Briefing

MEMORANDUM

April 3, 2019

TO: Transportation and Environment (T&E) Committee

FROM: 𝒥𝐾𝐿 Keith Levchenko, Senior Legislative Analyst

SUBJECT: **Briefing:** County's Climate Change Initiatives[1]

PURPOSE: To receive an update from Executive Branch staff on the County's climate change initiatives

The following officials and staff are expected to participate in this briefing:
- Adriana Hochberg, Assistant Chief Administrative Officer (and Director of County Climate Policy)
- David Dise, Director, Department of General Services (DGS)
- Al Roshdieh, Director, Department of Transportation
- Eric Coffman, Chief, Office of Energy and Sustainability, DGS
- Stan Edwards, Chief, Environmental Policy and Compliance, DEP

Attachments
- County Executive Transition Report Excerpt: A Greener County (©1-9b)
- Climate Mobilization Workgroup Report Excerpt: Appendix A: Potential Solutions or Actions (©10-24)

On April 5, the T&E Committee will receive an update from Executive Branch staff on the County's climate change initiatives. Council Staff has provided some background information below.

Background

The County has been active for many years in studying the County's greenhouse gas emissions, developing goals and strategies to reach those goals, and implementing numerous initiatives. Some of the major highlights are noted below.

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[1] Key words: #EnvironmentalProtection, Climate Change, Global Warming, Greenhouse Gas Reductions

Sustainability Working Group/Climate Protection Plan

The Sustainability Working Group (SWG) was established as part of Bill 32-07 (Environmental Sustainability – Climate Protection Plan) adopted in April 2008. This group (consisting of 26 members from both inside and outside of County Government) developed the Climate Protection Plan[2], which was transmitted to the Executive and Council on January 15, 2009. The T&E Committee received a briefing on this Plan on February 2, 2009.

The report identified the County's 2005 baseline greenhouse gas emissions inventory as 12.6 million metric tons of carbon dioxide equivalents with 65 percent coming from energy consumption from buildings (residential 33 percent and commercial 32 percent), 34 percent from transportation, and 1 percent from solid waste.

The County's greenhouse gas reduction goals were also codified in Bill 32-07 with an 80 percent reduction in greenhouse gas emissions (from the FY05 baseline year) by 2050 and an interim goal of stopping the increase in emissions by 2010 and 10 percent reductions every 5 years through 2050.

The report divided its review into six areas:

- Renewable Energy
- Residential Building Energy Efficiency
- Commercial, Multi-Family, and Public Building Efficiency
- Transportation
- Forestry and Agriculture
- Land Use and Planning
- Education and Outreach

58 recommendations were included in the Plan across these areas.

The County's climate protection efforts included in this Plan were later folded into sustainability planning efforts as noted below.

County Organization

The Executive Branch currently has two sustainability offices involved in the coordination of the County's greenhouse gas reduction efforts:
- The Office of Energy and Sustainability in the Department of General Services (DGS), which focuses internally on government operations. Its FY17 Green Government report is available at: https://www.montgomerycountymd.gov/DGS-OES/Resources/Files/2017GreenGovernmentReport.pdf.
- The Office of Sustainability in the Department of Environmental Protection (DEP), which focuses on sustainability efforts outside government throughout the County. DEP's Office of Sustainability's most recent annual report is available at:

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[2] The Climate Protection Plan is available for download on the Montgomery County website at: https://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/outreach/sustainability/2009-moco-climate-protection-plan.pdf.

https://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Sustainability/Amended-Office-of-Sustainability-Report-June-2017.pdf.

On September 18, 2018, the Council enacted Bill 10-18, "Administration - Director of County Climate Policy – Established", which requires the Executive to designate a senior staff member as the Director of County Climate Policy. Last month, the Council confirmed Adriana Hochberg as an Assistant Chief Administrative Officer whose duties include being the Director of County Climate Policy.

Council Resolution: "Emergency Climate Mobilization"

On December 5, 2017, the Council approved Council Resolution 18-974, "Emergency Climate Mobilization." This resolution supported a new goal of reducing greenhouse gas emissions by 80 percent by 2027 and 100 percent by 2035, as well as to initiate "large scale efforts to remove excess carbon from the atmosphere." The resolution also called upon the Executive Branch, Montgomery County Public Schools, and the Maryland-National Capital Park and Planning Commission to "advise the Council over the next six months on specific methods for accelerating the County's greenhouse gas emissions reduction goal.

Climate Mobilization Workgroup Report

In response to Resolution 18-974, on June 5, 2018, the prior Chief Administrative Officer transmitted the Climate Mobilization Workgroup Report.[3] The Council received a briefing on this report last October.

The Workgroup Report notes that the County has reduced its greenhouse gas emissions by 14 percent compared to the 2005 baseline year, with per capita emissions declining 22 percent (given an 11 percent increase in population during that time). However, the Workgroup Report also notes that emissions between 2012 and 2015 increased by nearly three percent. The Workgroup Report identifies increased residential and commercial energy use as the cause for this increase.

Interestingly, the mix of greenhouse gas emissions sources is revised from the prior calculation noted in the Climate Protection Plan. While buildings and transportation still represent the overwhelming amount of emission sources, the Workgroup Report notes that energy consumption in buildings represents 51 percent (down from 65 percent) and transportation sources represent 41 percent (up from 34 percent). The balance (8 percent) comes from solid waste, water and wastewater, agriculture, and other sources.

The Workgroup Report notes that a "massive cultural shift" and "dramatic changes" will be required to achieve 100 percent greenhouse gas reductions in the County by 2035. For instance, the Workgroup Report suggests that nearly 100 percent of all vehicles would need to be zero-emission vehicles; nearly all residents, businesses, and government entities would need to utilize 100 percent clean energy; "significant percentages of buildings in the County" would utilize solar and/or geothermal systems; and almost all products would be reused or recycled with zero waste disposed.

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[3] The full Workgroup Report is available for download at the Department of General Services' Office of Energy and Sustainability website at: https://www.montgomerycountymd.gov/dgs-oes/Policy.html.

The Workgroup Report includes a detailed listing of current efforts and potential policy changes, new programs, and financial incentives by different major categories (see Appendix A on ©X-X). These major categories include:

- Distributed Renewable Energy
- Electric Vehicles
- Energy Efficient Buildings
- LED Lighting
- Mass Transit and Transportation Demand Management
- Walkable and Bikeable Communities
- Waste Reduction, Reuse, and Recycling
- Food and Farming Strategies
- Tree Strategies.

However, the Workgroup Report notes that it is "impossible to quantify the impact of each measure without additional resources and access to technical expertise."

Transition Team Report

On, March 27, the Executive's Transition Team (led by Chief Administrative Officer Andrew Kleine) released its Transition Report.[4] The Transition Team focused on the Executive's Priority Outcomes, including "A Greener County" (this section is attached on ©1-9b). Key Indicator 1 is "Greenhouse Gas Emissions". Broad strategies recommended to "turn the curve" include:

- a zero-waste goal
- use true renewable energy sources
- improve building energy benchmarking
- implement climate-friendly transportation solutions.

