T&E COMMITTEE #1
April 16, 2015

Briefing

MEMORANDUM

April 14, 2015

TO: Transportation, Infrastructure, Energy & Environment Committee

FROM: Keith Levchenko, Senior Legislative Analyst

SUBJECT: **Briefing: Office of Sustainability Annual Report**

Suggested Briefing/Discussion Topics

- Summary Presentation by DEP
- Discussion of questions raised by the Sierra Club regarding the County's greenhouse gas reduction efforts
- County Code Section 18A.13 requirements and the status of these efforts vis a vis the Department of Environmental Protection's Office of Sustainability

The following people are expected to attend this meeting:

- Lisa Feldt, Director, Department of Environmental Protection (DEP)
- Stan Edwards, Chief, Division of Environmental Policy and Compliance, DEP
- Michal Freedman, Vice Chair, Sierra Club, Montgomery County, MD

Attachments to this Memorandum

- Letter of April 8 from Legislative Attorney Mihill to T&E Committee Chair Berliner (©1-4)
- Letter of March 31, 2015 from Michal Freedman, Vice Chair, Sierra Club, Montgomery County, MD (©5-7)
- Office of Sustainability - Annual Report (©8-71)

Background

The County's first formal foray into the broad issue of "sustainability" occurred in 2009 when the County published the Montgomery County, Maryland Climate Protection Plan. The focus of the report was on reducing greenhouse gas emissions in the County and included 58 specific recommendations with regard to County government operations and moving the County as a whole (both the public and private sectors) toward a goal of reducing greenhouse gas emissions by 80 percent below the base year (2005) by 2050. Incremental goals to stop increasing greenhouse gas

emissions by 2010 and to achieve 10 percent reductions every five years through 2050 were also included.

On June 17, 2014, the Council enacted Bill 6-14[1], which created an Office of Sustainability in the Department of Environmental Protection (DEP). The full responsibilities of this office are detailed in County Code Section 18A.13 (see ©1-3). Among the responsibilities is the transmittal of an annual report to the Council. The first report was received by the Council on March 13.

As part of the Council's FY15 budget action on the DEP budget, the Council approved $207,816 to fund two positions (each lapsed 25% in FY16) and operating expenses. DEP is in the process of recruiting to fill the two new positions. It should be noted that the fiscal impact for Bill 6-14 prepared by County Executive staff during budget deliberations last year assumed five new positions. The Council added two positions (none were assumed in the FY15 Recommended Budget from the County Executive). However, three positions totaling $214,529 (for residential energy programs, green business programs, and partnership development) were not added to the FY15 DEP budget.

Discussion

DEP will provide a presentation to the Committee summarizing the Office of Sustainability Annual Report.

On March 31, Committee Chair Berliner received a letter from the Sierra Club (see ©5-7) expressing concern about the County not meeting its incremental greenhouse gas (GHG) emissions goals to date, even as other jurisdictions have reported reductions in GHG. The letter poses a number of questions for DEP's response, which the Committee can discuss with DEP at this meeting.

Also, in response to the Sierra Club letter, Mr. Berliner asked Council Legal Staff to review the requirements for the Office of Sustainability as set forth in County Code Section 18A.13 and identify which elements are met in the Annual Report and which are not. Council Legal Staff's response is attached on ©1-4.

From Council Staff's perspective, the Annual Report (and especially Appendix A: Implementation Status of the Climate Protection Plan) shows that the County is involved in a variety of efforts involving all of the 58 recommendations. However, given the latest GHG information, what kind of effort will it take for the County to meet its incremental and long-term GHG reduction goals?

For instance, how best can the County increase the volume in the County of energy efficiency upgrades and clean energy (such as solar PV) installations in the residential and commercial building sectors? The recently enacted Commercial PACE legislation may help with that sector. However, given the existing financial payback opportunities for residential and commercial energy efficiency

[1] A complete copy of the signed legislation is available for download at:
http://www.montgomerycountymd.gov/COUNCIL/Resources/Files/bill/2014/20140610_6-14A.pdf.
Note: This legislation also created an Office of Sustainability within the Department of General Services (DGS). The DGS Office's focus is on County Government operations.

upgrades and the prevalence of customer-friendly power purchase agreements available for solar PV installations, the County should be well-positioned to see far greater private sector participation. However, as noted earlier, the positions associated with these outreach and partnering efforts were not approved in the FY15 budget, nor are they included in the County Executive's FY16 Recommended Budget.

Attachments
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April 8, 2015

TO: Councilmember Roger Berliner

FROM: Amanda Mihill, Legislative Attorney

SUBJECT: Office of Sustainability 2015 Annual Report

You have asked for a information identifying the duties of the Office of Sustainability and how the 2015 Annual Report fulfills those duties. This memorandum serves that purpose.

Duties of the Office of Sustainability

On June 10, 2014, the Council enacted and the Executive later signed Bill 6-14, Environmental Sustainability – Office of Sustainability – Established. In part, Bill 6-14 established an Office of Sustainability with the Department of Environmental Protection. Codified in County Code Section 18A-13, the duties of the Office of Sustainability are:

(1) promote residential energy efficiency and renewable energy programs through direct collaboration with homeowners, renters, property managers, real estate agents, and others to support:
   (A) auditing and assessment of residential properties, including evaluating whether the County should require a Home Energy Score to be conducted before the sale of single-family home;
   (B) energy efficiency retrofits;
   (C) utilization of available incentives from government, utilities, and the private sector;
   (D) utilization of clean energy technologies and purchasing of clean energy; and
   (E) healthy indoor air education programs;

(2) promote commercial and multi-family energy efficiency and renewable energy programs through collaboration with commercial and multi-family property owners, managers, and industry associations to support:
   (A) benchmarking and assessment of commercial and multi-family properties;
   (B) energy efficiency retrofits;

(C) utilization of available incentives from government, utilities, and the private sector, including alternative financing programs such as the Property Assessed Clean Energy program; and

(D) utilization of clean energy technologies and purchasing of clean energy;

(3) support green business development by:

(A) expanding the Montgomery County Green Business Certification Program;

(B) evaluating and promoting other robust third party green certification and reporting programs;

(C) connecting residents and businesses to providers of green products and services; and

(D) fostering green business market opportunities;

(4) support tree and forest programs by:

(A) developing overall and individual tree canopy and planting goals to serve as a baseline for measuring success;

(B) connecting and informing the public about the County's tree planting, preservation, and programs and providing information on tree planting techniques, tree care, species selection and related activities, through a website created for this purpose;

(C) developing and implementing a public engagement strategy to encourage community and individual tree planting on private and public lands and cultivating new partnerships in support of these activities; and

(D) compiling and disseminating information on the status of the County's tree and forest resource on a regular basis;

(5) promote partnership development and civic engagement by:

(A) maintaining and leveraging partnerships with local community groups, civic organizations, HOAs and businesses to expand the County's environmental educational reach

(B) organizing community-based environmental activities and outreach programs; and

(C) promoting the environmental programming and events of Montgomery County Public Schools, local colleges and universities, and other educational institutions in the County;

(6) provide data analysis and research in support of County sustainability goals and objectives by:

(A) maintaining data on County greenhouse gas emissions and building fuel energy consumption;

(B) reporting progress on meeting the greenhouse gas reduction goals in the 2009 Climate Protection Plan;

(C) evaluating options for a broader Countywide sustainability reporting framework;

(D) providing research on and analysis of emerging sustainability issues;

(E) providing any other data and analytical efforts in support of County's sustainability objectives; and

(F) every 2 years, beginning on February 1, 2015, applying a scoring system designed to compare the County to other local jurisdictions on energy efficiency policies and programs; and

(2)

(7) prepare an annual report, as required in subsection (c).

The annual report required in paragraph (b)(7) must contain the following information:

(1) The Office's activities, accomplishments, plans, and objectives;
(2) actions taken to implement the Climate Protection Plan, and whether the County is meeting the goals identified in the Climate Protection Plan;
(3) its activities to enhance tree canopy in the County; and
(4) the score established under paragraph (b)(6)(F).

Sierra Club Letter

On March 31, 205, the Sierra Club sent you a letter expressing concerns about the Office's Annual Report. Specifically, the Sierra Club expressed alarm that total building energy use increased between Fiscal Years 2005 and 2014. Council staff agrees that this is problematic and puts in jeopardy that the County can achieve its overall greenhouse gas emission reduction goals. The Sierra Club requested that you ask Environmental Protection Director Lisa Feldt questions, including what specific policies and programs the County should undertake to meet greenhouse gas reduction goals and what resources the Office needs to fund those policies and programs.

2015 Annual Report

At the outset, staff notes that the Office's first Annual Report was presented 8 months after Bill 6-14 was enacted and 5 months after the bill became effective. The introduction section of the Annual Report notes this and also makes clear that the Office continues to evolve and establish itself. Council staff notes, for instance, that the Office has yet to fill 2 positions that the Council funded during FY15 budget deliberations. The Annual Report notes an expected hiring date for these positions of spring 2015. Council staff surmises that future reports will be more robust in the Office's accomplishments.

The Annual Report shows that the Office excels in reporting on its activities as it relates to certain areas. For instance, County law requires the Office of Sustainability to support benchmarking and assessment of commercial and multi-family properties. It is clear that the Office is performing this function. Another example relates to expanding the Green Business Certification Program. The Annual Report notes that the number of overall participation has grown and that the Program has been expanded to include businesses certified through 4 other party organizations. (Council staff does note, however, that the Annual Report states that several businesses have left the program – you may want to inquire about the reasons that businesses are leaving.)

There are areas, however, in which the Annual Report evokes questions. For instance, County law requires that the Office provide data analysis and research in support of County sustainability goals and objectives. Within this broad requirement, the Office should every 2 years, beginning on Feb. 1, 2015, apply a scoring system that compares the County to other local jurisdictions on energy efficiency policies and programs. Council staff does not see this specific charge addressed in the Annual Report.

(3)

Similarly, the Annual Report is lacking in information related to residential energy efficiency and renewable energy programs. The Report does note that the Office's primary focus has been on commercial programs. County law requires that the Office support auditing and assessment of residential properties and evaluate whether the County should require a Home Energy Score be conducted before the sale of a home. The Annual Report does not address these issues.

Finally, County law requires that the Office promote partnership development and civic engagement in a number of ways including partnerships with community organizations, organizing community-based activities, and promoting environmental programming and events at education institutions in the County. The introduction section of the Report notes that developing partnerships and civic engagement is incorporated into every activity. However, this is not clear to Council staff if the subparagraphs of this broad duty are being performed. The Annual Report does include a section on education and outreach programs, which is helpful. A majority of the section relates to the My Green Montgomery website which is a nicely designed website with a lot of great information. However, this section does not address other requirements of the civic engagement duty in County law.

Annual reports typically focus on activities that an office or department have undertaken the previous year. As part of the annual reporting requirement, County law requires the Office to also report on its "plans" and "objectives". At this end of each section in the Annual Report, there is a text box with brief bullet points addressing what activities the Office intends to take on. You may want to inquire with Ms. Feldt what specific programs she has envisioned developing and implementing during the coming year.

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Montgomery County Group

March 31, 2015

Dear Councilmember Berliner,

We are writing to express our great disappointment and concern about the findings of the Department of Environmental Protection's 2015 Report on Sustainability, which demonstrated that Montgomery County is falling increasingly far behind in achieving its targeted reductions in greenhouse gas (GHG) emissions.

As U.N. Secretary-General Ban Ki-moon said of climate change, "Leaders must act. Time is not on our side." Physics is not patient. The longer we wait, the more costly mitigation becomes and the greater the risk of irreversible changes.

With your strong support, in April 2008 the Montgomery County Council recognized the threat of climate change and adopted both short- and long-term goals to combat the growth of GHG emissions. Short term, emissions were to stop growing by 2010. Then they were to be reduced by 10% every five years until 2050, for a total reduction of 80% below 2005 levels. The Council required the development of a Climate Protection Plan to establish guidance on how the County could meet these goals and also mandated annual reports to provide accountability on how well these goals were being met.

Since 2008, there have been only two "annual" reports from DEP, one in 2011 and one just issued in March 2015. Neither includes emissions from transportation, although transportation is estimated to contribute about 1/3 of emissions. The 2011 report found that non-residential energy consumption *increased* between FY2005 and FY2009.

In 2014 new legislation was enacted to help the County overcome its initial failure and move toward achieving its long-term GHG emission reduction goals. It created an Office of Sustainability in DEP, with responsibility for furthering climate protection programs affecting non-governmental entities. (Another office was created with responsibility for internal County government efforts.)

The 2015 Annual Report on emissions found an increase of total building energy usage in the County of about 0.51%/year between FY2005 and FY2014 or roughly a 5% increase over the period that emissions were to decline by 10%. Thus, the County is now about 15% behind in achieving its emission reduction goals, and faces the need to achieve another 10% reduction in GHG emissions over the next five years, or in other words, by failing to achieve its initial goals, the County now needs to reduce emissions by about 25% between now and 2020.

Elsewhere in the U.S., local jurisdictions demonstrate that goals for reducing GHG emissions, comparable to the schedule Montgomery County has adopted, can actually be accomplished. To name a few, the cities of Boston (MA), Portland (OR), and Berkeley (CA), as well as our neighbor in Washington, D.C., report reductions in GHG emissions.

We understand that you intend to hold hearings on this matter. Thank you for doing so.

In view of the County's ongoing failure to meet its GHG emissions goals, we suggest that – at these hearings -- DEP Director Lisa Feldt be asked the following questions:

1. In light of the progress made by other jurisdictions in achieving comparable goals for GHG emission reduction, what specific policies and programs must DEP undertake to ensure that the County stands a realistic chance of achieving the goals of a 10% reduction in GHG emissions every five years (and thus a 20% reduction by 2020 over 2005 levels)?

2. What personnel and resources would DEP need to undertake the policies and programs identified in response to the first question?

3. Section EER-5 of the Climate Protection Plan refers to "an effective residential energy education and outreach program with the goal that 50% of Montgomery County homeowners will take steps to reduce the annual consumption of energy in their homes by at least 25% by 2020." In its Implementation Steps to Date on EER-5, the 2015 Annual Report states that "Residential energy efficiency initiatives will be pursued through the Office of Sustainability as resources become available." (Emphasis added.) How does the Office plan to meet the CPP EER-5 goal for Montgomery County homeowners, and what resources would these plans require?

4. In the 2015 Annual Report under Residential Energy Initiatives, DEP states that it is "[r]esearching and following advancements around residential energy reporting such as the utility-provided Home Energy reports and DOE's Home Energy Score." By law the Office of Sustainability is required to "evaluate options to encourage homeowners to conduct a home energy audit, including whether the County should require a home energy audit to be conducted before the sale of a single-family home." By what date would DEP expect to present to the Council and the public the Office's report on this subject (in which options are presented and evaluated)?

5. Other jurisdictions, including Boston, have found it helpful to designate a senior official with broad responsibility relating to GHG emissions and coordinating efforts across the government. In light of the fact that reducing GHG emissions involves several County departments, do you believe that appointing such an official would facilitate reaching the County's GHG emission targets?

In 2008, Montgomery County Government admirably adopted climate mitigation goals that reflect the urgency presented by the increasingly distressing effects of climate change. It must now follow through and demonstrate that these goals truly represent the commitment to aggressive mitigation that climate change warrants.

Sincerely,

Dave Sears, Chair
Michal Freedman, Vice Chair
Sierra Club, Montgomery County, Maryland

ANNUAL REPORT

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Isiah Leggett
County Executive

Lisa Feldt
Director

MEMORANDUM

March 10, 2015

TO: The Honorable Isiah Leggett, County Executive
The Honorable George Leventhal, President, Montgomery County Council

FROM: Lisa Feldt, Director, Department of Environmental Protection

SUBJECT: Office of Sustainability – Annual Report

Bill 6-14, signed into law on June 17, 2014, created an Office of Sustainability in the Department of Environmental Protection (DEP). Among the requirements of this legislation is the submission of an annual report on the "activities, accomplishments, plans, and objectives" of the office. I am pleased to submit the attached report in fulfillment of this requirement. An on-line version of this report will be published on the DEP website so that it is readily available to the public.

