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In June 2014, Montgomery County adopted legislation directing the creation of an Office of Sustainability in the Department of Environmental Protection (DEP). The goal of the Office is to promote sustainability in Montgomery County in collaboration with residents, businesses, and community-based organizations through activities related to energy efficiency and renewable energy, green business development, trees and forests, environmental education and outreach, and other environmental programs.

Background

In January 2009, Montgomery County published the Montgomery County, Maryland Climate Protection Plan (CPP). The CPP was prepared by the Montgomery County Sustainability Working Group (SWG), an advisory panel made up of 26 representatives from government, business, non-profit associations and the public. The SWG was supported by DEP and seven subcommittees made up of nearly 100 other individuals. The CPP contained 58 specific recommendations across a broad spectrum of activities designed to reduce community greenhouse gas (GHG) emissions.

In June 2014, the County Council adopted legislation (County Bill 6-14) that directed the creation of two new offices within the County government to further the work done by the SWG. These two offices – DEP’s Office of Sustainability and the Office of Energy and
Sustainability in the Department of General Services (DGS) – would address a broad range of issues intended to maintain Montgomery County as a leader in sustainability.

DGS’s Office of Energy and Sustainability was tasked with undertaking initiatives to make County government operations, including the government’s buildings and fleet, more energy efficient and sustainable. DEP’s Office of Sustainability was to be “outward” facing and work to promote sustainability in the community by developing programs for, and in conjunction with, residents, businesses, and community-based organizations.

As required by Section 18A-13 of the Montgomery County Code, DEP’s Office of Sustainability is required to, among other things:

- Annually report its activities, accomplishments, plans, and objectives
- Annually report actions taken to implement the CCP, and progress toward meeting the greenhouse gas reduction goals in the CPP
- Evaluate options for a broader Countywide sustainability reporting framework
- Apply a scoring system every two years designed to compare the County to other local jurisdictions on energy efficiency policies and programs

**Report Overview**

The 2016 Office of Sustainability Annual Report is structured as follows:

**Section 2: Office of Sustainability Activities** – This section provides a summary of the major programmatic initiatives of the Office during 2015, including the initiation of significant activities related to commercial building energy efficiency programs, and the launching of the Tree Montgomery program designed to plant canopy trees utilizing funds from the Tree Canopy Law.

**Section 3: Benchmarking Sustainability** – As noted above, the Office of Sustainability is charged with reporting on progress made toward implementing the CPP, benchmarking the County against others with regard to energy efficiency policies and programs, and evaluating a broader Countywide sustainability reporting framework. This section introduces a comprehensive sustainability reporting framework for achieving each of these objectives.
Section 4: Metrics – This section includes tables, charts and graphs that provide a look at where the County stands relative to a variety of sustainability measures, including building energy use and its associated greenhouse gas emissions.

Section 5: Partners in Sustainability – DEP’s Office of Sustainability plays an important role in making Montgomery County more sustainable. However, it is the collective work of residents, businesses, municipalities, other governmental departments and agencies, and a variety of community-based organizations that makes the work of the Office of Sustainability possible. This section highlights just a few of the actions and programs that are representative of the efforts by individuals, businesses, and organizations to make Montgomery County more sustainable.
The Office of Sustainability was very active during 2015. Two new staff members were added to the Office, which is part of DEP’s Division of Environmental Policy & Compliance. Major programs related to commercial energy efficiency and trees were launched in 2015, and the groundwork was laid for expansion of these programs, and the addition of new initiatives, in 2016.

**Office Structure**

During 2015, the duties of the Office were being carried out through the positions shown in Figure 1.

![Figure 2-1: Staffing of the Office of Sustainability](image)

As noted in the 2015 Annual Report, although there are distinct initiatives in the energy, green business, and tree and forest program areas, every effort is made to connect these programs to one another, as well as to other programs within the Department of Environmental Protection (e.g., stormwater management, solid waste management and recycling, etc.) that are outside the purview of the Office but are integral to creating a more sustainable community. Individuals and businesses interested in reducing energy costs, for example, may be receptive to other activities that reduce their environmental footprint. The Office’s outreach and education programs endeavor to make these connections wherever possible.

The remainder of this section summarizes the activities of the Office of Sustainability during 2015.
Offices of Sustainability Activities

Commercial Energy Initiatives

In Montgomery County, the commercial sector occupies 69 million sq. ft. of space, and uses an estimated 34 trillion Btu of energy annually. To serve this community, the Office of Sustainability implements a number of innovative nation-leading programs and policies such as building energy benchmarking, financing opportunities, and other educational efforts.

Building Benchmarking

In May 2014, Montgomery County adopted the Building Energy Benchmarking Law (County Bill 2-14). While fifteen cities and two states have benchmarking laws, Montgomery County is the first county in the nation to pass such a measure, which requires certain commercial building owners to report their building energy use annually for public disclosure.

Implementation of the Benchmarking Law is on-track and progressing smoothly. The Department of General Services (DGS) “led by example,” by meeting the first deadline in the Benchmarking Law, successfully benchmarking County buildings subject to the law, and disclosed the resulting data to DEP by June 1, 2015. DEP is preparing for the first private
building compliance season by establishing helpline processes and developing outreach materials.

Private buildings subject to the law are divided into two groups:

- Group 1 buildings (250,000 sq. ft. or greater) will report their benchmarking data to DEP by June 1, 2016, and every June 1 thereafter, for the previous calendar year.
- Group 2 buildings (50,000 sq. ft. or greater) will report their benchmarking data to DEP by June 1, 2017, and every June 1 thereafter, for the previous calendar year.

Buildings that are 50,000 sq. ft. or larger represent 75% of commercial floor space in the County. Jurisdictions further along in benchmarking show a conservative average energy savings rate of 2% annually. Similar results are expected in the County from the implementation of the Benchmarking Law.

The Benchmarking Work Group provided valuable information to participants.

Benchmarking Work Group

Section 2 of the adopted Benchmarking Law required the establishment of a Benchmarking Work Group, made up of a broad set of stakeholders including utilities, building owners, property managers, nonprofits, associations, and energy service companies. The Work Group
was charged with reviewing the County’s benchmarking process and providing recommendations on the Law’s implementation in the private sector, including any proposed legislative amendments, by June 2015.

The Work Group’s Recommendations were submitted to the County Executive and County Council, and the amendments passed unanimously in November 2015. DEP thanks all who participated in the Work Group process.

Compliance Assistance Programming – Education and Outreach

In 2015, DEP actively engaged the building owner community in Montgomery County well in advance of the compliance deadlines by holding a number of outreach and training events and developing resources to assist in the benchmarking process:

- Benchmarking Ambassadors Training: In April and October 2015, DEP and Montgomery College’s Workforce Development and Continuing Education hosted two Benchmarking Ambassadors training with 40 attendees. The Ambassadors received training on ENERGY STAR Portfolio Manager® and a primer on the County’s benchmarking requirements, and are well-equipped to assist building owners comply with the Law.

- Early Bird Benchmarking Recognition Event: “Early Bird” organizations benchmarked and voluntarily reported 60 buildings to the County one year ahead of schedule, and their submissions represent more than 12 million square feet and more than 1 trillion Btu of energy. County Executive Isiah Leggett, Councilmember Roger Berliner, ENERGY STAR representatives from the U.S. Environmental Protection Agency, and DEP honored these Early Birds with a Recognition Event in September 2015 with nearly 50 attendees, hosted by the Montgomery County Chamber of Commerce.

- DEP Benchmarking Office Hours: Starting in December 2015, DEP resumed hosting monthly Benchmarking Office Hours, an opportunity to discuss any benchmarking questions with DEP staff. Office Hours will be held in the months prior to the compliance deadline and are open to the public.
OFFICE OF SUSTAINABILITY ACTIVITIES

DEP Benchmarking Website: As of January 2016, DEP’s Benchmarking Law resources website has received 1,814 unique pageviews since its publication in August 2014. DEP has also developed a number of outreach materials that are available for download from the webpage, including an official guidance document, reporting checklist, and list of frequently asked questions.

Benchmarking News: The 573 subscribers of this newsletter receive a monthly email that includes program implementation updates, alerts about the availability of new materials, events, and BENCHMARKED profiles which highlights building owners who has already benchmarked their building. DEP is also piloting a Benchmarking Google Group for building owners to receive announcements, ask questions, and share lessons learned about benchmarking. This group currently has more than 70 members.

Partnerships

DEP’s Benchmarking outreach efforts would not be possible without the ongoing and proactive support of several key partners and national technical assistance organizations. In addition to sharing information with their networks, they contributed to the Work Group process, providing valuable information to DEP in developing the benchmarking program.

Business owners pose with County Executive Ike Leggett and Councilmember Roger Berliner during the Early Bird Benchmarking Recognition Event.
DEP has also contributed to, and benefitted from, associations and work groups with national organizations, nonprofits, and peer jurisdictions with similar benchmarking laws. DEP’s involvement in these groups allows the County to access national tools and tailor the development of future resources to meet the needs of our local policy implementation:

- **Standard Energy Efficiency Data (SEED):** Montgomery County is proud to partner with the U.S. Department of Energy (DOE) on the SEED Collaborative. The County is part of a select group of state and local governments with similar benchmarking and disclosure programs. With the leadership and coordination of DOE, the County will be able to better collect and manage building energy data, and ultimately create new opportunities in energy efficiency with the SEED platform.

- **Urban Sustainability Directors Network (USDN):** In October 2015, DEP joined the USDN Work Group on Energy Reporting Ordinances. In this group, peer jurisdictions with building energy benchmarking and disclosure laws connect once a month to share lessons learned, ask questions, and share resources.

- **Technical Advisory Groups (TAGs) Participation:** In June 2015, DEP joined two TAGs—one related to benchmarking and the other related to data-driven building analytics—to provide input and recommendations to DOE on the research performed by the Consortium for Building Energy Innovation (CBEI) in order to streamline and provide technical assistance to benchmarking jurisdictions.

- **National Building Labeling Working Group:** In August 2015, DEP was invited to and joined a working group, convened by the New York State Energy Research and Development Authority (NYSERDA), to advise the development of a nation-wide building energy label, which will likely be founded greatly upon the benchmarking data being collected by benchmarking jurisdictions. This working group is part of the New York Reforming the Energy Vision (REV) Initiative.
Commercial Property Assessed Clean Energy (PACE) Financing

On March 31, 2015, Montgomery County passed County Bill 6-15, Commercial Property Assessed Clean Energy Program (PACE). This legislation allows for commercial and multi-family property owners to finance energy efficiency and renewable energy upgrades to commercial buildings and repay the costs as a surcharge/special assessment on the property tax bill. By eliminating upfront costs and providing low-cost long-term financing, PACE overcomes challenges that have hindered the adoption of energy efficiency and renewable energy projects.

To facilitate a successful and robust PACE market in Montgomery County, the County elected to partner with a third-party program administrator and a County-designated lender. DEP worked closely with the Department of Finance on the solicitation for these two organizations. PACE Financial Servicing (PFS) was selected as the program administrator, while Greenworks Lending (GWL) was selected as the County-designated lender. DEP is working closely with PFS and GWL on program implementation, including identifying potential projects.

Starting in winter 2015, DEP has been aggressively pursuing pilot projects with motivated building owners while doing one-on-one training and education. Plans were developed for a phased outreach approach, including:
- Introductory Preview Workshop (January 2016): An introductory PACE training for a select group of motivated building owners and contractors to encourage additional pilot projects in advance of the public launch.

- Building Owner PACE Open House (March 2016): An open house hosted by PFS and GWL for interested building owners to learn about the benefits of PACE, and how to participate.

- Montgomery County Energy Summit (April 2016): A significant public launch to announce the red-carpet rollout of the PACE program, highlight completed projects in the County, and provide in-depth training for contractors, lenders, and building owners.

**Montgomery County Green Bank**

In June 2015, Montgomery County passed legislation (County Bill 18-15) to create a Montgomery County Green Bank. Montgomery County’s Green Bank is the first formal green bank organization to be established at a local government level.

The Green Bank legislation provided for the establishment of an organization with the sole purpose of increasing investment and implementation of energy improvements across all sectors in the County. Once operational, the Green Bank will allow the County to offer additional financial products beyond PACE. Like the state versions it is modeled after, the Montgomery County Green Bank will seek to use its seed capital in innovative ways, to spur private capital investment, provide unique programs to target and open up new markets to energy-saving investments, and contribute to a growing regional market of energy financing in the Washington, D.C. metropolitan area.

The County is supported in its efforts to develop the Green Bank by the Coalition for Green Capital (CGC), a 501(c)(3) nonprofit organization that is working at a variety of levels to establish a network of green banks. CGC provides pro bono technical assistance to the County, based on their experience assisting with the development of other green banks, as well as in-depth research on the potential market opportunities in Montgomery County.
In 2015, DEP led outreach programs to educate on Green Bank financing as well as to engage partners in the planning of the Green Bank:

- **Information Session:** On September 16, 2015, DEP hosted a Green Bank Information Session attended by over 120 stakeholders at the Fitzgerald Theater in Rockville. The program introduced the community to the County’s Green Bank legislation, provided an overview of how Green Banks can benefit the community, and invited participants to join the Green Bank Work Group. The event featured key speakers including Jim Barrett from the American Council for an Energy-Efficient Economy and Jeffrey Schub from the Coalition for Green Capital.

- **Work Group:** The legislation that established the Montgomery County Green Bank directed the creation of a Green Bank Work Group. The Work Group was charged with identifying best practices and local needs related to the County’s Green Bank, and providing recommendations by June 2016 on the implementation of the Green Bank,
including any necessary amendments to County law. The Work Group is supported by DEP, with assistance from CGC. The Work Group had a kick off meeting on October 28, 2015 with more than 45 individuals representing the broad base of stakeholders. The group was divided into three committees, focused on the areas of Governance, Fundraising, and Marketplace Development. As of January 30, 2016, each committee has met three times and are covering, in their respective committees, issues of mission, bylaws, operations, technical assistance programs, financial and non-financial market gaps, and funding for both operations and capitalization.

- Engagement: The twice-monthly Green Bank newsletter has 284 subscribers, and more than 50 individuals are on the rosters of the subcommittees, including several that are serving on two or more committees.
Residential Energy Initiatives

Montgomery County has more than 1 million residents and 360,000 households according to the U.S. Census Bureau. Households in the County consume roughly 5 million MWh of electricity annually as well as various heating fuels. DEP has a growing residential energy program to help County residents gain insights into their energy use profiles, reduce energy consumption, and take advantage of available incentives and rebates.

DEP continues to work to lay a foundation—similar to the approach taken in the commercial sector—that supports and encourages greater energy efficiency, conservation, and renewable energy within residential communities. To develop this foundation, DEP has partnered and collaborated with local and national organizations in the real estate and home certification arenas by increasing education and transparency about home energy performance.

These efforts will be enhanced by the addition of a Program Manager dedicated to residential energy programs, including efforts directed at low to moderate income populations. This new staff member is expected to come on-board in spring 2016.
REALTOR Education on Energy and Other DEP Programs

DEP has developed a close relationship with the Greater Capital Area Association of REALTORS (GCAAR) and, since 2014, DEP has provided bi-annual continuing education courses for GCARR members on DEP’s environmental programs. Energy is one of many topics covered in these courses, and helps familiarize REALTORS with the various third-party certifications and the valuation of energy efficiency and renewable energy.

Green Home Certification Disclosure

DEP is part of a collaborative, with the District Department of Energy and the Environment, the Institute for Market Transformation, PEARL Home Certification, GCAAR and MRIS (the local Multiple Listing Service organization), working to expand the use and display of third-party high performance home certifications. With support from the U.S. DOE, this effort elevates and validates the information provided by programs, such as Home Energy Score or utility energy efficiency programs, in the residential real estate market.

Home Energy Score

DEP continues to take steps to pursue a statewide program of Home Energy Score. Developed by the U.S. Department of Energy (DOE), the Home Energy Score is similar to a vehicle’s miles-per-gallon rating. It helps a homeowner or homebuyer understand how much energy a home is expected to use, and identifies opportunities for improving the energy efficiency of a home. Because the score is based on a standardized process, it allows for a comparison of the energy performance of a home compared to other homes nationwide. DEP has engaged the Maryland Energy Administration and the state’s utilities on their interest in Home Energy Score. The Energy and Air Quality Advisory Group also hosted DOE and Pepco representatives for an overview of residential energy efficiency programs and their activities related to Home Energy Score. DEP will continue to work with all of these entities in an effort to develop a state-wide program, which will allow for greater cost-effectiveness and build the critical mass for the market transformation benefits of Home Energy Score.

Residential Engagement

In addition to working "behind-the-scenes" with local and national partners to develop a ripe market for residential energy data, DEP is also working to engage directly with County residents on energy matters. In 2015, DEP engaged with residents on energy conservation topics using social media, pilot programs, and email campaigns, and plans to expand these efforts in 2016.
Energy Heroes Pilot Program

In the fall of 2015, DEP piloted a residential engagement program, Energy Heroes, using social media to highlight, recognize, and reward residents in the county taking actions to save energy. Entrants were entered in a drawing and their stories were highlighted on the MyGreenMontgomery.org blog. Although the number of participants in the pilot was low, DEP will utilize the experience gained through the pilot to improve and expand this model for energy and other sustainability programs.

