


CLIMATE ACTION PLAN

DRAFT PLAN AS PREPARED BY

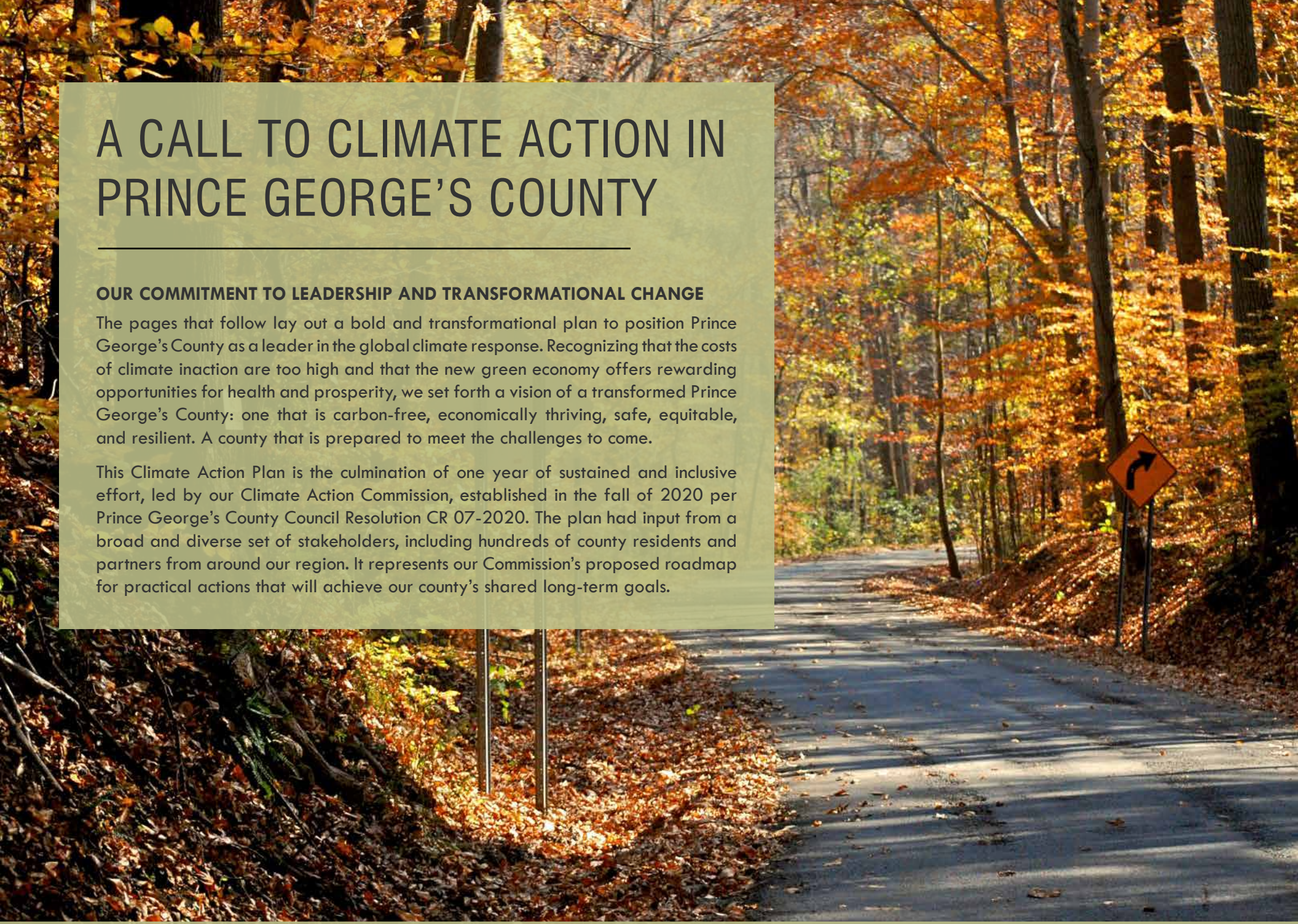
PRINCE GEORGE'S COUNTY CLIMATE ACTION COMMISSION

NOVEMBER 1, 2021




Angela D. Alsobrooks
County Executive

PRINCE GEORGE'S | COUNTY COUNCIL



A CALL TO CLIMATE ACTION IN PRINCE GEORGE'S COUNTY

OUR COMMITMENT TO LEADERSHIP AND TRANSFORMATIONAL CHANGE

The pages that follow lay out a bold and transformational plan to position Prince George's County as a leader in the global climate response. Recognizing that the costs of climate inaction are too high and that the new green economy offers rewarding opportunities for health and prosperity, we set forth a vision of a transformed Prince George's County: one that is carbon-free, economically thriving, safe, equitable, and resilient. A county that is prepared to meet the challenges to come.

This Climate Action Plan is the culmination of one year of sustained and inclusive effort, led by our Climate Action Commission, established in the fall of 2020 per Prince George's County Council Resolution CR 07-2020. The plan had input from a broad and diverse set of stakeholders, including hundreds of county residents and partners from around our region. It represents our Commission's proposed roadmap for practical actions that will achieve our county's shared long-term goals.

ABOUT THIS PLAN

The plan summarizes the climate threats in our county as we understand them, as well as our progress to date in advancing climate action, particularly in reducing greenhouse gas emissions. Building on this information, it presents strategies to achieve a carbon-free, resilient Prince George's County. **We see clear opportunities in three broad areas: Cleaning up internal County operations so that our systems and processes are as climate-friendly as possible; reducing our contributions to greenhouse gas emissions; and taking steps to prepare our community for the coming impacts of a changing climate.**

The Prince George's Climate Action Plan is a call to action. It asks us – and particularly our County leaders – to make transformational commitments that will guide our behavior in the coming years and requires that every Prince George's County resident change the way that we live, work, and play.

We must commit to the following:

#1 Climate Leadership

#2 Community Health

#3 Transition to Renewable Energy

#4 Clean Transportation

#5 Green Business Development

#6 Residential Resilience

7 Justice and Equity

#8 Public Engagement

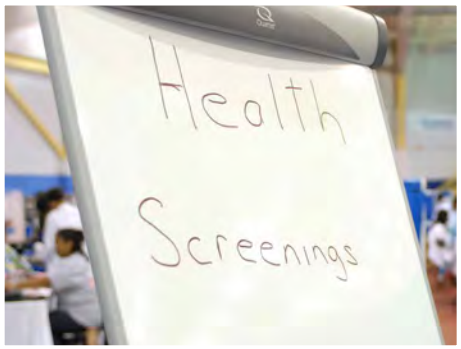
#1 COMMIT TO LEADERSHIP IN THE GLOBAL CLIMATE RESPONSE

Bold and decisive leadership may be the single most important ingredient in a successful climate response. As described in the pages that follow, Prince George's County has already proven itself a leader in the environmental movement at the regional, state and national levels. It now has an opportunity to blaze the trail as a vanguard in climate mitigation and adaptation. In 2021, two-thirds of Americans state that Climate Change should be a top priority and 37% of our young people believe it should be our nation's top concern – above even the economy, housing, and jobs. As we go into 2022, rise from a pandemic that has gripped our country for nearly two years, and look forward to a new future that we have the opportunity to build back better.

Leaders at every level of County government – the County Executive, County Council Members, other elected and appointed officials – must integrate climate considerations into all aspects of local decision-making, as well as to advocate for state and national change. This plan highlights opportunities for our County government to lead by example in tackling greenhouse gas emissions and implementing adaptation strategies.

#2 COMMIT TO COMMUNITY HEALTH

The impacts of climate change pose stark threats to human health, a fact highlighted in Prince George's County's 2019 Community Health Assessment. The health and safety of our residents must be paramount in our county's climate action planning. Human health should be a key indicator in prioritizing and assessing our mitigation and adaptation strategies.



#3 COMMIT TO RENEWABLE ENERGY

The costs of the fossil fuel economy are now widely well-known. Prince George's County must undertake a community-wide, just and equitable transition away from fossil fuels and toward renewable sources of energy. Our county should be a place of economic opportunity for alternative energy development as well as innovations in energy efficiency. We must advance policy and investment decisions to accelerate the use of renewable energy within government and across the community.

#4 COMMIT TO SMART GROWTH AND TRANSPORTATION

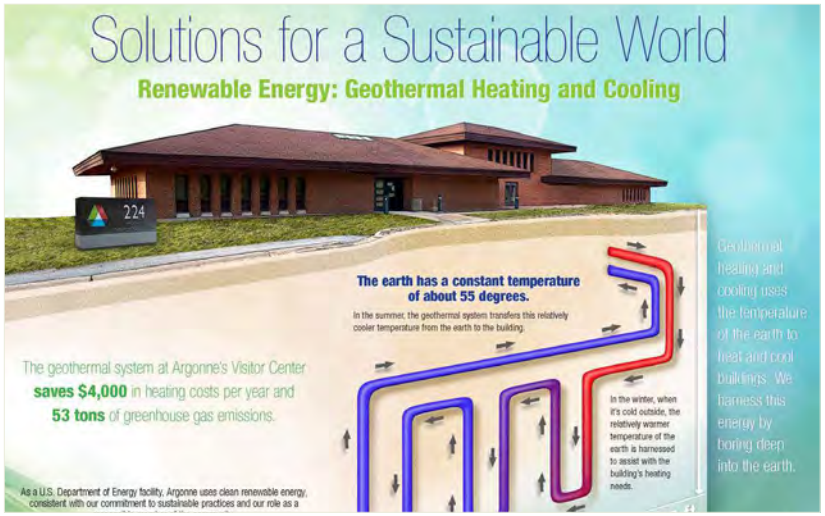
Transportation is the number one contributor to greenhouse gas emissions in the County. To reduce these emissions – as well as improve residents' health and safety – a key strategy is to reduce vehicle miles traveled by making the land use decisions and transit investments that support alternative modes of transportation. By adhering to the County's existing land use policies and recommitting to genuine smart growth practices, which includes using more nature-based solutions, Prince George's County can advance multiple community priorities including decreasing the impacts of excess heat and extreme precipitation. An important secondary strategy is to transition to clean transportation solutions such as electric cars and buses that are powered by a clean (renewable energy-powered) electrical grid.

#5 COMMIT TO GREEN BUSINESS DEVELOPMENT

With its educated workforce, world-class universities, and access to state and national leadership, Prince George's is well-positioned to lead the green technology revolution. While technology cannot solve every challenge, opportunities abound to innovate in green energy, waste diversion, carbon capture, low-impact development, and many other aspects of climate mitigation and adaptation. Our leadership must commit to making Prince George's County a desirable place for green businesses to form, grow, and thrive. This might entail investing in STEM and environmental education, committing to smart development that attracts firms and workers, and adopting regulations and incentives that support the kind of business practices we wish to welcome.

#6 COMMIT TO RESIDENTIAL RESILIENCE

Prince George's County must commit to protecting residential homes and personal property – our residents' most valuable assets – from catastrophic effects of climate change including extreme storms and flooding. In addition, the County can support residential resilience by encouraging the installation of distributed renewable energy systems (especially solar), incentivising energy efficiency upgrades, and developing shelters or hubs to keep individuals safe during emergencies. The county should also work to ensure the availability of safe, efficient, affordable homes for families at all income levels.



#7 COMMIT TO A JUST AND EQUITABLE FUTURE

Climate action in Prince George's County must be guided by a commitment to embrace equity in all aspects of planning and implementation. Ensuring a healthy, resilient future for all residents means seeking to understand current disparities, promote inclusive involvement, and advance equitable outcomes in our communities. Only together can we work to envision, plan, and build an inclusive, prosperous and resilient future.

#8 COMMIT TO PUBLIC ENGAGEMENT

Prince George's County must reaffirm its commitment to listen to residents' concerns, questions, and ideas about our community's future. Many of the climate strategies identified in this plan require the active participation of residents and businesses. To gain their trust and collaboration, the County must provide accurate data on climate impacts, communicate clearly about proposed mitigation and adaptation strategies, and advance a transparent process for tracking progress toward our goals.

PRINCE GEORGE'S COUNTY
CLIMATE ACTION COMMISSION

With commitment and hard work, we believe it is possible to achieve a transformed Prince George's County – one that is carbon-free, safe, healthy, prosperous, equitable and resilient. While we will undoubtedly make missteps along the way, we know the strategies and actions that will set us on the right path. The time to start is now.

Prince George's County Climate Action Commission

- October 2021-

PRINCE GEORGE'S COUNTY CLIMATE ACTION COMMISSION

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ACKNOWLEDGEMENTS

This draft Plan is the culmination of efforts by the Prince George's County Climate Action Commission, community members, County personnel and the consulting team. Their thoughtful contributions of ideas, material, time, and expertise have assisted in developing a strong and implementable approach to climate action and adaptation. The Climate Action Commission would like to acknowledge the following working groups and individuals.

WORKING GROUPS

PUBLIC OUTREACH AND EDUCATION

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COUNTY COUNCIL ADMINISTRATIVE SUPPORT

Special thanks to Kenneth Battle, Director of Transportation, Infrastructure, Energy & Environment Committee, County Council, who served as the liaison between the Climate Action Commission and the County Council. Mr. Battle provided invaluable guidance on Commission protocol and assistance with scheduling and administering Commission meetings.

TECHNICAL ASSISTANCE

The draft Climate Action Plan was prepared with assistance of a consultant team comprised of Metropolitan Washington Council of Governments, The Cadmus Group, Low Impact Development Center, and the University of Maryland – Environmental Finance Center. Professionals from these firms provided research, assisted with public outreach and prepared written material for inclusion in the draft Plan.

PRIME CONSULTANT

MWCOG, under the leadership of Jeffrey (Jeff) King with assistance from Maia Davis, served as the prime consultant for plan development. Their technical expertise, time and unique ability to readily access and share crucial regional planning information and data proved to be invaluable throughout the planning process. MWCOG prepared the County Greenhouse Gas Inventory, developed the Climate Partners Website, served on the Climate Action Commission, supported working groups and committed staff resources to assist the Commission with developing the draft Climate Action Plan in a condensed timeframe.

COMMUNITY ENGAGEMENT

University of Maryland Environmental Finance Center (UMD-EFC) and Justice and Sustainability Associates (JSA) supported outreach events. Professionals from these firms provided research, designed outreach material, organized events, and facilitated discussions.

PUBLICATION DESIGN

The Prince George's County Department of the Environment Communications Office, under the lead of Linda Lowe, Public Information Officer, contributed to layout and organization of the draft Climate Action Plan. Low Impact Development Center, under the lead of Emily Clifton, Associate Executive Director, finalized the draft Climate Action Plan with design work, technical writing and editing assistance.

TECHNICAL ASSISTANCE

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STAFF TO THE COMMISSION

The creation of this document could not have been made possible without the support of Mary Abe, Section Head, Natural Resources and Stewardship, Department of the Environment (DoE) and Brandy Espinola, Program Manager, University Environmental Finance Center. Ms. Abe served as project manager for this draft Plan with content, editing assistance, community engagement and other support provided by the consultant team and the Department of the Environment. Ms. Espinola led working groups, planned and facilitated community meetings with assistance of UMD-EFC staff and provided other project management assistance. Ms. Abe and Ms. Espinola were also major contributors to the content of this Plan.

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I. VISION FOR PRINCE GEORGE'S COUNTY:

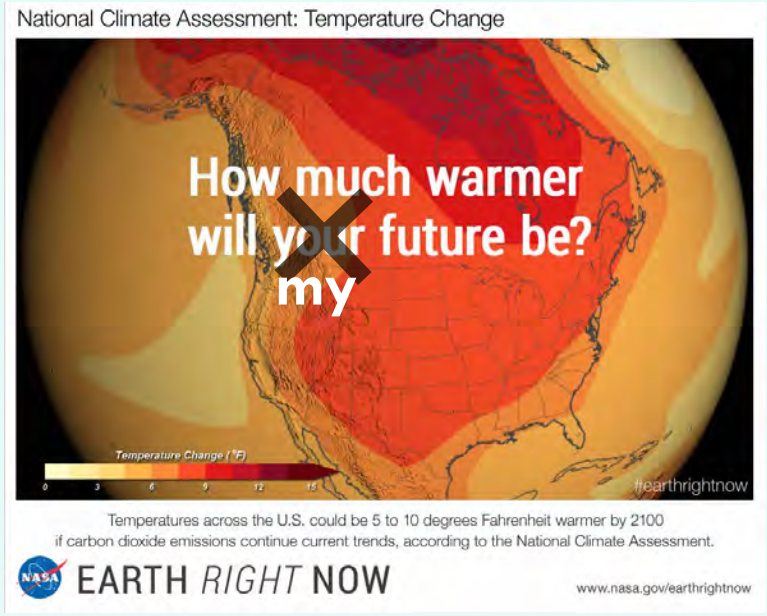
A LEADER IN TRANSITIONING TO A LOW CARBON RESILIENT FUTURE

The Prince George's County Climate Action Plan is an urgent call to action. It urges our County government to take immediate action to implement policies, programs and strategies that will meet the challenge of global climate change as it manifests in our community. While scientists have warned of the impacts of greenhouse gas emissions on the stability of the climate for decades, these impacts are now being realized and they require fundamental changes at all levels of society and governance, in how we generate energy, transport ourselves, design buildings, and manage natural resources.

Prince George's County has an opportunity to not only protect our community from the impacts of a changing climate, but also to be a proactive leader in modeling the transition to a carbon-neutral and climate-ready future.

"The fate of our world depends on the leaders around the world today. As a young person, it often feels like those who have contributed the most towards climate change really don't care about the implications it has on our futures. We are going to face worse consequences, worse than what we face presently. I'm unsure what my future will look like; I want to have children, but in a few years even that idea may be morally and ethically wrong. Taking a look around the world, California is burning, sea levels continue to rise and the oceans continue to warm as glaciers melt. The fact of the matter is that we, people of all ages today; are responsible for protecting our world and ensuring that there is a safe future for the billions of people that come tomorrow. I can't pass laws and policies, but I can and will continue to use my voice to advocate and fight for a better and brighter future for all because I care. Now, for those who read this, do you care?"

- Nithin Gudderra, Prince George's County resident and student of Oxon Hill High High School, October 2021



THE GLOBAL CLIMATE RESILIENCE MOVEMENT IS UNDERWAY

In 2021, the Intergovernmental Panel on Climate Change (IPCC), a body of the United Nations that assesses the science related to climate change, released its Sixth Assessment Report. The assessment finds that the global average temperature is likely to warm 1.5 degrees Celsius even if significant action is taken today to curb emissions.[1]

While 1.5 degrees will result in pronounced negative climate change impacts, the scientific consensus is that an increase above 2 degrees will trigger the most catastrophic changes, including more intense and frequent storms, sea level rise, flooding, heat waves, droughts, species extinction, and increased pests and infectious disease spread. To stay below this threshold likely requires carbon neutrality by 2050.

In support of this global imperative, on Earth Day 2016, nations worldwide came together to sign the Paris Agreement, a commitment to limiting global temperature rise to 2 degrees Celsius while pursuing the more ambitious goal of 1.5 degrees Celsius.[2] President Biden recommitted the U.S. to the Paris agreement in February 2021.

THE GREEN CHOICE OF FRANCE: PLANTS OR SOLAR PANELS FOR ALL NEW BUILDING ROOFTOPS

"Take a minute to visualize the ideal urban landscape of the future. How does it look? Full of flying cars and soaring glass skyscrapers? I doubt it. I imagine your ideal vision is similar to mine, cities and towns where gray concrete is replaced by parks, gardens, green roofs and green walls. Places that are climate resilient, energy efficient and carbon neutral. Places where communities and biodiversity can thrive in naturally beautiful surroundings. In other words, urbanscapes inspired by green infrastructure. It sounds like science fiction, but I believe we are now closer than ever to creating solid foundations for this future. Green infrastructure is increasingly playing an important role in European policy-making from climate change, energy efficiency, biodiversity and building renovation to post-pandemic recovery, waste water management and even building aesthetics."

- Jure Šumi, Representative and Spokesperson of the European Business Group at the World Green Infrastructure Network

OVER THE NEXT 30 YEARS, THE SHIFT TO A CARBON-FREE ECONOMY WILL BE TRANSFORMATIVE

Like any economic transition, moving the transition to a new carbon-free economy will create opportunities and challenges. The Prince George's Climate Action Plan aims to position the County to be a leader in the climate transition. Making this transition will reduce the impacts of climate change in our county and it will offer economic opportunities. By implementing the Priority Recommendations contained in this plan, Prince George's County can reduce energy use, limit loss from flood, decrease health care costs, and create opportunities for residents to have well-paying green jobs.

Prince George's County Climate Action Plan is only the beginning and will set us on a path of transformational changes to reduce our carbon emissions by 50% by 2030, compared with 2005 levels, with the ultimate goal of achieving carbon neutrality by 2050.

While the Climate Action Plan outlines bold action for County government, it also seeks to empower residents and businesses to bring about these changes and help create a future where all residents share the benefits of healthy air, clean water, job opportunities, and safe places to live, work, and play.

The Plan guides us towards investments in infrastructure that will serve us well in the future: renewable energy systems, low-carbon transportation, smart growth communities, and resilient water, energy, and transportation systems. It calls on the County to capture the benefits of the new green economy by ensuring that today's investments – in buildings, infrastructure, our workforce – advance our climate goals rather than continuing to support the fossil fuel economy. For example, building new fossil fuel power plants is a liability creating a future "stranded asset" that the County will be left to contend with when the system is soon rendered obsolete. Similarly, fossil-fuel heating systems, gas-powered vehicles, and sprawling development are all unwise investments that will create more costs than benefits in a future where the County is committed to mitigating greenhouse gas (GHG) emissions and adapting to climate change impacts.

WE CANNOT AFFORD INACTION

The growing impacts and costs of climate-related disasters are now being felt by communities everywhere, including in Prince George's County. In 2019, extreme heat was responsible for more than twenty deaths in the County.[3] These extreme temperatures are expected to increase, occurring more often and for longer durations. Flooding is also increasing; between 1996 and 2016, the County recorded thirty-three historical flood events, with an average of $14,200 in total damages per year,[4] and a study by the Maryland Department of Environment and Salisbury University found that Prince George's County is among the top counties for the greatest number of buildings that are vulnerable to 100-year flood events. Potential losses from future flood events are estimated at $1.28 billion, or 15% of the state total.[5]

We are also seeing the global market respond to the climate crisis, putting cities that do not prepare for climate impacts at financial risk. A recent report by the Center for Climate and Energy Solutions found that the insurance and financial industries are becoming increasingly focused on climate resilience. Credit rating agencies and investors, such as BlackRock, Vanguard, and State Street Global, are already starting to factor in climate risk into their investment portfolios and decision-making practices. This means that cities which are not prepared for climate impacts may receive lower credit ratings and encounter higher borrowing costs.[6]

As we developed this Climate Action Plan, we witnessed record-breaking flooding in Germany, the Netherlands, and China, as well as record-breaking wildfires and hurricanes in our own country. It is clear that we must act now! We must reduce our contribution to the climate crisis as well as prepare our county for the impacts we will likely face. Failing to act would not only threaten our infrastructure and financial security, but also endanger human lives. Investing in our County's resilience today helps to ensure we can continue to invest in our community into the future.

OUR GUIDING PRINCIPLES

To guide our climate action planning effort and the development of our **Priority Recommendations**, the Climate Action Commission (CAC) adopted a set of guiding principles. These principles served as guideposts, helping ensure that our recommended actions are consistent with our community's goals and values.

Feasible and Actionable: Prioritize actions that are specific and technologically, financially, and legislatively feasible. Prioritize actions for which the County can take specific steps toward implementation within five years.

Bold and Ambitious: Pursue an ambitious set of actions that establish the County as a regional leader and acknowledge that a 'business-as-usual' approach will not be adequate for addressing the challenges posed by climate change.

Evidence-based and Impactful: Use the best available data to guide the development and prioritization of actions. Prioritize actions that have the most significant impact on GHG emissions reduction, climate change preparedness, and associated co-benefits (economic development, public health, social equity).

Equitable and Inclusive: Understanding that climate change will have its most significant impact on communities already overburdened with health disparities and economic challenges, prioritize actions for equitable outcomes; identify strategies to ease adverse impacts of necessary change; and invest in communities with the greatest need.

Transparent and Verifiable: Develop a fact-based plan that both follows an open decision-making process and ensures the ability to accurately track progress towards the goals identified in the plan using specified metrics.

Comprehensive and Integrated: Pursue a set of actions that acknowledges and addresses interactive effects across sectors and that will work across sectors to meet common goals and achieve efficiencies whenever possible.

ENSURING JUST AND EQUITABLE CLIMATE FUTURE

Prince George's County's vision for a resilient future can only be achieved if we address existing racial and ethnic disparities in our county and work toward solutions that benefit all county residents. While climate change will impact quality of life for all our residents, we recognize that persistent systemic inequities continue to place certain portions of the population – especially communities of color and low-income individuals – at increased risk. Historically, these communities have suffered higher than average levels of air pollution, exposure to toxics from undesirable land use practices, lack of low-carbon and safe transportation options, inefficient housing, neighborhood disinvestment, and inability to afford healthy food. In many cases, discriminatory practices have caused or exacerbated these issues.

Beyond bearing a disproportionate share of environmental hazards and health threats, many of our county's marginalized communities have not had equal opportunity to participate in planning process. Communities of color and low-income populations have faced barriers to resources and programs and have been under-represented in decision-making on climate and related policies. Recognizing these disparities can help identify opportunities for investment – climate and otherwise – that will begin to remedy the problem.

As affirmed in our guiding principles, the Climate Action Commission believes that equity and inclusion must be central considerations in Prince George's County's climate planning and action. Everyone must be a part of the solution. As such, we have prioritized integrating equity throughout this plan.

Each of the plan's Priority Recommendations includes an equity component, with the goals of understanding current disparities, promoting inclusive involvement in the implementation process, and advancing equitable outcomes. To ensure such equitable processes and outcomes, it will be vital to develop clear metrics for tracking progress and ensuring transparency. The County has an opportunity to exemplify equity in action by anticipating, assessing, and preventing potential adverse consequences of proposed actions on underserved and overburdened residents. This may be done by:

- Identifying and engaging all stakeholders, especially those most adversely affected;
- Examining factors that may be causing or perpetuating racial inequities associated with the climate issues;
- Clarifying actions to reduce disparities or discrimination and advancing positive impact and equitable opportunities;
- Establishing success indicators, evaluation measures, and ongoing stakeholder engagement.

To achieve transformative impact, the County cannot go it alone. We must collaborate with community leaders, residents, businesses, advocacy groups, and local organizations in partnership towards systemic change. Only together can we work to envision, plan, and build an inclusive, prosperous, and resilient future.

SECTION I ENDNOTES

1. Intergovernmental Panel on Climate Change (IPCC) (2021). IPCC Sixth Assessment Report AR6 Climate Change 2021: The Physical Science Basis. https://www.ipcc.ch/report/ar6/wg1/
2. United Nations Framework Convention on Climate Change (2016). The Paris Agreement. https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
3. Maryland Department of Health. 2019 Heat-related Illness Surveillance Summary Report. https://health.maryland.gov/preparedness/Documents/2019%20Summary%20Heat%20Report.pdf
4. Prince George's County Office of Emergency management (2017). Prince George's County & the City of Laurel Hazard Mitigation Plan Update. https://www.princegeorgescountymd.gov/DocumentCenter/View/29942/2017-PGC-Hazard-Mitigation-Plan-Update_ADOPTED
5. Joyce J. and Scott M. (2005). An Assessment of Maryland's Vulnerability to Flood Damage. https://www.researchgate.net/publication/237388828_An_Assessment_Of_Maryland's_Vulnerability_To_Flood_Damage
6. CNBC (2020). $7 trillion asset manager BlackRock makes climate change central to its investment strategy for 2021. https://www.cnbc.com/2020/12/16/blackrock-makes-climate-change-central-to-investment-strategy-for-2021.html

II. PRINCE GEORGE'S COUNTY CLIMATE ACTION PLAN:

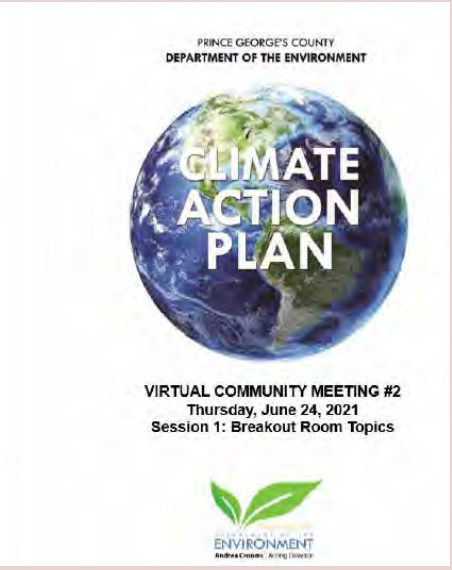
UNDERSTANDING THE CLIMATE PLAN

In June 2020, the Prince George's County Council unanimously passed council resolution CR-07-2020, calling for the creation of a Climate Action Commission (CAC) and a Climate Action Plan (CAP) for Prince George's County By late summer 2020, the CAC was formed, consisting of sixteen commissioners representing public, private, and government interests as outlined by CR-07-2020 and appointed by their respective entities. The Department of the Environment (DoE) was designated to chair the CAC.

The CAC's charge was to create an action plan to reduce the county's community-wide greenhouse gas emissions and to build resilience to the impacts of climate change. The CAC modeled its climate action planning framework after that of the Maryland Department of Environment (MDE) Commission on Climate Change. The CAC created three working groups in early January of 2021: Mitigation, Adaptation and Resiliency, and the Education and Outreach. Modeling MDE, the County support staff and consultant team served as Technical Resource for the three working groups.

Plan actions were informed by a public engagement process. Three virtual meetings were hosted by DoE on behalf of the CAC in February, June, and August 2021. The CAC adopted a set of Priority Recommendations, including mitigation, adaptation, and plan execution actions.

Throughout the public engagement process, these Priority Recommendations were refined by technical staff and the CAC. Prince George's County staff also convened a Resident Expert Advisory Group, comprised of county residents, to gather focused feedback on the proposed Priority Recommendations which form the basis of the CAP. After incorporating the CAC and the Resident Expert Advisory Group's input, the CAC approved the revised Draft CAP on October 22, 2021.



NEXT STEPS:

The CAP will officially post for public comment from November 1 to November 30 of 2021. A public forum will provide additional opportunities. A Supplemental Public Comments Report will capture and summarize all public comments received as part of the public comment period. In January of 2022, DoE, in the capacity of CAC support staff, will submit the official CAP with the Supplemental Public Comments Report to the County Council and County Executive. With the support of the County Executive, the next step for the CAP will be the consideration of the County Council to adopt, fund, and mandate implementation of the CAP in early 2022.

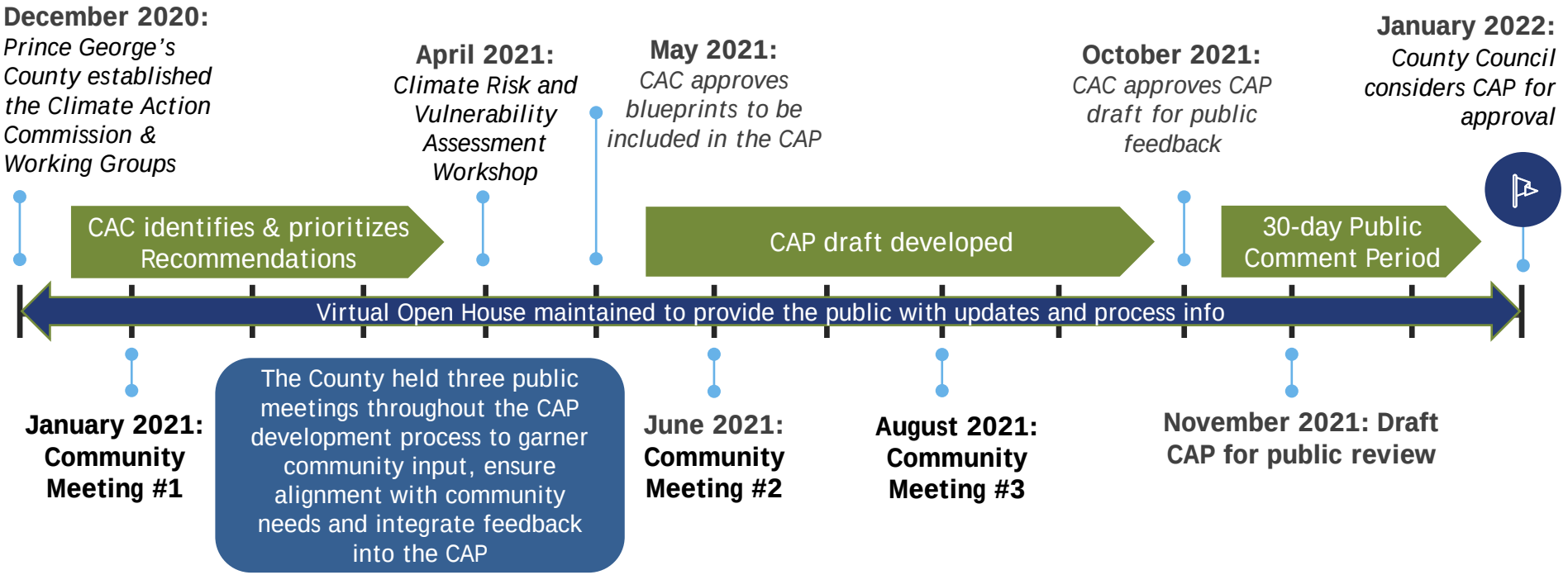


Figure II-1. Climate Action Plan Timeline

PLAN SCOPE AND ORGANIZATION

SCOPE OF THIS PLAN

The Prince George's County Climate Action Plan takes a two-fold approach to addressing climate issues in the county: it defines transformational strategies to reduce the county's contribution to climate change by reducing greenhouse gas (GHG) emissions, and it proposes measures to help the county prepare for and adapt to anticipated climate impacts in our region.

While some climate plans attempt to anticipate all the actions that will be needed over a long time frame, the Prince George's County Climate Action Commission ("we" or "CAC") chose to take a different approach. In this plan, we identify what we believe are the most important priorities for our county to implement within the coming three to five years. These Priority Recommendations – 26 of them in all – had broad consensus among the Committee and its working groups as the work that must guide our short-term efforts.

Each Priority Recommendation (which can be found in Section VII) is actionable and specific. It names the key implementation steps, partners, and metrics that we believe are critical to action. The goal is to enable rapid implementation of each Priority Recommendation.

