycling and facilities, Montgomery County reduces waste going to landfills by:

## **Reducing Paper Use**

- Department of Permitting Services (DPS) converted to an electronic permit application and review system called ePlans FY19. FY22, the ePlans print management system saved 4,146,640 million sheets of paper waste, that's equivalent to 551,552 lbs. of paper, or 414 trees.
- 22 | Green Government Report: Montgomery County

- Montgomery County Public Libraries (MCPL) continues to reduce paper use by using phone/text notifications, self-checkout machines with the option for no printed receipt, digitizing communications, more eBooks online, and eliminating printed agendas in meetings.
- Department of Finance continues its efforts to reduce paper use having implemented electronic forms for property tax refunds and credit applications and employed software in the Division of the Controller that increases efficiencies and reduces the use of paper and other supplies like binders.
- Department of General Services (DGS) Central Services **Print Shop** uses 100% recycled paper.

## **Electronics Recycling**

Montgomery County Department of Technology & Enterprise Business Solutions (TEBS) tracks recycling by computer and peripheral type and weight, for FY22:

PC Equipment	34,192 lbs.
Printer and Peripherals	20,515 lbs.
TOTAL RECYCLED	34,192 lbs. or 27.4 tons

The Police Department recycles its old communication devices, including 813 in FY22, totaling over \$26,000.00 in buybacks; and

#### **Diversting Waste from Landfill** Refurbishing Furniture

MCPL seeks opportunities to refurbish furniture. Examples include using local small businesses to reupholster/refurbish furniture. Police Department

### **Police Department**

- The Police Vehicle Recovery Station sold over 2,000 unclaimed vehicles were at auction FY22 for reuse or to scrap processors; over 1,000 auction vehicles went to scrap processors for materials to be recycled, totaling more than 3,200 tons; and
- Police shooting range facilities recycled over 7,000 brass ammunition casings in FY22.

#### **Fleet Depots**

- Recycled more than 308,000 pounds of scrap metal, recovering over \$31,000 in FY22; and
- Recycled more than 34,000 gallons of oil and 7,000 gallons of antifreeze in FY22.

## **Food Scraps Recycling**

\*The Montgomery County Department of Environmental Protection (DEP) continued the commercial food scraps recycling partnership program, solicited partners that generate food scraps; provided technical assistance and best practice recommendations; helped to set up onsite food scraps separation and storage/recycling containers; provided collection/transportation to a compost facility; provided for processing fees; etc. Also continued work with businesses, and non-profit organizations as well as local, state, and Federal government facilities, provided technical assistance and support to establish food scrap recycling programs.

### **Construction and Demolition Waste**

- New building construction has kept 85% of waste out of landfills since 2012 through recycling, repurposing, and reusing materials; and
- Over 126 tons of materials were reused/ recycled from renovation efforts at County facilities (i.e., Long Branch Library, Clarksburg Fire Station #35, Council Office Building, representing a 79% waste diversion from landfills.

#### \*Climate Action Plan Annual Report FY22





# **FINANCIAL IMPACT**



Montgomery County continuously seeks to reduce Greenhouse Gas (GHG) emissions while saving taxpayer dollars and using innovative alternative funding sources to reduce costs for advanced energy and energy efficiency projects.

## **Financial Stewardship**

The County also strives for excellence in stewardship of financial resources through these efforts.

- Billing Recovery: Analyzed utility bill information and recovered utility billing errors; \$126,800 in FY22 and over \$1.94 million since FY13.
- Water Submeters: Installed water submeters on cooling towers and pools showing the amount of water loss to evaporation resulting in reduced sewer charges: \$264,000 in FY22, over \$1.22 million since FY13.

- Advanced Energy Project (Solar PV): Secured solar Power Purchase Agreements (PPA) from solar panels installed on County facilities: \$633,000 in FY22, \$2.41 million since FY13.
- Energy Efficiency Projects (i.e., Lighting LED Retrofits, Building Automation Upgrades, Monitoring Based Commissioning, and HVAC Upgrades)\*: Saved on electricity utility costs in County facilities: over \$1.23 million estimated savings from projects completed in FY22, and over \$3.97 million cumulative saved since FY17.

## **Grants and Incentives Received**

The County identifies and applies for grants and incentives to complete advanced energy and energy efficiency projects in County facilities. Many of these funds are offered by the State of Maryland under the EmPOWER-MD Program providing substantial grants and incentives to offset costs for these projects.

Since FY13, the County has received \$10.8 million in grants and incentives for advanced energy projects (i.e., solar PV, combined heat & power "CHP," microgrids, etc.) and energy efficiency projects (i.e., Lighting LED Retrofits, Building Automation Upgrades, Monitoring Based Commissioning, and HVAC Upgrades) which includes \$1.14 million for FY22.

#### **Grants & Incentives Received**







## **COMMUNITY ENGAGEMENT**



2022 Montgomery County Energy Summit

Montgomery County engaged the community via a variety of initiatives and educational opportunities in multiple languages through public events, hosting virtual and in-person training opportunities, and partnering with local community groups to engage diverse community members of Montgomery County.