I look forward to reviewing this report with you, and discussing how to maintain Montgomery County as an environmentally sound, economically vibrant community into the future. Please let me know if you have any questions regarding this report.

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Department of Environmental Protection
Annual Report on Sustainability

March 2015

Prepared Pursuant to Section 18A-13
of the Montgomery County Code

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Section 1 – Introduction

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 this 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, and environmental education and outreach.

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. The CPP has served as an important guidance document for the County, and is often cited to justify the pursuit of a particular policy or program.

The County legislation that mandated the creation of the SWG and the publication of the CPP also vested the SWG with longer-term responsibility for monitoring the progress of meeting the County's stated GHG reduction goals and implementing the CPP recommendations. However, the SWG was a limited life body (members of the SWG were appointed for three years) without specific authority to direct County activities. In recognition of these limitations, the County adopted legislation (County Bill 6-14) in June 2014 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.

As required by Section 18A-13 of the Montgomery County Code, this is the first annual report summarizing the "activities, accomplishments, plans, and objectives" of DEP's Office of Sustainability. In addition, this report links back to the foundation laid by the CPP, and the work that resulted from that plan.

First, data are provided in Appendix A on energy consumption in buildings in the County, updated through 2014. Because building energy use accounted for approximately two-thirds of the County's GHG emissions documented in the CPP, this information serves as a good surrogate to measure the County's progress toward meeting the GHG emission reduction goals set forth in the CPP.

Second, the implementation status of the 58 recommendations in the CPP is provided in tabular form at the end of Appendix A. This information shows that efforts to address sustainability extend beyond the specific responsibilities assigned to DEP's Office of Sustainability under Bill 6-14, although there is some overlap and we have focused the work in certain key areas. Since the adoption of the CPP in 2009, the efforts of many other County departments and agencies have helped move the County along the path envisioned in the CPP, including the Department of Transportation's work related to mass transit and promoting alternatives to single occupancy vehicle travel, the Department of General Services' progress in reducing energy use in the County's buildings and fleet, and the Planning Department's focus on creating more sustainable communities. The future efforts of DEP's Office of Sustainability and these other organizations will remain connected to the CPP, even as specific programs, initiatives and funding are targeted toward activities that may not have been specifically contemplated in the CPP but offer concrete and meaningful results from a sustainability perspective.

About the DEP Office of Sustainability

The specific duties of the DEP Office of Sustainability (referred to hereinafter as the Office) outlined in County Bill 6-14 are very broadly defined (see Appendix B). For example, with respect to commercial energy programs, the Office must:

> "Promote commercial and multi-family energy efficiency and renewable energy programs through collaboration with commercial and multi-family property owners, managers, and industry associations to support:
> (A) benchmarking and assessment of commercial and multi-family properties;
> (B) energy efficiency retrofits;
> (C) utilization of available incentives from government, utilities, and the private sector, including alternative financing programs such as the Property Assessed Clean Energy program; and
> (D) utilization of clean energy technologies and purchasing of clean energy."

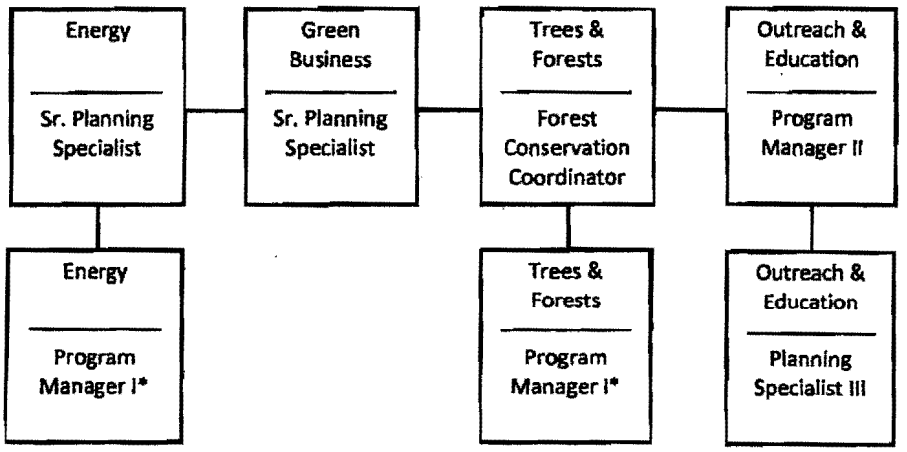
There are many different types of energy efficiency and renewable energy programs, and a range of commercial and multi-family audiences that these programs target. Decisions must be made regarding the areas on which to focus given available staff and resources. Some priorities are clear. For example, the County adopted a commercial building benchmarking law which assigns specific duties and deadlines to DEP; these responsibilities fall within the purview of the Office. In other cases, staff must make judgments about where to concentrate their efforts among the many activities and initiatives that "promote commercial and multi-family energy efficiency and renewable energy." Similar decisions must be made in the other focus areas

identified in Bill 6-14 (i.e., residential energy programs, green business programs, etc.). A variety of factors influence these judgments, including input from internal and external stakeholders. In addition, the Office strives to continually evaluate the progress of its initiatives and make adjustments where necessary to increase their effectiveness.

As of February 2015, the duties of the Office were being carried out through the positions shown in Figure 1. This complement includes two new positions added as a result of Bill 6-14. These new positions are currently being recruited and are expected to be filled in the spring of 2015. The existing staff shown in Figure 1 is part of DEP's Division of Environmental Policy and Compliance, and was engaged in a variety of sustainability issues prior to the creation of the Office.

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 (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.

Figure 1 - Positions Supporting the Office of Sustainability



* Under recruitment; expected hire date spring 2015

Strategic Approach of the Office of Sustainability

Regardless of the program, the work of the Office is based on three key strategies: (1) outreach and education, (2) partnership development and civic engagement, and (3) data analysis and

research. The Office strives to incorporate these elements into every activity. Evidence of this is apparent throughout the pages of this document. A specific discussion of education and outreach is contained in Section 5.

Partnership development and civic engagement is fundamental to the success of any sustainability initiative. The goal of the Office is to help make the Montgomery County community more sustainable. While the Office does play a role in implementing some adopted County policies, many of the activities the Office promotes are voluntary. But regardless of whether an activity is mandatory under County policy or voluntary, its outcome hinges on collaboration to the greatest extent possible with the many individuals and organizations in the community, in business, and in the government that are engaged in making Montgomery County more sustainable. Without these collaborations, the Office could not succeed. Some of these collaborations are highlighted in this report. The highlighted ones are not inclusive of all the collaboration and the Office wishes to thank all the individuals and organizations that have partnered with us.

Analyzing data from ongoing programs and researching new initiatives are critical to ensuring the activities of the Office are effective and addressing community objectives to the greatest extent possible. The Office conducts data analysis and research as part of their program management responsibilities. In addition, the Office can rely on expertise provided through contracts with external experts; from committees like the Energy and Air Quality Advisory Committee and the Forest Conservation Advisory Committee; and from entities like CountyStat, which can provide a range of data analysis and research services.

The Future of the Office of Sustainability

This first annual report comes approximately eight months after the creation of the Office as outlined in Bill 6-14. As a result, the Office is still developing. Consideration is being given to the structure of the Office, and its relationship to the other sections of DEP that are involved in important work related to sustainability, as well as other County departments and agencies that have sustainability as part of their mission. In addition to evaluating its priorities and capabilities, a major initial goal of the Office has been to create new relationships in the community. This will continue to be critical as the Office evolves over time.

Ultimately, of course, the Office hopes to broaden and deepen its sustainability efforts in subsequent years. Ideally, this would include development, in conjunction with a wide variety of partners, of a comprehensive "sustainability action plan" for Montgomery County. Such a plan would guide both the community and the County government in the pursuit of sustainability so that Montgomery County remains an environmentally sound, economically vibrant community into the future.

(14)

Section 2 – Energy Programs

The Office's energy staff seeks to engage residents and businesses in energy efficiency and clean energy activities, including increased promotion of energy efficiency and renewable energy initiatives in the community, as well as work toward implementation of the County's benchmarking law and commercial property assessed clean energy (PACE) program.

Promoting Community Energy Initiatives

Research shows that individuals are highly influenced by the "social norms" of their community, meaning that our actions are shaped in part by the actions, behaviors, and values of those around us. The Office began an initiative in the fall 2014 to showcase and promote stories to *make visible* what County residents and businesses are doing to save energy and use renewable energy in their everyday lives.

In November, we launched a new *Montgomery County Energy News* email featuring local stories of businesses and residents taking measures to save energy or generate clean energy; news about developing initiatives like benchmarking; and other energy topics, events, and information. As of February 2014, there are 497 subscribers to this newsletter.

Over time, the goal is to build up a library of energy efficiency and clean energy stories so that for nearly any situation, a resident or business can see that someone has blazed the trail before them. The challenges, lessons learned, and successes outlined in these stories are invaluable for helping others take steps to pursue energy efficiency and clean energy measures.

Energy News local stories have included, so far:

- Everyone Wins: Energy Savings at Lee Development Group
- Skating on Green Ice: Eco-friendly Ice Rinks
- Hollywood East Café Energy Savings Case Study
- Benchmarked: Washington Real Estate Investment Trust
- Benchmarked: Tower Companies
- Benchmarked: JBG Companies

To supplement the information and inspiration provided by these energy stories, a key future goal of the energy staff is to update the energy-related information on the DEP website so that residents and businesses have the latest information on energy efficiency and clean energy practices, resources, and financial incentives.

Commercial Energy Benchmarking

In May 2014, Montgomery County adopted the Commercial Benchmarking Law (County Bill 2-14), becoming the first county in the nation to pass such a measure. The Benchmarking Law requires certain building owners (including Montgomery County) to report their building energy

use for public disclosure. Since the law's passage, the Office has embarked on hosting events, conducting outreach and education, and building partnerships with key stakeholders affected by the law. A key component of this latter activity has been facilitation of the Benchmarking Work Group, which was mandated by the law.

Education and Outreach

A number of education and outreach events have been held about benchmarking to inform the commercial building sector about the law, how to comply, and what resources are and will be made available to help them reap the energy-saving benefits of benchmarking.

- In September 2014, the Office convened the *Benchmarking Work Group* made up of building owners, utilities, energy service companies, nonprofits, and business chambers/associations for an update on the adopted law and charter of the Work Group (see additional information on the Work Group below).
- In November 2014, 125 attendees attended the *Introductory Benchmarking Forum*. Hosted by the U.S. Green Building Council-National Capital Region (USGBC-NCR) Montgomery County Branch, the Montgomery County Chamber of Commerce, and the Office, the forum included speakers from the U.S. Environmental Protection Agency's (EPA) ENERGY STAR program and Pepco.
- Starting in December 2014, the Office began hosting *Benchmarking Office Hours*, an opportunity to sit in on an EPA benchmarking webinar and discuss any questions with Office staff. Office Hours will be held monthly and are open to the public.
- In February 2015, 170 individuals attended the USGBC-NCR Montgomery County Branch the 2nd Annual Montgomery County Energy Summit, which featured a variety of speakers including Councilman Roger Berliner, as well as representatives from the Office and the EPA's ENERGY STAR program. The event also provided opportunities for one-on-one consultations with utilities and other resources around benchmarking.

Moving forward, the Office will be working in several key areas designed to ensure that property owners are able to benefit from the information benchmarking provides, including taking advantage of incentives currently offered by electric utilities for energy efficiency upgrades, implementing efficiency projects through the County's PACE program, and engaging in other activities that improve their bottom line and reduce their environmental footprint.

Benchmarking Work Group

The Benchmarking Law required that DEP convene a "Benchmarking Work Group." The Benchmarking Work Group has brought together building and energy stakeholders to provide guidance on the implementation of the law and recommendations for amendments that will improve the success of the law. The Office provides staff support and facilitation and has gained great value from the Work Group's insights, feedback, and ideas.

Nearly 50 stakeholders attended the initial Benchmarking Work Group held in September 2014. The Work Group has since split into subcommittees: Outreach and Education, Technical Assistance, and Legislative and Implementation, with about 30 members each. The Office continues to encourage additional participation in these work groups.

The Technical Assistance subcommittee is providing guidance to the Office regarding the development or identification of tools and resources to help property owners/managers complete the benchmarking process, including resources available from EPA's ENERGY STAR program. The Outreach subcommittee advises on networks to reach out to and strategies to reach building owners.

Following the completion of initial benchmarking activity on County buildings (due by June 1, 2015), the Legislative and Implementation subcommittee will be preparing a report as directed under the law, to be submitted to the County Executive and County Council by September 1, 2015, with "recommendations on implementing building benchmarking for privately-owned buildings, including any proposed amendments to County law."

A Benchmarking Work Group email newsletter keeps stakeholders up-to-date on the work of the subcommittees, meeting announcements and materials, and important benchmarking events and resources. As of February 2014, there are 323 email subscribers to the newsletter.

Property-Assessed Clean Energy (PACE) Financing

The Office is working with the Department of Finance on the development of legislation to launch a Commercial PACE financing program, by which commercial property owners can take out a loan for energy efficiency and renewable energy related property improvements and pay it back via the County's tax bill.

Specifically, the Office has supported PACE development in Montgomery County by:

- Advising on the development of PACE legislation and program parameters
- Working with existing PACE program managers to glean lessons learned around different program models, as well as outreach strategies to engage commercial property owners
- Gathering comments and feedback from lenders, energy efficiency service providers, and utility stakeholders

Other Commercial Energy Initiatives

The Office further supports commercial energy through involvement in:

- Promoting the EmPOWER Maryland utility energy efficiency incentives
- Researching new policy innovations around commercial energy efficiency financing and green and net-zero energy building standards.

Residential Energy Initiatives

While the Office's primary focus in the energy arena has been on commercial programs, support for residential energy initiatives has occurred through the following activities:

- Promoting community solar co-op development and purchasing programs on the DEP website
- Researching and following advancements around residential energy reporting such as the utility-provided Home Energy Reports and DOE's Home Energy Score
- Organizing and presenting on energy topics at the Greater Capital Area Association of REALTORS course on green programs and initiatives

Up Next

- Build a library of local energy stories to recognize local clean energy efforts (Q2-Q3 2015)
- Develop a suite of Benchmarking resources to aid compliance with the Benchmarking Law (Q2-Q3 2015)
- Support development of PACE financing to provide commercial building owners capital for energy improvements (Q2-Q4 2015)
- Evaluate innovative ways to engage residents in energy efficiency and renewable energy projects (Ongoing)

Section 3 – Green Business Programs

The Office of Sustainability is focused on helping Montgomery County businesses catalyze and prosper in a growing green economy. Our multi-pronged efforts are designed to spur innovation and environmental stewardship so that forward-looking businesses that embrace sustainable practices as part of their day-to-day operations and supply chain decisions are recognized for their leadership. We also seek to leverage green business leadership so that sustainable best practices are adopted broadly throughout the County among both businesses and residents.

The centerpiece of these efforts is the Green Business Certification Program, from which numerous complementary opportunities have emerged. These include environmental education forums; new partnerships and collaborations; awareness of green procurement options; fostering green economic development; and assisting businesses in specific actions such as benchmarking and tree planting.

Green Business Certification Program

The mission of the Green Business Certification Program (www.mcgreenbiz.org) is to:

- Empower businesses 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.

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, Maryland 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.

