

Briefing/Discussion

MEMORANDUM

February 17, 2021

TO: Transportation and Environment (T&E) Committee

FROM: Keith Levchenko, Senior Legislative Analyst

SUBJECT: **Briefing:** Draft Climate Action Plan¹

PURPOSE: To receive a briefing on and discuss the Draft Climate Action Plan

Participants

County Government

- Adriana Hochberg, Assistant Chief Administrative Officer (and Director of County Climate Policy)
- Adam Ortiz, Director, Department of Environmental Protection (DEP)
- Stan Edwards, Chief, Division of Energy, Climate, and Compliance, DEP
- Doug Weisburger, Senior Planning Specialist, Division of Energy, Climate, and Compliance, DEP
- Lindsey Shaw - Manager, Energy and Sustainability Programs, DEP
- Sande Brecher - Chief, Commuter Services Section, Office of Transportation Policy, Department of Transportation
- Earl Stoddard, Director, Office of Emergency Management and Homeland Security (OEMHS)
- Mara Parker, Administrative Specialist, OEMHS
- Tina Laboy, Emergency Management Specialist, OEMHS

Consultants

- Ida Namur, AECOM, Vice President and Director of Operations, Energy
- Ricky Torres-Cooban, AECOM, Water Engineer and Climate Science Subject Matter Delivery Lead
- Vanessa Goh, AECOM, Sustainability Planner
- Emily McDuff, AECOM, Energy Engineer
- Chancee Lundy – Nspiregreen, Co-Founder/Principal Environmental Manager

Attachments

- Presentation Slides (©1-48)
- Climate Action Plan Excerpt (©49-53)

NOTE: The full [Draft Plan](#) and [Appendices](#) are available on the [County's Climate Home Page](#).

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

On February 22, the T&E Committee will receive a briefing on the County’s Draft Climate Action Plan. Adriana Hochberg, the County’s Director of County Climate Policy along with DEP staff will lead the briefing. Representatives from the consultants (AECOM and Nspiregreen) will be available as well.

The release of the Public Draft of the Climate Action Plan represents the culmination of several years of work. Some background information on the Climate Change planning process is provided below. For additional background, please see the [Council Staff Report](#) from the T&E Committee’s July 6, 2020 Climate Change planning update.

Background

Council Resolution

The County has been active for many years in studying the County’s greenhouse gas emissions, developing goals and strategies, and implementing numerous initiatives. The current planning effort stems from the December 2017, Council approval of [Council Resolution 18-974, “Emergency Climate Mobilization.”](#) This resolution supported an ambitious 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.”

Climate Technical Workgroups

The latest process began in the Summer of 2019 with the creation of five technical workgroups in the Summer of 2019 (consisting of both governmental and non-governmental members) providing a broad range of expertise. These groups looked at:

- Clean Energy
- Buildings (represents 51% of greenhouse gas emissions in 2015)
- Transportation (41% of greenhouse gas emissions in 2015)
- Adaptation and Sequestration
- Public Engagement

These workgroups were tasked with developing recommendations to be further evaluated and prioritized by a consultant with the goal of creating a Draft Climate Action Plan (CAP) by the end of 2020. [The workgroup recommendations](#) (850 in total) were rolled out at a Town Hall meeting on February 27, 2020.

Climate Action Plan (CAP) Development

The next phase of work involved consultant review of the workgroup recommendations and development of the Climate Action Plan (CAP). In April 2020, the County executed a consultant contract with [AECOM](#).

The County Executive released the Public Draft of the Climate Action Plan in late 2020 for public comment with a goal of finalizing the Plan by Spring 2021.

Draft Climate Action Plan

Summary

The Executive Summary of the Climate Action Plan is attached on ©52-53. As noted, the Plan,

“...identifies Montgomery County’s major GHG emissions sectors, including energy supply, buildings, and transportation, and lays out actions to directly reduce GHG emissions in these sectors. The Plan defines an emissions reduction pathway to show how the County can meet its 80% reduction by 2027 goal and come close to meeting its 100% reduction by 2035 goal.

After modeling greenhouse gas emissions to 2027 and 2035, the consultants utilized the “CURB” scenario planning and modeling tool² to analyze the technical workgroup recommendations and identify high-level strategies to reach the County’s emission reduction goals. A summary of the actions with the highest emissions reduction scores is presented on ©29. The Community Choice Energy action and electrification code requirements for existing commercial and public buildings were the highest scoring actions in terms of emissions reductions.

The Plan also includes a vulnerability assessment, identifying the four “largest and growing climate hazards” as: extreme heat, extreme precipitation, high winds, and drought. These hazards are being experienced today and are expected to intensify in the coming decades.

These efforts resulted in the development of 87 priority actions across the technical workgroup areas noted earlier plus a new “Climate Governance” category. The Plan’s vision for each of these categories is noted on ©51.

To further prioritize the actions, the consultants factored in co-benefits and feasibility (along with the primary benefits (i.e. greenhouse gas reductions and/or climate risk reduction) utilizing the “ASAP” tool.³

The full [Draft Plan](#) includes further details regarding all of the priority actions by category (starting on Page 112 of the Plan).

Energy, Buildings, and Transportation

To accomplish the County’s greenhouse gas reduction goals, the Plan assumes to transition the County’s electric grid to clean energy sources by 2030 through a combination of:

- energy efficiency initiatives (such as energy performance standards, code requirements, and incentives), and

² According to the World Bank, “CURB, Climate Action for Urban Sustainability, is an interactive scenario planning tool that helps cities take action on climate change. By reducing their environmental impact, cities can achieve a variety of local benefits including improved health and air quality, job creation and economic growth, energy independence, while often saving money. CURB helps cities assess the implications of policy and technology interventions by allowing them to evaluate their cost, feasibility, and impact... CURB, was developed through collaboration between the World Bank Group, the C40 Cities Climate Leadership Group, Bloomberg Philanthropies, and AECOM Consulting.”

³ C40 Cities Action Selection and Prioritization (ASAP) tool – “a software tool that documents actions and provides outputs to support the climate action decision-making process through a comparison of action benefits and challenges.”

- increased distributed renewable energy generation.

In the Transportation sector, the Plan assumes that 100 percent of private and public transportation options will need to be electrified or utilize other zero-emissions power sources by 2035. This would be done through:

- mode shifting (from private vehicles to transit, walking, and bicycling)
- educational campaigns and financing tools to support electric vehicle (EV) adoption, and
- an expansive, accessible public EV charging infrastructure network to support widespread EV adoption.

Residual Emissions

The Plan notes that even with implementation of all the recommendations, there will still be residual emissions and that

“...full elimination of the County’s GHG emissions in 2035 will involve implementing carbon sequestration actions identified in the Plan, cutting emissions in smaller emissions source areas, and exploring the use of new technologies.”

Reducing Climate Risk

The Plan identifies 20 climate adaptation actions (see ©43-44) to protect the public and the built and natural environment. In addition, some of the priority recommendations in the other categories provide some benefit in this area as well. A list of the highest value risk reduction actions is noted on ©26. Culvert repairs and water infrastructure resilience topped the priority list.

Racial Equity and Social Justice

The Plan includes substantial background on systemic racism and economic inequalities in Montgomery County and how these factors cause disparate impacts of climate change.

The Plan notes that these concerns are addressed through scoring “co-benefits” of various actions (i.e. whether emissions reducing actions also address racial equity and social justice concerns) and through additional recommendations where needed to make sure the impacts on the most vulnerable communities are considered. Moving forward, the Plan implementation embeds a racial equity/social justice lens in the governance recommendations and in the public engagement component. A racial equity and climate change task force is recommended to be created to help guide plan implementation.

Governance

The Plan also includes recommendations to institutionalize climate change within operations and decision-making processes in the County. Given the broad scope of the Plan, a structured process for collecting data and metrics and the review and approval of actions across government and the private sector will be essential.

Discussion

The ambitious recommendations in the Draft Plan are not surprising given that most were identified by the Climate Technical Workgroups last year. The Draft Plan analyzed the 805 recommendations and pared them down to 87 priority actions across the various subject areas. While others will require further study and/or advocacy at the State or Federal level, the Draft Plan's governance recommendations will be key to successful implementation.

Some of these priority actions are already moving forward in some manner. However, many of the actions will require future Council action in some form, such as budgetary approval of additional funding and/or legislative and regulatory change. This briefing is a chance to learn more about these priority actions and how they are prioritized. However, decisions on specific initiatives will come later.⁴

An overarching concern is the fiscal situation the County is in right now. As discussed in past climate action meetings (and as noted in the Plan) many of the Plan's priority actions will require significant public and/or private financial investment and individual and societal behavioral change. The Plan is under review at a time when government resources are prioritized toward and strained by the current pandemic response. The local, regional, and national economy has been hit hard by the pandemic and the measures taken to control the pandemic.

For Montgomery County, reduced revenues and increased pandemic-related spending have resulted in a significant operating budget shortfall. On the capital side, the Council's approved spending affordability guidelines gradually reduce General Obligation Bond debt to improve the County's debt capacity indicators. At the same time, capital needs in areas such as school construction and transportation are increasing.

Key questions going forward include: what level of resources can the County allocate to these priority actions and how do we ensure that we maximize the impact of these scarce resources (in terms of greenhouse gas reductions, risk reduction, and in other environmental and societal co-benefits). Federal and State assistance (both in terms of financial support as well as through regulatory and policy changes) and private sector actions will be critical to helping the County make substantial progress towards its climate action goals.

Attachments

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⁴ In some cases, decisionmakers will need to consider potentially competing priorities. The Draft Plan notes, for instance, the tension between utilizing land in the County's Agricultural Reserve for more solar energy generation versus the County's goal of maintaining land for viable farming uses. The Council is wrestling with the right balance now in the context of Zoning Text Amendment 20-01 Solar Collection System – AR Zone Standards.

MONTGOMERY COUNTY

Draft Climate Action Plan

**Building a Healthy, Equitable,
and Resilient Community**

Review the draft. Submit comments by February 28.










MontgomeryCountyMD.gov/Climate



Overview of the Draft CAP

- Montgomery County's **strategic plan** to cut greenhouse gas (GHG) emissions 80% by 2027 and 100% by 2035 and reduce climate-related risks
- Identifies the County's largest and growing **climate hazards**
- **87 prioritized actions**

Our Vision for Building a Healthy, Equitable, & Resilient Community

-  **Clean Energy:** Montgomery County uses and invests in clean, reliable, affordable energy.
-  **Buildings:** Montgomery County is home to resilient and efficient buildings.
-  **Transportation:** Montgomery County safely, affordably, and sustainably moves people and connects places.
-  **Carbon Sequestration:** Montgomery County is preserving and enhancing its ecosystems, greenspaces, and trees while reversing carbon dioxide emissions.
-  **Climate Adaptation:** Montgomery County is equipped with the resources and infrastructure to withstand the impacts of climate change.
-  **Climate Governance:** Montgomery County is institutionalizing an organizational culture and structure that fosters creativity, cross-department collaboration and innovation to implement systemic climate solutions.
-  **Public Engagement, Partnerships, and Education:** Montgomery County's community members are empowered, engaged, and motivated to take action on climate change, while striving for equity among all members of the community.