Energy News and AskDEP

DEP’s energy team is committed to consistent and engaging communications with the community about its programs, activities, and stories of County residents and businesses saving energy or using clean energy.

- Last year, DEP launched the Energy News, a residential-focused, monthly e-newsletter that includes case studies on energy-saving and clean energy actions, energy-related events (such as solar co-ops), guest blogs from experts in the County, updates on sustainability initiatives, tips and tricks for saving energy, and opportunities, such as drawings and scholarships. It currently has 937 subscribers.

- Using its expansive newsletter distribution lists, DEP regularly updates subscribers about the active solar co-ops in the County. By advertising these opportunities, DEP assists with renewable energy awareness and solar expansion in the County.

- DEP takes advantage of opportunities to visit communities, and has made two such visits to two large multi-family communities. We hope and expect this aspect of our energy program to increase with additional capacity.

- Residential energy outreach also includes blogs and stories on the MyGreenMontgomery.org website and e-newsletter, as well as, DEP staff answering inquiries via email and MC311.
Regional Energy Programs

In addition to serving the commercial and residential sectors in the County, DEP is also involved in a number of other energy-related initiatives in the region, including promoting Maryland’s EmPOWER programs, and supporting County and regional committees involved in energy efficiency and renewable energy activities.

Maryland State Policy Support

The County continues to offer support for the Maryland EmPOWER programs and the important role this program plays in helping residents and businesses save energy, keep energy costs low, and reduce carbon emissions. DEP has also contributed to state Public Service Commission processes for Residential Finance Programs and Community Solar, as well as participate, as relevant, in work group sessions.

Metropolitan Washington Council of Governments Energy Programs

DEP benefits substantially from partnerships within, and with, the Metropolitan Washington Council of Governments (MWCOG). The DEP Director serves on the Climate, Energy and Environment Policy Committee, MWCOG’s primary policy group related to climate and energy, as well as the Metropolitan Washington Air Quality Committee. An Office of Sustainability staff
member serves on, and currently chairs, the Built Environment and Energy Advisory Committee, which facilitates learning on topics such as residential engagement programs, energy financing, and engaging the commercial real estate market. Office staff also serves as part of the regional PACE Working Group.

Energy and Air Quality Advisory Committee

The Energy and Air Quality Advisory Committee (EAQAC), comprised of Montgomery County residents, is charged with advising the County Executive and Council on issues related to energy and air quality. DEP hosts and serves as staff liaison for EAQAC’s monthly meetings, and provides staff support and assistance for EAQAC’s initiatives.
Tree Programs

In Montgomery County, many groups are working to raise the awareness of the benefits of trees, and to improve tree conservation through planting, long-term care, and retention. These groups include community-based volunteers like residents in Oakmont and east Bethesda who are helping neighbors get trees planted; non-profit organizations like Conservation Montgomery who are planting trees and running tree-care workshops; and Montgomery Parks who hosts outreach programs, maintains detailed webpages about trees, and has a robust tree care and planting program.

Departments within the Montgomery County government have several programs contributing toward this goal, as well. Through the County’s Roadside Tree Law, the Department of Permitting Services is increasing awareness for all applicants for building, sediment control and erosion, and right-of-way permits by requiring tree save plans and mitigation for tree removals on all applications that impact street trees. Additionally, the Department of Transportation planted 1,700 roadside trees in 2015, a 50% increase over the previous year, supported in part by fees paid for mitigation under the Roadside Tree Law. Within DEP, trees have important roles in many programs, including stream restoration, green streets, and Rainscapes. All three departments maintain information and guidance about trees on their webpages.
In addition to a wide array of activities involving trees on public property in the County, the Office of Sustainability is developing a comprehensive program for residents and privately owned land. This program’s primary functions are to plant and establish shade trees, increase awareness and long-term care of trees, and provide data management and mapping tools to track plantings across the County.

Tree Montgomery’s inaugural tree planting was located at Round Hill Apartments in Chevy Chase. Pictured here are tree planting contractor staff from D&A Dunlevy Landscapers (left) and DEP staff (right).
Tree Montgomery

Tree Montgomery was launched in April, 2015. This comprehensive program builds on ground work begun in 2014. It provides free shade trees, planted and cared for, to private property owners in Montgomery County.

Tree Montgomery is funded through fees paid as mitigation for activities regulated by the Tree Canopy Law. The Law requires shade trees to be planted, or if the required trees are not planted for any reason, fees are paid into a dedicated “tree canopy” account. The number of trees to be planted (or the amount of fees paid) is based on the level of disturbance created by the development activity. By law, funds from the tree canopy account can only be used to plant and establish shade trees.

The Tree Canopy Law applies to development activities requiring a Sediment Control Permit (a permit required when land disturbance above a certain level occurs) that are not subject to mitigation requirements under the County’s Forest Conservation Law (FCL). In general, the FCL applies to larger development activities. As a result, small developers and custom home builders in Montgomery County contribute a substantial portion of the funding for shade tree plantings provided through Tree Montgomery.
During 2015, more than $640,000 was paid into the Tree Canopy Account. Due to the gradual accumulation of funds in this account following the effective date of the new law, the FY15 appropriation for planting was $50,000 and the FY16 appropriation was $250,000. Both of these appropriations were exhausted by the end of 2015. A supplemental appropriation of $350,000 from the tree canopy account has been requested for the remainder of FY16.

In the first spring of Tree Montgomery, nearly 50 shade trees were planted at two multi-family communities and two single family homes. Following these initial plantings, approximately 500 more shade trees were planted throughout the fall. During 2015, applications for shade trees plantings were largely processed in the order they were received. Even without efforts to target neighborhoods, the requests and plantings were concentrated in the highly urban areas of Montgomery County. Efforts are underway to target neighborhoods with high rates of development activity and those in need of shade in 2016.

The Office met with each applicant who received a shade tree through Tree Montgomery to jointly select appropriate planting locations and species, answer questions and provide advice about long-term care. Nearly 60 percent were planted on single family properties and 15 percent at multi-family communities, with the remaining planted at religious and non-profit organizations and open space in HOAs. More than 35 different species were planted and 85 percent of all tree planted were native species. All trees are protected from damage by deer. A majority of these newly planted trees will receive two years of aftercare including watering, structural pruning, mulching, and weeding; all at no cost to the property owners.

DEP continues to work in collaboration with the development and environmental communities on further opportunities to increase planting of trees. Areas of evaluation include the planting requirements under the Tree Canopy Law, providing credit for saving trees, and greater coordination between developers and the Tree Montgomery program to identify developed properties suitable for canopy trees.

More information and data about the Tree Montgomery planting program will be included in the annual report required by the Tree Canopy Law. This report will be submitted by the Office of Sustainability in spring 2016.

**Education and Outreach**

The Office continues to develop a robust outreach and education campaign. This is essential to tree canopy planting programs, as well as the overall goals related to retaining and caring for existing trees. In conjunction with communications consultants, the Office developed a detailed framework for a new website covering information such as the benefits of shade trees,
other planting programs available in Montgomery County, and an interactive map. The new website is targeted to launch in the summer of 2016. To assist with targeting neighborhoods and other high-priority areas for Tree Montgomery plantings, lawn signs and post cards regarding the Tree Montgomery Program were developed. These materials will be used to target certain neighborhoods in 2016.

Residents were encouraged to show their favorite reasons for why they love trees at the County Fair.

Data and Mapping

To streamline the Tree Montgomery program, automated processes for many aspects of the program were under development during 2015. These include improving the on-line application and creating an on-line signature process for the access agreements needed to conduct planting and maintenance activities on private property. Additionally, progress was made towards automating and streamlining data management and communications tasks across the program. These tasks include mapping locations for plantings; managing applications, invoices, and budgets; informing applicants of their progress; placing orders; coordinating with the planting contractor; and conducting post-planting inspections. For
example, staff will be able to approve applications for trees, convert them to orders and invoices, map planting locations, and add inspection results within a single field application.

A public-facing map is being developed to show all newly planted trees through Tree Montgomery and those planted to meet the requirements of the Tree Canopy Law. Additionally, DEP is developing an application to allow anyone to add a newly planted tree, including developers who plant outside of the requirements of the Tree Canopy Law. This will allow any interested party to follow the progress of plantings in the County. This feature is to be incorporated in the Tree Montgomery website targeted for launch in the summer of 2016.

Finally, the Office continues to work with the Department of Permitting Services to obtain information about the location and species of the trees planted by during development activity subject to the Tree Canopy Law.
A tree staging area for the Tree Montgomery program.
Green Business Certification Program

The mission of the Green Business Certification Program is to:

- Empower businesses and other organizations to green their operations through tools, incentives, inspirational ideas, collaboration, and leadership opportunities; and

- Encourage local consumers and other businesses to consider Certified Green Businesses when making purchasing decisions.

It is both a voluntary recognition program as well as an educational program, as it provides businesses with a “greenprint” – a checklist of actions – for integrating sustainability into their day-to-day operations and corporate culture.

The Program is a partnership between the Montgomery County Department of Environmental Protection, the Montgomery County Chamber of Commerce and Montgomery College. It was launched in December 2009 in response to broad interest in establishing Montgomery County as a leader in environmental stewardship and sustainability. The program resulted from, and
continues to be shaped by, extensive collaboration with environmentally responsible business leaders and other stakeholders.

Certification was initially tailored to businesses in commercial office space to respond to the operational circumstances facing the majority of County businesses. Program eligibility expanded in the spring of 2013 with the creation of a tailored application for the landscaping sector.

In 2015 the Green Business Certification transitioned to an umbrella program in which businesses certified by national third party organizations are recognized. This has broadened eligibility, enabling the Program to reach virtually all types of businesses including restaurants, cleaning companies, hotels, home-based businesses and others. Program expansion will also increase consumer awareness, create more "green business-to-green business" opportunities, stimulate momentum in corporate sustainability, and help identify Montgomery County as a leader in the green economy.

Given the variety of businesses and their unique operations, businesses can now choose the certification program that is most in line with their operations and values. At the present time, business can choose from a number of different certification programs:

- Montgomery County Department of Environmental Protection
  - Office Based Businesses
  - Landscape Businesses
- Green Seal
  - Residential Cleaning Services
  - Commercial Cleaning Services
  - Restaurants and Food Services
  - Hotels and Lodging
- Green Restaurant Association – Restaurants and Food Services
- B Lab – most businesses are eligible
- Green America (Gold) – most businesses are eligible

To date, the Green Business Certification Program has a network of 84 Certified Green Businesses. The number of certified businesses jumped from 50 in 2014 to 84 in 2015 (a 68% increase) because of the transition to an umbrella program.
Website Revisions

In 2015, DEP revamped its website to be mobile responsive with easier navigation and simplified directions. More importantly, it contains a number of new resources, including “How To Guides” related to Creating a Green Team, Developing Sustainability Policies, Green Purchasing, and Continuous Improvement and Measurement, and includes a menu of Sustainability Metrics businesses can use to track their progress. The website also contains information on the national third party certification programs that are recognized by the Green Business Certification Program, videos profiling green businesses and an expanded Green Business Directory.

Green Business Forum

DEP’s partnership with the Montgomery County Chamber of Commerce has been instrumental in advancing the Department’s green business development goals. Among the cascading benefits associated with the Green Business Certification Program has been the Green Business Forum.
Forum. Hosted by the Chamber, the Forum facilitates quarterly discussions on the benefits of greening business.

Since 2012, the Forum has convened 12 discussions, attracting significant attendance ranging, on average, between 30 and 60 individuals per event. Recent topics have focused on the County’s energy benchmarking law, creation of the County Green Bank, and sustainability branding.

**Technical Assistance**

Currently, DEP provides free technical assistance and strategic advice to businesses committed to pursuing certification. DEP consultants are available to visit with interested businesses and their “green teams” prior to the submission of their application. Many businesses take advantage of this valuable service as it gives them an opportunity to work through a range of issues including the development of sustainability policies, identification of appropriate metrics, and the creation of a continuous improvement plan.

**Outreach and Recognition**

One of the most effective ways of communicating the benefits of certification is by showcasing best practices among Certified Green Businesses. This is done in several ways. Numerous videos profiling businesses appear on the Green Business program website at [http://www.mcgrenibiz.org/videos/](http://www.mcgrenibiz.org/videos/); a quarterly newsletter, sent to more than 1,000 subscribers, highlights businesses pursuing innovative and impactful measures; and the Green Business Directory ([http://www.mcgrenibiz.org/green-business-directory/](http://www.mcgrenibiz.org/green-business-directory/)) offers businesses an opportunity to highlight measures they are taking to green their operations. In addition, Certified Green Businesses were individually featured last year on County Ride On bus public service advertising as part of the very popular “Get on the Bus” campaign.
An advertisement for the “Get on the Bus” campaign highlighting the County’s certified green businesses.
Outreach and Education

The Office of Sustainability is dedicated to community engagement. Our goal is to connect residents and businesses to the programs, tools and financial incentives available to them, so as to make it easy and accessible for them to make environmentally-friendly choices. We achieve this through our My Green Montgomery web portal as well as attending and hosting community events.

My Green Montgomery

My Green Montgomery (MyGreenMontgomery.org) is a service to help County residents and businesses discover and share stories, ideas and resources for living a greener, more sustainable life in an economically vibrant community. Since its launch in 2012, the website has become a one-stop site for finding the latest green community events, financial incentives, suggestions of “do-it-yourself” projects, as well as green news and tips. The community blog is the most visited part of My Green Montgomery and features stories by community members, County employees, non-profits and businesses.
My Green Montgomery also serves as a communication brand of DEP, and is how people engage with DEP through social media.

The My Green Montgomery Website

In 2015, MyGreenMontgomery.org was redesigned for mobile responsiveness so that the public can easily access information “on-the-go” with an engaging blog design, search functionality, a new “Your Stories” blog feed and the elimination of the “Green Plan” registration. The website is more colorful, dynamic and easier to navigate no matter the device.

The site had over 35,000 unique pageviews in 2015, representing a 35% increase over 2014. The most visited pages included the blog search page, the calendar page, an article on GreenFest and an article on the RainScapes trainings for 2015.

Blogs

My Green Montgomery featured 102 blog posts in 2015 – a fourth straight year of increases in blogs. Twenty-eight of the blogs were written by guest authors, including 13 “Benchmarked” posts by local businesses and property management companies that have already gone through the process of benchmarking their buildings energy performance using EPA’s Portfolio Manager software. Guest writers included:
OFFICE OF SUSTAINABILITY ACTIVITIES

- Adventist HealthCare
- Brookfield Office Properties
- The Chevy Chase Land Company of Montgomery County, Maryland
- City of Takoma Park
- Ecobeco
- First Potomac Realty Trust
- Food Recovery Network
- Interfaith Partners for the Chesapeake
- JBG Companies
- Montgomery College
- Montgomery County Department of General Services
- Montgomery County Office of Emergency Management and Homeland Security
- Montgomery County Public Schools
- Montgomery Parks
- Papa Johns
- Promark Real Estate Services
- Realty Investment Trust
- Roundpeg Benefit LLC
- Sustainable Maryland
- Tower Companies
- Washington Gas

Newsletter

The “Your Green Montgomery” e-Newsletter was launched in May 2013. Each month, the newsletter serves as a digest of the best stories of My Green Montgomery. In 2015, the newsletter was redesigned for easier readability and mobile responsiveness. In addition, a new section was added, titled “If You Do One Thing,” to focus the reader’s attention to the most important sustainability tip that month, such as testing the home for radon or installing LED lighting.

Individuals who signed up for Tree Montgomery were given the opportunity to sign up for the My Green Montgomery newsletter as well. With Tree Montgomery sign-ups and an increased presence on the newly redesigned MyGreenMontgomery.org, the newsletter now has 1,358 emails, a 289% increase over 2014.
Social Media

In 2015, the My Green Montgomery social media sites continued to grow and reach new audiences.

- Twitter: @MyGreenMC has 838 followers, a 37.8% increase over 2014
- Facebook: @MyGreenMontgomery has 607 likes, a 61.4% increase over 2014
- Instagram: @MyGreenMC has 71 followers, an 82% increase over 2014
- My Green Montgomery also maintains a Pinterest board of 174 pins on 7 boards, 6,138 photos on Flickr and 51 videos on the YouTube channel.

Events

Montgomery County GreenFest

The first annual Montgomery County GreenFest was held in March 2015. More than 700 people attended the event, which provided the opportunity to learn about the latest sustainability issues, share ideas on how to address them, and inspire the next generation to take actions for the environment.