In FY22 DEP launched the Plogging challenge. A social media promotion and challenge was issued to County residents to pick up litter while they are walking, jogging, or running in our local neighborhoods. The County continued to promote the Salt Wise campaign during the winter of 2021-2022 by collaborating with WSSC, DOT, and local watershed groups. This campaign highlighted the importance of minimizing salt use while ensuring public safety.

During the 2022 Earth Month, the County unveiled its first trash trap. The press event was a collaboration with Anacostia River Keeper, Chesapeake Bay Trust, local watershed groups, and the County Executive. In June 2022, the County announced its early warning Flood Sensor Program that can alert residents sooner about flooded roadways, potential dam failures, and streams overflowing their banks; 35 sensors were installed around the County. The U.S. Department of Homeland Security (DHS) Science and Technology Directorate is providing the County with the sensors. Three six-week "Charlas verdes" (Green Chats) sessions were held in Spanish in partnership with county departments and local grassroots groups to engage County community members about issues related to greening their life and climate change, with over 100 community participants participating.

The Montgomery County Climate Stories ambassador program hosted various training cohorts in FY22, one fully in Spanish. Climate Stories Ambassadors are community leaders encouraging their families, friends, colleagues, and neighbors, to contribute to climate change issues in their own lives. Their stories reflect observations of, and emotional responses to, the changing climate. Underlying all their stories is a powerful and resilient determination to build a more positive future. The cohorts included training on what is important in relaying their climate stories and how to record their stories. Over 100 stories were received from community members.

In FY22, the Climate Change Communication Coalition (C4) was formed with representatives from 12 departments and agencies. C4 initiated a campaign soliciting feedback from the public on the CAP, particularly as it relates to resonant themes that can be used in outreach and community engagement.

The 2022 Montgomery County GreenFest was held in person for the first time in two years at Brookside Gardens, through a coalition of county agencies, non-profit, and university partners, with 5,000 attendees.

In FY22 Montgomery County Department of Transportation (MCDOT) promoted pedestrian, bicycle, and traffic safety by engaging with communities at outreach events, developing creative education campaigns, and providing safety tips, educational materials, and other resources. The program supported the Safe Routes to School initiative to encourage more students to walk and bike to school. The program hosted 5 campaigns, through 90 events engaging with over 40,000 residents.

#### **Outreach and Education**

County staff leads presentations at high-profile conferences and webinars to share information and lessons learned about green government operations with other local governments, schools, and businesses around the country. Presentations typically focus on the County's leadership and renewable energy, improving the resiliency of the facilities and operations, and financing major energy projects. Staff also leads tours of advanced energy projects on County facilities. The County hosts several green events during Earth Month in April to bring attention to efforts to protect air, water, and land more sustainably. As part of Earth Month, DEP hosted its annual Energy Summit focusing on solutions for existing buildings and reducing the impact of the current built environment. Several County departments hosted vendor tables to provide education on the County's efforts to develop a sustainably built environment.

#### **MLS LEADS Program Tours**

The MLS LEADS Program supports the development of Management Leadership Service (MLS) by providing learning opportunities for managers within the County. The MLS program also targets organizational performance leading to better services provided to residents. In FY22, the program allowed managers to tour the County's green operations facilities, including the Recycling Center in Derwood and the Equipment Maintenance and Transit Operations Center in Gaithersburg. These tours showcase various green operations and services, as well as sustainable building design.

#### **Community Service**

Montgomery County employees give back to the community through charitable donations and volunteer service. The County runs an employee donation drive each fall, typically giving more than \$250,000 to charities annually. In addition to contributions by individual employees, departments hosted charity drives and volunteer service opportunities in partnership with local non-profit organizations. Partners include a wide variety of non-profits with missions to improve the environmental, social, and financial health of the community.





## 1. Advanced Energy Project

COUNTY FACILITY	PROJECT TYPE	ENERGY GENERATION FY21 (kWh)	SOLAR SAVINGS FY21	ENERGY GENERATION FY22 (kWh)	SOLAR SAVINGS FY22
M C Correctional Facility	Solar Ground Mount & Rooftop	10,286,102	\$740,599	10,598,677	\$996,276
Public Safety Headquarters	Solar Canopy	10,162,533	\$731,702	9,295,458	\$873,773
Liquor Warehouse	Solar Rooftop	977,414	\$70,374	1,203,470	\$113,126
Holiday Park Senior Center	Solar Canopy	399,046	\$28,731	335,884	\$31,573
Gaithersburg Library	Solar Rooftop	255,457	\$18,393	253,466	\$23,826
Rockville Memorial Library	Solar Rooftop	93,720	\$6,748	92,318	\$8,678
Potomac Community Recreation Center	Solar Rooftop	61,315	\$4,415	61,147	\$5,748
Upcounty Reg. Services Center	Solar Rooftop	57,832	\$4,164	60,158	\$5,655
Silver Spring Veterans' Plaza	Solar Rooftop	53,431	\$3,847	44,680	\$4,200
Fire Station #31	Solar Rooftop	51,018	\$3,673	35,272	\$3,316
Jane Lawton Community Recreation Center	Solar Rooftop	39,725	\$2,860	36,199	\$3,403
Council Office Building	Solar Rooftop	36,920	\$2,658	36,530	\$3,434
Shady Grove Kidstop Daycare	Solar Rooftop	29,906	\$2,153	28,761	\$2,704
TOTAL		22,504,419	\$1,620,318	22,082,021	\$2,075,710