Though the plan primarily focuses on these key near-term actions, it also outlines a longer-term vision – the strategies that we believe should guide the county's climate mitigation and adaptation efforts over the coming decades.

CAC'S CLIMATE ACTION EMISSION REDUCTION GOALS FOR PRINCE GEORGE'S COUNTY

- By 2030, reduce all community-wide GHG emissions by 50% below 2005 emission levels.
- By 2050, achieve carbon neutrality.

Climate resilience requires a long-term commitment. We believe the plan's strategies and Priority Recommendations will build a strong foundation for the next steps toward true system transformation and resilience.

The plan was developed with a clear recognition that to achieve the County's goals, we must work in close collaboration and partnership with our state, regional, and federal partners. Both the causes and the impacts of climate are challenges that reach far beyond our borders, and the solutions to these problems require significant alignment across many levels of government. To ensure this alignment, the Prince George's County CAP was structured to align with state and regional climate goals and strategies, including those found in the Maryland 2030 Greenhouse Gas Reduction Act Plan and the MWCOG 2030 Climate and Energy Action Plan.

STATE CLIMATE GOALS

- Maryland Greenhouse Gas Emission Reduction act established as law achieving 40% emissions reduction below 2006 by 2030.
- Maryland's 2030 Greenhouse Gas Emission Reduction Act Plan calls for a stretch goal of achieving 50% emission reduction by 2030.

REGIONAL CLIMATE GOALS

MWCOG Board Resolution R45-2020 established interim climate change goals including:

- The climate mitigation goal of 50% greenhouse gas emission reductions below 2005 levels by 2030;
- The climate resilience goal of becoming a Climate Ready Region and making significant progress to be a Climate Resilient Region by 2030; and
- The need to incorporate equity principles and expand education on climate change into MWCOG's Climate, Energy and Environment Policy Committee (CEEPC) and MWCOG members' actions to reach the climate mitigation and resiliency goals.

ORGANIZATION OF THIS PLAN

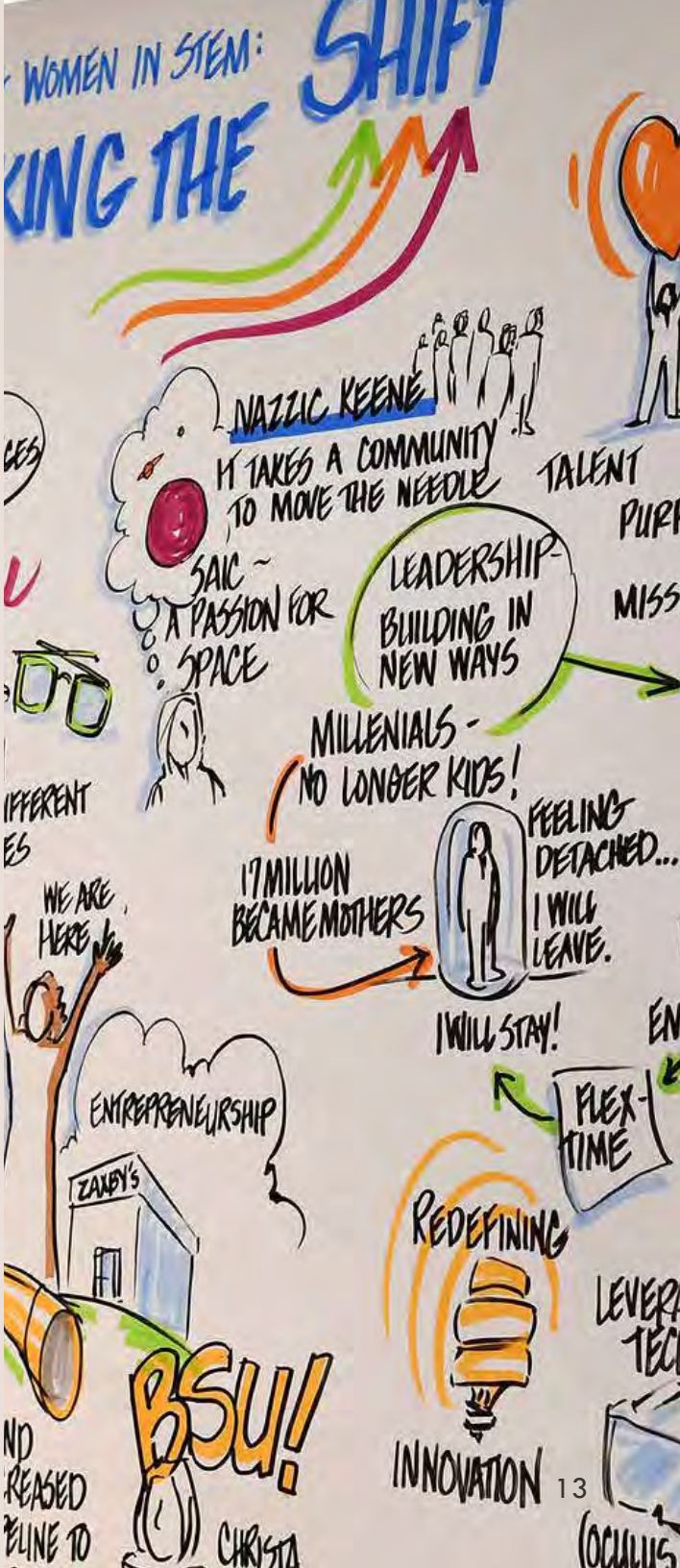
The Climate Action Plan begins with our long-term vision for a low carbon, climate resilient Prince George's County and lays out the guiding principles that help ensure our plan and future climate action reflects our community's goals and values. Section II of this plan highlights progress to date in county climate action planning, along with the key state and regional climate planning processes that help guide this current effort. Section III of the plan provides context on the climate planning process in the county, with an overview of demographic, socioeconomic, and land use trends that affect vulnerability to climate hazards such as flooding and extreme heat, shed light on opportunities to reduce greenhouse gas emissions, and influence which strategies will best serve the present and future needs of our community.

Providing further context for climate action planning in the county, Section IV summarizes the findings of a greenhouse gas inventory conducted as part of this planning process (with additional GHG data contained in the appendix), and Section V overviews the county's climate trends and hazards. Together, these sections illuminate vital data that can help us better understand the drivers and projected impacts of climate change in our county. This data was fundamental to identifying and prioritizing the plan's climate mitigation and adaptation strategies.

The heart of this plan are the Priority Recommendations that we believe should guide our county's near-term actions.

Section VI relays our transformational leadership commitment, strategies, and recommended actions, identifies the key strategies necessary for high impact and summarizes the plan's Priority Recommendations. While these Priority Recommendations are aligned with state and regional climate adaptation goals, they reflect the unique needs of Prince George's County. They represent the immediate steps we need to take to position Prince George's County to reach our climate mitigation and adaptation goals. Throughout the plan, readers will find a "spotlight on our progress" highlighting key initiatives, programs, and policies already underway in the county related to each focus area. Section VII is a summary of next steps and a call to action.

More detail on each Priority Recommendation can be found at the end of the plan in Section VIII, where we provide more specifics on the actions, partners, and metrics that will be critical to success. While this section is found at the end of the plan, readers short on time may wish to start there. The plan closes with references and resources found in the Appendices.



Prince George's FORWARD
REIMAGINING OUR FUTURE

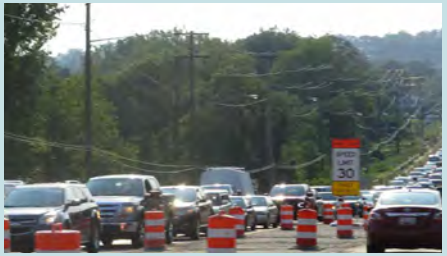
COVID-19 : IMPLICATIONS OF PLANNING DURING A PANDEMIC

Prince George's County began the CAP development process at the height of the COVID-19 pandemic, a crisis that was particularly hard-hitting in our county. We undertook this process with full understanding that many of our residents and stakeholders – including healthcare workers, public health officials, local businesses, and educators – were incredibly strained. In so many ways, these residents have exemplified the qualities of strength and resilience that this plan seeks to embody.

While the pandemic made it challenging to engage directly with the public, the County worked hard to create virtual engagement opportunities, such as a virtual open house, virtual public meetings, and a virtual workshop on climate risks and vulnerabilities. Despite the success of these creative efforts, the COVID-19 pandemic shed light on some of the challenges and inequities in our community, including the disproportionate difficulty of disadvantaged residents to participate in planning processes. The path to recover from the pandemic is captured in "Prince George's Forward: Reimagining our Future," which identifies strategies toward recovery in the key sectors of the economy, education, government operations, and health and human services. This plan is complementary with the Climate Action Plan; both aim to support a Prince George's County that emerges from challenges stronger and more resilient.

III. CONTEXT FOR CLIMATE ACTION PLANNING IN PRINCE GEORGE'S COUNTY

Prince George's County is a growing community with a rich history and a commitment to a strong and prosperous future. Located to the east of Washington D.C. and Maryland's Montgomery County, the county encompasses a densely urbanized area stretching from the District's border on the west to the I-495 Beltway on the east. The southern portions of the county include less-densely populated areas, with a more rural and agricultural character. The county is bound by the Patuxent River to the north and east, the Potomac River to the southwest, and Charles County to the south. Prince George's County includes 27 incorporated municipalities. The County does not have a large city center but instead has a distributed pattern of small cities and transit hubs.



While Prince George's County is known for being the largest and wealthiest African American-majority county in the country, it is not immune to environmental justice (EJ) issues such as poor environmental health, lack of access to life-sustaining resources, a range of social and economic stressors. The Prince George's Environmental Justice Commission has called particular attention to inequities related to air pollution from a high volume of truck traffic and a dense concentration of facility operations in portions of the county.[1]

DEMOGRAPHICS: WHO LIVES IN PRINCE GEORGE'S COUNTY?

The second most populous county in Maryland, Prince George's is home to a large and diverse population. As of the most recent Census, the county had 909,327 residents and its population grew by approximately 5.2% between 2010 and 2019.[2]

Of the residential population, 64.4% are Black, 19.5% are Hispanic or Latino, 12.3% are white (non-Hispanic/Latino), 4.4% are Asian, 2.7% are two or more races, 1.2% are American Indian and Alaska Native, and 0.2% are Native Hawaiian or Pacific Islander.[3] According to the 2019 Census, 22.7% of the population is foreign-born, and 41.2% of the population (aged 5 or older) speaks a language other than English in their household.[4] The County has an almost even split of male and female identifying persons, with 51.9% identifying as female. Around 22.1% of the population is under 18 years of age, and 13.9% of the population is over 65.[5]

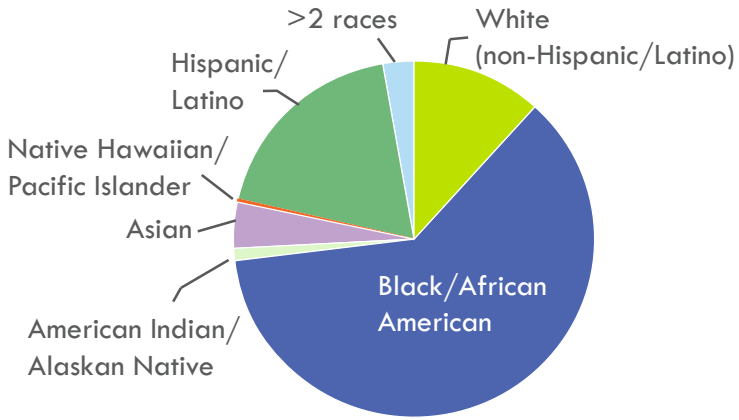


Figure III-1. Race/Ethnicity

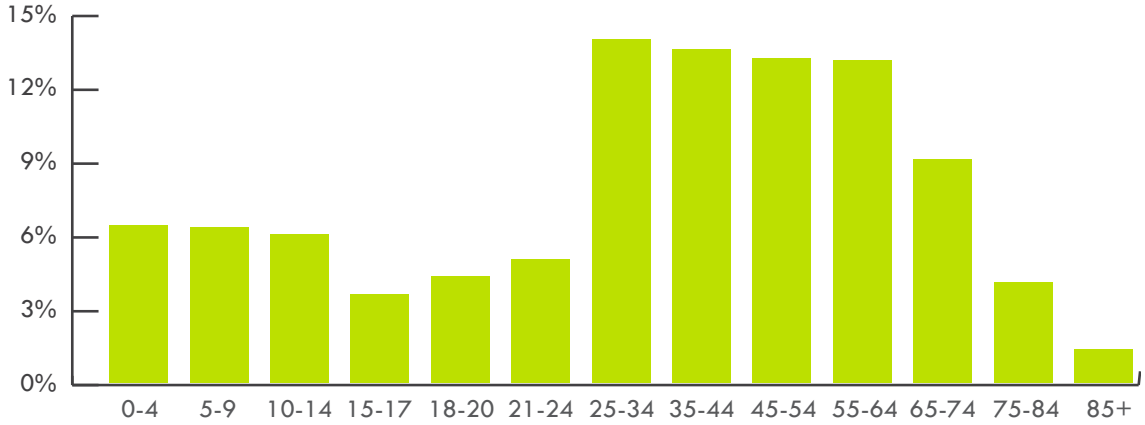


Figure III-2. Population by Age

While we know that the COVID-19 pandemic had significant economic implications for many county residents, we do not yet have data on the long-term economic implications. Median household income in the county is $89,347.[6] However, income levels vary according to the race of the head of household, with white households earning a median income of $96,444, black households earning $90,060 and Hispanic/Latino families earning $74,361. The poverty rate is 8.7 percentage points higher than the state average, with 11,804 families (8,641 of which have children) living in poverty. Around 86.7% of the population has graduated from high school, and 33.1% has achieved a bachelor's degree or higher degrees.[7]

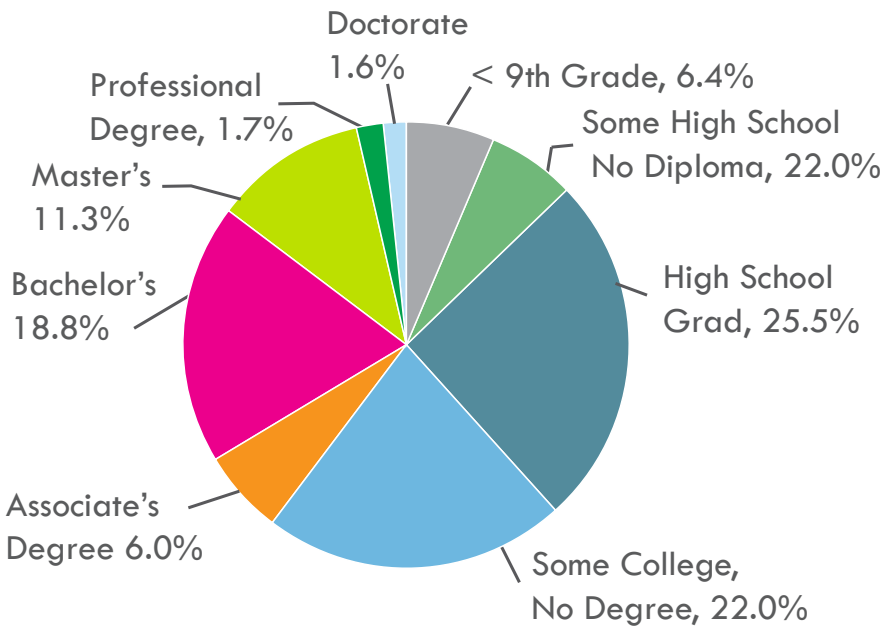


Figure III-3. Educational Attainment

SECTION III ENDNOTES

1. Prince George's County Environmental Justice Commission (2019). (HB 183 - 2018) MSAR# 11623. https://www.princegeorgescountymd.gov/DocumentCenter/View/27132/Environmental-Justice-Commission-Report-Final-PDF
2. United States Census Bureau (2020). QuickFacts Prince George's County, Maryland. https://www.census.gov/quickfacts/princegeorgescountymaryland
3. United States Census Bureau (2020). QuickFacts Prince George's County, Maryland. https://www.census.gov/quickfacts/princegeorgescountymaryland
4. Ibid
5. Ibid
6. Prince George's County Health Department (2021). PGC Health Zone: 2021 Demographics. http://www.pgchealthzone.org/demographicdata?id=1260&sectionId=939
7. Ibid

IV. GREENHOUSE GAS EMISSIONS SOURCES AND TRENDS IN PRINCE GEORGE'S COUNTY

A core goal of Prince George's County's Climate Action Plan is to reduce our contributions to greenhouse gas (GHG) emissions. In order to make actionable and impactful emissions reductions goals, the County must understand the sources of and trends in our GHG emissions.

INVENTORY BACKGROUND AND APPROACH

The Greenhouse Gas (GHG) Inventory for Prince George's County was completed by MWCOG following the U.S. Communities Protocol, a methodology compliant with national and global protocols for GHG accounting.[1] This inventory accounts for GHG emissions associated with community-wide sources and activities from all sectors located within the County, including residents, businesses, industries, and government using 2018 data, the most current available data. County totals are also inclusive of emissions from its municipalities. MWCOG inventories use an activities-based approach, meaning emissions are calculated based on the result of activities happening in the community. For instance, even though the Blue Plains Wastewater Treatment Plant is not located within Prince George's County, the County still includes wastewater emissions calculated based on the County's population that is serviced by the plant in their GHG inventory because activities of residents in the County are contributing to the plant's emissions.

MAKING PROGRESS TO REDUCE EMISSIONS

Overall, GHG emissions in Prince George's County have decreased by 15% between the base year 2005 and 2018, despite a 9% growth in population. GHG emissions reduced from 11.18 MMTCO2e (million metric tons of carbon dioxide equivalent) in 2005 to 9.51 MMTCO2e in 2018, with per capita emissions decreasing 22% between 2005 and 2018; down from 13.5 MTCO2e (metric tons of carbon dioxide equivalent) in 2005 to 10.5 MTCO2e in 2018. This downward trend in County emissions is shown in, with the trendline ending at Prince George's County's goal of reducing total GHG emissions by 50% from 2005 levels by 2030.

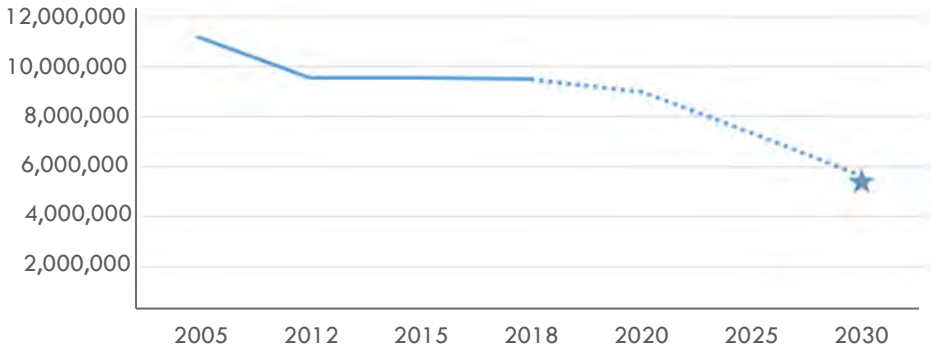


Figure IV–1. County GHG Emissions Trends

WHERE DO COUNTY GHG EMISSIONS COME FROM?

For Prince George's County, a sector-based GHG emissions inventory shows that emissions come from four primary sources: transportation fuel use, residential energy use, commercial energy use, and "other" emitting sectors (Figure IV–2). The transportation sector has consistently been the most significant contributor to Prince George's County's GHG emissions in each reporting year since 2005, making up roughly 48% of total GHG emissions in the County in 2018 at an estimated 4.56 MMTCO2e. The second-largest contributor to GHG emissions in 2018 was residential building energy use, producing 2.15 MMTCO2e, followed closely by commercial building energy use, producing 2.13 MMTCO2e, which make up 23% and 22% of total County emissions, respectively. The remaining 7% of emissions, totaling 0.66 MMTCO2e, comprised all other emitting sectors evaluated, including process and fugitive emissions (e.g., leaky gas pipes) waste, agriculture, and water treatment.

Figure IV–3 provides a breakdown of Prince George's County government's 2018 emissions from county operations. The operation of County buildings, vehicles, waste, and streetlights accounted for approximately 42% of the total emissions of Prince George's County government operations in 2018. Note that the GHG Inventory for government operations does not include Prince George's County Community College, M-NCPPC, or PGCPS.

Nearly half of the GHG emissions from Prince George's County result from vehicles transporting people and goods.

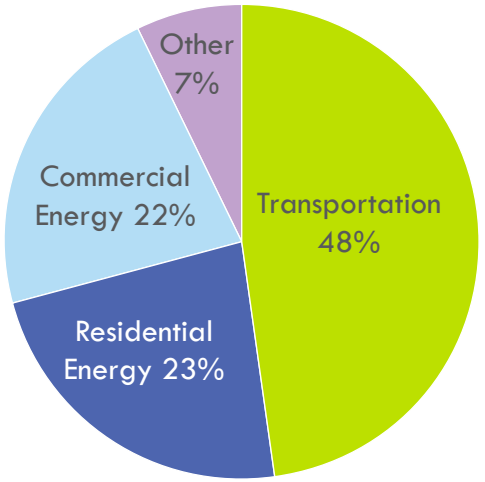


Figure IV–2. Year 2018 County GHG Emissions by Sector

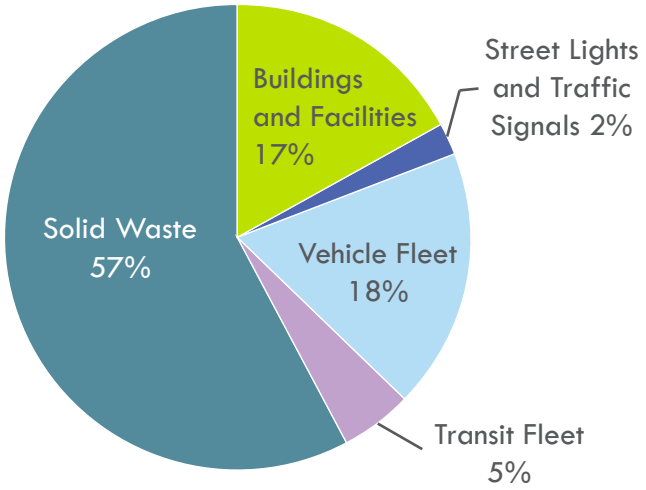


Figure IV–3. Emissions from County Operations

WHAT IS DRIVING THE CHANGE?

As shown in Figure IV–4, the 15% GHG emissions reduction achieved between 2005 and 2018 was led by a 30% decrease in commercial building sector emissions, followed closely by the 25% decrease from the residential building sector emissions. Transportation decreased 4% over that same span. Meanwhile, though they still make up a small portion of overall emissions, those associated with all other sectors increased approximately 21% between 2005 and 2018.

The main contributors to increased emissions, as shown in Figure IV–5, are growth in population, commercial building space, and hydrofluorocarbons (HFCs). Changes trending County GHG emissions down are mainly attributed to cleaner electricity sources, more efficient cars, and decreased energy intensity of the commercial buildings.

The single most significant factor reducing Prince George's County's GHG emissions was an increase in clean energy sources of electricity and the phasing out of coal power in favor of natural gas between 2005 and 2012. This trend is part of a larger Maryland initiative to phase out all coal fired power plants, with 100% of coal plants expected to be offline by 2030. The transition to cleaner energy sources is expected to continue as required by Maryland's Renewable Portfolio Standard (RPS). The state policy has required all electricity suppliers to procure a minimum portion of their electric retail sales from eligible renewable energy sources since 2004.[2] Most recently, the Clean Energy Jobs Act of 2019 increased and extended the requirement from 25% by 2020 to 50% by 2030.[3]

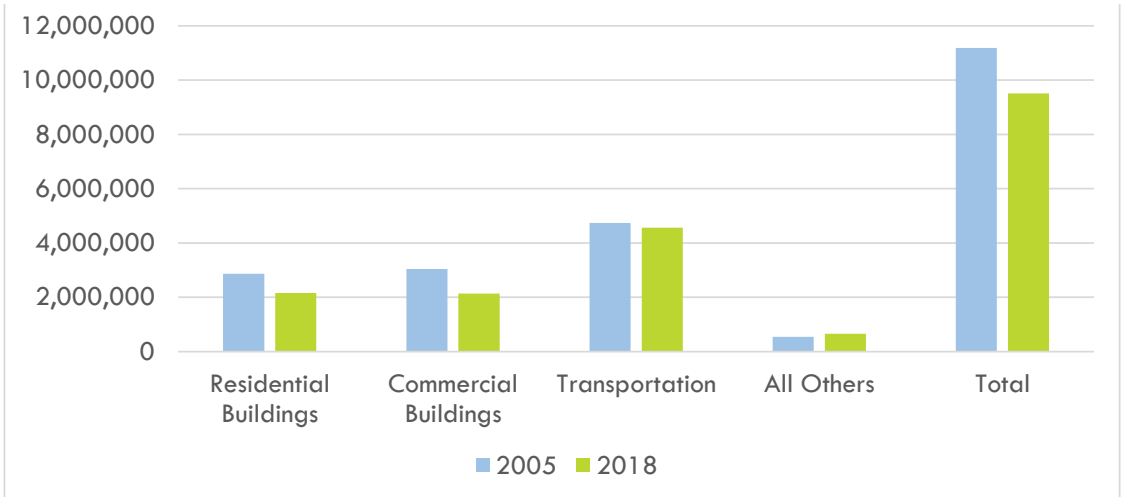


Figure IV–4. Prince George's County GHG Emissions 2005-2018

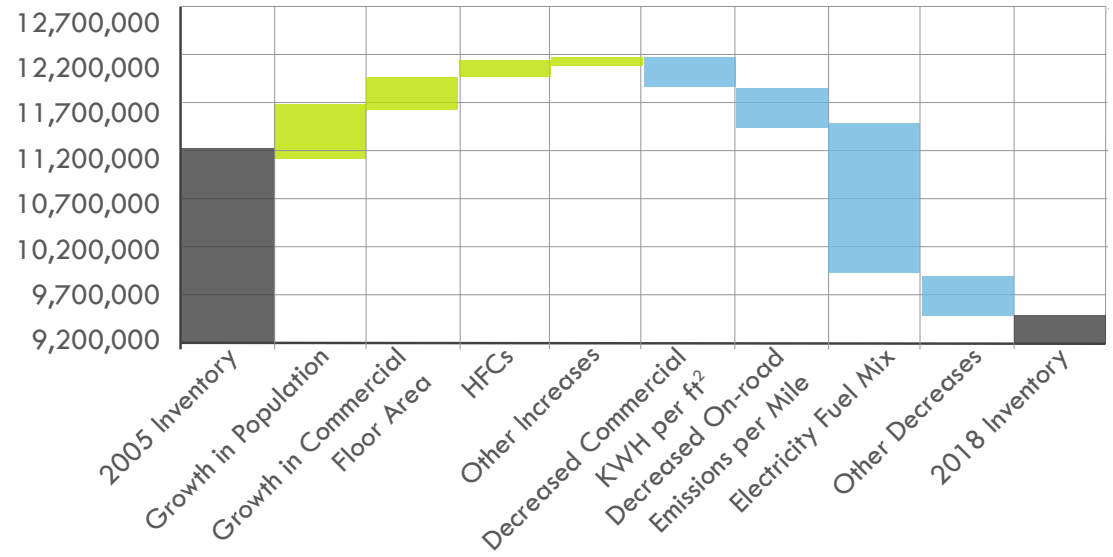


Figure IV–5. Drivers of GHG Change in Prince George's County

WHAT HAPPENS IF WE CONTINUE BUSINESS AS USUAL?

As part of the GHG inventory process, MWCOG also considered what emissions could look like if the County continues with "business as usual." These projections, while not exact, estimate expected trends in community-wide GHG emissions through 2050, taking into account key metrics like expected population and commercial growth, housing, electrification rates, and policies and practices that have been in place and implemented to-date to reduce GHG emissions, such as electricity fuel mix transformations. These projections provide the County a picture of what the GHG inventory could look like if actions are limited to those required by law (for example, implement the state RPS). As shown in Figure IV–6, if Prince George's County does not take additional actions, emissions can be expected to hold steady through 2050.

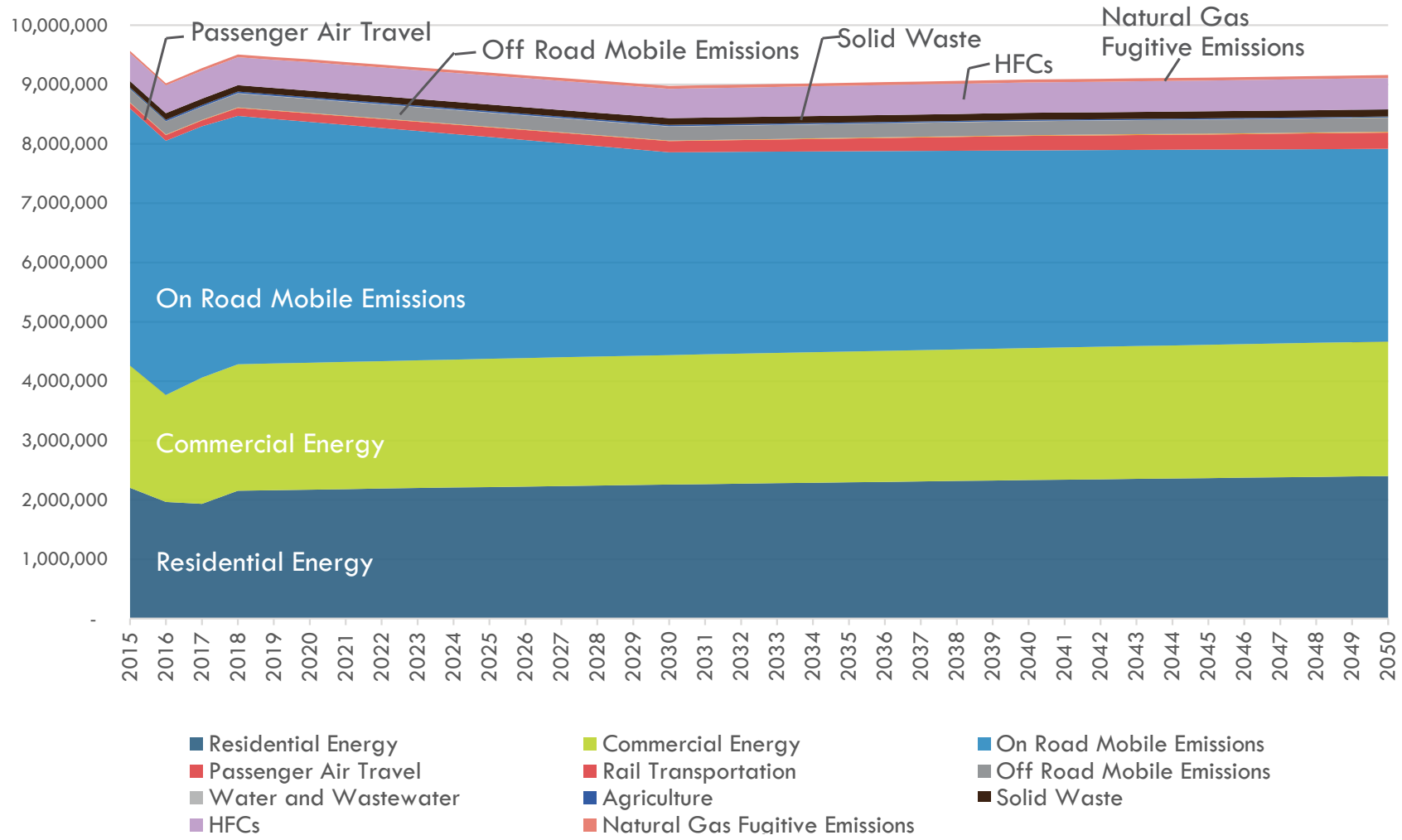


Figure IV–6. Projected Emissions if Prince George's County Continues with "Business as Usual"

HOW CAN WE MEET THE 2030 TARGET?

Prince George's County used a "wedge analysis" (Figure IV–7) to break down the 2030 50% emission reduction target into more meaningful targets related to specific climate actions. Emissions reduction calculations based on a set of potential actions (Table IV–1) with implementation targets, such as growing the number of solar installations from 20,000 today to 80,000 in 2030; retrofitting 25% of older homes; concentrating a majority of growth in activity centers; and aiming for 15% of cars to be electric vehicles by 2030. Yet, even in this scenario, the County still falls short of the 50% reduction target. To make this target a reality, an accelerated path to 100% clean electricity will likely be required. This path could be achieved by the state accelerating RPS requirements or through local clean energy procurement, for example through Consumer Choice Aggregation.