*Participants at the Montgomery County GreenFest filled out a survey of green behaviors.*
GreenFest was held at Montgomery College Takoma Park/Silver Spring and the highlights of the day included:

- County Executive Isiah Leggett kicking off the day’s activities
- More than 150 people viewing the Racing to Zero film
- 80 volunteers from Montgomery College and DEP’s Stream Stewards who donated 275 hours to assist in the event’s success
- Educational sessions on home energy, green living, food and life as an electric vehicle owner
- More than 75 kids taking part in an educational activity on lowering consumption
- Almost 80 exhibitors including nonprofit and for-profit organizations as well as government agencies

The event was organized as part of a public-private partnership between the Montgomery County Government, WSSC, Montgomery Parks, the cities of Takoma Park, Gaithersburg and Rockville, Montgomery College, the MCPS Outdoor Environmental Education Program, University of Maryland Extension, and local nonprofits, Bethesda Green, GreenWheaton, Silver Spring Green and Poolesville Green.

The 2nd annual GreenFest will be Saturday, April 30, 2016 at the Takoma Park Community Center from 11am – 4pm.

County Fair

As has been the case for many years, DEP was active at the 2015 Montgomery County Agricultural Fair. The Office of Sustainability partnered with the Divisions of Watershed Management and Solid Waste Services to promote a wide variety of sustainability programs, including:

- Steps to take to address residential energy efficiency
- Planting a tree through Tree Montgomery
- The importance of testing homes for radon
- Methods for controlling stormwater
- The County’s 70% recycling goal

Over a nine-day period, more than 9,000 people interacted with DEP staff and the 154 volunteers that contributed more than 675 hours supporting DEP’s presence at the fair. In addition, 207 compost bins were distributed to residents for use for composting yard trim materials in their backyards.
General Events

In 2015, the Office of Sustainability continued to expand its presence at outreach and education events. Not including the County Fair and GreenFest, staff engaged with 2,703 people at events to talk about sustainability topics such as trees, energy, green business, air quality and My Green Montgomery. Events attended by Office of Sustainability staff included two GCARR educational classes, earth day events, Izaak Walton Hunting and Fishing Day, the Trees Matter Symposium, Bike to Work Day and civic association and HOA meetings. In addition, Office of Sustainability staff also participated in various events sponsored by the Divisions of Watershed Management and Solid Waste Services, supplementing their outreach related to stormwater management and recycling.
As noted in the Introduction, section 18A-13 of the Montgomery County Code specifies that the Office of Sustainability must:

- Annually report actions taken to implement the CCP, and progress toward meeting the greenhouse gas reduction goals in the CPP
- Evaluate options for a broader Countywide sustainability reporting framework
- Apply a scoring system every two years designed to compare the County to other local jurisdictions on energy efficiency policies and programs

These requirements are integrally related. As a result, in preparing the 2016 Annual Report, the Office of Sustainability sought to address these requirements through the identification and utilization of a single tool – a broad sustainability reporting framework that (1) encompasses the range of activities discussed in the CPP, enabling a report on the progress toward meeting the goals of the CPP; and (2) includes as a fundamental component the examination of energy efficiency policies and programs, which provides an opportunity to compare the County to other jurisdictions in this area.

Identifying a Broad Sustainability Reporting Framework

In developing this approach, the Office researched a number of energy and sustainability reporting frameworks including those developed by the American Council for an Energy-Efficient Economy (ACEEE), the Global Reporting Initiative (GRI), the CDP (formerly the Carbon Disclosure Project), the Sustaining Places Initiative of the American Planning Association, and the STAR Community Rating System. Each of these frameworks is robust; however, they differ in approach and emphasis, ranging from energy efficiency to carbon reduction to land use planning.

The Office believes that the STAR Community Rating System provides an excellent framework for meeting the reporting and benchmarking requirements outlined in Section 18A-13 of the County Code. STAR stands for “Sustainability Tools for Assessing and Rating.” As the acronym suggests, the STAR Community Rating System (hereinafter referred to as STAR) provides communities with “a roadmap to help evaluate, assess, and improve communities’ economic, environmental, and social performance measures and become healthier, stronger, and more resilient.” A major component of this is an assessment of activities and outcomes related to climate change and energy use. Furthermore, other aspects of the rating system explore activities and outcomes related to transportation, land use, and natural systems which, due to their relevance to climate change, were all areas addressed in the CPP. Finally, STAR goes beyond climate change and energy topics to explore important economic and social issues that are critical to making a community fully sustainable.
STAR is also compelling because it is premised on a broad-based approach to creating sustainable communities involving a coordinated effort between government and the community. Such an approach makes great sense since the challenges associated with sustainability are systemic and cross-cutting in nature.

A simple example illustrates this point. Increasing bike ridership and walking is a clear goal of the County. There are a number of reasons for this, including creating more livable communities, GHG emission reductions, public health improvements, and increased recreational opportunities, just to name a few. Addressing this goal requires consideration of a whole host of issues – land use planning, public safety, accessibility and connectivity, social equity, and more. It also requires multiple strategies such as improvement to the County’s network of bike paths/lanes and sidewalks, traffic calming devices, bike share opportunities, public service campaigns, etc., all of which entail a concerted effort among various facets of government, civic groups, businesses and residents.

As illustrated in the Figure 3-1, STAR is based on an assessment of seven Goals. Within each Goal are a set of Objectives. There are between 5-7 Objectives under each Goal, for a total of 44 unique Objectives.

Each Objective is further broken down into associated Outcomes and Actions that demonstrate a jurisdiction’s progress toward meeting an Objective. An example of this progression from Goal to Action is provided in Figure 3-2.

In order to achieve STAR certification, a jurisdiction must assess itself based on all seven Goals. However, the County is not in a position at this time to utilize the full framework and submit an application for certification. Conceivably, the County could decide to take this step in the future. Alternatively, the Office (and other departments/agencies in the County) could use the framework as a guide to develop future sustainability plans and actions. Over the coming months, the Office looks forward to discussing the utility of STAR with other departments, agencies, and elected officials.
### Figure 3-1
**STAR Community Rating System**
**Goals & Objectives**

<table>
<thead>
<tr>
<th>Built Environment</th>
<th>Climate &amp; Energy</th>
<th>Economy &amp; Jobs</th>
<th>Education, Arts, &amp; Community</th>
<th>Equity &amp; Empowerment</th>
<th>Health &amp; Safety</th>
<th>Natural Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Noise &amp; Light</td>
<td>Climate Adaptation</td>
<td>Business Retention &amp; Development</td>
<td>Arts &amp; Culture</td>
<td>Civic Engagement</td>
<td>Active Living</td>
<td>Green Infrastructure</td>
</tr>
<tr>
<td>Community Water Systems</td>
<td>Greenhouse Gas Mitigation</td>
<td>Green Market Development</td>
<td>Community Cohesion</td>
<td>Civil &amp; Human Rights</td>
<td>Community Health &amp; Health System</td>
<td>Invasive Species</td>
</tr>
<tr>
<td>Compact &amp; Complete Communities</td>
<td>Greening the Energy Supply</td>
<td>Local Economy</td>
<td>Educational Opportunity &amp; Attainment</td>
<td>Environmental Justice</td>
<td>Emergency Prevention &amp; Response</td>
<td>Natural Resource Protection</td>
</tr>
<tr>
<td>Housing Affordability</td>
<td>Industrial Sector Resource Efficiency</td>
<td>Quality Jobs &amp; Living Wages</td>
<td>Historic Preservation</td>
<td>Equitable Services &amp; Access</td>
<td>Food Access &amp; Nutrition</td>
<td>Outdoor Air Quality</td>
</tr>
<tr>
<td>Public Spaces</td>
<td>Resource Efficient Public Infrastructure</td>
<td>Workforce Readiness</td>
<td>Poverty Prevention &amp; Alleviation</td>
<td>Natural &amp; Human Hazards</td>
<td>Working Lands</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>Waste Minimization</td>
<td></td>
<td></td>
<td></td>
<td>Safe Communities</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 3-2
**STAR Community Rating System**
**Example of Goal, Objective, Outcome, and Action**

<table>
<thead>
<tr>
<th>STAR Component</th>
<th>Purpose</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>Desired state or condition that a jurisdiction intends to achieve</td>
<td><strong>Climate &amp; Energy</strong>: Reduce climate impacts through adaptation and mitigation efforts and increase resource efficiency</td>
</tr>
<tr>
<td>Objective</td>
<td>A clear, desired outcome intended to move the community toward the broader Goal</td>
<td><strong>Greenhouse Gas Mitigation</strong>: Achieve GHG emission reductions throughout the community</td>
</tr>
<tr>
<td>Outcome</td>
<td>Measurable indicators the demonstrate a community’s progress toward meeting an Objective</td>
<td><strong>GHG Emission Reductions</strong>: Demonstrate progress toward achieving an 80% reduction in community-wide GHG emissions by 2050</td>
</tr>
<tr>
<td>Action</td>
<td>Decisions, investments, or actions by a community that are essential to achieving the desired Outcome</td>
<td><strong>Education and Outreach</strong>: Create an education and outreach campaign to engage residents and businesses in GHG reduction efforts</td>
</tr>
</tbody>
</table>
Actions Taken to Implement the Climate Protection Plan

The CPP explored and provided recommendations related to seven areas:

1. Renewable Energy
2. Residential Building Energy Efficiency
3. Commercial/Multi-Family/Public Building Energy Efficiency
4. Transportation
5. Forestry & Agriculture
6. Land Use & Planning
7. Education & Outreach

Of the 44 STAR Objectives, those highlighted in red in Figure 3-3 are most closely related to the areas discussed in the CPP. The pages that follow explore the level of activity in each of the highlighted Objectives. Combined with the data on energy use and GHG emissions contained in the Sustainability Metrics section of this report, this information demonstrates the progress the County is making towards implementing the CPP.

Scoring System on Energy Efficiency

Formal submission of a STAR Community Rating System application would enable the County to receive a comparative score related to the Climate & Energy Objective (as well as each of the other six Objectives). As previously noted, however, the County is not in a position at this time to submit a formal application. In keeping with the spirit of this requirement, the Office has provided an assessment of the level of activity for each Outcome under the Climate & Energy Goal. Such assessments were not done for the Outcomes under the Built Environment and Natural Systems Goals.

Note that this assessment is not definitive, nor is the list of activities comprehensive. Different observers may have different views on how well the County is addressing a particular Objective. And there are far more activities, big and small, that government, community-based organizations, businesses, and residents are engaged in than are known to the Office (and that can be compiled in this report). The Office welcomes, and even seeks, a robust discussion of these issues. Only by engaging representatives of all sectors of the community, and addressing all of the issues in the STAR framework, can we achieve the goals of the CPP and go even further to create a truly sustainable community.
### Figure 3-3

**STAR Community Rating System**

Goals & Objectives Used to Benchmark Energy Efficiency & Track Progress on the CPP

<table>
<thead>
<tr>
<th>Built Environment</th>
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<td>Waste Minimization</td>
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</table>
Goal Area: Climate & Energy

Objective: Climate Adaptation

Desired Outcome: A measurable reduction in the vulnerability of a community's built, economic, natural, and social environment

Actions:
1. Adopt a climate change adaptation plan
2. Require that internal decisions by local government departments use the most current climate science and that staff monitor climate change impacts
3. Develop a committee that includes climate scientists, adjacent jurisdictions, regional coalitions, state and federal agencies, and/or non-governmental organizations for the purpose of understanding and addressing shared vulnerabilities
4. Create an education and outreach campaign to engage citizens and businesses in climate change vulnerability reduction efforts
5. Adopt zoning code, building code, or other legally binding regulations that address future climate change threats
6. Create or enhance programs and services that specifically help address climate change threats
7. Enforce regulations or offer incentives to encourage residents and businesses to shift behaviors to prepare for future climate change impacts
8. Improve facilities throughout the community to be better prepared for climate change threats

Examples of Activity Related to Climate Adaptation:

- WSSC adaptation planning includes vulnerability assessment, adaptation analysis, and mitigation planning to define assets at risk and prioritize systems to be upgraded.
- Future capital projects to complete flood protection around DC Water facilities will evaluate and use the latest climate change/sea level predictions.
- MWCOG has worked to build the capacity of regional leaders to understand and address climate change, utilizing technical assistance through the U.S. EPA’s Smart Growth Implementation Assistance Program to assesses adaptation strategies and develop case studies for regional leaders.
Assessment:

There are a wide range of potential climate change impacts requiring adaptation planning including localized flooding, drought and/or prolonged heat waves, increased frequency of severe storms, and sea-level rise. While Montgomery County does not have any tidal waters, a significant portion of its wastewater is treated at the Blue Plains Wastewater Treatment Plant on the tidal Potomac River in the southeastern corner of the District of Columbia. Ensuring that this critical infrastructure is protected is vital. As a result, the Washington Suburban Sanitary Commission (WSSC) and DC Water are the primary entities serving the County that have engaged in adaptation planning. At the regional level, the Metropolitan Washington Council of Governments (MWCOG) has convened discussions on the potential impacts of climate change on the metro area, and potential strategies to address these impacts.
Goal Area: Climate & Energy

Objective: Greenhouse Gas Mitigation

Desired Outcome: Progress towards achieving an 80% reduction in community-wide greenhouse gas emissions by 2050

Actions:

1. Adopt a climate action plan designed to reduce GHG emissions throughout the jurisdiction
2. Require GHG emissions to be considered in broader local government planning processes and decision-making
3. Create an education and outreach campaign to engage citizens and businesses in GHG reduction efforts
4. Establish a climate change advisory group to engage diverse community stakeholders in identifying and implementing GHG reduction strategies
5. Modify local government operations and facilities in order to reduce GHG emissions and serve as a leader in the community
6. Adopt energy efficiency regulations for buildings within the jurisdiction
7. Create incentives to improve reliance on distributed generation of renewable energy sources
8. Implement specific programs and services or create facility upgrades that transition the community towards the use of alternatives modes of transportation and low-emissions vehicles
9. Implement specific programs and services or create facility upgrades that reduce waste in the community

Examples of Activity Related to Greenhouse Gas Mitigation:

- **MCPS Environmental Sustainability Management Plan** created in 2014.
- **Bill 5-14** requires the County to consider cost of carbon as factor in determining the return on investment of energy efficiency improvements.
- Planning Department makes recommendations and considers “energy conservation practices during master plan, subdivision, site plan, and mandatory referral review” process.
- Launched **My Green Montgomery**; regularly disseminate newsletters related to energy benchmarking, PACE and greening businesses.
- Developed **Montgomery County GreenFest** with 12 partner organizations.
MCPS incorporates sustainability into its formal and informal curricula, anchored by its Environmental Literacy Plan, Outdoor Environmental Education Program, and School Energy and Recycling Team (SERT) program.

- County has contracted for over 6 MW of solar PV, with plans to install an additional 4 MW.
- MCPS reduced its GHG emissions by approximately 25 percent since 2003; solar PV systems provide 20-40% of the power requirements of 12 schools during peak production hours.
- WSSC reduced its GHG emissions since 2005 by almost 40% as a result of its direct wind purchase (28% of its total power consumption), and has installed solar PV systems and pursued numerous energy efficiency strategies.
- Bill 17-06 requires energy efficiency and environmental design standards for non-residential and multi-family buildings.
- Bill 6-15 established commercial property assessed clean energy (PACE) program to facilitate installation of renewable energy systems on commercial and multi-family properties.
- Bill 18-15 created a County Green Bank to promote investment in clean energy technologies.
- Supported development of Purple Line light rail system.
- Conducting study of bus rapid transit (BRT) options.
- County promotes public transportation, ridesharing, bicycling, and walking with a variety of incentives and tools.
- County added bike racks to 14 of 19 County-owned garages, accommodating 168 bikes.
- County established 70% waste diversion/recycling goal by 2020.
- Bill 8-11 established a fee on paper or plastic carryout bag provided by retailers.

Assessment:

This objective includes a broad range of actions, many of which are discussed in greater detail in subsequent sections. There have been a variety of laws, programs, and activities focused on reducing energy use in buildings, particularly in the commercial sector (See the Objective entitled Resource Efficient Buildings). The County government and County agencies have taken an aggressive approach to purchasing and installing clean energy, and there are positive signs of increased use of clean energy in the community (See Greening the Energy Supply).

The County has actively supported the use of alternative modes of transportation in a variety of ways, including support for new transit options, a robust RideOn bus network, and activities related to walking and biking (See Transportation Choices Objective). The County has taken extensive steps to reach the aggressive goal of 70% recycling by 2020 (See Waste Minimization Objective).
Goal Area: Climate & Energy

Objective: Greening the Energy Supply

Desired Outcome: Increased community use of alternative/fuel-efficient vehicles and renewable energy

Actions:

1. Adopt a community-wide plan that includes a comprehensive programmatic and policy approach to shift the community towards alternative fuels and renewable energy sources, especially for non-transportation uses
2. Create a policy to ensure that the local government’s transportation and non-transportation energy supplies increasingly come from renewable and alternative sources
3. Remove zoning, height, and other regulatory restrictions on the development of small- and medium-scale renewable energy installations and alternative fueling systems
4. Establish partnerships with critical energy providers and consumers to match renewable energy sources with community energy needs
5. Adopt renewable energy or alternative fuel targets for locally owned facilities and vehicles
6. Create incentive programs to support the development of renewable and alternative fuel infrastructure
7. Use a feed-in tariff or other financial mechanisms to increase the mix of renewable energy sources supplied to residents
8. Run a net-metering program that encourages the development of small-scale renewable energy sources
9. Work with state and regional partners to electrify truck stops to reduce idling and unnecessary emissions
10. Install electrical vehicle charging stations
11. Build the necessary distribution infrastructure to support further investment in renewable energy sources

Examples of Activity Related to Greening the Energy Supply:

• The County purchased 50% clean electricity in FY15 and 100% in FY16 through RECs; additional RECs purchased to offset the GHG emissions of other building fuels.
• Montgomery College purchased 100% clean energy in FY15 through RECs and 129% in FY16.
Since FY09, MCPS has purchased RECs to ensure that a minimum of 20% of its total electricity consumption is provided by renewable sources.

WSSC’s direct wind purchase accounts for approximately 28% of its total power consumption.

County currently purchases only electric or plug-in hybrid sedans, and has installed 16 electric vehicle charging stations to support its fleet.

County has 8 installed electrical charging stations at public garages with 4 more planned in early 2016.

MCPS purchases fuel-efficient vehicles, partial zero emission, hybrid, and flex-fuel vehicles to reduce fuel consumption.

Zoning code requires that parking facilities must have a minimum of one parking space ready to be converted to an electric vehicle charging station for every 100 parking spaces.

The Montgomery County Zoning Code allows solar panels to encroach into setbacks and exceed height limits under certain circumstances, and allows other rooftop renewable energy systems to exceed height limits.

For optional method projects in certain zones, a developer can receive points toward the public benefit requirement by providing renewable energy generation facilities on-site or within ½ mile of the site for a minimum of 2.5% of the projected energy requirement for the development.

Net metering is permitted by law in Maryland for solar, wind and other sources of electricity.

**Assessment:**

The County government and County agencies have progressively pursued cleaner energy options, primarily through the purchase of renewable energy certificates (RECs) related to electricity consumption; and have increasingly utilized solar photovoltaic (PV) and geoexchange systems on public buildings. Within the community, the Office does not have reliable data to determine the number of County customers purchasing electricity from renewable sources, nor is it possible to know precisely how much clean energy is generated through solar panels installed on the rooftops of County homes and businesses. However, there are some positive indicators. For example, the number of County residents and businesses applying for permits to install PV systems has increased dramatically in the past few years (See Figure 4-11 in the Sustainability Metrics section).

While the County plays an important role in encouraging the use of mass transit and other cleaner modes of transportation, it has a more limited role in influencing residents’ choice of alternative fuel and fuel-efficient vehicles. The availability of electric vehicle charging stations continues to increase through new infrastructure at public and private parking facilities (See Figure 4-15).
Goal Area: Climate & Energy

Objective: Industrial Sector Resource Efficiency

Desired Outcome: Progress towards achieving an 80% reduction in energy/water use by 2050 in industrial sector operations

Actions:
1. Adopt a plan designed to improve the resource efficiency of the community’s industrial sector
2. Adopt policies that promote shifts to improved data collection
3. Adopt regulations or codes that promote the industrial sector to reduce energy and water use
4. Partner with organizations to encourage the collection and reporting of energy and water use data from the industrial sector
5. Work collaboratively with industrial sector leaders to set local targets and strategies to reduce energy and water use
6. Create training and educational opportunities for industrial sector employees to learn about current best practices and techniques for reducing energy and water use
7. Administer programs that support the industrial sector’s transition to less energy and water intensive practices
8. Create financial incentives or industry-focused challenges to encourage companies to reduce the intensity of their resource consumption
9. Develop the necessary infrastructure for the industrial sector to transition to less resource intensive practices

Assessment:
As noted in the Resource Efficient Buildings Objective, there have been a variety of laws, programs, and activities focused on reducing energy use in buildings, and many of these are applicable to industrial sector buildings. However, the County has not focused on reducing energy and water use related directly to industrial processes, which is the focus of this Objective. This may be due in part to the knowledge-based nature of the industrial sector in the County, which is focused on life sciences, information technology, and healthcare. However, many private sector entities in these and other industrial fields likely have sustainability initiatives of their own. For example, the Office is aware of several biotechnology companies that extensively use benchmarking and other tools to identify energy efficiency opportunities. As another example, a large landscaping firm that worked with the Office
through the Green Business Certification Program had a number of initiatives to reduce energy and water use in their operations.

Moving forward, the Office will strive to identify opportunities to support and publicize those businesses focused on reductions in energy and water use associated with their operations. In addition to the sectors noted above, there may be opportunities in the agricultural sector, given that preservation of, and support to, this sector has been a top County priority for decades.
Goal Area: Climate & Energy

Objective: Resource Efficient Buildings

Desired Outcome: Progress towards achieving an 80% reduction by 2050 in the energy/water use intensity of the community’s building stock

Actions:

1. Adopt a building energy efficiency plan to improve the energy and water efficiency of commercial, residential, and institutional buildings in the community
2. Adopt or upgrade building codes to ensure that new and renovated buildings are more water and energy efficient
3. Adopt an energy and water use information disclosure ordinance requiring energy and water users to disclose consumption levels
4. Create an education and outreach campaign or challenge to engage citizens and businesses in energy and water efficiency efforts
5. Establish a committee to provide recommendations on policies related to resource efficiency in buildings or integrate this role into the work of existing committees
6. Work with the local utilities to improve energy efficiency programs and increase sub-metering throughout the community
7. Train inspectors to enforce water and energy efficiency standards in adopted building codes
8. Create incentives to encourage the construction of energy and water efficient buildings
9. Create a program to help homeowners and renters upgrade to more energy and water efficient homes
10. Renovate local government buildings to improve energy and water use efficiency

Examples of Activity Related to Resource Efficient Buildings:

- Adopted Building Energy Benchmarking Law (Bill 2-14), the first county in the nation to pass such a measure.
- Adopted Bill 6-15 creating a commercial property assessed clean energy (PACE) program to facilitate installation of renewable energy systems on commercial and multi-family properties.
- Adopted Bill 18-15 creating a County Green Bank to promote investment in clean energy technologies.
Maryland EmPOWER programs, offered through the State’s electric utilities, provide a variety of incentives supporting adoption of energy efficiency measures in commercial and residential buildings.

The County partners with the Greater Capital Area Association of REALTORS (GCAAR) and has, since 2014, been providing bi-annual continuing education courses for its members on the environmental programs that DEP offers, as well as understanding and utilizing home energy efficiency rating systems.

DEP is part of a regional collaborative, and supported by the U.S. DOE working to expand the use and display of third-party high performance green home certifications.

MCPS geoxchange systems provide heating/cooling in 25 schools (with 5 more systems under construction); since 2008, MCPS has achieved a 25 percent reduction in high school water use.

Montgomery College targets all buildings for LEED Gold.

For optional method projects in certain zones, a developer can receive points toward the public benefit requirement for buildings that exceed the energy-efficiency standards by 17.5% for new buildings or 10% for existing buildings.

Assessment:
GHG emissions associated with building energy use have dropped below the 10% reduction by 2015 target established in the CPP, although building energy use has trended upward in the last few years (See Figures 4-1 through 4-7 in the Sustainability Metrics section).

Dating to the adoption of the County’s Green Building Law in 2006, the County has actively focused on increasing the resource efficiency of commercial sector buildings. Recent actions include the adoption of a commercial benchmarking law and the on-going development of several energy efficiency and renewable energy financing initiatives. Since the CPP was published in 2009, market demand for “green” buildings has resulted in a significant increase in the number of buildings recognized and certified as more sustainable and energy efficient (See Figures 4-8 through 4-10), as well as utilizing renewable energy (See Figure 4-11). The state’s adoption of the EmPOWER Maryland program has provided significant incentives for residential and commercial energy efficiency programs, funded by a small surcharge on each utility customer’s electric bill (See Figure 4-11).
Goal Area: Climate & Energy

Objective: Resource Efficient Public Infrastructure

Desired Outcome: Progress towards achieving an 80% reduction in energy/water use by public infrastructure

Actions:
1. Develop targeted strategies to improve the resource efficiency of public infrastructure systems
2. Require public infrastructure managers to consider thorough energy and water consumption implications when designing and installing new infrastructure components
3. Adopt codes or design standards for new public infrastructure that will increase energy and water efficiency
4. Partner with state or regional entities that own or operate infrastructure within the jurisdiction to develop strategies to reduce energy and water usage
5. Engage public works and infrastructure managers in voluntary GHG reporting
6. Develop training programs for infrastructure operators on energy and water efficiency techniques
7. Make specific upgrades to infrastructure systems that will increase energy and water efficiency
8. Increase sub-metering from specific infrastructure systems to collect better information on energy and water use

Examples of Activity Related to Resource Efficient Public Infrastructure:
- WSSC has 4 MW of solar power on wastewater treatment plants, and plans 5 additional MW in 2016/2017.
- WSSC’s plan to shift water production from the Potomac Water Filtration Plant to the Patuxent Water Filtration Plant will save energy related to lower pumping requirements.
- Systems being implemented at WSSC wastewater treatment plants will convert sludge to electricity by capturing methane through a combined heat and power plant, and reduce the electricity used per ton of biosolids processed.
- The roof of the Shady Grove Processing Facility and Transfer Station hosts a photovoltaic system producing about 30 percent of the facility’s energy needs, and which will generate more than six million kWh over the 20-year life of the project.
The David F. Bone Equipment Maintenance and Transit Operations Center (EMTOC) features more than four acres of vegetated roof, along with an efficient bus washer and water reclamation system that treats contaminated water runoff saving about 80% of the water used in the wash process.

Assessment:
This objective covers a broad range of infrastructure not covered under Resource Efficient Buildings, including airports, power plants, public transit systems and transit buildings, street lights and traffic signals, and water and wastewater systems. The Office was not able to fairly assess the level of activity covered under the Resource Efficient Public Infrastructure Objective for this report. Pursuit of STAR Certification would provide the opportunity for the Office to engage more closely with those entities responsible for the County’s public infrastructure.
Goal Area: Climate & Energy

Objective: Waste Minimization

Desired Outcome: Progress towards achieving a 100% reduction by 2050 in total solid waste generated within the jurisdiction requiring disposal

Actions:

1. Adopt a waste management plan that identifies the community’s greatest sources of waste, sets formal waste reduction targets and establishes actions to help reach the community’s waste reduction aims
2. Adopt specific product bans that will significantly advance progress towards waste reduction goals
3. Create a public education campaign or a focused outreach effort to inform residents and businesses of their roles in achieving waste reduction targets
4. Develop or participate in a regional coalition that enhances the community’s ability to address waste management targets
5. Implement incentives or enforce regulations ensuring that residents and businesses are working toward community waste reduction targets
6. Provide services to enable residents and businesses to recycle and reduce their waste footprint
7. Collaboratively create and run at least 2 targeted recycling programs at key locations throughout the community
8. Operate at least 2 specific waste management programs for critical waste stream types found in the community, such as: organic waste, hazardous waste, electronic waste, and construction / demolition waste
9. Create a Materials Recovery Facility (MRF) system for the community

Examples of Activity Related to Waste Minimization:

- Compost Facility constructed and operational since 1982; materials Recovery Facility (MRF) constructed and operational since 1991.
- Montgomery County Executive Regulation 15-04 AM (Residential and Commercial Recycling); Montgomery County Executive Regulation 18-04 (Collection, Transport and
Disposition of Solid Waste and Recyclables); Chapter 48 Montgomery County Code (Solid Waste Laws).

- Adopted Bill 41-14 banning the sale and use of polystyrene; bans on disposal of yard trim and mandated recyclable materials at the Transfer Station.
- Weekly curbside recycling collection services to all single-family homes; confidential paper shredding; donation of gently used household goods and clothing for reuse events; electronics recycling collections; yard trim recycling program; household hazardous waste program; ECOWISE Program for small quantity generators of hazardous waste; and reuse of reusable building materials.
- Annual recycling and waste reduction outreach, education, technical assistance and training including 300 community events; 3,200 site visits to multi-family properties and over 10,350 site visits to businesses and organizations; and on-site composting training workshops to encourage management of grass and leaves at the source.
- Since 2005, MCPS has achieved a 30 percent reduction in solid waste generated despite an increase in student enrollment by over 10 percent.
- In 2014, MCPS began using recyclable paperboard lunch trays in all schools replacing the polystyrene trays.

Assessment:
The County has extensive programs devoted to reducing waste generation and recycling waste materials, targeting an aggressive goal of diverting/recycling 70% of its waste by 2020. County law requires recycling of a variety of materials by the residential, multi-family, and commercial sectors. Curbside collection of recycling is provided to every single family home in the County, and DEP staff in the Division of Solid Waste Services provide broad support to multi-family and commercial properties through education campaigns, site visits, trainings, recognition programs, and special events. The County’s waste diversion rate has increased substantially over the years, rising from 38% in FY05 to 61% in FY14 (See Figure 4-19 in the Sustainability Metrics section).
Goal Area: Built Environment

Objective: Compact & Complete Communities

Desired Outcome: Achieve defined thresholds demonstrating compact, walkable development and neighborhoods connected to transit, offering diverse uses and services, and providing housing for all income levels

Actions:

1. Demonstrate that the comprehensive plan supports compact, mixed-use development
2. Identify areas appropriate for compact, mixed-use development on the community’s official future land use map
3. Adopt regulatory strategies that permit or incentivize increased residential and employment densities and diverse uses in transit-served areas and areas identified for compact, mixed-use development
4. Require walkability standards for new development that include sidewalks on both sides of roadways, street trees, ADA accessible crosswalks, roadways designed for maximum travel speeds of 25 mph, and maximum block lengths in transit-served areas and areas identified for compact, mixed-use development
5. Require build-to lines for commercial and residential structures in transit-served areas and areas identified for compact, mixed-use development
6. Adopt advanced parking strategies in transit-served areas and areas identified for compact, mixed-use development
7. Require, incentivize, or subsidize creation of affordable housing in transit-served areas and areas identified for compact, mixed-use development
8. Establish a design review board, neighborhood commission, or similar appointed citizen body that provides comments on proposed development projects
9. Implement programs to preserve and maintain existing subsidized and unsubsidized affordable housing in transit-served areas, compact and mixed-use areas, and areas with rapidly-rising housing costs
10. Increase the percentage of households with access to transit

Examples of Activity Related to Compact & Complete Communities:

- With the adoption of the first Commercial/Residential (C/R) Zone in 2010, recent plans have recommended mixed use zones that encourage more compact development. These zones are intended to “encourage a mix of commercial and residential uses; create interactive
streets; provide meaningful public spaces; and foster jobs and services where people can live, work, shop and play within a given neighborhood.”

- Most of the land in proximity to metro stations has CR zoning that encourages high density, mixed-use development; the majority of the zones in transit-served areas (primarily CR zones) have a build-to area requirement; some zones incentivize the purchase of transfer of development rights (TDRs) to achieve greater densities.

- Burtonsville Crossroads Master Plan increased housing density near State Park and Ride Lot/Bus Hub.

- The revised zoning code includes improved standards and recommendations supporting employment densities, maximum block length, compact, mixed use development, creative parking strategies, affordable housing and walkability near community hubs and transit centers.

- Parking lot districts in Silver Spring, Bethesda, Forest Glen and Wheaton allow developers to pay a fee to the parking lot district in lieu of providing parking onsite.

- All developments with more than 20 residential units are required to provide 12.5% of the units as Moderately Priced Dwelling Units (MPDUs).

- The Master Plan process includes coordination with the Housing Opportunities Commission to preserve and created affordable housing.
Goal Area: Built Environment

Objective: Infill & Redevelopment

Desired Outcome: Increase percentage of new growth that occurs in infill/redevelopment areas and that does not require extension of water, sewer, or road infrastructure

Actions:
1. Develop an inventory of infill, previously developed, brownfield, or greyfield sites of greatest priority and potential for development or redevelopment
2. Adopt a policy commitment to limited or no expansion of physical jurisdiction boundaries or extension of urban services
3. Use regulatory and design strategies to encourage compatible infill and redevelopment with a mix of housing types in neighborhoods close to employment centers, commercial areas, and where transit or transportation alternatives exist
4. Educate residents and community groups about the importance of infill and redevelopment, brownfield assessment findings, and design strategies for compatible neighborhood development
5. Collaborate with state and federal authorities to advance brownfields cleanup
6. Establish a program to provide information and assistance to owners, potential buyers, and developers regarding brownfield assessments, redevelopment strategies, and available resources
7. Support temporary, creative neighborhood uses for vacant properties and greyfields
8. Provide financial incentives to encourage infill and redevelopment
9. Perform proactive zoning enforcement and vacant lot cleanup or maintenance to improve the attractiveness of a redevelopment or blighted area and to deter crime
10. Target local infrastructure improvements to revitalize redevelopment or blighted areas and catalyze private reinvestment

Examples of Activity Related to Infill & Redevelopment:
- Participation in brownfield site remediation programs is a condition of development plan approval in many cases.
- The Burtonsville Crossroads Neighborhood Plan and the Sandy Spring Rural Village Plan encouraged infill and redevelopment in employment centers, commercial areas, and where transit or transportation alternatives exist.
Goal Area: Built Environment

Objective: Transportation Choices

Desired Outcome: Achieve defined thresholds related to walking, bicycling, and transit use; transportation affordability; pedestrian/bicyclist safety; and reduction in vehicle miles traveled

Actions:
1. Adopt a bicycle and/or pedestrian master plan that prioritizes future projects to improve safety and access to non-motorized transportation
2. Adopt a complete streets policy that addresses all users, applies to all projects with limited exceptions, and includes specific next steps for implementation
3. Subdivision and other development regulations require walkability standards that encourage walking and enhance safety
4. Local government offers employee incentives to encourage commuting by modes other than single-occupancy vehicles
5. Implement at least 2 types of focused enforcement programs to ensure pedestrian, bicycle, and motorist safety
6. Increase the percentage of households with access to transit
7. Increase the mileage of sidewalks, particularly on arterial or collector roads that connect people with destinations
8. Increase the mileage of striped or buffered bicycle lanes, cycle-tracks, parallel off-street paths and/or other dedicated facilities
9. Establish or support a community-wide public bike share program
10. Construct or retrofit transportation infrastructure to meet standards in the Americans with Disabilities Act (ADA)

Examples of Activity Related to Transportation Choices:
- The County currently has a Countywide Bicycle Master Plan underway scheduled for adoption in fall 2017.
- Montgomery County has adopted a Complete Streets Policy as part of Bill 33-13.
- Subdivision regulations require provision of sidewalks, paths, and walkways for internal circulation and access.
- MCDOT offers County employees $35 in direct transit/vanpool benefits thru the “Get In” program; unlimited free Ride On bus use; showers and lockers are available at the Executive Office Building for use by those who bike or walk to work; 14 parking spaces in County facilities are provided for a car sharing service.
- MCDOT is improving safety and access for pedestrians and bicyclists by conducting pedestrian road safety audits; retiming traffic signals to provide pedestrians with more time to cross the street; designing new street lighting; installing traffic calming measures and speed humps and conducting Safe Routes to School evaluations.
- MCDOT constructed nearly four miles of new sidewalks and reconstructed about 2.5 miles of sidewalks and ramps to meet ADA standards; ADA accessible pathways include “knee walls” at sloped sites to prevent wheelchairs from rolling and pedestrian refuge islands at bus stops to establish connections to existing sidewalks and reduce the distance to crosswalks.
- MCDOT installed shared lane markings along 22 road segments around the Shady Grove Hospital, Rockville and Silver Spring area.
- MCDOT launched a Bikeshare system of 51 stations and 450 bikes – the first year-round system in Maryland; initiated a pilot program for low income residents who receive a free a one-year membership in Bikeshare, a bike helmet, safety training and route planning assistance.
- Montgomery College offers free shuttle buses between campuses, subsidizes Student Ride-on bus fares, and offers employees a pre-tax public transportation flex spending program.
Goal Area: Natural Systems

Objective: Green Infrastructure

Desired Outcome: Achieve defined thresholds related to percentage of land area occupied by green infrastructure, and access of residents to green infrastructure

Actions:
1. Create a community-wide green infrastructure plan that is integrated with other relevant local plans
2. Adopt local design criteria and associated codes that require proactive green infrastructure practices for new developments
3. Adopt a policy requiring relevant departments be engaged during early reviews of proposed developments to ensure that project sites are evaluated for green infrastructure potential and environmental protections are put in place prior to construction
4. Partner with key community groups and other stakeholders to ensure that green infrastructure practices are used in appropriate settings
5. Create incentive programs to encourage land owners to adopt green infrastructure practices that link to the broader green infrastructure systems
6. Establish a green infrastructure monitoring program and regularly report on status of desired outcomes
7. Increase the percentage of funding invested in green infrastructure
8. Upgrade public spaces and public buildings based upon locally adopted or recognized best practices in green infrastructure. Where possible, create demonstration projects to enhance public support
9. Provide for ongoing maintenance of green infrastructure at level required to maintain evapotranspiring functions

Examples of Activity Related to Green Infrastructure:
- A countywide green infrastructure map and strategy are currently under development.
- The County’s Environmental Guidelines for Development are used to determine required buffers to protect environmental features on development sites.
- Area master plans, which are periodically updated, make recommendations for forest preservation areas and park acquisition.
• The County’s Stormwater Management Regulations require new development to implement Environmental Site Design (ESD) principles and practices to the Maximum Extent Practicable (MEP).
• M-NCPPC’s Leaves for Neighborhoods Program provides rebates for individual property owners who want to plant trees, and the Shades of Green program provides trees for land owners within the County’s Central Business Districts.
• The Tree Montgomery program provides free shade trees to single family homes, multi-family communities, and other private property.
• Stream restoration activity conducted by DEP and Montgomery Parks helps restore waterways to natural conditions.
• The Rainscapes Rewards Program offers rebates to property owners who install stormwater management techniques such as rain gardens, conservation landscaping and rain barrels.
• The CR Zone has public benefits incentives for environmental enhancements.
Goal Area: Natural Systems

Objective: Invasive Species

Desired Outcome: Demonstrate reduction in introduction of new invasive species and control of existing invasive species

Actions:

1. Develop a community-wide invasive species integrated pest management plan
2. Adopt a local ordinance requiring control of listed priority invasive species or enact a native plant ordinance for private and public landscaping
3. Partner with local volunteer groups or neighborhood associations to restore priority natural systems areas by planting native plants or improving local wildlife habitat
4. Partner with local volunteer groups to monitor vector zones or areas at greatest risk of invasive species invasion, and organize “weed pulls” and other invasive management actions
5. Create a public education campaign or targeted outreach effort to inform residents and/or plant or animal sellers about the hazards of invasive species
6. Use incentive programs to encourage local businesses and private owners to grow and sell native or desirable plants and animals and not sell invasive species or other harmful plants and animals
7. Enforce regulations to control the use and sale of invasive species
8. Ensure that all local government-owned buildings use native plants or non-invasive species in landscaping
9. Take actions to prevent the spread of invasive species, especially in priority natural systems areas, such as monitoring, eradication, or other control programs

Examples of Activity Related to Invasive Species:

- M-NCPPC has developed and implemented a Vegetation Management plan, Non-Native Invasive Plant Management plan, and Non-Native Invasive Plant Best Management Practices for parkland
- M-NCPPC created the Weed Warriors volunteer program, and created mobile application software to measure and monitor non-native invasive plant locations through time.
- M-NCPPC utilizes its Weed Warriors participants, watershed advocacy groups, and school and corporate volunteer groups for planting restoration sites, and during FY15 conducted white-tailed deer management in 17,000 acres of parkland with assistance from volunteer hunters and Park Police.
- M-NCPPC has website and social media accounts, and kiosk and pamphlet based materials specific to non-native species, and provided outreach efforts to numerous nonprofit organizations and public agencies.
- Some Forest Conservation Plans require eradication of invasive species and at least 2 years of post-eradication control.
- M-NCPPC has a comprehensive management plan addressing non-native invasive plants, and during FY15 conducted management, in accordance with this plan, upon 51 parcels of parkland.
**Goal Area:** Natural Systems

**Objective:** Natural Resource Protection

**Desired Outcome:** Achieve defined targets related to the protection and restoration of natural resources

**Actions:**

1. Develop a plan to protect and restore natural resources through land conservation, corridor connectivity, and restoration of biological integrity and function
2. Adopt land use regulations that establish appropriate wetland, stream, and shoreline buffer widths and adjacent land uses
3. Create an advisory board to inform land conservation and restoration activities
4. Partner with adjacent jurisdictions, state and federal agencies, and local or regional non-profit organizations to advance land conservation and restoration efforts
5. Sponsor educational and outreach activities to increase ecological literacy and knowledge about natural resource protection
6. Adopt land use strategies to incentivize permanent land conservation
7. Implement local and market-based financing strategies to acquire land or development easements, or fund restoration and maintenance activities
8. Restore, maintain, and monitor conserved natural lands to increase natural resource resilience, adaptability, and biological integrity

**Examples of Activity Related to Natural Resource Protection:**

- Master Plans often identify areas of high priority forest preservation or recommend areas for park dedication/acquisition; M-NCPPC does not allow the loss of streams or wetlands in the development process. While road projects and some mandatory referrals have impacted these resources, mitigation for these losses is required.
- M-NCPPC has Environmental Guidelines that set stream and wetland buffer minimums.
- M-NCPPC has website and social media accounts, kiosk and pamphlet based materials, and public and staff trainings and newsletters specific to natural resource protection.
- M-NCPPC, through its four nature centers and Brookside Gardens, provides over 1,700 programs and activities for children with an outdoor element which supports Maryland’s Children in Nature initiative; M-NCPPC is one of the original sponsors of this state wide initiative.
- M-NCPPC garners funding through partnerships with grant sources, State and local mitigation projects, development mitigation through land dedication, non-park mitigation
and restoration on parkland and Fee-In-Lieu reforestation, and through in-kind donations solicited through its Park Foundation.

- M-NCPPC has comprehensive programs to steward natural areas on parkland, and resources focused on aquatic and terrestrial habitats, stormwater management, and wildlife.
- M-NCPPC has designated Sensitive Areas, Best Natural Areas and Biodiversity Areas of parkland, and implemented a 1/3-2/3 policy for Regional Parks; these programs limit development acreage in parks, providing acreage dedicated for conservation.
The previous sections highlight the many programs and activities undertaken by the Office of Sustainability, other County government departments and agencies, non-profit organizations, and residents and businesses in the County. This section provides some metrics to demonstrate the effect of these activities, and the progress the County is making toward meeting its climate change and other sustainability goals.

As with the list of activities in the *Benchmarking Sustainability* section, the metrics presented here do not provide the full picture of the County’s progress. Although many key measures are presented, developing a complete set of sustainability metrics will be an evolving process, and require inputs from a wider variety of entities than were asked to contribute to this summary of the DEP Office of Sustainability. The *Benchmarking Sustainability* section introduced the STAR Community Rating System, which has as a fundamental component a comprehensive set of metrics. The Office will continue to explore the use of STAR as a tool to expand the scope of data included in this report, or in a wider sustainability report encompassing the full breadth of sustainability in Montgomery County.

### Building Fuel Energy Use

The CPP established targets for reductions in building energy use for the residential and commercial/multi-family sectors. For the residential sector, the plan called for steps to be taken to encourage 50% of the County’s homeowners to take steps to reduce energy use by 25% by 2020. In the commercial/multi-family sector, the target was a total reduction of 25% by 2020 across the sector.

Information on building energy use in the County is available from data collected as a result of the County’s fuel energy tax, which provides information on the consumption of electricity, natural gas, and other building fuels. These data are broken out by residential and non-residential use, based on the structure of the County’s energy tax and the nature of utility tariffs from electricity and gas suppliers. Generally, larger multi-family properties are included in the non-residential data.

Residential building energy use is shown in Figures 4-1 and 4-2. Overall, residential building energy use has grown more than 7% from the FY05 base year. Energy use dropped to a low point in FY12, but has grown by more than 26% in the last four years.

Non-residential building energy use is shown in Figure 4-3 and 4-4. Non-residential energy use is up by more than 12% from the FY05 base year. Non-residential building energy use has followed the same general trend as residential use, reaching a low point in FY12 but growing by nearly 13% in the last four years.
Determining the reasons for fluctuations in building energy use is complex. Energy use may be influenced by economic activity, weather, and fuel prices. In addition, the data shows total energy use in the building sector and is not adjusted to reflect increases in population or building square footage.

**Greenhouse Gas Emissions**

The 2009 Montgomery County Climate Protection Plan established the following goals for greenhouse gas (GHG) reductions:

“...reduce County wide greenhouse gas emissions to 80% below the amount...in the base year [FY05]...including a plan to stop increasing County wide greenhouse gas emissions by 2010 and achieve a 10% reduction every 5 years through 2050.”

The three primary components of the County’s measured GHG emissions were residential and non-residential building energy use, and on-road transportation. The Office of Sustainability is currently working to develop a standard approach for regularly updating transportation related GHG emissions.

Information from the County’s fuel energy tax provides the raw data for calculating GHG emissions from building related energy use. Utilizing factors established by the U.S. Environmental Protection Agency (USEPA), data on energy consumption can be converted to GHG emissions. In keeping with standard protocols, these emissions are expressed in terms of carbon dioxide equivalents (CO2e) to account for the global warming potential of other greenhouse gases (methane and nitrous oxide) emitted when electricity is generated or other building fuels are consumed.

Using updated energy use data from energy tax records, and the latest emission factors published by the USEPA, the Office of Sustainability has updated the calculated base year (FY05) GHG emissions associated with building energy use. This update has resulted in an adjustment to the FY05 base year GHG emissions from building energy use reported in the CPP from 8.088 million metric tons MMT (MMTCO2e) to 7.205 MMTCO2e. Progress toward meeting the County’s GHG reduction goals defined above will be calculated against this revised base figure.

Building-related GHG emissions are shown in **Figures 4-5 and 4-6**. Despite the increase in building energy use since the FY05 base year, GHG emissions from building fuel use are down. In fact, with a drop of just over 11%, this component of the County’s measured GHG emissions has met the target of a 10% reduction by FY15. Consistent with the pattern of building energy...
use in the County, building-related GHG emissions were at their lowest in FY12, down nearly 23% from the FY05 base. Since FY12, however, emissions have increased more than 15%.

The reduction in GHG emissions from buildings is primarily attributable to the greening of the electricity supply. As shown in Figure 4-7, the average GHG emissions from the electricity supplied to this region have dropped from 1,145 lbs/MWh CO2e to 863 lbs/MWh CO2e, a reduction of nearly 25%. This information is compiled in the U.S. EPA’s Emissions & Generation Resource Integrated Database (eGRID), which is comprehensive source of data on the environmental characteristics of the nation’s electric power generation system. The data from eGRID is aggregated in a variety of ways. The emissions factors in Figure 4-7 are from the eGRID subregion identified as “RFC East,” which is the eastern half of the region managed by Reliability First, one of eight regional entities responsible for ensuring the reliability of the nation’s electric power system. Data are not available from eGRID for each year. As a result, in this analysis, GHG emissions from electricity use in a given year are based on the most recent year for which data is available (e.g., emissions for FY12-FY15 are based on 2012 emissions factors). Should updated eGRID emissions data become available for recent years, the County’s GHG emissions from building energy use may be lower than that shown in Figures 4-5 and 4-6.

Several points should be noted related to the GHG emissions data. First, the calculated emissions are based on emission factors associated with the combustion of the fuels used to generate the energy. For electricity, this means the emissions at the power plant; for natural gas, LPG, and heating oils, this means at the building where the fuel is used. Line losses in the electric distribution system, fugitive emissions due to the extraction of natural gas and oil, and other indirect emissions are not included in this analysis.

Second, because Maryland is a deregulated electricity market, consumers may obtain their electricity supply from an entity other than their local utility. A number of suppliers offer “green” power, that is, power generated by wind, solar, or another clean, renewable source. The County does not have access to data on how many customers may be using some form of clean electricity. As a result, the actual GHG emissions associated with the electricity used by Montgomery County customers may be lower than the calculated emissions if County customers purchase a greater amount of clean electricity than the average customer in the RFC East eGRID subregion.
Residential building energy use has grown more than 7% from the FY05 base year. Energy use dropped to a low point in FY12, but has grown by more than 26% in the last four years.

Source: Montgomery County Fuel Energy Tax Data
Figure 4-2

Building Fuel Energy Use
Residential

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<tr>
<th>Year</th>
<th>Electricity (KWh)</th>
<th>Gas (Therms)</th>
<th>LPG (Pounds)</th>
<th>No. 1 (Gallons)</th>
<th>No. 2 (Gallons)</th>
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<td>210,947,321</td>
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<td>43,305</td>
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<table>
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<th>LPG (MMBtu)</th>
<th>No. 1 (MMBtu)</th>
<th>No. 2 (MMBtu)</th>
<th>Total (MMBtu)</th>
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<td>19,544,249</td>
<td>255,405</td>
<td>3,217</td>
<td>1,190,827</td>
<td>37,169,540</td>
</tr>
<tr>
<td>FY09</td>
<td>16,033,266</td>
<td>21,114,132</td>
<td>226,686</td>
<td>2,924</td>
<td>1,305,160</td>
<td>38,682,167</td>
</tr>
<tr>
<td>FY10</td>
<td>15,654,663</td>
<td>20,329,473</td>
<td>203,792</td>
<td>2,977</td>
<td>1,295,950</td>
<td>37,486,856</td>
</tr>
<tr>
<td>FY11</td>
<td>15,514,405</td>
<td>21,199,043</td>
<td>214,656</td>
<td>1,799</td>
<td>1,289,896</td>
<td>38,219,800</td>
</tr>
<tr>
<td>FY12</td>
<td>15,145,641</td>
<td>16,880,400</td>
<td>149,714</td>
<td>1,273</td>
<td>932,288</td>
<td>33,109,316</td>
</tr>
<tr>
<td>FY13</td>
<td>15,047,585</td>
<td>20,534,517</td>
<td>162,520</td>
<td>1,327</td>
<td>443,678</td>
<td>36,189,627</td>
</tr>
<tr>
<td>FY14</td>
<td>15,838,307</td>
<td>22,917,425</td>
<td>169,194</td>
<td>875</td>
<td>1,266,746</td>
<td>40,192,546</td>
</tr>
<tr>
<td>FY15</td>
<td>17,154,012</td>
<td>23,232,327</td>
<td>187,168</td>
<td>1,895</td>
<td>1,192,131</td>
<td>41,767,534</td>
</tr>
</tbody>
</table>
Non-residential energy use is up by more than 12% from the FY05 base year. Non-residential building energy use has followed the same general trend as residential use, reaching a low point in FY12 but growing by nearly 13% in the last four years.

Figure 4-3

Building Fuel Energy Use
Non-Residential
(Million BTUs)

Source: Montgomery County Fuel Energy Tax Data
### Building Fuel Energy Use

**Non-Residential**

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity (KWh)</th>
<th>Gas (Therms)</th>
<th>LPG (Pounds)</th>
<th>No. 1 (Gallons)</th>
<th>No. 2 (Gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>5,383,935,207</td>
<td>120,335,381</td>
<td>6,245,318</td>
<td>176,168</td>
<td>8,070,670</td>
</tr>
<tr>
<td>FY06</td>
<td>5,630,419,951</td>
<td>118,696,889</td>
<td>5,345,175</td>
<td>104,661</td>
<td>6,920,213</td>
</tr>
<tr>
<td>FY07</td>
<td>5,691,216,069</td>
<td>121,690,531</td>
<td>4,981,122</td>
<td>116,827</td>
<td>6,077,457</td>
</tr>
<tr>
<td>FY08</td>
<td>5,634,657,655</td>
<td>126,809,047</td>
<td>6,327,115</td>
<td>89,492</td>
<td>6,735,229</td>
</tr>
<tr>
<td>FY09</td>
<td>5,606,280,263</td>
<td>136,619,028</td>
<td>4,725,544</td>
<td>23,249</td>
<td>5,241,570</td>
</tr>
<tr>
<td>FY10</td>
<td>5,527,912,879</td>
<td>131,562,194</td>
<td>4,239,639</td>
<td>66,127</td>
<td>6,883,650</td>
</tr>
<tr>
<td>FY11</td>
<td>5,363,937,023</td>
<td>135,335,381</td>
<td>4,195,407</td>
<td>102,284</td>
<td>5,842,986</td>
</tr>
<tr>
<td>FY12</td>
<td>5,454,742,214</td>
<td>123,355,584</td>
<td>2,692,220</td>
<td>9,179</td>
<td>4,194,417</td>
</tr>
<tr>
<td>FY13</td>
<td>5,122,496,129</td>
<td>140,694,168</td>
<td>2,571,274</td>
<td>0</td>
<td>2,396,099</td>
</tr>
<tr>
<td>FY14</td>
<td>5,379,664,759</td>
<td>145,252,440</td>
<td>3,891,392</td>
<td>104,679</td>
<td>2,982,058</td>
</tr>
<tr>
<td>FY15</td>
<td>5,709,167,414</td>
<td>157,214,153</td>
<td>3,947,640</td>
<td>22,423</td>
<td>2,858,482</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity (MMBtu)</th>
<th>Gas (MMBtu)</th>
<th>LPG (MMBtu)</th>
<th>No. 1 (MMBtu)</th>
<th>No. 2 (MMBtu)</th>
<th>Total (MMBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>18,369,987</td>
<td>12,033,538</td>
<td>135,261</td>
<td>24,487</td>
<td>1,113,752</td>
<td>31,677,026</td>
</tr>
<tr>
<td>FY06</td>
<td>19,210,993</td>
<td>11,869,689</td>
<td>115,766</td>
<td>14,548</td>
<td>954,989</td>
<td>32,165,985</td>
</tr>
<tr>
<td>FY07</td>
<td>19,418,429</td>
<td>12,169,053</td>
<td>107,881</td>
<td>16,239</td>
<td>838,689</td>
<td>32,550,292</td>
</tr>
<tr>
<td>FY08</td>
<td>19,225,452</td>
<td>12,680,905</td>
<td>137,033</td>
<td>12,439</td>
<td>929,462</td>
<td>32,985,290</td>
</tr>
<tr>
<td>FY09</td>
<td>19,128,628</td>
<td>13,661,903</td>
<td>102,346</td>
<td>3,232</td>
<td>723,337</td>
<td>33,619,445</td>
</tr>
<tr>
<td>FY10</td>
<td>18,861,239</td>
<td>13,156,219</td>
<td>91,822</td>
<td>9,192</td>
<td>949,944</td>
<td>33,068,416</td>
</tr>
<tr>
<td>FY11</td>
<td>18,301,753</td>
<td>13,533,538</td>
<td>90,864</td>
<td>14,217</td>
<td>806,332</td>
<td>32,746,705</td>
</tr>
<tr>
<td>FY12</td>
<td>18,611,580</td>
<td>12,335,558</td>
<td>58,308</td>
<td>1,276</td>
<td>578,829</td>
<td>31,585,552</td>
</tr>
<tr>
<td>FY13</td>
<td>17,477,957</td>
<td>14,069,417</td>
<td>55,689</td>
<td>0</td>
<td>330,662</td>
<td>31,933,724</td>
</tr>
<tr>
<td>FY14</td>
<td>18,355,416</td>
<td>14,525,244</td>
<td>84,280</td>
<td>14,550</td>
<td>411,524</td>
<td>33,391,014</td>
</tr>
</tbody>
</table>
Consistent with the pattern of building energy use in the County, building-related GHG emissions were at their lowest in FY12, down nearly 23% from the FY05 base. Since FY12, emissions have increased more than 15%. However, with a drop of just over 11% since the FY05 base year, this component of the County’s measured GHG emissions has met the target of a 10% reduction by FY15.

Source:
- Montgomery County Fuel Energy Tax Data
- http://www.epa.gov/energy/egrid
### Residential Building-Related GHG Emissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity (MMTCO2e)</th>
<th>Gas (MMTCO2e)</th>
<th>LPG (MMTCO2e)</th>
<th>No. 1 (MMTCO2e)</th>
<th>No. 2 (MMTCO2e)</th>
<th>Total (MMBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>2.416</td>
<td>1.120</td>
<td>0.015</td>
<td>0.000</td>
<td>0.123</td>
<td>3.676</td>
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<tr>
<td>FY06</td>
<td>2.533</td>
<td>1.011</td>
<td>0.014</td>
<td>0.000</td>
<td>0.110</td>
<td>3.669</td>
</tr>
<tr>
<td>FY07</td>
<td>2.361</td>
<td>0.948</td>
<td>0.018</td>
<td>0.000</td>
<td>0.099</td>
<td>3.427</td>
</tr>
<tr>
<td>FY08</td>
<td>2.290</td>
<td>1.038</td>
<td>0.016</td>
<td>0.000</td>
<td>0.088</td>
<td>3.433</td>
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<tr>
<td>FY09</td>
<td>2.030</td>
<td>1.121</td>
<td>0.014</td>
<td>0.000</td>
<td>0.097</td>
<td>3.263</td>
</tr>
<tr>
<td>FY10</td>
<td>2.096</td>
<td>1.080</td>
<td>0.013</td>
<td>0.000</td>
<td>0.096</td>
<td>3.285</td>
</tr>
<tr>
<td>FY11</td>
<td>2.077</td>
<td>1.126</td>
<td>0.014</td>
<td>0.000</td>
<td>0.096</td>
<td>3.312</td>
</tr>
<tr>
<td>FY12</td>
<td>1.737</td>
<td>0.897</td>
<td>0.009</td>
<td>0.000</td>
<td>0.069</td>
<td>2.712</td>
</tr>
<tr>
<td>FY13</td>
<td>1.726</td>
<td>1.091</td>
<td>0.010</td>
<td>0.000</td>
<td>0.033</td>
<td>2.860</td>
</tr>
<tr>
<td>FY14</td>
<td>1.816</td>
<td>1.217</td>
<td>0.011</td>
<td>0.000</td>
<td>0.094</td>
<td>3.138</td>
</tr>
<tr>
<td>FY15</td>
<td>1.967</td>
<td>1.234</td>
<td>0.012</td>
<td>0.000</td>
<td>0.088</td>
<td>3.302</td>
</tr>
</tbody>
</table>

### Non-Residential Building-Related GHG Emissions

<table>
<thead>
<tr>
<th>Year</th>
<th>Electricity (MMTCO2e)</th>
<th>Gas (MMTCO2e)</th>
<th>LPG (MMTCO2e)</th>
<th>No. 1 (MMTCO2e)</th>
<th>No. 2 (MMTCO2e)</th>
<th>Total (MMBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>2.797</td>
<td>0.639</td>
<td>0.009</td>
<td>0.002</td>
<td>0.083</td>
<td>3.529</td>
</tr>
<tr>
<td>FY06</td>
<td>2.925</td>
<td>0.630</td>
<td>0.007</td>
<td>0.001</td>
<td>0.071</td>
<td>3.635</td>
</tr>
<tr>
<td>FY07</td>
<td>2.749</td>
<td>0.646</td>
<td>0.007</td>
<td>0.001</td>
<td>0.062</td>
<td>3.466</td>
</tr>
<tr>
<td>FY08</td>
<td>2.722</td>
<td>0.674</td>
<td>0.009</td>
<td>0.001</td>
<td>0.069</td>
<td>3.474</td>
</tr>
<tr>
<td>FY09</td>
<td>2.422</td>
<td>0.726</td>
<td>0.006</td>
<td>0.000</td>
<td>0.054</td>
<td>3.208</td>
</tr>
<tr>
<td>FY10</td>
<td>2.525</td>
<td>0.699</td>
<td>0.006</td>
<td>0.001</td>
<td>0.070</td>
<td>3.301</td>
</tr>
<tr>
<td>FY11</td>
<td>2.450</td>
<td>0.719</td>
<td>0.006</td>
<td>0.001</td>
<td>0.060</td>
<td>3.235</td>
</tr>
<tr>
<td>FY12</td>
<td>2.134</td>
<td>0.655</td>
<td>0.004</td>
<td>0.000</td>
<td>0.043</td>
<td>2.836</td>
</tr>
<tr>
<td>FY13</td>
<td>2.004</td>
<td>0.747</td>
<td>0.004</td>
<td>0.000</td>
<td>0.025</td>
<td>2.779</td>
</tr>
<tr>
<td>FY14</td>
<td>2.105</td>
<td>0.772</td>
<td>0.005</td>
<td>0.001</td>
<td>0.031</td>
<td>2.913</td>
</tr>
<tr>
<td>FY15</td>
<td>2.234</td>
<td>0.835</td>
<td>0.005</td>
<td>0.000</td>
<td>0.029</td>
<td>3.104</td>
</tr>
</tbody>
</table>
GHG emissions per unit of electricity generated have dropped nearly 25% from the FY05 base year. These data are from the U.S. EPA’s Emissions & Generation Resource Integrated Database (eGRID) database, a comprehensive source of data on the environmental characteristics nation’s electric power generation system.

Source: http://www.epa.gov/energy/egrid; RFC East eGRID subregion
Sustainable Buildings

Two indicators of a more sustainable building are achieving the ENERGY STAR label from the U.S. EPA or certifying a building through the U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) certification process. Montgomery County has more ENERGY STAR labeled and LEED certified buildings than any jurisdiction in Maryland. **Figure 4-8** shows the number of buildings in the County achieving the Energy Star label in a given year (the label must be earned each year) and the number achieving building design and construction (BD&C) certification in a given year (LEED BD&C certification is a one-time action). As of January 2016, 198 buildings in Montgomery County had achieved LEED BD&C certification based on USGBC data.

There are different levels of LEED BD&C certification – Certified, Silver, Gold, and Platinum. **Figure 4-9** shows the number of buildings achieving each certification level in the County by year since 2004.

Montgomery County Public Schools (MCPS) is one of the largest property managers in the County. Dating back to the adoption of an energy conservation policy in 1973, MCPS has had a history of incorporating sustainability into the design of its schools. Current building design practices include the installation of geoexchange heating/cooling and solar PV systems. All newly constructed schools go through the LEED certification process. **Figure 4-10** illustrates the growing number of schools in the MCPS system incorporating one or more of these features.

There has been explosive growth across the country in the installation of on-site solar PV systems. Montgomery County has been no exception. **Table 4-11** shows the number of permit applications for solar PV systems received by the Office of Permitting Services from FY14 through the first half of FY16. Applications for residential systems in the first half of FY16 have surpassed the total received in all of FY15, while applications for commercial systems have increased five-fold.

In 2008, the Maryland General Assembly passed the EmPOWER Maryland Energy Efficiency Act. This legislation directed Maryland’s utilities to develop incentives to encourage energy efficiency measures on residential and commercial buildings in the state. As illustrated in **Figure 4-12**, Pepco’s commercial and industrial customers in the County have utilized more than $40 million of incentives, saving more than 106,000 MWh of electricity.
ENERGY STAR data reflects the number of buildings achieving the ENERGY STAR label in a given year; the label must be earned each year. LEED data reflects the number of buildings achieving building design and construction (BD&C) certification in a given year; LEED BD&C certification is a one-time action. As of January 2016, there were 198 LEED certified buildings in Montgomery County.
Figure 4-9

ENERGY STAR data reflects the number of buildings achieving the ENERGY STAR label in a given year; the label must be earned each year. LEED data reflects the number of buildings achieving building design and construction (BD&C) certification in a given year; LEED BD&C certification is a one-time action.

Source: U.S. Green Building Council, as of January 2016
Sustainable features incorporated into Montgomery County Public School buildings include geoexchange heating/cooling and solar PV systems. All newly constructed schools go through the LEED certification process. Of MCPS’s 22 LEED certified schools, 21 are LEED Gold.

Source: Montgomery County Public Schools
Applications for residential solar PV systems in the first half of FY16 have surpassed the total received in all of FY15, while applications for commercial systems have increased five-fold.

Note: FY16 data through December 15, 2015.
Figure 4-12

Pepco’s commercial and industrial customers in Montgomery County have utilized more than $40 million of incentives, saving more than 106,000 MWh of electricity.

Source: Pepco
Transportation Choices

One hallmark of a sustainable community is a variety of transportation options. Montgomery County is served by an extensive public transportation network, including the Washington Metropolitan Transit Authority’s Metrorail and Metrobus system, and the County’s Ride On bus system. Current development patterns, and infrastructure installed by the private sector and the Department of Transportation, have enhanced the County’s network of sidewalks, bike lanes, and pedestrian and bike paths.

Figure 4-13 illustrates the travel mode split of Montgomery County commuters. According to data from the U.S. Census Bureau, since 2005 the percentage of workers traveling by vehicle alone has dropped slightly from around 67% to around 64%. There have been equivalent increases in other modes, or in the number of individuals working at home.

According to the Maryland Motor Vehicle Administration, there were nearly 775,000 vehicles registered in Montgomery County in FY15, the largest number ever. On a per capita basis, however, the number of vehicle registrations has dropped in the last five years from roughly 0.77 vehicles per capita in 2010 to 0.74 vehicles per capita in 2014. With a total population of more than one million people, this translates to 30,000 fewer vehicles currently registered in the County as compared to the 2010 rate. As shown in Figure 4-14 the County’s per capita registration rate is similar to Prince George’s County and less than other Maryland counties in the region. As shown in Figure 4-14, alternative vehicles make up just over 3% of the vehicles registered in Montgomery County, with the vast majority of these being gas/electric hybrid vehicles. Electric and electric hybrid vehicles are able to charge up at a growing number of publically available electric vehicle charging stations in the County.

The introduction of Capital Bikeshare into Montgomery County has increased opportunities for biking. There are 52 Bikeshare stations in the County, concentrated in Silver Spring/Takoma Park, Bethesda, and Rockville. These stations have a total capacity of 800 bikes. As shown in Figure 4-16, since the start of the program in the County, more than 91,000 trips have been taken, totaling more than 220,000 miles.

The Department of Transportation has an extensive capital improvement program to install new sidewalks, replace sidewalks that don’t comply with the Americans with Disabilities Act (ADA), and connect the sidewalk network to bus stops. Figure 4-17 shows the cumulative linear feet of sidewalk installed under this program in the last five years.
Since 2005 the percentage of workers traveling by vehicle alone has dropped slightly from around 67% to around 64%. There have been equivalent increases in other travel modes, or in the number of individuals working at home.
On a per capita basis, the number of vehicle registrations in Montgomery County has dropped in the last five years from roughly 0.77 vehicles per capita in 2010 to 0.74 vehicles per capita in 2014. With a total population of more than one million people, this translates to 30,000 fewer vehicles currently registered in the County as compared to the 2010 rate.

Vehicle Registrations - https://data.maryland.gov
Alternative vehicles make up just over 3% of the vehicles registered in Montgomery County, with the vast majority of these being gas/electric hybrid vehicles. There are a growing number of publically available electric vehicle charging stations in the County.

**Figure 4-15**

*Alternative Vehicles Registered in Montgomery County*

- Electric: 24,268
- Plug-In Hybrid Electric: 706
- Hybrid: 968

*Publicly Available Electric Vehicle Charging Stations in Montgomery County*

- County Gov't Garages: 43
- Business/Other Government: 76
- Residential: 8

Source: Maryland Motor Vehicle Administration, FY15 Data

Source: Plugshare, February 2016
The introduction of Capital Bikeshare into Montgomery County has increased opportunities for biking. There are 52 bikeshare stations in the County, with a total capacity of 800 bikes. Since the start of the program in the County, more than 91,000 trips have been taken, totaling more than 220,000 miles.

Source: Montgomery County Department of Transportation
The Department of Transportation (DOT) has an extensive capital improvement program to install new sidewalks, replace sidewalks that don’t comply with the Americans with Disabilities Act (ADA), and connect the sidewalk network to bus stops. In the last five years, DOT has installed or replaced more than 45 miles of sidewalk.

Source: Department of Transportation
Other Sustainability Metrics

As described in detail in section about the Office of Sustainability, the County has a Green Business Certification Program to support and recognize businesses that incorporate sustainability into their operations. The program recognizes businesses certified by B Lab, DEP (under two different programs for offices and landscapers), Green America, the Green Restaurant Association, and Green Seal. Figure 4-18 shows breakdown of businesses recognized under these programs, as well as the growth of the program since its inception in FY10.

An important component of a sustainable community is a robust solid waste management system that places an emphasis on reducing the volume of waste generated, recycling to the greatest extent possible, and minimizing the amount of waste disposed. Since the development of the materials recovery facility for mixed containers in the early 1990s, the County’s recycling goal has steadily increased. In 2012, Montgomery County established a goal of recycling or diverting 70% of the material in the solid waste stream by the end of 2020. The County utilizes a methodology approved by the Maryland Department of the Environment (MDE) in accordance with the Maryland Recycling Act for determining the waste diversion rate. The waste diversion rate is the recycling rate plus a source reduction credit, which is earned based upon waste reduction efforts. Montgomery County typically earns the maximum source reduction credit of 5%. Figure 4-19 shows the County’s waste diversion rate over time. The figure for 2015 is a projection pending MDE review.

As noted in the Benchmarking Sustainability section, the Montgomery County Public Schools (MCPS), Washington Suburban Sanitary Commission (WSSC), and Montgomery College (MC) have taken a number of steps to address the sustainability of their operations. Each of entities tracks a variety of data documenting their efforts. Figure 4-20 shows graphs MCPS includes in their annual Environmental Sustainability Management Plan related to GHG emissions and energy use. These graphs are updates of the data in the report which can be found at the “School Energy” link on the MCPS Department of Facilities homepage at http://www.montgomeryschoolsmd.org/departments/facilities/.

Similarly, WSSC and MC track energy use and GHG emissions. Figure 4-21 illustrates how the incorporation of renewable energy has affected the carbon footprint of these entities.
Figure 4-18

The Green Business Certification Program recognizes businesses certified by B Lab, DEP (under two different programs for offices and landscapers), Green America, the Green Restaurant Association, and Green Seal. The program has grown to recognize 84 businesses as of the end of FY15.
Montgomery County’s goal is to divert 70% of the material in the solid waste stream by the end of 2020. In accordance with the Maryland Recycling Act, the waste diversion rate is the recycling rate plus a source reduction credit, which is earned based upon waste reduction efforts. The figure for 2015 is a projection pending review by the Maryland Department of the Environment.
Montgomery County Public Schools (MCPS) extensively tracks GHG emissions and energy use. These figures are updates of charts included in MCPS’s Environmental Sustainability Management Plan, which can be found at the “School Energy” link on the MCPS Department of Facilities homepage at http://www.montgomeryschoolsmd.org/departments/facilities/.
As part of their sustainability strategy, WSSC and Montgomery College both utilize renewable energy to meet their energy use and GHG emission reduction goals.
As noted in the introduction, the goal of the Office of Sustainability is to promote sustainability in Montgomery County in collaboration with residents, businesses, and community-based organizations. As discussed in Section 2, the Office manages specific programs related to energy efficiency and renewable energy, green business development, and trees. Through its education and outreach efforts, it supports and promotes these programs, as well as a wide variety of other activities occurring throughout the community.

The Office’s efforts would hardly be noticed without the dedicated efforts of a significant number of individuals and organizations that contribute to making Montgomery County a more sustainable community. Some of these efforts are in partnership with the Office, some build on the Office’s work, but many are driven by a shared belief that reducing GHG emissions and energy use, preserving and planting trees, adopting more sustainable business practices, or engaging in a myriad of other sustainable activities makes good sense. This section highlights just a few of the individuals, businesses, and organizations we are proud to call partners in sustainability.
For Rockville Yoga Studio, Mindfulness Means Green

To the uninitiated, yoga may seem like little more than a group of flexible people bending their limbs in time to dreamy music.

But for the devoted, yoga is a full-fledged lifestyle. Fitness is a big part of the equation, but so is a concept called mindfulness. According to practitioners, mindfulness can help people become more environmentally conscious.

“Mindfulness to me doesn’t mean sitting in a field in silence,” says Arlet Koseian-Beckham, owner of extendYoga in Rockville. “It’s every part of my life, and more awareness of daily things. It’s synonymous with being aware of my surroundings, actions and decisions.”

It seems extendYoga can make a strong Exhibit A: extendYoga was certified by the Montgomery County Green Business Certification Program, and it motivates Arlet to operate her business in a way that attempts to influence all those who walk through the doors.

At the top of extendYoga’s sustainability portfolio is wind power, which provides 100% of the studio’s electricity. Other green measures at extendYoga include:
- Membership in Trees For the Future, a Montgomery County nonprofit that, in the case of extendYoga, plants one tree for every full-price class package purchased;
- Participating in the Montgomery County Adopt-A-Road program;
- Energy-efficient HVAC systems and LED lighting in 90 percent of the studio;
- Using email receipts instead of ink and paper;
- Refilling ink cartridges instead of buying new ones; and
- Avoiding “vampire energy” use by unplugging electronics after closing.

Arlet doesn’t aggressively market her green measures, but anyone who enters the studio would be hard-pressed not to be aware of her commitment. As mindfulness of the environment deepens, so, too, does appreciation for good practices like those at extendYoga.

“As I’ve learned more and more about the commitment Arlet has to minimizing negative impact, and really giving back as much as possible, it makes it much easier to make the decision to support the studio,” extendYoga student Gina Moskowitz observes.
My Green Montgomery Shares Your Stories

There is no one path to living a sustainable lifestyle. Someone living in an apartment in downtown Silver Spring, or a house in North Bethesda or a farm near Poolesville, can be a “green” champion. It is about considering the impact of your choices based on your lifestyle, and making a daily conscious effort to factor the environment into decisions. My Green Montgomery celebrates this and the diversity of the County by serving as a storyboard for how everyone can go green.

Here are some examples of how residents are blazing their own “green” trail:

Beekeeping in Silver Spring

David MacDougall of Silver Spring might not consider himself an environmentalist, but if you could ask his 70,000 bees, they might say different. Since bees are responsible for pollinating one-third of everything we eat, but are threatened by a variety of factors, it would be hard to disagree. David is a new beekeeper – and has been raising a hive in his yard for the past year. He took a class with the Montgomery County Beekeepers Association where he learned proper handling techniques and needed equipment. The bees pollinate nearby flowers and gardens and provide more honey than he knows what to do with. “I’ve been talking about this for a
long time. I just told the neighbors about it and they were pretty open to it...Now everyone comes to me with bee questions. It’s fun. I’m their bee guy.” We’re sure the bees and nearby gardeners appreciate it too!

**Lighting in Laytonsville**

Changing out lights may not be the flashiest choice for the green-minded homeowner, but the energy savings can be very glamorous indeed. Just ask Sean Boyle of Laytonsville who wanted a more energy-efficient home but was not a good candidate for solar. Thanks to the Pepco Lighting Program, Sean paid approximately $350 to replace roughly 90 percent of his home’s lighting needs. In May when he was interviewed, he estimated his energy use was down 16.5 percent in the nine months since he made the switch, which translates to a savings of about $30 on each monthly bill.

*The Boyle family enjoys new energy efficient lighting in their Laytonsville kitchen. Image credit: Sean Boyle*

**A Day Without Waste in Wheaton**

Ever try going a day without waste? No? Well, if you want to know how tough it is, ask the folks at Roundpeg Benefit LLC. The staff of this small business decided to take the Day Without Waste challenge and keep track of what they reused, recycled and threw away. According to Alison Klein, a Roundpeg employee, they realized that “sustainable behaviors often require more time, energy, thought, preparation and money.” But even a moderate effort can have an impact. After taking the challenge, Alison says she is sticking to real silverware and buying reusable snack bags so she can say no to food packaging waste.

To read the full stories about these “green” champions and others who are making a difference in Montgomery County, visit mygreenmontgomery.org. You can also share your story and add to the growing network.
The Aquilino Cancer Center (ACC) achieved Leadership in Energy & Environmental Design (LEED) Gold and is the only LEED certified cancer center in Maryland. Image credit: Adventist HealthCare

Benchmarked: Case Studies in Leadership

The County’s Benchmarking Law does not go into effect for buildings with more than 250,000 square feet until June 2016. But that didn’t stop businesses from taking the lead and benchmarking their buildings early. As a thank you for being “Early Birds”, those firms where highlighted on the My Green Montgomery website as part of the Benchmarked series.

Adventist HealthCare, Inc. is an “Early Bird” with four buildings currently being benchmarked. Here is an excerpt from their Benchmarked series written by Adventist staff:

Through benchmarking, we have an improved way to see and understand trending performance, as well as understand changes in the space use and building characteristics over time. The ultimate goal is to utilize the data within Portfolio Manager to drive strategic decision making as it relates to operations, physical plant performance, and long term strategic planning.

For example, by benchmarking the power plant’s performance, we were able to justify an efficiency upgrade project on chillers that ended up saving 800,000 kWh and $100,000 per year, while improving comfort and climate control.
Adventist HealthCare is particularly proud of Adventist HealthCare’s Physical Health & Rehabilitation facility as being a model within our system for improvement overall. The dedicated employees in this facility made a sincere commitment to the implementation of Efficiency Conservation Measures (ECMs) and strategic management of the facility.

The hospital completed five projects targeting different comprehensive goals. Adventist HealthCare made an initial investment of $137,050 to fund the improvements. As the annual savings generated from the project are approximately $52,269, payback should be completed in 2.4 years. The result is an optimized healthcare experience for patients and a healthier workplace environment for Adventist HealthCare staff.

The Physical Health and Rehabilitation (PH&R) facility has performed well over the last year and has a current ENERGY STAR score of 73. Image credit: Adventist HealthCare
Congregations and Conservation: Bethesda Synagogue Tells Runoff to Hit the Road

Adat Shalom is ahead of the curve in building a green congregation. They have installed solar panels on their roof and grow vegetables on their grounds, among other green features.

Most recently, those upgrades have included about 2,800 feet of new conservation landscaping.

These new areas are serving as natural filters for runoff from nearby lawns and roads, and were made possible by support from two places: the congregation’s leaders and the Montgomery County RainScapes program.

According to Shelley Rudick, a congregation leader at Adat Shalom and one of the members who helped plan for and develop the landscapes, getting the buy-in was easier than you might think.

“It’s very important to bring clergy and lay leaders on board from the beginning,” Shelley advised. “The clergy sets the tone, and if they’re on board, it makes it much easier.”
“We have an area where water pools. It was really dirty and toxic water, a lot of runoff from the road,” said Shelley, who is also a master gardener. “It had oil, gas, lawn chemicals and other things in it, and regular turf was not a good filter...Since putting in the conservation landscaping, the absorption of those chemicals has gone up exponentially.”

On the temple grounds, stormwater converges in a basin area. Even though there is a drainpipe at the center of the basin, water still fills the area during a major storm.

“We could not have done this without RainScapes,” Shelley said, adding that Adat Shalom has received a total of $10,000 in rebates from the program for its projects. “The money was critical for the projects, but they also provided enormous technical support.”

Before (left) and after (right) photos of the conservation landscape project on the Adat Shalom property.
For One Wheaton Restaurant, Incentives Made Efficiency a Reality

If the idea of an energy utility helping people save energy sounds crazy to you, then you need to talk to Janet Yu.

Janet owns Hollywood East Café in Wheaton, and her business has been transformed into a model of sustainability thanks to programs and rebates offered through the EmPower program by her utility, Pepco.

“I wanted to use as many energy-efficient things as possible,” Janet explains. “In my old place, the utility bills and heating and air conditioning costs were very high...[I wanted] to do this for the next generation, to give them a healthier life and a healthier world.”

According to EPA statistics, restaurants can use up to 2.5 times more energy per square foot than other commercial buildings.
So, several years ago, when moving from her old location to Westfield Wheaton shopping mall, Janet decided the time was right for some changes. She started with small things: LED lights on dimmable switches, low-flush toilets and hand dryers instead of paper towels.

But addressing the biggest resource users—her appliances—was beyond her financial reach. Until, that is, Janet learned about Pepco’s Small Business Program. Pepco provided a free energy assessment and financial incentives, which allowed Janet to switch all eight of her refrigerators with new Energy Star models. The program covered a significant portion of the cost of her refrigerators.

“Energy costs go up, but [my bill] stayed pretty much the same while those of others are rising,” Janet said. “And there’s [lower maintenance costs] because it’s newer equipment.” With lower than anticipated energy and water costs, Hollywood East customers can feel good about where they eat, so it’s not surprising that Janet sums up her experience, “I’m very happy with it.”

*Hollywood East Café is located in the Westfield Wheaton shopping center. Like Hollywood East Café, Westfield Wheaton also took advantage of energy incentives to make lighting upgrades throughout parking areas, saving them $5,000 per week in energy costs.*
Skating on Green Ice: Eco-friendly Ice Rinks

Those who design, build and maintain ice rinks make a conscious effort to make their ice white and keep it that way. It’s more attractive and, because it reflects more sunlight, stays colder longer. But how can you achieve whiteness in the ice in a more environmentally sensitive way?

That was the challenge for Tri-State Ice Management which manages the public ice rink at Rockville Town Square. Tri-State did some research, developed a few prototypes, and eventually found their answer.

The solution: Add a special paper to its ice that has been bonded to thin layers of aluminum foil and pressed into sheets. The company calls it low-e ice foil, and it’s more sustainable because it is easy to collect after the ice has melted, and is actually more reflective than the commonly used alternative, calcium carbonate. Low-e ice foil creates cooler ice and saves energy.

It’s also very easy to recycle. More and more products are packaged in aluminized paper or plastic similar to low-e ice foil, which means that technologies for recycling these materials also are growing. This means the options for recycling low-e ice foil are readily available.
Low-e ice foil is created using a new process, and one that’s exclusive to Tri-State. In fact, the company is in the process of patenting this green solution.

But Tri-State didn’t stop there. They also wanted to make the Rockville ice rink more energy efficient. So they installed a newer, smarter chiller system (to keep the ice cold) that uses up to 80% less energy. That could mean financial savings up to $18,000 over a five-month cold-weather season – that’s a lot of skates. And it means greener fun for everyone hitting the rink.
Poolesville Home Goes Solar

There’s a time and a place for everything. If you listen to Joyce Breiner and David Yaney, the time for solar is now.

“People think it’s a lot farther into the future than it is,” Joyce said. “But it’s not. It’s here today.”

It’s not hard to detect the enthusiasm this married couple has for the subject. Just ask for a tour of their Poolesville home or a test-drive of one of their electric cars.

“We wanted to do the right thing and wanted it to make basic financial sense,” David said. “We wanted to do something where we could say we weren’t just standing around talking about the problem.”

About three years ago, Joyce and David, a former air traffic controller and an electrical engineer, respectively, laid down a little challenge for themselves: try to live a “net-zero” lifestyle, in which they used no fossil fuels in their day-to-day lives.
Almost 70 solar panels and two electric cars later, they’re just about there. Although they still use natural gas for heat and some gasoline for the cars, Joyce and David say they now actually produce more power than they use.

The savings are substantial. Joyce and David—who leased 52 panels in 2012 for an up-front cost of about $16,500 and purchased outright 17 additional panels last fall for about $12,000 after a $5,000 federal tax credit—expect to realize a full return on their investment in as little as five years, when factoring in gasoline savings. When the experiment began, their monthly electric bill was about $150, Breiner estimates. Today, it is $5.36, thanks to a few administrative costs.