Solar Savings defined as what County would had spent if "Energy Generation (kWh)" was purchased from electric grid.

## 2. Energy Performance Benchmarking

COUNTY FACILITY	FY21 ENERGYSTAR SCORE	FY22 ENERGYSTAR SCORE	ENERGYSTAR SCORE % CHANGE	FY21 SITE EUI (kB <sup>TU</sup> /FT <sup>2</sup> )	FY22 SITE EUI (kB <sup>TU</sup> /FT <sup>2</sup> )	SITE EUI (kB <sup>TU</sup> /FT <sup>2</sup> ) % CHANGE
Judicial Center	70	70	0.0%	66.10	67.40	2.0%
Judicial Center Annex	49	54	10.2%	105.6	95.10	-9.9%
Council Office Building	21	24	14.3%	125.5	121.50	-3.2%
Executive Office Building	49	54	10.2%	97.5	87.50	-10.3%
HHS Administrative Offices	54	54	0.0%	81.7	87.50	7.3%
Piccard Office Building	97	82	-15.5%	42.8	50.90	18.9%
Public Safety Headquarters	41	46	12.2%	288.9	267.00	-7.6%
Public Safety Training Academy	75	66	-12.0%	81.2	94.30	16.1%
Upcounty Regional Service Center	62	57	-8.1%	104.3	113.30	8.6%
Dennis Avenue Health Center	n/a*	n/a*	n/a*	171.2	169.40	-1.1%
Fire Station #01	n/a*	n/a*	n/a*	50.1	84.20	68.%
Gaithersburg Library	n/a*	n/a*	n/a*	78.7	67.50	-14.4%
Germantown Library	n/a*	n/a*	n/a*	37.1	41.70	12.4%
Holiday Park Senior Center	n/a*	n/a*	n/a*	73.4	59.20	-19.3%
Progress Place	n/a*	n/a*	n/a*	94.1	93.20	-1.0%
Rockville Memorial Library	n/a*	n/a*	n/a*	57.1	59.00	3.3%
Silver Spring Library	n/a*	n/a*	n/a*	102.2	86.60	-15.3%
Strathmore Concert Hall	n/a*	n/a*	n/a*	176.4	152.80	-13.4%
Wheaton Library Recreation Center	n/a*	n/a*	n/a*	67.2	70.00	4.2%
White Oak Community Recreation Center	n/a*	n/a*	n/a*	44.5	57.40	29.0%

#### 3. County Utility Expenditures FY19-FY20

FUND	UTILITY	TOTAL CONSUMPTION FY19	TOTAL COST FY19	TOTAL CONSUMPTION FY20	TOTAL COST FY20
Non-Departmental Accounts	Electricity*	133,524,292	\$18,484,237	133,364,544	\$19,227,154
	Natural Gas	2,740,537	\$2,433,822	2,910,544	\$2,480,182
Tax Supported	Electricity*	16,993,251	\$2,143,606	16,817,757	\$2,078,004
	Natural Gas	528,133	\$475,680	564,846	\$494,915
Non-Tax Supported	Electricity*	24,983,054	\$2,957,618	24,420,808	\$2,725,207
	Natural Gas	260,368	\$248,072	230,179	\$216,274
County Total	Electricity*	175,500,597	\$23,585,461	174,603,108	\$24,030,366
	Natural Gas	3,529,038	\$3,157,574	3,705,568	\$3,191,370

\* Includes electricity from electric grid and on-site solar generation

## 4. County Utility Expenditures FY21-FY22

FUND	UTILITY	TOTAL CONSUMPTION FY21	TOTAL COST FY21	TOTAL CONSUMPTION FY22	TOTAL COST FY22
Non-Departmental Accounts	Electricity*	129,175,353	\$18,299,825	130,645,874	\$21,469,958
	Natural Gas	2,981,017	\$2,723,162	2,781,927	\$3,438,491
Tax Supported	Electricity*	16,622,021	\$2,061,537	17,244,525	\$2,529,651
	Natural Gas	639,807	\$612,435	584,423	\$740,441
Non-Tax Supported	Electricity*	22,255,499	\$2,350,847	21,232,535	\$2,826,561
	Natural Gas	214,003	\$219,431	255,543	\$334,155
County Total	Electricity*	168,052,873	\$22,712,209	169,122,934	\$26,826,171
	Natural Gas	3,834,827	\$3,555,028	3,621,892	\$4,513,087