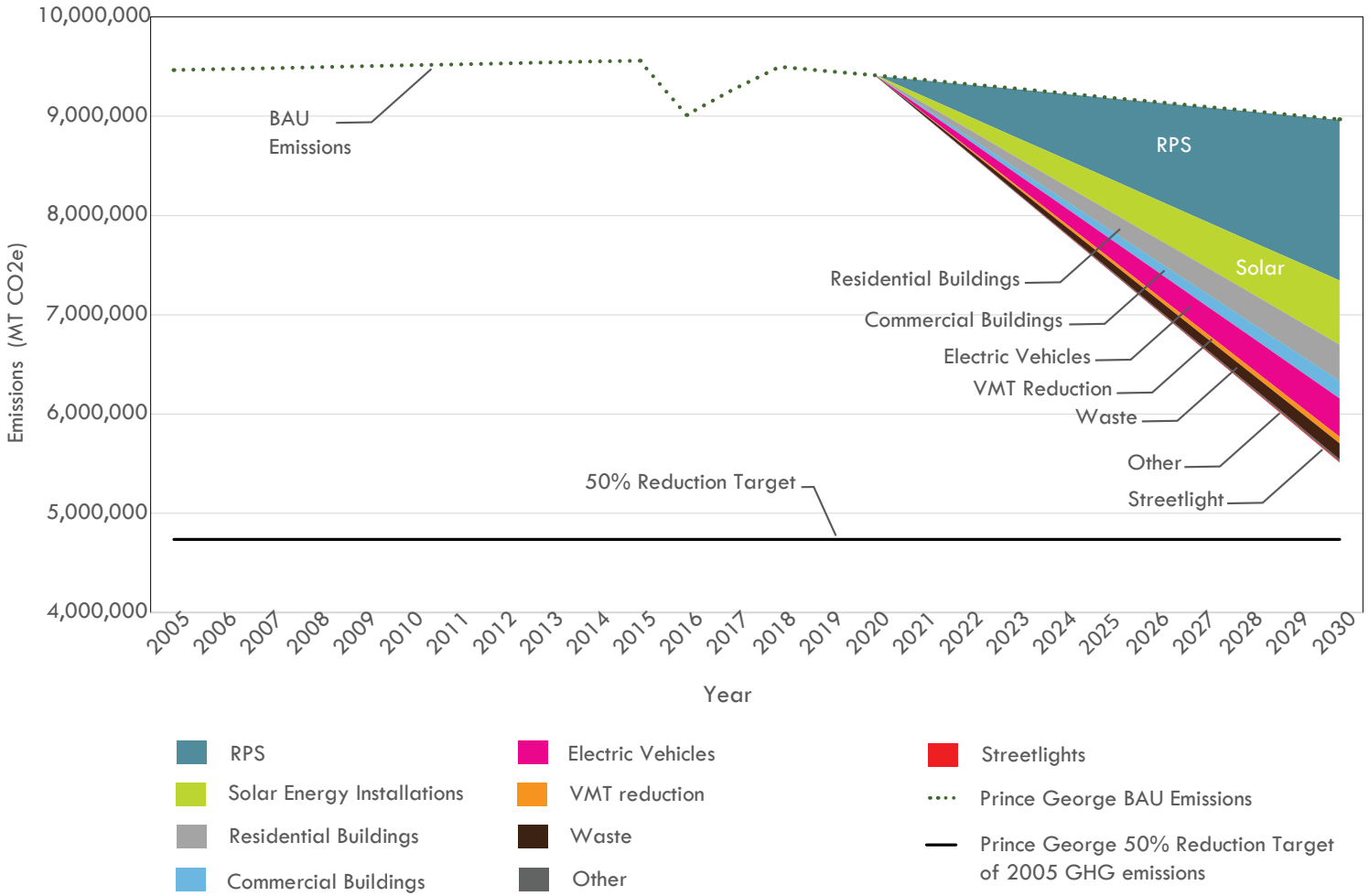


Figure IV–7. Pathway to Meet Prince George's County's Emissions Reductions Target

Table IV–1. Inputs used to develop the wedge analysis

Emissions Reducing Action	Metric by 2030	Scenario Input
Increase Residential, Commercial & Community-Scale Solar	Number of new residential solar installations Number of new commercial/community-scale solar installations	70,000 installations 10,000 installations
Improve energy efficiency of residential buildings through retrofits	Number of single family/small multi-family households retrofitted Number of multi-family households retrofitted Number of offices retrofitted Number of retail buildings retrofitted Number of mixed-use buildings retrofitted	49,500 retofitted 10,279 retrofitted 500 retrofitted 500 retofitted 500 retrofitted
Encourage conversion of petrol engine vehicles to electric powered vehicles	Number of electric passenger cars Number of electric light-duty trucks Number of electric medium-duty trucks Number of electric heavy-duty trucks Number of electric transit buses	100,000 cars 1,000 light-duty trucks 1,000 medium-duty trucks 100 heavy-duty trucks 40 transit buses
Reduction in average VMT/household	VMT/household	3.6%
Streetlight replacement	Number of streetlights replaced	63,000 replaced
HFC Emissions	Percent of HFC emissions reductions	75%
Divert organic waste to composting	Metric Ton of waste diverted (total 2021-2030)	458,680 diverted
Maintain/increase tree canopy for carbon sequestration [1]	Percent tree cover	52%

1 52% tree cover represents the tree cover in Prince George's County in 2020. As per recommendation M-11, the County seeks to maintain this level of tree canopy through 2030 and to increase tree canopy

WE HAVE ALREADY STARTED: COUNTY CLIMATE PROGRESS

While the County has not previously adopted a Climate Action Plan, they have had many programs and initiatives working to reduce GHG emissions and address climate hazards. Throughout this plan we will spotlight many of the great programs, projects, and initiatives already underway in the County. From the implementation of more than 4 Megawatts (MW) of solar on county buildings, implementation of green infrastructure projects, deployment of electric vehicle charging stations and programs to help residents address stormwater, the County has been making strides to decrease emissions and build resilience. This CAP seeks to build on that progress and these foundation efforts.

PRIOR CLIMATE AND ENVIRONMENTAL ACTION IN PRINCE GEORGE'S COUNTY

PROGRESS BETWEEN 2012 AND 2020

In 2012, the County drafted a Climate Action Plan focused on actions through 2020. Although the plan was never formally adopted and implemented, many of the strategies in the plan became part of the County Government Agencies' strategies, and are the groundwork on which even more ambitious strategies can be built. Table IV–2 calls out specific strategies identified in the draft 2012 Climate Action Plan and their associated GHG reduction potentials.

Example: DPWT Green Complete Streets

Under the 2012 Green Complete Streets Ordinance (CB-83-2012), DPW&T continues to implement drainage improvement and culvert repair projects to reduce roadway flooding during heavy rainfall. DPW&T has also taken a green approach to mitigating stormwater runoff and improving air quality through the Right Tree Right Place Program. In addition to reducing stormwater runoff, DPW&T helps keep the waterways of the County clean through litter reduction programs and by removing illegal dumping sites. These efforts contribute to the County's climate change readiness.

Table IV–2. Strategies from the Prince George's County 2012 Draft Climate Action Plan

Energy Strategies	2020 GHG Reduction Potential
Energy Efficiency, Conservation, and Green Building	Metric Tons CO2e
1. Promote & expand new & existing residential energy efficiency & conservation programs.	106,942
2. Promote & expand new & existing commercial energy efficiency & conservation programs.	188,435
3. Promote & expand green building & water efficient best practices for new & existing buildings.	240,853
Renewable Energy	
4. Encourage & incentivize the installation of renewable energy projects.	146,270
Transportation Strategies	2020 GHG Reduction Potential
Planning Solutions	
5. Reduce automobile dependency through complete streets & transit oriented development.	95,542
Promote Low Carbon Alternatives to the SOV	
6. Promote & incentivize the reduction of single occupant vehicle trips throughout the County.	67,883
Vehicle and System Efficiency	
7. Support & facilitate the development of low carbon transportation choices & improve the efficiency of existing options.	120,982
Waste Reduction and Diversion Strategies	2020 GHG Reduction Potential
8. Increase recycling rates, reduce the generation of waste, & promote reuse of materials.	206,070
9. Improve the carbon footprint of the waste collection system.	174,455
Green Infrastructure	2020 GHG Reduction Potential
10. Maintain & enhance the tree canopy & green spaces within the County.	Not Quantified
11. Promote local agriculture & green infrastructure.	Not Quantified

The Green Complete Streets Program provides accessibility for all modes of transportation and all roadway users, taking a context-sensitive approach to design. Green Streets principles are applied such that the impacts to the natural environment are improved through the use of innovative stormwater management techniques, materials, and construction processes.

Example: Office of Central Services Sustainable Energy Program

OCS runs a number of Sustainable Energy Programs. Utilizing funding from the 2016 Pepco/Exelon merger and the general fund, OCS has implemented a program to improve the energy efficiency of County facilities, generate renewable energy at those facilities, and enable electric charging of fleet and private vehicles. The County completed its first solar canopy system at 1301 McCormick Drive in partnership with Exelon/Constellation. Prince George's County is the number one producer of solar energy generation in metropolitan Washington and has reduced GHG by 12 percent since 2005.

OCS' Clean Energy Program is another ongoing effort. It serves to uplift neighborhoods that face economic, health, public safety and educational challenges. Clean Energy Grants, coupled with state energy incentives, provide assistance to residents to adopt energy-efficiency measures in nine designated neighborhoods classified as Energy Resiliency Communities (ERCs). The ERCs evolved from a former County initiative known as the Transforming Neighborhoods Initiative. It utilized several metric indicators such as education, public safety, and employment to identify key neighborhoods across the County needing holistic uplifting.

The Energy Star Certification and Green Leasing grant's goal is to increase the number of Energy Star certified office and multifamily buildings in the County. Grant funds can be used to offset the costs of energy efficiency and water efficiency measures, and for professional services required to achieve Energy Star Certification in the Pepco service territory. In addition, the building owners are required to adopt various best practices in Green Leasing to align the interests of landlords and tenants so that they are both financially motivated to engage in energy efficient behavior. In addition, OCS partnered with FSC First to create the C-PACE loan program and implement the Green Energy Loan program.

Example: Department of Environment – Zero Waste

DoE has made significant strides to reduce waste generation and is working to maximize diversion of waste from the landfill through increased reuse, recycling, and composting. Food scraps composting was added to the Organics Composting Facility in 2013. This facility previously only composted yard trim. Residential food scrap collection is on track to roll out to all households served by County Residential Collections by the end of FY22.

County Council Bill 87-2012 set a 55% recycling goal by 2018. The County met this objective a year earlier with a 55.81% recycling and 60.81% waste diversion rate, according to the 2017 Maryland Solid Waste Management and Waste Diversion Report. Council Bill 5-2015 banned the sale and use of expanded polystyrene, commonly known as "Styrofoam," food containers by food service businesses and the retail sale of these containers. It took effect on July 1, 2016.

Council Bill 12-2018, which became effective July 1, 2019, requires commercial establishments and industrial properties to provide an opportunity at their properties for all tenants, patrons and customers to have access to interior and exterior recycling collection receptacles to make it easier for customers to voluntarily recycle designated recyclable materials. Lastly, Council Bill 52-2019 bans single-use straws and stirrers that are not home-compostable. This went into effect on July 1, 2020.

LAND USE AND DEVELOPMENT: SPRAWLING DEVELOPMENT UNDERMINING OUR RESILIENCE

Located in the Washington DC metropolitan area, Prince George's County's land use and development trends are strongly influenced by regional economic, political and social forces. Traditionally considered a more affordable place to live than many of its neighbors in the metropolitan region, the county has experienced sprawling development patterns and a loss of agricultural and open space lands since the early 1960s. The County was an early testing ground for smart growth development but has long struggled to regulate urban sprawl and preserve undeveloped lands.

This sprawling development pattern poses some significant challenges in the context of climate mitigation and resilience. When development is spread out and public transit is lacking, people drive more miles to work, shop, and live. More vehicle miles traveled (VMT) means more air pollution and greenhouse gas emissions. At the local level, sprawl infringes on natural systems like forests and wetlands that could otherwise provide important ecosystem services, such as carbon sequestration and flood mitigation. Development and economic pressures have resulted in a significant loss of agricultural land in Prince George's County. In 1987 the County had more than 67,000 acres in farmland and by 2012 there were less than 32,000 acres.[4] Prince George's County's remaining natural areas – forests, wetlands, riparian corridors, and dedicated agricultural open space – are vital assets in our efforts to build resilience to climate change.

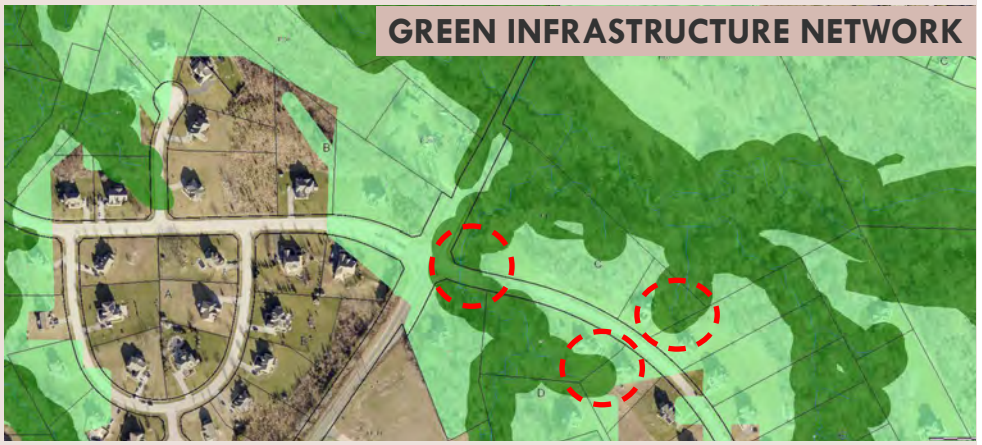
We must incentivize protection and monetize the benefits of these land uses for landowners or these community-wide resources will soon be replaced by buildings, roads, and lawns. Without concerted effort to preserve these natural areas, our county faces the permanent loss of these assets, along with their ability to mitigate floods, support local food production, cool urban areas, promote mental health, and offer a host of additional benefits.

EXCERPT, PLAN 2035

"Prince George's County is at a crossroads. The easy road continues our sprawling development pattern, strains our County's budget, degrades our natural environment, complicates health issues, and fuels congestion. The bold road, proposed by Plan 2035, leads to a strong economy built upon concentrated public investment in targeted transit oriented commercial and mixed-use centers. This strategic approach attracts new private investment, businesses, and residents to the County and generates the revenue the County needs to provide well-maintained, safe, and healthy communities, improved environmental resources, high-quality public schools, and other critical services."[8]

For the County to achieve Plan 2035's 52% tree canopy coverage goal, the practice of granting waivers, special exceptions, and grandfathering development approvals must end. Per the example, farmland was also lost by the development. This development is located more than 15 miles from the nearest metro and was approved in 2014, after Plan 2035 acceptance.

Red lines show where regulatory Green Infrastructure corridor was lost (streams, riparian buffer).



The County's Plan 2035, adopted in 2014 articulated a vision to focus new growth and development in transit-oriented, mixed-use centers.[5] However, a five-year review of this plan found that the County fell short of its goals.[6] Residential growth continued to be predominantly suburban and while the County sought to capture 50% of new growth in Regional Transit Districts, it achieved less than half of that goal. Furthermore, between 2014 and 2018, the County lost over eleven square miles of tree canopy.[7]

At this pivotal moment when preserving – and even expanding – green spaces is so critical to combating climate change, the county's land use patterns are moving in the wrong direction. While the County has adopted various strategies and additional regulations, including updating zoning codes to bring these goals to fruition, there is no evidence that these trends are reversing. Throughout the Climate Action Plan development process, stakeholders repeatedly stressed the need to strengthen our county's commitment to smart growth and to increase implementation and enforcement of our smart growth policies.

Despite challenges related to land use, environmental justice, and racial equity, Prince George's County has a major asset in undertaking climate action planning: the resolve to make positive change. And this current planning effort did not require starting from scratch. Wherever possible throughout this plan, we shine a spotlight on these and other climate projects already underway in the County, and all of our recommendations seek to build on this success.

PRINCE GEORGE'S COUNTY LAND USE: POLICY VERSUS PRACTICE

For nearly 60 years, Prince George's County has espoused the desire to develop through smart growth principles. Every general plan of development, and every commission and study, points the County in this direction. And, for more than 20 years, every general plan of development, and every commission and study, criticizes the preceding plan as being ineffective in achieving its smart growth goals. Now, the County is a third of the way through the life span of Plan 2035, and there is little-to-no evidence that the Growth Management Goals are being achieved.

This history demonstrates that smart growth incentives have been inadequate. Suburban sprawl has not been discouraged, and in too many cases has been supported. The County must change its longstanding laissez faire approach to suburban sprawl and implement land use policies that limit such development. In order to be successful in combating climate change, the County will have to be more disciplined and more serious about adhering to Growth Management Goals. This will mean implementing numerous policies recommended in Plan 2035 and incorporating additional measuring and tracking tools to inform decisions based on timely data.

Finally, growth (and the land use policies related to growth) implicates much more than land development itself. These policies are intertwined with impacts on forest conservation, transportation planning, stormwater management and water quality, potential flooding impacts, and more. Existing county land use and environmental policies should be coordinated with CAP Priority Recommendations M-1: No Net Loss Tree Conservation Regulation and M-7: Increase Investment in Activity Centers.

For more detail, see **Appendix B - Land Use: Policy Versus Practice**.

ALIGNMENT WITH STATE & REGIONAL CLIMATE ACTION PLANNING

Prince George's County's climate action planning takes place against a backdrop of significant climate action occurring at the state and regional levels. Maryland has established a goal of 40% reduction in greenhouse gas (GHG) emissions by 2030 and net zero emissions by 2045.[9] In February 2021, the Maryland Department of the Environment (MDE) released the state's Greenhouse Gas Reduction Act Plan which seeks to achieve 50% GHG emission reduction by 2030 (above the state minimum goal) and net-zero carbon emissions by 2045.[10]

At the regional level, MWCOG, which consists of 24 cities and counties in the region, released its Climate and Energy Action Plan in 2020. It established a target of 50% reduction in GHG emissions by 2030 and an 80% reduction by 2050.[11]

In 2021, the National Capital Region Transportation Planning Board, the federally designated metropolitan planning organization for the region, in 2021 officially incorporated climate change commitments into its planning processes.[12] The Washington Metropolitan Area Transit Authority (WMATA) is also working to increase efficiency and reduce emissions, reporting progress in its annual sustainability reports.[13]

To succeed in reaching our climate goals, Prince George's County will need to work in close cooperation with our state and regional partners as many of our sources of greenhouse gas emissions -- including electricity production and transportation -- are regional in nature. Similarly, many of the best strategies to bolster climate resilience will be much more effective if undertaken with regional collaboration. These include protecting floodplains and creating more resilient energy and transportation systems. Since the transportation sector is our region's primary source of GHG emissions, this represents a particularly important opportunity for regional collaboration in support of our shared climate goals. The Priority Recommendations and other actions suggested in this plan are intended to align to the greatest extent possible with existing state and regional plans.

We as a County are eager to work closely with our state and regional partners to implement our common vision for safe and resilient future.

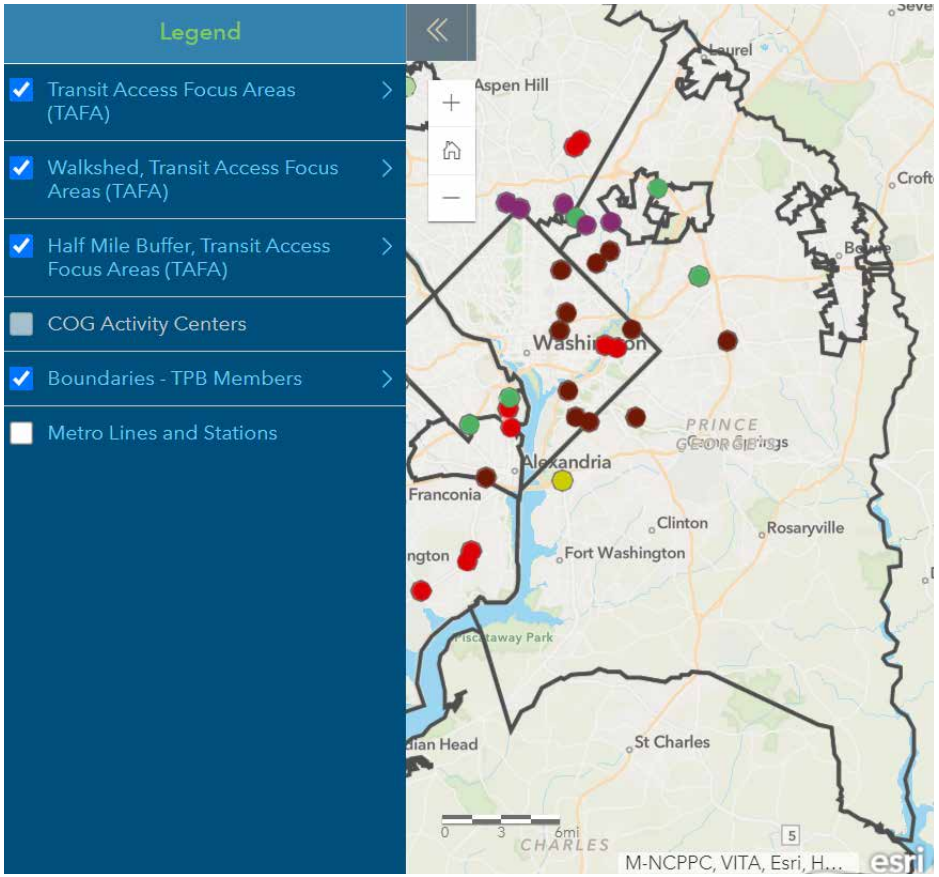


Figure IV–8. Sreenshot of MWCOG's Interactive Map Transit Access Focus Areas

SECTION IV ENDNOTES

1. ICLEI USA (2021). U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. https://icleiusa.org/ghg-protocols/
2. Maryland Public Service Commission (2020). Renewable Energy. http://www.psc.state.md.us/electricity/renewable-energy/
3. Maryland General Assembly (2019). Clean Energy Jobs Act of 2019, Statute 7-703, Article – Public Utilities. http://mgaleg.maryland.gov/mgawebsite/Laws/StatuteText?article=gpu&section=7-703&enactments=false
4. The Maryland-National Capital Park and Planning Commission (2014). Prince George's Plan 2035. https://planpgc2035.org/
5. Ibid
6. The Maryland-National Capital Park and Planning Commission and Prince George's County Planning Department (2020). Plan Prince George's 2035 Approved General Plan Five-Year Evaluation (2019). https://www.mncppcapps.org/planning/publications/BookDetail.cfm?item_id=383&Category_id=2
7. Allen, I. 2020 Tree Canopy Change Analysis Memo. https://www.mwcog.org/events/2020/8/20/chesapeake-bay-tree-canopy-analysis/
8. The Maryland-National Capital Park and Planning Commission (2014). Prince George's Plan 2035. https://planpgc2035.org/
9. Maryland General Assembly (2016). Greenhouse Gas Emissions Reduction Act - Reauthorization (SB0323-CH0011). https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/sb0323/?ys=2016rs
10. Maryland Department of the Environment (2021). Maryland 2030 Greenhouse Gas Reduction Act Plan. https://mde.maryland.gov/programs/Air/ClimateChange/Pages/Greenhouse-Gas-Emissions-Reduction-Act-(GGRA)-Plan.aspx
11. Metropolitan Washington Council of Governments (MWCOG) (2020). MWCOG 2030 Climate and Energy Action Plan. https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/
12. Metropolitan Washington Council of Governments (MWCOG) (2021). Transportation Planning Board. https://www.mwcog.org/tpb/
13. Washington Metropolitan Area Transit Authority (WMATA) (2021). Current Initiatives and Reports. https://www.wmata.com/initiatives/sustainability/Current-Initiatives-and-Reports.cfm

V. CLIMATE HAZARDS AND TRENDS IN PRINCE GEORGE'S COUNTY

With a rapidly changing climate, historical patterns and past events are no longer effective proxies for predicting current and future climate conditions. Prince George's County is already facing climate change impacts through extreme weather events that stress the County's natural and built infrastructure, community resources, and economic interests. In the past five years alone, the County has experienced unprecedented flooding, prolonged periods of extreme heat, record-breaking snow days, and a series of severe storms.

Extreme weather events like these are expected to become more frequent and more severe as the climate crisis accelerates. Understanding these trends and the potential risks to residents and infrastructure is fundamental to building resilience and making informed decisions about future investments. The following section summarizes the most significant climate hazards and trends likely to impact the County.

EXTREME TEMPERATURES

On average, the global climate is warming at an alarming rate causing more record-breaking temperatures and heat waves. On July 28, 2020, the Washington D.C. area experienced the 26th straight day of 90 degrees or greater, surpassing the previous record from July 2011, when there were twenty-five 90-degree days.[1] The County too is experiencing an increase in average temperatures and consecutive days of extreme heat, with the summer of 2020 being the County's hottest on record.[2] While the number of days below freezing is decreasing in the County, winters are becoming more episodic and the frequency of extreme winter weather events in the region is increasing.

Extreme and unpredictable temperature events increase the prevalence of heat- and cold-related illnesses, particularly among the most vulnerable populations and communities. Excessively high and low temperatures stress the County's infrastructure making it susceptible to service disruptions. Native plants, animals, and ecosystems are also sensitive to temperature extremes,[3] as are the local trades and businesses that rely on these resources for crop production and other outdoor services.

> *"A lot of vulnerable communities are the first ones to be exposed to extreme heat, like minority groups and those who don't have access to communications to state agencies and organizations. We should create networks so they feel comfortable speaking....partnering up with local on the ground nonprofits that can deliver these messages is also helpful. We should also be creating and fostering community trust between community members and organizations."*
>
> ***- Prince George's County Resident at August CAP Community Meeting***

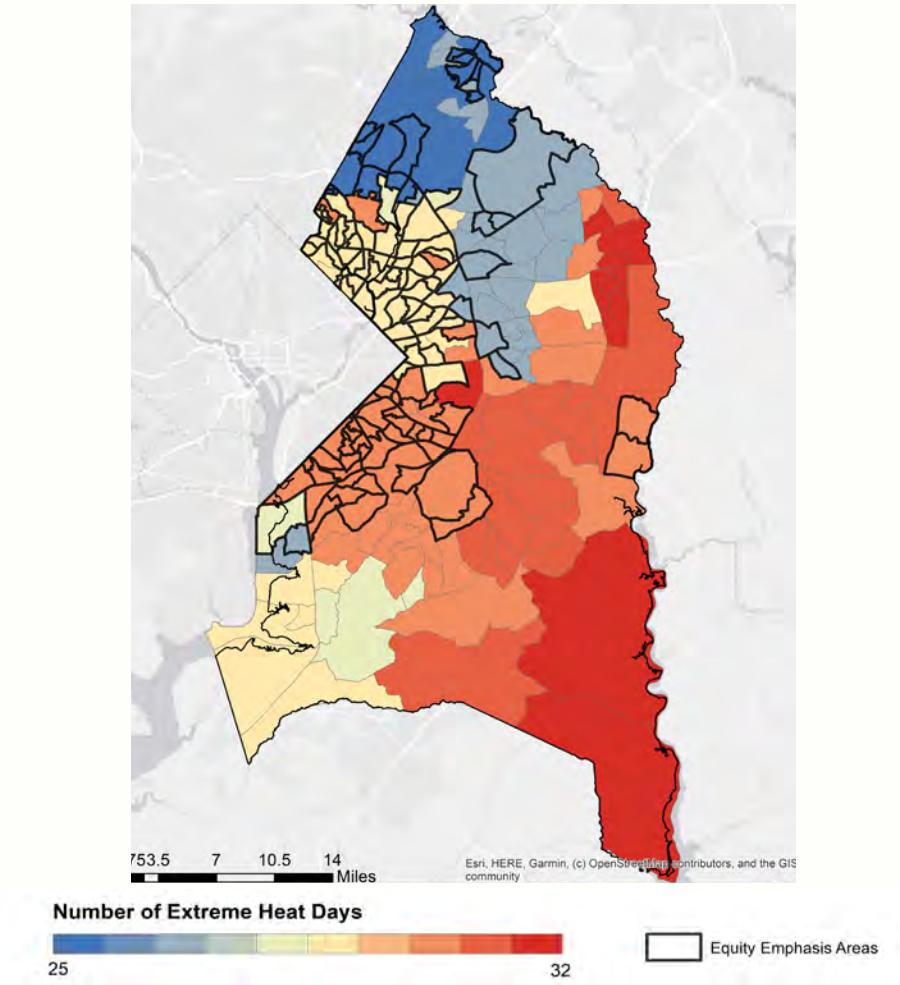


Figure V–1. Number of extreme heat days in Prince George's County.
Heat Metric: Daily Maximum Temperature, 90th Percentile (CDC National Environmental Public Health Tracking Network, 2016).

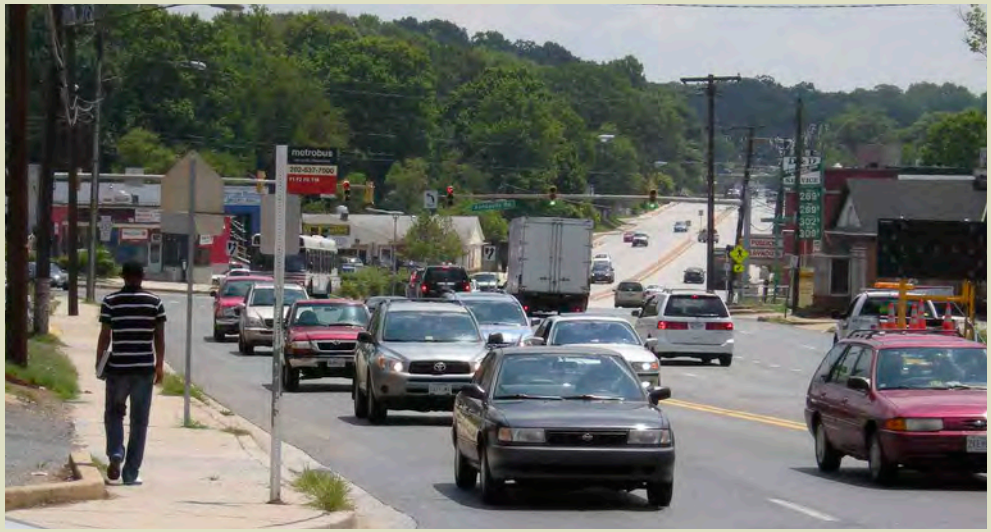
EXTREME HEAT

Prince George's County will experience warmer annual temperatures and an increase in extreme heat days. The average annual temperature in Maryland has risen by more than 1.5°F since the beginning of the 20th century, and average temperatures are projected to continue increasing.[4] For example, the historical (1950 – 2010) average daily maximum temperature in Prince George's County has been 66°F. This is projected to increase by about 8°F by 2040 and by 10°F by 2060.[5] The impacts of this increase in extreme heat will not be felt equally across the County – areas located in urban heat islands will feel the impacts of heat more severely and heat-sensitive residents (e.g., outdoor workers, residents with respiratory illnesses, energy-burdened households, etc.) are also disproportionately at risk.

In addition to higher annual temperatures, the County is projected to experience more frequent, intense, and longer-lasting heat waves. Historically, the County has experienced about 26 days per year where the maximum temperature exceeds 90°F (approximately twice as many as the state average) and less than one day per year with a maximum temperature reaching above 100°F.[6] The number of heat days with a maximum temperature above 90°F is projected to increase to roughly 61 days by 2040, and 68 to 81 days per year by 2060. The average number of heat days with a maximum temperature above 100°F is projected to increase from near zero to approximately 5 days by 2040 and 8 to 25 days by 2080.[7]

In addition to the public health impacts of these higher temperatures, these heat waves coincide with abnormally dry conditions, meaning the County could also expect to experience more droughts and brushfires.

According to the Maryland Department of Health, more than 2,400 people in Maryland suffered from heat-related illnesses from June 1 to July 12, 2021.



URBAN HEAT ISLANDS

Urban heat islands are heavily developed areas that experience higher temperatures than surrounding rural areas. Urban heat islands typically have less tree canopy cover and green space and more impervious surfaces than less developed areas.

EXTREME COLD

Prince George's County will experience fewer days below freezing, yet more episodic winters. The rise in average annual temperatures results in fewer extreme cold days and milder winters; however, warmer winter temperatures can also result in more episodic winter storms and heavy precipitation days. Warmer temperatures result in greater amounts of moisture in the atmosphere leading to an intensification of storm events.

A study conducted by U.S. Global Change Research Program found that both the frequency and intensity of winter storms in the mid-latitude regions are increasing relative to the long-term average, and this trend is forecasted to continue in the coming decades.[8] Prolonged freezing temperatures, ice, and snowstorms pose notable threats to homes, businesses, and critical infrastructure and facilities. Vital community services can be interrupted if a power outage or pipe burst occurs in a critical facility, such as a medical center or senior living facility.

MORE FREQUENT FLOODING EVENTS

While flooding is a natural phenomenon, many aspects of our county's land development practices have increased our flood risk and the costs of potential damage. With climate change, land use patterns that convert forest and agricultural land to the built environment will only exacerbate existing flooding issues within the county.

Urbanization inevitably includes more impervious surfaces. With more impervious surfaces, such as parking lots, roads, and rooftops, runoff into local streams and waterways increases in speed and volume. With existing development in and around floodplains, our county's waterways have no capacity to handle this additional runoff volume. Flooding in low-lying and heavily urbanized areas will become more frequent and severe. As a result, more of our county's homes, businesses, and infrastructure will increasingly be in harm's way from flooding as our climate changes.

Flooding is front-and-center as one of the primary concerns of County residents. From 2018-2021, there were 4,362 complaints to the County's 311 hotline, which were water-related: Flooded basements, backyards, streets, and even sinkholes. With the number of properties at risk of flooding expected to increase by 4.4% over the next 30 years, the County will experience an estimated $15.8 million of annual flood damage, an 18% increase from today. Re-evaluation of the County's stormwater standards, guides, and code to include climate resiliency factors will be key to creating community-wide climate resiliency.

EXTREME PRECIPITATION AND HIGH WATER TABLES

Prince George's County will experience greater annual precipitation amounts and more extreme precipitation events that will increase the flood risk associated with stormwater runoff and groundwater flow.

Extreme precipitation events are projected to increase in both frequency (number of heavy rainfall days) and intensity (inches of rainfall). The County's historical baseline (1980-2006) for annual maximum precipitation has been 56 inches. This is projected to climb to 62 inches by 2040 and 67 inches by 2060, a roughly 10% and 20% increase, respectively.[9]

With this projected increase in precipitation, the County will experience more frequent incidents of elevated groundwater levels, an already chronic issue in the County and the source of one of the most frequently cited drainage complaints. High groundwater levels can cause persistently wet basements and yards, septic system failure, crop destruction, and health concerns from standing water.

Extreme precipitation events exacerbate the risk to parts of the County located in the floodplain, low-lying regions near rivers or streams, or on problematic soils. Approximately 11% of the total County area, or roughly 4,000 building structures, are located within the 100-year County or FEMA floodplain and are therefore more susceptible to flooding.[10] [11] Additionally, problematic soils, such as Marlboro Clay, Christiana Complexes, and Howell Complexes, when oversaturated from heavy precipitation, can make buildings and infrastructure unstable and have been known to open sinkholes.

SEA LEVEL RISE AND HIGH TIDE

Prince George's County will experience more frequent coastal flooding due to sea level rise, storm surge, and high tide.