Questions

1. The Climate Mobilization Workgroup Report notes that the dozens of greenhouse gas reduction measures it has identified need to be "rigorously evaluated to determine their feasibility or cost effectiveness." What are the Executive's plans for accomplishing this evaluation?

2. What immediate measures does the Executive recommend the County pursue?

3. For these recommended measures which have cost implications for the County, are expenditures included in the Executive's FY20 Recommended Budget?

4. Is any County legislative action needed to move forward with any recommended measures?

Attachments
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[4] The Transmittal letter and individual reports by Executive priority outcome areas are available for download at: https://stat.montgomerycountymd.gov/stories/s/qygd-r5jd.

A Greener County

County government has committed to zero Greenhouse Gas emissions by 2035, and ambitious but achievable target, and necessary to combat the threat of climate change. In the same spirit, we should endeavor to significantly reduce our waste stream and keep our county litter-free.

Key Indicator I.
Greenhouse Gas Emissions

About the Indicator: The Metropolitan Washington Council of Governments (MWCOG) issues periodic inventories of Greenhouse Gas Emissions and tracks them towards reduction goals. MWCOG is planning on the next release to reflect 2018 and then 2020.

1. How are we doing?
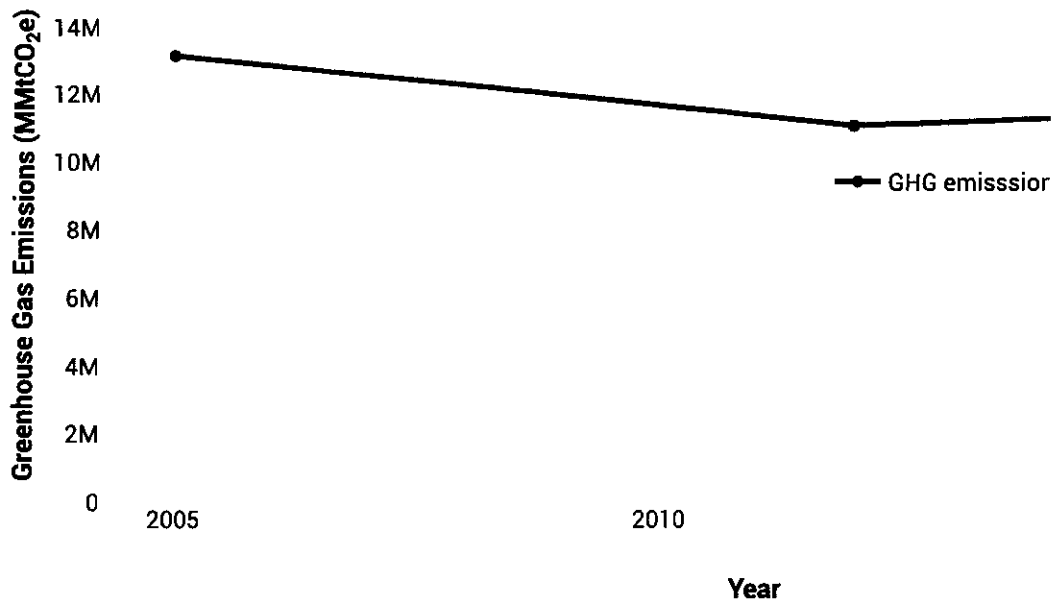
Despite a noteworthy decrease in GHG emissions between 2005 and 2012, the County saw an increase in the most recent inventory in 2015.

2. What is the story behind the curve?

Positive Factors

Negative Factors

Federal, state, and local policies. Certain policies and regulations have incentivized investment in renewable energy and supported energy efficiency and conservation (*e.g.*, rebates, tax credits, etc.). Additionally, the adopted International Green Construction Code requires buildings to reduce their carbon footprint with certain measurable standards, waste reduction in connection with the construction process, stormwater protocols and other related guidelines. The County has also adopted the

Failure to include environmental considerations in growth decisions. An environmental lens should be applied in all decision making but is not currently applied. External environmental costs are not fully captured and considered.

Population growth. Growth in the County has resulted in more human activity.

International Energy Construction Code that requires tighter buildings with less energy leakage and consumption; and there are other existing programs that make County buildings greener that can now be extended beyond County buildings. There is also existing Tree Canopy legislation and a Roadside Tree law in effect.

Technological advances. Technology has helped develop a greener grid by bringing down the cost of renewable and other cleaner energy sources. Advances in energy efficiency technology have also helped mitigate greenhouse gas emissions.

Public education. Outreach efforts from governments, civic organizations, and nonprofit groups have raised awareness of our environmental impact and have led to behavioral change.

Land use. Effective local land use policies, including the Agriculture Reserve, County General Plan and Master Plans, and more transit-oriented dense development help to reduce emissions.

Regional sprawl and drivers' attitude. The current car-centric lifestyle and a culture that prioritizes convenience, disposability and consumption, plus a lack of enforcement, compliance, and accountability to change behavior have resulted in more emissions from transportation.

Sub-optimal mass transit and cheap gas. The combination of a currently unreliable transit system and inexpensive fuel make it a rational decision to drive more.

Environmental degradation. Reductions in the County's tree canopy makes for less carbon-consuming foliage.

3. What strategies do we recommend to turn the curve?

1)   Achieve a Zero-waste goal.

2)   Use true renewable energy sources.

a.   Electrify everything and exclusively use solar and wind energy.

b.   Provide County residents and businesses incentives for renewable fuel sources, reforestation, forest protection, and soil restoration.

3) **Improve building energy benchmarking.** Adjust the County's standard metric to cover all buildings of 10,000 square feet or greater. The current standard metric applies to buildings of 50,000 square feet or greater. Require buildings that are out of compliance with the benchmark to develop action plans.

4) **Implement climate-friendly transportation solutions.**

a. Develop a real-time bus tracking app to improve the public's experience using public transit and increase efficiency and reliability, and ultimately usage of this service.

b. Ban use of fossil fuels in government vehicles.

Key Indicator II.
Recycling Rate

About the Indicator: The rate is calculated by the Department of Environmental Protection (DEP) based on different waste tonnage flow data from the County's Transfer Station and Recycling Center scale records, solid waste hauler and processor reports, business recycling reports, multi-family reports, documentation of unreported commercial recycling tonnages, and contractor reports.