Climate Planning Principles

- Think transformationally
- Advance racial equity and social justice
- Use all levers of government
- Engage community members where they are
- Work together
- Embrace our diversity
- Take risks
- Act while planning

Community Involvement in Developing the CAP

176 Technical Climate Workgroup members

30 Workgroup Meetings

2 Racial Equity and Social Justice Workshops

130 Community Conversations with Resilience Ambassadors

ORGANIZATIONS PARTICIPATING IN THE CLIMATE PLANNING PROCESS:

22 Environmental Conservation and Climate Groups

20 Business

10 Civil Rights and Religious Groups

9 Education Groups

8 County Advisory Groups

7 Federal Agencies (Unofficial Presence) and International Organizations

7 Adaptation, Resilience and Energy Associations

4 Utilities

5 Budget, Finance, and Philanthropic Groups

4 Municipalities and Municipal Advisory Groups

3 Chambers of Commerce

2 Public Health Groups

2 Transportation Groups

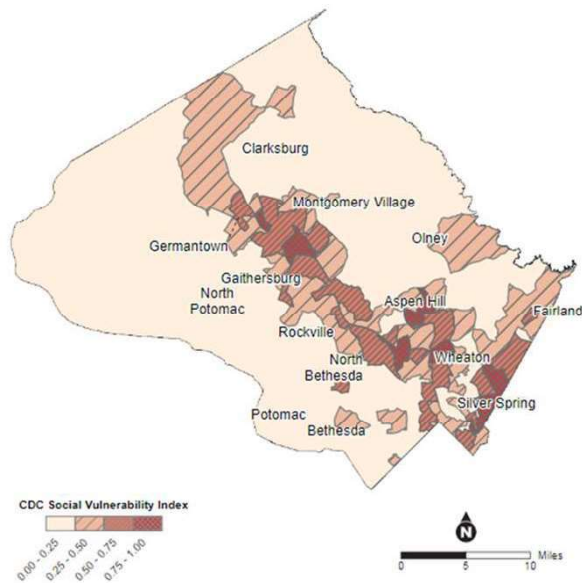
1 Buildings Group

1 Environmental Justice Group

Racial Equity & Social Justice

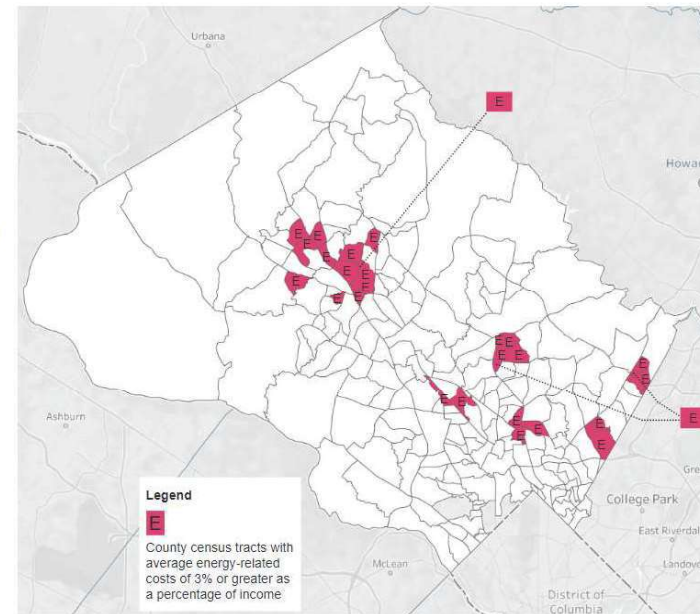
Racial Equity

When race can no longer be used to predict life outcomes and outcomes for all groups are improved



Social Justice

When all people have access to the same rights and resources and there is a fair distribution of resources



Equity-enhancing Measures

EXAMPLE:

 **B-2** Electrification Code Requirements for Existing Residential Buildings

Primary Benefit:



GHG Mitigation – High

Co-Benefits:

Racial Equity and Social Justice –

Very Negative

Public Health –

Somewhat Positive

Economic Prosperity –

Somewhat Positive

Authority:

Outside County – Requires County Collaboration with Other Public or Private Entities or Is Outside County Authority

Investment Level:

County: \$\$

Private: \$\$\$

Development Stage:

Proposed

Lead:

DPS

Contributor:

DEP

EQUITY-ENHANCING MEASURES

- Provide financial support (such as partial or full subsidies) to low-income households to replace fossil fuel appliances and equipment with electric options.
- Develop an awareness campaign related to the ordinance, including what it means, how to access financial incentives (such as subsidies or affordable financing), and what the benefits are of transitioning to electric appliances and equipment. Ensure the awareness campaign is developed in multiple languages.

Racial Equity & Social Justice

Key Issues	Key Priorities
<ul style="list-style-type: none"> • Lack of financial resources • Language barriers • Disincentivized landlords • Eviction and/or fear of eviction • Homelessness and lack of affordable housing and rent control • Lack of alternative sources of power • High utility costs • Traffic safety • Lack of health and flood insurance • Insufficient public transportation • Mental health; Food insecurity, mold • Distrust of government • Need enhanced cultural competency in govt • Misunderstanding of govt systems • Proximity to pollutant-emitting sites • Neighborhood segregation 	<ul style="list-style-type: none"> • Additional resources for underserved Improved language accessibility • Greater landlord accountability • Affordable housing and rental assistance • Insulation, and access to heating and cooling technologies • Bike paths and better, safer pedestrian infrastructure • Improved public transit, bike paths and sidewalks • Clean and safe green public spaces; Resources for community gardens • Use existing community ambassadors; solution co-creation • Approach communities with respect and elevate the good work they're already doing • Electric public transit vehicles • Creating a sense of community; supportive, welcoming and humane culture

"It is hard to prioritize climate change when you are in survival mode and just trying to get through day by day."

"Many people are out of work or earning less due to COVID-19, and there is an increasing trade-off between health and well-being, and cost."

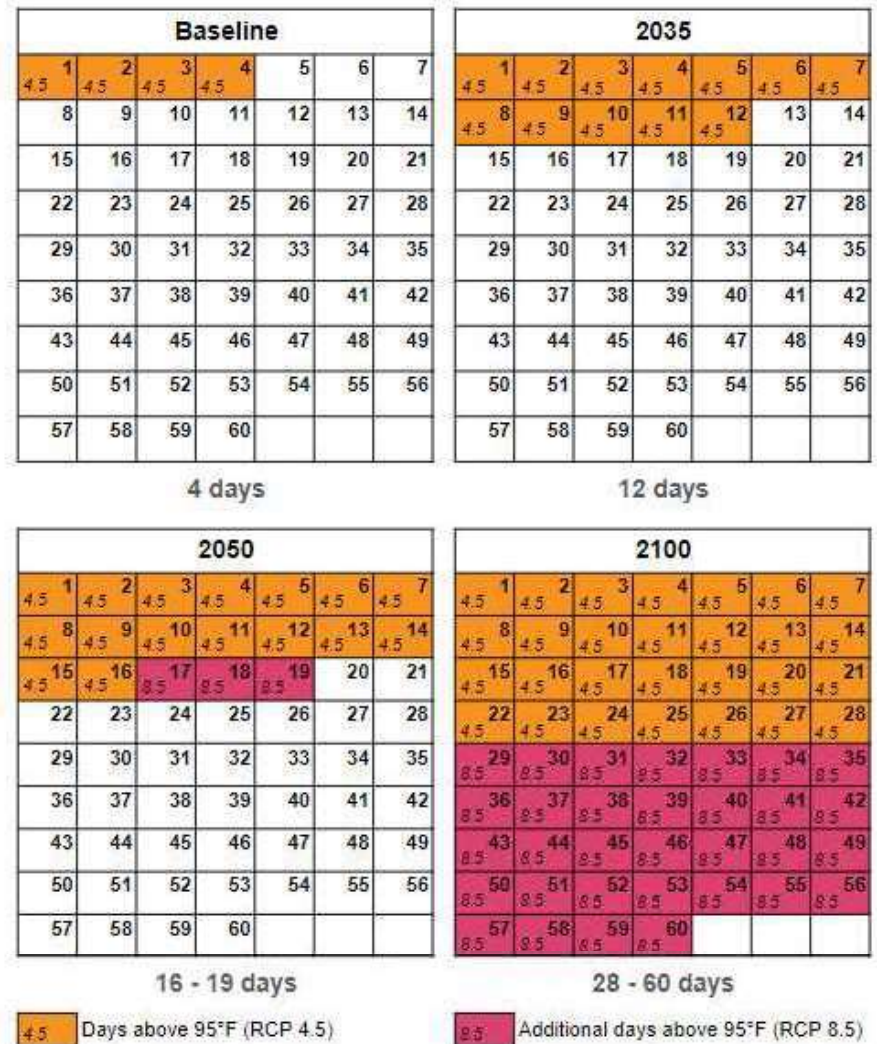
"Tenants often feel powerless and are left to deal with real-life consequences that are created from flooding in their homes without having support from landlords."

Major Climate Hazards & Climate Vulnerability

- The CAP identifies the County's four largest and growing climate hazards:
 1. Extreme heat
 2. Extreme precipitation
 3. High winds
 4. Drought
- The CAP analyzes the impact of climate hazards on a variety of community asset categories, including the built and natural environment as well as people.

Extreme Heat Projections

- By **2100**, County residents could experience almost **two full months** each year with temperatures reaching **above 95°F** (for the RCP 8.5 scenario).
- Even by **2035**, we can expect to experience an **average of twelve days** each year with temperatures reaching **above 95°F**, three times more than the County is experiencing today.



Extreme Precipitation Projections

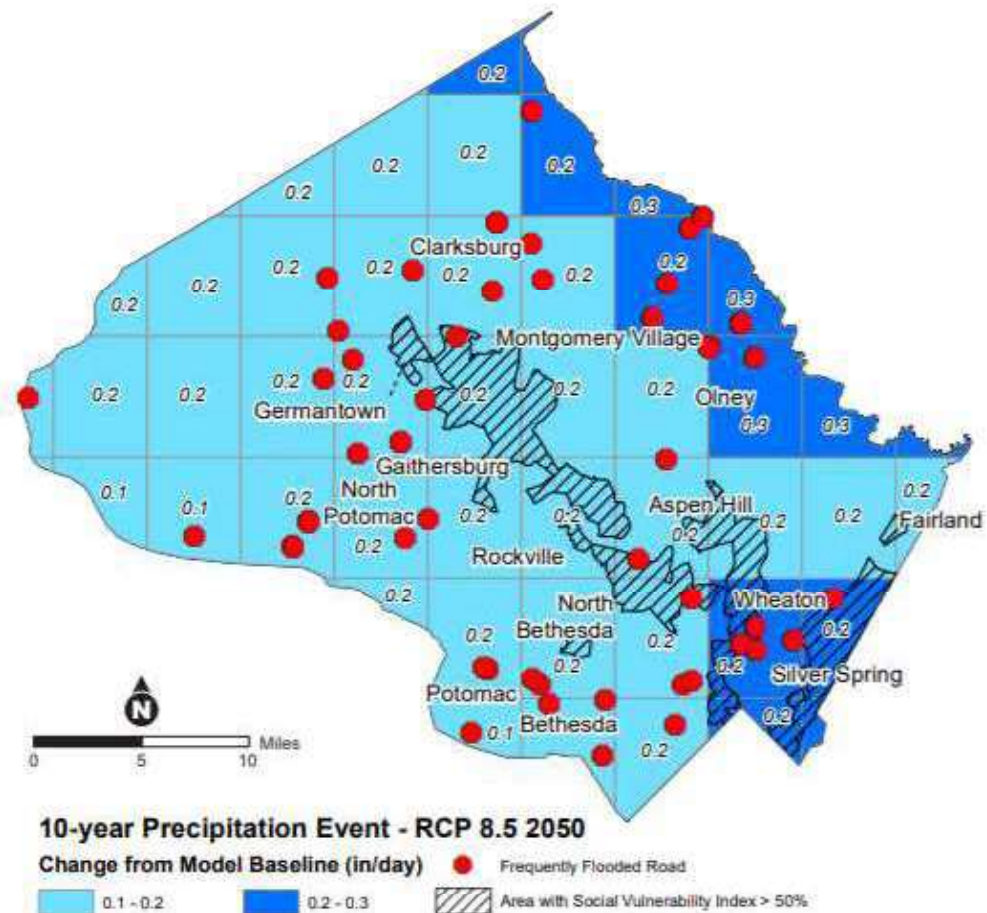
- The 100-year event in the RCP 8.5 scenario for the year 2100 would be equivalent to a 151-year event today.
- More frequent recurrence intervals (for example, 1-year, 2-year, and 10-year) are expected to have a smaller change in precipitation.