Located between the tidally influenced Patuxent and Potomac Rivers, Prince George's County is at risk of coastal flooding from sea level rise and storm surge, as well as tidal flooding from high tide. The global rise in sea level is largely due to sea ice melting and thermal expansion of seawater as temperatures warm. Even a seemingly insignificant rise in sea level can pose serious threats by contributing to storm surge and high tides, making rare flood events more common. In Prince George's County, sea level is expected to increase to 1.5 feet by 2040, 2.4 feet by 2060, and over 4.5 feet by the end of this century, relative to a 1992 baseline. These projections present a significantly increasing flood risk to properties in coastal and tidal influenced areas.[12] [13]

High tide flooding is closely tied with sea-level rise. As sea levels elevate, it no longer takes a strong storm to exceed storm surge thresholds that cause coastal flooding. On average, in the U.S., high tide flooding has increased by 50% in the last 20 years and 100% in the last 30.[14] While historically, Prince George's County has only seen an average of roughly two days of high tide flooding per year (1960 – 2015), this value is projected to skyrocket in the coming decades. Even if humans can curb CO2 emissions, annual days per year with high tide flooding is projected to increase to 25 days by 2040 and 67 days by 2060 – over a 1,000% increase.[15]

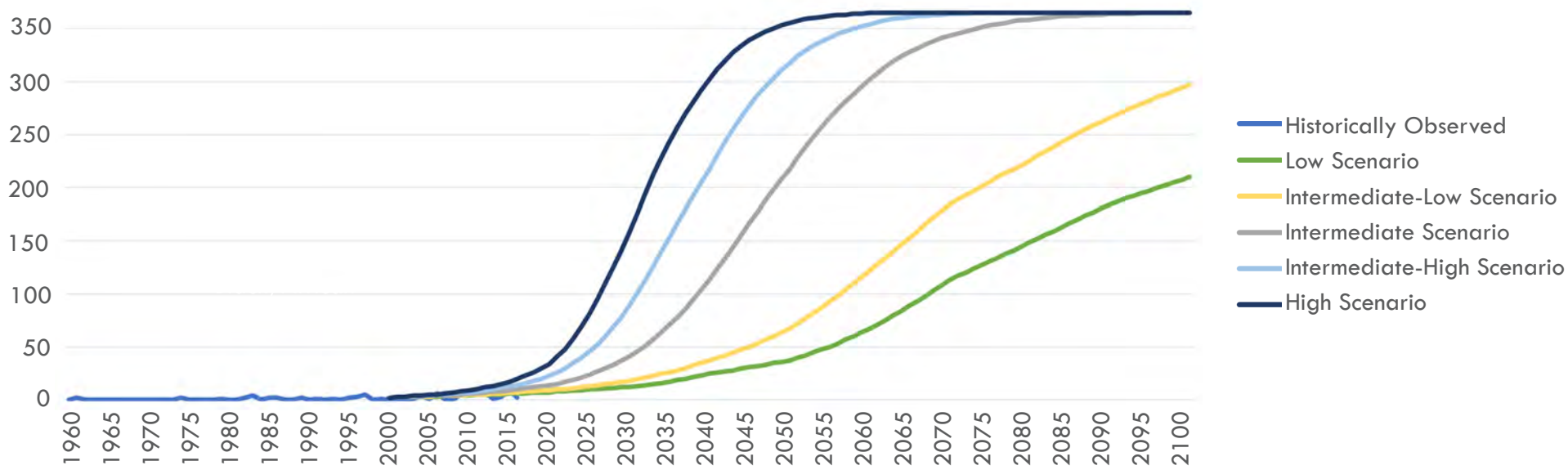


Figure V–2. High tide flooding projections in Prince George's County Area
High tide flooding days are expected to increase significantly in the coming decades.

MORE SEVERE STORMS

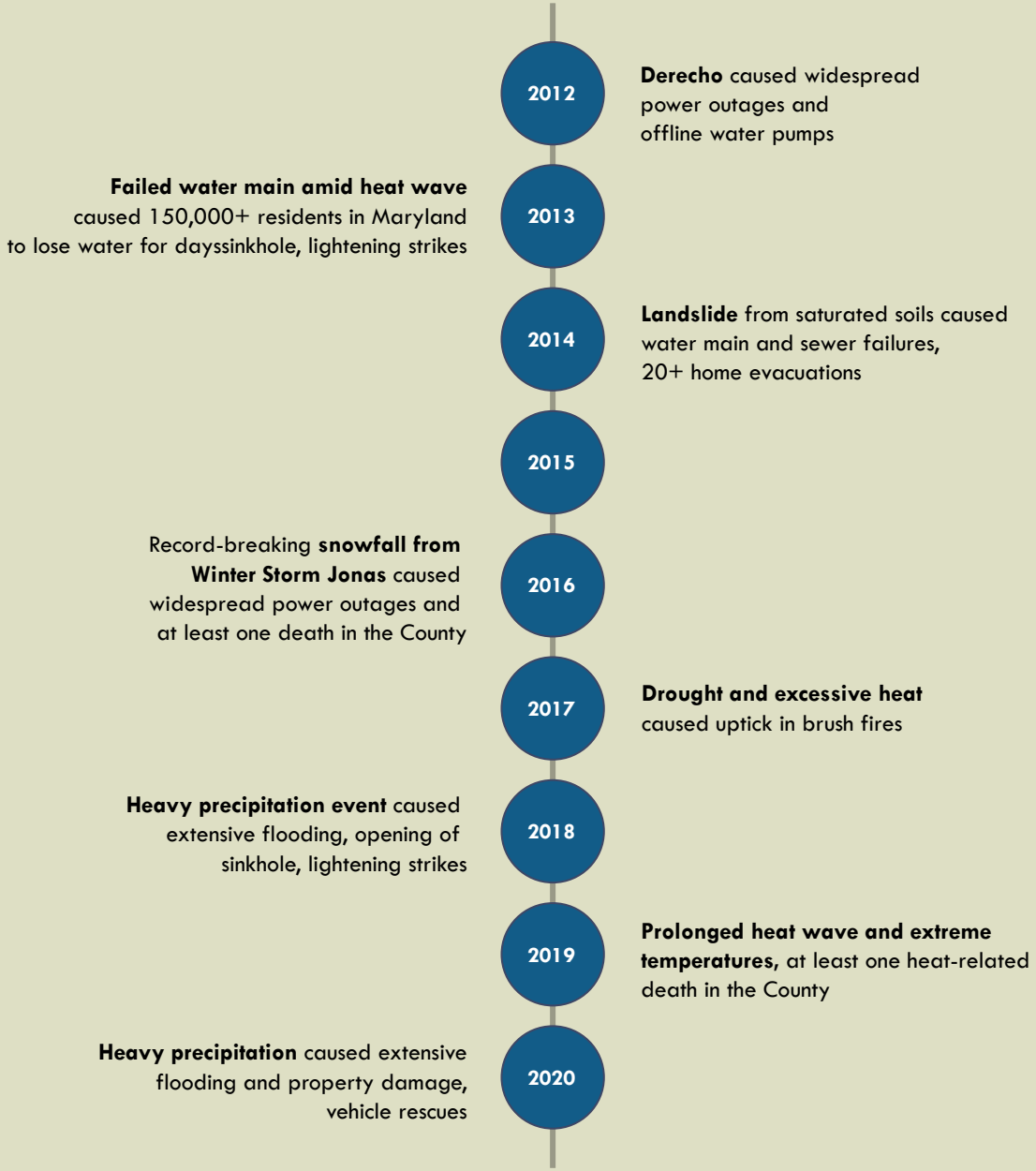
Prince George's County may experience an increase in severe storms as mid-Atlantic storms strengthen in intensity from warmer, wetter climate conditions.

Climate change is increasing the frequency and severity of wind events, such as hurricanes, derechos, tropical storms, and nor'easters. These storms are often characterized by high-speed wind gusts and accompanied by other potentially dangerous conditions, such as lightning and heavy rains that can lead to flooding and power outages.[16] Severe wind events can generate prolonged periods of dangerous conditions, placing lives and property at-risk and impacting the local economy. As global temperatures increase, ocean temperatures are also warming creating the perfect breeding ground for stronger hurricanes. As a result, Atlantic hurricanes are rapidly-intensifying. The percent of Atlantic hurricanes categorized as major storms (Category 3 hurricane or greater) has nearly doubled since 1979.[17]

SEVERE WINDS HIGHLIGHT

In the summer of 2020, Prince George's County was hit with heavy rainfall and strong winds from Tropical Storm Isaias. In all, the storm caused more than 1,000 power outages in the County. The storm caused flooding on Upper Marlboro Pike, with the Interstate 95 corridor feeling the heaviest downpours. Dangerous driving conditions during and after the storm also persisted, with heavy rains making roads slick and high winds disrupting power lines and littering the roadways with debris.

PRINCE GEORGE'S COUNTY IS EXPERIENCING GREATER STORM INTENSITY AND MORE EXTREME EVENTS



UNDERSTANDING THE RISKS

The infrastructure that supports Prince George's County and the quality of life enjoyed by residents, including transportation, energy, public health, water, and the economic system are all likely to experience adverse impacts from the intensifying climate hazards and extreme weather events brought on by climate change. These effects can threaten public health, damage property and critical infrastructure, disrupt vital community services, and negatively affect the economy, emphasizing the need for resilience. Table 1 captures the relative risks that the main climate hazards pose to these fundamental systems. Based on an analysis of climate risks and vulnerabilities, the strategies identified in the CAP focus on reducing risks associated with flooding, storms and extreme heat and seek to build and support a more resilient built environment. Most importantly, these strategies are intended to support residents, particularly those who are most vulnerable to climate change impacts.

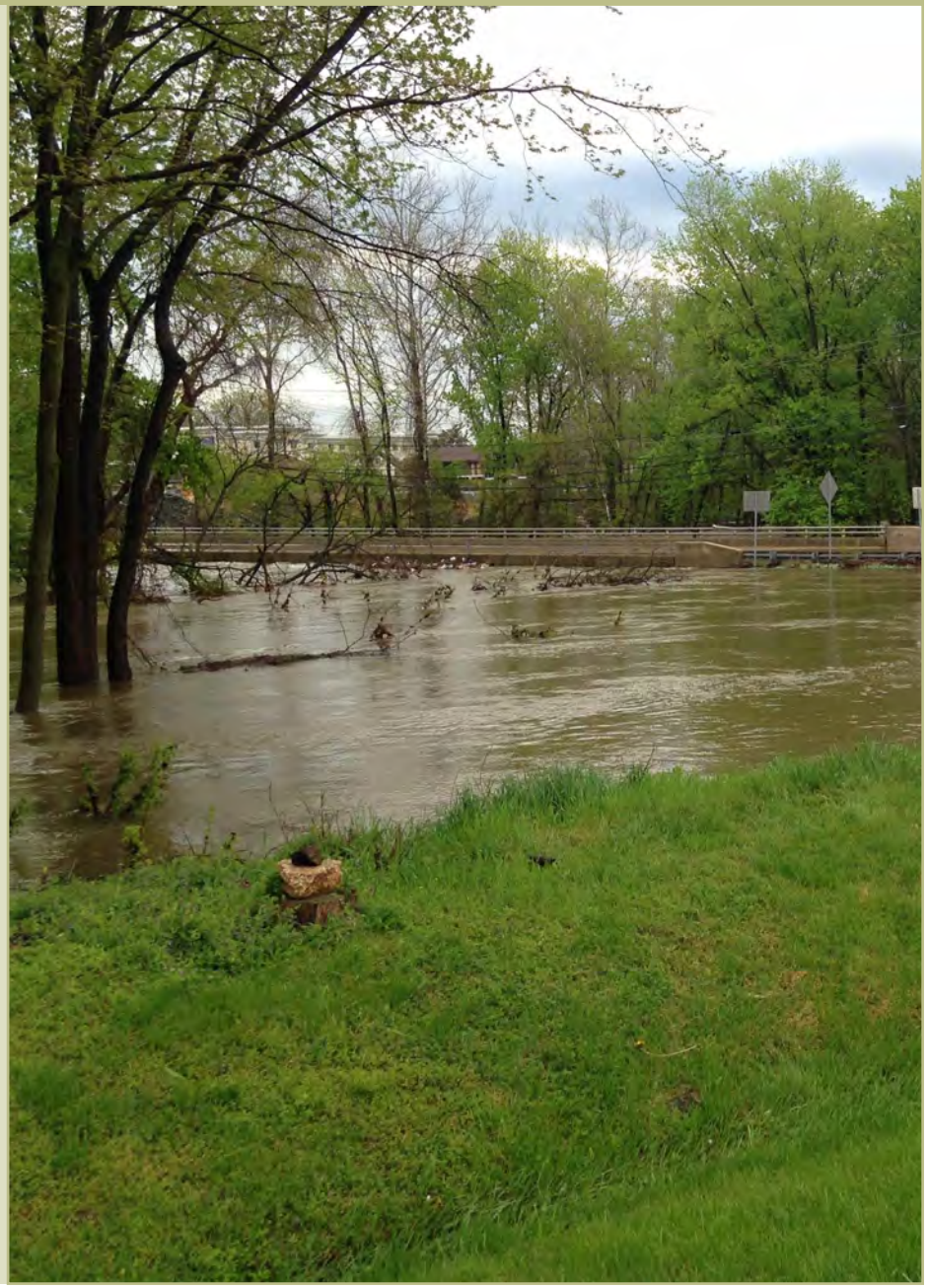
Hazard	**Impact on Prince George's County Key Sectors & Systems**				
	Energy	Public Health	Economy	Transportation	Water Supply
Extreme Precipitation	Moderate	High	High	High	Moderate
Coastal Flooding	Moderate	Moderate	Moderate	Moderate	Moderate
Extreme Heat	Moderate	High	Low	High	Moderate
Extreme Cold	High	Moderate	Moderate	Moderate	Moderate
Severe Storms	High	High	High	Moderate	Moderate

FURTHER ASSESSMENT IS CRITICAL TO PROTECTING OUR COMMUNITIES

Prince George's County operates and maintains a network of flood control structures, including dams and levees, to manage and mitigate flood risk. Due to climate change, more frequent and intense precipitation events raise the risk of dam and levee failure. The County built many of these structures decades ago to provide flood control for the 100-year flood, probable maximum flood, or other design flood event.

Typically, engineers based their designs on past weather, considering what prior decades of data showed about the maximum probable flood that a structure would expect to control. The basis of designs for much of the County's existing flood control structures are rainfall values established by Technical Paper 40 (US Department of Commerce, 1963). In 2006, NOAA released local rainfall estimates that exceed TP-40 rainfall values. Future storm-driven flows may exceed the design capacity of existing structures. In 2016, Prince George's County Department of Permitting, Inspections, and Enforcement (DPIE) issued Techno-Gram 007-2016, stating that NOAA Atlas 14 Precipitation Frequency Estimate for Central Prince George's County is to be used for computing 100-year discharge in the design of stormwater management ponds, dam safety, and 100-year flood control attenuation.

Prince George's County owns seven (7) "High Hazard Dams," each having an emergency action plan. Dams are classified as "High Hazard" because a failure or misoperation of the dam would most likely result in loss of life, significant economic losses, and damages to downstream property or critical infrastructure. The County must assess the climate impacts on all high-hazard dams, constructed prior stipulations of Techno-Gram 007-2016 taking effect, and levees to understand the risks better and determine what infrastructure upgrades or other long-term investments will be needed to incorporate climate resilient measures.



CLIMATE-DRIVEN HEALTH HAZARDS AND HEALTH DISPARITIES

Climate change poses stark and well-documented hazards to human health and well-being. In its 2016 *Maryland Climate and Health Profile Report*, the University of Maryland's Institute for Applied Environmental Health documented these existing and projected climate-related health hazards for residents of Maryland and Prince George's County, including increased hospitalizations from respiratory and cardiovascular disease during extreme heat events and extreme precipitation events. Climate disruptions are also expected to increase the prevalence of food- and water-borne illnesses, infectious diseases, mental health threats, and injury and death related to extreme weather.

Projected increases in extreme heat events in Prince George's County are expected to cause 22% more hospitalizations from heart attacks and 75% more hospitalizations from asthma attacks by 2040 compared to 2010.

In Prince George's County, some residents face greater health risks than others. Underserved populations – including people of color, low-income individuals, the elderly, and those with underlying health conditions – already bear a disproportionate burden of health hazards. Chronic diseases such as asthma, cancer and diabetes are linked to environmental exposures including but not only air pollution, drinking water contamination, exposure to toxic chemicals, and the design of neighborhoods themselves.

In many of our county's underserved neighborhoods, residents lack access to natural areas and green spaces that could offer vital opportunities for physical activity, recreation, and mental, emotional, social well-being. These neighborhoods often have a high percentage of impermeable surfaces and a low level of tree canopy coverage. Lack of shade increases risk of heat-related illness, and an excess of paved surfaces increases risk of floods, water-borne illness, and vector-borne diseases.

Who dies during a heat wave? The people living on the street, the people living in homes without air conditioning, the people whose electricity has been turned off because they have not been able to pay the electric bill. Of course, these are the same individuals and communities that contribute the least to greenhouse gas emissions. It is time for Prince George's County to remedy these disparities.

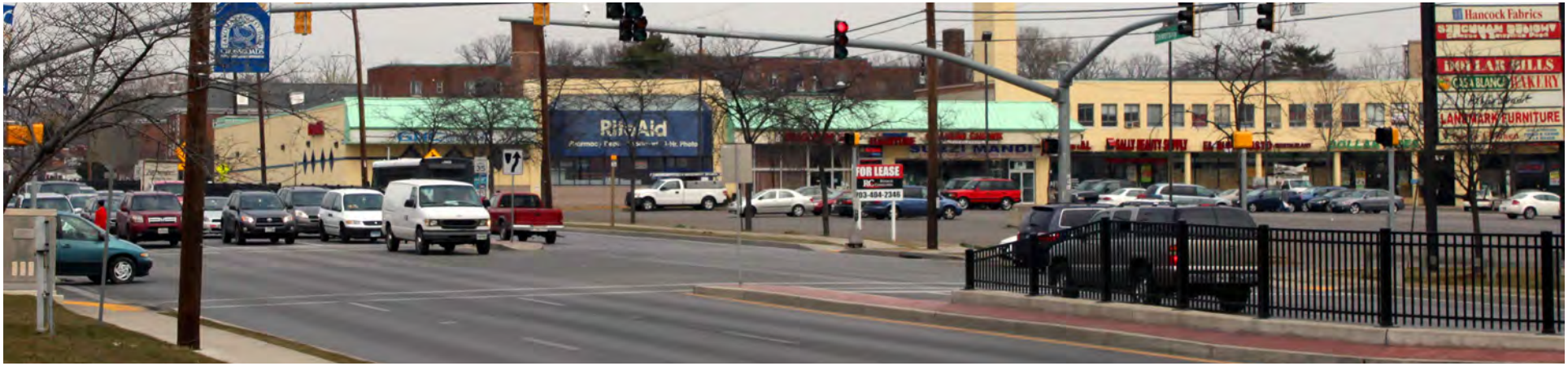
- Dr. Amir Sapkota, Maryland Institute for Applied Environmental Health

Projected climate impacts are expected to exacerbate these existing health disparities. During extreme heat events in Maryland, we already see an 11% overall increase in heart attack hospitalizations, and this figure is even worse for people of color. The extreme heat-related heart attack risk for blacks is 27% -- three times the risk for whites (9%). During heat waves, residents living in urban heat islands are disproportionately impacted, because temperatures are higher where there is less shade and more pavement. These same neighborhoods tend to have higher rates of poverty, higher proportions of minority populations, and higher rates of homelessness – some of the factors that already contribute to high health risk.

Action is needed to remedy the causes of these health hazards and disparities, as proposed below. But it is also critical that we are prepared to effectively treat health impacts when they occur. Prince George's County must take steps to enhance the resilience of our healthcare system, so that it can provide services to residents even in extreme circumstances, such as the simultaneous occurrence of another widespread epidemic and major climate change driven hazards. In emergency settings, every minute counts – and it is critical that emergency response personnel are able to quickly ascertain where to transport a patient in urgent need of care. Lacking a centralized database listing open hospital beds, emergency responders in our state lose valuable time contacting multiple facilities seeking to find an open hospital bed. In cases of extreme weather-related heart attacks and other emergencies, this time can mean the difference between life and death.

COMPOUND CLIMATE EVENTS

Climate hazards often do not happen in isolation from one another. This was demonstrated when Hurricane Ida hit the Gulf Coast in 2021. The hurricane destroyed homes and cut off electricity, and while residents were recovering, they were exposed to extreme heat. The combined impact of these hazards is much greater than if the hazards had occurred separately. Likewise, if high air pollution episodes and extreme heat events occur on the same day, their impacts are going to be much different than if the two hazards occurred separately. When such hazards exist in the presence of ongoing threats such as COVID-19, the challenge is further amplified.



STEPS TO REMEDY HEALTH DISPARITIES AND CLIMATE-DRIVEN HEALTH HAZARDS

Investing in climate solutions in vulnerable neighborhoods can decrease inequitable exposure to adverse environmental conditions and therefore decrease health disparities. Actions to reduce health impacts and health disparities associated with climate change in Prince George's County include:

» Conduct vulnerability assessments for the following:

- Historical exposure to extreme events including extreme heat and extreme precipitation as well as projected exposure to extreme heat, extreme precipitation, and extreme air pollution events for 2030, 2040, and 2050 – organized by census tract or zip code.
- In-depth health vulnerability assessment to update the above-referenced 2016 Maryland Climate and Health Profile Report. It should include census tract or zip code - level baseline health characteristics, risk maps for health outcomes that are related to extreme heat and extreme precipitation events (asthma, stroke, food and waterborne illness, roadway accidents, violence, all-cause mortality, all-cause hospitalizations), and it should include projected increases in extreme event related health burden for 2030, 2040, and 2050.
- In-depth analysis of specific subpopulations that are disproportionately burdened, both in terms of hazards and adverse health outcomes. This analysis should be made available and easily accessible to community residents.

» Develop automated flooding probability mapping based on seven-day weather forecast, to enable community residents and local agencies to prepare and take necessary action

» Implement policies and programs that mitigate urban heat island effects, including preserving and expanding urban forests and adding green infrastructure and other green spaces in urban neighborhoods. In building support for such initiatives, make the direct link to health outcomes and health equity.

» Choose the location of cooling centers and resilience hubs in partnership with local communities, prioritizing poorer neighborhoods. Provide transportation to cooling centers in areas that have a high density of homeless and low-income individuals.

» Pass and enforce regulations to prohibit utilities from shutting off electricity during hot months (June, July, August) and gas during the coldest months (December, January, and February); without electricity during a heat wave, low-income and vulnerable individuals are at increased risk of heat-related illness and death.

» Develop an early warning system for health. This should include detailed hazard-health risk maps with 8-week, 3-week and 1-week lead times, corresponding to Ready, Set and Go stages of preparedness. The warnings with an 8-week lead time should be used as a signal to get all response systems in "Ready" state. If the hazard progresses at the same rate to the 3-week window, then the preparedness should be elevated to "Set" level. If the hazard further progresses and persists in the 1-week window, it should initiate a "Go" responses from the coordinating authority, triggering relevant responses from all agencies to save lives, minimize health burden.

» Develop a central database of emergency room beds and ICU beds in all Prince George's County hospitals, in order to build preparedness and resilience in our health care system. This database should be updated continuously.

SECTION V ENDNOTES

1 Prince George's County Health Department (2021). PGC Health Zone: 2021 Demographics. http://www.pgchealthzone.org/demographic-data?id=1260&sectionId=939

2 Ibid

3 Tandon, A. Carbon Brief (2021). Climate change will hit 'endemic' plants and animals the hardest, study warns. https://www.carbonbrief.org/climate-change-will-hit-endemic-plants-and-animals-the-hardest-study-warns

4 NOAA National Centers for Environmental Information (2017). Maryland State Climate Summary. https://statesummaries.ncics. org/chapter/md/

5 U.S. Climate Resilience Toolkit (2021). Climate Explorer: Prince George's County, MD. https://crt-climate-explorer.nemac.org/climate_graphs/?county=Prince%2BGeorge%27s%2BCounty&ci-ty=Prince%2BGeorge%27s%2B-County%2C%20MD&fips=2403 3&lat=38.78492110000001&lon=-76.8720961&zoom=7&nav-=local-climate-charts

6 U.S. Federal Government (2020). U.S. Climate Resilience Toolkit Climate Explorer. https://crt-climate-explorer.nemac.org/

7 Ibid

8 U.S. Global Change Research Program (2018). Impacts, Risks, and Adaptation in the United States: Third National Climate Assessment. https://nca2014.globalchange.gov/report/our-changing-climate/changes-storms

9 U.S. Climate Resilience Toolkit (2021). Climate Explorer: Prince George's County, MD. https://crt-climate-explorer.nemac.org/climate_graphs/?county=Prince%2BGeorge%27s%2BCounty&city=Prince%2BGeorge%27s%2B-County%2C%20MD&fips=24033&lat=38.78492110000001&lon=-76.8720961&zoom=7&nav=local-climate-charts

10 Prince George's County Office of Emergency Management (2017). Prince George's County & the City of Laurel Hazard Mitigation Plan Update. https://www.princegeorgescountymd.gov/DocumentCenter/View/29942/2017-PGC-Hazard-Mitigation-Plan-Update_ADOPTED

11 Data is included for FEMA floodplains as currently defined in September 2021. FEMA floodplain maps currently only account for historical conditions and have not been updated to reflect climate change projections. Floodplain designations are subject to modification and expansion.

12 Based on the National Climate Assessment's "intermediate-high sea level rise scenario."

13 Surging Seas Climate Central (2016). Coastal Risks for Prince George's County, MD. https://riskfinder.climatecentral.org/county/prince-georges-county.md.us?comparisonType=county&forecastType=NOAA2017_int_p50&impact=Land&impactGroup=Land&level=6&unit=ft&zillowPlaceType=postal-code

14 National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce (2021). What is High Tide Flooding? https://oceanservice.noaa.gov/facts/high-tide-flooding.html

15 Sweet, W.V., G. Dusek, J. Obeysekera, J. Marra (2018). Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold. NOAA Tech. Rep. NOS CO-OPS 86, 44p.

16 National Oceanic and Atmospheric Administration, U.S. Department of Commerce (2016). Severe Storms. https://www.noaa.gov explainers/severe-storms

17 Climate Central (2020). Stronger Hurricanes. https://medialibrary.climatecentral.org/resources/2020-stronger-hurricanes

VI. TAKING ACTION:

STRATEGIES TO ACHIEVE A LOW-CARBON, RESILIENT PRINCE GEORGE'S COUNTY

This section is the heart of the Prince George's County Climate Action Plan. It outlines the strategies we believe will position our County to achieve its vision for a low-carbon and climate-ready future. We have organized our recommendations into three broad Action Areas:

1. Operational actions to bring about transformational change within – and beyond – county government
2. Mitigation actions to reduce our county's greenhouse gas emissions
3. Adaptation actions to respond to and prepare for the impacts of climate change in our county

There are many points of intersection between these areas, and we have attempted to highlight those points.

Each Action Area includes a discussion of the broad strategies we believe are necessary to achieve climate mitigation and adaptation in Prince George's County. Perhaps more important than these broad strategies are the specific, actionable recommendations proposed within each area. These recommendations are the steps that we believe will yield the greatest impact and over which County government has a high degree of influence. Most of our recommendations could be implemented within three- to five years, with sufficient funding and government capacity. These recommendations are listed in Table VI–3.

Table VI–1. Priority Recommendations

Rec #	Recommendation
COUNTY OPERATIONS	
CO-1	Build internal capacity to plan and implement climate action
CO-2	Lead by example and ensure transparency in climate action
CO-3	Ensure meaningful, equitable community engagement
CO-4	Commit to clean and renewable energy
CO-5	Strengthen land use regulations to better align individual land use decisions with state County policies related to smart growth, natural resource conservation, and green infrastructure
MITIGATION	
M-1	Power County operations with 100% renewable energy
M-2	Increase deployment of solar PV in the residential and commercial sectors by expanding partnerships, incentives, and financing solutions
M-3	Accelerate deployment of resilient energy systems
M-4	Accelerate deployment of EVs and charging infrastructure by County and other public agencies
M-5	Develop a community-wide EV deployment strategy
M-6	Support telecommute policies to reduce VMT and enhance County resiliency
M-7	Increase investment in Activity Centers
M-8	Accelerate implementation of deep energy retrofits and community-wide efficiency and weatherization efforts
M-9	Establish building benchmarking requirements and energy and water consumption standards
M-10	Expand County waste reduction and diversion efforts
M-11	Enact and enforce “No Net Loss” tree conservation regulation and policy to maintain and expand street tree canopy and forest as a land cover

Rec #	Recommendation
ADAPTATION	
A-1	Integrate climate resilience criteria into long-range County plans, policies, and CIP programs by 2026
A-2	Implement climate resilient stormwater management and expand flood mitigation programs
A-3	Prioritize preserving and restoring natural resource areas and agricultural open space to reduce flood risk
A-4	Evaluate and address climate risk to dams and levees
A-5	Require community-wide climate resilient green infrastructure
A-6	Expand information and assistance to the public regarding Impacts of climate risks and opportunities to implement climate actions
A-7	Reduce exposure of vulnerable populations to extreme heat
A-8	Establish resilience hubs to serve the needs of vulnerable communities. At a basic level, climate resilience requires meeting our citizens’ core needs during and following an emergency such as a severe storm
A-9	Adopt codes, standards, and practices to support climate-ready green buildings and development
A-10	Promote a healthy food system supported by low-carbon, conservationist agricultural practices

All of these recommendations – as well as the broader strategies that underpin them – are designed to align with the climate goals of our state and regional partners, so that Prince George’s County can support these larger goals at our local scale. Where possible, we have also organized our discussion according to the sectors found in the Maryland Greenhouse Gas Reduction Act and in the Metropolitan Washington Council of Government’s Climate and Energy Action Plan.

A NOTE ON GRAPHICS

The Climate Action Plan uses the following graphics to highlight strategies with particularly important co-benefits in three categories: (1) strategies that advance both mitigation and adaptation, (2) strategies in which Prince George's County is asked to lead by example, and (3) strategies that specifically emphasize equity and inclusion.

While these benefits overlap with our guiding principles and have thus been considered in every strategy and recommendation found in this plan, strategies with these icons represent solutions with a particularly strong emphasis and focused benefit.

Win-win solutions. This symbol highlights opportunities to both reduce emissions and advance resilience – strategies that are sometimes discussed separately but can be interrelated. These high-yield (or win-win) solutions were prioritized throughout the planning process and they deserve special emphasis in the plan.

Leading by example. Achieving the goals outlined in this plan will require action by many stakeholders, including county residents, businesses, and institutions. County government can play an essential role in leading by example. By demonstrating the use of new technologies or approaches, maximizing the educational value of our actions, and helping others see the opportunity to take action, the County can help speed the adoption and acceptance of new policies and practices.

Equity and inclusion. To reach our climate adaptation and mitigation goals, Prince George's County seeks to implement climate change strategies that are broadly inclusive and that yield widely shared, equitable benefits. This graphic is used throughout the plan to spotlight opportunities to ensure inclusivity and equity in developing and implementing climate actions.

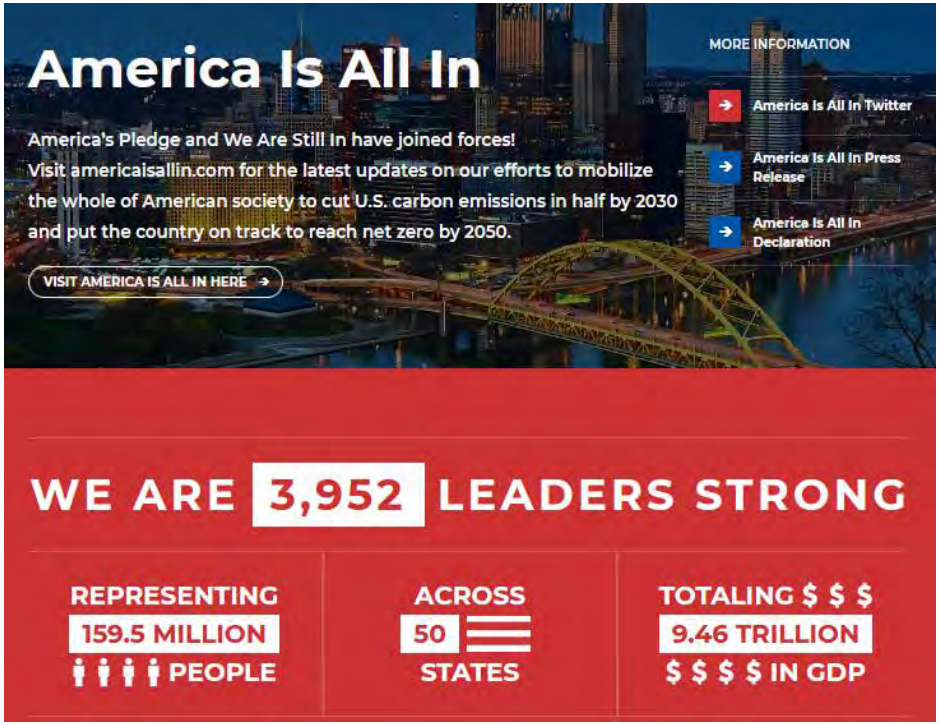
ACTION AREA 1:

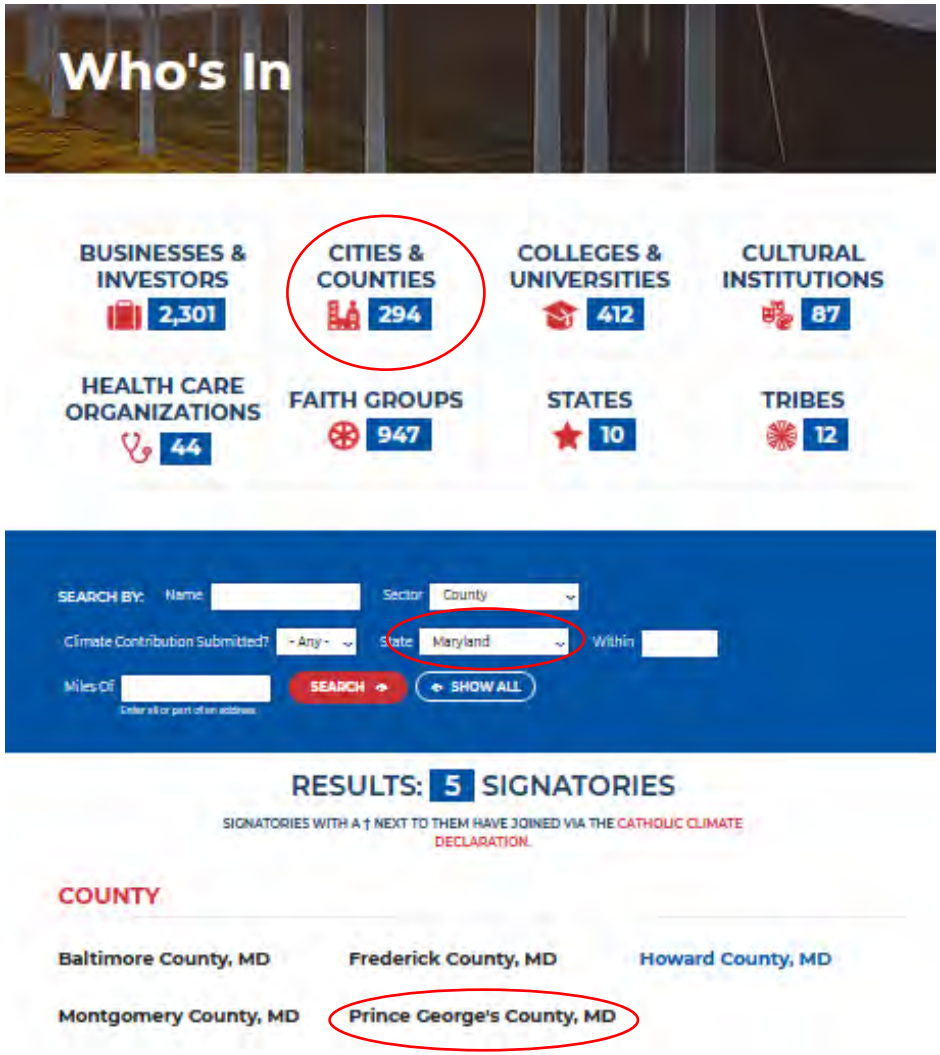
OPERATIONAL ACTIONS TO BRING ABOUT TRANSFORMATIONAL CHANGE

Local governments have a powerful role to play in the global climate response – not only in conducting on-the-ground implementation but also in leading the charge to advance ambitious resilience goals. This was abundantly demonstrated in the "America is All In" movement, which arose when local leaders across the country reacted in alarm to President Trump's 2017 announcement that the United States would leave the Paris Agreement on Climate Change.[1] Almost immediately, a spontaneous coalition of governmental and nongovernmental institutions came together to symbolically honor America's promise to tackle climate change. Three years later, on December 23, 2020, Prince George's County joined thirteen other counties in the country to sign the "America Is All In" declaration.[2] This declaration reaffirmed our County's commitment to the Paris Agreement and pledged to partner with the newly-elected Biden-Harris Administration in its ambitious commitments to tackle the climate crisis.