1. How are we doing?

100%

80%

Recycling Rate

60%

Recycling Rate

40%

20%

0%

| 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |

Year
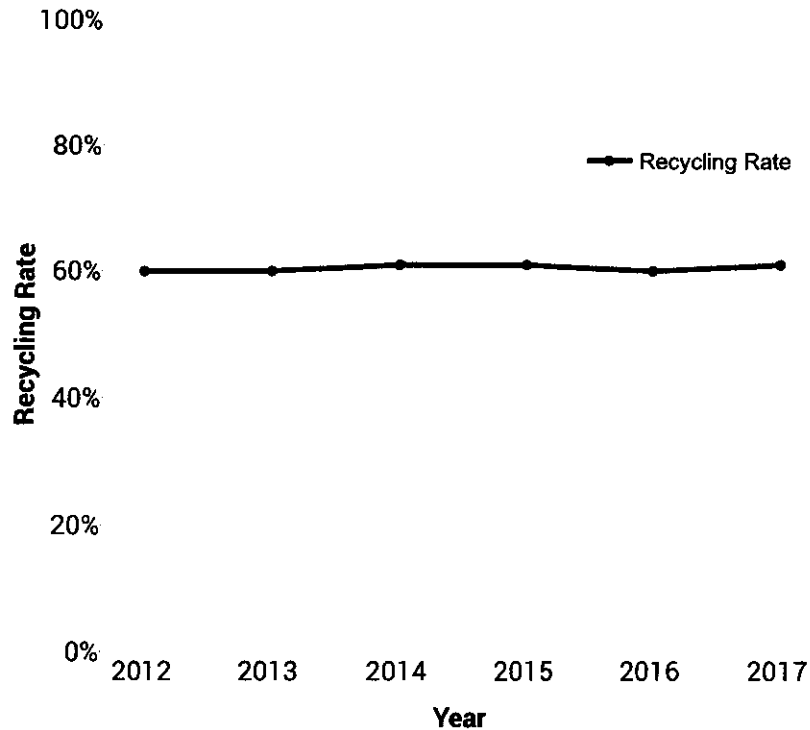
The County is not on track to achieve a 70% recycling rate in 2020 as originally established by Montgomery County Executive Regulation 7-12 and Council Resolution 17-566. DEP has known for some time that this goal would require revision in 2019-2020 time frame, based on current knowledge of residents' and businesses' recycling practices, trends and improvements in packaging, recycling technologies, processing, and markets.

2. What is the story behind the curve?

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Positive Factors

Negative Factors

Existing County recycling programs, policies and enforcement. There is a strong system currently in place with curbside recycling, yard waste composting, and the acceptance of a variety of materials for recycling – and there is an existing market for these items. Policies such as the Styrofoam ban and plastic bag tax have helped reduce waste and have incentivized

Need for better education, outreach and enforcement. There is insufficient public awareness of County recycling programs, regulations, and definitions of recyclables. Outreach needs to be better targeted to diverse communities.

Current behavior. We live in a society that values convenience and consumption. There is low participation in

recycling. There is strong political will and public support that has allowed these policies to be adopted.

Education and awareness. There has been an increase in general environmental awareness, education, and peer pressure. Non-Governmental Organizations and the County have helped disseminate information to the public.

Zero Waste planning effort. The current effort is taking a long-term comprehensive view on waste generation in the County.

Opportunity to halt Resource Recovery Facility (RRF) operations. The current contract for the County's trash incinerator in Dickerson expires in 2021, which will create the opportunity to develop new creative and innovative solutions to encourage and improve recycling practices.

environmental programs among the County's commercial and multi-family properties.

Industry trends. The privatization of waste and recycling hauling and the volatility of the recycling market (e.g. commodity prices for recyclable materials trending downward) present challenges in that private companies largely make decision based on potential profit while County Government takes into consideration other factors such as sustainability, and environmental and social impacts, etc. This can put the goals of each at odds with one another.

Issues with the Zero Waste plan. The current plan is the continuation of incineration and dumping of toxic ash, and food waste is being burned. There is no financial incentive for reducing trash disposal by residents.

The Northeast Maryland Waste Disposal Authority. This privately owned organization has had control over the Division of Solid Waste for decades, and they receive County dollars to administer our program. Their vested interest is in incineration and therefore suppress any efforts to handle the County's trash in a greener and more responsible way.

3. What strategies do we recommend to turn the curve?

1)   Modify the County's waste management plan. Eliminate incineration and put residuals in a safe and remote landfill, accessible by clean-energy rail haul. Give oversight of solid waste management to DEP (not a private entity with its own interests).

2)   Support bottle and can deposit, including reusable glass bottles.

3)   Implement a pay-as-you-throw program. This strategy charges residents based on the amount of trash produced rather than via property taxes or fixed fees. Make sure the fee structure is not regressive, so as not to impact low-income residents disproportionally.

4)   Prioritize "Reduce/Refuse" to minimize waste. Elevate the priority of the "reduce/refuse" option among the "three Rs" (reduce/refuse, reuse, recycle) to reduce waste.

5)   Support workers to unionize in the recycling and solid waste industry. Unionizing will provide better protection for workers and improve work quality.

Key Indicator III.
Resident Satisfaction with Code Enforcement
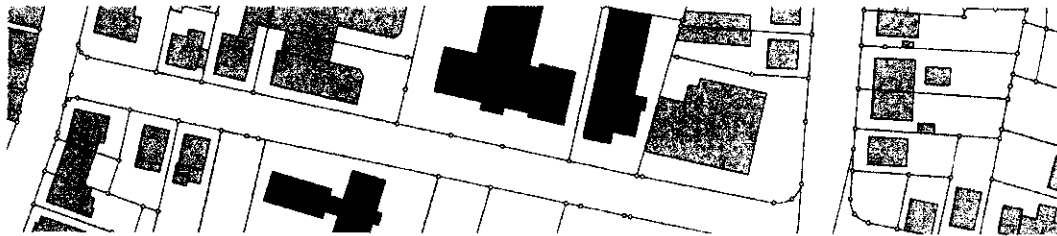
About the Indicator: The County's Resident Satisfaction Survey asks for the public's satisfaction with our Code Enforcement services, which handles resident complaints ranging from accumulations of solid waste to uncut high grass to sediment control violations and all manner of public nuisances and zoning violations. The 2017 survey is a representative sample of 1,075 County residents, with a margin of error of 3%. Respondents may have differing interpretations of Code Enforcement functions given the broad array of complaint types.

