FY19

Montgomery County Green Government Report

DGS
Montgomery County DEPARTMENT OF GENERAL SERVICES
Delivering Great Service!

MONTGOMERY COUNTY
1776
MARYLAND

FEBRUARY 2020
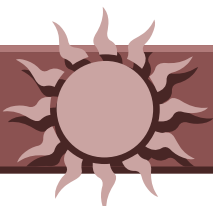
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The data and information in this report replaces information found in the FY18 Green Government Report published in March 2019. The information in this FY19 Green Government Report includes new information about FY18 green government operations that 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 with you the 2019 Green Government Report. Over the last fiscal year, Montgomery County Government departments continued to reduce greenhouse gas emissions in our facilities and fleets, maintain low emissions advanced energy generation, implement energy and water saving projects in County facilities and reduce waste while saving on utility costs.

Montgomery County has already taken important steps to environmental sustainability. I believe that government should lead by example. What we hope all businesses and residents will do, County government must also do—and do first. We must take responsibility for those things over which we have control. In FY19, Montgomery County:

► Upgraded lighting to highly efficient LED fixtures in County streetlights, garages and facilities;

► Completed energy efficiency projects in over 20 facilities, expected to save more than $870,000 annually;

► Installed low flow water fixtures in two facilities, expected to save over 1.3 million gallons of water annually;

► Purchased eight alternative fuel vehicles and four electric buses;

► Reduced waste by eliminating 8.2 million sheets of paper waste;

► Saved over $230,000 in utility bill recovery from billing mistakes; and

► Engaged the community in climate planning workgroups.

Under my Administration, we are undertaking a climate planning process to combat the climate emergency and meet our goal of 100 percent reduction of greenhouse gas (GHG) emissions by 2035. We are actively seeking public input on strategies through which the government, the business sector and County residents can help reduce GHG emissions. We can each be good stewards of the energy we consume, the products we use and the waste we produce.

Moving forward, we plan to do still more. In 2020 we are continuing to make our buildings more energy efficient, procure more electric vehicles and install large-scale solar. The County has more than 45 energy efficiency projects planned for County facilities over the next few years, plans to procure more electric buses to continue electrification of the bus fleet and is pursuing public-private partnerships to install a Smart Energy Depot at Brookville Bus Depot and a 6 megawatt solar project at Oaks Landfill.

I hope this report will inspire you to see how you can help and what you can do at your home and workplace. I look forward to working with you to continue making progress in combatting the climate emergency and preserving the County's natural resources.
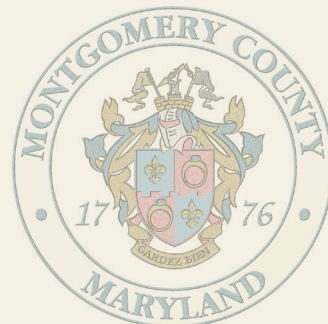
Solar panels at Rockville Library

CLIMATE & EMISSIONS

As of FY16, Montgomery County achieved carbon neutrality for its government facilities and fleet vehicle operations through combined energy efficiency, renewable energy investment and energy purchases.

Montgomery County…

► Purchases renewable energy credits to offset greenhouse gas emissions from its facilities/fleet;

► Purchases 100 percent of its annual electricity consumption from clean wind generation; and

► Leads a coalition of County agencies and municipalities to purchase electricity supply generated from wind energy. This purchase currently ranks fifth among local governments and 31st among all national purchasers tracked by the Environmental Protection Agency's Green Power Partnership.

Long term, the County will increase local renewable energy generation and energy efficiency to reduce the need for renewable energy credits. These advances will improve services, benefit local environmental quality and expand local clean energy industries. Montgomery County also incorporates the social cost of carbon — a measurement of the global environmental, health and economic impact of emitting a ton of carbon dioxide into the atmosphere — into decision-making.

Greenhouse Gas Emissions

According to the World Meteorological Organization, levels of heat trapping greenhouse gases in the atmosphere are at a record high.

► Montgomery County Council Emergency Climate Mobilization Resolution 18-974 adopted in December 2017 has set goals to reduce greenhouse gas (GHG) emissions 80 percent by 2027 and 100 percent by 2035;

► Despite a 6 percent increase in total square footage of County-owned facilities since FY14, GHG emissions have *decreased* 9 percent per square foot and 6.5 percent per streetlight since FY14; and

► Were no action taken to reduce emissions over this period, GHG emissions for facilities and streetlights would have been 10 percent *higher* than current levels.

Total County Operations Greenhouse Gas Emissions

Metric Tons

140,000

Projected emissions if no actions had been taken —

136,468

135,000

EMISSIONS   REDUCTION

130,000

129,608

127,392

125,000

FY 2014   2015   2016   2017   2018   2019
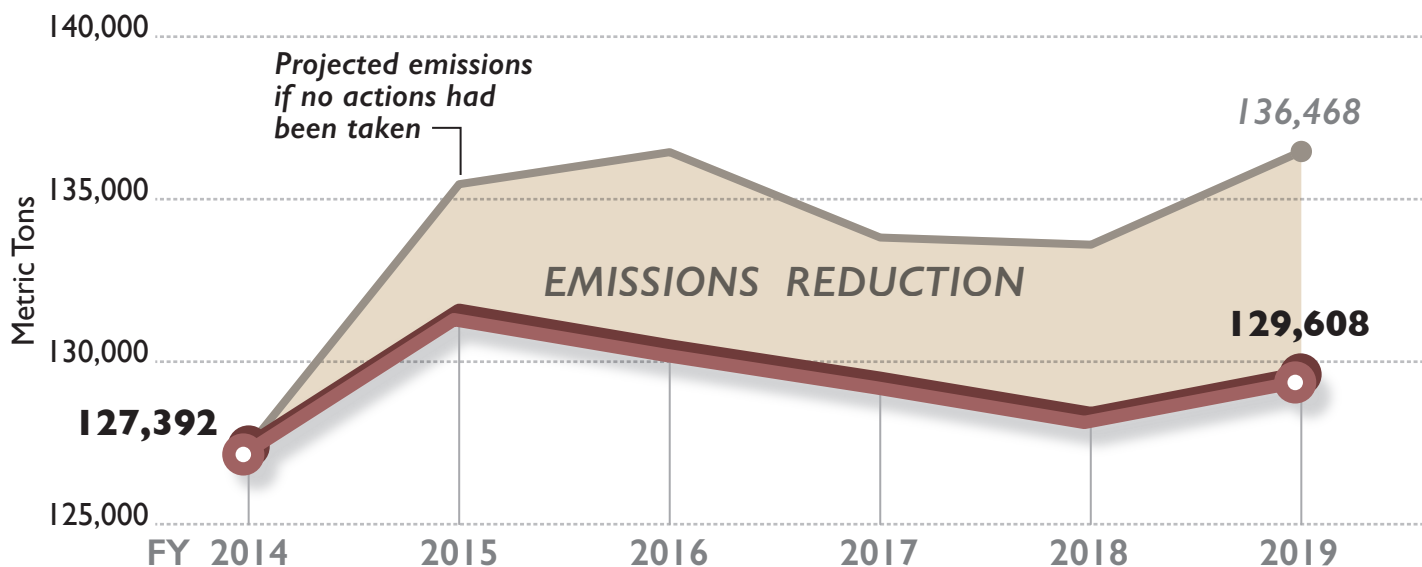
Total Emissions, by Source

(see page 4 for more information)

Traffic & Engineering
Fleet
Facilities

150,000

Metric Tons

	FY 2014	2015	2016	2017	2018	2019
Traffic & Engineering	4,805	4,405	4,511	4,511	4,526	4,489
Fleet	54,737	59,225	58,666	56,618	57,119	59,793
Facilities	67,850	67,911	67,267	68,320	66,719	65,326

125,000

100,000

75,000

50,000

25,000

0

FY 2014   2015   2016   2017   2018   2019
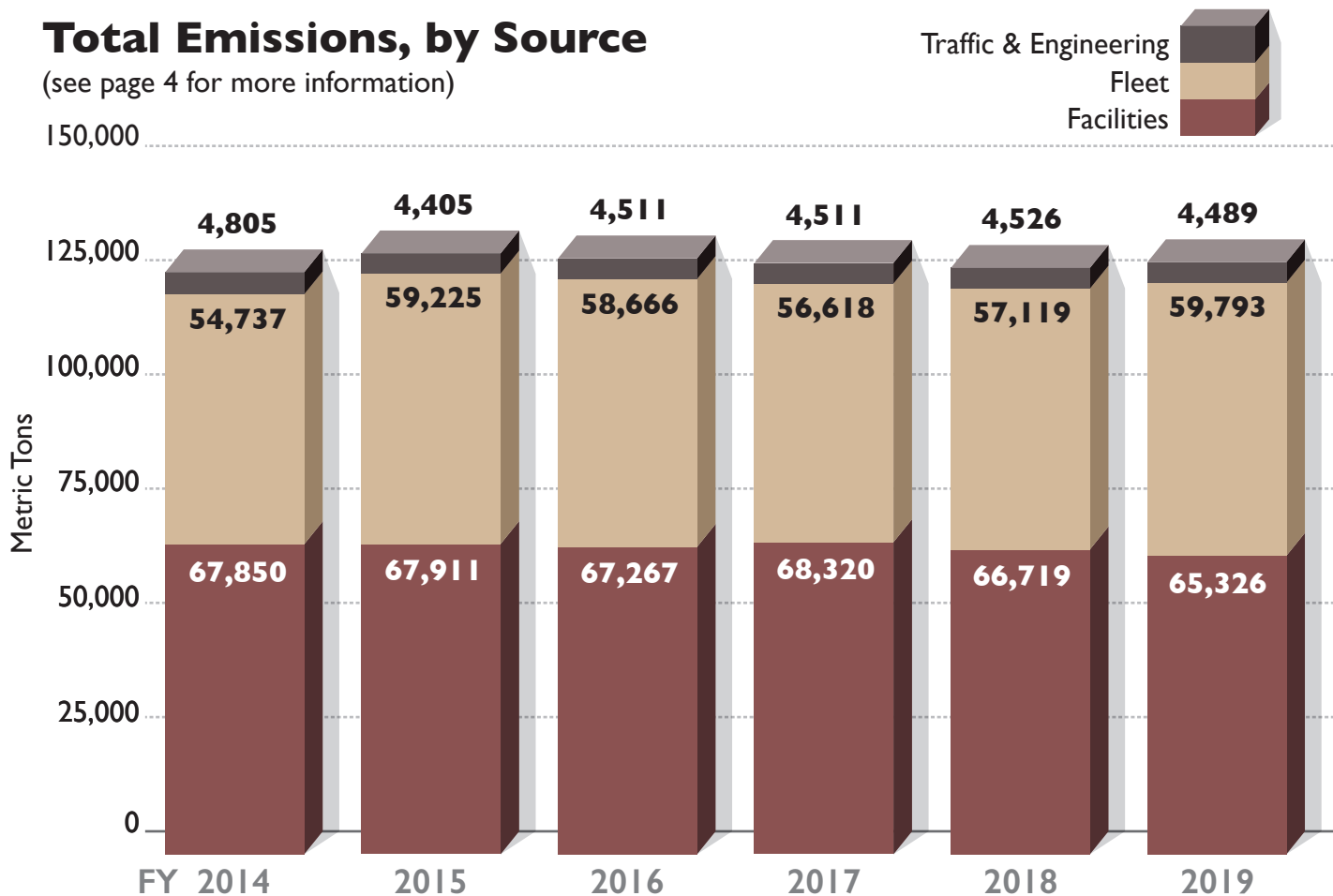
Note: Fleet emissions reported from County-owned vehicles only; does not include fuel sold to contractors or outside agencies. Facilities, streetlights and traffic signals that are leased by the County are not included in this inventory. GHG emissions calculations have changed from previous years to reflect MWCOG GHG emissions calculation methodology. "No action taken" levels are a projection of emissions calculated by using FY2014 GHG/sq. ft. and GHG/streetlight.