These actions -- along with our county's reductions in greenhouse gas reductions -- demonstrate that Prince George's County has the potential to be a leader in the local-level response to climate change. While municipal governments, nonprofit organizations, and community and civic groups have a role to play as climate leaders, we believe there is a special responsibility for County government. Specifically, we call on Prince George's County government to (1) make a clear commitment to climate leadership and transformational change, as described in the opening pages of this report, (2) lead by example in implementing mitigation and adaptation actions, and (3) actively foster implementation of the plan by supporting every recommendation over which it has influence.

In **Recommendations CO-1** through **CO-5**, we describe the specific actions that Prince George's County must take – in its operations, governance, and policy-making – to bring transformation both within and beyond government. These proposed actions are intended to alter those existing County institutional processes that run counter to building a resilient Prince George's County. Their effects could be far-reaching and highly impactful. Importantly, these actions will also position Prince George's County to implement all the other climate action strategies found in this plan, at the scale and speed required. The following is a summary of these recommendations; further detail on these and all the plan's Priority Recommendations can be found in Section VII.





RECOMMENDATIONS

As the County supports and advances these strategies to accelerate the transition to a clean electrical grid and deployment of renewable energy sources, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-1	Build internal capacity to plan and implement climate action	●	●	●	●	1+	
CO-2	Lead by example and ensure transparency in climate action	●	◒	●	●	1-3+	
CO-3	Ensure meaningful, equitable community engagement	●	●	●	●	1+	
CO-4	Commit to clean and renewable energy	●	●	●	●	1+	
CO-5	Strengthen land use regulations to better align individual land use decisions with state County policies related to smart growth, natural resource conservation and green infrastructure	●	●	●	●	3-5	

CO-1: BUILD INTERNAL CAPACITY TO PLAN AND IMPLEMENT CLIMATE ACTION.

Implementing our ambitious climate action plan will take considerable skill, energy, and time. We affirm a commitment to build capacity within County government – elected officials, agency directors, staff – so that we may effectively assess climate risk, implement mitigation and adaptation strategies, and evaluate progress. Augmenting capacity may also entail the effective use of strategic collaborations with community partners.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

CO-2: LEAD BY EXAMPLE AND ENSURE TRANSPARENCY IN CLIMATE ACTION.

To achieve our vision for a safe and resilient future, Prince George's County government should lead by example in committing to and implementing comprehensive actions toward a carbon free future. To gain the trust of county residents, the County should pursue a transparent system of tracking progress toward defined indicators, and we should be willing to be held accountable for implementation of our proposed climate action steps.

CO-3: ENSURE MEANINGFUL, EQUITABLE COMMUNITY ENGAGEMENT.

We know that our community plans are more successful when all stakeholders have meaningful opportunities to be part of the planning process. Prince George's County must provide accessible engagement opportunities for underserved communities throughout its climate action planning and implementation processes. It must foster a shared understanding of community needs, and it must provide clear and transparent data, information, and resources to underserved communities. By engaging residents in these ways -- and by inviting them to conduct citizen science to gather their own community-relevant data -- everyone will have the chance to be part of our shared solutions.

CO-4: COMMIT TO CLEAN AND RENEWABLE ENERGY.

Given the clear costs of continuing to support the fossil fuel economy, Prince George's County must transition toward renewable sources of energy. Our task is to advocate for a statewide 100% Renewable Portfolio Standard, develop our own transition plan toward renewable energy, and eliminate any practices or policies that support the continued long-term use or distribution of fossil fuels.

CO-5: STRENGTHEN LAND USE REGULATIONS TO BETTER ALIGN INDIVIDUAL LAND USE DECISIONS WITH STATE COUNTY POLICIES RELATED TO SMART GROWTH, NATURAL RESOURCE CONSERVATION, AND GREEN INFRASTRUCTURE.

Land use patterns have extensive impacts on both the causes of climate change as well as our community's ability to weather its impacts. In its Plan 3035, Prince George's County has demonstrated its commitment to support smarter, more resilient land use practices -- those that reduce vehicle dependence, mitigate floods, and preserve critical natural assets such as of tree canopy, riparian buffers, and wetlands. We support the accelerated implementation Plan 2035's goals, particularly those related to smart growth, natural resource conservation, and green infrastructure. These goals must be integrated into our county's codes and ordinances, and they must be enforced.

Throughout this report, we have recommended strategies that require implementation by Prince George's County government. In Table VI–4, we restate the required County action and each action's associated recommendation.

Table VI–2. Recommendations directly impacting County government

Recap of Priority Recommendations that require implementation by Prince George's County government
Benchmark energy efficiency of county-owned facilities (part of **Recommendation M-9**)
Perform energy retrofits of county-owned facilities (part of **Recommendation M-8**)
Utilize best management practices and perform good housekeeping at county-owned facilities
Consider equity and mobility in the siting of all new facilities, buildings, schools and programs
Build all new facilities, buildings and schools to a net-zero energy and water standard (**Recommendation A-9**)
Convert the public transportation fleet, and the County vehicle fleet to clean energy (**Recommendation M-5**)
Support telecommute policies to reduce VMT and enhance county resilience (**Recommendation M-6**)

It is well understood that a plan is only as good as its implementation. We believe Prince George's County must lead the charge to implement the strategies and recommendations contained in this plan, starting immediately. This will require coordinated action across many agencies within the executive branch and by the County Council. Key steps to accelerate implementation of Prince George's Climate Action Plan include:

- Create a Climate Implementation Task Force comprised of government leaders and charged with overseeing and coordinating plan implementation.
- Evaluate the feasibility of a Prince George's County Resilience Authority to coordinate the financing of climate mitigation and adaptation projects, as authorized under as authorized under Md. Local Government Code Ann. § 22-102.
- Develop a set of metrics to track progress and ensure transparency and accountability throughout plan implementation. Make these metrics easily accessible to the public in a one-stop-shop resource sharing platform such as Countystat.
- Immediately implement and enforce all Plan 2035 goals related to smart growth, natural resource conservation, and green infrastructure. Prince George's County has already established goals to stop practices that enable, promote, or encourage the ongoing loss of the county's tree canopy and natural resources for short term gains. The County must now strengthen and enforce land use policy and regulations in order to enact those goals

EQUITABLE COMMUNITY ENGAGEMENT, EDUCATION, AND OUTREACH

The successful implementation of Prince George's County Climate Action Plan will require building community-wide support and action. Prince George's County government has a special role to play in catalyzing action, so that community members have the information they need to make climate-conscious decisions – everyday choices that help curb greenhouse gas emissions and build resilience.

Beyond leading by example through its own actions, the County must deliver accurate, timely information about climate risks and responses, and it must conduct meaningful outreach to ensure all residents are engaged in the climate response. This includes broad education and participatory engagement efforts to identify barriers to climate action, pinpoint community-specific solutions, assist with implementation, and track and communicate progress. Specific community education and outreach strategies that could aid in the successful implementation of the CAP are described on the following pages.

> "Prince George's County residents need new engagement strategies to make better energy improvements to their homes. Incentives are available at the utility level but it's not always easy to navigate what is needed to do your home to save energy until something breaks or reaches the end of its useful life."
>
> *- Prince George's County resident, CAP Community meeting, March, 2021*

EQUITY METRICS

All CAP implementation activities, whether outreach and community engagement, installation of infrastructure, or service delivery, should include collecting information to measure diversity, equity and inclusivity-related outcomes.

- Race, ethnicity, language, age, gender, and income. Program dollars distributed to and spent on communities of color, low-income populations, and minority-owned or emerging small businesses.
- # of community-based organizations engaged in the development of new climate programming, specifically those led by and that predominantly serve communities of color and low-income populations.

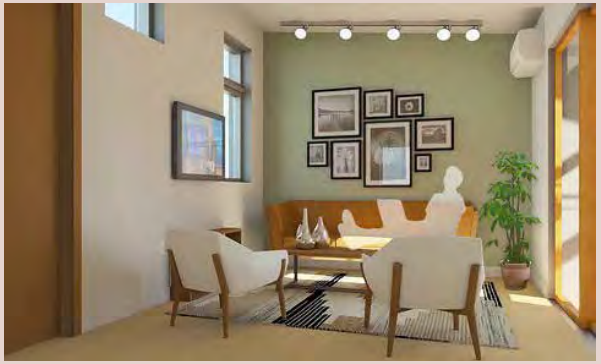
PRIORITIZE CLIMATE EDUCATION AND PROFESSIONAL DEVELOPMENT

To support the ambitious but critical goals of the CAP, the County must convey a sense of urgency to build community-wide responsibility to take action. Community members must be empowered to act on a personal and collective level to reduce their carbon footprints and build climate resilience. This process can be facilitated through educational programs on varying levels.

K-12 climate education efforts must be prioritized. This will involve the active engagement of educational leadership to develop and fund programs that build climate literacy into existing and new curriculum for students and teachers. In order to educate students, teachers must first understand the principles of climate change. Teachers and administrators must immediately be engaged in high-quality professional development that includes knowledge building, instructional materials, and methodology, with climate change impacts as the central focus. County environmental literacy programs must also relay what actions make a difference. For example, outdoor education field trips and programs that are focused on decreasing food waste through composting, growing school gardens, and planting native plants on school grounds.

Prince George's County is fortunate to have three excellent colleges within its borders: **University of Maryland-College Park, Bowie State University,** and **Prince George's Community College.** These three educational institutions provide opportunities both for students and the surrounding community to develop and test innovative solutions to problems.

UNIVERSITY OF MARYLAND: U.S DEPARTMENT OF ENERGY SOLAR DECATHLON



University of Maryland (UMD) participates in is the U.S. Department of Energy Solar Decathlon, a biannual competition where interdisciplinary student teams conceive, design, and build a net-zero, off-grid home that only uses solar power. The two-year process is an intensive learning experience that provides students with unique hands-on training in clean energy technology and energy efficient design techniques. Teams often integrate additional environmentally friendly features into their homes, such as green stormwater retention and green building materials. The resulting homes serve as excellent communication tools and demonstration sites for educating the public, particularly homeowners, about the latest tools and techniques for energy-efficient construction.

Bowie State University Leading by Example. Bowie State University has implemented several solar projects that generate between 15-20% of campus energy needs from solar.

Prince George's Community College: Preparing Students for the Green Economy- Sustainable Workforce Development

At a collegiate and university level, institutions must ensure climate literacy through mandatory general education courses (such as basic sciences, math, economics, writing, literature, ethics, arts). Courses should intertwine outcomes and case studies related to climate science and solutions for climate mitigation and adaptation. Health sciences, for example, could include more emphasis on the prevention and treatment of heat illnesses, vector-borne infections, and water-borne infections. In addition, a County partnership with the Community College could create educational opportunities for continuing education such as "Climate 101" and climate-friendly lawn care and energy retrofits for homeowners.

Adult education must start with dedicated and urgent climate action messaging from all facets of local government communications. Climate action must be front and center on the County Executive's communications and newsletters. The Prince George's County Memorial Library System should build on its extensive collection of materials on global climate change. Library resources can be made more visible to patrons through displays and recommendations from librarians. Libraries can also serve as venues for community outreach and education events by the County and other organizations to improve awareness of best practices, existing resources, and current regulations and recommendations.

M-NCPPC Parks and Recreation should create a climate awareness campaign to roll out at all sports facilities, nature centers, and associated public-facing park facilities. Park rangers must receive mandatory training on the possible impacts of climate change on park natural resources and wildlife. Tours and festivals hosted at M-NPPC park facilities should prohibit the sale of beverages or foods using single service plastic containers, require recycling, and incentive waste reduction strategies for all public and private events.

Professional development for County and Municipal employees should explain why climate action is needed and how it can be implemented within everyday activities. Decision-makers in all departments will also require the education and resources to implement and motivate needed change throughout their departments. For example, the County Click/311 system should ensure ongoing education for staff about addressing residents' climate-related concerns, from referrals to new programs and more information about how to access existing programs to complaints about idling buses or missed food scraps pickups.

BUILD CLIMATE ACTION CONSENSUS THROUGH TRANSPARENCY AND ACCOUNTABILITY

Through surveys and community listening sessions, local government should engage community members in citizen science to develop relevant data for their community. This shared experience between government staff and residents will better facilitate development of a shared understanding of community needs and provide data, information, and resources to underserved communities.

For transparency, relevant data about progress related to greenhouse gas emissions and climate adaptation should be publicly available and easily accessible through all media (newsletter, website, social media, etc.). County operations must dedicate resources to improve County digital resources and public-facing websites. Dedicated funding must be available for creating and regularly updating an online clearinghouse for information regarding flood maps, heat island effects, County resources, best practices for landscaping and home retrofits, cleaner transportation options, land conservation, tree canopy maintenance, and improving soil health. Regular updates on how the county's climate action may impact relevant businesses (such as builders, engineers, contractors, landscapers, retrofitters) should be messaged by DPIE and other regulatory agencies to promote implementation of new guidelines and enforcement of new regulations.

CREATE WORKFORCE DEVELOPMENT AND ECONOMIC OPPORTUNITIES

The County should support and promote workforce development for careers in building retrofits, renewable energy, new automotive technology, climate-friendly landscaping practices, and low-carbon conservation agricultural practices. This effort might include promotion and augmentation of Prince George's Community College existing programs, the University of Maryland Extension, and other community-based organizations that provide educational services to displaced workers and others looking for new career opportunities. Workforce development programs should be specifically developed for groups experiencing high unemployment levels and promoted to increase awareness of the programs among the people who would benefit most from opportunities to develop new and marketable skill sets, gain relevant work experience and enhance their knowledge of best practices. The County will need to develop strategies to engage its many diverse sectors such as residential homeowners, farmers, developers, and local businesses.

County outreach efforts should include recognition programs for businesses and residents who exemplify excellence, meet new benchmarks, create clean-energy jobs, and embrace new recommendations for climate mitigation and adaptation. A special county seal-of-approval could be developed for inclusion in business promotional materials so that customers can choose businesses with better practices.

ACTION AREA 2:

MITIGATING THE CAUSE OF CLIMATE CHANGE BY REDUCING GREENHOUSE GAS EMISSIONS

The main driver of climate change in the United States is greenhouse gas (GHG) emissions from burning fossil fuels related to transportation and energy. Per International Panel on Climate Change's Sixth Assessment Report, released July 17, 2021, the world's window of opportunity to reduce climate impacts from GHG emissions is quickly narrowing.[3] Should the global community fail to sufficiently reduce emissions, weather patterns will continue to become more extreme, unpredictable, and dangerous.

To avoid the most catastrophic impacts of climate change, both national and local governments must commit to reducing their operational emissions, assisting residents in reducing their carbon footprint, and eliminating investments that support the traditional fossil fuel economy. Achieving our vision for a safe and resilient Prince George's County requires nothing less than a paradigm shift from a fossil fuel-based economy to a carbon-neutral or net-zero future. Carbon-neutrality means sequestering the same amount of carbon dioxide as we emit. It requires our county to transform how we create and source energy, how we transport ourselves, how we design buildings, and how we manage natural resources.

As a critical first step toward this transition, we call for Prince George's County to adopt a goal of a 50% reduction in greenhouse gas (GHG) emissions by 2030, compared to our 2005 level. While ambitious, this goal must be just the beginning. Dramatic, sustained measures will be required, at all levels of governance and in all parts of our society, to reach global carbon neutrality by 2050 – the goal identified by the International Panel on Climate Change as critical if we are to avoid the worst impacts of climate change.

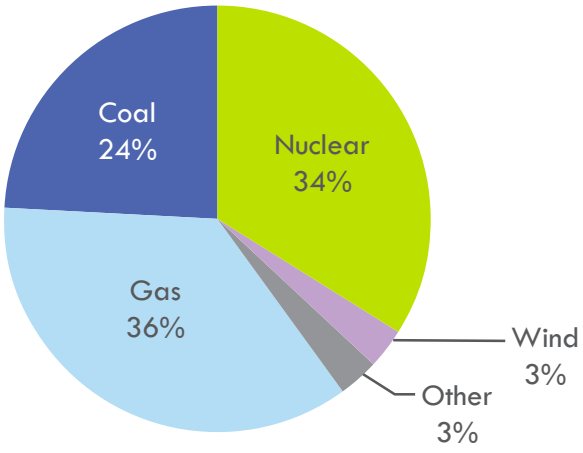
In this section of the plan, we outline the strategies that the County must pursue to realize this emissions goal. As in the previous section, our recommendations – those highest-yield, most actionable steps – are highlighted, with more detail for each found in Section VII. We organize our discussion according to the key greenhouse gas sectors of electricity generation, transportation, residential and commercial buildings, waste and carbon Sequestration, and natural lands.

ELECTRICITY GENERATION

INTRODUCTION

Nearly a third of Prince George's GHG emissions come from the use of electricity (27% as of 2018). The county is located within the transmission territory of PJM, a regional electricity transmission organization.[4] PJM's electricity generation mix is comprised primarily of natural gas (36%), nuclear (34%), and coal (24%), which make up roughly 94% of the overall generation mix, respectively. The remaining 6% of electricity generation is generated by wind resources (3%), with the final 3% of the generation coming from hydro (1.3%), waste (0.5%), solar PV (0.3%), and methane and wood rounding out the total.[5,6]

Figure VI-1. How is Prince George's County's Electricity Generated?

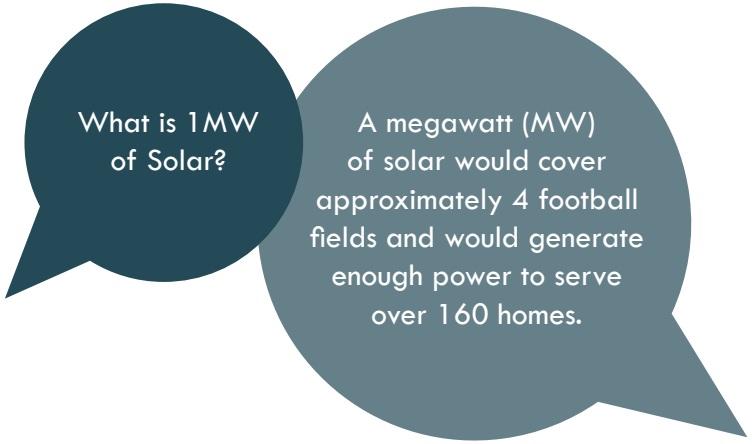


If the county is to successfully transition to economy-wide electrification and decarbonization, the County must immediately urge the state to adopt a 100% Renewable Energy Portfolio(RPS) for grid supplied electricity. The transition away from fossil fuel energy will result in significant increased electricity demand within Prince George's County. The positive impacts of electrifying the County's transportation sector and commercial and residential heating will be significantly reduced if clean, renewable energy sources are not used to generate the electricity to power these sectors.

As noted in Section V, significant progress has been made toward decarbonizing the region's electricity grid. This progress is primarily due to Maryland's existing Renewable Portfolio Standard (RPS. The RPS is a state policy that requires all electricity suppliers within Maryland to procure a minimum portion of their electric retail sales from eligible renewable energy sources. The Clean Energy Jobs Act of 2019 extended the RPS requirement from 25% renewable energy sources by 2020 to 50% renewable energy sources by 2030.[7] However, for a carbon-neutral future, the CAC strongly recommends the County, in unison with other jurisdictions, immediately urge the state to adopt a more aggressive goal of 100% RPS by 2030

Progress is also underway at a local level. Prince George's County has installed more solar power facilities than any other county in the state, with more than 20,000 rooftop solar systems in place as of 2020, an increase from just 50 ten years prior.[8] Residential solar systems can generate a 20-40% reduction in energy bills, driving a growing demand for solar in our region.[9] In addition to residential systems, existing rooftop solar capacity in our county includes over 1 MW of solar installed on government properties, with plans to install another 4 MW by 2023. Further, Prince George's County's Board of Education has committed to transitioning the school district to 100% clean, renewable electricity by 2030.[10] Three schools in the district have already installed solar Photovoltaic (PV) installations.

Figure VI-2. What is 1MW of Solar?



Powering Our County with Solar Energy

In 2018, Prince George's County installed a 900kW-DC solar carport system at the new Wayne K. Curry Administration Building. The County plans to install an additional 4 MW of solar on its properties over the next 5 years.

MINI CASE STUDY

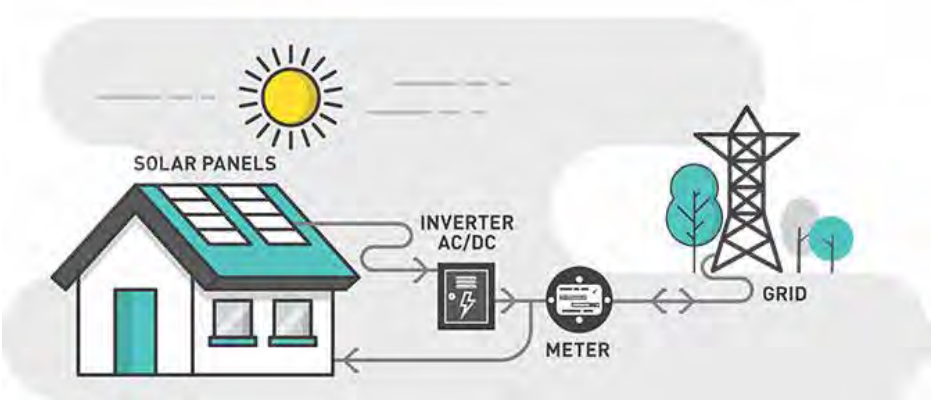
The Clean Energy Program Solar Energy Grant was created to assist residents looking to access the benefits of solar photovoltaic (PV) and/or solar water heaters to support more community-wide solar installations.[11] Under this grant program, financial incentives up to $10,000 are made available to cover costs associated with installing a solar PV system. Programs like these, which supplement Federal incentives like the Investment Tax Credit, are essential in garnering public adoption of renewable energy resources.[12] Programs supporting solar energy installation in the County include the following:

- Prince George's County's Energy Conservation Real Property Tax Credit, CB-11-2008
- Prince George's County's Solar PV Grant
- Prince George's County Solar Cooperatives and Regional Solar Cooperatives, which harnesses the buying power of a group of homeowners interested in installing solar to lower costs
- MEA Residential Clean Energy Grant Program for renewable energy technologies, including solar PV systems
- FSC First's Green Energy Loan Program, providing loan guaranties to participating lenders to compel them to provide financing for sustainable energy projects. Eligible projects include, but are not limited to battery energy storage, community solar and other distributed energy generation, energy and water efficiency in buildings, microgrids, clean transportation, and resiliency measures.
- Energy Resilience Zones, targeting EERE in underserved communities
- Prince George's County's Commercial Property Improvement Program
- Commercial Property Improvement Grant Program. County matches between 50-350k for commercial improvements.

TAKING ACTION TO DECARBONIZE ELECTRICITY

As Prince George's County transitions away from fossil fuel energy, we can expect increased demand for electricity in our county. To realize the positive effects of electrifying the county's transportation and building sectors, it is essential that our electricity is generated from clean, renewable energy sources. The following strategies will help ensure that Prince George's County reduces GHG emissions associated with the electricity sector.

HOW NET METERING WORKS



ADVOCATE FOR AGGRESSIVE RENEWABLE PORTFOLIO

As previously discussed, the State of Maryland Renewable Portfolio Standard (RPS) – a regulation that requires an increasing amount of electricity to be generated by cleaner energy sources – is a key driver in decarbonizing the electricity generation sector.[13] While Prince George's County does not have the ability regulate electricity utilities, it can be a vocal supporter for strengthening Maryland's RPS regulation. To accelerate the transition to a carbon-neutral future, our County should urge the state of Maryland to achieve 100% renewable electricity by 2040.

IMPLEMENT COMMUNITY CHOICE AGGREGATION

An alternative path to accelerating the transition to renewable energy in the region is through the formation of a Community Choice Aggregation (CCA, also referred to as Consumer Choice Energy or CCE) program. Such a program would allow the County to procure renewable electricity on behalf of residents at a competitive price and pass along savings to residents who choose this cleaner energy source. CCAs exist across the country, including in California, Massachusetts, and Rhode Island, and they are proving to be a valuable tool in enabling a community to meet its renewable electricity goals while also reducing energy costs for residents.

Montgomery County is currently piloting this model, after the Maryland House of Delegates passed HB 561 in March 2020, allowing the county to establish a pilot CCA program. This move potentially opens the door for additional CCAs across the state.[14] Prince George's County should monitor the experience of Montgomery County and consider implementing its own CCA program.

ACCELERATE DEPLOYMENT OF ON-SITE RENEWABLES

To further support the generation of clean energy in the region, Prince George's County must actively engage and support the deployment of on-site (also known as "distributed") renewable energy generation, including solar and geothermal. On-site renewable sources often generate excess power that could be stored on-site by battery or sold back to energy providers for profit. When strategically deployed to support grid resilience and paired with storage, on-site renewable energy can also provide significant resiliency benefits when grid power is interrupted by storm events.

The County already has a robust solar program and experience deploying solar on county buildings and supporting residents installing solar on their homes. Through programs such as solar co-ops and Energy Resilience Zones that focus on working with residents in disadvantaged communities to install renewable energy, the County is working to ensure a just transition to renewable energy.[15, 16]

However, to meet the goal of 50% emissions reduction by 2030, the County will likely need an additional 60,000 solar installations over the coming decade, tripling the number currently in place. To achieve this ambitious target, it will be essential for the County to forge new partnerships, intensify outreach, and expand existing incentive programs to reach more residents. For example, the County could actively participate in the U.S. Department of Energy's national Sol Smart Program or require LEED platinum designation for all new government buildings.[17] Residential solar financing options could also be expanded by establishing a Residential Property Assessed Clean Energy Program (R-PACE) as now legislatively enabled through Maryland State House Bill 517.[18] Increasing solar deployment in the county is a high priority action and is addressed in further detail in **Recommendations M-1 and M-2**.

ACCELERATE DEVELOPMENT OF LARGE-SCALE OFF-SITE RENEWABLES

While the deployment of solar systems on residential and commercial buildings is essential, fostering renewable energy at a scale that can support our economy requires implementing large-cale renewable energy projects as well. Prince George's County is host to an increasing number of large-scale renewable energy systems, and more than 10MW of community-scale solar projects is currently proposed.[19]

The County can support large-scale solar projects by executing power purchase agreements (PPAs). A PPA is an arrangement between a third-party developer and a customer. The developer installs, owns, and operates an energy system on the customer's property, and the customer purchases the system's electricity at a rate below what they would pay if purchasing from the traditional grid. The County should evaluate opportunities to host large-scale solar projects on County-owned properties.

SPOTLIGHT ON HEALTH

Fossil fuel combustion is not just a problem for the planet; it's a problem for human health. Vehicle emissions contribute to health problems such as aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses such as pneumonia and bronchitis.[20] Exposure to air pollution is worse in many of our county's under-resourced and low-income neighborhoods, which have a high degree of pavement and lower levels of air-purifying trees and vegetation.

Further, vehicle-dependent land use patterns contribute to adverse health outcomes by encouraging less-active lifestyles. Less than 23% of Americans get the amount of weekly physical activity recommended by the U.S. Department of Health and Human Services as necessary to enjoy health benefits.[21] By designing our neighborhoods to foster active forms of transportation – such as walking or biking instead of driving – we can help individuals increase their daily activity levels and improve their long-term health outcomes.

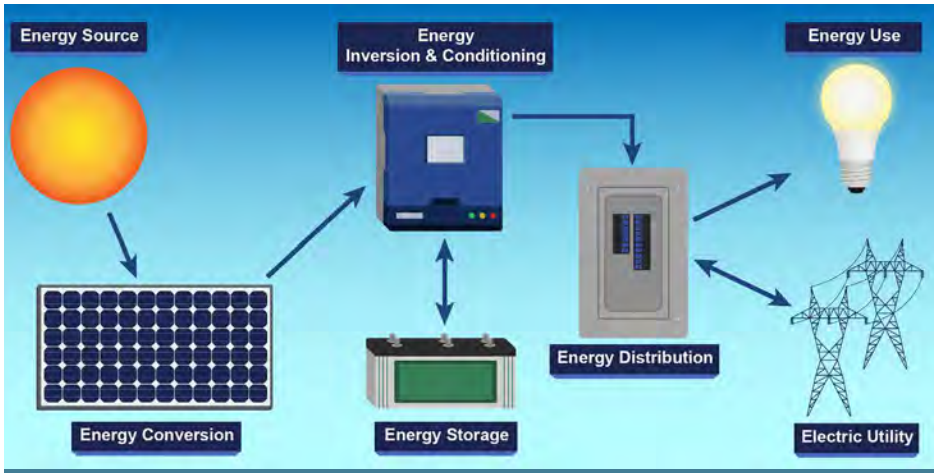
ACCELERATE DEVELOPMENT OF BATTERY STORAGE

Renewable energy is created by harnessing intermittent renewable resources such as wind and solar, which require the sun to be shining or wind to be blowing to generate power. As we transition to full electrification, the performance variability of renewable energy will necessitate significant energy storage innovation to help match increased electric power demands. However, with two major state universities and a community college located in our jurisdiction, this challenge offers an outstanding opportunity for the County. The County should immediately pursue partnerships with these institutions to incubate and develop an innovative renewable energy industry. The County can create jobs and drive more local investment for long-term economic gains by leading through innovation and partnership. As battery storage can also supply electricity during grid outages and add to grid resilience in critical facilities (e.g., hospitals, schools, nursing homes) and underserved communities, it will become a crucial component to ensuring a just transition to renewable energy. **Recommendation M-3** provides additional detail to guide the County in implementing this strategy.

According to MWCOG to realize the full emission reduction and grid stabilization potential of on-site solar photovoltaics (PV) installed across the region, approximately 10 percent of PV installations will need to be paired with battery storage systems by 2030 (COG CECAP).

ACCELERATE DEVELOPMENT OF MICROGRIDS FOR CRITICAL INFRASTRUCTURE

As climate change creates more intense storms and extreme heat, ensuring reliable power becomes increasingly important. Energy storage systems (i.e., batteries) and microgrids are emerging technologies that can help decrease our vulnerability to power outages. Microgrids that include solar are a vital strategy to support energy resilience. As a self-sufficient energy system, microgrids with solar capable of disconnecting from the larger electrical grid and operating autonomously. County microgrid systems deployment should initially be prioritized to support critical infrastructures like hospitals, fire stations, campuses, and housing. To advance the deployment of more microgrids, the County should partner with local universities and work with energy providers to assess the feasibility of microgrids for critical infrastructure and vulnerable communities.



WHY ARE BATTERIES USED IN SOME PV SYSTEMS?

Photovoltaic (PV) systems can only produce energy during daylight hours, so batteries are often added to store that energy and supply it at night or on cloudy days. Batteries also allow the PV array to operate at their maximum power levels and help provide stable voltages or supply surge currents as needed. Charge controllers are frequently used to protect the batteries from overcharging or producing excessive discharges.22

The Prince George's County Energy Resiliency Zones (ERZs) Initiative is an effort by the County's Sustainable Energy Program to help neighborhoods in the county that face significant economic, health, public safety and educational challenges implement energy efficiency and renewable energy improvements.

RECOMMENDATIONS

As the County supports and advances these strategies to accelerate the transition to a clean electrical grid and deployment of renewable energy sources, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-1	Power County operations with 100% renewable energy	●	●	●	●	3-8	
M-2	Increase deployment of solar PV in the residential and commercial sectors by expanding partnerships, incentives, and financing solutions	◒	●	●	●	0-3	
M-3	Accelerate deployment of resilient energy systems	●	●	◒	◒	3-8	

M-1: POWER COUNTY OPERATIONS WITH 100% RENEWABLE ENERGY

Prince George's County's government operations consume an estimated 93 million kWh of electricity every year. By transitioning to 100% renewable energy sources by 2025, the county can achieve significant emissions reductions and lead by example. This goal may be achieved through a combination of procurement and installations, and to the greatest extent possible, the County should support local renewable energy generation such as solar and geothermal systems installed on County buildings.