Table 3: Future Changes to Return Period Storms

Current		2050		2100	
Recurrence Interval	Precipitation for 24-hour Storm (inches)	RCP 8.5 Equivalent Recurrence Interval	RCP 8.5 24-hour Storm (inches)	RCP 8.5 Equivalent Recurrence Interval	RCP 8.5 24-hour Storm (inches)
1-year	2.6	1-year	2.7	1-year	2.7
2-year	3.1	2-year	3.2	3-year	3.3
10-year	4.8	13-year	5.0	15-year	5.2
100-year	8.3	115-year	8.5	151-year	9.0

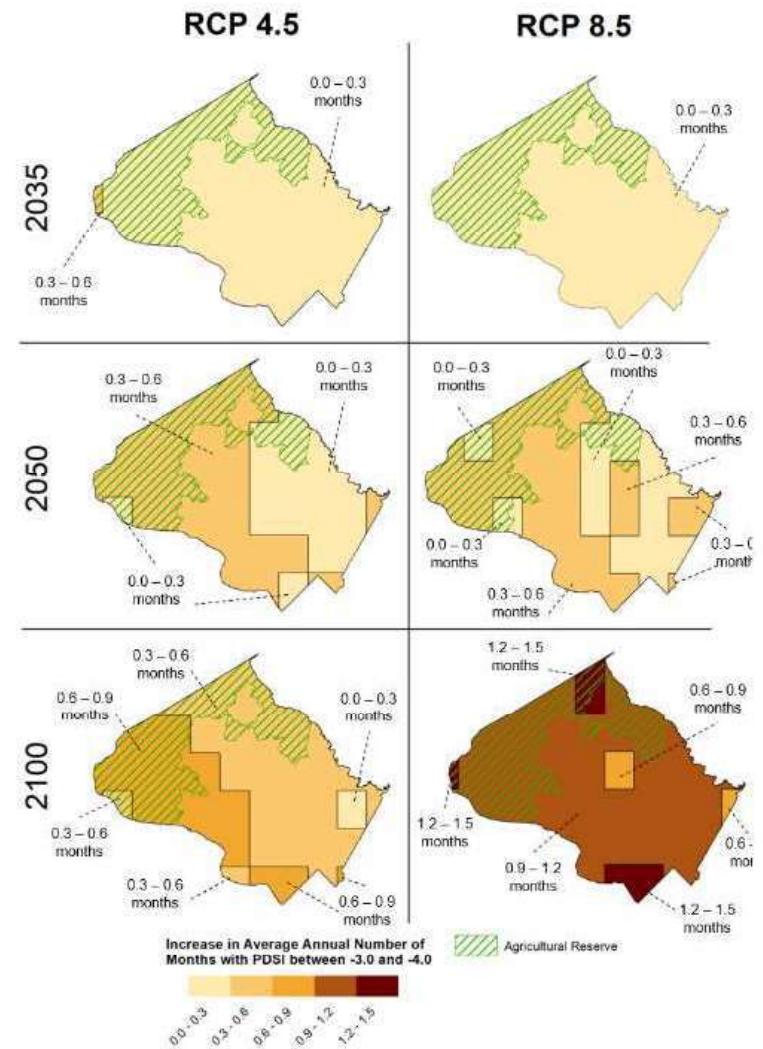
Precipitation Projections, Frequently Flooded Roads, & Social Vulnerability

- The **10-year precipitation event** from the RCP 8.5 scenario for the year 2050 is mapped with a record of **frequently flooded roads**.
- This information is combined with the **social vulnerability index** showing the areas of the County that are considered the more vulnerable half of the County's population.
- Combining the hazard data, asset information, and social vulnerability index, priority areas can be identified.



Severe Drought Projections

- Mild drought conditions are projected to decrease or stay the same in both RCP 4.5 and RCP 8.5, while the annual risk of moderate, severe, and extreme drought is projected to increase significantly by the year 2100.



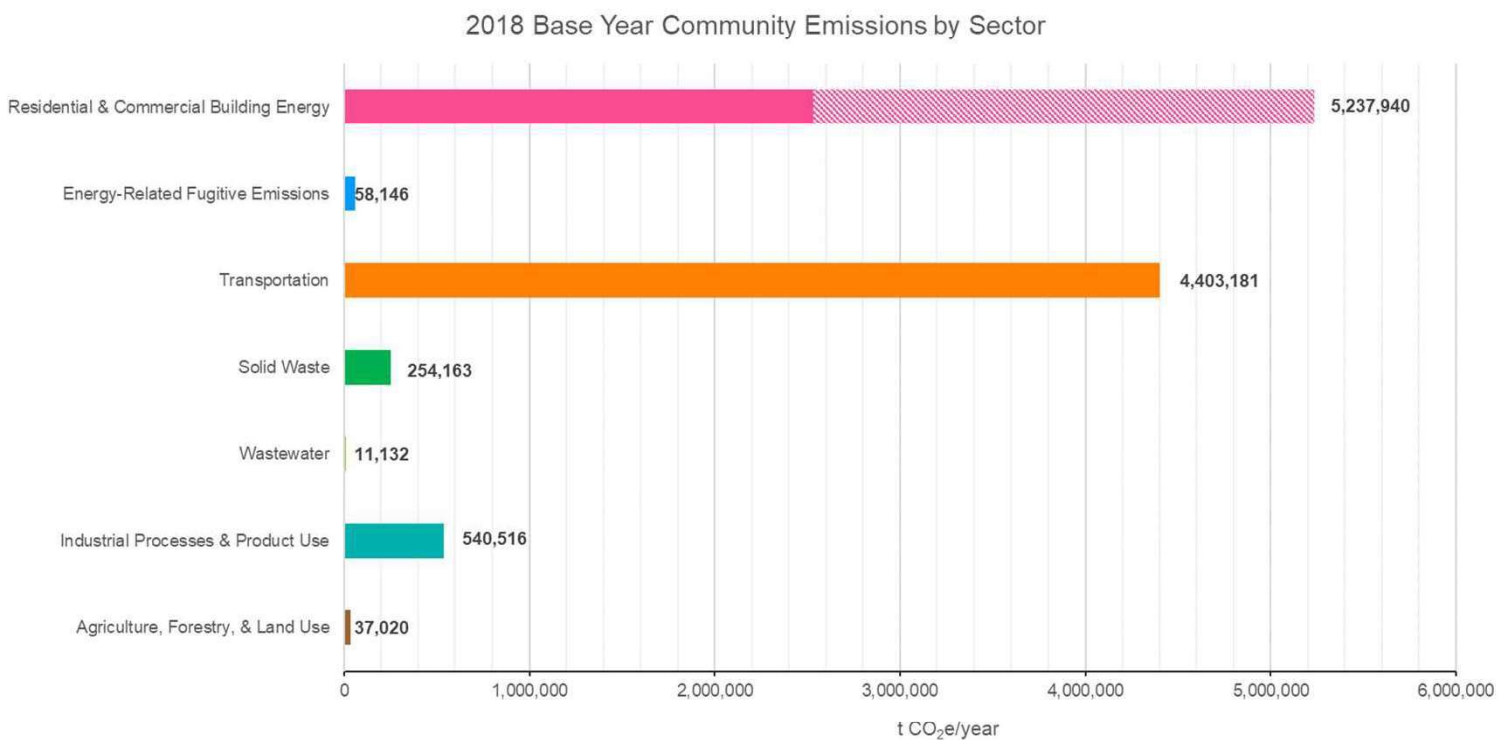


Adaptation Actions

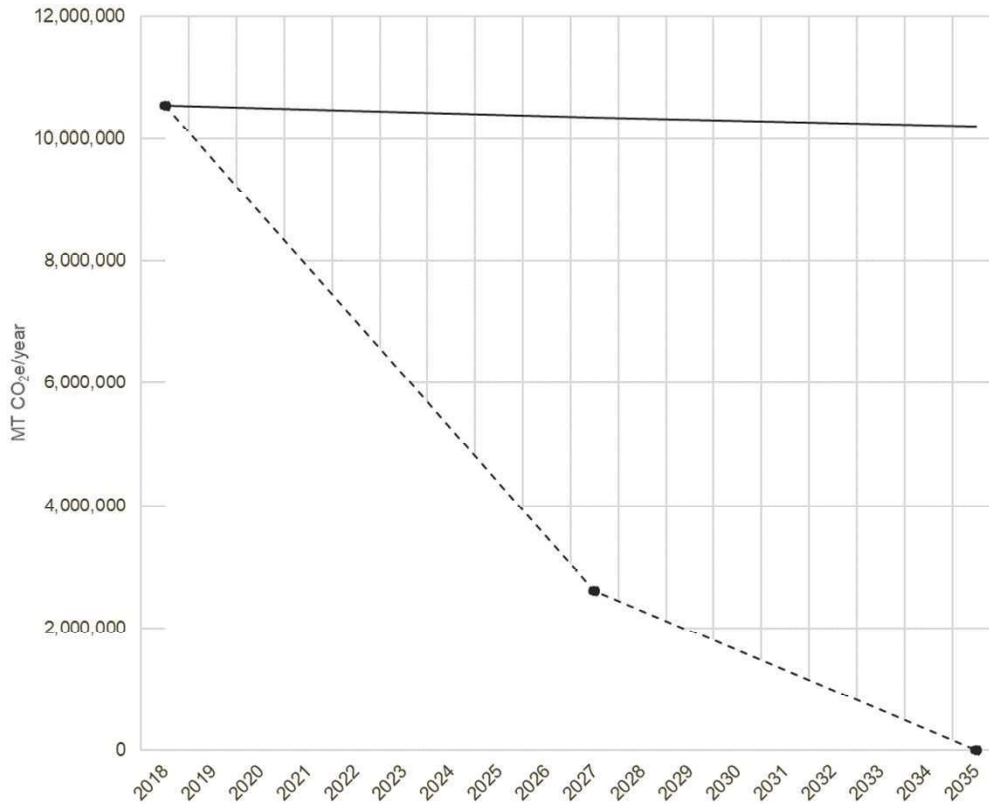
The Plan identifies 20 climate adaptation actions, including:

- **Repair and upgrade stormwater drainage and management systems**
- **Enhance temperature and stormwater monitoring and alerts**
- **Update green streetscape and green infrastructure standards**
- **Harden emergency shelters and install resilience hubs** (public facilities such as community centers that can island from the grid and provide continuous power during outages)
- **Update floodplain maps**

Montgomery County's Measured GHG Emissions Sources

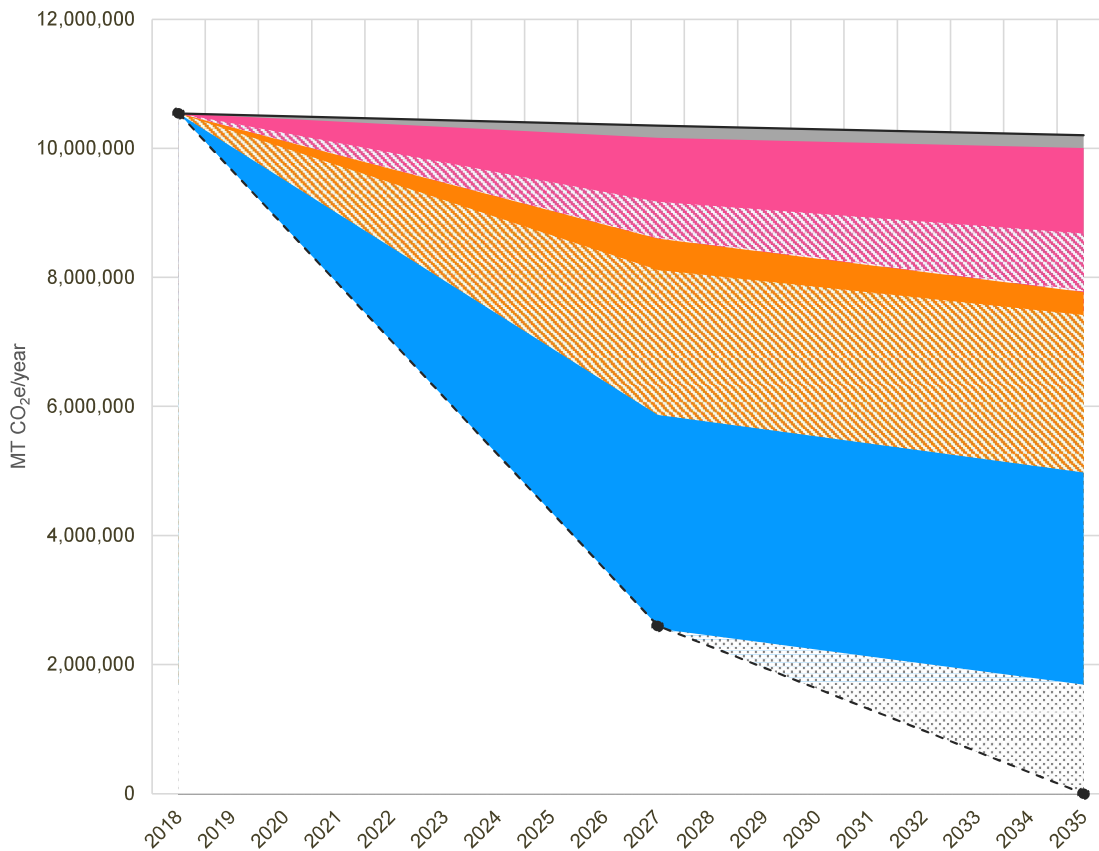


County Emissions Reductions Pathway



tonnes CO ₂ e/year	Emissions Metric
2018 Base Year Emissions Level	
10,542,097	Base Year
2027 Emissions Levels	
10,350,170	Baseline Forecast
75.4%	Target (% below 2018 base year level)
2035 Emissions Levels	
10,201,406	Baseline Forecast
100.0%	Target (% below 2018 base year level)
0	Allowable Emissions

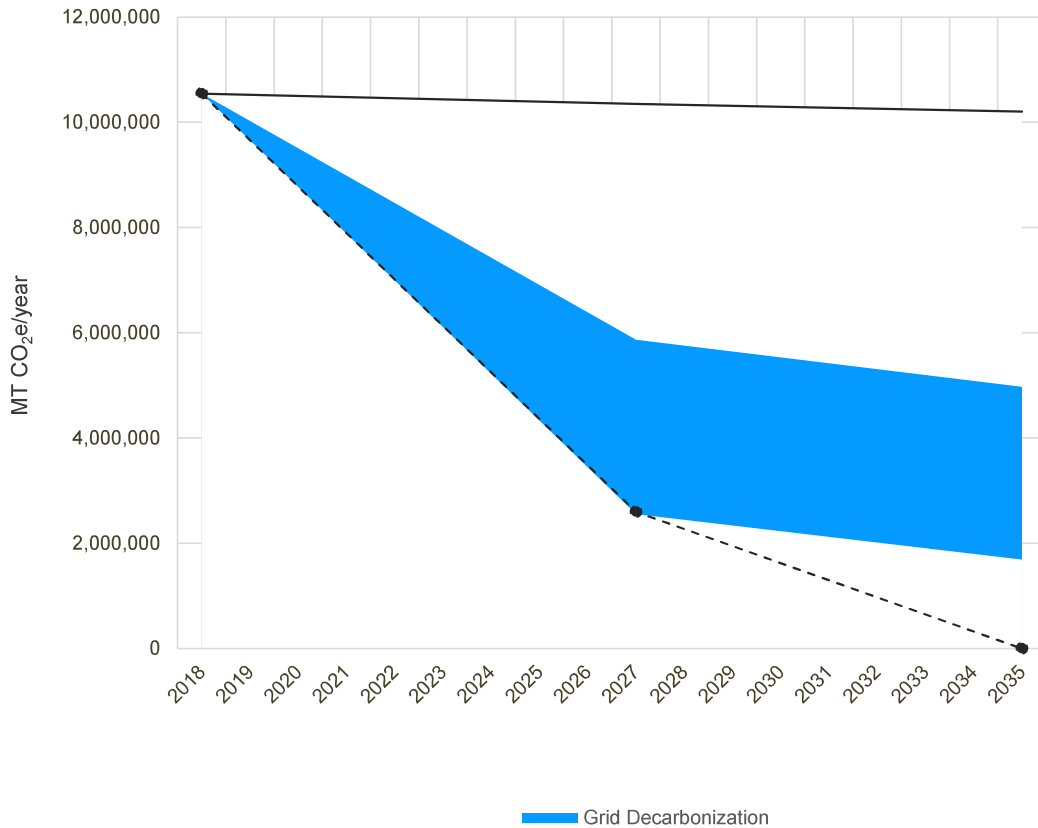
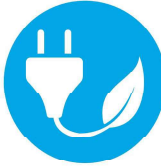
County Emissions Reductions Pathway



- Solid Waste
- Buildings - Existing Residential
- Buildings - Existing Commercial
- Buildings - New Residential
- Buildings - New Commercial
- Transportation - Mode Shift
- Transportation - Vehicle Fuel Switch
- Energy - Grid Decarbonization
- ... Remaining Emissions
- Baseline Forecast
- - - Target Trajectory

tonnes CO ₂ e/year	Emissions Metric
2018 Base Year Emissions Level	
10,542,097	Base Year
2027 Emissions Levels	
10,350,170	Baseline Forecast
75.4%	Target (% below 2018 base year level)
2,598,627	Allowable Emissions
2,625,326	Achieved w/ Actions
26,699	Achievement Gap
2035 Emissions Levels	
10,201,406	Baseline Forecast
100.0%	Target (% below 2018 base year level)
0	Allowable Emissions
1,787,259	Achieved w/ Actions
1,787,259	Achievement Gap

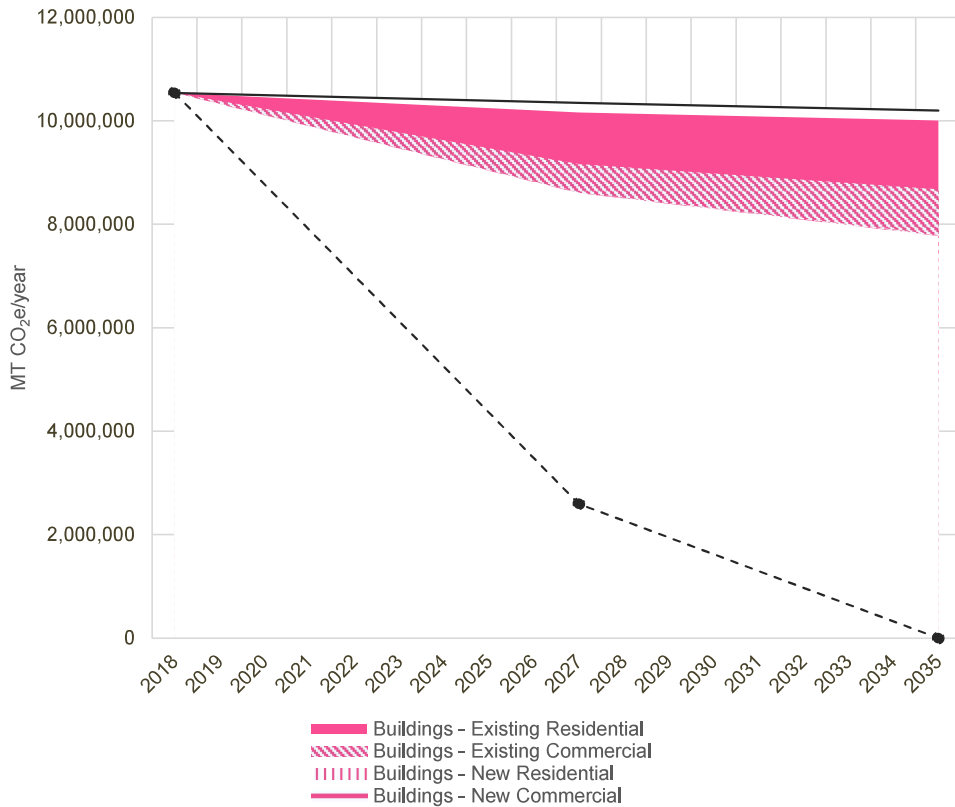
Energy GHG Reduction Pathway



Reduction Strategy
GRID DECARBONIZATION

Top Actions
Community Choice Energy
Private Facility PV Incentives
Public Facility PV

Building GHG Reduction Pathway



Reduction Strategies

EXISTING BUILDING
ENERGY EFFICIENCY AND
FUEL SWITCHING

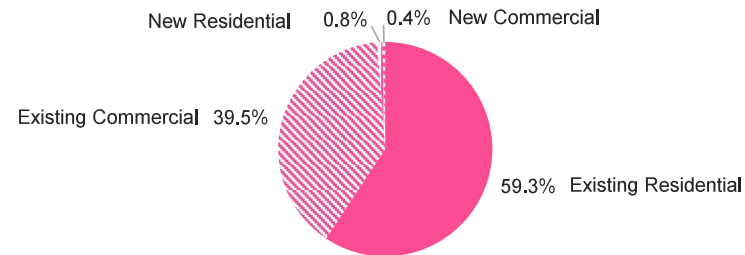
NEW CONSTRUCTION
ENERGY EFFICIENCY AND
FUEL SWITCHING