\*Includes electricity from electric grid and on-site solar generation

Non-Departmental Accounts include Streetlights, Traffic Signals, and the following facility types- Circuit Courts, Corrections, Fire Stations, Health and Human Services, Libraries, County Office Buildings, Police Stations, Theaters & Arts

Tax Supported includes Recreation and Mass Transit facilities

Non-Tax Supported includes Liquor stores, Solid Waste facilities, Parking lots, Parking Garages, and Transportation Maintenance facilities

## 5. Estimated Utility Costs by Type

UTILITY TYPE	UNIT OF MEASURE	UNIT COSTS FY19	UNIT COSTS FY20	UNIT COSTS FY21	UNIT COSTS FY22
Electric-GRID	kWh	\$0.126	\$0.116	\$0.113	\$0.140
Electric-Solar	kWh	\$0.075	\$0.074	\$0.074	\$0.078
Water & Sewer	Kgallons	\$0.019	\$0.017	\$0.020	\$0.021
Natural Gas	Therm	\$1.021	\$0.853	\$0.915	\$1.236
Fuel Oil #2	Gallons	\$2.966	\$2.783	\$3.129	\$4.541
Propane	Gallons	\$4.150	\$3.253	\$4.007	\$5.450

\* Electric grid unit cost, does not include on-site solar unit cost

## 6. Completed Energy Efficiency Projects Lighting & Lighting Controls "L&LC"

COMPLETED L&LC PROJECTS FISCAL YEAR	#OF L&LC PROJECTS	FY22 SAVINGS \$	FY22 SAVINGS kWh	CUMULATIVE SAVINGS \$	CUMULATIVE SAVINGS kWh
FY17	4	\$212,050	1,696,399	\$1,054,235	8,433,880
FY18	3	\$49,630	397,039	\$208,014	1,664,113
FY19	2	\$142,182	1,137,457	\$496,958	3,975,663
FY20	20	\$349,894	2,799,148	\$698,621	5,588,965
FY21	4	\$35,910	287,276	\$35,910	287,276
FY22	18	Savings not realized FY22	1,123,222	\$140,403	1,123,222
TOTAL	51	\$930,069	7,440,541	\$2,634,141	21,073,119

Note: "L&LC" defined as Lighting and Lighting Controls

#### 7. Completed Energy Efficiency Projects (Building Automation Systems Upgrade "BASU")

COMPLETED BASU PROJECTS FISCAL YEAR	#OF BASU PROJECTS	FY22 SAVINGS \$	FY22 SAVINGS kWh	CUMULATIVE SAVINGS \$	CUMULATIVE SAVINGS kWh
FY20	6	\$128,785	1,750,344	\$ 128,785	1,750,344
FY21	4	\$34,634	277,074	\$34,634	277,074
FY22	1	\$35,613	284,904	\$35,613	284,904
TOTAL	11	\$119,032	2,312,322	\$199,032	2,312,322

Note: "BASU" defined as Building Automation System Upgrade

## 8. Completed Energy Efficiency Projects (Monitoring Based Commissioning "MBCx")

COMPLETED MBCx PROJECTS FISCAL YEAR	#OF MBCx PROJECTS	FY22 SAVINGS \$	FY22 SAVINGS kWh	CUMULATIVE SAVINGS \$	CUMULATIVE SAVINGS kWh
FY20-FY22	2	\$261,754	2,094,029	\$611,551	4,892,410
TOTAL	2	\$261,754	2,094,029	\$611,551	4,892,410

Note 1: "MBCx" defined as Monitoring Based Commissioning

Note 2: MBCx is a continual effort to ensure energy savings persist over time.

## 9. Planned Advanced Energy and Energy Efficiency Projects FY23-FY26\*

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIAMED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
1401 Rockville Pike TRAINING CENTER	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$2,458	10.2	\$512
3rd District Police Station	FY23	Monitoring Based Cx	Energy Conservation	\$11,351	46.5	\$2,327
5th District Police Station	FY23	Lighting LED Retrofits	Energy Conservation	\$11,577	48.2	\$2,411
9292 Draper Farm	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$5,610	23.4	\$1,168
AFI/Blackbox	FY23	Monitoring Based Cx	Energy Conservation	\$31,116	129.0	\$6,449
Animal Shelter	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$50,592	210.7	\$10,534