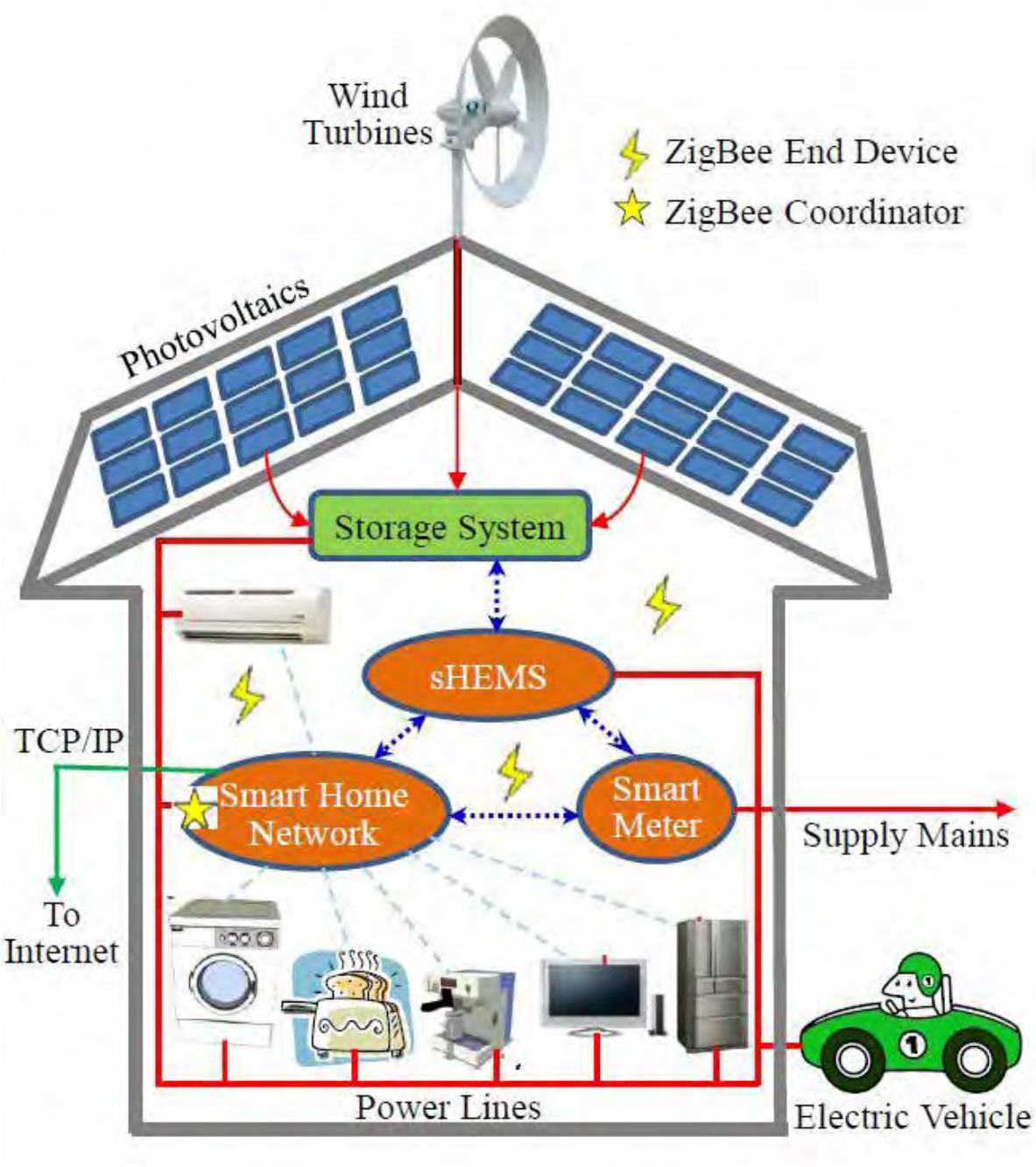
M-2: INCREASE DEPLOYMENT OF SOLAR PV IN THE RESIDENTIAL AND COMMERCIAL SECTORS BY EXPANDING PARTNERSHIPS, INCENTIVES, AND FINANCING

To meet our emission reduction goals, Prince George's County must facilitate the installation of an additional 60,000 solar systems by 2030. However, we are not close to realizing our county's capacity to utilize solar energy. Prince George's County government must help provide educational resources, explore innovative partnerships, and connect residents with financing opportunities to facilitate an additional 60,000 solar installations by 2030.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

M-3: ACCELERATE DEPLOYMENT OF RESILIENT ENERGY SYSTEMS

As climate change continues creating more intense storms and extreme heat, power reliability will become an increasing concern. To support energy resilience in the face of coming climate impacts, Prince George's County must pursue the development of resilient energy infrastructure such as battery storage systems and microgrids. Coupled with solar PV, battery storage systems provide backup power when grid electricity is unavailable, and can help reduce peak demand.

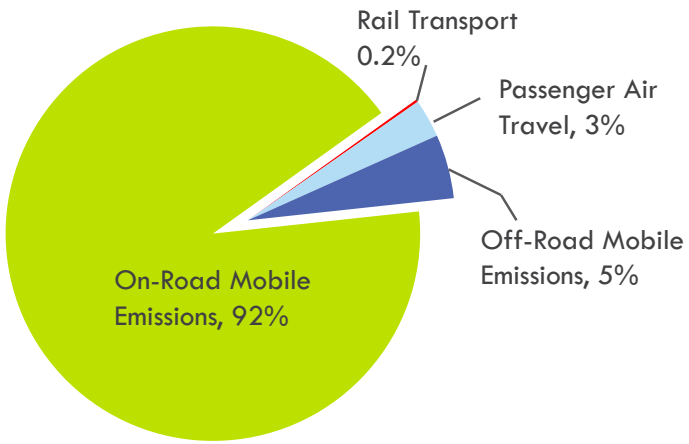


TRANSPORTATION

INTRODUCTION

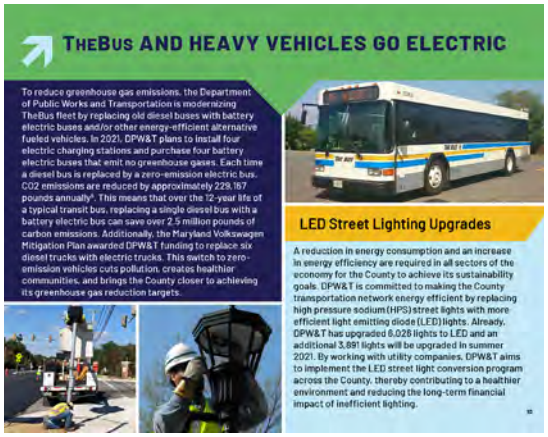
The County's transportation sector is the single greatest contributor to GHG emissions in the county, accounting for approximately 48% of total emissions. Average daily commute time for Prince George's residents is 37 minutes.[23] Of all our county's transportation-related emissions, 92% is generated by on-road vehicles – cars, buses, and trucks. These emissions total a staggering 4,185,376 MMTCO2e.

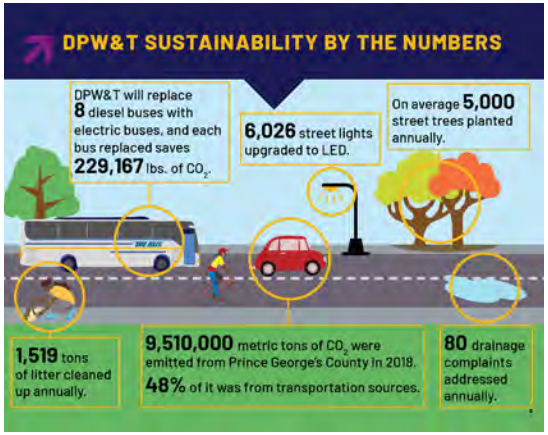
Figure VI-3. Vehicle Emissions



The use of vehicles including cars, buses and trucks generates 92% of Prince George's County's transportation-related emissions.

Reducing emissions from the transportation sector requires not only changes in this sector but also in the related areas of land use, housing, and economic development. We have already discussed the need for renewed to smart growth development patterns. With home and work near transit hubs, more people can walk, bike and utilize public transit. According to the Rand Report, in 2017, only half of the adults in the County reported meeting recommendations for at least 150 minutes of light to moderate physical activity per week. A co-benefit of more walkable and bike friendly communities is more physical activity and greater well being. The County should also facilitate the transition to electric vehicles by requiring all new developments to install charging stations and build safer infrastructure for pedestrians and bicyclists.





Prince George's County's Plan 3035 puts forth a vision of vibrant, transit-oriented activity centers, strong residential neighborhoods, protected natural areas, and rural communities that continue to support farms and forests for generations to come. The County continues to work toward achieving these goals, particularly through recent zoning revisions.[24] As part of this effort, the Department of Public Works and Transportation (DPW&T) has prioritized bicycle and pedestrian safety; improved access to bus stops and rail stations; and established bike-sharing systems, bicycle racks, bicycle lanes, and pedestrian trail.[25]

Further, DPW&T continues to expand its local bus service (TheBus) to help reduce traffic congestion and provide first and last-mile connection to transit hubs and activity centers. DPW&T's Sustainability Report 2021 cites numerous efforts that are underway to reduce other aspects of transportation emissions, including the addition of new electric buses as well as the installation of charging stations.[26]

County operations has adopted a Green Fleet Policy that establishes a goal of 50% of all applicable vehicle purchases be zero-emission vehicles (ZEVs) or partial zero-emission vehicles (PZEVs) by 2025.[27] The Office of Central Services Fleet Division has purchased liquefied petroleum gas (LPG) powered vehicles, innovative XL hybrid vehicles, and other energy vehicles to comply with the Plan. Additionally, Fleet Division utilized a portion of the $649,000 grant funds from the Maryland Energy Administrations Maryland Smart Energy Communities program to purchase six plug-in hybrid electric vehicles (PHEV) and install three dual-head electric vehicles vehicle charging stations. In 2015, MWCOG partnered with OCS to complete a fleet petroleum reduction and EV Infrastructure Plan to support the county fleet. The County is also proactively promoting utility incentives for EV infrastructure deployment in the community. Currently, there are more than 80 stations, with 13 level 1 plugs, 215 level 2 plugs, and 46 fast charge plugs for public use within the county.

TAKING ACTION TO REDUCE TRANSPORTATION EMISSIONS

The following is a discussion of the strategies that should guide the County's work to reduce emissions from the transportation sector. The associated recommendations are listed at the end of this discussion.

VEHICLE ELECTRIFICATION

The most promising single strategy to help Prince George's County meet its 2030 emissions reduction target is the electrification of transportation vehicles, including light-, medium-, and heavy-duty vehicles. As described above, the County has already begun taking action to electrify its fleet and deploy EV charging infrastructure. PEPCO is also actively engaged in supporting EV chargers.[32] The County recognizes that the market for electric vehicles is rapidly expanding. Augmenting the EV charging network will to support this growth and must be done in coordination with private sector partners and utility companies.[33]

Though the market for light-duty vehicles is gaining traction, medium- and heavy-duty vehicle (MHDV) options are more limited. In 2020, 15 states, including Maryland and the District of Columbia, announced a joint commitment to accelerate the market for electric MHDVs, with a goal of 100% of new MHDV sales to zero emissions by 2050 and an interim goal of 30% by 2030.[34] Prince George's County can play a pivotal role in supporting this emerging market, by committing to piloting electric MHDVs for applicable fleet operations. This will help demonstrate the viability of new technologies. **Recommendation M-4** provides more detail.

INVEST IN INFRASTRUCTURE THAT INCREASES TRANSIT, CARPOOLING, AND NON-MOTORIZED TRAVEL

Another strategy for reducing vehicle miles traveled (VMT) and associated emissions is to pursue policies that encourage alternative transit, carpooling, non-motorized travel, and telework. The County has in place numerous policies that support such options, including its Complete Street ordinance, VisionZero Plan, RideSmart Solutions, and MWCOG's Commuter Connections programs. Implementation of these plans and policies will give residents more opportunities to choose alternative forms of transportation. The County can further encourage walking and cycling by requiring designated bike lanes and widened sidewalks for all roadway improvement and repair projects funding through the County's capital improvement plan (CIP). CIP projects that specifically improves access to mass transit should be prioritized for funding. Additionally, the Capital Bikeshare program network should be expanded throughout the County to ensure equitable bike access.

In addition to the County's Commuter Connections program (promoting rideshare and transportation alternatives), the County should commission a study on the positive impacts of commuting and teleworking to provide relevant, tangible information to encourage behavioral changes. This study should also assess the potential for ridership to increase if dedicated bus lanes are used, the number of stops is reduced, and/or the reach of bus routes is increased. Ensuring that transit options (e.g., bus, metro) are clean, efficient, and reliable will also be key to gaining the community's confidence and increasing ridership.

Finally, encouraging the shift of commuters from their private vehicles to alternate modes of transportation is going to require reliable, clean, affordable, and accessible transportation options. While the County is investing in purchasing electric buses, there also needs to focus on expanding routes, enhancing bus stops, dedicated bus lanes to mitigate schedule slippage, and identifying additional stops or bus routes to increase accessibility. The County currently has several programs to help commuters find carpools and other alternative transportation methods to help lower the emissions impacts.

NEIGHBORHOOD DESIGN CENTER ZONES (ACTIVITY CENTERS)*

A. Provide lands for lower-density, small-scale, mixed use centers that are attractive to employers and employees, well connected to transit, and serve the surrounding neighborhood.

B. Incorporate walkable and bikeable areas that are well connected to a regional transportation network through a range of transit options;

C. Provide a mix of uses that serve local neighborhood needs.

*Per CAP, Activity Center must align with COG Activity Center

BRING JOBS AND HOUSING CLOSER TOGETHER

As discussed previously, a continued commitment to implementing and enforcing smart growth policies will set the County on the path to more sustainable growth consistent with its climate goals (see M-6: Support Telecommute Policies to Reduce VMT and Enhance County Resiliency).

While smart growth development is a longer-term strategy that takes many years to implement and cannot curb emissions in the short term, it is an important component of our plan to achieving carbon neutrality and climate resilience. Focusing new growth inn Activity Centers (mixed-use developments containing the different types of assets people often frequent) and close to high-capacity transit (e.g., metro, bus routes) can reduce Vehicle Miles Traveled (VMT). The County can also improve walkability and bikeability to commercial zones by championing infill development around activity centers. Concentrating housing and jobs near transit also supports sustainable economic strategies, such as encouraging walking to a neighborhood restaurant instead of driving.

When applied correctly, smart growth policy can also play a crucial role in preserving critical urban natural areas that provide heat and flood mitigation. However, it is crucial to acknowledge denser development in our County generally leads to more impervious surfaces and loss of valuable urban forests. Moving forward, development within Activity Centers must not occur at the expense of urban forest areas and parkland. Activity Centers must also incorporate green streets and street tree canopy to ensure adequate stormwater management and a livable community. **Recommendation A-5** identifies actions the County can take to further support investment in Activity Centers.

RECOMMENDATIONS

As the County supports and advances these strategies to accelerate the transition to a clean electrical grid and deployment of renewable energy sources to reduce GHG emissions, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-4	Accelerate deployment of EVs and charging infrastructure by County and other public agencies	◒	●	●	◒	0-3	
M-5	Develop a community-wide EV deployment strategy	●	●	●	●	3-8	
M-6	Support telecommute policies to reduce VMT and enhance County resiliency	●	●	●	●	0-3	
M-7	Increase investment in Activity Centers	●	●	◒	●	8+	

M-4: ACCELERATE DEPLOYMENT OF ELECTRIC VEHICLE (EV) CHARGING INFRASTRUCTURE.

As called for in its 2021 *Prince George's County Government Operations: Electric Vehicle and Charging Infrastructure Action Plan*[35] the County should install at least 54 electric vehicle (EV) charging stations at XX locations by 2026. Additionally, the County should revisit its Green Fleet Policy in order to add additional EVs, and it should improve regulations related to signage and parking in order to support EV deployment.

M-5: DEVELOP A COMMUNITY-WIDE EV DEPLOYMENT STRATEGY.

To achieve our emissions reductions target and to align with Maryland's goal of 600,000 registered EVs statewide by 2030, Prince George's County should aim for 15% of vehicles registered in our county to be electric by 2030. While this is an ambitious goal that relies on federal policy and market forces, Prince George's County can take actions to make it a reality. In this recommendation, we suggest developing a comprehensive EV deployment strategy that includes amending parking and development regulations to support EV infrastructure, mapping existing incentives for purchasing EVs, and conducting outreach to support residents as they consider investing in EVs.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

M-6: SUPPORT TELECOMMUTE POLICIES TO REDUCE VEHICLE MILES TRAVELED(VMT) AND ENHANCE COUNTY RESILIENCY.

Adopting a supporting telecommuting policy is an opportunity for the County to lead by example and support other regional businesses and institutions to continue reducing VMT. Administrative Procedure 226 establishes guidelines for implementing and operating the County government's Telework Arrangement Program (TAP). This procedure requires County government agencies to support the participation of eligible employees in the TAP.

M-7: INCREASE INVESTMENT TO ACTIVITY CENTERS.

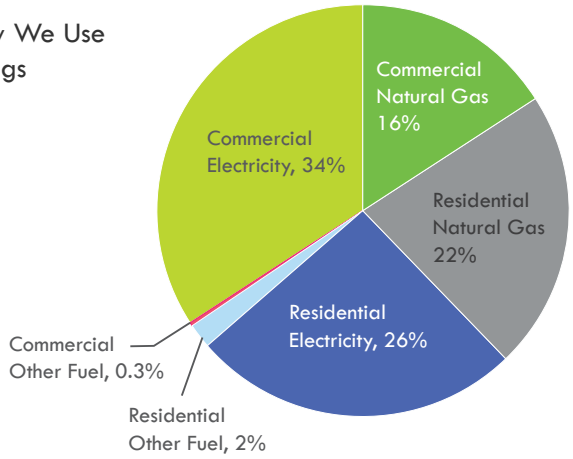
To achieve our climate resilience goals, the County must concentrate infrastructure, housing, jobs, and services to our designated Activity Centers – mixed-use, transit-accessible locations to reducethat enable VMT and bring the wealth of benefits that smart growth promises. Key steps include targeting public infrastructure investments to these locations, ensuring our land use regulations support infill development, strengthening transit options, and ensuring accessibility for pedestrians and cyclists. Simultaneously, investments in activity centers should include green infrastructure, sustainable stormwater management, and green space preservation to the maximum extent possible.

COMMERCIAL AND RESIDENTIAL BUILDINGS

INTRODUCTION

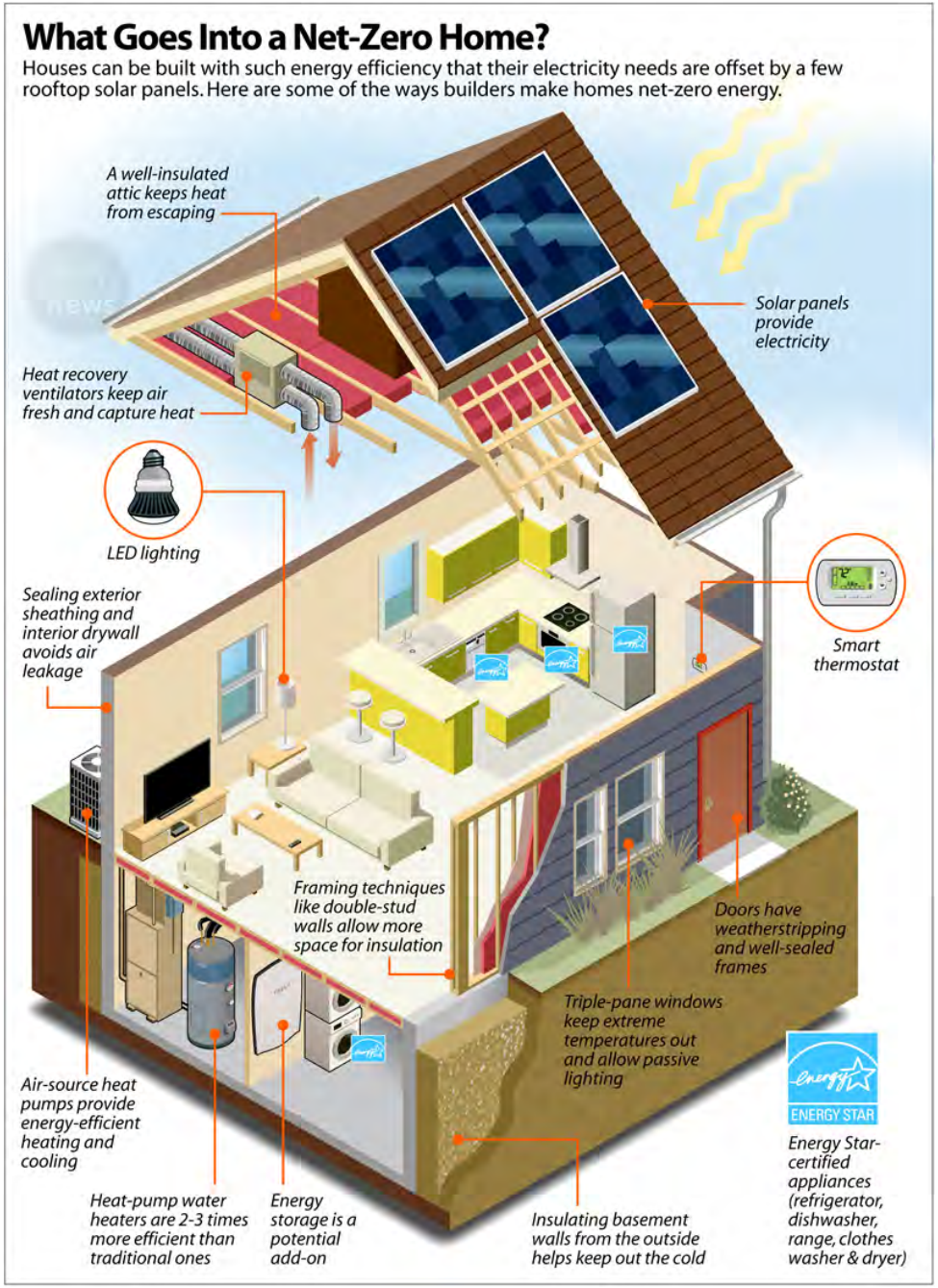
The use of energy to power and heat commercial and residential buildings is the second-largest source of emissions within the county. The residential and commercial building sectors used a total of 7,884,830 MWhs of electricity, primarily for air conditioning, lighting, appliances, and other electronic devices. In addition to electricity, most buildings are reliant on fossil fuels for heating. Natural gas for space heating, water heating, cooking, etc., accounted for about 38% of GHG emissions from the commercial and residential sectors and 2% of built environment emissions produced by fuel oil and liquified petroleum gas.

Figure VI-4. How We Use Energy in Buildings



Transforming building energy use is fundamental to achieving our emission reduction goals. The good news is that ongoing innovation in building design, appliances, and energy efficiency makes it possible to reimagine the relationship between building and energy. As a result, there are a growing number of examples of net-zero energy and even energy positive (generating more than they consume) buildings of all types being designed and built around the globe. Retrofitting existing buildings and ensuring efficiency in new construction will serve us well in a future low carbon economy.

There has already been significant progress toward increasing the energy efficiency of buildings in Prince George County. The County's Commercial Property Improvement Program supports buildings owners by providing matching funds between $50-$350k for building improvements, including upgrading building systems to increase energy efficiency.[36] The Clean Energy Program Energy Efficiency and Solar Water Heater grants provide financial incentives (up to $7,500) to offset the costs of measures to improve energy efficiency and install solar water heaters.[37] There are ongoing efforts to increase the energy efficiency of the housing market by encouraging energy audits and educating the public on efficiency performance standards. The County is also working to lead by example and improve the efficiency of County buildings. The County has entered into energy performance contracts with energy service companies (Pepco and Johnson controls, Inc.) to perform energy and water improvements to 10 county government buildings.



TAKING ACTION TO REDUCE EMISSIONS FROM COMMERCIAL & RESIDENTIAL BUILDINGS

The following strategies should guide the County's work to reduce emissions from the buildings sector.

ENHANCE GREEN BUILDING CODES AND POLICIES TO FACILITATE NET-ZERO ENERGY BUILDING DEVELOPMENT

With new construction, there is an opportunity to integrate efficiency and renewable energy into building design. Establishing new construction ordinances and incentives that focus on improving energy efficiency requirements for buildings will set up standards for future development aligned with the County's emission reduction goals.

MINI CASE STUDY

FIRST NET ZERO HOME IN PRINCE GEORGE'S COUNTY

The Redevelopment Authority (RDA) of Prince George's County acquired the property with the goal of revitalizing it into a sustainable home that provides serious energy savings and water efficiency.

Renovations on the house took nine months and it opened in June as the first Net-Zero Energy home in the county. In addition to its efficiency, the house is located within walking distance to the Suitland Metro Station and the Suitland Federal Center.

According to the U.S. Department of Energy, a Net-Zero Energy building is a residential or commercial property that is "60 percent to 70 percent more energy efficient than a model home, and the remaining 30 percent to 40 percent of energy is created with renewables, such as solar, wind and geothermal, to bring the energy use to zero."

This particular net zero home was priced at $320,000 and includes three bedrooms and two bathrooms. Using a system of energy-efficient technology, the Suitland home generates as much energy as it consumes over the course of a year. The house features 20 solar panels on top of the house as a renewable energy source, T, a rain barrel irrigation system, an HVAC mini-split, low maintenance vinyl fencing and non-invasive plants in the front yard.

ACCELERATE ENERGY EFFICIENCY RETROFITS

While Prince George's County is growing with more buildings constructed every year, our existing buildings account for the majority of energy use in this sector. There are currently numerous programs to support increasing the efficiency of commercial and residential buildings, including weatherization, air sealing and the installation of efficient lights and appliances. However, typical energy efficiency improvements are only likely to reduce energy consumption by 10-20%. To achieve ambitious climate targets will require dramatically scaling efforts to improve the efficiency of buildings through deep energy retrofits that result in energy reductions greater than 40%. Homes and buildings constructed before 1970 are unlikely to be built to modern standards and offer the most opportunity for deep reductions and cost savings. **Recommendation M-8** details actions to expand energy efficiency retrofits.

EXPAND BUILDING BENCHMARKING REQUIREMENTS

Building Benchmarking is the process of tracking a building's annual energy use and using this data to compare the building's performance against past performance and to its peers nationwide. Having data about building energy consumption is fundamental to achieving emissions reductions in buildings. In addition, this data enables building owners to identify inefficient buildings, prioritize actions, and track progress.

Recommendation M-9 prompts the County to develop building benchmarking requirements and standards across the County for both the public and private sectors.

> "Prince George's County residents need new engagement strategies to make better energy improvements to their homes. Incentives are available at the utility level but it's not always easy to navigate what is needed to do your home to save energy until something breaks or reaches the end of its useful life."
>
> *- Prince George's County resident, CAP Community Meeting, August, 2021*

BUILDING BENCHMARKING EXAMPLES

- Arlington County, VA All County owned facilities are tracked using Energy Star's Portfolio Manager.
- Washington D.C, all privately-owned commercial and multifamily buildings greater than 50,000 square feet are required by law to report energy and water consumption using Energy Star Portfolio Manager. (Beginning in 2023 the law will extend to building greater than 25,000 square feet)
- In Montgomery County, MD all nonresidential buildings greater than 50,000 square feet are required to report energy use in ENERGY STAR Portfolio Manager and data is made publicly available.

RECOMMENDATIONS

As the County supports and advances these strategies to reduce GHG emissions, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-8	Accelerate implementation of deep energy retrofits and community-wide efficiency and weatherization efforts	●	●	◒	◒	3-8	
M-9	Establish building benchmarking requirements and energy and water consumption standards	●	●	●	●	0-3	

M-8: ACCELERATE IMPLEMENTATION OF DEEP ENERGY RETROFITS AND COMMUNITY-WIDE EFFICIENCY AND WEATHERIZATION EFFORTS.

The County should partner with local utilities to create financial and other incentives to accelerate the number of homes and businesses implementing deep energy retrofits. County programs should help community members assess the benefits of implementing deep energy retrofits and and weatherization. Socio-economic factors should not prevent the retrofit of buildings and energy efficiency measures for our most vulnerable populations. The County must also lead by example and conduct deep energy retrofits in County buildings, toward a goal of reducing energy consumption by 50%.

M-9: ESTABLISH BENCHMARKING REQUIREMENTS FOR BUILDINGS AND ENERGY AND WATER CONSUMPTION STANDARDS.

Prince George's County should launch a building benchmarking and disclosure program that tracks annual energy use of all County buildings, with participation in the program required of all commercial and multi-family buildings greater than 50,000 sq. ft. by the end of 2025. Public disclosure of this data will be required, to help county residents decide about renting or investing in properties and to enable building owners to compare their properties to others in the region. This program should link participating building owners to energy efficiency programs and opportunities.

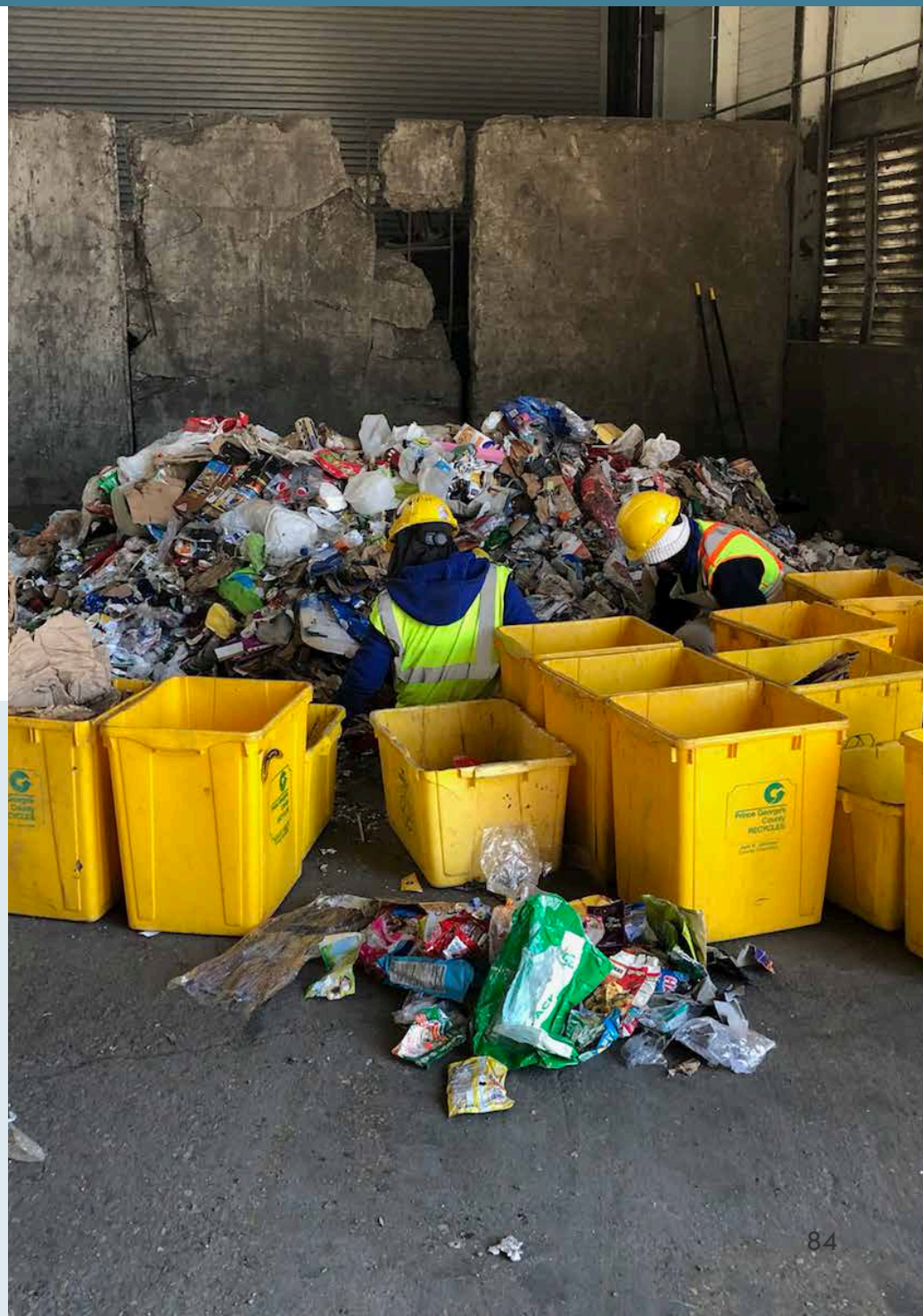
GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

WASTE MANAGEMENT

INTRODUCTION

Waste management contributes to GHG emissions in several ways. Collecting, transporting, separating, and disposing solid waste also consumes energy. Further, waste management generates GHG emissions whether the waste breaks down in landfills or is burned in waste-to-energy facilities. While the waste management sector makes up the smallest percentage of contributions to the county's GHG emissions, there is an opportunity for local government, residents, and businesses to take meaningful action to reduce this source of emissions.

In 2020, Prince George's County generated about 1.8 million tons of waste: 816,249 tons of municipal solid waste (MSW) and 703,555 tons of construction and demolition debris and other waste (scrap metal, land clearing debris, and recycled fluids).[38] The County-owned Brown Station Road Sanitary Landfill is the only facility in the county accepting municipal solid waste (MSW) for disposal. The County has successfully diverted some recycling materials, but there is much greater potential to recover more materials. A waste characterization study completed by the County in 2015-2016 estimated that about 75 percent of the MSW disposed of at the landfill could be diverted for reuse, recycling, and composting.[39]



Recognizing the importance of reducing waste, Prince George's County developed a Zero Waste Initiative.[40] Rather than constructing a new garbage incineration facility in the county - an option opposed by residents – the County is instead working to divert waste to reuse, recycle, and compost. The County's curbside collection pilot of food scraps was implemented from December 2017 to January 2019 with approximately 200 households from four diverse communities. An estimated 112,000 pounds or 56 tons of food scraps were collected and diverted from the landfill in 14 months. The program is expanding to 3,000 households and plans county-wide deployment by July of 2022. As the Maryland Department of the Environment has established zero waste goals as part of its greenhouse gas reduction plan, the County is aligned and currently setting its own zero waste goals. The development of programs, policies, and county infrastructure will move towards the goal of zero waste. The County's Zero Waste Initiative outlines the actions to help drive the County in reducing the quantity of waste generated and increase diversion of waste away from landfills.