Top Actions

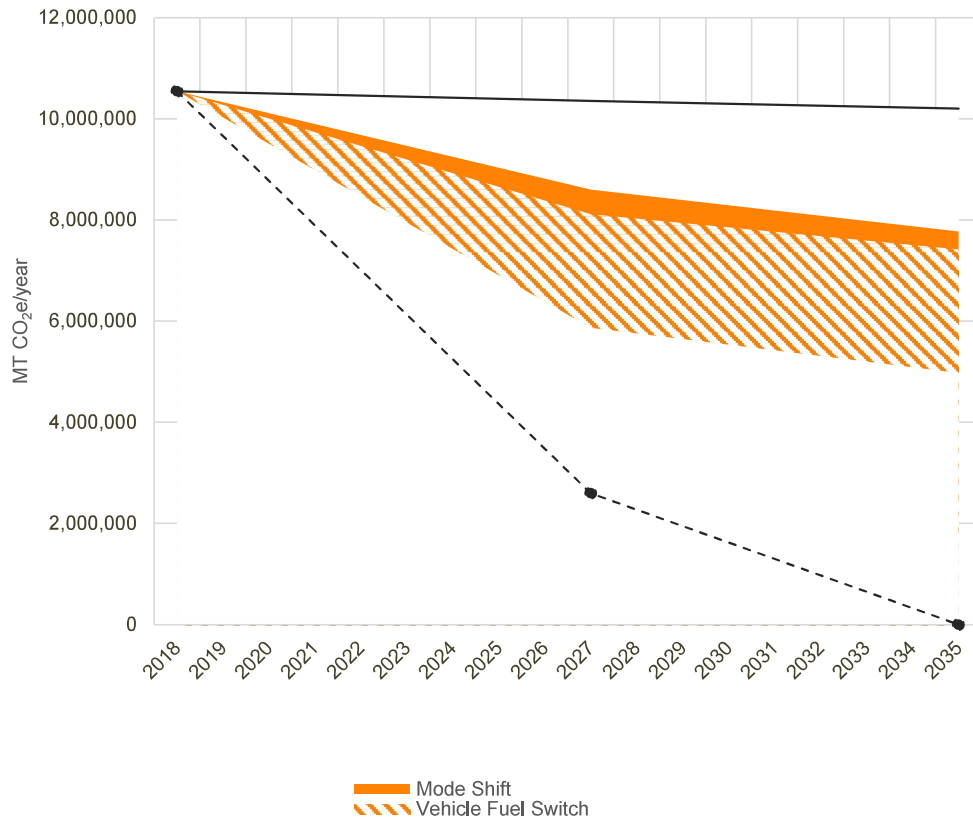
Electrification Code Requirements
Energy Performance Standards
Electrification Incentives

Net Zero Energy Code
All-Electric Building Code
Ban Natural Gas

% Buildings Emissions Reduction by Strategy



Transportation GHG Reduction Pathway



Reduction Strategies

PASSENGER
MODE SHIFT

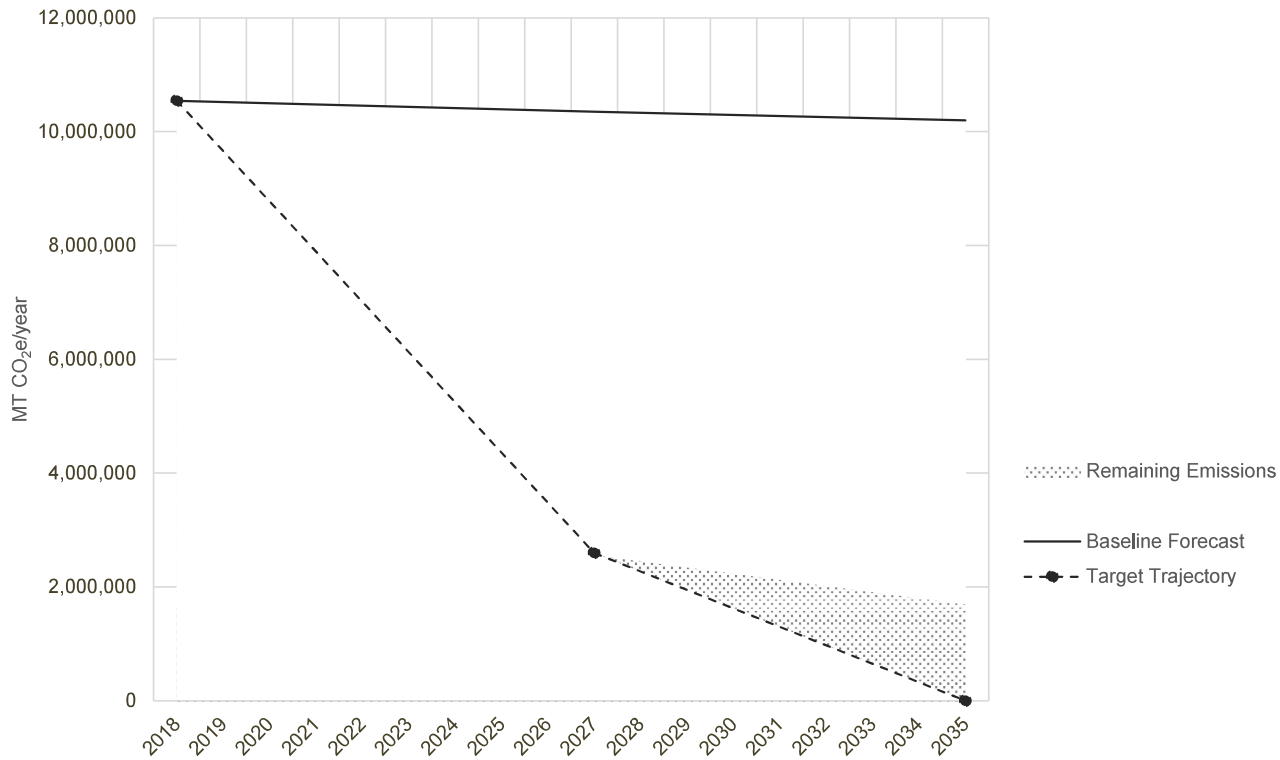
VEHICLE FUEL
SWITCH

Top Actions

Expand Public Transit
Expand Active Transportation
Congestion Pricing

Private Vehicle Electrification Incentives
Electrify Public and School Buses
Expand EV Charging Network

Remaining Emissions Reduction Strategies



Remaining Emissions Sources

- Aviation
- Off-Road
- Wastewater
- Agriculture
- Refrigerants

Potential Reduction Strategies

- Carbon Sequestration
- Carbon Offsets
- Future Technologies/Actions
- Addressing Remaining Emissions Sources

Emissions Sources Not Measured in the County's GHG Inventory

- **Consumption emissions** are emissions that go into making goods or materials.
- **Embodied carbon emissions** is a related term which most commonly refers to the emissions associated with building materials, such as concrete and steel.
- Consumption emissions and embodied emissions are typically excluded from GHG inventories because the emissions occur outside of the geographic boundary of the community and thus are difficult to reduce or regulate.
- A recent study issued by C40 Cities concludes these emissions for high-income cities are significant.
- The CAP includes actions to begin measuring and reducing consumption emissions and embodied carbon emissions.



Carbon Sequestration Actions

- Carbon sequestration can offset emissions by capturing and storing carbon dioxide from the atmosphere.
- The Plan identifies 6 nature-based carbon sequestration actions, including **retaining, managing, and expanding forests, wetlands, and grasslands**, as well as individual **trees** and small groups of trees that comprise the urban forest.
- Carbon sequestration actions also include **increasing carbon in soils** and **improving agricultural practices**.

Forests and Trees Contribution to GHG Inventory

Emissions Type	2005 Emissions (MTCO ₂ e)	2012 Emissions (MTCO ₂ e)	2015 Emissions (MTCO ₂ e)	% Change 2005-2015
Sectors in County GHG Inventory				
Residential Energy	3,521,192	2,424,184	2,739,447	-22%
Commercial Energy	3,949,381	2,884,333	3,001,394	-24%
Transportation & Mobile Emissions	4,972,108	4,890,664	4,687,981	-6%
Water & Wastewater	11,993	11,376	10,979	-8%
Agriculture	52,190	48,440	41,914	-20%
Solid Waste	268,533	264,005	266,617	-1%
Process & Fugitive Emissions	369,260	519,885	596,167	61%
Total (Gross) GHG Emissions	13,144,657	11,042,886	11,344,499	-14%
Land Use Activity				
Forests Remaining Forests	-289,344	N/A	-278,491	4%
Forests Converted to Other Lands	52,071	N/A	29,221	44%
Other Lands Converted to Forests	-4,328	N/A	-3,635	16%
Sequestration from Trees	-313,176	N/A	-382,643	-22%
Emissions from Tree Loss	346,292	N/A	135,790	61%
Total (Net) GHG Removals	-208,485	-	-499,758	-140%
Total (Net) GHG Emissions	12,936,172	-	10,844,741	-16%

Reduction of 14% of **gross** emissions...

...refined to reduction of 16% of **net** emissions

Action Analysis

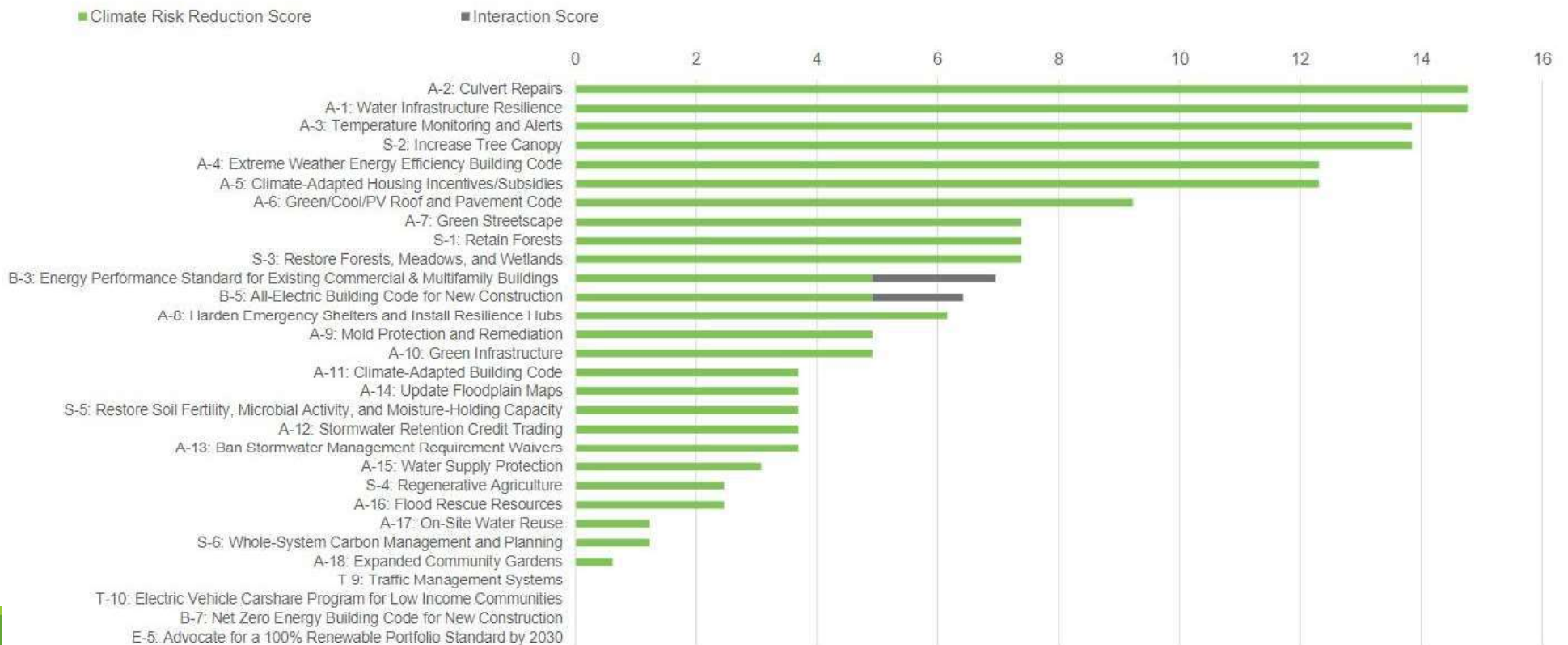
The GHG reduction and adaptation actions in the Plan were assessed for:

- **Primary benefits** - GHG emissions and climate risk reduction
- **Secondary co-benefits** - public health, environmental stewardship, economic prosperity, racial equity & social justice
- **Feasibility** - for example, authority level and financial need
- **Equity-enhancing measures** were developed to ensure that actions truly respond to the key issues and priorities of the County's most climate vulnerable communities.