1. How are we doing?

100%

80% — ● — % Responding "Good" or "Excellent

60%

% of Respondents

40%

20%

0%

2010   2015
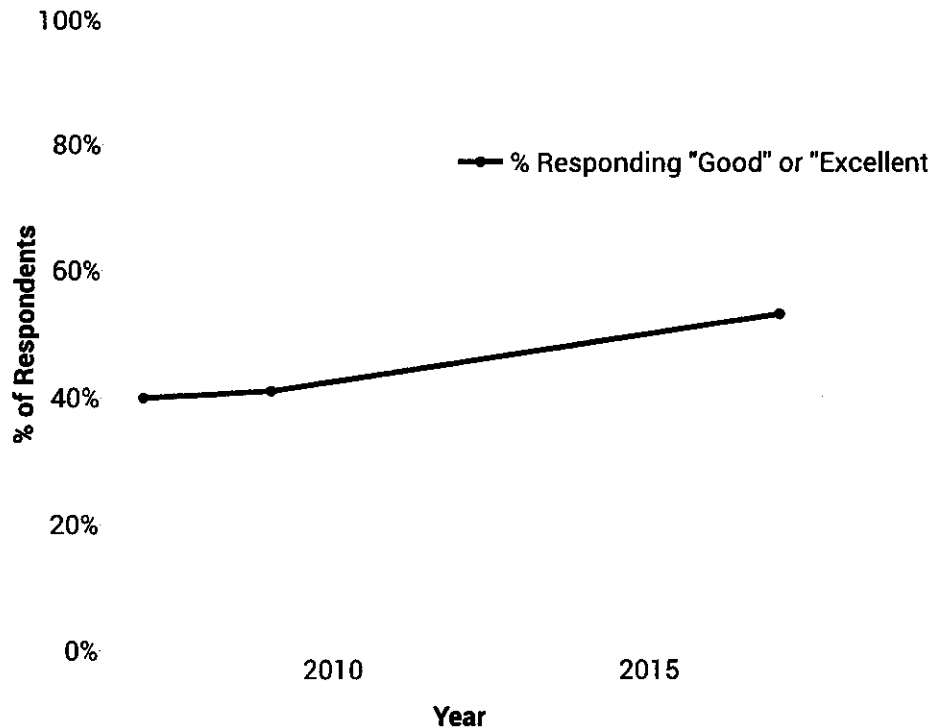
Year

While the most recent (2017) survey indicates improvement over prior years' responses, there is still significant room for improvement.

2. What is the story behind the curve?

Positive Factors

Political will and systems for reporting and monitoring. Support exists for strong environmental codes (i.e., Healthy Lawns Law), and residents can rely on MC311 to report violations and CountyStat to track Service Request closure and other related measures.

Collaboration. The County has shown a willingness to work with neighborhood groups.

Good existing codes and laws. Examples that improve

Negative Factors

Complaint based approach. The current enforcement method produces uneven outcomes among income, geography, and other demographic categories.

Issues with code enforcement staff and structure. The responsible departments need more funding dedicated to enforcement, and staff need better training and a more integrated system. Code enforcement is operationally siloed across several departments and levels of government

environmental quality include the Styrofoam ban, plastic bag tax, green building codes, stormwater management, and water quality.

Good certification programs. Examples include solar and green businesses.

(e.g. stormwater management enforcement authority rests with the Department of Permitting Services via delegation from the Maryland Department of the Environment).

Codes do not promote healthy ecosystems. The County needs enforcement on landscapes and food waste composting, and a better understanding of native plants.

Inconsistent codes. Codes and enforcement are non-uniform among institutional, industrial, retail, single family and multi-family buildings.

3. What strategies do we recommended to turn the curve?

1)   Review all County codes for improving environmental impacts. Evaluate whether the codes are environmentally feasible and how they are applied.

2)   Integrate the stormwater management activities of the Department of Permitting Services, Department of Environmental Protection and the Maryland National Capital Parks and Planning Commission.

3)   Focus on equity/proactive enforcement rather than complaint-based/reactive enforcement.

4)   Improve transparency and fairness in the Conditional Use permitting process. A Conditional Use is the grant of a specific use that is not permitted without restriction in the zone where it is located.

5)   Penalize businesses for failure to comply with recycling requirements.

The Team

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Public feedback and questions from the CE's Listening Sessions relating to this Priority Outcome reflect concerns about:

- Addressing climate change, both as a health issue and a moral issue; ending the burning of coal and creating more clean energy production (more solar panels/solar farms, including in the Ag Reserve); reducing greenhouse gas emissions and air pollution (what happens when the current contract for the County's incinerator ends? and where does that trash go?).

- Limiting development that is incompatible with and adversely affects rural areas and/or removes trees; protecting existing green space; accelerating the replacement of trees.

- Expanding and/or better explaining existing zoning and building codes and processes that can positively impact emissions/energy use.

- Managing transportation and traffic.

- Addressing specific environmental nuisances, including: 5G small cell towers (these were also a concern under "Safe Neighborhoods" from a health/safety standpoint), gas-powered leaf blowers and plastic straws.

- The Montgomery County Stormwater Partners Network seeks to bring attention to the issue of Clean Water and their recommended steps for improving the County's water quality as described in their Clean Water Blueprint.

A public survey on the transition website collected input from residents as well; Respondents conveyed the following related to this Priority Outcome:

- The most frequently discussed topic was how the county can use **policy** to promote sustainability, including solar energy incentives, requirements for new developments, and enforcement of existing environmental protection regulations.

- Respondents focused on **renewable energy** and specifically **solar power** as solutions for reducing emissions. Many cited **pollution** in various forms as a problem to be addressed.

- Respondents supported accessible, reliable, and enhanced **public transit** options, including expansion of the Bus Rapid Transit project. Access to transportation and its role in equity was addressed by multiple respondents, with some prioritizing pedestrian- and cyclist-friendly infrastructure.

- **Waste** management and **plastic** reduction were cited as important by respondents, many of whom supported community education to promote **recycling**.

- The county's environment impact on **water and green spaces** was important to respondents, some of whom identified storm water management and tree cover as priorities.

- The role of the **business** community in environmental protection beyond that of individual residents was acknowledged.

- Other needs included in multiple responses were **composting** and **biodiversity**.

Performance Index: A Greener County

Below can be found the Montgomery County Government Departmental Performance Measures that align with the County Executive's Priority to promote a greener County.

Priority Area	Department/Ini.	Subject Area	Performance M..	Goal page link
A Greener County	Department of Envir...	Percent of Total Mun...	Percent of Solid Was...	https://stat.montgo...
A Greener County	Department of Envir...	Average Number of ...	Missed Recycling Col...	https://stat.montgo...
A Greener County	Department of Envir...	Municipal Waste Div...	Waste Diversion (Re...	https://stat.montgo...
A Greener County	Department of Envir...	Amount of total nitr...	Nitrogen Pollution R...	https://stat.montgo...
A Greener County	Department of Envir...	Amount of total pho...	Phosphorus Pollutio...	https://stat.montgo...
A Greener County	Department of Envir...	Customer Satisfactio...	Satisfaction with Env...	https://stat.montgo...
A Greener County	Department of Envir...	Average Number of ...	Missed Refuse Colle...	https://stat.montgo...
A Greener County	Department of Envir...	System Benefit Charge	Single Fam. Solid Wa...	https://stat.montgo...
A Greener County	Department of Envir...	Average Number of ...	Time to Resolve Env ...	https://stat.montgo...
A Greener County	Department of Envir...	Percent of Impervio...	Impervious Acreage ...	https://stat.montgo...
A Greener County	Department of Envir...	Refuse Collection Ch...	Single Fam. Refuse C...	https://stat.montgo...
A Greener County	Department of Gene...	Environmental Stew...	DGS - Carbon Footpr...	https://stat.montgo...

Appendix A: Potential Solutions or Actions

Distributed Renewable Energy

(Rooftop Solar, Micro Wind, Distributed Solar, Other Renewables)

Renewable energy sources, such as solar and wind, are crucial to eliminating GHG emissions. Distributed renewable energy also improves resiliency by reducing reliance on large, centralized power plants. The most common and practical forms of distributed renewable energy in Montgomery County are rooftop, canopy and ground-mount solar.