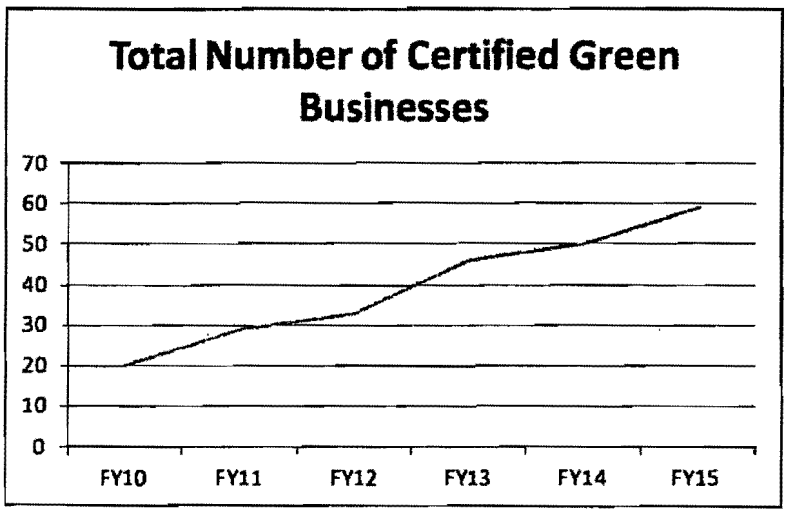
Certification was initially tailored to businesses in commercial office space to respond to the operational circumstances facing the majority of County businesses. Program eligibility expanded in the spring of 2013 with the creation of a tailored application for the landscaping sector. Encouraging sustainable landscaping practices is a top DEP priority given the sector's direct impact on the County's ecology. Such practices reduce stormwater pollution and thus contribute directly to meeting the County's Municipal Separate Storm Sewer System (MS4) Permit requirements, the primary goal of which is to mitigate the harmful environmental effects of stormwater runoff.

In January 2015, the Program streamlined its original application by reducing the checklist of actions by more than half, focusing on those actions that have the greatest impact. While the

new application is more user-friendly and accessible, it raises the bar for certification by including more substantive and comprehensive actions, including the requirement for a continuous improvement plan. The plan, which must include three year goals and sustainability indicators, enables businesses to map out future strategies for increasing their commitment to sustainability.

Similar to other efforts within the Office of Sustainability, the Green Business Certification Program endeavors to distill the program's benefits, and encourage other businesses to pursue certification, through story telling. Numerous video profiles of Certified Green Businesses have been completed in recent months with a couple more planned this spring. For a full list of videos, see: http://mcgreenbiz.org/video-profiles/.

The Program has certified 67 businesses since its inception, and currently has a network of 59 Certified Green Businesses. While several businesses have left the program, the number of overall participants has grown steadily.



In 2015 the Green Business Certification is poised for a twofold expansion in the number of certified green businesses. This will be realized through the recognition of businesses certified by other third party certification programs.

Including businesses certified through other third party organizations will broaden eligibility dramatically, thus enabling the Program to reach a much wider audience. At the present time, these third party organizations include:

- Green Seal
- Green Restaurant Association

- Green America
- B Lab

These four certifications were chosen because of their robust application process, credibility and reputation. While the current Green Business Certification Program only recognizes office-based and landscaping companies, this expansion will bring restaurants, cleaning companies, hotels, home-based businesses and others into the fold. Fifty-eight businesses will be added to the Green Business Certification Program as part of the third party certification expansion.

DEP anticipates that Program expansion will 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.

Partnerships and Collaboration

Montgomery County Chamber of Commerce

DEP's partnership with the Montgomery County Chamber of Commerce has been instrumental in advancing the Department's green business development goals.

Together, along with Montgomery College, we created the Green Business Forum which facilitates quarterly discussions hosted by the Chamber on the benefits of greening business. Since 2012, the Forum has convened nine discussions, attracting significant attendance ranging, on average, between 30 and 60 individuals per event. Topics covered include the financial benefits of greening a business, the Federal government's green procurement guidelines, green leasing, and energy efficiency programs for businesses.

The Chamber was a key sponsor of the November 2014 Benchmarking Forum, which was the first significant public event related to the County's benchmarking law.

Two years ago, the Chamber initiated the Green Business Innovator of the Year Award, presented to an individual or company who demonstrates ecologically-integrated business practices and leads change by example. In FY14, DEP co-sponsored this award with Honest Tea, a Certified Green Business.

The Community Greens

Certified Green Businesses are playing a leadership role with the four "Community Greens" – Bethesda Green, Green Wheaton, Poolesville Green and Silver Spring Green – each of which has one or more board members representing Certified Green Businesses.

The Community Greens actively connect environmentally conscious consumers with local businesses selling green products and services. They have hosted numerous workshops over the years ranging from purchasing clean energy to making energy efficiency retrofits, and have

facilitated several green vendor fairs featuring local businesses selling green products and services. They are managing the green exhibitor fair at the upcoming Montgomery County GreenFest, an all day environmental education fair to be held on March 28, 2015.

Greening Procurement and Building the Green Economy

Since the summer of 2013, the County's Office of Procurement has been recognizing Certified Green Businesses in its Central Vendor Registration System. County employees purchasing products and services can now search for and identify Certified Green Businesses in the system, making it easy to screen their vendor search using "green" as a criterion.

In January 2015, the Green Business Forum partnered with the Metropolitan Washington Council of Governments (COG) to host an all-day event focusing on green purchasing. More than 120 representatives from local governments, school systems, and utilities joined over 30 vendors representing a wide variety of environmentally friendly products and services. In addition to showcasing these green products and services, expert panels and speakers discussed "greening" the supply chain, incorporating sustainability specifications into contracts for goods and services, and creating healthy buildings through procurement choices. Ongoing collaboration with COG on events of this type is anticipated.

Up Next

- Complete expansion of program to recognize third party certification programs (Q2 2015)
- Update the Program's Application Resource Guide to better assist new applicants (Q2-Q3 2015)
- Convert the current Green Business Certification Program website to a micro-site of My Green Montgomery and update content and appearance (Q4 2015)

Section 4 – Tree Programs

Montgomery County is embarking on a new era for trees as a result of three recently adopted laws. Through County Bill 6-14, the Office was directed to develop comprehensive programs to increase and maintain tree canopy, raise the general awareness of the benefits of trees, and to improve tree conservation through retention and long-term care. In addition, the Tree Canopy Law and the Roadside Tree Law provide incentives to protect trees during development activity, as well as funding for the planting of new trees on public and private land in the County.

Implementing Tree Canopy Law Planting Programs

The Office's primary tree efforts have focused on laying the groundwork for comprehensive tree planting programs using funding provided by the Tree Canopy Law. Development of a comprehensive education and outreach program, as well as the specific details of tree planting programs, comprised the bulk of this work. In addition, the Office completed important administrative functions necessary to engage in tree planting programs, including the retention of a planting contractor that would procure and plant trees, and the development of the necessary legal documents that are required to conduct planting activities on private property.

Education and Outreach

An outreach and education campaign is essential to tree canopy planting programs, as well as the overall goals related to retaining and caring for existing trees. In conjunction with a communications consultant, the Office is developing a multi-faceted education and outreach campaign, including outreach materials and a website. The campaign focuses on raising awareness of trees and their benefits, improving the long-term care of trees, and implementing the new shade tree planting programs. The *Tree Montgomery* website is designed to fully support the awareness campaign and planting programs, and will include on-line applications for individuals and entities interested in having a shade tree planted by the Office.

Once the steps necessary to launch planting programs are completed, the Office will collaborate with a wide variety of partners to communicate the details of the program and encourage individuals interested in having trees planted to sign-up via the website. To assist in this communication, outreach materials in a variety of formats are being developed. These will be made available to community groups, homeowners' associations, environmental organizations, businesses, and others who can help spread the word about the program.

Another critical piece of this effort is the development of database and mapping tools to track requests for trees, coordinate the activities of the tree planting contractor, map the locations of planted trees, and collect and manage other data to support the tree planting programs. Much of this data will be incorporated in the website to allow any interested party to follow the progress of the planting programs.

Planting Programs

In order to develop robust shade tree planting programs, DEP evaluated past and current planting programs within the County and around the region. Additionally, DEP requested input from the Forest Conservation Advisory Committee, which hosted a panel discussion with representatives from planting programs in other jurisdictions. Based on this research, DEP is pursuing the development of three initial planting programs:

- a "backyard" program focused on planting one or a few trees on single-family properties;
- a multi-family program focused on planting multiple trees on multi-family properties; and
- a parking lot program directed to commercial and multi-family properties with available open planting spaces in parking lots.

Under each of these programs, the Office will purchase, install, and, in some cases, provide up to two years of aftercare for shade trees at no cost to the property owners. As the Tree Canopy Law requires, these plantings will be concentrated in areas where development activity is occurring and where the existing canopy is low. These programs will be carefully monitored to assure program objectives are being met and to assess whether any changes are warranted.

The Office continues to work with the Department of Permitting Services to obtain information about the location and species of the trees planted by developers subject to the Tree Canopy Law. This information will be tracked along with data on the trees planted by the County to get a more complete picture of the trees planted as a result of the law.

Up Next

- Plant trees using funds from the Tree Canopy Law (Starting Q2 2015)
- Launch the *Tree Montgomery* website (Q3 2015)

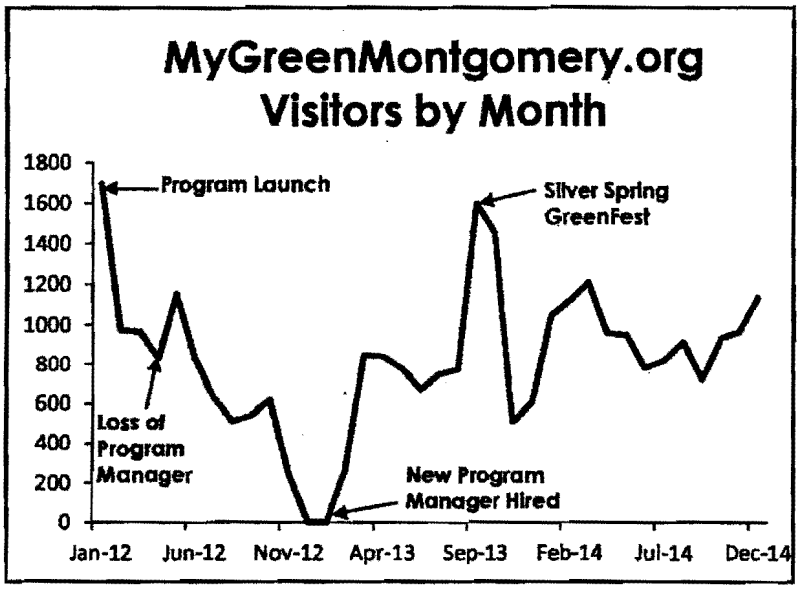
Section 5 – Education & Outreach Programs

Outreach and education are fundamental to any successful sustainability initiative. The Office's programs are only successful if they are noticed, and if they succeed in motivating County residents and businesses to become more sustainable. The Office is committed to reaching people where they are and providing resources, materials, and communication strategies that engage multiple segments of the population to both educate and inspire.

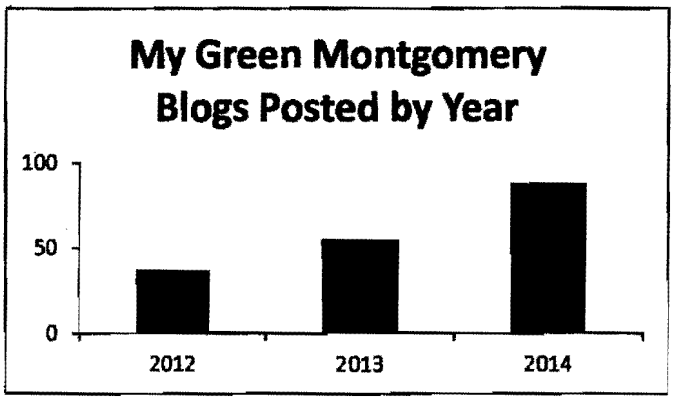
Sustainability needs to be multi-dimensional, and we need to continue to integrate our programs around energy, trees and green businesses into the fabric of DEP's mission (clean water, clean air, clean land) Anyone who is committed to improving the quality of life and the environmental and economic sustainability in the County should have a place in our programs and be able to easily find and understand them.

My Green Montgomery

My Green Montgomery is a service to help County residents and businesses think and live in a more sustainable way. The program, originally launched in January 2012, is an online portal where visitors can view green projects, incentives, programs, community resources and events.



A key section of the website is the blog where DEP staff, residents, businesses, and community-based organizations can share stories and resources on going green. One hundred and eighty blogs have been posted since the launch of My Green Montgomery.



The Calendar is extremely popular with visitors to the site who use it to find the latest green events, documentary film screenings and community group meetings. In the three year history of My Green Montgomery, 571 events have been posted to the calendar by groups like WSSC, Montgomery Parks, community green groups and watershed groups.

My Green Montgomery also has the capability of hosting pages for unique events and programs that the county is promoting or launching. In 2013 and 2014, this feature was used to create web pages for the H_2O Summit, the Silver Spring GreenFest, the FrogWatch USA program and the Montgomery County GreenFest. In the days leading up to the Silver Spring GreenFest, My Green Montgomery experienced the highest visitation since the program launched.

The Future of My Green Montgomery

Currently, the site is undergoing an overhaul to meet the changing needs of our audience. According to the Pew Research Internet Project, as of May 2013, 63% of adult cell owners used their phones to go online and 34% of cell internet users go online mostly using their phones. (http://www.pewinternet.org/fact-sheets/mobile-technology-fact-sheet/) In 2014, 21.6% of visitors to My Green Montgomery used mobile or tablet technology, despite the website's lack of responsive technology (which automatically adapts the layout of a website to fit the type of device – PC, tablet, smart phone – being used). At the ever increasing speed of mobile technology, it has become vital for interactive websites, such as My Green Montgomery, to be responsive to mobile and tablets.

Converting to responsive design will open up the site to younger users who are predominately mobile as well as permit individuals to find green events, projects or incentives on the go. Along with the responsive conversion, My Green Montgomery will also be adding a "Your Stories" portal to the site which will allow for easier sharing of County residents' experiences going green. It will feature guest writers from across the County explaining their favorite green projects, sharing tips and their stories.

Events

Montgomery County GreenFest

Over the summer of 2014, more than 10 government agencies and community groups joined forces to create the *Montgomery County GreenFest,* which we envision will be the largest green festival ever held in the County.

The GreenFest will occur on March 28, 2015 at Montgomery College Takoma Park/Silver Spring. The one-day celebration will feature local and national experts, exhibits, nonprofits, music, kids' entertainment and documentaries as part of the regional Environmental Film Festival in the Nation's Capital. The event is so expansive that it will be located at two Montgomery College arts buildings as well as Jesup Blair Local Park.

The GreenFest committee includes DEP's Office of Sustainability and the Division of Watershed Management, WSSC, Montgomery Parks, Montgomery College, the cities of Rockville, Gaithersburg and Takoma Park, the four community green groups, Montgomery County Public Schools, and the University of Maryland Extension.

The Montgomery County GreenFest was created at the recommendation of the Office of Sustainability. It merges together two already well-established and successful events: the H_2O Summit and the Silver Spring GreenFest. By combining the model of the Silver Spring GreenFest and the connections made at the H_2O Summit about water, and extending the event to cover energy, waste, environmental justice and other issues, the GreenFest can bring a spotlight on the environmental achievements occurring in the County and encourage the public to play an even larger role in making the County more sustainable.

County Fair

The Office of Sustainability expanded its presence at the annual Montgomery County Agricultural Fair. The Office shared a tent with the Division of Watershed Management. On display was signage and posters on residential home energy reduction, the tree canopy law, the benefits of planting trees, and other sustainability information. The tent received 5,823 visitors.

School and Community Events

With the addition of an additional staff member in 2014, the Office of Sustainability has been able to expand in-person communications, reaching over 2,000 people at community events in 2014. The Office took the opportunity to participate in a wide variety of events, including STEM Night at South Lakes Elementary School, Poolesville Day, Bike to Work Day, the U.S. Green Building Council Benchmarking Forum, the Maryland Green Registry Awards, Rockville Science Day, and many more.