Table 12: Co-Benefit and Feasibility Evaluation Criteria and Definitions

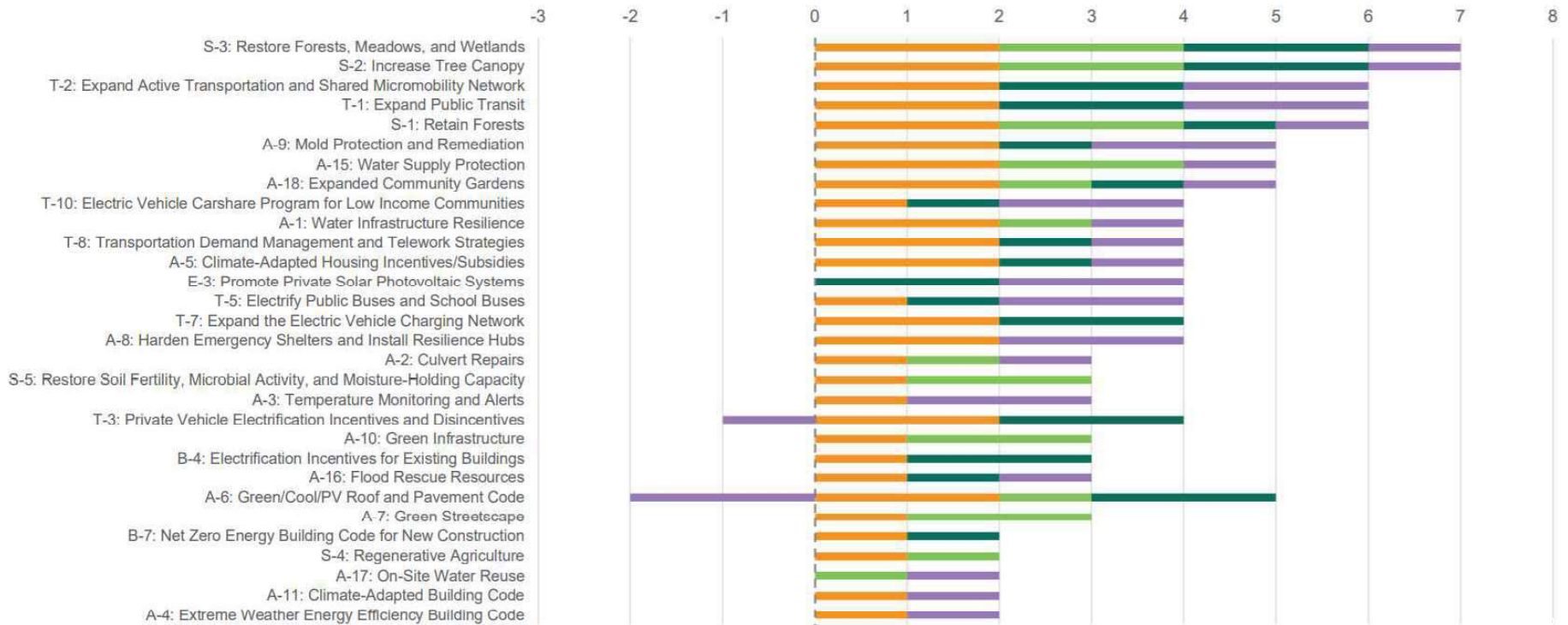
CO-BENEFITS	FEASIBILITY CRITERIA
<p>▶ PUBLIC HEALTH Increased life expectancy or reduced incidents of diseases or deaths attributed to air quality (indoor or outdoor), weather, poor sanitation, or lack of access to nutrients</p>	<p>▶ COUNTY AUTHORITY Does the County have the legal authority to implement this action or would it need to be implemented by another entity, such as the national government, a utility, or an agency outside of the County government, or by the private sector?</p>
<p>▶ ENVIRONMENTAL STEWARDSHIP Increased creation, preservation, or restoration of natural environments</p>	<p>▶ INITIAL INVESTMENT - COUNTY Beyond any funding that is currently secured or identified, how much total additional County investment would be required to implement the action (initial upfront costs)?</p>
<p>▶ ECONOMIC PROSPERITY Increased employment rate, access to quality jobs (full-time versus temporary; high-paying versus low-paying), income and social mobility, and/or total number of jobs</p>	<p>▶ INITIAL INVESTMENT - PRIVATE Beyond any funding that is currently secured or identified, how much total additional private investment would be required to implement the action (initial upfront costs)?</p>
<p>▶ RACIAL EQUITY AND SOCIAL JUSTICE When race can no longer be used to predict life outcomes, when all people have access to the same rights and systems, when there is a fair distribution of resources, and when life outcomes are improved for all groups</p>	

Climate Risk Reduction Potential of Actions



Actions with the Greatest Cumulative Co-Benefits

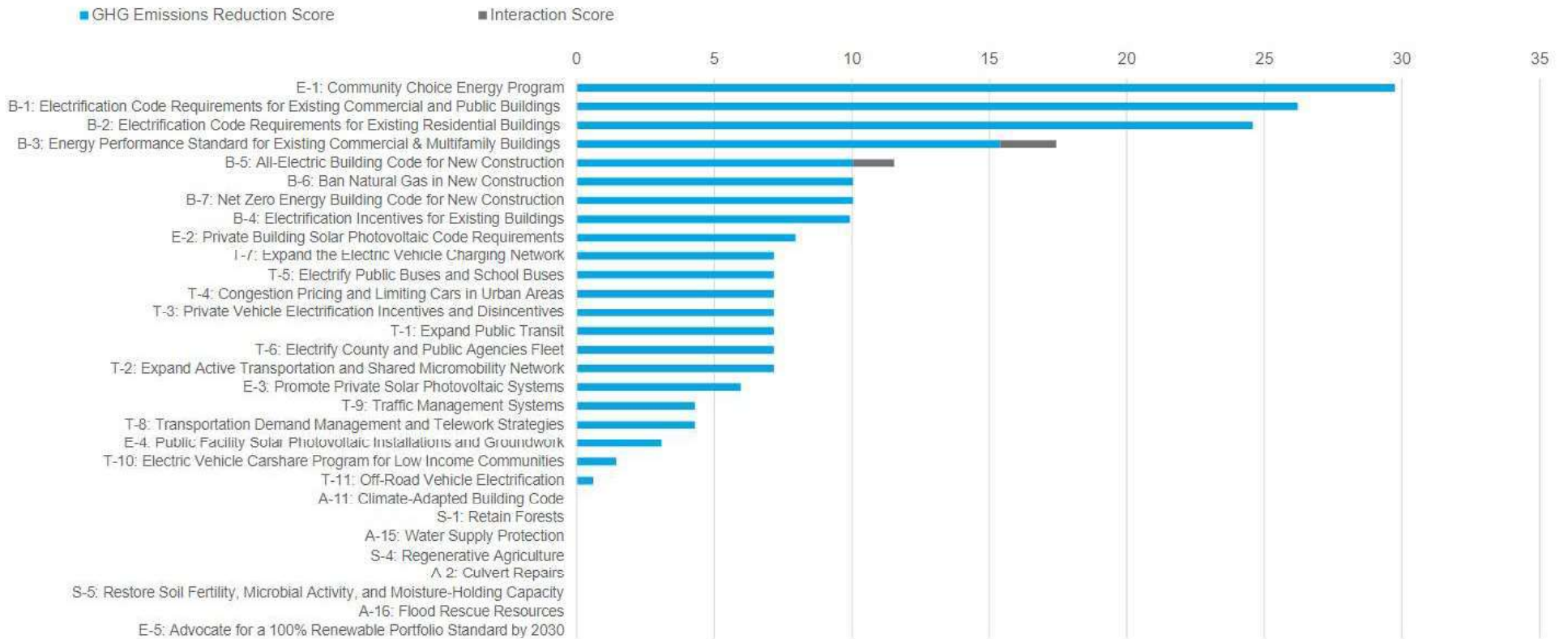
■ Public Health ■ Environmental Stewardship
■ Economic Prosperity ■ Racial Equity & Social Justice



Actions with the Highest County Authority & Initial Investment Feasibility



GHG Emissions Reduction Potential of Actions



Actions with the Highest GHG Reduction Impact

Actions the County is already actively focused on:

E-1: Community Choice Energy Program

B-3: Energy Performance Standard for Existing Commercial & Multifamily Buildings

B-7: Net Zero Energy Building Code for New Construction

Other actions with High GHG Reduction Impact:

B-1: Electrification Code Requirements for Existing Commercial and Public Buildings

B-2: Electrification Code Requirements for Existing Residential Buildings

B-4: Electrification Incentives for Existing Buildings

B-5: All-Electric Building Code for New Construction

B-6: Ban Natural Gas in New Construction



Governance Actions

The Plan identifies 16 climate governance actions, including:

- Identify and train departmental **“Climate Ambassadors”**
- Integrate climate considerations into the **budgeting process**
- Create **Environmentally Preferable Purchasing policy**; incorporate **green specifications** in RFPs
- Establish **Climate Impact Statements** to evaluate bills and land use decisions
- Identify existing and new **“climate relevant” staff positions**



Public Engagement, Partnerships, & Education Actions

The Plan includes 20 public engagement, partnerships, and education actions, including:

- Form a **climate change communication coalition** to coordinate outreach.
- Establish a **statewide coalition of local governments** focused on advancing ambitious state climate policy, such as a 100 percent Renewable Portfolio Standard.
- Engage County artists through **public art installations** to raise awareness and spark discussion and action.
- Further integrate **climate change into the MCPS curriculum** and provide **professional development for educators** on climate change.
- Conduct broad-based **public engagement campaign** to empower the public to reduce emissions and adapt to climate hazards, with a **particular focus on racial equity and social justice**
- Considering a “**Climate Justice Academy**” and graduating “**Fellows**” to be compensated

Other Sections of the CAP include:

- Personal Actions
- Connections to Thrive Montgomery 2050 Plan
- Connections to Zero Waste Planning and Initiatives
- Remaining Emissions Sources and Potential Reduction Strategies

Paying for Climate Action

- Implementing many actions in the CAP will require **substantial financial resources**.
- **County Government resources alone are not sufficient** to fully implement the Climate Action Plan.
- Implementing the actions in the Plan calls for commitment from **both the public and private sectors**, while **leveraging state and federal government resources**.
- The County will need to creatively pursue actions that provide multiple benefits.
- While the costs of implementing the CAP actions are high, the cost of inaction on climate change will be even higher.

From Planning to Implementation

- While the CAP is being finalized, the County is taking immediate action, including:
 - Advocating for a state bill on **Community Choice Energy**
 - Adopting **green building codes**
 - Developing **Building Energy Performance Standards**
 - Launching **FLASH bus service on US 29**
 - **Expanding Transportation Demand Management** efforts Countywide
 - **Electrification of public sector vehicles**
- Implementing many CAP actions will require:
 - Additional studies and analyses
 - Developing new policies and programs
 - Funding, staff support, and innovative financing
 - Tough conversations & political support/cooperation at local, state, and federal levels
- Our approach will need to be **flexible**. Some actions may change as CAP implementation begins, and new actions may be required over time.

Ways to Provide Feedback on the Draft CAP



- Complete a brief **survey** – available in 7 languages
- Email **questions or comments** to: climate@montgomerycountymd.gov
- Participate in the **Climate Action Plan Art Contest**
- Visit the **virtual information room**
- Public comment period is open until **February 28, 2021**.

MontgomeryCountyMD.gov/Climate



Next Steps

- **Review of public comments** – starting March 1st
- **Final Climate Action Plan** – anticipated release Spring 2021
- **FY22 Climate Work Plan** – to be released with the Final Climate Action Plan
 - *Climate work plan will include a list of the CAP actions that the County plans to focus on during the upcoming year.*
- **Sustainable Economic Development Report** – anticipated release Fall 2021

Upcoming CAP legislation/regulations coming to Council early 2021:

- **Building Energy Performance Standards** (Legislation)
- **2018 International Green Construction Code** (Executive Regulations)
- **Transportation Demand Management** (Executive Regulations)

Appendix – Full List of CAP Actions

Clean Energy Actions

E-1: Community Choice Energy Program

E-2: Private Building Solar Photovoltaic Code Requirements

E-3: Promote Private Solar Photovoltaic Systems

E-4: Public Facility Solar Photovoltaic Installations and Groundwork

E-5: Advocate for a 100% Renewable Portfolio Standard by 2030

Buildings Actions

B-1: Electrification Code Requirements for Existing Commercial and Public Buildings

B-2: Electrification Code Requirements for Existing Residential Buildings

B-3: Energy Performance Standard for Existing Commercial & Multifamily Buildings

B-4: Electrification Incentives for Existing Buildings

B-5: All-Electric Building Code for New Construction

B-6: Ban Natural Gas in New Construction

B-7: Net Zero Energy Building Code for New Construction

Transportation Actions

T-1: Expand Public Transit

T-2: Expand Active Transportation and Shared Micromobility Network

T-3: Private Vehicle Electrification Incentives and Disincentives

T-4: Congestion Pricing and Limiting Cars in Urban Areas

T-5: Electrify Public Buses and School Buses

T-6: Electrify County and Public Agencies Fleet

T-7: Expand the Electric Vehicle Charging Network

T-8: Transportation Demand Management and Telework Strategies

T-9: Traffic Management Systems

T-10: Electric Vehicle Carshare Program for Low Income Communities

T-11: Off-Road Vehicle Electrification

T-12: Advocate for a Vehicle Carbon Gas Tax

T-13: Advocate for Rail Alternative Fuels

Carbon Sequestration Actions

S-1: Retain Forests

S-2: Increase Tree Canopy

S-3: Restore Forests, Meadows, and Wetlands

S-4: Regenerative Agriculture

S-5: Restore Soil Fertility, Microbial Activity, and Moisture-Holding Capacity

S-6: Whole-System Carbon Management and Planning

Adaptation Actions

A-1: Water Infrastructure Resilience

A-2: Culvert Repairs

A-3: Temperature Monitoring and Alerts

A-4: Extreme Weather Energy Efficiency Building Code

A-5: Climate-Adapted Housing Incentives/Subsidies

A-6: Green/Cool/PV Roof and Pavement Code

A-7: Green Streetscape

A-8: Harden Emergency Shelters and Install Resilience Hubs

A-9: Mold Protection and Remediation

A-10: Green Infrastructure

Adaptation Actions (cont'd)

A-11: Climate Adapted Building Code

A-12: Stormwater Retention Credit Trading

A-13: Ban Stormwater Management Requirement Waivers

A-14: Update Floodplain Maps

A-15: Water Supply Protection

A-16: Flood Rescue Resources

A-17: On-Site Water Reuse

A-18: Expanded Community Gardens

A-19: Advocacy for Off-River Water Storage

A-20: Study Potential for Buildings in the County to Flood and Possible Remedies

Governance Actions

G-1: Build awareness among all Montgomery County Government staff about climate change

G-2: Establish a Climate Change Academy to integrate climate change training into the professional development of Montgomery County Government staff

G-3: Incorporate climate competencies into Montgomery County Government job descriptions and performance plans

G-4: Identify new positions that are needed for the County government to prepare for and respond to climate hazards, implement climate adaptation measures, and reduce greenhouse gas emissions

G-5: Establish a cross-departmental Climate Innovation Lab to develop, fund and implement climate and resiliency initiatives

G-6: Designate Climate Ambassadors within each County department

G-7: Evaluate and update county planning, policy, and operations activities to account for the risks of climate change impacts and prioritize the needs of vulnerable residents

Governance Actions (cont'd)

- G-8: Evaluate and update county planning, policy, and operations activities to reduce greenhouse gases
- G-9: Incorporate climate considerations into the County's budgeting processes
- G-10: Develop financing strategies for implementing climate actions and incorporate climate considerations into County finance practices
- G-11: Develop climate, energy, health and racial equity metrics and a data-driven assessment and reporting process
- G-12: Formalize the Climate Leadership Team to guide the implementation of climate plan actions
- G-13: Update the County's teleworking and transit benefit policies to encourage MCG staff to reduce vehicle miles traveled
- G-14: Establish Montgomery County Government carbon fund for air travel
- G-15: Consolidate County climate data
- G-16: Conduct climate vulnerability detailed assessments

Public Engagement, Partnerships, & Education Actions

P-1: Undertake vigorous public outreach campaign aimed at empowering the public with information on how to reduce emissions and adapt to the impacts from climate change

P-2: Conduct an outreach campaign that uses evidence-based communications strategies

P-3: Form a Climate Change Communication Coalition

P-4: Enhance County websites to focus more sharply on climate change

P-5: Expand and evolve the Resilience Ambassador program to advance racial equity and climate action

P-6: Establish a Racial Equity and Climate Change Task Force to advance racial equity and climate action

P-7: Use the Climate Energy and Air Quality Advisory Committee as a resource to advise the County on performance metrics and plan implementation

P-8: Facilitate ongoing input from community members on the CAP's implementation

P-9: Support the efforts of community organizations, businesses, and associations that promote and operationalize equitable climate action

P-10: Engage County artists through public art installations to raise awareness, discussion and action on climate change

Public Engagement, Partnerships, & Education Actions (cont'd)

-
- P-11: Establish a statewide coalition of local governments focused on advancing ambitious state climate policy by collectively advocating their positions before the state legislature, Public Services Commission, and the utility companies
 - P-12: Establish partnerships with federal agencies located within the County's boundaries on GHG mitigation and climate resiliency efforts
 - P-13: Advocate for the continued integration of climate change education into the existing school curriculum
 - P-14: Develop a standardized climate change curriculum across public schools and recommend the same for private schools and home schools
 - P-15: Provide professional development for educators on climate change topics
 - P-16: Use school gardens or other outdoor learning facilities as a jumping off point to address a multitude of climate related topics
 - P-17: Develop increased opportunities for students to participate in climate change learning experiences outside of the classroom
 - P-18: Develop sustainability goals for schools to reach and provide incentives to do so
 - P-19: Encourage climate change action at home
 - P-20: Establish cross-departmental partnership to facilitate implementation of climate goals at County schools



MONTGOMERY COUNTY CLIMATE ACTION PLAN

Building a Healthy, Equitable, Resilient Community

PUBLIC DRAFT





Breewood Bioretention Basin, which increases stormwater infiltration in the Sligo Creek watershed before it drains into the Breewood Tributary

Letter from County Executive



Marc Elrich

We are facing a climate emergency. Montgomery County’s climate goals—to reduce our community-wide greenhouse gas emissions 80% by 2027 and 100% by 2035—are among the most ambitious in the country and the world. This plan is Montgomery County’s strategic roadmap to achieve our climate goals.

The plan also includes strategies for climate adaptation and resilience. We are already feeling the impacts of climate change here in our County—hotter summers, increased flooding events, and more extreme storms. The strategies outlined in this plan prioritize those in our community who are most vulnerable to the impacts of climate change and identify opportunities and co-benefits to enhance racial equity while reducing emissions.

I wanted to include as many knowledgeable and dedicated people as possible in the development of this plan. Many Montgomery County residents have tremendous expertise in climate and energy issues. I decided to tap the community and their expertise in the County’s climate planning work. The hundreds of ideas generated by our residents are reflected throughout this plan. I am incredibly grateful to all of you who worked so hard and who carved out so many hours to lay the foundation for this important work.

The climate plan was developed in the midst of the COVID-19 pandemic, which has sharply highlighted the existing inequities in our own community. The pandemic has also created a global recession that will significantly constrain the County’s fiscal capacity. Given limited resources, we have no choice but to address COVID-19, climate change, economic disruption, and racial inequity simultaneously. But doing so makes great sense regardless of our fiscal circumstances because these issues are fundamentally intertwined, and thus require integrated strategies that cut across sectors. We cannot address climate change without recognizing its disproportionate impacts on certain segments of our population. We cannot mobilize community members to reduce emissions if they are overwhelmed by COVID-19, and we cannot rebuild our economy without considering both racial equity and climate change.

The recommendations outlined in the following pages reflect a future reimagined, one in which our buildings, transportation system, government processes, consumption patterns, and community engagement efforts are all realigned to meet our generation’s greatest challenge.

We need to do everything we can, and we need all-hands-on-deck. Please let us know what you think of the draft plan so that we can incorporate your thoughts into the final plan, and please submit your vision for a healthy, clean, and equitable County, through the [County climate website](#). This is, after all, your plan, and we need your help in creating the future we all desire.

Montgomery County, let’s roll up our sleeves and write this groundbreaking next chapter together!

Although the path ahead will not be easy, it will also be a path of opportunity—a path to improve our quality of life while reducing emissions, to address racial and public health disparities while implementing climate solutions, and to strengthen the bonds of community as we collaboratively forge a brighter future.

Our Vision for Building a Healthy, Equitable, Resilient Community



Clean Energy

Montgomery County uses and invests in clean, reliable, affordable electricity.

- Ensure broad access to affordable zero-carbon electricity.
- Create clean energy jobs, secure funding to support clean energy, and optimize economic activity in clean energy.
- Expand renewable electricity generation and use of distributed energy resources.



Buildings

Montgomery County is home to resilient and efficient buildings.

- Increase energy efficiency in all buildings, with the County leading by example with its own building portfolio.
- Support sustainable, carbon-neutral building design and improvements.
- Expand access to financing and programs to construct or upgrade resilient, efficient buildings.
- Create jobs and grow the workforce by transitioning to resource-efficient, low-carbon, resilient buildings.



Transportation

Montgomery County safely, affordably, and sustainably moves people and connects places.