Current Status/Activity:

- Solar installations on many County, MCPS and other public-sector buildings/properties.
- County efforts to install microgrids, including solar, via microgrid-as-a-service.
- Montgomery County C-PACE and Montgomery County Green Bank programs provide financing for solar and energy-efficiency.
- Recent changes to County zoning to permit free standing solar projects, such as community solar, up to 2 MW in many zones.
- Residential solar installations benefit from a fast-tracked permitting application process.
- State and County law prevent community restrictions on residential solar.
- Statewide Community Solar pilot.
- Valuation of solar study and grid modernization strategy under discussion at Maryland Public Service Commission under Grid-of-the-Future initiative.
- Montgomery County solar and energy storage co-ops.
- Utility streamlined interconnection efforts and upcoming solar ready "circuits" maps.
- Online utility tools for evaluating solar potential and cost benefits.
- Include renewable energy and energy-efficiency assets in property valuation.
- Maryland Energy Administration anemometer loan program.
- Small wind installations at Montgomery College; Montgomery County is evaluating the Correctional Facility site in Clarksburg for wind.

Potential Next Steps:

Policy Changes

- Advocate for expansion of Renewable Portfolio Standards (RPS).
- Expand recent changes to Zoning Code to allow additional solar (including Community Solar) and wind power in the agricultural reserve.
- Require solar on new or extensively modified buildings.
- Require residents to be offered solar for new home construction.
- Require buildings to be solar ready or require solar for new construction.
- Incorporate solar orientation into Master Planning and site design.
- Support solar friendly electricity tariffs, including tariffs that benefit larger systems.
- Identify real value of solar to the environment and utility ratepayers (e.g., environmental, utility load reduction) to support solar friendly electricity tariffs.

- Encourage solar as a resiliency option for public facilities.
- Fast-track commercial building permits for buildings with solar panel installations.
- Encourage micro wind generation where wind sources are more constant, such as atop taller buildings.
- Monitor improvements in micro wind generation to expand use of micro wind as technology improves.

Programs

- Develop/promote education programs to help consumers and businesses understand solar and storage options and how to evaluate offers from vendors.
- Educate businesses and building operators on financial models for installing solar (e.g., Power Purchase Agreements and Microgrids as a Service).
- Maximize use of solar on public buildings.
- Incorporate expanded solar uses in the Agricultural Reserve consistent with agricultural objectives.

Financial Incentives

- Provide tax credits, rebates, or other financial incentives for solar installations and battery storage systems.
- Support/expand Commercial PACE and Green Bank programs that leverage private sector funding for solar.

Electric Vehicles

Electric vehicles (EVs) use battery-powered electric motors instead of fossil-fuel driven engines as the source of propulsion. The GHG potential of EVs is dependent upon the source of power used to charge the vehicle's batteries. Recent improvements in battery technology have enhanced the range and power of EVs.

Current Status/Activity:

- Federal income tax credit to buyers of new EVs up to $7,500.
- Maryland excise tax credit available to buyers and leasers of EVs up to $3,000.
- MEA Alternative Fuel Infrastructure Program (AFIP), for up to $50,000 for businesses, state and local government agencies and non-profits to install DC Fast Charger.
- MEA Parking Lot Solar PV Canopy with Electric Vehicle Charger Grant Program for businesses, state and local government agencies and non-profits; from up to $400/kW of installed solar PV capacity with a cap of $200,000 per project.
- MEA rebates for residential and commercial charging stations ($700 for residential, $4,000 for commercial and $5,000 for service stations).
- Proposal before the MD-PSC to allow the utilities to install over 20,000 EV charging stations throughout the state, including a significant number in Montgomery County.
- Use of High Occupancy Vehicle (HOV) Lanes for EV drivers.

- Fleets for the Future partnership through COG and the National Association of Regional Councils to develop cooperative procurement contract opportunities for jurisdictions interested in purchasing alternative fuel vehicles and infrastructure for use in their fleets.
- Over 100 government and business charging stations are publicly available; over 50 residential charging stations are publicly available through PlugShare network/app.
- County Government and M-NCPPC Montgomery County fleet combined have a total of 285 electric and gasoline/electric hybrid vehicles including 16 new Chevrolet Bolt electric vehicles; received grant for four electric buses and charging stations.
- In FY16, approximately 1,040 out of a total more than 25,440 newly registered vehicles were all electric.
- Development projects of certain types and sizes (based on numbers of parking spaces) required by Zoning Ordinance to provide certain number of EV charging-ready parking spaces.
- County is supporting the Public Services Commission's proposal to implement a Statewide electric vehicle portfolio that would significantly expand electric vehicle infrastructure.
- City of Poolesville organizes annual electric vehicle parade, the largest gathering of electric vehicles on the East Coast.

Potential Next Steps:

Policy Changes

- Expand the number of EV charging stations available at County garages and facilities.
- Require all new multi-family and commercial buildings to include EV charging stations.
- Implement a parking tax on non EV vehicles.
- Pursue economic development initiatives to support job growth in the transportation electrification sector to accelerate EV growth and support services.
- Accelerate phase in of electric Ride On buses as other jurisdictions are doing (Los Angeles, Vienna, London, Cape Town, New York).
- Increase the number of EV charging stations on public facilities to enable charging options for employees and visitors to County facilities in addition to fleet vehicles. This will encourage County employees to purchase EVs and reduce "range anxiety".
- Expand use of High Occupancy Vehicle (HOV) Lanes to include shared autonomous vehicles.
- Develop policies for incentivizing shared autonomous vehicles either through dedicated lanes shared with transit, or through congestion pricing.
- Support policies that recycle or repurpose used electric vehicle batteries.

Programs

- Create program that allows private entities and utilities to deploy publicly available charging stations in the right of way. The City of Berkeley is piloting a residential curbside program.
- Work with regional jurisdictions and the State to develop a strategic plan prioritizing charging station infrastructure based on travel patterns to ensure comprehensive coverage.
- Work with carshare companies to provide affordable access to EVs.
- Establish a brand-neutral electric vehicle educational center where consumers can learn about a range of different electric vehicles, and test drive and loan them.
- Fund the replacement of hybrid buses with full electric buses and associated infrastructure including providing a specific budget for future replacements.

- Promote state and federal EV tax incentives for residents and businesses.
- Provide free and/or preferred parking at government garages for EV users.
- Work with utilities to provide lower electricity rates for EV charging.
- Provide government subsidy to EV Lyft and Uber drivers.
- Wave or reduce vehicle registration fee for EVs.

Energy Efficient Buildings

(Residential and Commercial Sustainability Building Upgrades and Monitoring including Insulation, Heat Pumps, Green Roofs, District Heating, Geothermal Heating and Cooling, Retrofitting, Smart Thermostats and Building Automation)

Building energy use constitutes the largest source of GHG emissions. Energy efficiency upgrades to buildings not only lower GHG emissions, but also reduce building operating costs.