TAKING ACTION TO REDUCE WASTE

The following strategies should guide the County's work to reduce emissions associated with solid waste management.

REDUCE SOLID WASTE GENERATION

Moving towards zero waste will create positive financial benefits for both our residents and businesses. The value of recyclable paper and containers disposed of as waste at the County's landfill is estimated to be worth over $9.7 million annually.[41] Recovering compostable and divertible materials from the waste stream and placing them back into the economy will significantly facilitate additional local revenue, job creation, and business expansion. In addition, the County should also support introducing a Pay-as You-Throw (PAYT) fee structure, which would incentivize residents to recycle and repurpose waste to reduce the disposal fees they incur. Residents who recycle and repurpose will enjoy reduced disposal fees. Conversely, those who don't divert or recycle will be assessed a higher cost based on the pound versus a set fee. Such a program would not only reduce the quantity of trash sent to landfill but could also help cover the increasingly high cost of trash disposal l. Reducing consumption, reducing packaging, purchasing quality products (rather than disposable ones), buying in bulk, and recycling or "up-cycling" are all options for consumers seeking to reduce waste. **Recommendation M-10** summarizes steps to expand County waste reduction and diversion efforts.

EXPAND CURBSIDE ORGANICS RECYCLING PROGRAM

Composting is an essential community-wide strategy to reduce greenhouse gas emissions. The decomposition of organic matter in a landfill can emit significant amounts of methane, a greenhouse gas twenty-five times more powerful than carbon dioxide. Composting, on the other hand, fosters aerobic conditions which do not produce methane. Prince George's County's Organic Composting Facility is the largest municipal installation of its kind on the East Coast. A notable County initiative was a successful, fourteen-month pilot project to collect food scraps curbside in a select area and divert this waste to a composting facility. Based on the pilot's success, the County plans to expand the program countywide by summer 2022.

RECOMMENDATIONS

As the County supports and advances these strategies to reduce GHG emissions, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-10	Expand County waste reduction and diversion efforts	●	●	●	◒	0-5	

M-10. ENHANCE COUNTY WASTE REDUCTION AND DIVERSION EFFORTS.

The County must continue to work toward a vision of zero waste. By prioritizing the strategic expansion of the County's residential and commercial waste reduction and diversion efforts in tandem with community-wide education to promote waste reduction and reuse to reduce waste-related emissions.. Additional steps include the legislative adoption of the County's Zero Waste Implementation Plan, Extended Producer Responsibility legislation, a county-wide ban on plastic bags and work with the State and the bottle industry to establish robust and profitable glass recycling opportunities.

> "People have to understand that just because you throw it away doesn't mean that it disappears. It requires that it go someplace and something has to be done with it. Responsibility for what you consume doesn't end when you put it to the curb."
>
> *- Prince George's County resident, CAP Community Meeting, August, 2021*

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

CARBON SEQUESTRATION ON NATURAL AND WORKING LANDS

INTRODUCTION

Carbon sequestration refers to the potential to capture and store atmospheric carbon using trees and vegetation. Carbon sequestration can help offset greenhouse emissions and is considered part of the calculation when pursuing carbon neutrality goals. As the County works toward becoming carbon-neutral sequestration will play a central role in achieving local climate action strategies, as not all sources of emissions will be able to be completely eliminated. Fostering carbon sinks – green spaces and forest cover – will help the County maximize opportunities for carbon sequestration.

> "We need to protect all remaining forests and start making all possible public and private land become as natural as possible with native plants and animals for nearby nature, native plant and animal corridors, to build and protect our green infrastructure for its health, economic, and environmental services. You can build a building in a year, but you can't grow a forest."
>
> *-Prince George's County Resident, CAP Community Meeting, August, 2021*

Today 52% of Prince George's County is covered by large blocks of trees and green infrastructure – 44% in forests, 8% in tree canopies like street trees, and landscape planting in yards and commercial sites. However, this tree canopy is in jeopardy. According to a recent analysis performed by the Low Impact Development Center, the County lost more than 7,100 acres of tree canopy between 2014 and 2018.[42] As the effects of climate change worsen and development pressures increase, maintaining, replacing, and even increasing the number of trees and tree cover must be prioritized. Especially within our urban communities, which will struggle with heat island impacts, trees will provide the most cost-effective, long-lasting, and beneficial climate strategy available to reduce carbon and support resilience.

Some neighborhoods in Prince George's County suffer more from urban heat island than others. Areas with low tree canopy cover and high impervious surface cover like **Oxon Hill** are better at retaining heat therefore providing little relief from extreme temperatures.

Recommendation A-7: Reduce Exposure of Vulnerable Populations to Extreme Heat calls form more detailed mapping of heat exposure across the county. The maps will help inform a strategic heat plan to protect heat vulnerable residents. The plan will also help prioritize County tree planting programs and provide key analysis for undergrounding of overhead utility lines in equity areas.

Prince George's County has several existing policies and programs that can support healthy forests and the conservation of forest and farmlands, namely the Woodland Conservation County Ordinance SubTitle 25, the countywide Green Infrastructure Plan (2005), and the County General Plan (2002).[43,44,45] The Woodland and Wildlife Habitat Conservation Ordinance seeks to conserve and protect trees, woodlands, and wildlife habitat by requiring site planning techniques and construction practices for development activities that prevent adverse effects and maintain water quality and ecological and aesthetic values. It provides for exceptions for approved clearing and disturbance of woodlands in ways that promote habitat protection and the maintenance of healthy vegetation. In addition, the Tree Canopy Coverage Ordinance (SubTitle 25. Trees and Vegetation) establishes minimum standards to preserve, maintain, enhance, and restore tree canopy coverage on developed and developing sites.

There has also been significant movement towards preserving agricultural land and supporting urban farming in Prince George's County. In 1987 the County had more than 67,000 acres of farmland, but by 2012 there were less than 32,000 acres. In response, the County passed an urban agricultural property tax credit in 2015 and launched Bloomin' PGC to support urban farming in 2016.[46] The County also launched a Food Equity Council in 2013 and received a Maryland Agricultural Land Preservation certification in 2014. In 2016 the County passed urban farm legislation allowing farming on 73% of land in the county.[47] As of 2017, there were still more than 350 farms(including nine urban farms) in the County, producing $17.5M in sales. There are also 24 community gardens, 23 school gardens, and 16 farmers' markets within the County.

TAKING ACTION TO PROMOTE CARBON SEQUESTRATION ON NATURAL AND WORKING LANDS

The following strategies should guide the County's work to promote carbon sequestration.

ENHANCE REGULATORY CAPACITY TO MANAGE TREE CANOPY AND FOREST PROTECTION IN PRINCE GEORGE'S

County Council must significantly update county codes and ordinances to reduce allowable exemptions and variances granted under existing tree protection ordinances. For example, the minimum tree cover requirement should require one-to-one replacement based on the total site area. In addition, tree loss within green infrastructure regulatory areas from land development or constructing stormwater management facilities must be prohibited. The current code also allows the preemptive removal of trees in advance of final plans approvals. In addition, code and technical manuals must prescribe more robust natural buffers (forest, riparian, and wetland). Finally, they must increase violation costs to pay for enforcement and reserve fee-in-lieu funds to be used for replacement tree loss, maintenance, and equity considerations. The steps to enhancing County regulatory capacity and furthering support for forest protection are detailed in **Recommendation M-11**.

ENHANCE INCENTIVES AND FINANCING MECHANISMS FOR TREE PLANTING AND PRESERVATION OF NATURAL RESOURCES ON PRIVATELY OWNED LANDS

The County must proactively work to identify and prioritize areas that need tree canopy and vegetation preservation. By leveraging the Woodland Conservation Fund, the County Department of the Environment must intensify efforts to incentivize residents and local businesses to plant more trees. Another strategy is to establish a Prince George's County Climate Resiliency Land Conservation Trust or similar mechanism to facilitate the purchase and long-term maintenance of non-parkland natural resource areas, as well as future trading of climate resiliency or carbon credits from sequestration.

STRATEGICALLY PLANT NEW TREES ON BOTH PUBLIC AND PRIVATE LAND

The County must expand and preserve the existing urban tree canopy to reduce urban heat islands and address vulnerable communities that are most likely to experience extreme heat due to climate change. In addition, existing programs must find more ways to encourage more tree plantings on private lands and institutional lands.

"Tree canopy coverage is not only beautiful but critical to help with mitigation. Turf is less permeable than roofing. More needs to be done to facilitate conversations and knowledge about stormwater management."

- Prince George's County Resident, CAP Community Meeting-August, 2021.

RECOMMENDATIONS

As the County supports and advances these strategies to reduce GHG emissions, the following recommendations should be considered first steps for implementation. Section VII provides the details.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-11	Enact and enforce "No Net Loss" tree conservation regulation and policy to maintain and expand street tree canopy and forest as a land cover	●	●	◒	●	5+	

M-11: ENACT AND ENFORCE "NO NET LOSS" TREE CONSERVATION REGULATION AND POLICY TO MAINTAIN AND EXPAND STREET TREE CANOPY AND FOREST AS A LAND COVER.

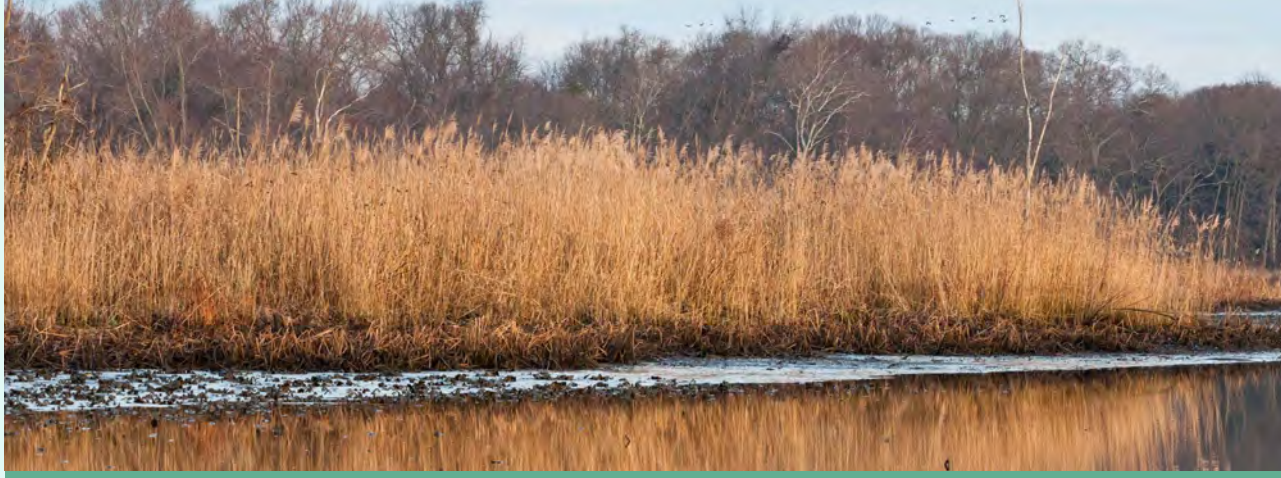
Prince George's County must maintain its 52% county-wide tree cover through 2030 by aligning its replacement, preservation, and mitigation goals with strong "no net loss" policies. A key step is to strengthen the County's Woodland and Wildlife Habitat Conservation Ordinance by including more specific language to address the climate change benefits of preserving existing woodlands and expanding the urban tree canopy.[48] Further, the County should ensure equitable tree cover by identifying priority areas for no- or low-cost programs to expand tree canopy coverage in historically disadvantaged neighborhoods.

> "Scattered plantings of some trees does not replace the multi-species ecosystem of the forest that is destroyed."
>
> *- Prince George's County resident, CAP Community Meeting #1, March, 2021*

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

ACTION AREA 3:

ADAPTING TO COMING CLIMATE IMPACTS



Mitigation actions are essential to avoiding the worst impacts of a changing climate. However, it is clear that climate impacts are coming and that they are in fact already occurring. In Prince George's County, we are only one storm away from the massive devastation we have witnessed in other parts of the world. Our county must now become climate-ready: prepared to protect our people, our critical infrastructure and our valued cultural and natural resources in the face of projected impacts such as extreme temperatures and intense storms. In short, we must adapt: adjust to expected impacts in order to minimize harm and to take advantage of new, beneficial opportunities.

This section describes the broad climate adaptation strategies we believe Prince George's County should pursue in order to make our county climate ready. These strategies align with the regional adaptation goals in MWCOG's Climate and Energy Action Plan.[49] As in previous action area discussions, we highlight the recommendations that should be first steps, guiding the County's work in the coming three to five years.

All of the adaptation strategies we propose build on several foundational, underpinning beliefs, which we the Climate Action Commission wish to reaffirm here:

To become resilient to coming climate impacts, Prince George's County must make a transformational shift in how we value natural resources.

Our county's farmland and natural resource areas have long been undervalued – considered secondary to the short-term gains offered by residential and commercial development. But with every acre of forest or farmland lost to development, we lose critical ecosystem services such as food production, temperature regulation, and flood mitigation. Given the coming unpredictability of future extreme weather, the loss of these assets will present an exponentially-greater threat to our residents' well-being and to the strength of our local economy.

Prince George's County must immediately act to protect our waterways and floodplains.

As a first step and common-sense approach to building climate resilience, our County must immediately prohibit any new development within its floodplains. Our region is projected to receive more precipitation, often delivered in sudden extreme events without dependable frequency. With the rapid and intensifying impacts of climate change already occurring, there is simply no certainty that today's engineering standards will be adequate into the future. Our County must stop the practice of permitting the reconfiguring of floodplain storage areas within a natural riverine system by creating alternate man-made storage to accommodate developments. This practice is unwise and it will be untenable if future precipitation patterns reveal that these modified storage areas are insufficient to accommodate flood waters.

To effectively adapt to coming climate hazards, we must work with nature rather than try to control it.

Humans are increasingly realizing that we are not separate from nature; we are part of it, and our well-being depends on learning to work with earth's systems rather than against them. Prince George's County has miles of streams and floodplains intertwined within our rural, urban, and suburban communities; we will not be able to manage these without the help of nature. Nature-based stormwater management systems – those that mimic and support natural systems – with be critical to protecting our community's health and safety, and they must be integral to our designs moving forward.

WHAT ARE NATURE-BASED SOLUTIONS?

Nature-based solutions (NBS) are actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

For example, the swamp pictured below located at Jug Bay within our county, is a NBS. A swamp supports wet loving trees and woody plants, provides habitat for incredible biodiversity, sequesters carbon, cleans and filters the water and air, and absorbs runoff to prevent flooding. With protection, this type of ecosystem will deliver these free beneficial services essentially without end.

To preserve our "resilience assets," we must strengthen Prince George's County's land use policies and regulations.

The most cost-effective adaptation strategies involve protecting the natural resources that provide resilience benefits for free: flood mitigation from wetlands and trees, heat moderation from urban forests, food security from productive farmland. As a community, our future well-being depends on how well we protect our agricultural and natural lands today. This requires County policies and codes to protect what we can protect, and to incorporate long-term monetary incentives to motivate the private sector to help preserve our region's climate resilience assets. We must also immediately refocus our County's economic investment in designated Activity Centers, to reduce market pressures to develop farmland and natural resource areas that are essential for our long-term sustainability.

We must prepare our critical infrastructure to withstand coming climate impacts.

Our county's public infrastructure systems – drinking water, wastewater, stormwater, transportation, and energy – are not universally prepared to withstand coming climate impacts. Often built according to design standards and weather projections that are proving to be unreliable in the face of a rapidly changing climate, these systems must be assessed according to current climate data and prioritized for investment in upgrades or replacements. Critical infrastructure incorporates more than constructed systems. It encompasses community infrastructure: people, economy, and natural and cultural resources. The County must also understand how climate change will impact people and communities. While infrastructure may fail, the support systems that allow individuals, businesses, and residents to prepare, respond, and recover from disasters, are the actual gauge of a community's resilience. Requiring adequate systems of support, communications, technical and financial assistance for our residents and business to adapt to climate change essential to the long-term prosperity of Prince George's County.

SPOTLIGHT ON PRINCE GEORGE'S COUNTY'S FLOOD CONTROL SYSTEM

Prince George's County operates and maintains a network of flood control structures, including dams and levees, to manage and mitigate flood risk. Due to climate change, more frequent and intense precipitation events raise the risk for dam and levee failures. The County built many of its flood control structures decades ago, with the intent of protecting against the 100-year flood, probable maximum flood, or other design flood event. Typically, engineers based their designs on past weather, considering what prior decades of data showed about the maximum probable flood that a structure would expect to control. The basis of designs for much of the County's existing flood control structures are on rainfall values established by Technical Paper 40 (US Department of Commerce, 1963). In 2006, NOAA released local rainfall estimates that exceed TP-40 rainfall values. Future storm-driven flows may exceed the design storage and conveyance capacity of existing structures. In 2016, Prince George's County Department of Permitting, Inspections, and Enforcement (DPIE) issued Techno-Gram 007-2016. This bulletin required that NOAA Atlas 14 Precipitation Frequency Estimate for Central Prince George's County be used to compute 100-year discharge in the design of stormwater management ponds, dam safety, and 100-year flood control attenuation.

DEVELOP AN INTEGRATED AND APPROACH TO PLANNING A CLIMATE READY FUTURE

Climate resilience is not an isolated issue but rather affects all aspects of County governance. Climate considerations – both risk and resilience – should be integrated broadly into government operations, including plans, policies, guidance documents, and infrastructure investments. Where plans and policies are based on current or historical climate trends, updated data and projections should be used to guide revisions.

As is already underway, the County's land use and zoning regulations should be updated to ensure that development is not occurring in floodplains and that new buildings are prepared to withstand anticipated climate risk. Capital investment planning (CIP) processes are another ripe opportunity for climate risk integration; the County should only fund projects that align with resilience goals. These strategies are further detailed in **Recommendations A-1**, **A-9**, and **CO-5**.

Although this is Prince George's County's first formal climate adaptation plan, the County has laid the groundwork for adaptation in several previous planning efforts. These plans and associated policies and initiatives may be adapted to integrate climate adaptation actions.

Examples include:

- Plan 2035, the county's long-range comprehensive plan adopted in 2014, aims to preserve, enhance, or restore an interconnected network of significant environmental features that provide valuable ecosystem services including floodplain management. The County is revising its zoning codes to implement this goal.[50]
- Prince George's County 2017 Hazard Mitigation Plan Update includes a risk assessment and vulnerability analysis that considers flooding, wind, and extreme temperatures and identifies actions to reduce these risks.[51]
- The County has completed a vulnerability assessment of Duckett Dam and identified a need to upgrade the pumping station in order to avoid a disruption in providing drinking water.

"An important point about accessibility for individuals with disabilities is to consider these points in the planning stages, not as afterthoughts. Also reaching out to individuals with disabilities for consultation on these issues and pay them as you would any other consultants."

-Prince George's County resident, CAP Community Meeting, August, 2021

INNOVATIVE STRATEGIES TO PRESERVE NATURAL AREAS AND FARMLAND

Our County's agricultural land, forests, wetlands, and other natural areas are critical assets in protecting our region from flood risks. Accelerating their protection requires creative thinking and innovative tools.

Our County's current and future land-use zoning laws and code, as defined by the County Code of Ordinance and Zoning ReWrite, do not sufficiently discourage the development of greenfields and farms.[52] We significantly increase community-wide flood risks when natural land is permanently converted to the built environment. Free ecosystem services lost by land use change ultimately incurs more long-term financial burdens from the inevitable life cycle costs of repair and maintenance of grey infrastructure built via development. Farmland paved over by development, diminishes our capacity for local food production. These ripple impacts quickly compromise our County's ability to become climate-resilient.

Lack of climate resiliency caused by persisting and old land-use patterns promoting urban sprawl may soon also reduce our County's financial capacity to borrow or attract investment.[53] However, the County could lead by example by piloting innovative land use valuation and zoning practices to monetize the long-term value of preserving ecosystem services and local food production capacity as a possible highest and best land use.[54] By engaging private sectors, government and business can work together could work together to create a resilient economic development system that rewards protecting these foundational elements to our County's long-term climate resiliency and sustainable future.

One option is to re-define natural areas as climate resilient assets. They could be designated within County codes as a possible highest and best land use, which could open the way to assess residual (not one-time) fees on development that causes their conversion. Another innovative idea is to launch a land use credit trading system tied to carbon sequestering. In this scenario, developed areas would be assessed fees to offset their annual carbon footprints. This could be managed through a climate resilience credit trading market, in which credits are generated by landowners who voluntarily preserve natural resources or agricultural land and developers purchase credits to offset impacts of land conversion. By creating ample financial incentives for private landowners to preserve natural areas and farmland, our County and region could reap long-term benefits by preserving local food production, ecosystem services, and carbon sequestration assets.

PRIORITIZE ENGAGEMENT OF THE PUBLIC ON CLIMATE RISKS AND RESILIENCE

As affirmed throughout this document, Prince George's community members play an essential role in preparing for and mitigating climate change. Many of our identified resilience strategies – energy retrofits, tree plantings, community network-building – require implementation and investment by individuals and the private sector . It is critical that the County provide clear, timely, and accessible information to the public regarding our shared climate risks as well as the solutions toward which we all can work. As the County conducts outreach and engagement, it will be particularly important to ensure inclusion of vulnerable populations, as previously discussed. Further, the County should work to build public trust in and support for its climate action efforts, by making adaptation measures visible and accessible to residents, especially on County-owned properties. **Recommendation A-6** discusses steps to inform and assist the public in these ways.

ESTABLISH RESILIENCE HUBS IN VULNERABLE COMMUNITIES

A resilience hub is a community-based facility designed to support vulnerable residents during an after an emergency. A supplement to, not a replacement for, traditional emergency facilities, hubs are safe locations for residents to access emergency heating and cooling, charge phones, refrigerate medication, connect with the community, and access information and services. Hubs can also be energy independent by producing energy on-site through renewable energy installations, thus ensuring they have power during outages. Resilience hubs can also be designed to provide year-round support to improve local adaptive capacity and foster long-term community building. The County should prioritize deployment of hubs to facilities that serve low-income communities, including Energy Resilience Communities.

REQUIRE THE COUNTY'S STORM DRAIN SYSTEM AND FLOOD MITIGATION FLOOD PROGRAMS TO INTEGRATE CLIMATE RESILIENT MEASURES

Prince George's County's stormwater and flood mitigation infrastructure is a frontline defense against extreme weather, and it is essential to ensure this infrastructure is prepared to withstand future climate conditions Flooding is already a major concern for many residents in the county, and floods are expected to become more frequent and severe. The County should assess the climate readiness of our flood control infrastructure – including pump stations and levees that project more than 2,000 buildings from flooding – and prioritize upgrades where needed.

Anticipated changes in the frequency and severity of flooding will require both flood mitigation measures (e.g., better stormwater management and improving access to County flood mitigation programs for home and business owners and renters) as well as flood-related climate adaptation measures. To cost-effectively address the increased risk of flooding, Prince George's County should prioritize nature-based solutions that take advantage of the ability of trees and natural landscapes to slow flood water, stabilize streambanks, and retain stormwater. All development and infrastructure projects – whether new or retrofit – should be required to integrate green

infrastructure stormwater management solutions and prioritize sustainable building practices. This should also apply to all aspects of both public and privately initiated transportation projects, storm drain and culvert systems, development-required utility infrastructure, and stormwater management facilities.

County planning documents, policy, county code, agency design guides, and engineering manuals must be routinely updated to integrate and respond to ongoing climate risks in a way consistent with this climate action plan. In addition, the County must perform Geographic Information System (GIS)-based assessments of the county's natural resources (tree canopy, wetlands, floodplains, etc.) on an annual basis. Monitoring the impacts of our programs and development policies is fundamental to ensuring we do not continue to lose tree canopy and open lands and the valuable ecosystem services they provide.

IMPLEMENT MEASURES TO ADDRESS URBAN HEAT ISLANDS EQUITABLY

Urban heat islands are geographic areas that experience higher-than-average surface or atmospheric temperatures, often due to their high concentration buildings and paved surfaces. The County must immediately undertake a process to map the hottest locations in the county and identify the populations that are disproportionately affected by urban heat islands. The study should also be cross-referenced with equity areas to help prioritize communities to implement cooling strategies such as tree planting, shading structures, cool roofs and pavements, cooling centers, and Resilience Hubs.

UTILIZE AND REQUIRE GREEN INFRASTRUCTURE STORMWATER MANAGEMENT

Green infrastructure (GI) and nature-based solutions are effective ways to help address the County's flooding, extreme precipitation, and heat risks, and these strategies should be pursued whenever possible. As a first step, the County should clarify the definition of green infrastructure for its planning and implementing purposes. While some entities define green infrastructure broadly as an interconnected network of waterways, wetlands, woodlands, wildlife

habitats, and other natural areas of significance, an increasingly more accepted definition was put forth in the federal Water Infrastructure Improvement Act: "the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters."[55] Prince George's County should officially adopt this definition, to avoid confusion as it pursue this essential resilience-building approach.

Green infrastructure is known to provide effective stormwater management. But beyond that primary purpose, it achieves numerous co-benefits such as improved air and water quality, on-site carbon sequestration, increased wildlife habitat, and the creation of local jobs designing, installing, and maintaining facilities. Nature-based solutions are currently gaining traction in the public and private sectors as an effective means of reducing burdens on overtaxed stormwater and sewer systems. As our county becomes climate-resilient, green infrastructure will be a critical tool to mitigate residential flooding from rivers and flash floods, recharge groundwater aquifers, and reduce heat islands. **Recommendation A-2** details steps to developing community-wide green infrastructure.

SPOTLIGHT ON HEALTH

Climate change poses significant hazards to human safety, health, and well-being. According to the University of Maryland's Institute for Applied Environmental Health, projected increases in extreme heat events in Prince George's County could cause 22% more hospitalizations from heart attacks and 75% more hospitalizations from asthma attacks by 2040 compared to 2010.[56] In addition to increased cardiovascular and respiratory disease, climate-related health hazards include a greater prevalence of food- and water-borne illnesses, infectious diseases, mental health threats, and injury and death related to extreme weather.

Many climate adaptation strategies are, at their core, approaches to protect human health and safety. Preventing development in flood-prone areas and safeguarding natural resources such as wetlands and riparian buffers: these are smart solutions that keep people out of hazardous areas while also harnessing nature to absorb floodwaters and keep our neighborhoods safe. Requiring buildings and other critical infrastructure to be climate-ready – prepared to withstand floods, high winds, and extreme temperatures – could save dollars as well as lives. Expanding tree cover and access to green spaces have well-documented benefits for physical and mental health.

Other adaptation strategies are intended to protect residents before and during extreme weather events – such as early alert systems as well as ongoing efforts to communicate climate risk openly and effectively. Heating and cooling centers and resilience hubs – combined with accessible transportation to these locations – can provide critical resources during an emergency. Adaptation also involves improving the resilience of our health care systems, so that life-saving medical care can be delivered quickly and efficiently.

When planning, prioritizing, and implementing these and other climate adaptation strategies, Prince George's County must keep human health and well-being at the forefront of its messaging.

RECOMMENDATIONS

As the County advances the above strategies to prepare and adapt to potential climate impacts and build resilience, the following are the top recommendations for implementation. Further detail is provided in Section VII.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-1	Require all County agencies and government operations to anticipate impacts from climate hazards and integrate climate resilience goals into all long-range county plans, policies, and CIP programs by 2026	●	●	●	●	3-8	
A-2	Implement climate resilient stormwater management and expand flood mitigation programs	●	●	●	◒	0-3	
A-3	Prioritize preserving and restoring natural resource areas and agricultural open space to reduce flood risk	●	●	◒	◒	3-8	
A-4	Evaluate and address climate risk to dams and levees	●	◒	●	●	3-8	
A-5	Require community-wide climate resilient green infrastructure	●	●	●	◒	0-5	
A-6	Expand information & assistance to the public regarding both impacts of climate risks and opportunities to implement climate actions	●	●	●	●	0-3	

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-7	Reduce exposure of vulnerable populations to extreme heat	●	●	●	●	0-4	
A-8	Establish resilience hubs to serve the needs of vulnerable communities	●	●	●	◒	3-8	
A-9	Adopt codes, standards, and practices to support climate-ready green buildings and development	●	●	●	●	0-3	
A-10	Promote a healthy food system supported by low-carbon, regenerative agricultural practices	◒	●	●	◒	0-3	

A-1: INTEGRATE CLIMATE RESILIENCE CRITERIA INTO LONG-RANGE COUNTY PLANS, POLICIES, AND CIP PROGRAMS BY 2026.

Climate risk and resilience criteria must be embedded into all major County planning and funding programs, especially those related to capital improvement planning (CIP), stormwater management and green infrastructure, transportation, hazard mitigation and emergency management, and long-range comprehensive planning.

A-2: IMPLEMENT CLIMATE RESILIENT STORMWATER MANAGEMENT AND EXPAND FLOOD MITIGATION PROGRAMS.

The County should give special attention to evaluating and amending stormwater standards, guides, and regulations so that they support infrastructure that is climate ready and incorporate green approaches to the greatest degree possible. Additionally, County should improve access and create better public awareness of flood mitigation programs to reduce residential and commercial flooding.

A-3: PRIORITIZE PRESERVING AND RESTORING NATURAL RESOURCE AREAS AND AGRICULTURAL OPEN SPACE TO REDUCE FLOOD RISK.

Prince George's County's remaining agricultural areas and undeveloped land are critical assets in reducing our collective flood risk. County land use regulations and zoning laws have often proven too weak to discourage development of these important areas. The County must act quickly to protect these spaces given the land use regulations at our disposal, and further, it should explore piloting innovative land use valuation and zoning practices to monetize the long-term value of preserving ecosystem services and local food production capacity as a possible highest and best land use.[57]

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

A-4: EVALUATE AND ADDRESS CLIMATE RISK TO DAMS AND LEVEES.

Many of Prince George's County's flood control structures (dams and levees) were designed based on rainfall and flood projections that are now proving to be outdated. Seven County-owned dams are classified as "high hazard," meaning they threaten a loss of life or severe damage to buildings and infrastructure. The County must assess all high-hazard dams and levees to better understand their climate risks and identify most-needed infrastructure upgrades or other long-term investments.

A-5: REQUIRE COMMUNITY-WIDE CLIMATE RESILIENT GREEN INFRASTRUCTURE.

Green infrastructure should become the primary stormwater management practice for all site development in Prince George's County. The County's stormwater management code should require subwatershed level analyses of stormwater runoff using the Stormwater Management Model (SWMM) program or similar software,[58] and it should strengthen enforcement measures related to preserving street trees and urban forests during construction. Finally, increasing the minimum regulatory riparian buffers, regardless of zone or land use, should be included with new climate resiliency requirements.

A-6: EXPAND INFORMATION AND ASSISTANCE TO THE PUBLIC REGARDING IMPACTS OF CLIMATE RISKS AND OPPORTUNITIES TO IMPLEMENT CLIMATE ACTIONS.

County residents are a vital partner in implementing climate action strategies. The County must empower residents with timely and accurate climate information as well as the technical and financial assistance they need to implement solutions. Multimedia educational material and outreach efforts -- accessible to all communities -- should accompany implementation of this plan.

A-7: REDUCE EXPOSURE OF VULNERABLE POPULATIONS TO EXTREME HEAT.

Prince George's County should develop and implement a heat mitigation strategy to protect vulnerable populations. First steps include thermal mapping and tree canopy assessment to identify urban heat island hot spots, along with mapping social and economic variables (e.g., income, health status, English proficiency) that may influence an individual's ability to cope with extreme heat.

A-8: ESTABLISH RESILIENCE HUBS TO SERVE THE NEEDS OF VULNERABLE COMMUNITIES.

At a basic level, climate resilience requires meeting our citizens' core needs during and following an emergency such as a severe storm. Climate resilience hubs are essential lifelines that enable affected residents to charge a phone, access web-based communications, refrigerate medication, and connect to existing County and State government resources to aid long-term recovery. We recommend the creation of at least ten resilience hubs in climate-impacted vulnerable communities by 2030.

> "A lot of vulnerable communities are the first ones to be exposed to extreme heat, like minority groups and those who don't have access to communications to state agencies/orgs. We should create networks so they feel comfortable speaking/ways they can be a part of this process. From the County's viewpoint, partnering up with local on the ground nonprofits that can deliver these messages is also helpful. We should also be creating and fostering community trust between community members and organizations"
>
> *- Prince George's County resident, CAP Community Meeting, August, 2021*

A-9: ADOPT CODES, STANDARDS, AND PRACTICES TO SUPPORT CLIMATE-READY GREEN BUILDINGS AND DEVELOPMENT.

Prince George's County will develop a Climate-Ready Buildings strategy by adopting a building standard to ensure the construction of the buildings are consistent with climate mitigation and resiliency goals. In addition to adopting new building regulations, the County should also support climate-ready buildings in the near term by developing a Resiliency Checklist that will help permit officials to understand and track how projects with substantial impact remain climate-ready. The County will develop and adopt a resilient buildings guide, similar to guides prepared for Washington, DC or New York City (see 'Resources' section). This guide will assist building owners and developers who engage in building retrofits and new construction in climate resilient construction.

A-10: PROMOTE A HEALTHY FOOD SYSTEM SUPPORTED BY LOW-CARBON, CONSERVATIONIST AGRICULTURAL PRACTICES.

The County must create and support a county-wide healthy food management program by implementing a sustainable and systemic approach to food's entire life cycle within the county. Key steps include permanently preserving agricultural land for food production through zoning regulations and incentive programs, as well proactively supporting urban farming to ameliorate urban food deserts

SECTION VI ENDNOTES

1 https://www.americanprogress.org/issues/green/reports/2020/04/30/484163/states-laying-road-map-climate-leadership/

2 https://www.americaisallin.com/whos-in/

3 IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

4 PJM Interconnection-regional transmission organization that coordinates the movement of wholesale electricity in multi-state region. https://www.pjm.com/about-pjm/who-we-are.aspx#:~:text=PJM%20Interconnection%20is%20a%20regional,and%20the%20District%20of%20Columbia.