Social Media

Before the creation of My Green Montgomery, DEP did not have a presence on social media outside of the Division of Solid Waste Services' Facebook page. The My Green Montgomery site was launched in January 2012, and at the same time, a branded Facebook page was created. The My Green Montgomery Facebook page was the first social media extension of the larger My Green Montgomery marketing campaign. It has experienced steady growth over 3 years and currently has 399 likes.

The My Green Montgomery Twitter site launched on March 8, 2013. In 2 years, the site has reached 608 followers.

Instagram is the newest addition to the Office of Sustainability social media suite. The @MyGreenMC account is one of the first County Instagram sites and the first for the Department of Environmental Protection. In only a few months, the Instagram feed has 39 followers and positive responses from the public, partners and other County staff.

YouTube and Flickr are additional social media platforms that the Office of Sustainability uses for both outreach and informational storage. Flickr is the unofficial storage location for photos and graphics with more than 4,500 images stored online and almost 200,000 lifetime views of our images. YouTube has 32 videos.

Up Next

- Further expand our reach on social media and introduce new platforms to the Office of Sustainability (Ongoing)
- Launch the newly designed My Green Montgomery website with new projects, incentives and programs (Q2-Q3 2015)
- Launch the new tree planting initiative with a new website, outreach strategy and promotional materials (Q2-Q3 2015)
- Support the expansion of the Green Business Certification Program to new businesses (Ongoing)
- Increase the stories and blogs posted on My Green Montgomery (Ongoing)
- Increase the number of events and individuals reached at outreach events Countywide (Ongoing)

Appendix A
Updating the Climate Protection Plan

One of the primary responsibilities of the Office of Sustainability is to report on the County's progress in meeting the greenhouse gas (GHG) reduction goals established in the CPP. As stated in the CPP, these goals were to:

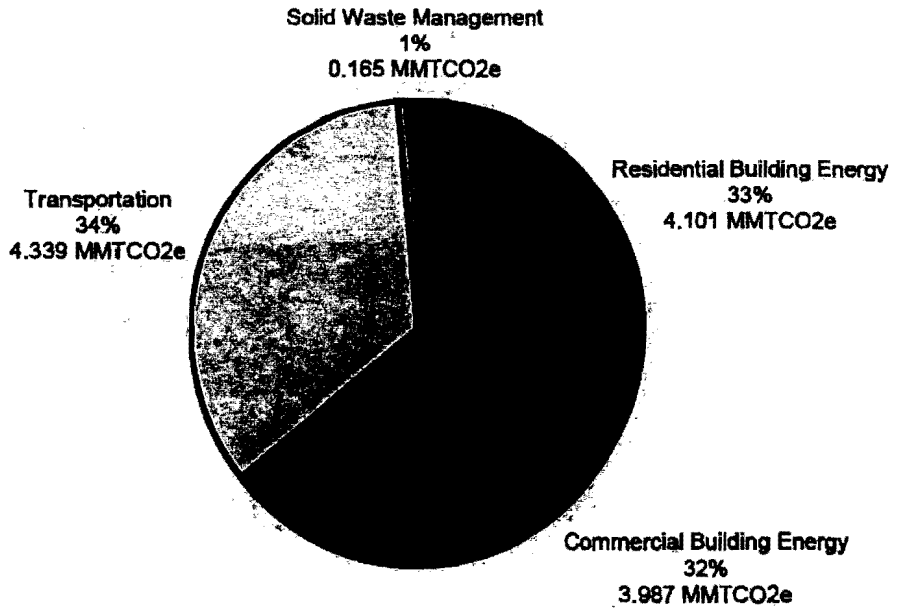
> "...reduce County wide greenhouse gas emissions to 80% below the amount...in the base year [FY05]...including a plan to stop increasing County wide greenhouse gas emissions by 2010 and achieve a 10% reduction every 5 years through 2050."

Ideally, it would be desirable to replicate the full scope of activities undertaken during the preparation of the 2009 CPP, including a complete GHG emissions inventory, a reevaluation of the 58 recommendations included in the plan, and consideration of new measures that take into account current factors (including changes in County laws, programs, and priorities; technological advances; etc.). Undertaking a full update of the CPP is not possible due to resource constraints. However, this report contains information on building fuel energy use that provides insight into the County's progress in meeting its GHG reduction goals, as well as a status update of actions taken to implement the 58 recommendations included in the CPP.

Building Fuel Energy Use

As shown in Figure 1, the 2009 CPP reported building energy use made up approximately two-thirds of the County's estimated GHG emissions in the baseline year of fiscal year 2005 (FY05).

Figure 1 – Total Montgomery County GHG Emissions in FY05



Data on the consumption of electricity, natural gas, and other building fuels are available from the County's fuel energy tax. In the 2009 CPP, data were provided from FY95 through FY07. Figures 2-4 updates the building fuel energy consumption data through FY14. The CPP baseline year of FY05 is indicated by the green dashed line.

Figure 2 – Total Building Energy Consumption and Population FY95 – FY14

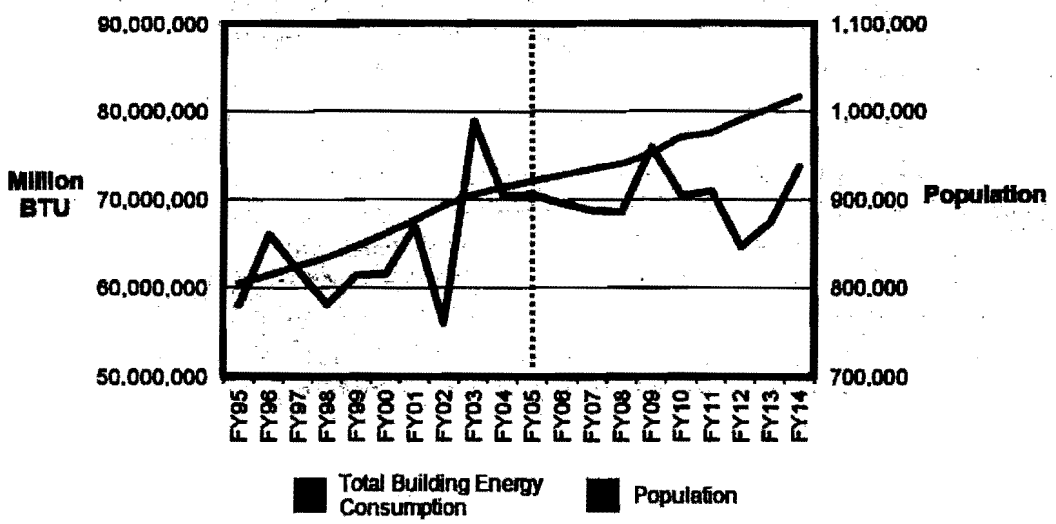


Figure 3 – Commercial Building Energy Consumption by Fuel Type FY95 – FY14

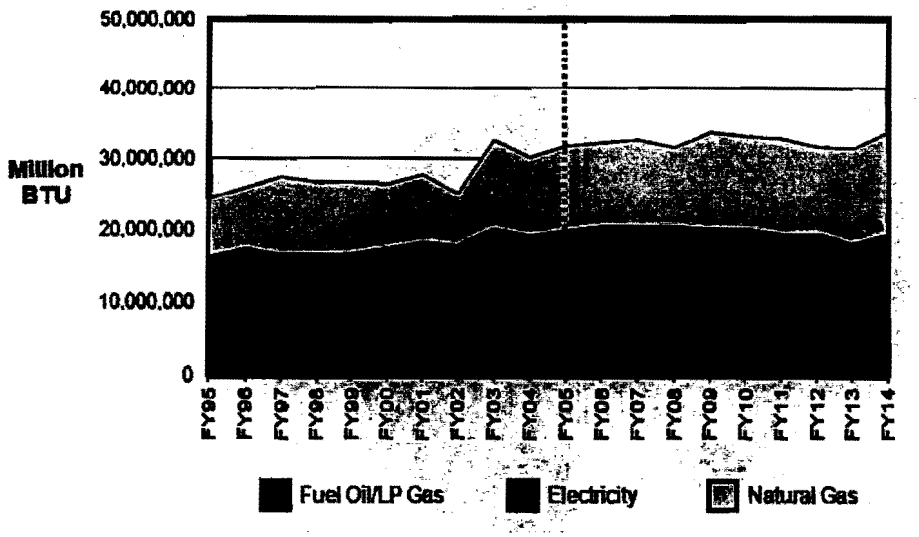
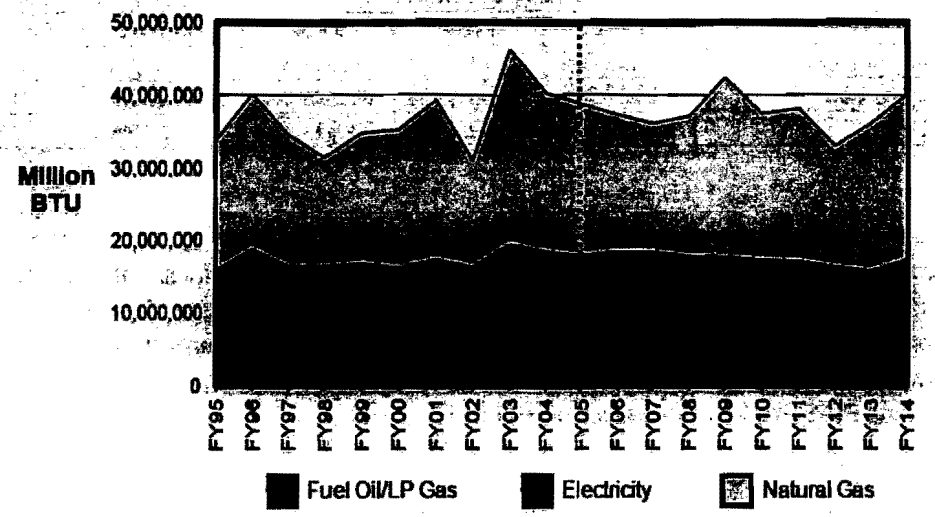


Figure 4 – Residential Building Energy Consumption by Fuel Type FY95 – FY14



These data suggest that while some progress has been made in reducing energy use in the building sector, the County is not on track to meet the goals established in the CPP. As noted in the CPP, total building energy use fluctuates on a yearly basis, due primarily to weather and the cost of various fuels, as well as the overall level of economic activity. This fluctuation is more pronounced in the residential sector than the commercial sector. More natural gas is used in residential buildings than commercial buildings, and the use of natural gas fluctuates more widely than other fuels. These fluctuations likely correspond to weather patterns, as natural gas is used predominately in home heating and to provide hot water.

The Office of Sustainability does not have the capability to conduct an in-depth analysis of the factors that account for the fluctuations in energy use. In addition, the data is not granular enough to undertake such an analysis. Since building fuel use is reported by utilities and fuel suppliers in the aggregate, as opposed to being reported based on customer type, it is not possible to track trends across various types of residential and commercial buildings.

Figure 5 shows the average annual change in total building energy use for the period from FY95-FY05 as compared to FY05-FY14. These data show that the average yearly increase in both the commercial and residential sectors has slowed between the two periods.

Figure 5 – Average Annual Change in Total Building Energy Use
FY95-FY05 versus FY05-FY14

	Energy Use (MMBTU)			Avg. Annual % Change	
	FY95	FY05	FY14	FY95-FY05	FY05-FY14
Non-Residential Energy Use	24,195,034	31,715,213	33,612,691	3.11%	0.66%
Residential Energy Use	33,927,340	38,880,724	40,198,660	1.46%	0.38%
Total Energy Use	58,122,374	70,595,937	73,811,352	2.15%	0.51%

Changes in fuel consumption on a total BTU basis will not correspond directly with changes in GHG emissions due to the carbon content per unit of energy for different fuels. Different fuels have different properties that impact the composition of their GHG emissions. For example, natural gas produces less carbon dioxide but more methane per unit of energy than coal. Figure 6 shows the percentage contribution of different fuel types to the total energy consumed during FY95-FY04 as compared to FY05-FY14.

Figure 6 – Average Change in Building Energy Use by Fuel Type
FY95-FY04 versus FY05-FY14

	Energy Use (MMBTU)		% of Total	
	FY95-FY04	FY05-FY14	FY95-FY04	FY05-FY14
Total Non-Residential	271,883,514	323,838,755		
Electricity	162,694,806	186,961,434	59.8%	57.7%
Natural Gas	97,310,580	127,864,539	35.8%	39.5%
Fuel Oil & LP Gas	11,878,128	9,012,782	4.4%	2.8%
Total Residential	367,639,079	377,262,092		
Electricity	149,790,940	158,591,300	40.7%	42.0%
Natural Gas	196,560,511	204,248,628	53.5%	54.1%
Fuel Oil & LP Gas	21,287,628	14,422,164	5.8%	3.8%

Another factor hidden in the data in Figure 6 is the increase in the use of renewable sources of electricity generation, such as solar and wind, for electricity production. Utility-scale renewable energy can be accounted for in a GHG analysis by adjusting a utility's average fuel mix (i.e., by taking into account the different fuel sources that are used to generate the electricity a utility provides to its customers), which can then be used to calculate the GHG emissions as a result of electricity provided by the utility. However, in Maryland, individual customers can choose their electricity supplier, and an increasing number are doing so. Therefore, the carbon-reducing impact of Montgomery County residents and businesses that purchase electricity from a clean energy supplier are not reflected in the utility fuel mix data. Comprehensive information on the volume of electricity purchased from clean energy suppliers by Montgomery County customers

is not readily available, which makes it difficult to accurately determine the greenhouse gas impact of the County's building consumption data.

2009 Climate Protection Plan Recommendations

The last CPP progress report was published in June 2011 just prior to the dissolution of the Sustainability Working Group (SWG). Progress on implementation of the vast majority of the 58 CPP recommendations has continued since that time. However, in some cases, activity by both the government and the private sector has shifted in new directions due to policy, programmatic, and technological developments since the formulation of the CPP recommendations in late 2008. Examples of these developments include:

EmPower Maryland Incentives – The EmPower Maryland Energy Efficiency Act of 2008 established a 15% per capita energy and demand reduction mandate by 2015 on electric utilities operating in the state. To help achieve this goal, the law directed utilities to develop a suite of energy efficiency incentives for residential and commercial customers. The first set of these incentives took effect in 2009. According to an April 2013 progress report prepared by the Public Service Commission of Maryland, EmPower programs throughout the state have saved a reported 2.2 million megawatt hours of electricity, and utilities have spent nearly $730 million on EmPOWER Maryland programs.

Alternative Financing Programs – The implementation of energy efficiency and renewable energy measures is often limited due to high initial costs. Since the adoption of the CPP, several new alterative financing programs have emerged that offer the promise of greatly expanding energy efficiency and renewable energy activity. One approach, Property Assessed Clean Energy (PACE) programs allow a property owner to borrow money, either from a government funding source or a private lender, and repay the loan via a special assessment on the property tax bill. A second approach, On-Bill Financing allows a utility customer to borrow money from a utility (or in some cases a private lender) and repay the loan via the utility bill. Under either approach, the cost savings that accrue from the energy efficiency or renewable energy measure help offset (and ideally are greater than) the amount of the loan repayment. Montgomery County has adopted legislation clearing the way for both residential and commercial PACE programs, although the residential program was put on hold due to regulatory activity at the federal level.

Access to On-Site Solar Systems – In recent years, the number of small-scale residential and commercial on-site photovoltaic (PV) solar systems has grown significantly. This is due to two primary factors – the declining cost of PV panels and the ability to lease a solar system. According to the U.S. Department of Energy, depending on system size, the reported system prices of residential and commercial PV systems declined 6%–7% per year, on average, from 1998–2013, and by 12%–15% from 2012–2013. (http://www.nrel.gov/docs/fy14osti/62558.pdf) In addition, access to solar systems is

now possible in many states, such as Maryland, through a "solar lease" or power purchase agreement (PPA). Under this model, a solar provider owns, operates, and maintains the PV system on the property of a host customer. The customer purchases the electricity generated by the system for a predetermined period and rate. This financial arrangement allows the host customer to receive electricity at a predictable cost without the up-front capital costs of buying the system.