Advanced Energy Projects

Solar — The County continues to operate over 7.6 megawatts (MW) of solar on 16 County facilities with roof mounts, parking lot canopies and ground mounts, producing enough clean energy to power over 800 homes annually. Through grants, public-private partnerships and power purchase agreements, Montgomery County benefits from low-cost energy with no upfront costs or maintenance responsibilities for the solar photovoltaic (PV) systems. Additional facilities are being evaluated for future solar projects.

Solar panels at PSHQ

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 the Pre-Release Center and as part of the County's microgrid systems at Public Safety Headquarters (PSHQ) and Montgomery County Correctional Facility (MCCF). The CHP at these facilities produces up to 61 percent of the electricity usage of the facility and 5 percent of all County facility electricity use.

On-Site Electricity Generation

PSHQ

CHP **61%**

Solar **30%**

Electric Utility **9%**

All County Facilities

Electric Utility **89%**

Solar **6%**

CHP **5%**
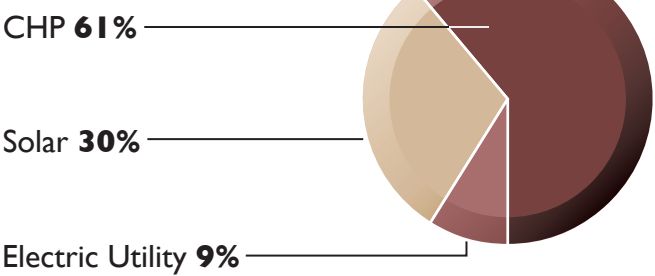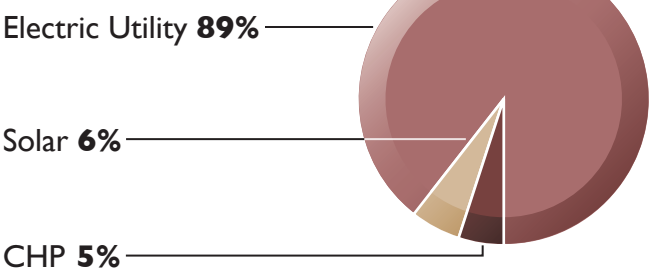
Resilient Facilities

Montgomery County is improving its ability to anticipate and quickly adapt to extreme weather, economic downturns and disasters. Reducing energy use and increasing on-site power generation at crucial facilities ensures Montgomery County can keep residents safe and provide needed services during power outages. These resilient County facilities also relieve pressure on 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.

Planned Resiliency Hub —
Montgomery County has been awarded a grant from the Maryland Energy Administration to develop a resiliency hub at Scotland Recreation Center in Potomac. The resiliency hub will be designed to provide electrical power for needs of the community in high-density low- and moderate-income areas during extended grid outages. The County plans to deploy advanced energy to enable community services, such as providing a place where residents can escape extreme temperatures, charge devices and other needed services during an emergency.

Microgrids — Microgrids are local power systems that use clean and low emissions energy sources, such as solar panels, 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 of the power grid during electrical outages by generating clean and low emissions power on-site and islanding from the public grid In 2018, microgrids were activated at PSHQ and MCCF, ensuring crucial operations continue during an outage and have capacity to produce an estimated 11 million kilowatt hours of electricity by solar and CHP per year.
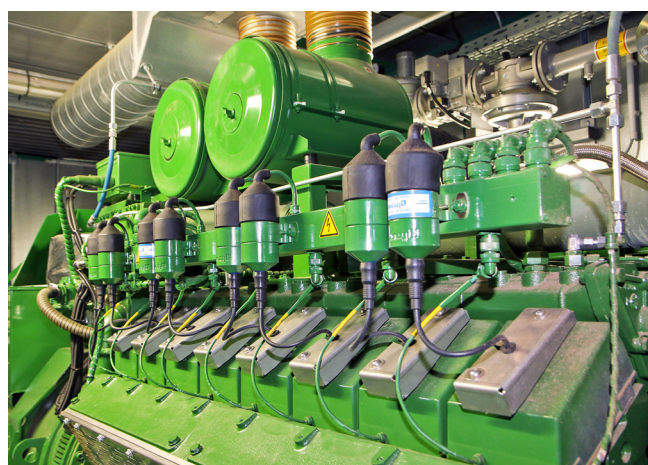
CHP unit at PSHQ

LED Lighting Upgrades

LED lights are substantially more energy efficient, versatile and last longer than incandescent and compact florescent lights. The County uses LED lights in new buildings and retrofits older buildings and streetlights where needed. FY19 Department of Transportation (DOT) and Department of General Services (DGS) Lighting Projects:

	Status	Estimated Annual Savings
Streetlights (DOT)	10,000 fixtures updated; total of over 25,000 planned to be updated by FY20.	$900,000 and 6.4 million kWh in electricity savings.
Garages (DOT)	Twelve garages fully upgraded with remaining nine garages planned to be upgraded.	$750,000 and 6.5 million kWh in electricity savings.
County Facilities (DGS)	Completed upgrades at Brookville Maintenance Depot, Bethesda Depot and Olney Indoor Swim Center; several facilities planned for FY20.	$130,000 and over 1 million kWh in electricity savings.* *Estimate is for completed projects only.

Wheaton Library and Community Recreation Center

GREEN BUILDINGS

Constructing Green Facilities

Since 2008, all new County buildings more than 10,000 square feet have been designed and constructed to achieve a minimum Leadership in Energy and Environmental Design (LEED) certification of Silver. As of FY19, Montgomery County has built two LEED Certified, eight LEED Silver and 13 LEED Gold buildings, with the addition of 2nd District Police Station earning LEED Silver certification in 2019. Wheaton Library and Community Recreation Center, opened in 2019, is pending a minimum of LEED Silver certification. In 2017, Montgomery County adopted the International Green Construction Code (IgCC) to replace the LEED requirements, which lowers the threshold to new commercial buildings over 5,000 square feet and increases emphasis on energy consumption and greenhouse gas (GHG) reductions.

Constructing LEED certified buildings has led to an average of* ...

► **85%** construction waste diverted from landfills;

► **19%** recycled materials used in construction;

► **44%** sustainably harvested wood used in construction;

► **25%** locally manufactured/extracted materials used in construction;

► **36%** reduction in water use over baseline levels; and

► **21%** reduction in energy use over baseline levels.

*Percentages are an estimated average of County LEED certified buildings constructed since 2008, according to USGBC's rating system.
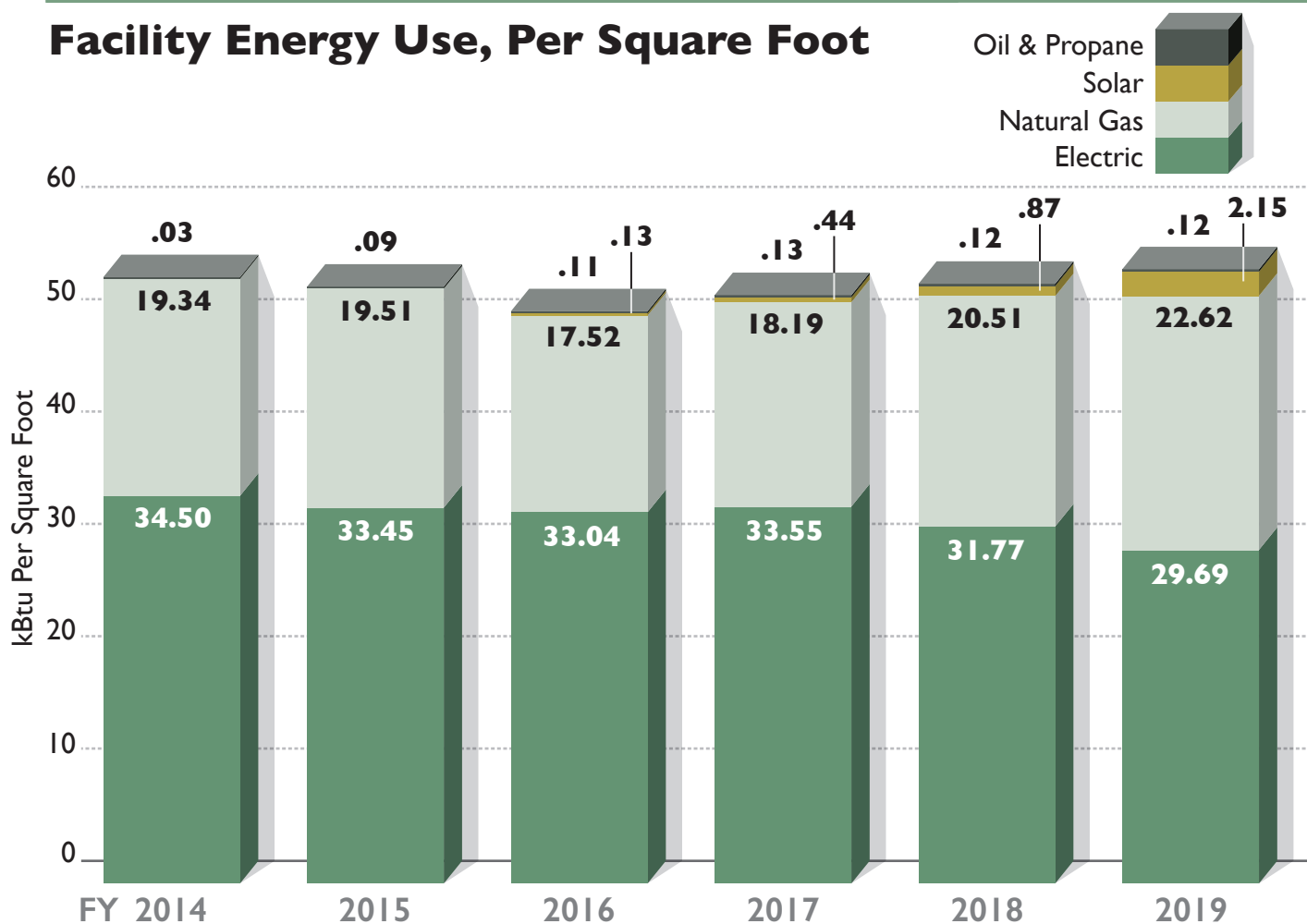
Greener Energy Supply

The commercial sector, including government facilities, accounts for more than one-third of U.S. electricity consumption and 17 percent of carbon dioxide emissions from fossil fuel consumption. (Source: EPA.gov)

County facilities are increasingly being powered by cleaner fuels:

► The use of the public electric grid to power County buildings has decreased 16 percent, with the use of natural gas and solar increasing. Natural gas emits about 50 percent less greenhouse gases compared to the public electric grid, according to Metropolitan Washington Council of Governments GHG Inventory;

► The increase in natural gas is due to combined heat and power (CHP) units at three County facilities. These CHP units produced over 5 million kilowatt hours (kWh) of energy in FY19 and can achieve efficiencies of over 80 percent, compared to 50 percent for typical technologies (Source: EPA.gov); and

► Solar photovoltaic (PV), with the first County installations in 2012, is now accounting for 4 percent of facility energy use per square foot. In FY19, solar on County facilities produced over 6.6 million kWh of clean energy.