- Introduce new technologies and approaches to greening the transportation system.
- Electrify vehicles and expand the supporting infrastructure.
- Provide clean, efficient, frequent, and reliable public transit.
- Increase active transportation options like biking and walking, and micromobility services, with safe, supportive infrastructure.



Carbon Sequestration

Montgomery County has preserved and enhanced its nature-based solutions, including forest and wetland ecosystems, greenspaces, and trees, while reversing carbon dioxide emissions.

- Work across sectors and integrate nature-based solutions.
- Support and implement policies and strategies for land conservation.
- Retain, increase, and restore terrestrial ecosystems including forests, wetlands, green spaces, and urban trees.



Climate Adaptation

Montgomery County is equipped with the resources and infrastructure to withstand the impacts of climate change.

- Prioritize people and communities that are the most vulnerable and the most sensitive to the impacts of climate change.
- Provide suitable infrastructure and tools to reduce the risks and impacts of more extreme climate hazards.
- Protect public health from climate-driven impacts.



Climate Governance

Montgomery County is institutionalizing an organizational culture and structure that fosters creativity, cross-department collaboration, and innovation to implement systemic climate solutions.

- Align and orient staffing, technical capacity, processes, and decision-making to address climate change.
- Embed continuous improvement and accountability into ongoing work.
- Utilize all policy and process levers of government to spark multiplier effect.



Public Engagement, Partnerships, and Education

Montgomery County's community members are empowered, engaged, and motivated to take action on climate change, while striving for equity among all members of the community.

- Create authentic and inclusive community engagement, particularly with Black, Indigenous, and People of Color residents and communities most vulnerable to the impacts of climate change.
- Build strategic partnerships among Maryland counties to result in ambitious state climate policies.
- Empower youth to take action at home and in their community.
- Build community trust and partnerships with residents, and provide them with relevant tools and resources.

Executive Summary

The Climate Action Plan (CAP) (also referred to as "the Plan") is Montgomery County's strategic plan to cut greenhouse gas (GHG) emissions 80% by 2027 and 100% by 2035 compared to 2005 levels. The CAP also details the effects of a changing climate on Montgomery County and includes strategies to reduce climate-related risk to the County's residents, businesses, and the built and natural environment. The 87 climate actions outlined in the CAP outline the path to meet the County's ambitious climate goals while building a healthy, equitable, and resilient community.

Call for Action

The CAP was spurred by the Montgomery County Council's Emergency Climate Mobilization Resolution, which set the ambitious community-wide GHG emissions reduction goals compared with 2005 levels. The Resolution recognized the existential threat that climate change poses to human society and to natural ecosystems and called for Montgomery County to play a leadership role in modeling strategies to safeguard the planet.

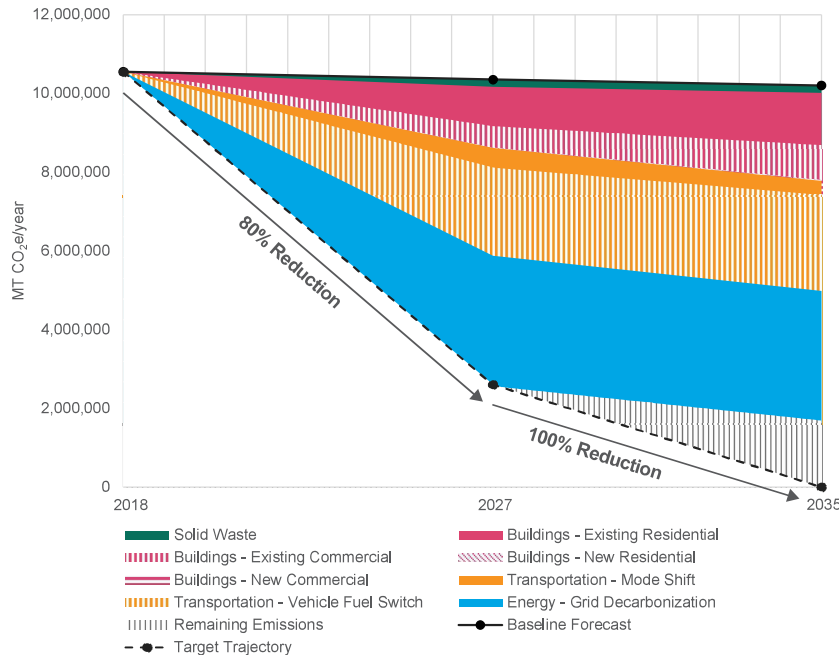


Figure ES-1: Montgomery County GHG emissions reduction pathway across the County's major GHG emissions sectors

The Plan's Approach

The Climate Action Plan identifies Montgomery County's major GHG emissions sectors, including energy supply, buildings, and transportation, and lays out actions to directly reduce GHG emissions in these sectors. The Plan defines an emissions reduction pathway to show how the County can meet its 80% reduction by 2027 goal and come close to meeting its 100% reduction by 2035 goal.

Actions in Energy, Buildings, and Transportation Sectors

Achieving the County's climate goals will require transitioning the electricity grid to clean energy by 2030. The County will need to leverage both energy efficiency and distributed renewable energy resources to reduce the amount of electricity consumed in the County that is provided from the electric grid, while at the same time working diligently for a carbon-free electric grid. To reduce GHG emissions from the residential and commercial building sector, the County will need to deploy a combination of energy performance standards, code requirements, and incentives to support 100% building electrification by 2035.

To reduce transportation emissions, 100% of private and public transportation options in the County will need to be electrified or use other zero emissions power sources by 2035. Mode shifting to transit and active (walking, bicycling, etc.) transportation will also be necessary to reduce private vehicle use. The County will need to support programs and resources, such as educational campaigns and financing tools, to support Electric Vehicle (EV) adoption. An expansive, accessible public EV charging infrastructure network will be needed to support widespread EV adoption.

Addressing Residual Emissions and Carbon Sequestration

Even with implementation of all the Plan actions, there will still be some residual GHG emissions from smaller emissions sources such as wastewater or remaining emissions from larger sources such as transportation that equate to approximately 17% of total projected 2035 emissions. Given the County's ambitious goals,

it is important for the County to first focus time and resources on implementing actions with the largest GHG emissions reduction potential. Full elimination of the County's GHG emissions in 2035 will involve implementing carbon sequestration actions identified in the Plan, cutting emissions in smaller emissions source areas, and exploring the use of new technologies.

Carbon sequestration can offset emissions by capturing and storing carbon dioxide from the atmosphere. The Plan identifies nature-based carbon sequestration actions, including retaining, managing, and expanding forests, wetlands, and grasslands, as well as individual trees and small groups of trees that comprise the urban forest. Carbon sequestration actions also include increasing carbon in soils and improving agricultural practices.

Reducing Climate Risk

The Climate Action Plan identifies the County's four largest and growing climate hazards: extreme heat, extreme precipitation, high winds, and drought. The Plan includes actions the County can take to reduce the risk of negative impacts from climate change ("climate risk") by enhancing the resilience of our community and infrastructure assets. The Plan also identifies actions that are impactful at both reducing GHG emissions as well as reducing climate risk. In particular, the plan identifies communities in the County that are likely to have less ability to adapt to the impacts of climate change, as well as physical assets that are of critical importance that may be at higher risk.

Racial Equity and Social Justice

Climate change affects everyone, but it does not affect all equally. Therefore, the Climate Action Plan considers the racial equity and social justice implications of each climate action and identifies equity-enhancing measures designed to address these inequities. During further development and implementation of the actions in this plan, these equity considerations should be discussed and addressed in collaboration with the community.

Governance

Combating climate change requires an organizational backbone. The CAP includes actions to help institutionalize climate change considerations in Montgomery County Government operations and decision-making. Implementing climate governance will also foster opportunities for creativity, collaboration, and innovation among County staff and community partners to implement climate solutions.

Public Engagement

The success of the CAP will be based largely on the degree to which community members are actively engaged and participating. To that end, the Plan includes actions to enhance climate communications to the general public; standardize authentic and inclusive community engagement that creates new entry points for residents to be involved in climate action; strengthen state and regional coordination and collaboration; develop new strategic partnerships to galvanize support across key stakeholder organizations, communities, and jurisdictions; and provide increased opportunities for educating students about climate change, and to empower them to take action at home and in their community.

Building the Plan and Ongoing Efforts

The actions and technical analysis presented in the Plan build upon the work of countless dedicated County employees, volunteer members of the climate workgroups, and community groups. Montgomery County is already taking steps to implement some of the Plan actions, while other actions will require additional analysis and detailed feasibility work prior to implementation. Further development and implementation of these actions will take continued community involvement and support in the months and years ahead. As new opportunities and GHG reduction approaches emerge that were not envisioned in the CAP, the County’s approach to implementing the Plan will evolve over the years.

Resources

Montgomery County’s climate goals are among the most ambitious anywhere in the country—and the world. Achieving the County’s zero emissions goal by 2035 will require implementing big ideas and small ideas alike—across all sectors of the community. Putting many of these ideas in place will require substantial financial resources, sometimes on the order of hundreds of millions of dollars or higher. Meeting the County’s climate goals will also require advocating for policy changes beyond the County’s borders.

The sheer scale of the work that must be done means that Montgomery County will not be able to fully implement the CAP by relying on County Government resources alone. County Government revenues are not sufficiently large to single-handedly shoulder the cost of this extent of climate action. Implementing the actions outlined in the Plan calls for commitment from both the public and private sectors, while leveraging state and federal government resources.

Path to a Brighter Future

Although the path to meeting the County’s climate goals will not be easy, it will also be a path of opportunity. The actions outlined in the CAP lay the path to improve our health and quality of life, address racial disparities, and strengthen the bonds of community as we set an example we hope will inspire other communities around the nation and the world to join us in collaboratively forging a safer and brighter future.

Climate Planning Principles

The plan is a reflection of our fundamental values as a community, and its development was guided by the following principles. These climate planning principles will continue to guide the County in the development and implementation of the proposed CAP actions and in the monitoring of progress toward a zero-carbon future.

-
- **Think transformationally** – Big, out-of-the box thinking was encouraged; no idea was dismissed as being “impractical.”
 - **Advance racial equity and social justice** – Actions that have the potential to exacerbate existing inequities should include corrective, neutralizing measures; to the extent possible, actions should advance racial equity and social justice.
 - **Use all levers of government** – There are a multitude of strategic “pressure points” at our disposal that can have a multiplier effect. From our budgeting and procurement processes to our building codes, such levers should be used to spark cascading changes.
 - **Engage community members where they are** – To be successful, the Plan must engage our residents and businesses. While climate awareness levels are relatively high in Montgomery County, we must devise climate solutions that tie to the day-to-day challenges faced by our community members, be it health, safety, equity, or financial stability.
 - **Work together** – Truly comprehensive solutions are achieved by working together, both within government and with the private sector.
 - **Embrace our diversity** – The County is fortunate to have many residents who come from different backgrounds, cultures, and locations around the world, whose perspectives we welcome; let’s take advantage of that wealth of experience to introduce new ideas and concepts.
 - **Take risks** – While safeguarding the use of taxpayer dollars is always paramount, we must cut new paths and be okay with the prospect of failing from time to time.
 - **Act while planning** – The climate planning process has not been a substitute for immediate, ongoing, impactful action on climate change. The County is already making progress **on policies and programs that make sense for us to pursue immediately.**
-