Detailed updates for all 58 CPP recommendations are provided in the table at the end of this appendix. Highlights of particularly noteworthy accomplishments are provided below. The associated CPP recommendation number is identified at the end of each highlight.

Renewable Energy

County agencies have significantly increased their purchase of green electricity. Montgomery College currently purchases 100% clean energy and the County Government is committed to ratcheting up its clean energy purchase from its current 50% to 100% in FY16. All other County agencies are also purchasing at least 20% of electricity from green sources. (RE-1)

Similarly, there has been very significant expansion in the installation of solar photovoltaic systems. WSSC is on course over the next year or so to generate 8 MW of renewable solar PV power through solar PPAs which will amount to six percent of its total electricity consumption; MCPS plans to expand PPAs from its current eight schools to 14 schools in the next few years; and the Department of General services recently finalized a contract to install 6 MW of solar PV on up to 12 County Government facilities, with an additional nine more on the horizon. (RE-3)

Residential Building Energy Efficiency

Residential energy efficiency incentives offered under utility EmPower programs include discounted lighting and appliances; heating, ventilation, and air conditioning ("HVAC") rebates; home energy audits; weatherization; and low-income programs. (EER-1, EER-2)

The County adopted legislation in April 2009 to establish a PACE program known as the Home Energy Loan Program (HELP). Regulations were being developed by DEP when the Federal Housing Finance Agency (FHFA), which regulates loans offered by Fannie Mae and Freddie Mac, issued guidance that PACE programs threaten the integrity of these loans. As a result, the County suspended implementation of HELP. Programs in other jurisdictions (e.g., California) are being studied for possible application in the County. (EER-4)

Commercial, Multi-Family, and Public Building Energy Efficiency

The Department of General Services has initiated a 6-year plan with $81 million dollars of financing to implement energy efficiency improvements to over a dozen facilities via energy performance contracting. The Montgomery County Public Schools require enhanced commissioning on all new schools or revitalization/expansion projects, and facility design guidelines have now set a goal of 30% improvement in energy performance over ASHRAE energy efficiency standards. (EEC-2)

In May 2014, Montgomery County became the first county in the nation to adopt a commercial benchmarking law. Implementation of the law will be on an incremental schedule, with County buildings benchmarked in 2015, the first tier of commercial buildings in the 2016, and a second tier in 2017. (EEC-3)

In 2012, Maryland adopted enabling legislation authorizing local adoption of PACE financing programs. Legislation authorizing the establishment of a commercial PACE program in Montgomery County is currently under consideration at the County Council. (EEC-3)

Commercial energy efficiency incentives offered under utility EmPower programs are designed to encourage businesses to upgrade to more efficient equipment, such as lighting or HVAC, or improve their building performance through weatherization or building shell upgrades. For larger commercial buildings or industrial facilities, a utility can customize its incentives for cost-effective improvements. (EEC-5)

Transportation

The Montgomery County Department of Transportation (DOT) routinely conducts parking supply studies in the four parking lot districts to inform decisions regarding land use and the need to reduce or expand parking supply through redevelopment opportunities. DOT provided advice to the Planning Department in their recent comprehensive update to the County code governing parking requirements for specific land uses. (T-1)

Maryland DOT continues to advance the Purple Line light rail project, which is proceeding toward design/build implementation through the issuance of a request for proposals for a design/build/operate public private partnership where costs will be shared between federal, state, local sources as well as the successful private concessionaire. The County finalized a Countywide Bus Rapid Transit Study Report in July 2011 and in 2014 partnered with WMATA and SHA to develop draft guidelines for assessing person throughput along highway corridors for use in scenarios where lane repurposing for transit may be considered as an alternative in future studies. The 2015-2020 Maryland Consolidated Transportation Program (CTP) includes new funding for the

study of Bus Rapid Transit alternatives on two additional studies in the County along the MD 355 and US 29 corridors. (T-3)

DOT now evaluates all major, arterial and primary roadways scheduled for resurfacing to determine if they can be restriped to provide bicycle accommodations such as bike lanes, wider shoulders or shared lane bicycle markings ("sharrows"). DOT has purchased and installed 51 bikeshare stations in Montgomery County, both in the Rockville/Shady Grove/Life Sciences Center area and in the Downcounty. Commuter Services has implemented a variety of marketing and outreach initiatives to promote bikesharing. (T-6)

Forestry & Agriculture

Two laws were passed in 2013 specifically pertaining to the protection and enhancement of trees. The Tree Canopy Law now requires mitigation for disturbance to sites during the development process, and the Roadside Tree Law regulates impacts and requires mitigation for disturbance to trees in rights-of-way. Each law requires the planting of new trees or payment of a fee-in-lieu which will be used by the County to plant trees. (F&A-2, F&A-3)

In 2011, the Montgomery Countryside Alliance launched the Land Link Program, linking land owners with farmers seeking land. Similarly, the Department of Economic Development launched the New Farmer Program at the end of 2012 to match new farmers with private land owners as well as provide them with mentoring, specialized business training and equipment. Since 2009, the Department of Parks has grown their community gardens program from one garden to 11, benefitting close to 600 gardeners. The Montgomery County Food Council was established in 2012 with a mission to influence key aspects of the food system including growing the local food economy. (F&A-11)

Land Use & Planning

The County Council adopted the 2012-2016 Subdivision Staging Policy (formerly known as the Growth Policy) in November 2012, including transportation tests that measure not only roadway capacity but transit capacity as well. (LUP-1)

A new Zoning Code became effective on October 30, 2014. The new Code includes the Commercial/Residential (CR) zone. This zone allows a mixture of businesses and homes around transit served areas as specified by the master plan. Property owners wishing to build up to the maximum density and height allowed by the master plan will need to provide additional benefits to the environment, connectivity, design and diversity. The code also includes sustainability requirements and has more provisions for distributed energy generation and urban farming. (LUP-2)

Education & Outreach

In January 2012, DEP launched the My Green Montgomery website (www.mygreenmontgomery.org). The website features a blog; calendar of events; list of incentives and environmental programs offered by governments, nonprofits and businesses; and additional resources to help residents make green living decisions and reduce their GHG emissions. The My Green Montgomery communication strategy includes social media marketing and event support. Over three years, the program has launched Facebook, Twitter and Instagram accounts. The blog has expanded in reach each year with more than 180 blog posts from nonprofits, governments, for-profits and individuals. The County supports and co-hosts local events such as the Montgomery County GreenFest, the Green Business Forum, as well as various other events organized by local environmental groups. (ED-1, ED-2)

The County, in partnership with the Montgomery County Chamber of Commerce, launched the Green Business Certification Program in the fall of 2009. The voluntary recognition program is designed to help businesses voluntarily reduce their ecological footprint through changes in day to day operations and policies. Currently, there are 59 Certified Green Businesses. (ED-3)

Over the last five years, three community-based organizations modeled, in part, after Bethesda Green have incorporated. These "Community Greens" include Poolesville Green, Green Wheaton and Silver Spring Green. These organizations collaborate on joint programming and information sharing. (ED-9)

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Item #	Short Description	Implementation Steps to Date
RE-1	Maintain the commitment of the County government and County agencies to purchase a percentage of annual electricity consumption from clean energy sources. Establish energy policy criteria recognizing the benefits and prioritizing the purchase of various clean energy options.	Since 2004, Montgomery County has led a coalition of County agencies and municipalities to purchase electricity supply generated from clean national wind energy. All agencies are purchasing greater than 20% of electricity from green sources. Montgomery College currently purchases 100% clean energy and the Department of General Services (DGS) currently purchases 50% (and will purchase 100% clean electricity in FY16). WSSC has been buying direct wind power (as opposed to Renewable Energy Credits or RECs) for approximately 29% of its total electric consumption since 2008, and intends to award a new 10 year contract in 2019, when the current contract expires. Buying directly from a wind farm allows WSSC to save on the cost of electricity, while improving local air quality in the D.C. suburban area. In 2013, WSSC added 4 MW of renewable solar PV power at two wastewater treatment plant sites, resulting in an additional 3% of its total electric consumption from renewable sources. In 2014 WSSC developed a Strategic Energy Plan (currently in draft form), that established a 10 year goal of increasing the total renewable electric supply to 43%.
RE-2	Adopt building design guidelines applicable to all County government and agency buildings requiring the use of geoexchange, or the most effective system available, as the primary heating and cooling energy source.	Montgomery County facilities over 10,000 sq. ft. are currently built to achieve a minimum of LEED Silver certification. The County undertakes a detailed lifecycle cost analysis to determine the most appropriate heating or cooling system. The County has installed geoexchange systems in multiple facilities. As of January, 2015, MCPS has constructed 21 schools with geo-exchange systems, including seventeen elementary schools, two middle schools, and two high schools. Each of these systems is the primary source of heating and cooling for the facility. An additional seven geo-exchange projects are in construction or design. Montgomery College seeks LEED Gold certification for all new or renovated buildings which meets or exceed legislated LEED Silver mandates.

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Item #	Short Description	Implementation Steps to Date
RE-3	Support the installation of solar photovoltaic systems through the use of power purchase agreements in public facilities.	DGS recently finalized a contract to install Solar Photovoltaic Systems on up to 12 public facilities. A second Request for Energy Proposal (RFEP) has been issued for up to an additional nine facilities. A third package of facilities is being identified. Montgomery County committed, as part of a White House initiative, to the development of over 6 megawatts (MW) of solar photovoltaic systems on County owned and operated facilities. MCPS is hosting production-scale solar photovoltaic (PV) systems at eight schools with a capacity of 1.2 megawatts (MW) through power purchase agreements (PPA). These systems will provide between 20-40% of the electricity requirements during peak production hours for these schools. MCPS is in the process of procuring solar PV PPA developer services to increase the number of schools that host solar PV systems. MCPS is currently soliciting proposals for solar PV PPA for an additional 14 schools. These systems are planned to be installed in FY15-17. These systems will increase the amount of generating capacity hosted by MCPS to over 3 MW. Montgomery College has installed and operated thermal and electrical solar power systems since the late 1970s and early 1980s. The College intends to evaluate the County's PPA contract for use on its current and future solar projects. In 2013, WSSC added 4 MW of renewable solar PV power at two wastewater treatment plant sites through a 20 year PPA, resulting in an additional 3% of its total electric consumption from renewable sources. In 2015/2016, WSSC plans to add 4 MW of solar PV power to the existing wastewater treatment plant sites, also through a PPA. When completed, total solar PV production will generate 6% of WSSC's total electricity consumption.
RE-4	Provide revolving and low-interest loans for on-site renewable energy installations.	While the County currently does not offer financing options for on-site renewable, access to financing or leasing solar at a low - or no- upfront cost has expanded dramatically. DEP promotes on-site solar development with information about these options, as well as promoting solar co-ops and other community purchasing models. See EER-4 for information on a past related effort.
RE-5	The County should facilitate customer aggregation of renewable energy, including voluntary purchases of electricity from renewable sources or renewable energy certificates, and renewable energy installations.	DEP continues to provide information on switching to an electricity supplier with renewable energy; promote aggregation programs, such as that of the nonprofit Groundswell for clean energy purchasing, solar, and energy efficiency; and created a new website for community solar projects, such as the Takoma Park Solar Co-op and other efforts such as the Community Power Network.

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Item #	Short Description	Implementation Steps to Date
RE-6	Establish a public-private, non-profit entity to promote, facilitate, develop and invest in clean energy sources for the benefit of Montgomery County agencies, businesses and residents.	The Maryland Clean Energy Center, a statewide nonprofit established in 2008, with seed funding from Montgomery County, continues to provide a residential loan program for clean energy/efficiency, support a network for clean energy technology development, and provide a program of energy auditing certification.
RE-7	Investigate the feasibility of adding sustainable energy biogas/combined heat & power (CHP) facilities to WSSC Seneca and Piscataway wastewater treatment sites.	In 2014, WSSC obtained approval from the Montgomery and Prince George's County Councils to begin design of a 3MW Piscataway Bioenergy facility at its Piscataway wastewater treatment site in Accokeek, MD. This project will include pretreatment, anaerobic digesters, and a CHP power plant, and will process unstabilized biosolids from its Seneca, Damascus, Parkway, and Piscataway wastewater treatment plants. WSSC plans to have the Program Manager/Bridging consultant on board by Spring, 2015. Projected construction completion is 2020. Although not related to WSSC sites, Montgomery College, since the early 1990s, has installed engine driven chillers(CHP) in three of its central chilled water and hot water plants. Clean natural gas is used to drive chillers that produce hot water while waste heat is recovered and is used for space heating, domestic hot water heating and swimming pool heating.
EER-1	Develop promotional giveaways and buy-downs of low-cost energy efficient products.	DEP continues to work very closely with utility EmPower Maryland programs and supported their renewal for the 2015-2017 cycle; these programs provide crucial incentives for business and residents to access energy-saving equipment and devices.
EER-2	Develop energy efficiency programs, in coordination with State and utility-based programs, to assist low income households address their energy needs.	DEP helped coordinate conversations between the Housing Opportunities Commission and Montgomery Housing Partnership and a local nonprofit, Groundswell, to apply for MEA grant dollars for EmPower low income energy efficiency installations. At least one application for the grant has been submitted.
EER-3	Enhance consumer awareness of energy consumption by advocating for utility programs that provide home-energy consumption displays and develop other County programs to increase availability and affordability of in-home energy displays.	Pepco continues to pilot segments of its customers with the in-home energy displays; Pepco and BGE also offer Home Energy Reports which are shown to have a longer-lasting impact on energy-saving behaviors in the home. DEP has highlighted these reports in a blog post and energy newsletter.

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Item #	Short Description	Implementation Steps to Date
EER-4	Develop a low cost loan program to facilitate residential energy efficiency improvements.	The County adopted legislation in April 2009 to establish a property assessed clean energy (PACE) program known as the Home Energy Loan Program (HELP). This program would have provided homeowners with loans for energy efficiency and renewable energy installations that were paid back via the County property tax bill. Regulations were being developed by DEP when the Federal Housing Finance Agency (FHFA), which regulates loans offered by Fannie Mae and Freddie Mac, issued guidance that PACE programs threaten the integrity of these loans. As a result, the County suspended implementation of HELP. Programs in other jurisdictions (e.g., California) are being studied for possible application in the County. In addition, the County Council hosted an informational session on "green banks," which have the potential to facilitate PACE and other financing programs.
EER-5	Create an effective residential energy education and outreach program with the goal that 50% of Montgomery County homeowners will take steps to reduce the annual consumption of energy in their homes by at least 25% by 2020.	Electricity utilities serving the County have implemented a general awareness campaign in support of the EmPower program. DEP provides information on residential energy efficiency on its website and the MyGreenMontgomery website, and additional Residential energy efficiency initiatives will be pursued through the Office of Sustainability as resources become available.
EER-6	Promote the deployment of smart grid technologies by utilities serving Montgomery County.	Pepco and BGE have received final approval to complete their deployment of advanced metering technology (or smart meters). The county supports the use of smart meters and the services that they provide, including the automated data access available to commercial building owners who need to comply with the commercial energy benchmarking law. Microgrid Institute and Pepco have a grant from U.S. Department of Energy to design a microgrid for Olney Town Center, Montgomery County, MD.). Under the grant, the Olney Town Center Microgrid project will research, develop, model, and laboratory test microgrid control system technology options that will be designed to increase resiliency, reduce emissions, and improve efficiency in accordance with Maryland and Federal goals. Since the early 1990s Montgomery College has installed high efficient central plants that use natural ammonia refrigerants and ice thermal storage. This is a smart grid electrical demand limiting technology which allows production and storage of cool energy at night during low peak demand times for use during the high peak demand time in the middle of the day. High performance direct digital control systems using ASHRAE BACnet open protocols allow buildings to respond to real time pricing signals and record demand and consumption data for building Benchmarking.

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Item #	Short Description	Implementation Steps to Date
EEC-1	Require ENERGY STAR appliances and equipment, and EPEAT registered IT equipment, in public facilities.	Montgomery County Government and M-NCPPC purchase laptops and desktops that are EPEAT Gold registered and ENERGY STAR qualified; Montgomery College specifies energy efficient Energy Star IT equipment and appliances. The Interagency Procurement Coordinating Committee (IPCC) has drafted a green procurement policy and plans to create a list of environmentally responsible products with bid and contract specifications (including model specifications), third party certification standards, information on cost and quality, and calculators to estimate financial and environmental benefits.

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Item #	Short Description	Implementation Steps to Date
EEC-2	Improve the energy performance of public facilities through enhanced data acquisition and energy efficiency measures.	DGS is currently executing a contract for energy data management system to process incoming utility bills, validate them for correctness, identify variations, provide concrete building-by-building energy use reports, and automatically energy performance benchmark the projects. The system will be operational by summer 2015 supporting all building utility accounts. DGS introduced a new copier contract with advanced features to reduce unnecessary printing. The copiers require users to swipe their ID badge to print and provide an opportunity for deleting unnecessary copies. All copies not printed are deleted from the system. Since copies cannot be printed without a badge, privacy-related concerns and the need for personal printers are reduced, thus saving energy. Montgomery County was designated as a Maryland Smart Energy Community, receiving a total of $1,000,000 in grant funds over the last two years. These funds are being used for a variety of projects including fleet petroleum reduction, energy efficiency, and combined heat and power. The County has issued a Request for Energy Proposals (RFEP) for microgrids. Microgrids incorporate a variety of on-site generation, energy efficiency and other technologies to allow County properties to operate independently from the utility grid. Microgrids also reduce emissions, compared to grid supplied power, by incorporating clean and high efficiency equipment. DGS has initiated a 6 year plan with $81 million dollars of financing to implement energy efficiency improvements to over a dozen facilities via energy performance contracting. The County has completed the first project -- a $4.1 million dollar retrofit of the 401 Hungerford Building -- which is anticipated to reduce annual costs by $159,000 and reduce the County's greenhouse gas footprint by over 650 metric tons of carbon dioxide equivalent (MTCO2E). DGS has completed over 15 new LEED Silver or higher certified facilities. An additional 8 LEED Silver or better facilities are being planned.

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Item #	Short Description	Implementation Steps to Date
EEC-2 (Cont'd)	Improve the energy performance of public facilities through enhanced data acquisition and energy efficiency measures.	DGS developed a rainwater harvesting system, in concert with DEP, HHS, DPS and WSSC to treat and reuse rainwater captured from the vegetated roof on the Equipment Maintenance, Transportation and Operations Center (EMTOC). Water is used for bathroom flushing as well as washing vehicles MCPS requires enhanced commissioning on all new schools or revitalization/expansion projects; facility design guidelines have now set a goal of 30% improvement in energy performance over ASHRAE energy efficiency standards. As of January 2015, MCPS has over 698,593 square feet (SF) of vegetated roof on twenty-eight different schools which will reduce the heat island effect, improve thermal insulation of buildings and retain and clean stormwater. Montgomery College has historically integrated a program of continuous improvement for enhanced data acquisition and implementation of energy efficiency measures. Specification of open protocol ASHRAE BACnet Building Automation Systems (BAS) allow improved equipment integration and data acquisition. Since 2002, WSSC has completed three Energy Performance projects (replacing inefficient with energy efficient equipment/systems), resulting in the reduction of 27 million kWh per year. WSSC awarded a further energy performance contract in 2014, and the project is currently in the feasibility study phase. The project is expected to reduce electricity consumption by an additional 10 million kWh per year; construction is projected to be completed by 2018. WSSC has added numerous enhancements to its Energy Information System (EIS), originally developed in 2004 and now internet based. EIS can, in real-time, monitor individual pump performance at the Potomac Water Filtration Plant, track wind and solar electricity demand and usage, and monitor demand reduction at individual wastewater and water filtration plants to optimize PJM Peak Load Contribution (PLC) levels.

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Item #	Short Description	Implementation Steps to Date
EEC-3	Establish specific energy performance requirements and timelines for the benchmarking, commissioning and improvement of new and existing commercial and multi-family buildings in order to reduce energy consumption by 25% by 2020. This will be achieved by a combination of education and outreach efforts, incentives, market forces and, if necessary, mandates.	In May 2014, the County Council passed bill 2-14 requiring certain commercial building owners to benchmark their buildings beginning in 2016. The County will begin benchmarking by 2015. Implementation of the bill and its tenets has begun with a September work group kickoff and a November outreach event. Efforts are being made to integrate energy efficiency initiatives with the benchmarking law, including utility incentives, property-assessed clean energy (PACE) financing, and outreach. In 2012, Maryland adopted enabling legislation authorizing local adoption of PACE financing programs. Legislation authorizing the establishment of a commercial PACE program in Montgomery County is currently under consideration at the County Council. Since the 1980s, Montgomery College has established specific energy performance requirements and has integrated these requirements into all new and existing buildings. The College's utility management efforts reduce operating costs by properly tracking utility expenditures and benchmarking consumption and costs. In FY2014 and FY2015 the College enhanced its benchmarking efforts in response to County Council legislation enacted in FY2014 by hiring a Utility Analyst.
EEC-4	Develop a process for adopting new energy efficiency standards for commercial and multi-family buildings.	The County has a well established process for adopting the latest International Code Council family of building codes, including the International Energy Conservation Code.
EEC-5	Advocate for cost-effective utility-based energy efficiency and demand reduction programs, and form partnerships with local utilities to extend programs to businesses and residents.	Electricity utilities serving the County have implemented incentive and demand response programs in support of the EmPower Maryland program. DEP has begun an effort to highlight the efforts of customers who participate in these programs through case studies/blog posts and newsletter stories. Through its planning process Montgomery College has historically implemented demand reduction programs by installing high performance central plants which improve efficiency and reduce demand.

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Item #	Short Description	Implementation Steps to Date
EEC-6	Advocate for peak pricing and tiered electricity rate structures that encourage energy conservation by providing pricing signals for energy consumption during peak periods or by large users.	DGS in 2013 implemented demand response (DR) on key County facilities. The program was expanded in 2014 to add an additional 5 facilities. During times of peak energy use, the County curtails the operation of specific equipment and receives rebates from the vendor. During the first year, the County received over $70,000 in rebates. Montgomery College has historically positioned itself to make optimal use of installed equipment and demand management programs and both electrical and natural gas demand management programs. The MCPS implements a custom peak load management (PLM) program. This program is focused on reducing MCPS's demand and consumption of electricity during the summer peak demand periods. MCPS receives a large financial incentive in the form of reduced PJM capacity charges. In FY14, these efforts yielded $1.7 million in cost avoidance. Capacity tags have been reduced by 42% since before the program's inception.
EEC-7	Develop and implement programs to support energy efficiency improvements by residents, managers and owners of multifamily properties, particularly affordable and low-income properties.	See EER-2 and EER-5.
EEC-8	Use energy efficient lighting technologies when installing new streetlights or replacing existing streetlights.	In FY14, MCDOT replaced approximately 180 High Pressure Sodium (HPS) streetlights in Town Center Damascus with Light Emitting Diode (LED) lights, and approximately 110 LED streetlights were installed on New Hampshire Ave that included both new installations and conversion from HPS. Montgomery College performs engineering and life cycle cost analysis to determine the most appropriate and efficient lighting technology for replacement of its street, walkways and parking lots.

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Item #	Short Description	Implementation Steps to Date
T-1	Conduct parking supply and pricing study to ensure parking policies and zoning requirements are consistent with transportation demand management goals.	This parking supply study has been completed. The findings of this document have informed the re-write of Chapters 59 and 60 in the County Code which relate to zoning and parking policies. In January 2014, Montgomery County and the MTA partnered to share in funding and route design to develop a new "Meet the MARC" service from Clarksburg to the Germantown MARC Station. The goal was to reduce the number of cars traveling between Clarksburg and Germantown during the peak periods and to help relieve parking at the Germantown MARC. The new bus service is currently averaging about 55 riders per weekday over the past 3 months. This translates to about 30 fewer cars on the road during the peak periods in Germantown. MCDOT routinely conducts parking supply studies in each of our four Parking Lot districts to inform decisions regarding land use and the need to reduce or expand parking supply through redevelopment opportunities. Pricing studies are conducted annually as part of the routine annual budget process. MCDOT provided advice to M-NCPPC in their recent comprehensive update to the County code governing parking requirements for specific land uses. The resulting adopted Zoning Text Amendment became effective on October 30, 2014. Montgomery College's Parking and Transportation Manager is responsible for optimizing the College Parking and Transportation program. Programs such as master planning, employee outreach, subsidizing student Metro passes, providing inter campus shuttles, employee flexible spending transportation programs, and implementing parking fees are examples of some of the College's efforts to improve parking and transportation.
T-2	Establish a car sharing program in Parking Lot District facilities	MCDOT contracted with two private car share services in 2012 to provide public parking spaces for their use, and is currently planning a new solicitation to be released in 2015 to attempt to expand the number of companies offering this service.

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Item #	Short Description	Implementation Steps to Date
T-3	Support the Ridership Growth Initiative by 2020 by implementing bus rapid transit on Veirs Mill Road and Georgia Avenue, and study and implement where appropriate light rail transit and bus rapid transit systems in other corridors.	MDOT continues to advance the Purple Line light rail project into the Federal Transit Administration New Starts Program. The project received its final Environmental Impact Statement and 30% design and is now proceeding toward design/build implementation through the issuance of a request for proposals for a design/build/operate public private partnership where costs will be shared between federal, state, local sources as well as the successful private concessionaire. The County will provide technical review, right-of-way and financing in excess of $100 million toward the project. MCDOT continues to provide technical review and stakeholder committee participation for the Corridor Cities Transitway, Bus Rapid Transit corridor project. The project will provide a dedicated guideway for Bus Rapid Transit service between Shady Grove Metro and Clarksburg. Phase I from Shady Grove to the Metropolitan Grove MARC rail station is funded for design while to date Phase II continuing north to Clarksburg has only been funded for preliminary planning. Right-of-way dedication continues where possible for the entire corridor. The MD 97 and MD 586 Bus Rapid Transit studies have analyzed various alternatives associated with the implementation of Bus Rapid Transit improvements along their respective corridors. To date, the County has funded 100% of the State (SHA/MTA) costs for these projects. The County finalized a Countywide Bus Rapid Transit Study Report in July 2011 and in 2014 partnered with WMATA and SHA to develop draft guidelines for assessing person throughput along highway corridors for use in scenarios where lane repurposing for transit may be considered as an alternative in future studies. Implementation has been discontinued for Georgia Avenue bus rapid transit. The 2015-2020 Maryland Consolidated Transportation Program (CTP) included new funding for the study of Bus Rapid Transit alternatives on two additional studies in the County along the MD 355 and US 29 corridors. The County is participating not only in technical review of these corridor studies but also in the setup and facilitation of Citizen Advisory Committees for each active study corridor. The Purple Line Functional Master Plan (light rail) was adopted in 2010. The Countywide Transit Corridors Functional Master Plan was adopted in 2013. The Bethesda Purple Line Station Minor Master Plan was adopted in 2014.

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Item #	Short Description	Implementation Steps to Date
T-3 (Cont'd)	Support the Ridership Growth Initiative by 2020 by implementing bus rapid transit on Veirs Mill Road and Georgia Avenue, and study and implement where appropriate light rail transit and bus rapid transit systems in other corridors.	The director of MCDOT chairs Montgomery County's Rapid Transit System (RTS) steering committee. The mission of the Committee is to support and provide advice to the Chief Administrative Officer (CAO) and County Executive in the implementation of a RTS for the County, within the framework of adopted Master Plans in the County, and within the fiscal constraints and overall policy direction of the County Executive. The Washington Metropolitan Area Transit Authority (WMATA) has implemented a restructuring of the Q2 route to improve service reliability and route operations. This was an initial improvement in advance of BRT on Veirs Mill Road. New service on Veirs Mill Road began December, 2009. WMATA has also conducted a study of the K and Z routes along New Hampshire Avenue as well as the Y routes along Georgia Avenue. Metrobus service on Route K9 on New Hampshire Avenue has been introduced in response to recommendations from WMATA's Priority Corridor Network (PCN) Study. MCDOT is involved in a Council of Governments funded study of all the Bus Priority Corridors to determine the system benefits of implementing bus rapid transit services in these 24 corridors. The study evaluates the potential of 16 BRT corridors including Veirs Mill and Georgia Avenue corridors. Installation of USDOT TIGER program funded real-time transit information screens along Veirs Mill Road began in late 2014. There are four Facility Planning Studies ongoing for transit infrastructure improvements UpCounty. The first is a modernization of the Lakeforest Transit Center which is envisioned to tie into the future RTS service, and provide additional parking and additional bus bays. The second is an upgraded Milestone Park & Ride to provide additional parking, additional bus bays and to tie into the future RTS service. The third is an expansion to the Germantown Park & Ride which is envisioned to provide significant additional parking, more bus bays and to tie into the future CCT. The fourth is to provide additional parking at the Boyd's MARC station. These facility planning studies are to be finalized during FY15. The Chevy Chase Lake (2013), Long Branch (2013), and White Oak (2014) Sector Plans were completed about the same time as the Countywide Transit Corridors Functional Master Plan (FMP), and were developed in light of its recommendations. The Bethesda Downtown Plan (underway) and the White Oak 2 Sector Plan (to be restarted in 2015) will also take the Transit Corridors FMP recommendations into account.

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Item #	Short Description	Implementation Steps to Date
T-4	Conduct transportation planning studies during 2009 in order to better target transportation-related GHG reduction programs.	In addition to studies referenced in item T-3, in 2014, the MCDOT completed four separate facility planning studies assessing the need for improved and expanded transit passenger facilities throughout the County as well as engaging in a number of facility planning studies for improved bicycle and pedestrian facilities along County and State roadways. Supported by a grant under the EPA Smart Growth Implementation Program, the INDEX model was pilot tested during Fall 2010/Spring 2011 to estimate transportation-related GHG emissions using information derived from work performed in support of the early phases of the recently adopted White Oak Science Gateway Master Plan (formerly called the East County Science Center Master Plan). This effort allowed comparison of alternatives within a planning area, but could not compare dense development in one area compared to the same number of units elsewhere in the county. The model also proved to be too resource intensive.

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Item #	Short Description	Implementation Steps to Date
T-5	Identify pedestrian improvements to maximize walking and bicycling to recreation centers, libraries, shopping centers and schools.	MCDOT has conducted a series of Pedestrian Roadway Safety Audits (PRSA) at High Incidence Areas (HIA) around the County to target areas needing safety improvements and improved pedestrian and bicycle facilities. Audits develop recommended engineering improvements, which are subsequently evaluated and implemented by MCDOT and MSHA. These improvements, while reducing crashes, will also serve to promote walkability and multi-modal connectivity. Education activities and enhanced enforcement are also targeted at these locations. As of December 2014, 15 audits have been completed by MCDOT. This model has been adopted by MSHA; it has conducted an additional 8 audits since 2013. Engineering work has been completed in many of the HIAa, which includes signing and pavement-marking improvements, lighting improvements, median barriers, refuge islands; curb extensions at crosswalks, count down pedestrian signals, additional pedestrian crossings, and improved sidewalk connections. Since 2009, expenditures of $6.5 million have been for audits and engineering design and construction. Additionally, education and enforcement activities have amounted to $1.2 million. MCDOT undertakes traffic calming projects using roadway modifications with enhanced crosswalks, which reduce speeds, lower pedestrian collisions, and improve walking environments. Since 2009, a total of 29 traffic calming and intersection modification projects have been completed. Bus Stop Improvements are reviewed and completed in conjunction with the County's HIA audits. Any sidewalk improvements that are completed are done along roadways where there is Ride On service. The review of each location looks at nearby County facilities and the pedestrian path of travel to ensure that the pathway is ADA compliant. MCDOT constructs new sidewalks and reconstructs existing sidewalks which provide pedestrians with safe walking pathways to reach activity centers. In FY14, the Division of Highway Services reconstructed 130,260 linear feet of non-ADA compliant sidewalks and reconstructed 2,950 ramps to meet ADA specifications. Expenditures in FY14 for this type of work amounted to $2,520,500.