5 PJM 2019 PJM Annual Report, Electricity Generation Mix (2019). https://www.pjm.com/-/media/about-pjm/newsroom/annual-reports/2019-annual-report.ashx?la=en#:~:text=Over%20the%20course%20of%20the,comprising%20the%20remaining%201%20percent

6 Potomac Electric Power Company (PEPCO). Environmental Fuel Source Information (2020). https://www.pepco.com/MyAccount/MyBillUsage/Documents/Pepco%20DC%20Enviro%20Fuel%20Mix%20Insert_11.20_ADA.pdf

7 Maryland Public Service Commission (2021). Maryland Renewable Energy Portfolio Standard Program. https://www.psc.state.md.us/electricity/maryland-renewable-energy-portfolio-standard-program-frequently-asked-questions/. The Maryland RPS currently classifies renewable energy sources as Tier 1 (solar, wind, qualifying biomass, methane from landfills or wastewater treatment, geothermal, ocean, hydroelectric less than 30MW, poultry litter-to-energy, waste-to-energy, refuse-derived fuel and fuel cells using a tier 1 source) and Tier 2 (hydroelectric power other than pump storage generation).

8 Metropolitan Washington Council of Governments (MWCOG) (2021). Metropolitan Washington Energy Utility Data Survey Analysis for 2005 – 2020.

9 Data as provided by Prince George's County OCS (Sustainable Energy Division)

10 Prince George's County Board of Education (2021). Climate Change Action Plan Focus Work Group Resolution https://www.pgcps.org/globalassets/offices/board-of-education/docs---board-of-education/ccap/board-of-education-climate-change-action-plan-focus-work-group-resolution.pdf

11 Prince George's County (2021). Clean Energy Program Solar Energy Grant. https://www.princegeorgescountymd.gov/4044/Solar-Energy-Grant

12 United States Office of Energy Efficiency & Renewable Energy, Solar Energy Technologies Office (2021). Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics. https://www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics

13 Maryland Public Service Commission (2021). Maryland Renewable Energy Portfolio Standard Program. https://www.psc.state.md.us/electricity/maryland-renewable-energy-portfolio-standard-program-frequently-asked-questions/. The Maryland RPS currently classifies renewable energy sources as Tier 1 (solar, wind, qualifying biomass, methane from landfills or wastewater treatment, geothermal, ocean, hydroelectric less than 30MW, poultry litter-to-energy, waste-to-energy, refuse-derived fuel and fuel cells using a tier 1 source) and Tier 2 (hydroelectric power other than pump storage generation).

14 Maryland General Assembly (2020). Electric Industry - Community Choice Energy - Pilot Program (HB 561). https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/HB0561?ys=2020RS

15 Solar United Neighbors (2021) Completed Co-ops in Maryland. https://www.solarunitedneighbors.org/co-ops/maryland/completed/

16 Prince George's County (2021). Sustainable Energy Resources Energy Resiliency Zone Initiative. https://www.princegeorgescountymd.gov/2866/Sustainable-Energy-Resources

17 United States Department of Energy Solar Energy Technologies Office (2021). SolSmart. https://solsmart.org/

18 Maryland General Assembly (2021). Clean Energy Loan Program – Remediation and Resiliency (HB 517). https://mgaleg.maryland.gov/2021RS/bills/hb/hb0517F.pdf

19 Data as provided by study performed by Prince George's County OCS (Sustainable Energy Division)

20 U.S. Department of Transportation. "Cleaner Air." Accessed 10/14/21: https://www.transportation.gov/mission/health/cleaner-air

21 Blackwell, D., and Clarke, T. June 28, 2018. "State Variation in Meeting the 2008 Federal Guidelines for Both Aerobic and Muscle-Strengthening Activities Through Leisure-time Physical Activity Among Adults Ages 18-64: United States, 2010-2015." National Health Statistics Reports Number 112.

22 See https://energyresearch.ucf.edu/consumer/solar-technologies/solar-electricity-basics/how-a-pv-system-works/U.S. Department of Transportation. "Cleaner Air." Accessed 10/14/21: https://www.transportation.gov/mission/health/cleaner-airBlackwell, D., and Clarke, T. June 28, 2018. "State Variation in Meeting the 2008 Federal Guidelines for Both Aerobic and Muscle-Strengthening Activities Through Leisure-time Physical Activity Among Adults Ages 18-64: United States, 2010-2015." National Health Statistics Reports Number 112.

23 United States Census Bureau (2020). QuickFacts Prince George's County, Maryland. https://www.census.gov/quickfacts/princegeorgescountymaryland

24 The Maryland-National Capital Park and Planning Commission (2014). Prince George's Plan 2035. https://planpgc2035.org/

25 Prince George's County (2021). Department of Public Works and Transportation (DPW&T). https://www.princegeorgescountymd.gov/1002/Public-Works-Transportation

26 Prince George's County (2021). Department of Public Works and Transportation (DPW&T) - Sustainability Report 2021. https://www.princegeorgescountymd.gov/ImageRepository/Document?documentId=34858

27 Prince George's County Council. A Resolution concerning Green Fleet Policy. CR-28-2014 https://princegeorgescountymd.legistar.com/View.ashx?M=F&ID=4034915&GUID=BBCE02B5-A0B3-4926-8FF6-9F21293E1105

28 The Maryland-National Capital Park and Planning Commission (2014). Prince George's Plan 2035. https://planpgc2035.org/

29 Prince George's County (2021). Department of Public Works and Transportation (DPW&T). https://www.princegeorgescountymd.gov/1002/Public-Works-Transportation

30 Prince George's County (2021). Department of Public Works and Transportation (DPW&T) - Sustainability Report 2021. https://www.princegeorgescountymd.gov/ImageRepository/Document?documentId=34858

31 Prince George's County Council. A Resolution concerning Green Fleet Policy. CR-28-2014 https://princegeorgescountymd.legistar.com/View.ashx?M=F&ID=4034915&GUID=BBCE02B5-A0B3-4926-8FF6-9F21293E1105

32 PEPCO (2021). EVSmart. https://www.pepco.com/SmartEnergy/InnovationTechnology/Pages/ElectricVehicleProgramMD.aspx

33 Governing (2021). Climate Change Is an Infrastructure Problem – Map of Electric Vehicle Chargers Shows One Reason Why. https://www.governing.com/next/climate-change-infrastructure-problem-map-of-electric-vehicle-chargers

34 Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Initiative - Memorandum of Understanding (2020). http://d31hzlhk6di2h5.cloudfront.net/20200714/dc/3a/2b/58/794e750e808dd4a82ae402dd/MHDV_ZEV_MOU_7-14-20.pdf

35 Metropolitan Washington Council of Governments and ICF (2021) Prince George's County Electric Vehicle and Charging Infrastructure Action Plan.

36 Prince George's County (2021). Commercial Property Improvement Program. https://www.princegeorgescountymd.gov/3536/Commercial-Property-Improvement-Program

37 Prince George's County (2021). Clean Energy Program Overview. https://www.princegeorgescountymd.gov/2869/Clean-Energy-Program

38 Prince George's County Department of the Environment Resource Recovery Division

39 Prince George's County Department of the Environment (2017). Comprehensive Ten-Year Solid Waste Management Plan 2020 – 2029. https://www.princegeorgescountymd.gov/DocumentCenter/View/34077/10-Year-Solid-Waste-Management-Plan-for-2020-2029?bidId=

40 Prince George's County Zero Waste Initiative Website. https://www.princegeorgescountymd.gov/2651/Zero-Waste-Initiative

41 Ibid

42 Low Impact Development Center, Inc., 2021

43 The County Code – Prince George's County, Maryland (2019). Subtitle 25. – Trees and Vegetation. https://library.municode.com/md/prince_george's_county/codes/code_of_ordinances?nodeId=PTIITI17PULOLAPRGECOMA_SUBTITLE_25TRVE

44 The Maryland-National Capital Park and Planning Commission, Prince George's County Planning Department (2002). Summary Prince George's County Approved General Plan. https://www.mncppcapps.org/planning/publications/BookDetail.cfm?item_id=25&Category_id=1

45 The Maryland-National Capital Park and Planning Commission, Prince George's County Planning Department (2005). Approved Countywide Green Infrastructure Plan. https://www.mncppcapps.org/planning/publications/BookDetail.cfm?item_id=28&Category_id=1

46 Bloomin' PGC Website. https://www.pgscd.org/urban-agricultural-conservation/bloomin-pgc/

47 What Our Region Grows, Metropolitan Washington Council of Governments. January 18,2019. https://www.mwcog.org/documents/2019/01/18/what-our-region-grows-farmers-market-farming-urban-agriculture/

48 Prince George's County (2021). DIVISION 2. - Woodland and Wildlife Habitat Conservation Ordinance. https://library.municode.com/md/prince_george's_county/codes/code_of_ordinances?nodeId=PTIITI17PULOLAPRGECOMA_SUBTITLE_25TRVE_DIV2WOWIHACOOR

49 Metropolitan Washington Council of Governments (MWCOG) (2020). MWCOG 2030 Climate and Energy Action Plan. https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/

50 The Maryland-National Capital Park and Planning Commission (2014). Prince George's Plan 2035. https://planpgc2035.org/

51 Prince George's County Office of Emergency Management (2017). Prince George's County & the City of Laurel Hazard Mitigation Plan Update. https://www.princegeorgescountymd.gov/DocumentCenter/View/29942/2017-PGC-Hazard-Mitigation-Plan-Update_ADOPTED

52 Moody's Analytics. 2019, July. The Economic Implications of Climate Change. https://www.moodysanalytics.com/-/media/article/2019/economic-implications-of-climate-change.pdf

53 Gnedenko , E. 2020. Land Economics and Policy. Boston University. https://www.bu.edu/eci/files/2020/06/Land-Economics_final.pdf
54 Bailey, A. and L. Brush. 2020, October. The Resilience Factor: A competitive edge for climate-resilient cities. Center for Climate and Energy Solutions. https://www.c2es.org/wp-content/uploads/2020/10/the-resilience-factor-competitive-edge-for-climate-ready-cities.pdf
55 United States 114th Congress (2016). Water Infrastructure Improvements for the Nation Act PUBLIC LAW 114–322—DEC. 16, 2016. https://www.congress.gov/114/plaws/publ322/PLAW-114publ322.pdf
56 Maryland Climate and Health Profile Report. 2016. Maryland Institute for Applied Environmental Health, University of Maryland.
57 Gnedenko, Ekaterina. Boston University Global Development Policy Center Economics in Context Initiative (2020). Land Economics and Policy. https://www.bu.edu/eci/files/2020/06/Land-Economics_final.pdf
58 United States Environmental Protection Agency (EPA) (2021). Storm Water Management Model (SWMM). https://www.epa.gov/water-research/storm-water-management-model-swmm

VIII. NEXT STEPS

This Climate Action Plan contains a total of 27 climate action recommendations with clear implementation steps for the County to move forward, strategically setting us on a path to reduce our carbon emissions by 50% by 2030 (compared with 2005 levels) and building our resilience to climate impacts. Based on their impact, feasibility, existing initiative alignment, cost-effectiveness, and timeline, these recommendations have been prioritized. The CAC's recommendations are intentionally aggressive because we recognize that we must respond with a sense of urgency to avoid the most catastrophic impacts of climate change.

The local government and the community must prioritize a collaborative relationship to become a more adaptive and resilient County. The County must be sure also to include all the voices of the community. As described in Section VII, the County must invest in climate action education and outreach to all community members. Vulnerable populations must be heard and empowered to act by providing the proper support (e.g., programs, services, financial incentives, etc.). Gathering vulnerable population input to integrate into decisions must be intentional and not an afterthought.

The CAP's recommendations are only the start of what must become a living document. This document will serve as a recommendation for the actions we must all immediately incorporate into every facet of how we live if we are to achieve the long-term goal of a carbon-neutral future. We must stay focused and hold ourselves and our government accountable. Each recommendation must be tracked, evaluated, and measured to ensure the progress is achieved according to the timeframe and outline. As a living document, this CAP should be revisited and updated every 18 months, providing the public with an update on the progress with goals upwardly revised to face the increasing urgency of climate change.

We have a plan, we have clear steps, and now the work must begin.

VIII. PRIORITY RECOMMENDATIONS

ACTION AREA 1

OPERATIONAL ACTIONS TO BRING ABOUT TRANSFORMATIONAL CHANGE

PRIORITY RECOMMENDATIONS

CO-1 BUILD INTERNAL CAPACITY TO PLAN AND IMPLEMENT CLIMATE ACTION

CO-2 LEAD BY EXAMPLE AND ENSURE TRANSPARENCY IN CLIMATE ACTION

CO-3 ENSURE MEANINGFUL, EQUITABLE COMMUNITY ENGAGEMENT

CO-4 COMMIT TO CLEAN AND RENEWABLE ENERGY

CO-5 STRENGTHEN LAND USE REGULATIONS TO BETTER ALIGN INDIVIDUAL LAND USE DECISIONS WITH STATE COUNTY POLICIES RELATED TO SMART GROWTH, NATURAL RESOURCE CONSERVATION, AND GREEN INFRASTRUCTURE

PRIORITY RECOMMENDATION CO-1

CO-1

Build internal capacity to plan and implement climate action

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-1	Build internal capacity to plan and implement climate action	●	●	●	●	1+	

DESCRIPTION

To safeguard the health of County residents and to rapidly transition to a carbon-free economy, Prince George's County must build capacity to plan, implement, and evaluate necessary actions. This will include growing the climate-related knowledge and skills of County elected officials, Executive and Legislative Branch leaders, and agency directors and staff. It may also require the addition of new County staff with specialized knowledge and skills, in order to assess climate change risk and vulnerabilities, develop and implement mitigation and adaptation strategies, ensure equity, and enable the County to emerge as a regional climate action leader.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, OHR, OEM, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Adopt the CAP in early 2022. With public support from the County Executive, the County Council should adopt the County's Climate Action Plan and immediately allocate budget funds to initiate Steps 2-5.

Step 2. Secure climate action expert consultants to develop and deliver a Prince George's County Climate-Ready Leadership Summit.[1] The County's Climate Action Plan will impact land use decisions, community health, financial liability, and economic development opportunities. Leaders from businesses, municipalities and all sectors of County government, including elected officials, must enhance and expand their knowledge of climate risk management, as well as state-of-the-art methods for assessing vulnerabilities and designing solutions to avoid

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

potential county-wide financial hazards resulting from failure to act on climate change.

The County should sponsor a Climate-Ready Leadership Summit with specific emphasis on:

» The impacts of financial deficits and balancing pressures of existing budgets with new climate change requirements, as well as the financial impacts to the local economy in the event of a climate emergency.

» Staff fatigue stemming from addressing ongoing infrastructure emergencies.

» A comparison of Prince George's County's efforts in the context of other jurisdictions.

» Significant impacts to Prince George's County from major climate events in other parts of the county (such as regional food shortages, supply chain disruptions, mass migrations, and changes in the insurance industry).

» The embracing of systemic changes as an economic opportunity with the potential for long-term returns by committing to economically resilient development.[2] This should include accounting for the health and human costs of climate inaction, including the interrelated effects of environmental exposures, infrastructure, systemic inequities, and health disparities.

» Estimated costs for the County to become climate resilient and to shift to renewable energy, compared to the cost of inaction.

The Climate-Ready Leadership Summit provides an opportunity to operationalize equity from the beginning, by including elements for accessing traditional knowledge/indigenous perspective, and discussing equitable distribution of costs and benefits. These elements can be developed in collaboration with knowledge partners such as NAACP and UMD through its Environmental Justice Symposium.

Step 3. Perform a valuation analysis of county resources to identify opportunities for leveraging county assets and property value to secure new financing for climate resilience projects. Through independent climate action expert consultation, the County should perform a comprehensive cost-benefit analysis (CBA) to make a case for the public return on resilience-project and plan investments, including the valuation of ecosystem services. This can be used to inform the specific education and training curriculum of the Prince George's County Climate -Ready Leadership Summit. The CBA should also consider:

» How to achieve joint planning and financing infrastructure investments across municipalities, utility jurisdictions, and the county.

» A capacity assessment that estimates the additional staff capacity per agency and programmatic budget needed across all government sectors to achieve CAP goals by 2030.

» Identification of current County and municipal investment portfolio and financial mechanisms at risk due to climate change impacts.

» Suggesting ways to redesign existing County climate investment plans to combine Countywide revenues and incentives for private investment in fair and equitable ways.

Step 4. Host Prince George's County Climate-Ready Leadership Summit in 2022. This should include mandatory leadership participation from all branches of County government: Agencies, M-NCPPC, Library, PGCPS, Housing Authority, and others. This should be a publicly-broadcast event with the visible participation of the County Executive and County Council. Sessions should focus on the topics identified above, including climate risk management and potential impacts on bond ratings and financing mechanisms.

Step 5. Appoint Climate-Ready Leadership Team. As a goal of the Summit, a Climate Ready Leadership Team (to include members outside of County agencies) should be selected and given the charge to:

- Identify internal operational incentives and issues which present an opportunity to adapt climate change approaches.
- Identify barriers to County internal operations implementing climate change measures.
- Develop a job description and identify possible candidates for a dedicated executive leadership position within the County Executive Office, independent of executive agency management, to represent climate action issues, facilitate cross-agency collaboration, and provide oversight / auditing for CAP implementation.
- Based on the CAP recommendations, identify:
  - Role of each County government entity in achieving the CAP's performance expectations.
  - Recommendations for new or revised financing mechanisms to incentivize internal program management and procurement mechanisms to address climate change.

Step 6. Create and enable through County Council legislation a Prince George's County Resilience Authority. As enabled by Maryland General Assembly through SB0457 and HB05391, this entity could charge and collect fees for its services, apply for grants, issue and sell bonds, and seek private investment to pay for projects.[3]

Step 7. Require climate change training and ongoing professional development for all government employees annually. This could include County-sponsored climate change lunch-and-learns for County employees, as well as regular updates on CAP implementation. It could also include the development of a Climate 101 training module to familiarize staff with climate impacts and solutions and to build a culture of climate-conscious decision-making at all levels of government service.

Step 8. Integrate climate change knowledge and skills in filling job descriptions when hiring new staff or when filling open positions. Climate Action Plan implementation will likely require additional staff and/or augmented staff capacity, which could be addressed by establishing ongoing partnership arrangements with other organizations to fill capacity gaps, manage climate initiatives and help with climate action implementation.

Step 9. Allocate budget for new staff to help implement CAP. Based on the CBA performed under Step 3, and in close collaboration with Executive Staff and Agency leads, County Council should provide additional budget funding for the immediate full-time staff hiring to implement the plan. Programmatic budget needs will be approved for additional Climate Action Plan initiatives. Additional revenue streams from outside the County can be pooled and distributed through the Prince George's County Resilience Authority.

EQUITY CONSIDERATIONS

Civil service job creation for climate action may not lead to additional employment opportunities for applicants without advanced degrees.

Putting Equity at the Center of Implementation:

» Improve hiring processes to attain a more diverse climate action candidates and workforce, including targeted advertising of job announcements, reevaluating job requirements, and establishing a pipeline program to engage more applicants from underrepresented groups.

» Modify civil service laws and job descriptions and/or establish alternative career pathways within agencies such as enhanced interdisciplinary qualifications, honoring climate certificate programs as credentials, and embedding climate into another field (e.g. finance, accounting, or wastewater specialist receives on-the-job or certificate training on climate change).

» Invest in career development opportunities, including climate-related professional development for career counsellors, augmented offerings for workforce training at Prince George's Community College with special focus on retraining of displaced workers, climate resilience summer youth employment programs, and an apprenticeship program that does not require higher education degrees for entry-level positions.

» Appoint or hire an Equity Liaison to guide messaging and to engage and solicit input from disenfranchised stakeholders and difficult-to-reach communities.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Number of new climate-focused positions added.

» Number job descriptions with climate added to responsibilities or qualifications.

» Number of staff and elected officials trained.

» Funding awarded through grants and alternative funding.

» Funding towards climate-specific responsibilities.

» Number of climate-related partnerships augmenting staff capacity.

» Funding spent on climate capacity (i.e., FTEs, salary, etc.).

» Funding spent on climate capacity building activities (i.e., curriculum development, training, lunch and learns, etc.).

CAPACITY AND FUNDING NEEDS

» Dedicated funding will be needed to create and staff a Climate-Ready Leadership Summit as well as ongoing climate education for County leaders and staff. Funding will also be needed to facilitate interagency cooperation, collaborate with other regional jurisdictions, coordinate public outreach and engagement, collect, analyze, track, and report on data about CAP implementation, identify gaps in programs and services, and inform the next phase of climate action planning.

- At least one staff member in every agency will need to serve as a champion of the CAP and coordinate agency implementation of Climate Action Plan recommendations and to represent the agency in cross-sector collaborations. Agency climate champions should also be involved in reporting agency progress to the County Executive, County Council and the public.
- Funding will be needed for staff and/or consultants to perform a valuation analysis of County resources to include a comprehensive cost-benefit analysis to make a case for public return on resilience-project and plan investments, including the valuation of ecosystem services.
- A dedicated budget for ongoing staff professional and technical development to encourage deployment of sustainable technologies, climate-resilient practices, pilot innovation and keep up to date on industry standards adapting to climate change will be required.

HELPFUL RESOURCES

Montgomery County Climate Action Plan – Climate Ambassadors

Organization: Montgomery County

Description: Montgomery County's CAP designates climate ambassadors within each county department. This can serve as a model for Prince George's County.

Essential Capacities for Urban Climate Adaptation: A Framework for Cities

Organization: Innovation Network for Communities

Description: a framework for urban climate adaptation that identifies seven essential capacities that cities need to develop so they can effectively implement climate adaptation actions in the short- and long-term.

Community Resilience Building

Organization: A partnership of The Nature Conservancy

Description: A workshop and community-driven planning process where participants identify top hazards, current challenges, strengths, and priority actions to improve their community's resilience to all natural and climate-related hazards today.

Maryland Climate Leadership Academy

Organization: Association of Climate Change Officers

Description: Provides important continuing education and executive training to state and local governments, infrastructure organizations and the private sector to develop and implement sound climate change initiatives.

Resilience Authority of Annapolis and Anne Arundel County (Bill 31-21)

Organization: Anne Arundel County

Description: Maryland's first local resilience authority legislation.

ENDNOTES

1) https://www.capitalgazette.com/politics/ac-cn-resilience-authority-20210424-jvxuy3q4snfebjrgqzxma4nv4e-story.html
2) the-resilience-factor-competitive-edge-for-climate-ready-cities.pdf
3) http://mgaleg.maryland.gov/mgawebsite/Legislation/Details/SB0457?ys=2020RS

PRIORITY RECOMMENDATION CO-2

Lead by example and ensure transparency in climate action

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-2	Lead by example and ensure transparency in climate action	●	◒	●	●	1-3+	

DESCRIPTION

Local government and community leaders must lead by example by taking immediate actions to curb community-wide greenhouse gas emissions and increase climate resilience. As climate change accelerates, climate-related natural disasters are becoming more frequent, deadly, and destructive, with growing human and financial costs.[1] To protect our community's health and wellbeing, implementing the CAP must become the top priority for the County government. Acknowledging constituent concern for lack of government transparency, the County government must rebuild community trust to establish critical public support for this costly but necessary work.

The County's economic business development must restructure as a circular economy that supports healthy local foods, organics, recycling, and repurposing. Current land use and economic development practices promoting conversion of existing natural resources and agricultural land for economic growth will require an institutional paradigm shift to discourage greenfield development and require infill redevelopment. The County must integrate climate resiliency into all government processes, including criteria embedded within financial decision-making and funding approval processes. Establish regional climate partnerships for a more collaborative approach to achieving regional climate action goals. Use science-based climate-resilient standards to inform land development decisions. Evaluation processes and tracking of critical infrastructure improvements and climate action measures must be a verifiable and transparent process that also prioritizes improvements for the County's vulnerable populations first.[2]

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, OHR, HCD, HEALTH, DEPARTMENT, OEM, MEMORIAL LIBRARY SYSTEM, SCD, M-NCPPC, PGCPS, REVENUE AUTHORITY, RA, FSC, MUNICIPALITIES

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1. Demonstrate County commitment to climate action through publicly-transparent tracking, monitoring, evaluation, and reporting.

- Explicitly set climate change and resilience as community priorities at all branches of government.
- Create a publicly available process for tracking CAP implementation and infrastructure projects, evaluating results, and communicating progress to the public.
- Create a transparent project ranking process for project selection and funding allocation for all Capital Improvement Projects (CIP).
  - Require the use of science-based climate resilience, energy efficiency, and greenhouse gas reduction criteria for evaluation and prioritization of Capital Improvement Projects.
  - Require infrastructure improvement projects and climate resiliency projects within Equity Emphasis Communities to be fast-tracked for funding with a streamlined permit and design process.
  - Require comprehensive neighborhood improvements rather than piecemeal repairs or upgrades within Equity Emphasis Areas. For example, when replacing a sidewalk or curb and gutter on a street in a flood-prone equity area, a replacement project must also include recommended climate resilience measures such as adequate space for trees and using heat cooling permeable paving instead of concrete.
  - Use County press releases and social media to highlight successes as models for implementation elsewhere.
  - Require all County agencies and entities to develop and post as part of their mission statement a 'climate action vision statement' for capturing desired outcomes by that entity in support of County goals for climate change and resilience.

Step 2. Integrate climate risk into all county asset management processes.

- Require and publicly document the vulnerability of the County's built infrastructure and natural assets to climate change.
- Maintain a detailed inventory of these assets (adding natural assets if not included), and update maintenance, upgrade and replacement schedules to account for climate impacts.

Step 3. Integrate climate action into county planning documents, policies, ordinances, regulations, permitting processes, and internal practices.

- Conduct a crosswalk of all planning documents to identify any climate action-related initiatives, projects or missed opportunities.
- Require explicit consideration of impacts on greenhouse gas emissions, energy efficiency, vehicle-miles traveled, climate resilience, and waste management.
- Identify instances where plans, policies, or ordinances disincentivize climate action and/or contain clauses that allow waivers, exemptions, or variances that undermine climate action
- Track outcomes of permitting processes, as well as waivers and variances issued.

Step 4. Embed climate resilient priorities into the County's investment and economic development decision-making processes.

» Realign County investment portfolios to reflect a commitment to a just transition to a renewable-energy economy by divesting the County of investments in fossil fuels.

  › Investments related to fossil fuel production will present long-term financial loss as the world transitions to renewable energy.

  › County divestment creates a model for the community by "walking the talk" regarding concern for global climate change.

» Use science-based climate resilience standards to inform land development decisions for all government development and major CIP projects.

» Require prioritization of climate-resilient projects for capital improvement investments.

Step 5. Require a transparent and public land development and major CIP project review process. To lead by example, all government land development and disturbance activities must go through a more rigorous project identification and initiation process to serve as community-wide examples for inclusion, environmental stewardship, and climate resilience.

» Economic Development Corporation (EDC), M-NCPPC, County Agency CIP Projects over a $1 Million, Prince George's County Public Schools, Revenue Authority, Prince George's County Library System, and Prince George's Housing Authority must all submit to predevelopment Environmental Impact Statements (EIS) before funding or consideration for land transfers, request for proposals, or proposed redevelopment of land parcels for economic development.

» EISs will be submitted to an independent Environmental Assessment Panel including agency experts and community representatives. All documents and decisions will be made publicly available. The panel will assess and report on the following:

  › Evaluate positive and negative impacts of the potential redevelopment with regards to compliance with the Climate Action Plan and Plan 2035, as well as overall environmental impacts.

  › Evaluate traffic and health impacts to the surrounding communities.

  › Provide public briefing report to the Prince George's County Resiliency Authority (future Authority), DoE, and County Executive Climate Action Liaison (future liaison) with ultimate recommendation to the County Executive and County Council before the project can move forward for funding or next phase of design development.

» EISs must meet standards required for successful application for federal funding to increase County access to funds needed for implementing the Climate Action Plan.

» The Environmental Assessment Panel will review all proposals for disposition of County lands. The Prince George's County Climate Resiliency Land Trust (created as part of Recommendation A-3) will receive first right to transfer forested land and land designated as part of the County's regulated Green Infrastructure Network. This includes priority selection over land transfer to the State of Maryland or its entities.

- All RFPs for land development planning purposes by the County, which is released to the public for bid or comment before adoption, must always include the following along with other RFP materials:
  - Existing tree canopy potentially lost by the development.
  - Impervious area created or removed.
  - Satellite imagery of the proposed site and surrounding areas with all-natural resources, streams, floodplains, ecosystem features, and location of 311 calls over the last five years for flooding and drainage issues in the surrounding areas.
  - Climate Resilient score as informed by the EIS and Environmental Assessment Panel

Step 6. Require cross-cutting collaboration between county agencies and partnership with regional authorities to achieve mutual goals.

- Offer opportunities for local governments and state agencies to be part of the County's regional coordination strategy and CAP implementation projects.
- Increase participation with MWCOG for collaborate on studies and workgroups.
- Increase participation with the Maryland Commission on Climate Change through County representation at meetings and in working groups.

Step 7. Reduce the environmental impacts of day-to-day county operations through initiatives to transition to renewable energy, decrease greenhouse gas emissions, increase energy efficiency, decrease vehicle-miles traveled, and decrease waste.

- Issue Countywide guidelines and recommendations on climate-smart operational and behavior changes, increase energy efficiency, reduce waste, and conserve water in all County facilities.
  - Require all government landscape and garden maintenance operations to convert to battery or electric-powered small lawn and garden equipment by 2024.
  - Require conversion of all mowing equipment to hybrid power or all-electric by 2025.
- Require all County-owned facilities and parks to identify opportunities and implement plans for reducing lawns and impervious surfaces, increasing conservation landscaping and naturalization, increasing tree planting, reducing parking area, improving water conservation measures, and protecting natural areas from unneeded mowing.
- Establish a Climate Change Workforce Development Group to promote and support ongoing County employee retraining, diversification, and skill development for new green technologies.
  - Ensure the County's workforce has the skills necessary to implement climate programs.
  - Identify transferrable skills and existing job positions that could be adapted to resilience work or clean energy, enabling additional career advancement as county operations transition to clean energy.
- Create a green procurement system that enables preferential use of sustainable goods and professional environmental services through a streamlined purchase system.
- Green all County-sponsored events.
  - Develop a checklist of green event practices for use throughout the County.

- Locate events close to transit and provide directions for attending via public transportation.
- Establish zero waste guidelines for County events (e.g., ban single-use beverage containers and disposable packaging, dishes, and utensils).
- Eliminate plastic marketing materials or giveaways by the County.
- Require the provision of locally grown and locally produced food for all catered public events.
- Increase availability of vegetarian and low-meat options at County events.
- Highlight zero-waste and low-carbon features at County events

EQUITY CONSIDERATIONS

The County has no structured mechanism for tracking and quantifying equity-based outcomes for government-led development and CIP improvement projects.

Putting Equity at the Center of Implementation:

- Consider a formal set-aside in significant capital projects (e.g., all projects with budgets over $2 million) – for the sole purpose of funding an equitable priority project.[2]
- Explicitly measure environmental, social, and economic outcomes of projects (the "triple bottom-line") in the County's economic development process.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize infrastructure upgrades and CIP projects.

On an annual basis, track and report the following:

- Agency guidelines, regulatory requirements, and technical manuals that have been updated to include climate change criteria.
- Departments and agencies that have embedded climate resilience, energy efficiency, and greenhouse gas reduction strategies into daily operations.
- Number of visits to the County's climate-related web pages (both internal and external).
- Track specific download of climate support materials from websites.
- Dollars spent per agency or government entity on climate action-related improvements, practices, and systemic changes.
- Number of CIP projects and funding which explicitly address climate change impacts and vulnerabilities.
- Number of Environmental Impact Statement (EIS) performed.
- Number and location of public meetings held for government-led development initiatives and major CIP projects.
- Number of waivers and variances issued which undermine climate action recommendations.

CAPACITY AND FUNDING NEEDS

» Dedicated funding will be needed to create and staff a Climate-Ready Leadership Summit as well as ongoing climate education for County leaders and staff. Funding will also be needed to facilitate interagency cooperation, collaborate with other regional jurisdictions, coordinate public outreach and engagement, collect, analyze, track, and report on data about CAP implementation, identify gaps in programs and services, and inform the next phase of climate action planning.

» At least one staff member in every agency will need to serve as a champion of the CAP and coordinate agency implementation of Climate Action Plan recommendations and to represent the agency in cross-sector collaborations. Agency climate champions should also be involved in reporting agency progress to the County Executive, County Council and the public.

ENDNOTES

1) https://www.nytimes.com/2019/12/04/climate/climate-change-acceleration.html

2) https://www.pfm.com/docs/default-source/default-document-library/cber_equity-in-capital-improvement-planning-processes.pdf?sfvrsn=cc1d3658_0

PRIORITY RECOMMENDATION CO-3

CO-3

Ensure meaningful, equitable community engagement

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-3	Ensure Meaningful, equitable community engagement	●	●	●	●	1+	

DESCRIPTION

Full implementation of the Climate Action Plan will require a widespread transformation in how we live. County government and leadership are uniquely positioned to serve as the central, galvanizing community-wide communicator of the challenges and opportunities presented by climate change. A program of dedicated messaging, education, and outreach must be implemented to empower all community sectors to take the actions necessary to address climate change. County employees at all levels must be required to attend climate action implementation training and be provided with ongoing professional development resources essential to climate-informed decision making in the public interest.

Residents and other stakeholders, especially in underserved and overburdened communities, must have accessible web resources and educational opportunities to co-develop solutions and lead climate action implementation efforts. Local government must also build trust within local communities by creating a platform for meaningful public engagement to discuss fact-based information about climate risks and solutions.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, SCD, M-NCPPC, PGCPS, MUNICIPALITIES

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

IMPLEMENTATION STEPS

Step 1. Develop and implement a comprehensive, inclusive climate resiliency stakeholder engagement plan to engage and educate residents about climate change impacts and resilience solutions.

This plan should also:

» Establish a process to coordinate dialogue between County agencies and municipalities to strengthen communications and share resources to implement climate strategies.

» Integrate climate change considerations with the Equity and Social Justice Strategic Plan and apply what is learned from that engagement process to shape future engagement on climate action and resilience.

» Assess current outreach efforts and identify gaps (e.g., topic, sector, demographics, language, geography, etc.).

» Identify specific communications and outreach strategies for engaging vulnerable populations, youth, homeowners, and municipalities so that they can help shape climate action decisions and are better able to access information and assistance.

» Partner with schools, non-profit groups, faith-based groups and other private entities to develop effective messaging and programs to reach general audiences county-wide.

» Expand the existing County Executive's Prince George's Proud campaign to include evidence-based communication to inspire climate action and community resilience as part of all litter and beautification topics.

Step 2. