

As noted in the Introduction, section 18A-13 of the Montgomery County Code specifies that the Office of Sustainability must:

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

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

## Identifying a Broad Sustainability Reporting Framework

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

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

STAR is also compelling because it is premised on a broad-based approach to creating sustainable communities involving a coordinated effort between government and the community. Such an approach makes great sense since the challenges associated with sustainability are systemic and cross-cutting in nature.

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

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

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

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

**Figure 3-1**  
**STAR Community Rating System**  
**Goals & Objectives**

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

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

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

## Actions Taken to Implement the Climate Protection Plan

The CPP explored and provided recommendations related to seven areas:

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

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

## Scoring System on Energy Efficiency

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

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

**Figure 3-3**

**STAR Community Rating System**

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

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

**Goal Area:** Climate & Energy

**Objective:** Climate Adaptation

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

**Actions:**

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

**Examples of Activity Related to Climate Adaptation:**

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

## Assessment:

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

**Goal Area:** Climate & Energy

**Objective:** Greenhouse Gas Mitigation

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

**Actions:**

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

**Examples of Activity Related to Greenhouse Gas Mitigation:**

- [MCPS Environmental Sustainability Management Plan](#) created in 2014.
- [Bill 5-14](#) requires the County to consider cost of carbon as factor in determining the return on investment of energy efficiency improvements.
- Planning Department makes recommendations and considers “energy conservation practices during master plan, subdivision, site plan, and mandatory referral review” process.
- Launched [My Green Montgomery](#); regularly disseminate newsletters related to energy benchmarking, PACE and greening businesses.
- Developed [Montgomery County GreenFest](#) with 12 partner organizations.

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

### Assessment:

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

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

**Goal Area:** Climate & Energy

**Objective:** Greening the Energy Supply

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

**Actions:**

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

**Examples of Activity Related to Greening the Energy Supply:**

- The County purchased 50% clean electricity in FY15 and 100% in FY16 through RECs; additional RECs purchased to offset the GHG emissions of other building fuels.
- Montgomery College purchased 100% clean energy in FY15 through RECs and 129% in FY16.

- Since FY09, MCPS has purchased RECs to ensure that a minimum of 20% of its total electricity consumption is provided by renewable sources.
- WSSC's direct wind purchase accounts for approximately 28% of its total power consumption.
- County currently purchases only electric or plug-in hybrid sedans, and has installed 16 electric vehicle charging stations to support its fleet.
- County has 8 installed electrical charging stations at public garages with 4 more planned in early 2016.
- MCPS purchases fuel-efficient vehicles, partial zero emission, hybrid, and flex-fuel vehicles to reduce fuel consumption.
- Zoning code requires that parking facilities must have a minimum of one parking space ready to be converted to an electric vehicle charging station for every 100 parking spaces.
- The Montgomery County Zoning Code allows solar panels to encroach into setbacks and exceed height limits under certain circumstances, and allows other rooftop renewable energy systems to exceed height limits.
- For optional method projects in certain zones, a developer can receive points toward the public benefit requirement by providing renewable energy generation facilities on-site or within ½ mile of the site for a minimum of 2.5% of the projected energy requirement for the development.
- Net metering is permitted by law in Maryland for solar, wind and other sources of electricity.

### Assessment:

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

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

**Goal Area:** Climate & Energy

**Objective:** Industrial Sector Resource Efficiency

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

**Actions:**

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

**Assessment:**

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

through the Green Business Certification Program had a number of initiatives to reduce energy and water use in their operations.

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

**Goal Area:** Climate & Energy

**Objective:** Resource Efficient Buildings

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

**Actions:**

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

**Examples of Activity Related to Resource Efficient Buildings:**

- Adopted Building Energy Benchmarking Law ([Bill 2-14](#)), the first county in the nation to pass such a measure.
- Adopted [Bill 6-15](#) creating a commercial property assessed clean energy (PACE) program to facilitate installation of renewable energy systems on commercial and multi-family properties.
- Adopted [Bill 18-15](#) creating a County Green Bank to promote investment in clean energy technologies.

- Maryland EmPOWER programs, offered through the State’s electric utilities, provide a variety of incentives supporting adoption of energy efficiency measures in commercial and residential buildings.
- The County partners with the Greater Capital Area Association of REALTORS (GCAAR) and has, since 2014, been providing bi-annual continuing education courses for its members on the environmental programs that DEP offers, as well as understanding and utilizing home energy efficiency rating systems.
- DEP is part of a regional collaborative, and supported by the U.S. DOE working to expand the use and display of third-party high performance green home certifications.
- MCPS geexchange systems provide heating/cooling in 25 schools (with 5 more systems under construction); since 2008, MCPS has achieved a 25 percent reduction in high school water use.
- Montgomery College targets all buildings for LEED Gold.
- For optional method projects in certain zones, a developer can receive points toward the public benefit requirement for buildings that exceed the energy-efficiency standards by 17.5% for new buildings or 10% for existing buildings.

### Assessment:

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

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

**Goal Area:** Climate & Energy

**Objective:** Resource Efficient Public Infrastructure

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

**Actions:**

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

**Examples of Activity Related to Resource Efficient Public Infrastructure:**

- WSSC has 4 MW of solar power on wastewater treatment plants, and plans 5 additional MW in 2016/2017.
- WSSC's plan to shift water production from the Potomac Water Filtration Plant to the Patuxent Water Filtration Plant will save energy related to lower pumping requirements.
- Systems being implemented at WSSC wastewater treatment plants will convert sludge to electricity by capturing methane through a combined heat and power plant, and reduce the electricity used per ton of biosolids processed.
- The roof of the Shady Grove Processing Facility and Transfer Station hosts a photovoltaic system producing about 30 percent of the facility's energy needs, and which will generate more than six million kWh over the 20-year life of the project.

- The David F. Bone Equipment Maintenance and Transit Operations Center (EMTOC) features more than four acres of vegetated roof, along with an efficient bus washer and water reclamation system that treats contaminated water runoff saving about 80% of the water used in the wash process.

**Assessment:**

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

**Goal Area:** Climate & Energy

**Objective:** Waste Minimization

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

**Actions:**

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

**Examples of Activity Related to Waste Minimization:**

- Adopted 70% recycling goal; 2012 – 2023 Comprehensive Solid Waste Management Plan approved 3/31/15; Annual Recycling Plan Update: The Quest to Reduce, Reuse and Recycle More (current edition April 2015).
- Compost Facility constructed and operational since 1982; materials Recovery Facility (MRF) constructed and operational since 1991.
- Montgomery County Executive Regulation 15-04 AM (Residential and Commercial Recycling); Montgomery County Executive Regulation 18-04 (Collection, Transport and

Disposition of Solid Waste and Recyclables); Chapter 48 Montgomery County Code (Solid Waste Laws).

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

### Assessment:

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

**Goal Area:** Built Environment

**Objective:** Compact & Complete Communities

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

**Actions:**

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

**Examples of Activity Related to Compact & Complete Communities:**

- With the adoption of the first Commercial/Residential (C/R) Zone in 2010, recent plans have recommended mixed use zones that encourage more compact development. These zones are intended to “encourage a mix of commercial and residential uses; create interactive

streets; provide meaningful public spaces; and foster jobs and services where people can live, work, shop and play within a given neighborhood.”

- Most of the land in proximity to metro stations has CR zoning that encourages high density, mixed-use development; the majority of the zones in transit-served areas (primarily CR zones) have a build-to area requirement; some zones incentivize the purchase of transfer of development rights (TDRs) to achieve greater densities.
- Burtonsville Crossroads Master Plan increased housing density near State Park and Ride Lot/Bus Hub.
- The revised zoning code includes improved standards and recommendations supporting employment densities, maximum block length, compact, mixed use development, creative parking strategies, affordable housing and walkability near community hubs and transit centers.
- Parking lot districts in Silver Spring, Bethesda, Forest Glen and Wheaton allow developers to pay a fee to the parking lot district in lieu of providing parking onsite.
- All developments with more than 20 residential units are required to provide 12.5% of the units as Moderately Priced Dwelling Units (MPDUs).
- The Master Plan process includes coordination with the Housing Opportunities Commission to preserve and created affordable housing.

**Goal Area:** Built Environment

**Objective:** Infill & Redevelopment

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

**Actions:**

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

**Examples of Activity Related to Infill & Redevelopment:**

- Participation in brownfield site remediation programs is a condition of development plan approval in many cases.
- The Burtonsville Crossroads Neighborhood Plan and the Sandy Spring Rural Village Plan encouraged infill and redevelopment in employment centers, commercial areas, and where transit or transportation alternatives exist.

**Goal Area:** Built Environment

**Objective:** Transportation Choices

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

**Actions:**

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

**Examples of Activity Related to Transportation Choices:**

- The County currently has a Countywide Bicycle Master Plan underway scheduled for adoption in fall 2017.
- Montgomery County has adopted a Complete Streets Policy as part of [Bill 33-13](#).
- Subdivision regulations require provision of sidewalks, paths, and walkways for internal circulation and access.
- MCDOT offers County employees \$35 in direct transit/vanpool benefits thru the “Get In” program; unlimited free Ride On bus use; showers and lockers are available at the Executive Office Building for use by those who bike or walk to work; 14 parking spaces in County facilities are provided for a car sharing service.

- MCDOT is improving safety and access for pedestrians and bicyclists by conducting pedestrian road safety audits; retiming traffic signals to provide pedestrians with more time to cross the street; designing new street lighting; installing traffic calming measures and speed humps and conducting Safe Routes to School evaluations.
- MCDOT constructed nearly four miles of new sidewalks and reconstructed about 2.5 miles of sidewalks and ramps to meet ADA standards; ADA accessible pathways include “knee walls” at sloped sites to prevent wheelchairs from rolling and pedestrian refuge islands at bus stops to establish connections to existing sidewalks and reduce the distance to crosswalks.
- MCDOT installed shared lane markings along 22 road segments around the Shady Grove Hospital, Rockville and Silver Spring area.
- MCDOT launched a Bikeshare system of 51 stations and 450 bikes – the first year-round system in Maryland; initiated a pilot program for low income residents who receive a free a one-year membership in Bikeshare, a bike helmet, safety training and route planning assistance.
- Montgomery College offers free shuttle buses between campuses, subsidizes Student Ride-on bus fares, and offers employees a pre-tax public transportation flex spending program.

**Goal Area:** Natural Systems

**Objective:** Green Infrastructure

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

**Actions:**

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

**Examples of Activity Related to Green Infrastructure:**

- A countywide green infrastructure map and strategy are currently under development.
- The County's Environmental Guidelines for Development are used to determine required buffers to protect environmental features on development sites.
- Area master plans, which are periodically updated, make recommendations for forest preservation areas and park acquisition.

- The County’s Stormwater Management Regulations require new development to implement Environmental Site Design (ESD) principles and practices to the Maximum Extent Practicable (MEP).
- M-NCPPC’s Leaves for Neighborhoods Program provides rebates for individual property owners who want to plant trees, and the Shades of Green program provides trees for land owners within the County’s Central Business Districts.
- The Tree Montgomery program provides free shade trees to single family homes, multi-family communities, and other private property.
- Stream restoration activity conducted by DEP and Montgomery Parks helps restore waterways to natural conditions.
- The Rainscapes Rewards Program offers rebates to property owners who install stormwater management techniques such as rain gardens, conservation landscaping and rain barrels.
- The CR Zone has public benefits incentives for environmental enhancements.

**Goal Area:** Natural Systems

**Objective:** Invasive Species

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

**Actions:**

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

**Examples of Activity Related to Invasive Species:**

- M-NCPPC has developed and implemented a Vegetation Management plan, Non-Native Invasive Plant Management plan, and Non-Native Invasive Plant Best Management Practices for parkland
- M-NCPPC created the Weed Warriors volunteer program, and created mobile application software to measure and monitor non-native invasive plant locations through time.
- M-NCPPC utilizes its Weed Warriors participants, watershed advocacy groups, and school and corporate volunteer groups for planting restoration sites, and during FY15 conducted white-tailed deer management in 17,000 acres of parkland with assistance from volunteer hunters and Park Police.

- M-NCPPC has website and social media accounts, and kiosk and pamphlet based materials specific to non-native species, and provided outreach efforts to numerous nonprofit organizations and public agencies.
- Some Forest Conservation Plans require eradication of invasive species and at least 2 years of post-eradication control.
- M-NCPPC has a comprehensive management plan addressing non-native invasive plants, and during FY15 conducted management, in accordance with this plan, upon 51 parcels of parkland.

**Goal Area:** Natural Systems

**Objective:** Natural Resource Protection

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

**Actions:**

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

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

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

and restoration on parkland and Fee-In-Lieu reforestation, and through in-kind donations solicited through its Park Foundation.

- M-NCPPC has comprehensive programs to steward natural areas on parkland, and resources focused on aquatic and terrestrial habitats, stormwater management, and wildlife.
- M-NCPPC has designated Sensitive Areas, Best Natural Areas and Biodiversity Areas of parkland, and implemented a 1/3-2/3 policy for Regional Parks; these programs limit development acreage in parks, providing acreage dedicated for conservation.