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Item #	Short Description	Implementation Steps to Date
T-5 (Cont'd)	Identify pedestrian improvements to maximize walking and bicycling to recreation centers, libraries, shopping centers and schools.	The following recently adopted master plans/sector plans contain recommendations to provide specific connections or other recommendations to improve walking/biking: ▪ Wheaton Central Business District and Vicinity Sector Plan (adopted 2012) ▪ Takoma-Langley Crossroads Sector Plan (adopted 2012) ▪ Kensington Sector Plan (adopted 2012) ▪ Burtonsville Crossroads Neighborhood Plan (adopted 2012) ▪ Long Branch Sector Plan (adopted 2013) ▪ Chevy Chase Lake Sector Plan (adopted Oct., 2013) ▪ Glenmont Sector Plan (adopted Dec., 2013) ▪ White Oak Master Plan (adopted July, 2014)Bethesda Purple Line Station Minor Master Plan (Adopted 2014) The following master plans/sector plans, currently underway by the Planning Department, will likely contain provisions to improve walking/biking: ▪ Bethesda Downtown ▪ Westbard ▪ Lyttonsville ▪ Montgomery Village Work on the White Flint 2 Sector Plan is scheduled to restart in 2015. The Council's T&E Committee approved a resolution in support of the establishment of a White Oak Transportation Management District in January 2015.

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Item #	Short Description	Implementation Steps to Date
T-6	Plan, design and construct bicycle paths, lanes and shared signed roadways, as well as facilities supporting bicycling, to encourage increased use of bicycling for commuting and other transportation needs.	MCDOT now evaluates all Major, Arterial and Primary roadways scheduled for resurfacing to determine if they can be restriped to provide bicycle accommodations such as bike lanes, wider shoulders or shared lane bicycle markings ("sharrows"). MCDOT has purchased and installed 51 bikeshare stations in Montgomery County, both in the Rockville/Shady Grove/Life Sciences Center area and in the Downcounty. Commuter Services has implemented a variety of marketing and outreach initiatives to promote bikesharing. Montgomery County had 17 pit stops on Bike to Work Day 2014. MCDOT Transit Services supported the majority of these administratively and hosted six of them directly. Over 3,300 commuters pledged to bike to work on this day. Montgomery County Government became a Capital Bikeshare sponsor and offered discount membership to county employees. To date 83 County employees have joined Capital Bikeshare. MCDOT received a grant from FTA via MWCOG to provide Capital Bikeshare services free to low income populations in the county. Also offered under the program are free helmets and bike safety training classes. Commuter Services has conducted several outreach events and has distributed material to County and State agencies in contact with low income populations. To date over 30 people have received free Capital Bikeshare memberships. MCDOT Transit Services offers bike safety training classes to the general public under arrangements with bike-related organizations and through Montgomery College. MCDOT Transit Services works with developers to obtain new bikeshare station sites and stations to encourage increased use of that mode as a connection to transit and an alternative to auto use for short trips, particularly in urban areas. See T-5 for adopted, under development, and anticipated master plans that address these recommendations.

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Item #	Short Description	Implementation Steps to Date
T-6 (Cont'd)		Bicycle-Pedestrian Priority Areas (BPPAs) are geographical areas where the enhancement of bicycle and pedestrian traffic is a priority. The policy of designating BPPAs will help the County improve aging infrastructure to make it more appealing for walkers and bikers. White Flint was designated as a BPPA in Jan., 2011. Subsequently, a number of areas have been designated as BPPAs, including: ▪ Glenmont ▪ Grosvenor ▪ Silver Spring CBD ▪ Veirs Mill/Randolph Road and ▪ Wheaton CBD As additional funding becomes available, additional improvements may be pursued in areas designated in other plans.

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Item #	Short Description	Implementation Steps to Date
T-7	Explore ways to reduce vehicle travel to schools by expanding walking, bicycling and use of buses.	MCDOT and MCPS observed arrival and dismissal at all 202 elementary, middle, and high schools in the County to identify pedestrian movements to and from school, and assessed measures to make each school safer, more walkable and bikeable. Under the Safe route to School Program, engineering improvements are combined with education and enforcement activities and have resulted in an over 80% reduction in pedestrian collisions within a ¼-mile radius of these schools. MCDOT in FY14 completed assessments at 38 schools. Engineering work was completed at 28 of those schools in order to increase safety for walkers and bikers. Work was completed at 21 elementary schools, 4 middle schools, and 3 high schools. Education activities targeted to students and parents in cooperation with school officials was implemented. MCDOT in FY14 held 15 school administrator or parent meetings and distributed 1,712 pieces of educational material at selected schools and events. MCDOT is developing educational programs at 41 schools to increase pedestrian activity and safety among drivers near schools. MCDOT extended transit service along Route 42 to Charles E. Smith Day School; January 2013 In the spring of 2013, Ride On extended a new bus route to the Charles E Smith Day School in Kensington at specific times of the day to allow High School students an opportunity to use public transportation in lieu of parents driving their kids to school, thus helping to reduce congestion around school start and end times. Additionally in FY14, the hours of the Kids Ride Free program (allows students to ride Ride On and MetroBus free after school) was expanded by one hour until 8:00 p.m. MCPSDOT is now a member to the Montgomery County Pedestrian, Bicycle and Traffic Safety Advisory Committee (PBTSAC). As part of the committee MCPS is looking to support initiatives that would make the County a more walker friendly place.
T-8	Develop a policy that requires the consideration of roundabouts whenever traffic signalization is being pursued.	MCDOT has adopted a policy that requires analyzing roundabouts as an option when conducting traffic studies for modification of intersection traffic controls.

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Item #	Short Description	Implementation Steps to Date
T-9	Develop comprehensive idling policies supporting Maryland's vehicle anti-idling law with an emphasis on both education/outreach as well as effective enforcement of the law.	MCDOT Transit Services has a SOP (OP0010) on bus idling states that if the ambient temperature is below 32 degrees or above 72 degrees the operator may idle the vehicle for a period of no more than five minutes to maintain heat and air conditioning. After the five minute idling period, the operator must turn off the engine for five minutes. This cycle is permitted until the operator resumes scheduled run. Decals with the policy have been installed on bus fareboxes. Transit Services strictly enforces this rule with progressive disciplinary action for violators of the policy. Selected MCDOT buses have an anti-idling feature turned on which automatically shuts the bus down after 5 minutes of idling. MCPS has been actively monitoring and enforcing an idle reduction policy for school buses that requires drivers to turn off engines immediately upon stopping if buses are expected to remain stopped for 5 minutes or more. The employee disciplinary code in the department includes an offense related to violating the idling policy. The number of violations to this policy has dropped dramatically in the past 24 months. DGS undertook a telematics pilot in 2012 through 2013 to monitor fleet vehicle use, operations and other data relevant to improving efficiency and service delivery. DGS currently submits reports to key departments participating in the pilot outlining metrics such as idling time.
T-10	Increase the County government employee commuter benefit to be consistent with US government agencies.	Given current fiscal constraints, MCDOT has not proposed increasing the direct transit benefit the County provides, called "Get-In." However, the County could facilitate pre-tax payroll deduction for employees with transit costs over the $35 provided thru Get-In. This would permit those additional costs to be deducted tax-free from employees' salaries up to the federal maximum. That would save both the County and its employees money. The federal maximum is currently $130/month. MCDOT has provided information to the County OHR on the advantages of such a program, and on alternatives for implementation. This pre-tax transit benefit arrangement was included in the Collective Bargaining Agreement with MCGEO adopted in FY12. OHR has indicated this benefit will be implemented in Calendar 2016.

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Item #	Short Description	Implementation Steps to Date
T-11	Create an effective transportation education and outreach campaign to modify resident and business transportation behavior to reduce GHG emissions.	MCDOT Transit Services is continuing to develop and implement transportation education and outreach campaigns targeted to businesses in the County with the goal of promoting the use of commuting modes other than the single occupant vehicle (SOV). Transit Services' website has information on all forms of transit and instructional videos on how to use the Capital Bikeshare system and load and unload a bike on the Ride On bus. Transit Services has recently updated brochures designed to promote participation in benefit programs such as offering transit benefits subsidies or pre-tax payroll deductions employers and employees, creating and implementing a telework program and new employee commute guides. The brochures are distributed to businesses and related organizations throughout the County. MCDOT Transit Services also conducts a limited amount of outreach to residents of the County, within the constraints of current resources, and operates two TRIPS Commuter Stores – one in downtown Silver Spring, one in Friendship Heights – which sell transit fare media and provide information and assistance to all members of the traveling public. Each year several major events are conducted which target residents as well as employees with information about SOV alternatives, including Bike to Work Day in the spring, and Car Free Day and Bike 2 College Day in the fall. Additional residential and business outreach and education campaigns are being conducted by CSS to promote use of the County's new bikeshare system. Bikeshare has the potential to modify resident and business transportation behavior regarding auto use, as more and more bikeshare users find it a better alternative for short trips, particularly in urban settings. Budget constraints have resulted in reduced funding available for outreach and marketing efforts. However, Transit Services is continuing efforts to promote use of non-SOV modes by making use of as many low-cost approaches as possible. Marketing services firms are under contract to assist with these efforts, conducting marketing and employer outreach in the Silver Spring, Friendship Heights and Greater Shady Grove TMDs. Additionally Transit Services works with employers to implement their Traffic Mitigation Plans and with developers to implement their Traffic Mitigation Agreements, and works to improve availability of transportation information to employees, residents and the general public through the website and other electronic media. For example, Transit distributes a monthly e-newsletter with updates on transportation issues to businesses, employees, and other interested recipients. Periodic e-blasts on specific "hot topics" are also provided.

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Item #	Short Description	Implementation Steps to Date
T-11 (Cont'd)	Create an effective transportation education and outreach campaign to modify resident and business transportation behavior to reduce GHG emissions.	Transit Services has coordinated closely with DEP on the creation and implementation of transportation elements of the County's Green Business Certification Program. Through this certification process more County businesses are becoming aware of Transit Services' programs and services and hopefully will opt to implement strategies to reduce SOV commuting by their employees. Montgomery College provides various transportation options through its transportation management programs, web based information and supports free access to Montgomery County Ride On for college students. Transit Services participates in the College's Bicycle Task Force, meeting regularly with representatives of the College, MDOT, the City of Rockville and other representatives to find ways to promote cycling. The Rockville campus is also the site of one of the County's bikeshare stations, providing faster, readily available connections between the campus and Metro or downtown Rockville. Transit Services promotes bikeshare as well as cycling at the campus, including conducting its annual Bike 2 College Day event.
T-12	Coordinate with other regional, state and federal governments and organizations on activities that will result in reduced emissions from the transportation sector as a result of a more efficient transportation system and the use of more efficient modes of transportation.	MCDOT coordinated service planning interlined headways Ride & WMATA along: o Randolph Road – 2012 o Connecticut Road – 2011 MCDOT continues to participate in the National Capital Region Transportation Planning Board's (TPB) efforts through the tracking and implementation of transportation emissions control measures (TERMs). TERMs include items such as transit center operations and development, provision of park and rides; transit bicycle and pedestrian improvements on County Roadways; and travel demand management marketing programs. MCDOT is also participating in a Metropolitan Washington Council of Governments (MWCOG) multi-sector greenhouse gas working group to create a "What Can We Do' report identifying cost-effective and viable strategies to meet the region's greenhouse gas reduction goals. Over the recent years, two specific efforts have been implemented to more evenly space the scheduled trips along selected corridors between Ride On and MetroBus in an effort to provide a higher level of service in those corridors for Montgomery County residents who use the bus service. The two corridors were Randolph Rd and Connecticut Ave. An interagency workgroup involving WMATA, MC Planning, MTA, SHA, DOT, and COG is currently working on the Montgomery County Transit Lanes Repurposing Study: Technical Guidance. The final report is expected in Spring, 2015.

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Item #	Short Description	Implementation Steps to Date
F&A-1	Develop an accurate inventory of forest cover and tree canopy in Montgomery County, and set forest cover and tree canopy goals.	The Planning Department has updated the 2009 canopy analysis with 2013 data. This update includes a change analysis from the previous data set. The Planning Department is in the process of updating the 2008 forest layer with 2013 data. This update will facilitate an accurate trend analysis forest gains and losses Countywide. The Planning Department set canopy goals as part of master plan amendments. Montgomery College has commissioned Natural Resource Inventory/Forest Stand Delineation studies for all three campuses which are revised as necessary based upon Master Plans.
F&A-2	Develop a comprehensive approach that protects and enhances forest and tree resources.	The Planning Department continues to implement the Forest Conservation Law (FCL) by requiring a forest conservation plan for development projects. This includes the permanent protection of existing and newly planted forest on development sites, on dedicated parkland and in off-site forest mitigation banks. The Planning Department continued to strengthen the FCL through recent amendments largely intended to enhanced enforcement of current provisions and policies. The Planning Department also uses developer mitigation money to reforest denuded stream valleys on Parkland. In July, 2013, two new laws regulating trees were passed. The Tree Canopy Law now requires mitigation for disturbance to sites during the development process. The Roadside Tree Law regulates impacts and requires mitigation for disturbance to trees in rights-of-way. In addition to the Office of Sustainability Law that took effect in 2014, a new initiative to raise the awareness of trees and increase planting was announced. Collectively, these require DEP to set comprehensive tree canopy goals and encourage tree planting and conservation. DEP is developing a comprehensive campaign to generally raise the awareness of trees. The campaign will include a robust website with information about trees and tree care for all residents, as well as implementation and application information for three specific planting programs. DEP will use funds collected under the Tree Canopy Law to plant trees across the county, free of charge. The initial planting programs will focus on three types of properties in areas of the county where development activity is high or where existing canopy coverage is low: planting on privately-owned residential properties, privately-owned parking lots, and multi-family communities.

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Item #	Short Description	Implementation Steps to Date
F&A-3	Lobby the State of Maryland and the Department of Natural Resources (DNR) to revise and update the State Roadside Tree Law (RTL) and its implementing regulations, as well as enforce the existing law. Explore opportunities to increase the role of the County departments and agencies in protecting trees in the right-of-way (ROW).	Following the changes in the Maryland Roadside Tree Law in 2009, Montgomery County lobbied to update and strengthen the law with no results. The County Council introduced and subsequently passed a new law regulating disturbance and removals of trees in rights-of-way maintained by Montgomery County. The Montgomery County Roadside Tree Law took effect in March, 2014. The new law increases requirements for protecting critical root zones of trees and requires mitigation when street trees are removed. Mitigation fees paid are dedicated to planting new street trees. MCDOT is working to mitigate thermal pollution in the ROW by improving the health of the street tree population which is over 450,000 trees. MCDOT pruned over 9,700 trees in FY14 and planted over 1,200 trees in the same fiscal year. Tree species selected for planting were based on creating maximum diversity of species while also planting tree species best suited for the planting sites.
F&A-4	Extend the County's current property tax credit for energy conservation and renewable energy measures to include tree planting.	Incentives for the planting of new trees on residential property are provided through DEP's Rainscapes program and will be provided through funding from the Tree Canopy Law.