Current Status/Activity:

- Utilities offer building upgrade project incentives through the EmPOWER Maryland program.
- Multiple County programs currently or will soon support low/moderate income energy efficiency efforts (e.g., DCHA, future Energy Coach network).
- Green roof projects reduce building heating/mechanical loads and are eligible for Water Quality Protection Charge (WQPC) rebates.
- Building upgrade projects are eligible measures for C-PACE and Green Bank financing.
- Large private commercial buildings are already using Building Automation Systems (BAS); less common in small commercial and older multifamily properties.
- Demand-Side Management data sources are evolving (i.e. WeatherBug, smart meters, BAS and smart thermostats).
- Smart thermostats are becoming more mainstream as a residential energy management tool.
- Utilities are offering discounted smart thermostats through EmPOWER Maryland.
- Some County, MCPS and other public-sector buildings have building automation systems.
- Some County, MCPS and other public-sector buildings have geothermal heating and cooling systems.

Potential Next Steps:

Policy Changes

- Fast-track building permits for buildings with green roofs.
- Require all building retrofits meet highest efficiency standards.
- Expand Commercial PACE to include new building construction.
- Require private building new construction/major renovations to include BAS installation.
- Require that all public buildings upgrade to a BAS where feasible.

- Provide a central clearinghouse/technical support organization to assist consumers in using smart meter data.
- Advocate for State-level regulations on refrigerant emissions, similar to California, which require facilities with large refrigeration systems to conduct and report periodic leak inspections, promptly repair leaks, and keep service records on site. The program also prohibits the sale and use of high-global warming potential refrigerants.
- Update codes and regulations as needed to minimize barriers to geothermal energy installations.

Programs

- Education campaign on specific building upgrade technology benefits/energy savings as well as programs that are available to support upgrades (both residential and commercial).
- Education campaign about the low-impact energy savings of BAS/smart thermostats.
- Encourage utilities to offer a smart thermostat purchase during a Quick Home Energy Check-up.
- Education campaign about how to save energy using WeatherBug, smart meter, BAS and smart thermostat data.
- Recognize County food retailers that reduce their refrigerant emissions to meet EPA's GreenChill Store Certification.
- Awards program for net zero buildings and green homes to create awareness and competition for energy efficient green buildings.

Financial Incentives

- Increase the County's current residential EE property tax credit.
- Expand the County's commercial/multifamily incentives for energy conservation devices/systems.
- Explore an innovative performance-based incentive, similar to the City of Takoma Park Neighborhood Energy Challenge.
- Expand Commercial PACE and Green Bank programs that leverage private sector funding.
- Provide performance-based energy efficiency upgrades.
- Utilities subsidize cost of smart thermostats through EmPOWER MD; County could provide incentive for the remaining cost ($100).
- Offer a property tax credit for commercial BAS as an energy conservation device.
- Offer property owners tax credits if utilizing a green lease.
- Provide financial incentives and technical support to businesses that participate in refrigerant management practices above and beyond existing requirements.
- Expand home energy efficiency rebates to Montgomery County residents to reduce home energy usage.

LED Lighting

(LED Lighting - Household, LED Lighting - Commercial)

Replacing CFL (compact fluorescent lamps), incandescent lamps and other less efficient lighting systems with high efficiency LED (light emitting diode) lighting can dramatically reduce energy use in buildings and outdoor spaces.

Current Status/Activity:

- The cost of LEDs has dropped in recent years, but still have a higher cost than incandescent/CFLs.
- Many County, MCPS and other public-sector buildings/properties/parking lots and garages have installed LEDs.
- The County, other jurisdictions and HOAs are converting to LED streetlights and traffic signals.
- Utilities offer incentives for LED lighting upgrades through the EmPOWER Maryland program.
- Financing is available for LED lighting upgrades (e.g., Commercial PACE, Green Bank).

Potential Next Steps:

Policy Changes

- Convert public building lighting systems to LEDs where appropriate.

Programs

- Create a CFL/incandescent bulb trade-in program to give out LED bulbs/coupons.
- Encourage utility customers who received CFLs through Quick Home Energy Check-ups to call their utility for LED upgrades.
- Educational campaign about benefits of LED technology and strategies for successful implementation (e.g., people may find they need fewer lights).
- Develop program to convert state and municipally owned streetlights to LED.
- Create outdoor lighting standards/regulations, similar to "dark skies" standards to save energy and reduce light pollution.

Financial Incentives

- Provide incentives for facility managers who upgrade their lighting to LEDs.
  Create an incentive for HOAs to replace external lighting/streetlights with LEDs.

Mass Transit and Transportation Demand Management
(Metro, Bus, Microtransit, Reduced Work Week and Telepresence)

Mass transit and transportation demand management solutions are focused on reducing single occupancy vehicle travel. Solutions include financial and other incentives to encourage residents and those employed in the County to use alternative modes of transportation and telework, as well as improvements to or development of a range of mass transit options.

Current Status/Activity:

- MCDOT serves 26 million passengers a year with a fleet of 370 buses, 100 percent of which are hybrid electric, compressed natural gas or clean diesel.
- Suite of Commuter Services "Better Ways to Work" programs and incentives including: Fare Share transit/vanpool subsidies; rideshare matching; Guaranteed Ride Home; and outreach programs.
- State tax credit of 50 percent up to $100/month/employee for employers offering transit/vanpool subsidies.
- Transportation Management Districts (TMDs) require businesses of 25 or more employees to submit a Traffic Mitigation Plan and annually report on activities.
- New development projects in TMDs required to include TDM-supportive components.
- Green Business Certification Program includes elements related to adoption of TDM strategies by businesses.
- $35 monthly transit subsidy to County government employees; pre-tax payroll deduction for remaining costs to maximum under Federal tax law; free Ride On using C-pass on employee badge.
- Free rides on weekdays between 2pm and 8pm on Ride On buses and certain Metrobus routes within Montgomery County to kids ages 18 and under (older if still in high school) who are Montgomery County residents.
- Free rides for seniors and people with disabilities on Ride On and Metrobus from 9:30am-3pm, Monday-Saturday and half fare rides at all other times.
- 2015 Transit Task Force Report and recommendations.
- Provision and promotion of car/vanpool parking spaces at reduced rates in County garages; installation of parking availability signs at County parking garages to reduce time spent circling for parking.
- Parking below minimum requirements is allowed under the Commercial Residential Town (CRT), Commercial Residential (CR), Life Sciences Center Floating (LSC) and Employment Office Floating (EOF) zones, and in the Commercial Residential Neighborhood (CRN), Non Residential (NR) and General Rural (GR) zones for properties located within one mile of a transit station.

Potential Next Steps:

Policy Changes

- Adopt parking policies that disincentivize driving and parking, particularly in urban centers (e.g., expand the elimination of parking minimums in commercial developments, eliminate Parking Convenience Stickers in Parking Lot Districts and reduce or eliminate availability of other monthly payment arrangements).
- Limit freeway speed limit to 55 mph, enforce speeding using advanced technology and collaborate with local jurisdictions to harmonize policies regionally.
- Expand TDM program countywide; include multi-unit residential as well as commercial projects.
- Ensure rights-of-way provide for shared uses, including transit and separated bikeways.
- Incentivize teleworking and alternative work schedules at least two days a week for all employers.

<u>Programs</u>

- Build out majority of Rapid Transit System (RTS) network, including Bus Rapid Transit (BRT) and Corridor Cities Transitway (CCT).
- Implement dedicated HOV lanes on major County roads (some of which could be HOT lanes, particularly during off-peak). Add frequent bus service in designated HOV/HOT lanes. Consider shared autonomous vehicle usage in HOV/HOT lanes.
- Lobby to maximize Metrorail capacity by using eight-car trains and having 24 trains per hour.
- Maximize MARC capacity, advocating for increased frequency and two-way service.
- Increase use of demand-responsive/micro-transit strategies to facilitate service between residential neighborhoods and transit hubs.
- Conduct intensive outreach to residents, businesses and schools regarding transit use and commuting alternatives, e.g., work with schools to incorporate components into curriculum to create healthy, green commuters of the future – and to promote changes in culture for both children and their parents (similar to non-smoking and seat-belt use campaigns).

<u>Financial Incentives</u>

- Increase transit subsidy to County government and Agency employees; charge employees for parking.
- Impose a tax on parking transactions at non-residential parking places, similar to the City of Pittsburgh.
- For Ride On fare, reduce cost; offer corporate sponsorships of certain routes to offset increased costs. Subsidize Metro fares for trips within Montgomery County.
- Implement taxation and insurance programs tied to vehicle miles traveled.
- Expand network of Park & Ride lots at key interchanges and intersections in outer portions of the County and coordinate with surrounding jurisdictions; implement dynamic pooling opportunities for commuters involving buses, Transportation Network Companies (e.g., Uber, Lyft).
- Provide tax incentives for carpool participants.
  Employers subsidize first mile-last mile (or two – three miles) to connect with transit/other transportation options though shuttles, bikeshare or Transportation Network Companies.

Walkable and Bikeable Communities

(Walkable Cities, Bikesharing and Bike Infrastructure)

Mass transit offers one alternative to single occupancy vehicles. Biking and walking provide other alternatives that not only reduce GHG emissions but provide health benefits to the participant. Solutions in this area focus on creating communities and infrastructure that support safe and efficient biking and walking opportunities.

Current Status/Activity:

- Capital Bikeshare network of docked bikes across Montgomery County and piloting dockless bike-share program in Silver Spring and Takoma Park.
- The County has approximately 436 miles of hard and natural surface bike trails and lanes for commuting and recreation.
- New Bicycle Master Plan has been sent to the County Council for review. The Bicycle Master Plan includes a Bicycle Stress Map to help public make decisions about where to bicycle and to help planners understand the impediments to bicycling during development of the Bicycle Master Plan.
- Bicycle Pedestrian Priority Areas (BiPPA) enhance safety and facilitates bike/ped connections in 29 targeted areas.
- Expansion of bicycle infrastructure, including separated bike lanes, bike boxes and protected intersection. Outreach and educational recently developed to expand understanding of new cycling infrastructure.
- Adding more bike parking racks in high-demand areas.
- Chapter 49 of the Montgomery County Code ("Streets and Roads") requires sidewalks on both sides of most streets; target speed for urban streets, business district streets and secondary and tertiary residential streets is 20 – 25 MPH.
- County land use plans emphasize a "constrained parking policy" to minimize parking in urban areas.
- Plans for new development and redevelopment focus on creating pedestrian connections to destinations.
- New development projects in Transportation Management Districts required to include biking- and walking-supportive components, and to participate in programs to encourage biking and walking among employees and residents.
- Bike/Pedestrian Safety Initiative, Vision Zero and Safe Routes to Schools program enhance bicycle and pedestrian safety.
- Bicycle and pedestrian safety are enhanced continuously through intersection improvements, sidewalk maintenance and repairs and the Bus Stop Improvement Program.
- Neighborhood traffic calming, speed cameras and red light cameras reduce vehicle speeds and enhance safety.
- Redevelopment of County-owned surface parking lots into mixed use developments in urban cores.

Potential Next Steps:

Policy Changes

- Ensure adequate lighting along all rights-of-way and particularly at intersections and other crossing points, to make cycling and walking after dark safer and more pleasant.
- Ensure full funding for maintenance of walking and cycling paths and road crossings.
- Expand use of technology to improve bike and pedestrian safety.
- Ensure rights-of-way incorporate opportunity for optimum bike and pedestrian infrastructure.
- Extend requirements for pedestrian- and bicycle-friendly development components to all areas of the County and all types of development projects.

- Incorporate electric bikes, scooters, other new and future two- or three-wheeled options into transportation network.
- Expand bike rack capacity and admissibility on bus and rail systems.

Programs

- Approve and fully implement the Bicycle Master Plan.
- Expand dockless bikeshare throughout the County, including non-urban areas such as UpCounty.
- Expand bike parking in urban centers, areas where personal and bikeshare bikes are in greater use.
- Expand Safe Routes to School and implement Safe Routes to Parks programs.
- Increase funding for training and education programs related to bike safety and city cycling. classes; incorporate instruction for school children into curriculum to promote safe bicycling and walking and build the green commuters of the future.

Financial Incentives

- Establish a Live Near Your Work program like Baltimore City.
- Provide tax incentives to employers that incentivize employee walking and biking.
- Incentivize employers to subsidize first mile-last mile (or two – three miles) to connect employees with transportation options though bikeshare or personal bike programs.
- Encourage development of health insurance incentives/benefits for both employers and employees for promoting and achieving significant percentages of healthy commuting by their workforce via cycling or walking.
- Require new or extensively renovated buildings to provide bike friendly accommodations and infrastructure (e.g., secure storage, shower facilities).

Waste Reduction, Reuse and Recycling

(Recycled Paper, Residential Recycling and Industrial Recycling)

The end-of-life management of products and materials creates significant opportunities to reduce GHG emissions. Reducing the amount of waste generated should be the highest priority. Products that have reached the end of their "original" life can be reused and recycled into a variety of new products.

Current Status/Activity:

- The County's current waste diversion/recycling rate is 61%. This is the combined rate for residential, commercial and government across the entire County.
- The County requires recycling of mixed paper, commingled containers, yard trim, Christmas trees and scrap metal items at all properties.

- Generators of other recyclable materials for which markets are developing or exist are encouraged to separate these materials for voluntary recycling.
- Additional recycling, reuse and/or waste management opportunities are provided at the Transfer Station for materials including: reusable building materials, bulky rigid plastics, textiles (including clothing and shoes), electronics and computers, household hazardous waste, automotive fluids, tires, appliances/scrap metal items and more.
- The County's procurement law requires procurement of goods containing recycled materials by County departments and allows a price differential of up to 10% for recycled materials.
- Administrative Procedure 5-23 provides guidance to County departments on methods to reduce the amount of paper purchased and used, reduce overall printing and reduce mailing costs.
- Many County agencies require electronic reviews of applications and permits saving costs on paper and waste as well as increasing efficiency of reviews.
- A long-term planning effort has begun that includes the future vision of the County's solid waste and recycling programs and operations with the goal to maximize waste reduction, reuse/repair, recycling and sustainable materials management. Actionable strategies, new investments, initiatives, changes in methods of operations and retiring or replacement of existing facilities will be included in this planning effort.