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Animal Shelter	FY23	Monitoring Based Cx	Energy Conservation	\$38,232	156.9	\$7,843
Blackrock Center for the Arts	FY23	Lighting LED Retrofits	Energy Conservation	\$510	2.1	\$106
Board of Elections	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$14,867	61.9	\$3,096
Brig. Gen. Charles McGee Library	FY23	Monitoring Based Cx	Energy Conservation	\$25,664	105.8	\$5,291
Circuit Court North Tower	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$944	3.9	\$196
Clara Barton NRC	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$4,157	17.3	\$865
Colesville Depot	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$8,237	34.3	\$1,715
Council Office Building Garage	FY23	Monitoring Based Cx	Energy Conservation	\$75,355	313.2	\$15,658
Damascus CRC	FY23	Lighting LED Retrofits	Energy Conservation	\$13,643	56.8	\$2,841
Dennis Ave Health Center	FY23	Monitoring Based Cx	Energy Conservation	\$20,651	83.9	\$4,197
Detention Center	FY23	Major Renovation	MCDC Partial Demolition & Renovation	\$31,450	130.1	\$6,507
East County Service Center	FY23	Lighting LED Retrofits	Energy Conservation	\$3,825	15.9	\$796
Fire Station #15	FY23	Lighting LED Retrofits	Energy Conservation	\$5,916	24.6	\$1,232
Gaithersburg Library	FY23	Monitoring Based Cx	Energy Conservation	\$8,709	35.9	\$1,795
Grey Courthouse	FY23	Monitoring Based Cx	Energy Conservation	\$28,043	111.0	\$5,550
Gwendolyn Coffield CRC	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$9,053	37.7	\$1,885
Liquor Warehouse	FY23	Monitoring Based Cx	Energy Conservation	\$18,349	75.8	\$3,790

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Materials Management Warehouse	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$4,641	19.3	\$966
North Potomac CRC	FY23	Monitoring Based Cx	Energy Conservation	\$11,607	47.5	\$2,375
Noyes Library	FY23	Major Renovation	Noyes Library Renovation	\$311	1.3	\$63
Progress Place	FY23	Monitoring Based Cx	Energy Conservation	\$16,204	67.2	\$3,359
PSTA-NEW	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$45,186	188.2	\$9,409
PSTA-NEW	FY23	Monitoring Based Cx	Energy Conservation	\$51,434	210.9	\$10,546
Public Safety Communications Center	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$72,471	301.8	\$15,090
Public Safety Communications Center	FY23	Monitoring Based Cx	Energy Conservation	\$48,379	201.4	\$10,072
Public Safety Headquarters	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$237,023	987.1	\$49,353
Rockville Memorial Library	FY23	Monitoring Based Cx	Energy Conservation	\$17,129	70.0	\$3,500
Ross Boddy CRC	FY23	Monitoring Based Cx	Energy Conservation	\$6,698	27.9	\$1,395
Veterans Plaza	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$21,114	87.9	\$4,396
Veterans Plaza	FY23	Monitoring Based Cx	Energy Conservation	\$16,256	66.6	\$3,328
Strathmore Concert Hall	FY23	Monitoring Based Cx	Energy Conservation	\$81,873	334.0	\$16,700
Upcounty Reg. Services Center	FY23	Lighting LED Retrofits	Energy Conservation	\$41,310	172.0	\$8,602
White Oak CRC	FY23	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$19,329	80.5	\$4,025
White Oak CRC	FY23	Monitoring Based Cx	Energy Conservation	\$12,959	53.9	\$2,696

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Animal Shelter	FY23-FY24	AE-Solar PV Phase I & II	Power Purchase Agreement	\$33,728	140.5	\$7,023
5th District Police Station	FY24	BASU	HVAC/Elec. ReplMCG	\$4,324	17.8	\$888
Animal Shelter	FY24	BASU	HVAC/Elec. ReplMCG	\$21,368	86.8	\$4,332
Brig. Gen. Charles McGee Library	FY24	BASU	HVAC/Elec. ReplMCG	\$13,849	56.6	\$2,830
Detention Center	FY24	BASU	HVAC/Elec. ReplMCG	\$16,524	68.0	\$3,399
East County CRC	FY24	BASU	HVAC/Elec. ReplMCG	\$4,538	18.2	\$911
EMTOC Fleet and Transit	FY24	BASU	HVAC/Elec. ReplMCG	\$40,480	162.6	\$8,132
Gwendolyn Coffield CRC	FY24	BASU	HVAC/Elec. ReplMCG	\$4,180	16.8	\$840
Holiday Park Senior Center	FY24	BASU	HVAC/Elec. ReplMCG	\$2,965	11.7	\$583
Jane Lawton CRC	FY24	BASU	HVAC/Elec. ReplMCG	\$5,646	21.3	\$1,067
Kennedy Shriver Aquatic Center	FY24	Building Envelop-Thermal	KSAC-Thermal Envelope	\$47,997	195.2	\$9,762
Long Branch Senior Center	FY24	Building Envelop-Roof	Roof Replacement	\$3,702	15.0	\$748
Potomac CRC	FY24	BASU	HVAC/Elec. ReplMCG	\$4,803	20.0	\$1,000
Potomac Library	FY24	Renovation	Library Refurbishment	\$2,975	12.4	\$619
Public Safety Communications Center	FY24	Building Envelop-Roof	Roof Replacement	\$24,222	100.8	\$5,042
14810 Broschart Rd	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$5,270	21.9	\$1,097
2nd District Police Station	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$11,670	48.6	\$2,430

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
3rd District Police Station	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$9,971	41.5	\$2,076
4th District Police Station	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$3,953	16.0	\$802
5th District Police Station	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$7,718	32.1	\$1,607
600 E. Jefferson St.	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$6,936	28.9	\$1,444
6th District Police Station	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$4,539	18.9	\$945
AFI/Blackbox	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$29,954	124.7	\$6,237
AFI/Blackbox	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$44,931	187.1	\$9,356
Bauer Drive CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$5,355	22.3	\$1,115
Bethesda Complex	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$12,937	53.9	\$2,694
Brig. Gen. Charles McGee Library	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$35,445	147.6	\$7,380
Broome School	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$11,395	46.2	\$2,308
Bus Transit Facility	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$7,956	33.1	\$1,657
Chevy Chase Library	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$4,488	18.7	\$934
Circuit Court North Tower	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$3,003	11.1	\$555
Colesville Depot	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$5,491	22.9	\$1,143
Colesville Depot	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$5,491	22.9	\$1,143
Colesville Health Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$4,301	17.9	\$896

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Colesville Health Center	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$2,877	11.6	\$580
Colesville Health Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$6,452	26.9	\$1,343
Connie Morella Library	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$5,882	24.5	\$1,225
Council Office Building Garage	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$18,190	75.8	\$3,788
Damascus CRC	FY24-FY25	AE-Combined Heat & Power	AltaGas-WGL Merger Fund	\$9,095	37.9	\$1,894
Damascus CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$9,095	37.9	\$1,894
Damascus Library/Senior Center	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$6,052	25.2	\$1,260
Damascus Library/Senior Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$6,052	25.2	\$1,260
Damascus Library/Senior Center	FY24-FY25	Lighting LED Retrofits	Energy Conservation	\$9,078	37.8	\$1,890
Damascus Maint Depot	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$1,462	6.1	\$304
Detention Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$44,778	186.5	\$9,324
East County CRC	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$6,460	26.9	\$1,345
East County Service Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$2,550	10.6	\$531
EMTOC Fleet and Transit	FY24-FY25	AE-Microgrid	Power Purchase Agreement	\$58,293	242.8	\$12,138
EMTOC Fleet and Transit	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$58,293	242.8	\$12,138
Executive Office Building	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$199,206	829.6	\$41,479
Fire Station #15	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$3,944	16.4	\$821

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Fire Station #18	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$4,777	19.9	\$995
Fire Station #23	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$2,652	11.0	\$552
Fire Station #25	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$5,457	22.7	\$1,136
Fire Station #31	FY24-FY25	Lighting LED Retrofits	Energy Conservation	\$5,457	22.7	\$1,136
Fire Station #32	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$7,140	29.7	\$1,487
Fire Station #35	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$2,193	9.1	\$457
Garage 60	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$23,800	99.1	\$4,956
Germantown CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$4,873	20.3	\$1,015
Germantown CRC	FY24-FY25	Lighting LED Retrofits	Energy Conservation	\$7,310	30.4	\$1,522
Germantown Library	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$238	1.0	\$50
Germantown Library	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$238	1.0	\$50
Glen Echo Park	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$10,081	42.0	\$2,099
Good Hope CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$3,621	15.1	\$754
Good Hope CRC	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$3,621	15.1	\$754
Gwendolyn Coffield CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$6,035	25.1	\$1,257
HHS OAS Facility	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$5,075	21.1	\$1,057
Holiday Park Senior Center	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$3,315	13.8	\$690

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Holiday Park Senior Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$3,315	13.8	\$690
Holiday Park Senior Center	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$2,965	`11.7	\$583
Kennedy Shriver Aquatic Center	FY24-FY25	AE-Combined Heat & Power	AltaGas-WGL Merger Fund	\$30,271	130.7	\$6,535
Kennedy Shriver Aquatic Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$58,701	244.5	\$12,223
Lone Oak Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$6,171	25.7	\$1,285
Lone Oak Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$9,257	38.5	\$1,927
Long Branch Senior Center	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$5,661	23.6	\$1,179
Long Branch Senior Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$5,661	23.6	\$1,179
M C Correctional Facility	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$48,739	203.0	\$10,148
M C Correctional Facility	FY24-FY25	Lighting LED Retrofits	Energy Conservation	\$73,109	304.5	\$15,223
Marilyn J Praisner CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$7,803	32.5	\$1,625
Marilyn J Praisner CRC	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$11,705	48.7	\$2,437
Marilyn Praisner Library	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$4,862	20.2	\$1,012
Martin Luther King Jr Swim Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$16,609	69.2	\$3,458
Mens Overflow Shelter	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$2,040	8.5	\$425
Mid-County CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$7,650	31.9	\$1,593
Mid-County CRC	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$4,094	16.9	\$845

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Mid-County CRC	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$11,475	47.8	\$2,389
Nebel Street Shelter	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$4,624	19.3	\$963
North Potomac CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$10,030	41.8	\$2,088
North Potomac CRC	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$10,030	41.8	\$2,088
Oaks Sanitary Landfill	FY24-FY25	AE-Hydrogen	Power Purchase Agreement	\$7,055	29.4	\$1,469
Olney Library	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$5,593	23.3	\$1,165
Piccard Office Building	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$14,433	60.1	\$3,005
Plum Gar CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$4,743	19.8	\$988
Plum Gar CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$4,743	19.8	\$988
Poolesville Maintenance Depot	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$1,105	4.6	\$230
Potomac CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$9,605	40.0	\$2,000
Potomac Library	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$2,975	12.4	\$619
PSTA-NEW	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$45,186	188.2	\$9,409
Public Safety Communications Center	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$48,314	201.2	\$10,060
Public Safety Headquarters	FY24-FY25	HVAC Upgrades	HVAC/Elec. ReplMCG	\$141,414	556.3	\$27,813
Quince Orchard Library	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$5,729	23.9	\$1,193
Rockville Memorial Library	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$3,647	15.2	\$759

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Ross Boddy CRC	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$10,047	41.8	\$2,092
Strathmore Concert Hall	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$68,578	285.6	\$14,279
Strathmore Concert Hall	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$68,578	285.6	\$14,279
Strathmore Concert Hall	FY24-FY25	Lighting LED Retrofits	Energy Conservation	\$102,867	428.4	\$21,419
Upper County CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$3,213	13.4	\$669
Upper County CRC	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$3,213	13.4	\$669
Warehouse Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$2,423	10.1	\$504
Wheaton Library And Recreation Center	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$17,867	74.4	\$3,720
Wheaton Library And Recreation Center	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$17,867	74.4	\$3,720
Wheaton Rescue Squad R2	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$255	1.1	\$53
Wheaton Rescue Squad R2	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$383	1.6	\$80
White Oak CRC	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$12,886	53.7	\$2,683
White Oak CRC	FY24-FY25	AE-Solar-PV RFP	Power Purchase Agreement	\$12,886	53.7	\$2,683
White Oak Library	FY24-FY25	AE-Resiliency Hubs	Power Purchase Agreement	\$3,791	15.8	\$789
Writers' Center	FY24-FY25	Lighting LED Retrofits	Exelon-Pepco Merger Fund	\$816	3.4	\$170
6th District Police Station	FY25	Major Renovation	6th District Police Station	\$9,405	39.0	\$1,950
Holiday Park Senior Center	FY25	Building Envelop-Window	Holiday Park NetZero Initiative	\$4,623	18.6	\$928

FACILITY NAME	FISCAL YEAR EXPECTED COMPLETED	PROJECT TYPE	FUNDING SOURCE (aka "CIP")	ESTIMATED ANNUAL COST SAVINGS (\$)	GHG SAVINGS (MTCO2e) TOTAL	ANNUAL SOCIAL COST OF CARBON
Holiday Park Senior Center	FY25	Renovation	Recreation Facilities Refurbishment	\$3,315	13.8	\$690
Public Safety Communications Center	FY25	HVAC Upgrades	PSCC Phase II, Elec. Dist. & HVAC Upgrade	\$24,222	100.8	\$5,042
Public Safety Headquarters	FY25	BASU	HVAC/Elec. ReplMCG	\$141,414	556.3	\$27,813
Red Brick Courthouse	FY25	BASU	HVAC/Elec. ReplMCG	\$1,885	7.7	\$383
Upcounty Reg. Services Center	FY25	BASU	HVAC/Elec. ReplMCG	\$16,749	68.2	\$3,410
Warehouse - DFRS	FY25	BASU	HVAC/Elec. ReplMCG	\$10,644	42.5	\$2,125
Germantown Indoor Swim Center	FY25-FY26	AE-Combined Heat & Power	AtlaGas-WGL Merger Fund	(\$321,290)	(1,167.8)	(\$58,388)
Olney Swim Center	FY25-FY26	AE-Combined Heat & Power	AtlaGas-WGL Merger Fund	(\$229,875)	(829.6)	(\$41,482)
Damascus Library/Senior Center	FY26	Renovation	Recreation Facilities Refurbishment	\$6,052	25.2	\$1,260
TOTAL				\$2,742,099	11,599	\$579,951

\*All planned projects are subject to funding approval

CIP is defined as 'Capital Improvement Project' approved budgets can be found at Office of Management and Budget website.