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Item #	Short Description	Implementation Steps to Date
F&A-5	Create landscape incentives in urban areas to increase number, quality, and survivability of trees planted in the public right-of-way and on private property.	The Planning Department has implemented the Shades of Green program to provide free shade trees in highly urbanized business districts throughout the County. It also implements the Leaves for Neighborhoods program to increase tree canopy on residential property. This program provides financial assistance to residents to plant shade trees in their yard – with help from a $25 coupon which can be used when buying a tree with a retail value of at least $75 at participating nurseries. The State of Maryland also continues to offer $25 coupons to individuals who buy trees from authorized local nurseries. As stated in F&A-2, DEP is developing comprehensive programs to raise awareness of trees, as well as plant trees on private property including parking lots in areas where development activity is high or where canopy coverage is low. As stated in F&A-3, the Montgomery County Roadside Tree Law requires protection of street trees and their critical roots zones during development activity. In addition to protection of trees whenever possible, mitigation in the form of both planting and fees is required for all street trees removed from county maintained rights-of-way. A portion of the mitigation required is in the form of fees paid into a dedicated account that can only be used to plant trees in rights-of-way maintained by the County. DEP's Rainscapes program continues to include incentives for the planting of trees on private property.
F&A-6	Increase shade tree planting and maintenance in public and private parking lots.	See F&A-2, F&A-3, and F&A-5.
F&A-7	Develop simplified processes to enable landowners to establish conservation easements or protection areas.	The Planning Department has simplified the process of easement recordation by deed.

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Item #	Short Description	Implementation Steps to Date
F&A-8	Encourage and foster school programs integral to curricula that promote increased student involvement and engagement in forest and tree planting, conservation and maintenance programs within their communities and on available public property. Engage surrounding communities in planting and conserving trees on private property.	MCPS and the Montgomery County Forestry Board partner on annual student plantings of 50 native trees at selected schools sites. Students learn about the importance of trees and forests, and are involved with planting and maintaining the new saplings. High school students in the Poolesville Global Ecology program learn about a once-abundant tree species and its genetics. They are actively involved in an American Chestnut experiment in which students plant trees and study them to identify any that are resistant. Annually, 10,000 students attend the Grade 6 Outdoor Environmental Education Residential Program and study the importance of trees in protecting the watershed and the impact of invasive species on trees. Students remove invasive species as an environmental action, which also satisfies part of their Grade 6 SSL requirement. The Planning Department continues to engage with schools, scouts and other volunteer organizations to provide students with community service credit for participating in maintenance and planting projects in reforestation areas. MCPS and the Montgomery County Forestry Board continue to partner to engage students in planting native trees on local school sites. Students learn about the importance of urban and forest trees. Montgomery College has continued to expand the Landscape Technology Program on the Germantown Campus. It actively teaches and promotes best practices associated with using trees in landscapes for environmental benefits. Also see F&A-2.
F&A-9	Develop an educational campaign to convey the vital role trees play in the long-term sustainability and health of the County.	As stated in F&A-2, DEP is developing a comprehensive campaign to raise the awareness of the benefits of trees in sustainable communities. Montgomery College academic programs such as Landscape Management provide educational opportunities to the community.

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Item #	Short Description	Implementation Steps to Date
F&A-10	Manage non-native invasive pests that threaten forests and trees.	The Department of Parks has active programs to manage invasive pests on parkland. DEP continues to manage the gypsy moth suppression program, monitor other pests to forests and trees, and provide information to the public through direct communications and its website. Montgomery College manages a program which supports the use of native non-invasive species.

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Item #	Short Description	Implementation Steps to Date
F&A-11	Expand local production of fruits and vegetables.	The new Zoning Code allows greater flexibility in the placement of private and community gardens. Since, 2009, the Montgomery Parks community gardens program has grown from one garden to 11. The gardens are located throughout the County and benefit close to 600 gardeners. The newest garden is scheduled to open in Germantown in the Spring of 2015. In addition to benefiting the gardeners, many of the community gardens harvest produce to donate to local food banks such as Manna and to soup kitchens near the gardens. Each year more of the gardens are participating in an informal "Share the Harvest" effort. MCPS is partnering with M-NCPPC to identify suitable locations on MCPS properties to site Community Gardens. The M-NCPPC's Community Garden Program administers a community garden at the Rocking Horse Road Center. Since 2011, the Montgomery Countryside Alliance has been implementing the Land-Link Program, an online database that "links" beginner and experienced farmers with available land and farms within Montgomery County. Land seekers and land owners can locate farms/farmers of interest based on matching sets of criteria and shared goals. Owners can lease, sell or donate their land. The Department of Economic Development launched the New Farmer Pilot Project at the end of 2012. The purpose was to facilitate land leases and to provide business training and mentoring. The pilot resulted in four new farm enterprises in the County, which are currently beginning their third year of growing. The farmers' revenues have increased each year by selling at farmers markets, CSAs, restaurants and to larger farms. The project has adapted to its participants' business needs, which continue to evolve. DED has provided access to more sophisticated agricultural/food funding experts and partnered with the Soil Conservation District and Farm Bureau to create the Small Farm Equipment Program, which provides formerly cost-prohibitive equipment to farmers throughout the Agricultural Reserve. In 2015, the "pilot" turned into the New Farmer Project, and has started with its second cohort of four new farm entrepreneurs. MCPS collaborated with Montgomery County Master Gardeners, M-NCPPC, and UM Extension to develop an edible garden template for container gardens on MCPS school properties. The template and detailed processes are on the MCPS Outdoor Environmental Education Programs website.

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Item #	Short Description	Implementation Steps to Date
F&A-11 (Cont'd)	Expand local production of fruits and vegetables.	MCPS provides an annual professional development workshop on creating and using edible gardens for instruction. A substantial number of MCPS schools integrate the use of edible gardens into their curriculum. While most schools have tasting events, Sherwood High School horticulture students use their greenhouse to grow and sell fruits and vegetables. The Montgomery County Food Council was launched in 2012 with a mission to influence key aspects of the food system (production, processing, distribution, access, consumption, and recycling) in order to enhance the environmental, economic, social, and nutritional health of County residents. The Council is comprised of a diverse group of stakeholders who examine how well the local food system is serving its community. It has a number of sub-committees, including the "Food Economy" Working Group which is analyzing the supply chain within the County to identify resources, needs, challenges, and solutions in creating a value chain in the farm to table process.
LUP-1	The County's Growth Policy should direct growth to areas with significant existing or planned transit resources, and promote development that fulfills smart growth criteria such as those required as part of the LEED) for Neighborhood Development or more stringent County standards.	The County Council adopted the 2012-2016 Subdivision Staging Policy (formerly known as the Growth Policy) in November 2012, including transportation tests that measure not only roadway capacity but transit capacity as well. Currently, the County Council is considering an amendment to the Subdivision Staging Policy to facilitate the orderly implementation of transportation infrastructure to serve transit-oriented development in the White Oak Science Gateway Master Plan.
LUP-2	Amend the Zoning Code.	The new Zoning Code was adopted by the County Council in March and became effective on October 30, 2014. The new Code includes the Commercial/Residential (CR) zone. This zone allows a mixture of businesses and homes around transit served areas as specified by the master plan. The minimum requirements include open space, shading of parking lots and provision of bike parking and shower facilities. Property owners wishing to build up to the maximum density and height allowed by the master plan will need to provide additional benefits to the environment, connectivity, design and diversity. The code also includes sustainability requirements and has more provisions for distributed energy generation and urban farming. It also decreases parking requirements for mixed-use and employment zones, improves landscaping and screening requirements, improves open space provisions for cluster zones, and more zoning categories require the provision of public benefits, including environmental resources and energy efficiency, in order to maximizes development potential.

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Item #	Short Description	Implementation Steps to Date
LUP-3	Master Plans should plan for redevelopment to create compact, livable places with a variety of housing types and mixed uses that invite people to walk or bike safely to work, to shop, and to participate in community life without a long commute by car. The Agricultural Reserve should continue to be protected for food production, recreation, and carbon sequestration.	The following master plans have been approved by the County Council based on these principles: Germantown, Great Seneca Science Corridor, White Flint, Town of Kensington and Vicinity, Wheaton CBD, Takoma-Langley Crossroads, Chevy Chase Lake, Glenmont, White Oak Science Gateway, and the Purple Line at Terminus. Master plans currently underway and expected to be completed in 2015 include Sandy Spring Rural Village, and Aspen Hill Property (Vitro). Other master plans currently underway include Bethesda CBD, Greater Lyttonsville, Westbard, and Montgomery Village. In addition, work on the Recreation Guidelines is currently underway. Master plans scheduled to begin in 2015 include White Flint II, and Aspen Hill and Vicinity.
LUP-4	A Green Infrastructure Plan should be adopted to protect an interconnected network of forests, fields and wetlands and provide priorities for protection, restoration and mitigation of loss of natural resources. This plan will be considered in master plans, development proposals (both public and private) and park acquisition for natural resource protection.	The Green Infrastructure Plan has been put on hold due to budget and staff reductions.

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Item #	Short Description	Implementation Steps to Date
LUP-5	A Water Resources Functional Master Plan should be adopted to provide priorities for water resources goals in other functional and area/sector master plans; development proposals; park acquisition that focuses on forest cover, wetland, and tree canopy protection; restoration and enhancement; as well as Environmental Site Design (ESD) implementation.	The Water Resources Functional Master Plan was adopted in 2010.
ED-1	Develop a branded communication platform that will enable the County to speak with one voice about its mission to reduce GHG emissions.	In January 2012, the County launched the My Green Montgomery website (www.mygreenmontgomery.org) to serve as the communication and branding voice of the Department of Environmental Protection. The website features a blog, calendar of events, list of incentives and environmental programs offered by governments, nonprofits and businesses, and additional resources to help residents make green living decisions and reduce their GHG emissions.
ED-2	Develop and provide presentation toolkits to support a social marketing campaign that raises awareness about Climate Protection Plan programs and encourages active participation throughout the County.	The My Green Montgomery communication strategy includes social media marketing and event support. Over three years, the program has launched facebook, twitter and Instagram accounts. The blog has expanded in reach each year with more than 180 blogs from nonprofits, governments, for-profits and individuals. The County has not developed toolkits, but actively seeks public participation in My Green Montgomery as guest blog writers and contributors. The County supports and co-hosts local events such as the Montgomery County GreenFest, the benchmarking forum, the Green Business Forum as well as various other events organized by local environmental groups. Montgomery College's Workforce Development and Continuing Education (WDCE) participates with the County Government and provides educational resources and training for County's environmental programs. The College also manages a Speaker's Bureau comprised of faculty, staff and student speakers who volunteer their time to make community presentations on a range of topics, including climate change.

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Item #	Short Description	Implementation Steps to Date
ED-3	Develop, provide access to and promote an on-line tool to promote the Climate Protection Plan and other related programs in order to raise awareness of the need to reduce greenhouse gases, provide specific actions, and encourage community based sustainability.	See ED-1 See EER-5 The County, in partnership with the Montgomery County Chamber of Commerce, launched the Green Business Certification Program in the fall of 2009. The voluntary recognition program is designed to help businesses voluntarily reduce their ecological footprint through changes in day to day operations and policies (many of which reduce GHG emissions). Currently, there are 59 Certified Green Businesses, although this will expand to 118 due to a program expansion premised on recognizing businesses certified by other robust third party certifying organizations (B Lab, Green America, Green Seal and the Green Restaurant Association).
ED-4	Build and maintain an information network service that provides online Climate Protection Plan updates on County programs and regular specific suggestions such as "Green Tips" to inform and encourage residents to take action to reduce greenhouse gases.	See ED-1 The blog, Green Projects and Incentives sections of the My Green Montgomery website provide regular "Green Tips" and guidance to the public.
ED-5	Establish and coordinate a coalition with representation from a broad range of community organizations to support outreach, raise awareness of the climate protection plan and to provide opportunities and support for education programs.	See EER-5 The first annual Montgomery County GreenFest will be held on March 28, 2015 at the Takoma Park/Silver Spring campus of Montgomery College to raise awareness about environmental issues (including climate change) and encourage residents to take individual action. The event combines the H2O Summit and Silver Spring GreenFest and brings together13 partners: Montgomery County Department of Environmental Protection, Montgomery County Department of Parks, WSSC, Montgomery College, MCPS, the cities of Gaithersburg, Takoma Park and Rockville, University of Maryland Extension, the four "Community Green" groups (see ED-9), and the Environmental Film Festival in the Nation's Capital.

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Item #	Short Description	Implementation Steps to Date
ED-6	Promote community-based education programs using the model of small, self-facilitated group discussions to motivate and empower members of the community on issues concerning sustainability.	See ED-2
ED-7	Establish, coordinate and maintain a County Interdepartmental education and outreach plan.	The Office of Energy and Sustainability, within DGS was created to develop and execute a comprehensive action plan to reduce the environmental impacts of County operations. The plan is currently under development and expected in early FY16. DGS is developing displays to emphasize energy savings action and educate employees and public about the energy use and saving features of County facilities. DGS also plans to display the real time energy generation of solar photovoltaic systems sited on specific County facilities.
ED-8	The County Government and agencies should adopt broad-based sustainable practices and policies, and use these programs as a basis for outreach to the private sector.	The Office of Energy and Sustainability, within the Department of General Services was created to develop and execute a comprehensive action plan to reduce the environmental impacts of County operations. The plan is currently under development and expected in early FY16.
ED-9	Replicate community-based organizations like Bethesda Green under a central umbrella organization.	Over the last five years, three community-based organizations modeled, in part, after Bethesda Green have incorporated. These "Community Greens" include Poolesville Green, Green Wheaton and Silver Spring Green. The notion of a "central umbrella" has not been discussed since the various organizations have been focused largely on their own organizational development. It is not clear that such an umbrella is needed since collaboration, in the form of joint programming and information sharing, is already taking place.

Appendix B
Duties of the DEP Office of Sustainability

The Department of Environmental Protection's Office of Sustainability is focused on promoting sustainability in the community by working with residents, businesses, and a variety of community-based organizations. The duties of the Office are set forth in Section 18A-13 of the County Code:

1. Promote residential energy efficiency and renewable energy programs through direct collaboration with homeowners, renters, property managers, real estate agents, and others to support:
    a. auditing and assessment of residential properties, including evaluating whether the County should require a Home Energy Score to be conducted before the sale of single-family home;
    b. energy efficiency retrofits;
    c. utilization of available incentives from government, utilities, and the private sector;
    d. utilization of clean energy technologies and purchasing of clean energy; and
    e. healthy indoor air education programs

2. Promote commercial and multi-family energy efficiency and renewable energy programs through collaboration with commercial and multi-family property owners, managers, and industry associations to support:
    a. benchmarking and assessment of commercial and multi-family properties;
    b. energy efficiency retrofits;
    c. utilization of available incentives from government, utilities, and the private sector, including alternative financing programs such as the Property Assessed Clean Energy program; and
    d. utilization of clean energy technologies and purchasing of clean energy

3. Support green business development by:
    a. expanding the Montgomery County Green Business Certification Program;
    b. evaluating and promoting other robust third party green certification and reporting programs;
    c. connecting residents and businesses to providers of green products and services; and
    d. fostering green business market opportunities

4. Support tree and forest programs by:
    a. developing overall and individual tree canopy and planting goals to serve as a baseline for measuring success;
    b. connecting and informing the public about the County's tree planting, preservation, and programs and providing information on tree planting

techniques, tree care, species selection and related activities, through a website created for this purpose;

c. developing and implementing a public engagement strategy to encourage community and individual tree planting on private and public lands and cultivating new partnerships in support of these activities; and compiling and disseminating information on the status of the County's tree and forest resource on a regular basis

5. Promote partnership development and civic engagement by:
    a. maintaining and leveraging partnerships with local community groups, civic organizations, HOAs and businesses to expand the County's environmental educational reach,
    b. organizing community-based environmental activities and outreach programs; and
    c. promoting the environmental programming and events of Montgomery County Public Schools, local colleges and universities, and other educational institutions in the County

6. Provide data analysis and research in support of County sustainability goals and objectives by:
    a. maintaining data on County greenhouse gas emissions and building fuel energy consumption;
    b. reporting progress on meeting the greenhouse gas reduction goals in the 2009 Climate Protection Plan;
    c. evaluating options for a broader Countywide sustainability reporting framework;
    d. providing research on and analysis of emerging sustainability issues;
    e. providing any other data and analytical efforts in support of County's sustainability objectives; and
    f. every 2 years, beginning on February 1, 2015, applying a scoring system designed to compare the County to other local jurisdictions on energy efficiency policies and programs