Potential Next Steps:

Policy Changes

- Implement development standards to ensure adequate recycling infrastructure exists in all new development, including multi-family and commercial buildings.
- Support extended producer responsibility laws at the state and federal level related to packaging, the recyclability of packaging and the responsibility to take back hard-to-recycle packaging and products.
- Require bids for County services and products to be submitted electronically.
- Require all development applications and permits to be submitted electronically.
- Create green purchasing ordinance like the City of San Francisco's SF Approved program which would require County staff to buy designated green products.
- Expand curbside pickup of solid waste and recyclables to all parts of the county and do not rely on individuals contracting with separate firms.

Programs

- Increase education about the County's solid waste management and recycling programs.
- Expand list of recyclable materials taken by the County.

Financial Incentives

- Incorporate "pay-as-you-throw" charging systems for waste disposal.

Food and Farming Strategies

(Reduced Food Waste, Plant-Rich Diet, Conservation and Regenerative Agriculture, Nutrient Management and Composting)

The growth, consumption and management of excess food encompasses a variety of activities that involve the County's agricultural sector, restaurants and other food service establishments, and residents.

Current Status/Activity:

Conservation and Regenerative Agriculture, Nutrient Management

- Maryland Cover Crop Program and Maryland Agricultural Water Quality Cost Share grants.
- Technical and financial assistance through the USDA Natural Resources Conservation Service (NRCS).
- Technical assistance for developing conservation plans through Montgomery County Soil Conservation District (MSCD).
- MSCD equipment rental program (e.g., No Till Drill).
- University of Maryland Extension Nutrient Management Program provides farmers with technical assistance for nutrient management plan development.
- Sustainable farms included in the Green Business Certification Program.

Reducing Food Waste and Encouraging Plant Rich Diets

- MCPS' Division of Food and Nutrition Services (DFNS) features daily meatless items; working with manufacturers to develop plant-based protein offerings that meet the required meat/meat alternative equivalent.
- The Strategic Plan to Advance Composting, Compost Use and Food Scraps Diversion in Montgomery County (April 2018) provides direction, framework and recommended strategies to reduce wasted food, channel excess food to others with unmet needs and increase the amount of food scraps recycled through composting and/or other technologies, such as anaerobic digestion.
- County supports Community Food Rescue, a Manna Food program that receives food donations from local businesses that would have been thrown away and delivers it to agencies serving those in need.
- The Montgomery County Food Council is creating a comprehensive list of all current hunger relief resources and emergency food providers in the County to highlight existing efforts and gaps; the Council also created a Food Security Plan which addresses who is at risk, where they are and what their barriers are to food security.
- Food waste composting taking place at cafeterias in three County buildings – Executive Office Building, Council Office Building and Public Safety Headquarters.
- Live Well initiative incorporates messaging and campaigns for plant based diets.

Potential Next Steps:

<u>Policy Changes</u>

- Provide farmers with subsidized compost to help sequester carbon in soil.
- Require all restaurants and caterers to compost food scraps and disposable food service ware.
- Explore local options to reduce packaging and single-use items (bags, utensils, condiments, napkins) in restaurants and food service operations.
- At MCPS cafeteria lines, display fruit/vegetables at the beginning and make them default side dishes.
- Provide expedited permitting for rooftop vegetable gardening.
- Support amendments to Maryland's Lawn Fertilizer Law to ease restrictions on the application of compost to turf.

<u>Programs</u>

- Develop incentives to encourage increased separation of commercially-generated food scraps for recycling.
- Establish a Regenerative Agriculture staff position to train farmers and assist them in becoming certified through the Rodale Institute's new Regenerative Organic Certification program (in pilot stage).
- Secure processing capacity for commercially-generated food scraps to facilitate and increase the amount of food scraps separated for recycling, delivered to processing facilities for composting and/or anaerobic digestion and recycled.
- Refine and implement recommendations of the Strategic Plan to Advance Composting, Compost Use and Food Scraps Diversion in Montgomery County.
- Establish training program around no/low till, cover cropping, crop rotation, etc.
- Launch Meatless in March campaign, similar to the City of Santa Monica.
- At MCPS, increase the variety of plant-based entrees to include home style dishes using beans, lentils and dried peas; develop marketing strategies to educate students on plant-based protein entrées and how they can be part of a healthy school meal; continue student based focus groups at all levels to assess acceptability of new plant-based protein sources as part of the reimbursable meal.
- Expand the number of edible gardens at MCPS and other County government facilities.

<u>Financial Incentives</u>

- Incentivize farmers to use cover crops and practice crop rotation and no/low till.
- Provide property tax credits to farmers who achieve Regenerative Organic Certification.
- Provide financial incentives to restaurants with all-vegetarian or vegan menus.
- Provide farmers with subsidized compost to help sequester carbon in soil.

Tree Strategies

(Afforestation, Forest Protection, Individual Tree Planting on Lots)

Tree strategies are key for carbon sequestration. Afforestation refers to the creation of new forests where there were none before. Reforestation is the establishment of forest/tree cover in areas that had recent tree cover.

Current Status/Activity:

- A number of laws are in place to protect trees and forested areas and require tree planting or payment into a fund through in-lieu fees, when development occurs, resulting in a variety of tree planting activities on public and private land.
- Efforts to avert damage to homes, buildings and utility lines during inclement weather includes removal of damaged or overhanging street trees in the right-of-way.
- Priority planting areas County-wide are increasingly being identified through GIS technology.
- The Montgomery County Planning Department has a tree canopy analysis on their web page.
- DGS is expanding efforts to increase tree canopy on public facilities.

Potential Next Steps:

Policy Changes

- Require a no net loss of trees on a developed site (accounting for tree size and maturity, not just number of trees) and establish incentive program for tree gain on a site.
- Establish greater incentives for stormwater management installed beneath infrastructure like parking lots and other structures to provide greater available land area for tree planting and habitat preservation.
- Support establishment of policy on State level to provide stormwater credit for protection of existing trees on a site.
- Support establishment of policy on State level to ensure that use of trees in stormwater management facilities receive stormwater credit.
- Increase funds available for tree-planting activities by issuing G.O. Bonds to finance program.
- Update the County's tree canopy analysis and use to focus efforts at increasing canopy.
- Underground all utilities in already developed areas to allow for fully sized canopy trees to develop.

Programs

- Improved educational campaigns in support of tree planting incentives on private land.
- Improved educational campaigns supporting best management practices for tree protection and care including mandatory deer caging and non-native invasive plant removal.

<u>Financial Incentives</u>

- Expand available funding for tree planting incentives on private land.
- Fully fund the street tree planting program.
- Incentivize tree gain on sites undergoing development with focus on species diversity.
- Increase funding for after-care of planted trees on public and private lands to increase tree survival rates.
- Incentivize preservation of existing habitat, trees and forest cover in areas slated for development.