Facility Energy Use, Per Square Foot

Legend: Oil & Propane, Solar, Natural Gas, Electric

	FY 2014	2015	2016	2017	2018	2019
Oil & Propane	.03	.09	.13	.44	.87	2.15
Solar			.11	.13	.12	.12
Natural Gas	19.34	19.51	17.52	18.19	20.51	22.62
Electric	34.50	33.45	33.04	33.55	31.77	29.69

kBtu Per Square Foot (y-axis: 0 to 60)

Note: Energy use per square foot is shown for County-owned facilities only.

Wheaton Library and Community Recreation Center

This new facility combines the library and recreation center into one building, eliminating redundant spaces and allowing for reuse of the existing site. The facility, opened in September 2019, is pending a minimum of LEED Silver certification with the following features:

► Three thousand square feet of intensive vegetative roof;

► Twenty-three environmentally sensitive devices to capture and treat stormwater;

► Highly efficient LED lighting and daylighting throughout the facility;

► Low-flow toilets, urinals and showerheads and metered faucets;

► Reduced energy consumption by a four-pipe, high-efficiency variable air volume system with heat recovery and free-cooling outdoor air economizer cycle;

► Four electric vehicle charging ports, access to bike racks and walkable sidewalks;

► Low-emitting and durable paints, adhesives, sealants and carpet systems;

► Enhanced commissioning services for heating and cooling (HVAC), and building envelope systems;

► Estimated energy savings of 21 percent over baseline levels;

► Estimated water savings of 38 percent over baseline levels;

► Ballfield and playground areas with tire-free, virgin rubber surfacing; and

► Designed to be solar PV- and CHP-ready for future installation.

Energy Management

Data Analysis — Montgomery County closely monitors utility bill data of more than 400 buildings to identify opportunities to improve 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.

Energy Sweeps — DGS conducts site visits of facilities identified for potential projects to collect more detailed information and look for opportunities for savings related to HVAC, lighting, water usage and operations. In FY19, energy sweeps were conducted in 11 County facilities.

Energy Efficiency Projects — After data analysis and detailed audits of the facilities, the County identifies low-cost energy-efficiency projects and prioritizes the projects based on timing and funding to yield the most energy savings at the greatest economic benefit. Examples of energy efficiency projects include HVAC upgrades, lighting retrofits and water conservation.

Energy Savings Performance Contracting (ESPC) — ESPC is an approach and funding mechanism to make major building improvements that reduce energy and water use and increase operational efficiency without upfront capital costs. Montgomery County partners with ESPC companies to pay for facility upgrades with future energy savings. The company conducts an energy audit of the targeted facilities and develops recommendations for energy conservation measures. ESPC projects have been completed in eight facilities since FY15, with an additional eight in progress expected to be completed in FY20. ESPC projects have saved the County over $2.1 million in energy costs since FY15.

Signature Energy Saving Initiatives

Montgomery County pilots innovative initiatives to save energy and water relating to County operations:

Behavioral Campaigns — County departments run campaigns to engage employees in green behavioral campaigns. The Department of Technology Services (DTS) and DGS are currently implementing a power management campaign to ensure that electricity is not wasted by devices when not in use. Current initiatives include a pilot of a 10-minute monitor sleep policy and an education campaign targeting computer shutdown overnight.

Earthlifts — Fleet now uses Earthlift vehicle lifts, which are 35 percent more energy efficient than traditional lifts by generating energy as the vehicle lowers. These lifts also use biodegradable oil and recyclable batteries and are wireless, improving workplace safety.

WorkGreen — WorkGreen is an employee engagement program piloted by DGS and the Department of Environmental Protection (DEP) to encourage staff to take ecofriendly actions at work and home. DEP started the first employee green team in 2017. Among many green initiatives in FY19, they partnered with LiveWell and other departments to host a Spread the Green fair, raising awareness and providing resources for greening daily operations. DEP also piloted initiatives to recycle non-organic office items and collect food scraps for composting in their offices.

Montgomery County Electric Ride On Bus

TRANSPORTATION

Green Fleet

Through an annual sport utility vehicle (SUV) inventory, DGS 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's fleet of over 3,000 vehicles has 341 SUVs (207 for public safety and 134 for administrative uses). The DGS Division of Fleet Management Services is also working to eliminate low-usage vehicles in the Fleet and replace them with mobility services such as shared use vehicles.

Alternative Fuel Vehicles

Montgomery County continuously seeks opportunities to green the County fleet, reduce fuel consumption and use alternative fuel vehicles that emit fewer greenhouse gas (GHG) emissions. The County has made extensive use of alternative fuels with the fleet currently consisting of 38 percent alternative fuel vehicles, including electric, compressed natural gas (CNG), E85 (ethanol) and hybrids. CNG is used as an effective, lower emissions 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.

Did You Know?

The County's green fleet includes:

► 40 all-electric vehicles (EVs) and over 250 hybrid vehicles;

► 8 alternative fuel (electric or hybrid) vehicles purchased in FY19;

► 41 percent CNG and diesel hybrid buses in the bus fleet; and

► As of FY19, 182 vehicles are now outfitted with idle reduction technology.
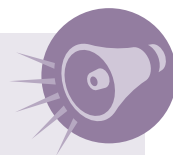
Additionally, the County has acquired its first electric buses, purchased through a grant from the Federal Transit Administration to replace diesel buses, resulting in lower fuel costs, improved reliability, and reduced GHG emissions.

County Fleet Fuel Use

Billions of Btu

Legend: Gasoline, Diesel, CNG, E85

400 · 350 · 300 · 250 · 200 · 150 · 100 · 50 · 0

FY 2014   2015   2016   2017   2018   2019

Non-County Fuel Use

Billions of Btu

(*Negligible)

75 · 50 · 25 · 0

FY 2014   2015   2016   2017   2018   2019
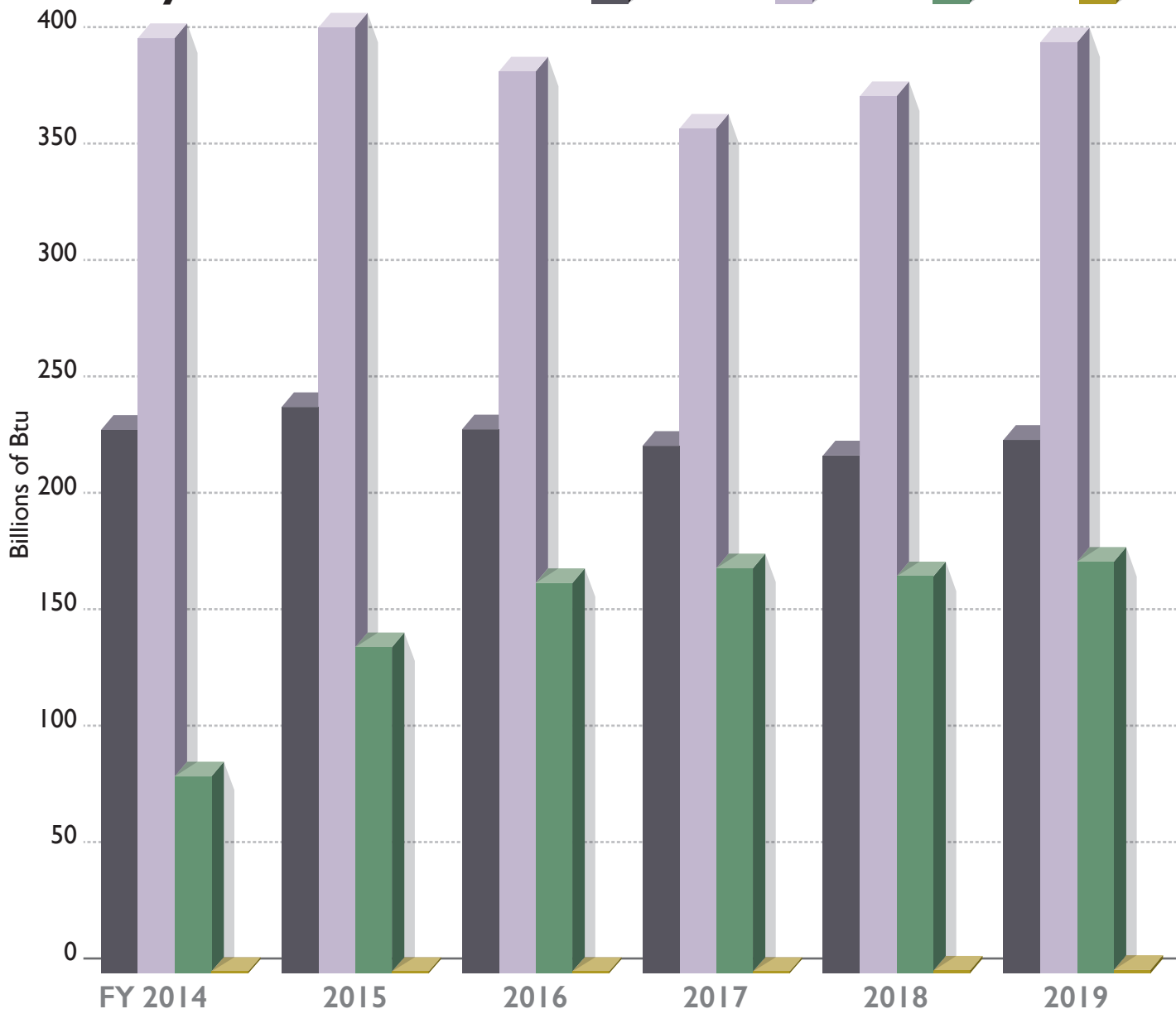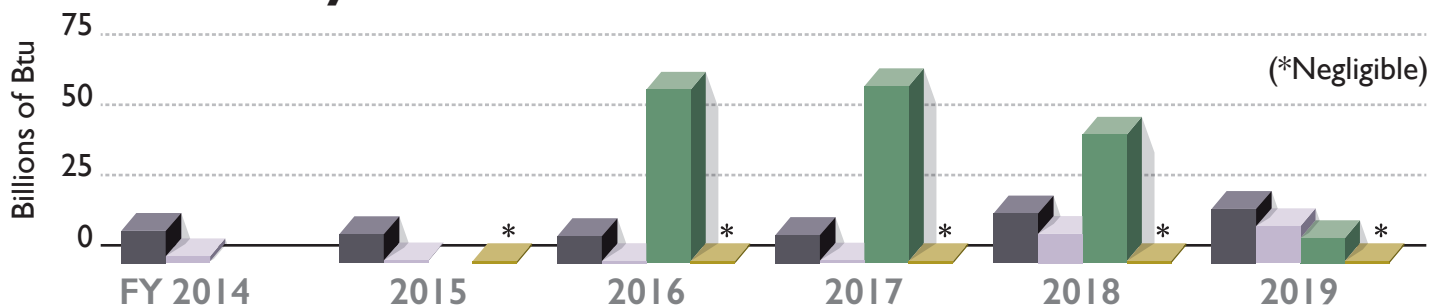
Note: County Fleet fuel use shows only fuel used by County-owned vehicles. Non-County fuel use shows fuel sold by the County fleet to outside agencies and contractors. Electricity for electric vehicles is included with energy use for the facility portfolio and not included here. The CNG data for FY14 is incomplete due to relocation of the CNG fueling site.

GHG Emissions Per Vehicle, by Fuel Source

Legend: Unleaded, Diesel, CNG

Metric tons per vehicle

Fleet total:

Fuel Source	FY 2015	2016	2017	2018	2019
Total	20.38	19.86	18.80	18.58	19.36
Unleaded	7.03	6.64	6.32	6.08	6.23
Diesel	10.46	9.81	9.01	9.16	9.69
CNG	2.90	3.41	3.47	3.33	3.44

Notes: The CNG data for FY14 is incomplete due to relocation of the CNG fueling site. Electricity used to charge electric vehicles is currently included with facilities' GHG emissions and is not shown. GHG emissions from E85 fuel vehicles is too small to be shown.

Fuel Use

► The transportation sector accounts for 29 percent of total U.S. GHG emissions. Alternative fuels such as CNG, ethanol and electric generate fewer GHG emissions than gasoline and diesel; (Source: EPA.gov)
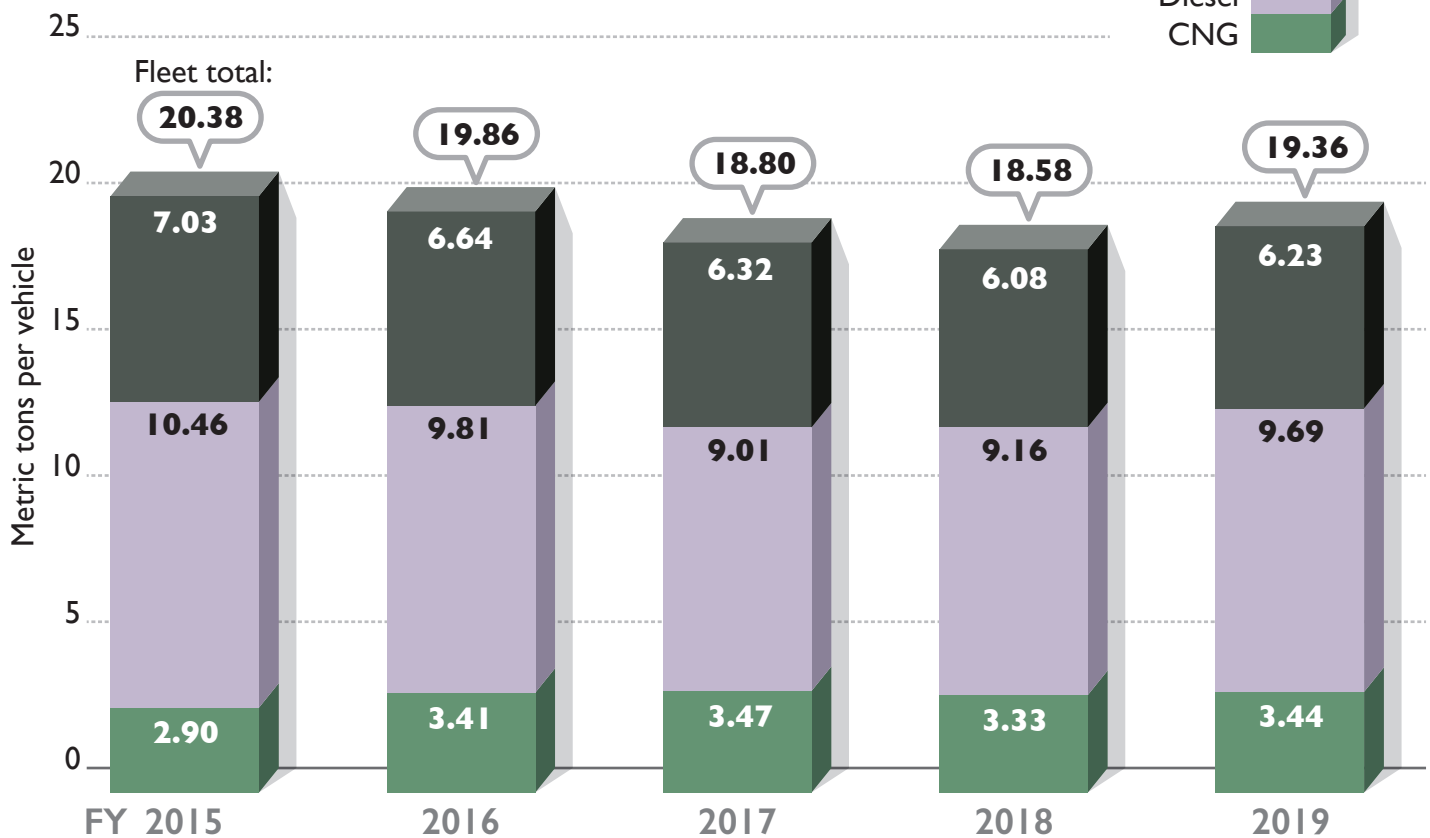
► Montgomery County aims to reduce petroleum use 20 percent from the 2014 baseline in County Fleet by 2020;

► Overall GHG emissions from County fleet have remained flat despite a portfolio of vehicles that has grown over 6 percent the past five years;

► GHG emissions per vehicle have decreased 5 percent since FY15 due to increased use of alternative fuel vehicles; and

► Average GHG emissions per vehicle has decreased by 11 percent from gasoline and 7 percent from diesel use since FY15.

Electric Vehicle Charging

The Division of Fleet Management Services operates 23 charging stations (with capacity to charge from 42 ports) at 13 County facilities with the addition of two new charging stations in FY19. Additionally, the Department of Transportation (DOT) operates 16 charging stations, each with two charging ports, open for public use in Bethesda and Silver Spring parking garages. Installation of an additional seven new EV charging stations in garages is planned for next year. Over 25,000 sessions were recorded by DOT charging stations in FY19.

Electric Buses — Infrastructure has been installed at Brookville Bus Depot and the Equipment Maintenance and Transit Operation Center (EMTOC) to support the charging of the first 14 buses. Service using the first electric buses is expected to begin in 2020. With plans to purchase more electric buses in the next few years, the County issued a Request for Energy Proposals seeking a public-private partnership to develop additional electric bus charging infrastructure at Brookville Bus Depot as a Smart Energy Depot. The Depot currently houses and services over 200 County Ride On buses.

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 Bikeshare membership;

► Access to Commuter Connections regional ridesharing program; and

► Reimbursement for regular public transit use through the Montgomery County Get-In program.

Telework Program — The Office of Human Resources (OHR) offers a telework program in which participating employees telework one day per week or on an as-needed basis. In FY19, 285 employees participated in the telework program, reducing miles driven and GHG emissions.

Teleconferencing — DTS ensures County staff have the tools they need to collaborate and work remotely, including Skype for Business. Departments with staff in multiple locations are replacing in-person meetings and training with online options. For example, DTS uses Skype for bi-monthly staff meetings. Additionally, the OHR LiveWell program uses teleconferencing for monthly Wellness Champion meetings, and Montgomery County Public Libraries (MCPL) uses online training evaluations and is moving training classes and meetings to online platforms.

Encourage Bike Commuting by...

► Constructing bike lanes in White Flint, Silver Spring and Bethesda, making biking safer and more convenient;

► Providing 84 Bikeshare stations throughout the County; one new station was installed in FY19 at the new Wheaton Library and Recreation Center;

► Providing 98 bike racks with capacity to secure 198 bikes at DOT parking garages; in FY19, 11 bike racks were added in garages; and

► Registering 2,049 people in Bike to Work Day, a 13 percent increase over last year.

Promote Bus Commuting

Ride On extRa Service — A faster option for commuters offered on Route 355 by making only 13 stops between Lakeforest Transit Center and Medical Center Metro Station. The specially branded buses have WiFi, USB charging and extra padded seats. Ridership has exceeded the projected figures at over 1,900 daily riders in FY19.

Planned Bus Rapid Transit (BRT) — The BRT system called the FLASH will operate along U.S. 29 as a new service to provide a high-quality, environmentally friendly transit alternative for commuters. The first line is scheduled to open in 2020 with additional lines being planned and designed. The BRT is funded in part by a $10 million grant by the U.S. Department of Transportation.

WATER CONSERVATION

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

Montgomery County works to conserve water by auditing high water-use buildings to identify opportunities for savings through installation of high-efficiency fixtures and other improvements.

► Low-flow fixtures, such as faucet aerators, water-saving showerheads, toilets and urinals, reduce water use and costs while remaining efficient. Montgomery County installs low-flow fixtures in new construction buildings and updates fixtures where needed in existing facilities;

► The County completed installation of low-flow fixtures at the Circuit Court and Public Safety Headquarters (PSHQ) in FY19, expected to save over 1.3 million gallons of water and $28,000 in water costs annually; and

► Previous water conservation efforts at Strathmore Concert Hall, including low-flow fixtures and modifications to the steam humidifiers and reverse osmosis system, have resulted in over 8.8 million gallons and $132,000 in water savings in FY19.

Did You Know?

The County installed a cooling tower at PSHQ in FY19. The new tower upgrades the cooling capacity of the existing heating and cooling system. In the past, PSHQ used nearby lake water to condense the refrigerant in the facility's chillers. The cooling tower provides environmental benefits, including eliminating hot water discharge back into the lake. It also stabilizes condenser water temperature, provides cleaner water to the chillers and reduces the risk of a system failure that could contaminate lake water.

Pollution Prevention

Tree Planting — Montgomery County continues to expand the tree canopy across the County's portfolio of facilities. Trees reduce pollution in stormwater, greenhouse gas emissions, air conditioning needs and the heat island effect, while also improving air quality and increasing biodiversity. In FY19, trees were planted at Kensington Park Library and Connie Morella Library. DEP and DGS are identifying the most beneficial facilities for future tree plantings with plans underway for plantings at the Animal Services and Adoption Center, and other facilities.

Washdown of Parking Spaces — To reduce pollutants washing into local streams and rivers, DOT washes and degreases parking spaces in 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.

Washdown of Equipment — After every winter event, DOT cleans all snow equipment at an enclosed truck wash. The wash material is captured through a grate system and deposited into a containment tank. The tank contents are transported to a disposal site managed and certified by DEP and Washington Suburban Sanitary Commission.

Water Sub-Metering

The County has installed water sub-meters, on the cooling towers at 10 County facilities and two pools. Sub-meters 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 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. Sub-meters measure how much of the water entering into the cooling tower or pool ends up going into the sewer system and deducts the sewer treatment cost for the water that evaporates, saving significant costs on utility bills. In FY19, these sub-meters saved the County over $120,000 in sewer charges.

Stormwater Management

Montgomery County treats all stormwater in new construction according to State and County regulations, capturing 90 percent of the average rainfall and removing 80 percent of pollution. The County also 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 — These 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.

Stormwater Management (SWM) Facilities — By using 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 1,900 SWM structures on County property, an increase of 500 in FY19.

In FY19, DEP replanted several SWM facilities that were lacking vegetation to improve function and esthetics, and reduce maintenance costs. Thousands of native plants were installed as part of a workforce development collaborative effort with Montgomery County Conservation Core to encourage youth to pursue stormwater management as a career path.

Below: Filtration plants in a drainage bed at Wheaton Library and Community Recreation Center

County Facility Water Use

Gallons Per Square Foot

15

10.88 **10.57** **11.65** **13.33** **11.21** **11.60**

12

9

6

3

0

FY 2014 | 2015 | 2016 | 2017 | 2018 | 2019

Pool Water Use

Millions of Gallons

50

36.59 **45.20** **33.28** **32.60** **28.96** **33.61**

40

30

20

10

0

FY 2014 | 2015 | 2016 | 2017 | 2018 | 2019
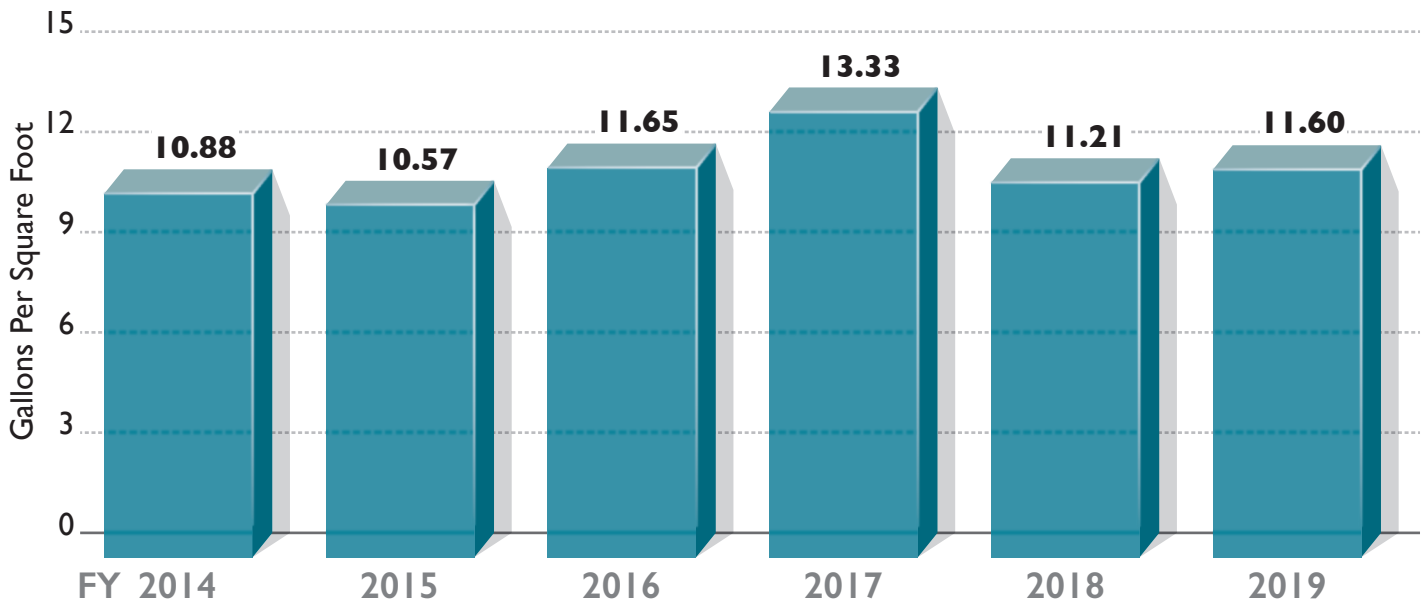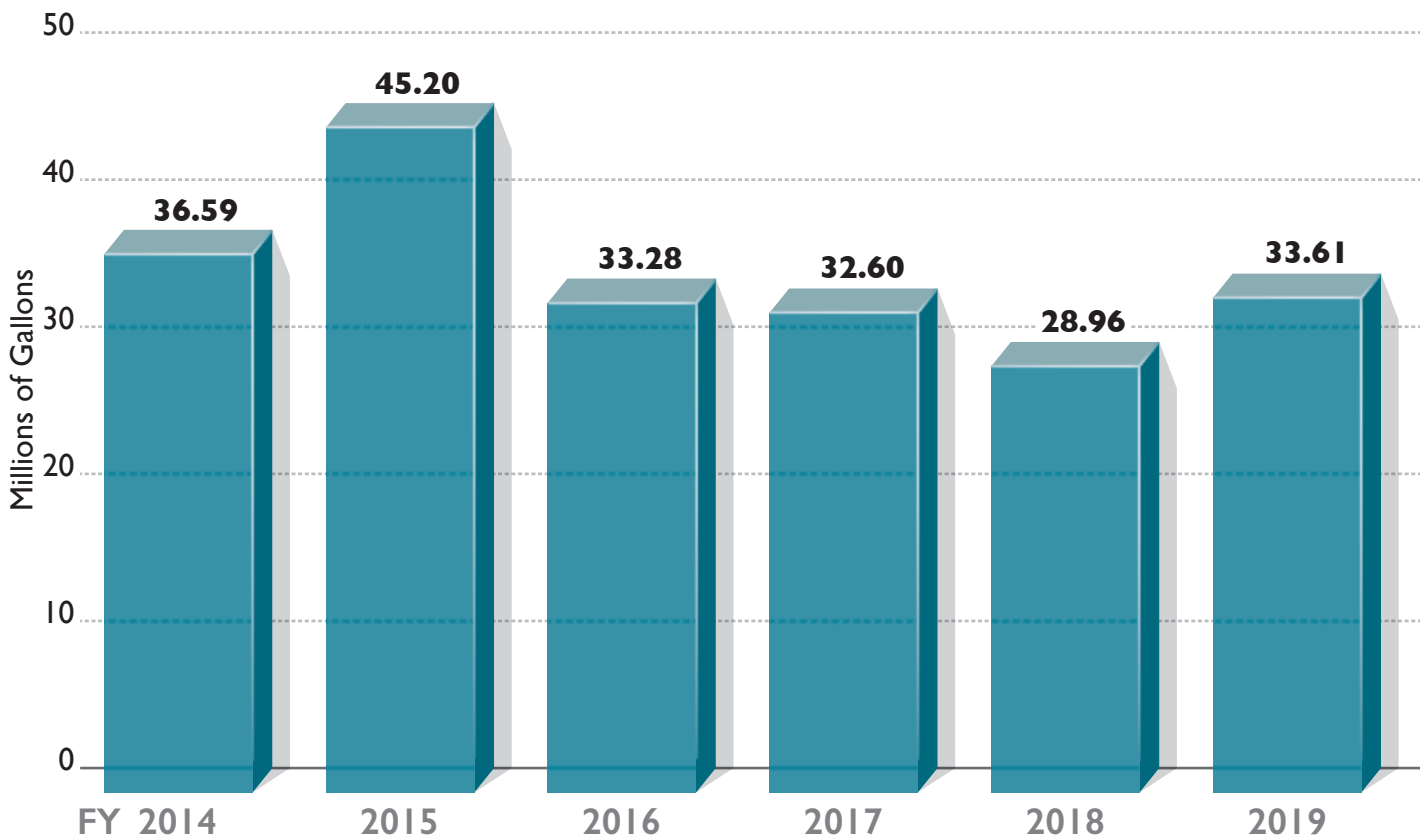
Note: County facility water use shows all County-owned facilities, not including pools. Pool water use is shown separately in millions of gallons. Increased hours of operations and construction of high-water usage facilities have led to increased water use per square foot.

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 in facilities, Montgomery County reduces waste going to landfills by:

Reducing Paper Use

► More than 8.2 million sheets of paper waste were eliminated in FY19 through the County's print management system and the Department of Permitting Services' (DPS) conversion to an electronic permit application and review system called ePlans. The ePlans system has saved more than 22.7 million sheets of paper since FY14, saving 3,700 trees;

► MCPL has eliminated the use of printed mailers and now uses phone/text notifications. In addition, MCPL is using self-checkout machines with the option for no printed receipt, along with digitizing

Did You Know?

The average person in the United States generates 4.48 pounds of municipal solid waste per day. In 2015, 52.5 percent of municipal solid waste went to landfills.

Source: EPA.gov

communications in Collections Management and eliminating printed agendas in meetings;

► The Department of Finance is replacing paper forms for property tax refunds and credit applications with electronic forms. The Controller Division has also implemented new software that increases efficiencies and reduces the use of paper and other supplies, such as binders; and

► The Print Shop now uses 100 percent recycled paper.

Electronics Recycling

► DTS recycles or refurbishes 100 percent end-of-life computer equipment, including 903 PCs, 1,000 monitors, 100 printers and 30 servers in FY19;

► The Police Department recycles its old communication devices, including 813 in FY19, totaling over $26,000 in buybacks; and

► MCPL repurposed old computers from self-checkouts.

Police Department

► Through the Police Vehicle Recovery Station, over 2,000 unclaimed vehicles were sold at auction in FY19 for reuse or to scrap processors; 1,350 auction vehicles went to scrap processors for materials to be recycled, totaling more than 1,600 tons of recycled metal; and

► Police shooting range facilities recycle ammunition casings, totaling over 7,700 pounds of brass recycled in FY19.

Fleet Depots

► Recycled more than 320,000 pounds of scrap metal, recovering over $25,000 in FY19; and

► Recycled more than 33,000 gallons of oil and 10,000 gallons of antifreeze in FY19.

Food Scraps Recycling

DEP operates a pre-consumer food scrap recycling collection program at the Executive Office Building, Council Office Building and Public Safety Headquarters, which diverts more than 25 tons of food scraps each year. The program has diverted 162 tons of food scraps from the waste stream since its inception.

Construction and Demolition Waste

► In new building construction, approximately 85 percent of waste has been kept out of landfills since 2012 through recycling, repurposing and reusing materials; and

► Over 850 tons of materials were recycled from the demolition of the County's former Site II property, representing a 92 percent waste diversion from landfills.

Below: Demolition of County's former Site II

FINANCIAL IMPACT

Montgomery County continuously seeks to reduce greenhouse gas emissions while saving taxpayer dollars and using innovative funding sources to reduce costs for advanced energy and energy-saving 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 funds from billing mistakes for utilities and contractor use during building construction: $230,000 in FY19 and over $1.2 million since FY13;

► **Water Sub-meters** — Installed water sub-meters on cooling towers of 10 facilities and two pools showing the amount of water lost to evaporation and resulting in reduced sewer charges: $120,000 in FY19, over $640,000 since FY13;

► **Demand Response** — Participated in demand response, reducing energy demand in select buildings during the period of peak energy demand: $26,000 in FY19, over $280,000 since FY13;

► **Solar** — Secured solar power purchase agreements from solar panels installed on County facilities: more than $270,000 in FY19, over $1 million since FY13;

Did You Know?
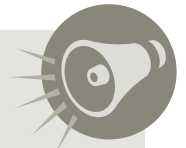
Montgomery County's current solar photovoltaic (PV) systems are expected to save $10 million in electricity costs over 20 years, in addition to providing clean, renewable energy.

► **Energy Efficiency Projects** — Saved on utility costs from energy savings projects in County facilities: over $870,000 estimated savings from projects completed in FY19, over $2.5 million estimated savings annually, and more than $6 million cumulative saved since FY13; and

► **Energy Purchasing** — Negotiated an electricity supply contract in 2018: expected to save $1.3 million in electricity costs per year for two years.

Grants and Incentives Received

The County identifies and applies for grants and incentives to complete energy efficiency projects in facilities through advanced energy projects such as solar and combined heat and power (CHP) and green fleet efforts. Many of these grants 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 $4 million in grants and incentives for energy- and fuel-saving projects with an additional $3.5 million expected in FY20.

In FY19, more than $400,000 in grants and incentives were received for lighting and controls, monitoring-based commissioning (MBCx), heating and cooling (HVAC) replacements and installation of the CHP systems, and solar and electric vehicle (EV) chargers as part of the microgrids. Additionally, DOT received approximately $900,000 in incentives for streetlight upgrades in FY19 with a total of over $4 million expected.

Legend:
- DOT Streetlights
- Building HVAC, MBCx, Other
- Green Fleet
- CHP, Solar, EV Chargers
- Lighting and Controls

Chart values:
- FY 2014: $643,957
- 2015: $721,705
- 2016: $739,927
- 2017: $89,873
- 2018: $222,234
- 2019: $1,306,250
- 2020: $3,583,517
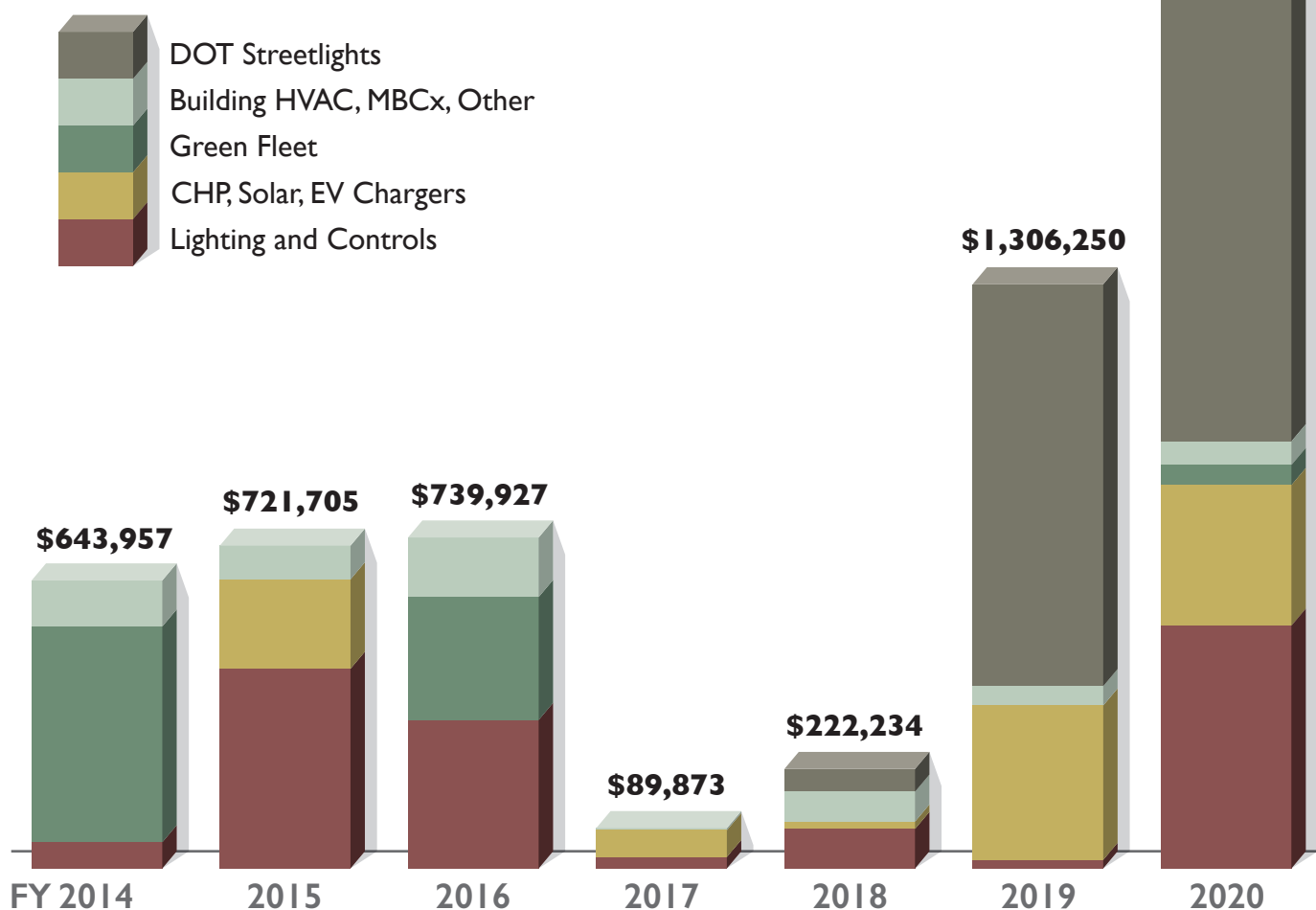
Note: Figures for 2020 are projections. Grants and incentives are not always received in the year they were applied for; for this reason; as a result, some years appear to have received less than others due to project lead time and complexity.

Public-Private Partnerships

Montgomery County uses Public-Private Partnerships (P3s) to install advanced energy generation on County facilities with no upfront cost. Since 2013, the County has installed more than 7.2 megawatts (MW) of solar PV and 1 MW of CHP though P3s. The County benefits from low-cost energy with no maintenance responsibilities for these systems and seeks to develop two future P3s for advanced energy projects:

► In an effort to mobilize brown fields and the built environment for clean energy production, we are seeking a third party to install a 6 MW solar energy project with 2 MW intended for County operations and 4 MW intended for community solar with a portion for low- and moderate-income households on the Oaks Landfill; and

► We are seeking a P3 for a third party to implement advanced energy infrastructure onsite at the Brookville Bus Depot to support charging of the County's bus fleet. The County is installing charging infrastructure for our first 14 electric buses but seeking to prepare the site for additional future buses operating from the facility.

Public Safety Headquarters

COMMUNITY ENGAGEMENT

Climate Planning

Montgomery County launched a planning process to develop prioritized actions and strategies to meet the County's greenhouse gas (GHG) emissions reduction goals in 2019. In these efforts, government leads by example in reducing GHGs in its facilities and fleet. The County intends to finalize a Climate Action Plan by December 2020 that will provide a roadmap to achieve carbon neutrality and will also include recommendations for adapting to a changing climate. To help the climate planning effort, Montgomery County began convening technical workgroups in 2019 to review past climate reports and plans developed by the County, as well as best practices from other jurisdictions. The workgroups involve County

Montgomery County Executive Marc Elrich

staff members from DEP, DGS, DOT, Office of Emergency Management and Homeland Security (OEMHS) and other departments, and more than 100 community members from industry, non-profits, academia and other municipalities. The workgroups will recommend strategies that have high potential to meet the County's GHG reduction goals equitably and identifying data and knowledge gaps. The technical workgroups include: Building Technical, Clean Energy Technical, Transportation Technical, Climate Adaptation and Sequestration and Public Engagement/Education. The County worked with the Metropolitan Washington Council of Governments to complete a GHG inventory for the years 2005, 2012 and 2015. Additional inventories are planned for future years.

(Continued from previous)

In FY19, eleven staff members from seven different County departments completed the Maryland Climate Leadership Academy training to expand knowledge and skills related to climate planning. The County also convenes a monthly Climate Leadership Team. The team consists of leadership and staff from departments that play important roles in combating climate change through their program, services and operations. Each quarter, the meetings include interagency and municipality partners to discuss and coordinate on climate change issues.

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 in renewable energy, improving the resiliency of facilities and operations, and financing major energy projects. Staff also leads tours of advanced energy projects on County facilities.

County departments engage the community on greening initiatives and educational opportunities through public events. In February 2019, DEP hosted a Storm Drain Art Contest that used creative art to emphasize the connection between storm drains, streams and the Chesapeake Bay. Participants painted storm drains with educational messages, reminding the community about important water quality issues.

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 and the U.S. Green Building Council National Capital Region hosted their 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.

Additionally, in FY19 DOT hosted a "Traffic Garden" for children in Kensington. At this event, called "Cycling in the Circle," children practiced navigating roadways safely, applying bicycle and helmet safety, and encouraged children to learn about biking as a form of transportation.

DEP also hosted its annual GreenFest at Brookside Gardens during Earth Month. GreenFest is devoted to helping Montgomery County residents explore their path to a greener life. DGS hosted a booth at GreenFest sharing the County's green initiatives in buildings, operations and fleet.

MLS LEADS Program Tours

The MLS LEADS Program supports development of Management Leadership Service (MLS) by providing learning opportunities for managers within the County. The program also targets organizational performance leading to better services provided to residents. In FY19, the program gave managers the opportunity to tour the County's green operations facilities, including the Recycling Center in Derwood and the Equipment Maintenance and Transit Operations Center (EMTOC) in Gaithersburg. These tours showcased 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, giving more than $300,000 to charities during the 2019 campaign. 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.

Did You Know?

Each year, DOT participates in PARK(ing) Day, which temporarily transforms on-street parking places into fun, park-like spaces. PARK(ing) Day is a worldwide event that encourages people to rethink their transportation choices. This activity supports walkable, bikeable and transit-oriented infra-structure while stimulating conversations about the use of urban landscape.

DATA TABLES

In an effort to merge and consolidate reporting to save paper and increase efficiency, this document includes data that was historically reported under the annual Resource Conservation Plan.

Note: CRC stands for Community Recreation Center; NRC stands for Neighborhood Recreation Center.

1. Advanced Energy Projects

County Facility	Completion Date	Type	Power (kW)	Energy Generation FY18 (kWh)	Savings FY18	Energy Generation FY19 (kWh)	Savings FY19
Projects Self-Funded by Montgomery County							
Shady Grove Transfer Station	2012	Solar Rooftop	280	350,000	$42,000	350,000	$42,000
Equipment Maintenance and Transit Operations Center	2012	Solar Rooftop	74	93,758	$11,251	93,758	$11,251
Circuit Court South Tower	2013	Solar Rooftop	12 (est.)	15,144	$1,817	15,144	$1,817
Projects Made Possible by Power Purchase Agreement Through Public-Private Partnership							
Pre-Release Center	October 2016	CHP	65	n/a	n/a	282,747	$10,350
Montgomery County Department of Liquor Control	February 2016	Solar Rooftop	1,120	1,102,090	$75,876	421,986	$27,007
Rockville Library	February 2016	Solar Rooftop	88	89,288	$7,473	61,148	$4,464
Potomac CRC	March 2016	Solar Rooftop	55	27,559	$2,356	29,320	$2,258
Jane Lawton CRC	March 2016	Solar Rooftop	41	39,823	$3,688	24,650	$2,095
Silver Spring Civic Building at Veterans Plaza	March 2016	Solar Rooftop	39	30,669	$2,516	20,059	$1,484
Gaithersburg Library	April 2016	Solar Rooftop	220	249,970	$21,751	173,539	$13,363
Upcounty Regional Services Center	May 2016	Solar Rooftop	54	64,249	$3,470	65,921	$3,560
Fire Station No. 31	January 2017	Solar Rooftop	37	34,466	$2,888	16,739	$1,440
Council Office Building	March 2017	Solar Rooftop	32	36,106	$199	28,136	$197
Montgomery County Correctional Facility	May 2017	Solar Ground Mount and Rooftop	2,665	1,420,397	$108,906	2,495,232	$142,228
Holiday Park Senior Center	June 2017	Solar Canopy	350	181,255	$18,981	180,353	$12,264
Kidstop Childcare Center	June 2017	Solar Rooftop	31	32,124	$2,993	27,209	$2,231
Public Safety Headquarters	July 2018	Solar Canopy	2,510	n/a	n/a	2,610,206	*n/a
Public Safety Headquarters	October 2018	CHP	800	n/a	n/a	3,790,053	*n/a
Montgomery County Correctional Facility	October 2018	CHP	220	n/a	n/a	939,372	*n/a
Total			8,681	3,766,898	$306,165	11,625,572	$278,008

*Savings is not applicable because the financial structure was designed to provide other benefits and is not comparable to the other funding structures.

Notes: Solar projects came online at different times of the year; projects may not have had a full year of actual savings during the year they came online. Energy generation and cost savings for projects built prior to 2016 are estimated based on expected annual generation.

2. Energy Performance Benchmarking

County Facility	FY18 ENERGY STAR Score	FY19 ENERGY STAR Score	ENERGY STAR Score % Change	FY18 Site EUI (kBtu/ft²)	FY19 Site EUI (kBtu/ft²)	Site EUI (kBtu/ft²) % Change
Mid-County DHHS Building	81	80	-1.2	55.4	58.7	6.0
HHS Administrative Offices	67	69	2.0	91.0	86.6	-4.8
Judicial Center	37	43	16.2	73.9	68.5	-7.3
Grey Courthouse	49	47	-4.1	71.6	71.2	-0.6
Holiday Park Senior Center	n/a*	n/a*	n/a*	95.3	103.6	8.7
Judicial Center Annex	25	27	8.0	134.0	134.0	0
Upcounty Regional Services Center	20	24	20.0	125.5	113.0	-10.5
Public Safety Headquarters	44	46	4.5	183.2	232.5	26.9
Executive Office Building	33	32	-3.0	115.5	118.1	2.3
Council Office Building	10	16	60.0	160.3	137.5	-14.2
Rockville Library	n/a*	n/a*	n/a*	92.8	82.4	-11.2
Gaithersburg Library	n/a*	n/a*	n/a*	56.0	69.4	23.9
Germantown Library	n/a*	n/a*	n/a*	98.5	56.1	-43.0
Strathmore Concert Hall	n/a*	n/a*	n/a*	173.9	207.7	19.4
White Oak CRC	n/a*	n/a*	n/a*	47.1	51.2	8.7

*Building type is not eligible to receive an ENERGY STAR score.

Notes: The Energy Performance Benchmarking table reports data on a fiscal year basis, consistent with County planning and budgeting. Additionally, the County submits benchmarking data to the Department of Environmental Protection on a calendar year basis in compliance with the County's Building Energy Benchmarking and Transparency Law. ENERGY STAR scores may have changed from past years due to updated site-to-source conversion factors for several fuel types. Go to montogmerycountymd.gov/green/energy/benchmarking.html for more information.

3. Stormwater Management Facility Retrofits on County Property

Facility / Location	Stormwater Management Practices	Status	Impervious Area Treated (acres)
Ken Gar CRC	Rain Garden	Completed	0.05
Wheaton Veterans Park	Conservation Landscaping	Completed	0.11
Glen Echo Heights Right-of-Way	Conservation Landscaping	Completed	0.05
Aspen Hill Library	Bioretention; Curb Extension	Completed	0.71
Kensington Library	Rain Gardens; Bioretention; Bioswale	Completed	0.76
Upper County CRC	Dry Pond Retrofit	Completed	3.63
Colesville Park & Ride	Bioretention; Water Quality Inlets	Completed	1.28
Greencastle Park & Ride	Bioretention; Water Quality Inlets	Completed	1.77
Little Falls Library	Bioretention	Completed	0.68
Westmoreland Garden Club	Conservation Landscape	Completed	0.12
Montgomery Auto Park Dam	Wet Pond Retrofit	Completed	17.15
Brookville Maintenance Depot	Wet Pond Retrofit	Completed	12.49
Total			**38.80**

4. County Utility Expenditures FY16-FY17

Fund	Utility	Total Consumption FY16	Total Cost FY16	Total Consumption FY17	Total Cost FY17
Non-Departmental Accounts	Electricity	113,223,843	$14,162,507	115,029,340	$13,165,134
	Natural Gas	2,015,487	$1,714,403	2,185,939	$2,057,506
Tax Supported	Electricity	20,478,379	$2,573,512	19,820,338	$2,535,457
	Natural Gas	502,145	$426,770	508,793	$470,897
Non-Tax Supported	Electricity	25,047,508	$3,070,120	29,823,129	$3,589,005
	Natural Gas	183,169	$164,016	209,096	$208,443
County Total	**Electricity**	**158,749,730**	**$19,806,139**	**164,672,807**	**$19,289,596**
	Natural Gas	**2,700,802**	**$2,305,189**	**2,903,828**	**$2,736,846**

Note: Electricity consumption is in kilowatt hours (kWh). Natural gas consumption is in therms.

5. County Utility Expenditures FY18-FY19

Fund	Utility	Total Consumption FY18	Total Cost FY18	Total Consumption FY19	Total Cost FY19
Non-Departmental Accounts	Electricity	102,820,239	$12,480,914	104,315,707	$12,755,229
	Natural Gas	2,513,217	$2,188,108	2,815,986	$2,188,108
Tax Supported	Electricity	18,680,863	$2,339,255	17,564,828	$2,167,791
	Natural Gas	565,540	$489,972	538,057	$485,316
Non-Tax Supported	Electricity	29,057,371	$3,547,996	25,154,130	$2,982,833
	Natural Gas	238,116	$221,471	260,368	$248,072
County Total	**Electricity**	**150,558,474**	**$18,368,165**	**147,034,665**	**$17,905,853**
	Natural Gas	**3,316,874**	**$2,899,551**	**3,614,412**	**$2,921,497**

Note: Electricity consumption is in kilowatt hours (kWh). Natural gas consumption is in therms.

6. Estimated Utility Costs By Type

Utility Type	Unit of Measure	Unit Costs FY16	Unit Costs FY17	Unit Costs FY18	Unit Costs FY19
Electric	kWh	$0.125	$0.117	$0.123	$0.121
Water & Sewer	Kgal	$17.00	$18.00	$19.00	$20.00
Natural Gas	Therm	$0.852	$0.941	$0.873	$0.893
Fuel Oil No. 2	Gal	$1.783	$3.143	$2.934	$2.797
Propane	Gal	$3.640	$3.526	$4.118	$3.231

Notes: Represents all County Government faciltes (Non-Departmental, Tax Supported and Non-Tax Supported). Does not include Streetlights and Traffic Signals.

7. Completed Energy Efficiency Projects FY19

Facility Name	Fiscal Year Expected Completion	Project Type	Funding Source	Estimated Annual Cost Savings ($)	Annual GHG Emissions Reductions (MTCO2e)	Annual Social Cost of Carbon
Piccard Office Building	FY19	Building Envelope, HVAC & Lighting Upgrades, Water Conservation	Energy Systems Modernization	$152,468	226	$8,139
Garage 11	FY19	Lighting Upgrade	CIP, Operating, Other Sources	$12,000	36	$1,281
Garage 11A	FY19	Lighting Upgrade		$4,000	11	$409
Garage 35	FY19	Lighting Upgrade		$20,000	60	$2,173
Garage 36	FY19	Lighting Upgrade		$84,000	263	$9,472
Garage 40	FY19	Lighting Upgrade		$19,000	61	$2,181
Garage 42	FY19	Lighting Upgrade		$51,400	157	$5,643
Garage 47A	FY19	Lighting Upgrade		$27,000	85	$3,075
Garage 57	FY19	Lighting Upgrade		$35,400	109	$3,922
Garage 02	FY19	Lighting Upgrade		$38,000	120	$4,334
Garage 04	FY19	Lighting Upgrade		$24,000	78	$2,794
Garage 07	FY19	Lighting Upgrade		$34,000	103	$3,721
Garage 58	FY19	Lighting Upgrade		$84,000	286	$10,304
Circuit Court Tower	FY19	Water Conservation		$9,000	n/a	n/a
Public Safety Headquarters	FY19	Water Conservation		$19,000	n/a	n/a
Multiple Facilities	FY19	Chiller Sub-metering		$125,018	n/a	n/a
Holiday Park Senior Center	FY19	Domestic Hot Water Heater		$3,292	19	$674
Jane Lawton CRC	FY19	Furnace Upgrade		$382	2	$78
Quince Orchard Library	FY19	Boiler Upgrade		$259	1	$53
Brookville Maintenance (Phase II)	FY19	Lighting Upgrade (Interior & Exterior)		$16,115	51	$1,830
Bethesda Depot	FY19	Lighting Upgrade		$104,410	329	$11,859
Olney Swim Center	FY19	Lighting Upgrade		$10,451	33	$1,187
Silver Spring Fire Station No. 19	FY19	Building Envelope Repair		TBD	TBD	TBD
Upcounty Regional Services Center	FY19	Building Envelope Repair		TBD	TBD	TBD
Hillandale Fire Station No. 24	FY19	HVAC/ Electrical Systems Upgrade		TBD	TBD	TBD
Total FY19				**$873,196**	**2,031**	**$73,128**

Notes: Projects are constantly being planned and implemented. These tables may not include every project, and projects listed as planned in previous reports may have been deferred and not listed in this report. Social cost of carbon values were determined using calculations provided by the Environmental Protection Agency.

8. Planned Energy Efficiency Projects FY20-21

Facility Name	Fiscal Year Expected Completion	Project Type	Funding Source	Estimated Annual Cost Savings ($)	Annual GHG Emissions Reductions (MTCO2e)	Annual Social Cost of Carbon
Kensington Fire Station No. 25	FY20	Major Renovation and Addition	CIP, Operating, Other Sources	TBD	TBD	TBD
Council Office Building	FY20	Building Envelope, HVAC and Lighting Upgrades, Water Conservation	Energy Systems Modernization	$178,384	685	$24,653
Public Safety Headquarters	FY20	Cooling Tower Upgrade, HVAC System Recommissioning and Improvements	CIP, Operating, Other Sources	TBD	TBD	TBD
Fire Station No. 03	FY20	Lighting Upgrade		$12,604	40	$1,432
Vehicle Recovery Building	FY20	Lighting Upgrade		$1,062	3	$121
Fire Station No. 12	FY20	Lighting Upgrade	↓	$10,171	32	$1,155
Long Branch Outdoor Pool	FY20	Lighting, HVAC and Controls Upgrade	Energy Systems Modernization	$3,519	3	$105
Holiday Park Senior Center	FY20	Lighting, HVAC and Controls Upgrades	↓	$10,362	38	$1,362
Street Lights Phase I	FY20	Lighting Upgrade	CIP, Operating, Other Sources	$455,000	2,279	$95,718
Kidstop Childcare Center	FY20	Building Envelope Repair		TBD	TBD	TBD
Kensington (Aspen Hill) Fire Station No. 25	FY20	Major Renovation		TBD	TBD	TBD
Colesville Health Center	FY20	HVAC Upgrade/Electrical Replacement		TBD	TBD	TBD
Council Office Building	FY20	HVAC and Electrical Design		TBD	TBD	TBD
Montgomery County Correctional Facility	FY20	Boiler Replacement		TBD	TBD	TBD
Holiday Park Senior Center	FY20	Building Envelope		TBD	TBD	TBD
Clara Barton NRC	FY20	Boiler Replacement	↓	TBD	TBD	TBD
Germantown Library	FY20	Lighting, HVAC and Controls Upgrades	Energy Systems Modernization	$58,446	193	$8,121
Liquor Warehouse	FY20	Lighting, HVAC and Controls Upgrades		$67,430	268	$11,268
Long Branch CRC	FY20	Lighting, HVAC and Controls Upgrades		$31,076	101	$4,237
Long Branch Library	FY20	Lighting, HVAC and Controls Upgrades		$23,421	74	$3,122
Marilyn J. Praisner Library	FY20	Lighting, HVAC and Controls Upgrades		$19,752	72	$3,009
Martin Luther King Jr. Swim Center	FY20	Lighting, HVAC and Controls Upgrades		$122,209	268	$11,270
Rockville Memorial Library	FY20	Lighting, HVAC and Controls Upgrades		$77,056	235	$9,851
Holiday Park Senior Center	FY20	Lighting, HVAC and Controls Upgrades	↓	$10,362	33	$1,373

(Continued on next page)

8. Planned Energy Efficiency Projects FY20-21 (Continued)

Facility Name	Fiscal Year Expected Completion	Project Type	Funding Source	Estimated Annual Cost Savings ($)	Annual GHG Emissions Reductions (MTCO2e)	Annual Social Cost of Carbon
Colesville Health Center	FY21	Mechanical & Lighting Upgrade	CIP, Operating, Other Sources	$13,706	43	$1,557
Bethesda Chevy Chase Center	FY21	Plug load/Behavior Change, Lighting and Controls Upgrades		$31,725	100	$3,603
Margaret Schweinhaut Senior Center	FY21	Plug load/Behavior Change, Lighting and Controls Upgrades		$9,214	29	$1,047
Potomac Library	FY21	Plug load/Behavior Change, Lighting and Controls Upgrades		$9,078	29	$1,031
Upper County CRC	FY21	Plug load/Behavior Change, Lighting and Controls Upgrades		$9,284	29	$1,054
Street Lights Phase II	FY21	Lighting Upgrade		$455,000	1,220	$51,240
Public Safety Headquarters	FY21	Air Handling Unit		TBD	TBD	TBD
Grey Courthouse	FY21	Major Renovation		TBD	TBD	TBD
Kennedy Shriver Aquatic Center	FY21	Thermal Envelope		TBD	TBD	TBD
Mid-County CRC	FY21	HVAC Retrofit and Recommissioning		TBD	TBD	TBD
Fire Station No. 26	FY21	HVAC/Electrical Replacement		TBD	TBD	TBD
Fire Station No. 8	FY21	HVAC/Electrical Replacement		TBD	TBD	TBD
Fire Station No. 31	FY21	HVAC/Electrical Replacement		TBD	TBD	TBD
Public Safety Communications Center	FY21	HVAC/Electrical Upgrade		TBD	TBD	TBD
Miscellaneous Small Facilities [e.g., Fire Stations]	TBD	Lighting Upgrade		TBD	TBD	TBD
Germantown Indoor Swim Center	TBD	Boiler Upgrade		$3,062	TBD	TBD
Garage 49	TBD	Lighting Upgrade		$100,000	271	$11,385
Garage 31	TBD	Lighting Upgrade		$60,000	194	$8,141
Garage 05	TBD	Lighting Upgrade		$22,000	70	$2,942
Garage 09	TBD	Lighting Upgrade		$19,300	59	$2,458
Garage 55	TBD	Lighting Upgrade		$34,900	108	$4,517
Garage 60	TBD	Lighting Upgrade		$57,000	208	$8,745
Garage 61	TBD	Lighting Upgrade		$40,000	136	$5,724
Garage 16	TBD	Lighting Upgrade		$5,300	16	$684
Garage 45	TBD	Lighting Upgrade		$10,800	32	$1,336
Total Planned				**$1,961,223**	**6,868**	**$282,260**

Notes: Projects are constantly being planned and implemented. These tables may not include every project, and projects listed as planned in previous reports may have been deferred and not listed in this report. Social cost of carbon values were determined using calculations provided by the Environmental Protection Agency.

9. Total Building Square Footage By Electricity and Natural Gas

Group	Fund	Utility	Building Sq. Ft. FY16	Building Sq. Ft. FY17	Building Sq. Ft. FY18	Building Sq. Ft. FY19
County Facilites	Non-Departmental Accounts	Electricity	6,513,066	6,498,257	6,418,373	6,453,527
		Natural Gas	4,730,124	5,002,820	4,947,436	4,894,465
Recreation	Tax Supported	Electricity	732,524	801,424	787,996	801,716
		Natural Gas	585,875	620,531	620,531	634,251
Mass Transit	Tax Supported	Electricity	842,578	902,793	902,793	902,793
		Natural Gas	16,500	31,679	31,679	31,679
Liquor	Non-Tax Supported	Electricity	329,051	348,723	340,299	335,874
		Natural Gas	311,886	327,334	327,334	316,909
Solid Waste Disposal	Non-Tax Supported	Electricity	21,910	21,910	19,506	19,506
		Natural Gas	–	–	–	–
Motor Pool	Non-Tax Supported	Electricity	149,163	122,842	122,842	122,842
		Natural Gas	152,179	152,179	152,179	152,179
Parking Lot Services	Non-Tax Supported	Electricity	6,782,898	6,556,458	6,478,408	6,478,408
		Natural Gas	2,042,672	2,042,672	2,042,672	1,666,730
County Total		Electricity	15,371,190	15,252,407	15,070,217	15,114,666
		Natural Gas	7,839,236	8,177,215	8,121,831	7,696,213

10. Greenhouse Gas Emissions (GHG) in Metric Tons (MTCO2e) From Montgomery County Operations

Fiscal Year	Facilities GHG (MTCO2e)	Fleet GHG (MTCO2e)	Streetlights & Traffic Signals GHG (MTCO2e)	Total Facilities, Fleet, Streetlights & Traffic Signals (MTCO2e)	GHG Reductions from Renewable Energy Certificates (MTCO2e) – "Offsets"	Total Facilities & Fleet (MTCO2e) with Offsets	County Social Cost of Carbon Impact with Offsets
2014	67,850	54,737	4,805	127,392	(88,067)	39,325	$1,219,077
2015	67,911	59,225	4,405	131,541	(73,762)	57,779	$2,080,035
2016	67,267	58,666	4,511	130,444	(194,804)	(64,360)	$(2,316,943)
2017	68,320	56,618	4,511	129,449	(194,804)	(65,355)	$(2,352,764)
2018	66,719	57,119	4,526	128,364	(194,804)	(66,440)	$(2,391,827)
2019	65,326	59,793	4,489	129,608	(194,804)	(65,196)	$(2,347,038)

Notes: Facilities include County-owned and maintained facilities, garages, parking lots and Park & Ride facilities, which do include leased and volunteer fire departments. GHG numbers from previous years have been updated to reflect more accurate data and the current MWCOG methodology. MTCO2e = Metric Tons of CO2e

11. Subfleet Usage

Subfleet	Total No.	% of SUVs	Miles Driven	Fuel Use (Gal.)	Avg. MPG
Public Safety SUV	207	60.7%	2,820,535	196,167	14.4
Other SUV	134	39.3%	1,213,973	71,552	16.8
Total	341		4,034,508	267,719	15.1

12. Fleet Fuel Economy

Average Fuel Economy	FY 2016	FY 2017	FY 2018	FY 2019
Administrative Fleet	14.02	13.95	14.43	11.53
Public Safety Fleet	12.63	12.52	12.37	13.79

13. SUV Inventory

Department	Number of SUVs	% of Total SUVs
Police	150	44.0%
Transportation	53	15.5%
Fire and Rescue	31	9.1%
Permitting Services	26	7.6%
General Services	21	6.2%
Sheriffs Office	20	5.9%
Environmental Protection	18	5.3%
Correction and Rehabilitation	5	1.5%
Community Engagement Cluster	3	0.9%
Technology Services	3	0.9%
County Executive's Office	2	0.6%
Recreation	2	0.6%
Circuit Court	1	0.3%
Economic Development	1	0.3%
Health and Human Services	1	0.3%
Housing and Community Affairs	1	0.3%
Liquor Control	1	0.3%
Office Of Homeland Security	1	0.3%
State Attorney's Office	1	0.3%
Total	**341**	

Note: Disclosure required by Bill 6-14.

AWARDS & RECOGNITIONS

► Eleven National Association of Counties (NACo) Achievement Awards for sustainability initiatives since FY14, including award for Energy Project Portfolio Selection Tool in 2019;

► Seven consecutive Alliance for Workplace Excellence Eco-Leadership awards;

► Smart Energy Community Designation from the Maryland Energy Administration;

► ENERGY STAR 2017 designation earned for Health and Human Services Administrative Offices; and

► Greater Washington Region Clean City Coaltion award for Transit Fleet of the Year.

ACKNOWLEDGMENTS

Montgomery County's environmental success is due to the ongoing engagement of staff across the county. Many thanks to the departments that execute innovative efforts to help the County reduce the environmental impacts of its operations and assisted the Department of General Services, Office of Energy and Sustainability in compiling this report.

- Alcohol Beverage Services
- Department of Correction and Rehabilitation
- Department of Environmental Protection
- Department of Finance
- Department of General Services
- Department of Health and Human Services
- Department of Permitting Services
- Department of Police
- Department of Public Libraries
- Department of Recreation
- Department of Technology Services
- Department of Transportation
- Office of the County Attorney
- Office of Human Resources
- Office of Public Information
- Office of Procurement

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Montgomery County **DEPARTMENT OF GENERAL SERVICES**

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