#### 10. Total Building Square Footage by Electricity and Natural Gas FY19-FY22

GROUP	FUND	UTILITY	BUILDING Sq. Ft. FY22
County Facilities	Non-Departmental Accounts	Electricity	6,428,807
County Facilities	Non-Departmental Accounts	Natural Gas	4,906,388
County Facilities	Non-Departmental Accounts	Solar PV	1,866,023
Liquor	Non-Tax Supported	Electricity	339,229
Liquor	Non-Tax Supported	Natural Gas	324,569
Liquor	Non-Tax Supported	Solar PV	201,701

GROUP	FUND	UTILITY	BUILDING SQ. FT. FY22			
Mass Transit	Tax Supported	Electricity	902,793			
Mass Transit	Tax Supported	Natural Gas	31,679			
Mass Transit	Tax Supported	Solar PV	0			
Motor Pool	Non-Tax Supported	Electricity	139,163			
Motor Pool	Non-Tax Supported	Natural Gas	142,179			
Motor Pool	Non-Tax Supported	Solar PV	0			
Parking Lot Services	Non-Tax Supported	Electricity	6,498,426			
Parking Lot Services	Non-Tax Supported	Natural Gas	1,679,686			
Parking Lot Services	Non-Tax Supported	Solar PV	0			
Recreation	Tax Supported	Electricity	820,390			
Recreation	Tax Supported	Natural Gas	622,522			
Recreation	Tax Supported	Solar PV	98,532			
Solid Waste Disposal	Non-Tax Supported	Electricity	15,528			
Solid Waste Disposal	Non-Tax Supported	Natural Gas	0			
Solid Waste Disposal	Non-Tax Supported	Solar PV	0			
COUNTY TOTAL - ELECTRICITY 15,144,336 Sq.Ft.						
COUNTY TOTAL - NATURAL	COUNTY TOTAL - NATURAL GAS 7,707,023 Sq.Ft.					
COLINTY TOTAL - SOLAR PV 2166 256 Sg Et						

## 11. GHG in Metric Tons from Montgomery County Operations

FISCAL YEAR	FACILITIES GHG (MTCO2e)	FLEET GHG (MTCO2e)	STREETLIGHTS & TRAFFIC SIGNALS GHG (MTCO2e)	TOTAL GHG (MTCO2e)	COUNTY SOCIAL COST OF CARBON IMPACT
2017	59,053	56,618	9,213	124,884	\$6,244,200
2018	55,563	57,119	10,190	122,872	\$6,143,600
2019	52,180	59,793	9,539	121,512	\$6,075,600
2020	47,614	51,439	7,972	107,025	\$5,351,250
2021	45,380	48,315	7,784	101,479	\$5,073,950
2022	44,453	52,663	7,713	104,829	\$5,241,450

## 12. Subfleet Usage

SUBFLEET	TOTAL NO.	% OF SUVs	MILES DRIVEN	FUEL USE (GAL.)	AVG. MPG
Public Safety SUV	186	75.6%	3,712,939	282,821	13.1
Other SUV	60	24.4%	1,197,722	77,148	15.5
TOTAL	246		4,910,661	359,969	

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#### 13. Fleet Fuel Economy

AVERAGE FUEL ECONOMY	FY19	FY20	FY21	FY22
Administrative Fleet	11.53	13.54	15.55	17.55
Public Safety Fleet	13.79	13.80	13.81	13.82

#### 14. SUV Inventory

DEPARTMENT	NUMBER OF SUVs	% OF TOTAL SUVs	DEPARTMENT	NUMBER OF SUVs	% OF TOTAL SUVs
Police Department	106	43.09%	Wheaton Urban District	2	0.81%
Transportation	41	16.67%	County Executive (CEX)	1	0.41%
Fire and Rescue	21	8.54%	Health and Human Services	1	0.41%
Environmental Protection	18	7.32%	Circuit Court	1	0.41%
Sheriff's Department	15	6.10%	Community Engagement Cluster	1	0.41%
Permitting	14	5.69%	Housing and Community Affairs	1	0.41%
General Services	6	2.44%			
Corrections	4	1.63%	Agriculture	1	0.41%
Technology & Enterprise Business Solutions (TEBS)	4	1.63%	Recreations	1	0.41%
			Silver Spring Urban District	1	0.41%
Animal Services	2	0.81%			0.449/
Office of Emergency Management	2	0.81%	State's Attorney's Office	1	0.41%
Alcohol Beverage Services	2	0.81%	TOTAL	246	100.00%

#### 15. County Fleet Fuel Use FY17- FY22\*

FISCAL YEAR	GASOLINE (GAL)	DIESEL (GAL)	CNG (GGE)	E85 (GAL)
FY17	2,025,519	2,844,699	1,869,598	3,600
FY18	1,988,933	2,954,040	1,832,508	13,272
FY19	2,048,651	3,135,724	1,899,935	17,101
FY20	1,935,348	2,481,628	1,366,016	21,131
FY21	1,764,660	2,417,298	1,248,317	16,592
FY22	1,817,688	2,746,702	1,306,845	23,657

Notes:

• County Fleet fuel use shows only fuel used by County-owned vehicles, does not include non-County fuel use.

FY22 increase attributed to post-COVID operations.

• Electricity for electric vehicles is not included as electricity is included with energy use for the facility portfolio.





#### OFFICE OF ENERGY AND SUSTAINABILITY DEPARTMENT OF GENERAL SERVICES

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