“No one thinks traditional energy costs are going to stay the same or go down over the long term,” Joyce said. “When you invest in something, you want to say ‘I believe in this.’ That’s what makes it worth an investment.”

Breiner and Yaney’s solar panels are hooked up to a central metering hub on the side of their house. Image credit: Joyce Breiner and David Yaney
Residents Benefit from Free Shade Trees

Shade trees conjure up some old-fashioned imagery: lemonade, hammocks, old rope swings. But these icons of timelessness have some very modern uses. A new program from the Montgomery County Department of Environmental Protection (DEP) is planting large shade trees on eligible county properties, and residents are lining up to take advantage.

A substantial portion of the funding for the program comes from developers and builders in the County as a result of the Tree Canopy Law. The law requires the planting of trees during certain development activities, or the payment into a fund to support County tree planting.

When one of the trees in his backyard began to die, Bob Metzler was bummed.

“I had a nice tree, and it just kind of died on me,” the Bethesda resident recalled. “It was diseased, so I had to cut it down.”

He wanted a new tree, but costs and logistics were daunting. That is, until a neighborhood listserv clued him in to Tree Montgomery, a new DEP program that provides shade tree species to qualifying county residents for free.

*Sweetgum leaves turn a variety of beautiful colors in the fall.*
“It made my answer easy. I could just apply and get a tree,” Bob says. “It was very easy to do. We started corresponding by email and they came out for one visit.”

According to Laura Miller, DEP’s Forest Conservation Coordinator and manager of Tree Montgomery, eligible properties may receive one or more young trees and the County will maintain them for two years—that’s a value of over $500 for each tree. Although the new trees are only 10- to 12-feet tall when planted, in time they will grow to more than 50 feet tall.

“Once these trees mature, homeowners’ energy bills will be lower and their property values will increase,” Laura notes.

Large shade-producing trees like oaks can reduce energy costs by cooling roofs and walls of homes and lowering air temperatures around air conditioners. AC units don’t need to run as often when homes and air are cooler because of the shade.

“It should reduce the amount we have to pump out in air conditioning costs,” Bob says. “We have a sunny backyard, and shade from trees is one way of reducing consumption.”

Along with all their concrete benefits like increased property values, air quality, and stormwater management, shade trees also can increase a personal sense of well-being. For Bethesda resident Lynda Gattozzi, this was more important than any tangible return.

“I lost three mature trees, and I was very sad about it,” Lynda said. “I heard about [Tree Montgomery] and I immediately signed up. We wanted to have them just for privacy.” As of last fall, Lynda is the proud owner of a new red maple and willow oak.

That, in turn, may help explain Tree Montgomery’s runaway popularity. Since it planted its first tree in spring 2015, Program Manager Evan Keto says the program is responsible for planting over 500 shade trees. And he’s looking forward to a busy year.

“It was very efficient. Everything ran on schedule,” said Lynda. “I was so impressed with how the process ran.”
Bikeshare Rolls into Montgomery County

Have you seen those bright red bikes tooling around downtown D.C.? Maybe you’ve noticed them more recently in some of the urban centers of Montgomery County and wondered how that works? Well, you too, can go green and get rolling!

Montgomery County has 52 bikeshare stations and growing. They’re located throughout many of our urban centers and growth areas, including downtown Silver Spring, Takoma Park, Friendship Heights, Bethesda, Rockville and the Shady Grove/Life Sciences Center area.

Capital Bikeshare, or “CaBi,” is a short term bike rental system. You can join online at [www.capitalbikeshare.com](http://www.capitalbikeshare.com) for just $85 for an entire year -- or you can just try it out by swiping your credit card at one of the stations to become a member-for-a-day for $8. The idea is to encourage use of these bikes for short, point-to-point trips. The website has a map of all the stations in the entire region -- and there’s a cool mobile app called “Spotcycle” to help you find the closest bikeshare station when you’re out and about.

More Montgomery County residents than ever are using Capital Bikeshare to get around. In 2015 a total of over 2,000 members from Montgomery County used CaBi to take nearly 3,000
trips. They traveled over 5,400 miles, saving lots of gas, time and emissions. The County Department of Transportation is responding by creating more bike lanes and trails, including 250 miles of off-road facilities— and even the first two-way separated bike facility along Woodglen Road in White Flint.

When you sign up for a membership online you can buy a brand new CaBi bike helmet for just $16, shipped to your door. And if you or someone you know can’t afford to join let us know— MCDOT has a special program called MCLIB to help qualified low-income residents and employees use Capital Bikeshare for free!

Contact Commuter Services at mdot.commuterservices@montgomerycountymd.gov for more information.

A Bikeshare station in downtown Bethesda. Image credit: MCDOT
Charging the Electric Car Market

The Montgomery County Department of Transportation (MCDOT) is ensuring that the County’s transportation infrastructure is ready to accommodate cleaner, greener, electric vehicles (EV) by installing charging stations in County parking garages. Electric vehicles are not only energy efficient, they also significantly reduce air pollution compared to conventional gasoline or diesel powered ones.

An issue with many EV vehicles currently on the market is their somewhat limited range. By providing charging stations in public facilities, MCDOT hopes to expand options for using EV cars.

MCDOT is installing EV charging stations in 12 County parking garages and lots, capable of charging 26 vehicles. As usage increases, the department will expand the EV program to a total of 24 facilities with the capacity to charge more than 50 vehicles.

“I believe the expanded use of technology is essential to helping us realize a better future, said MCDOT Acting Director Al Roshdieh. “Our infrastructure must be ready to accommodate the use of these cleaner, smarter vehicles. MCDOT is meeting the demand for EV charging stations and will expand their number as electric vehicles become more widely used.”
Electric vehicle charging stations in the County are part of the nationwide ChargePoint network of searchable charging stations. To use one of these stations, drivers pay $0.13 per kilowatt hour to charge their vehicles in addition to the same parking fee as other vehicles in the garage.

A close up of one of the County’s electric vehicle charging stations.
The Students Become the Teachers

The mission of the SERT program is to provide support to MCPS schools to significantly reduce energy and natural resource consumption and increase recycling participation systemwide.

The SERT program instructs and guides staff and students at all MCPS schools as they work together to foster a culture of conservation. Classroom activities, toolkits, videos, and friendly contests with awards give students rich and rewarding experiences in environmental stewardship. By actively monitoring and promoting resource conservation at schools, individual SERT/green teams are creating awareness and affecting behavior change. The SERT teams at individual schools lead the way to a sustainable future by monitoring and promoting resource conservation, including energy, water, natural gas, recycling, materials, and goods.

Each year MCPS spends tens of millions of dollars to light and heat the schools and facilities, dispose solid waste, and to provide water and sewer services. MCPS has reduced greenhouse gas emissions by over 70,000 metric tons of carbon dioxide equivalent (MTCO2e) through a variety of programs and initiatives. This represents a 28 percent reduction in the MCPS carbon footprint since 2003. And that’s not all. In 2014, MCPS schools and facilities avoided over $2
million dollars in electricity costs, which in turn greatly reduced its carbon dioxide emissions, and recycled over 3,359 tons of paper, which avoided over 57,000 trees from being cut down.

**Keeping it Green by Keeping it Clean – Ashburton Green Team Strives for Perfection**

Environmental stewardship is not a new initiative at Ashburton Elementary School. Successfully certified as a Maryland Green School in 2010, and recertified in 2014, the Green Team at Ashburton Elementary School constantly finds different ways to improve their sustainability efforts year after year.

The 2015 focus for the Green Team was to reduce the contamination in their centralized recycling stations. To help build awareness of this problem, the Green Team collected weekly data on the number of recyclables and contaminants in the recycling bins throughout the school. Students analyze the data and post graphs by each bin to show how many recyclables and contaminants were found in specific bins. The Green Team found that some bins were more likely to be contaminated than others, so increased signage and awareness were brought to these locations. By posting the graphs weekly, each student and staff member at Ashburton Elementary School was given an update on their progress as a school, bin by bin.

**Francis Scott Key Middle School SERT Team In Action!**

The SERT team at Francis Scott Key Middle School (FSK MS) has focused its efforts on classroom energy conservation, recycling auditing and monitoring. The student members of the FSK MS SERT team monitor the school’s energy use and recycling by circulating throughout the building once or twice a week, checking on unoccupied rooms to make sure their classroom lights are turned off and other electrical equipment is shut down. They also check for recycling contamination, and at the same time they collect the paper, bottles and cans from the classrooms for recycling. The SERT team students record their findings on a classroom audit sheet that is mounted by each classroom’s door. By doing so, the students are giving direct observed feedback to the classroom students and staff when they find resource conservation measures that are and are not in place.
Keeping It Clean (and Green) at Montgomery College

In the summer of 2015 Montgomery College's Takoma Park/Silver Spring Campus was awarded Green Seal certification for cleaning services, becoming the first community college in the country to ever earn certification under the GS-42 standard for Commercial and Institutional Cleaning Services. Green Seal is the nation's premier environmental organization and the original "Green Seal of Approval."

"We are so proud to have received this certification because it aligns our cleaning operations with one of our College values, sustainability," said Terrence Evelyn, director of facilities on the Takoma Park/Silver Spring Campus.

Green Seal's certification process involves an in-depth review of the cleaning service's processes, procedures, and purchasing records. It also includes an on-site audit of facilities cleaned by the service. Periodic monitoring is required to maintain certification.

"We now recognize the significant role each custodian plays in protecting the health and well-being of the students, faculty and staff," Evelyn said. "There has been a positive change in the
overall motivation and outlook of each custodian as training, environmental and procedural changes are implemented."

Certification means that a cleaning service has been evaluated according to Green Seal's science-based standard, without bias or conflict of interest. Cleaning services qualifying for certification must meet environmental and health requirements for cleaning operations, cleaning techniques, waste reduction and environmentally responsible procurement, as well as requirements for communications and training.

The other two campuses – Germantown and Rockville -- are now implementing similar programs.
Park(ing) for a Day!

The Montgomery Parks and Planning Departments, part of The Maryland-National Capital Park and Planning Commission (M-NCPPC), in collaboration with the Montgomery County Department of Transportation (MCDOT) invited the public to celebrate PARK(ing) Day on September 18, 2015.

PARK(ing) Day, an annual event held on the third Friday in September; is celebrated by cities around the globe to address issues related to urban infrastructure, including the role of open space, transit and the environment.

To spark local discussion, staff from M-NCPPC and MCDOT transformed a parking space in downtown Silver Spring into a temporary pop-up park. This parklet, located at the corner of Fenton Street and Wayne Avenue, featured plants, seating and the bean bag toss game, Cornhole. Visitors stopped by and enjoyed the activity from 9 a.m. to 4 p.m.

Next to the parklet, a bike corral showed how eight bicycles can fit into one parking space. Such bike corrals are especially useful in areas with narrow sidewalks or areas heavily trafficked by pedestrians, where it would be impractical or obstructive to install a sidewalk bike rack.
Although the parklet project was temporary, it encouraged people to get involved in the civic process to promote more urban open space, influence how such public space is created and improve the quality of urban areas.

A view of the bicycle parking inside the transformed parking space. Image credit: M-NCPDC

PARK(ING) DAY 2015

THANKS FOR VISITING!

The mission of PARK(ing) Day is to call attention to the need for more urban open space, to generate critical debate around how public space is created and allocated, and to improve the quality of urban human habitat... at least until the meter runs out.

For more information on urban parks, bicycle and pedestrian initiatives please visit:
http://www.parkplanning.org
http://www.montgomeryplanning.org/transportation
http://www.montgomerycountymd.gov/dot-pedsafety

This PARK(ing) Day Pittsburgh is brought to you by M-NCPDC Montgomery Parks, IA NCPDC Montgomery County Planning Department, and the Montgomery County Department of Transportation with assistance from the Silver Spring Urban District.
Growing Transit in a Growing Community

Montgomery County is a vibrant, fast-growing area that is part of a highly congested region. Average commutes are over 35 minutes, and roadway congestion is predicted to increase 70% by 2040. Montgomery County will continue to grow, but mostly through redevelopment, so options for building new roads or expanding existing roads are limited. As a result, the County is striving to increase its transportation connections among communities, including frequent, reliable transit service that can move greater numbers of people to and from jobs, homes, shopping, and entertainment areas.

Montgomery County is studying the development of a Rapid Transit System (RTS), including Bus Rapid Transit (BRT), which would greatly increase high-quality transit service to the County’s most densely developed areas, areas planned for redevelopment, and areas planned for new dense development. BRT offers a cost-effective and versatile way for communities to meet their transit needs. It uses well-planned bus routes and facilities that provide for high speed travel at a lower cost than other forms of transit. Some of its distinctive features are its high frequency all-day service, off-board fare collection, attractive stations, dedicated roadway, and real-time passenger information. BRT buses have features similar to light rail, including level floors, multiple wide doors for easy boarding and departures, and comfortable interiors that include space for wheelchairs and bicycle storage.
The Montgomery County Department of Transportation is working with the State of Maryland to study three corridors for possibly BRT implementation. This is a community process and the planning studies are anticipated to be completed in 2016. The following three corridors are being studied:

- MD 355 (Wisconsin Ave and Rockville Pike)
- US 29 (Colesville Rd and Columbia Pike)
- MD 586 (Veirs Mill Rd)

All of these studies are being led by the Maryland State Highway Administration (SHA), but are a collaborative effort between SHA, the Maryland Transit Administration (MTA), and the Montgomery County Department of Transportation.

A Bus Rapid Transit Center in Las Vegas, Nevada. Image credit: MCDOT
Did You Know We Have Certified “Green” Municipalities in Montgomery County?

Cities and towns across Maryland are working towards a more sustainable future, and nowhere is this more evident than in Montgomery County. The Sustainable Maryland program, an initiative of the Environmental Finance Center at the University of Maryland, certifies municipalities that complete a certain number and range of sustainability related actions and programs. Since the inception of the program in 2012, four County municipalities have become certified: Rockville, Gaithersburg, Takoma Park, and Poolesville.

The City of Rockville, first certified in 2012, has long been a home for “green” projects. The City has operated a community garden program at Woottons Mill for over 40 years, and has hosted a downtown Farmers Market for over 25 years. On the transportation front, the City boasts more than 34 miles of dedicated bicycle infrastructure, participates in Capital Bikeshare and was recently recognized as a Bronze-level Bicycle Friendly Community by the League of American Bicyclists.

The City of Gaithersburg’s certification in 2013 was notable for its emphasis on green building requirements for new development. Certain commercial and high-rise buildings are required to
achieve certification from the U.S. Green Building Council’s LEED Green Building System. The City has also conducted energy audits on its twelve municipal buildings, providing a road map for future energy-efficiency projects.

The City of Takoma Park, certified in 2014 and that year’s Sustainability Champion for most points on the program, has a national reputation with respect to its green credentials. In 2013, Takoma Park became the first city of its size to pass a law banning cosmetic use of certain pesticides on privately-owned properties. Its comprehensive stormwater management program demonstrates the City’s commitment to the health of the local Sligo Creek watershed, and a “Live Local-Shop Local-Give Local” campaign strengthens the City’s social networks and sense of place.

The Town of Poolesville’s 2015 certification highlighted its efforts to become more energy-efficient and energy-independent, with the installation of a 1.1 megawatt solar photovoltaic system at the town’s wastewater treatment plant, generating savings of approximately $30,000/year. LED streetlights were also installed in two of the Town’s most prominent parks, providing better lighting and cost-savings.

“These Sustainable Maryland Certified awards are a testament to the passion and dedication of these Montgomery County municipalities’ volunteer residents, municipal staff and elected officials to go green, save tax dollars, and improve the quality of life in their communities” said Mike Hunninghake, Program Manager for Sustainable Maryland. For more information about the Sustainable Maryland program, go to www.sustainablemaryland.com.
Weed Warriors to the Rescue

They’re Weed Warriors, an apt identification for a dedicated group of Montgomery Parks’ volunteers combating the spread of non-native invasive plants. During each growing season, and beyond you will find these warriors clipping, cutting, pulling and bagging Oriental Bittersweet, Japanese Knotweed and Mile-a-Minute or ground cover plants such as Garlic Mustard, Celandine or Asiatic Stiltgrass, amongst others. These plants steal nutrients and sunlight, killing native plants which provide more effective services to clean air and water, ecological function and wildlife benefits. Often these sites are restored with native grasses and plants, propagated by volunteers at Montgomery Parks’ Pope Farm Nursery, to retard further threat of non-natives and to more quickly restore function.

To date, some 1,100 Weed Warrior volunteers have generated 76,600 hours (equivalent to 36 work years) in 40 parks to rid non-native invasive plants and providing space for native species to repopulate.

The Weed Warrior Program demonstrates the education, advocacy and breadth of action achieved of citizen science based programs, and the collaborative effects of utilizing a willing and able volunteer corps to accomplish important work program elements in a fiscally efficient manner.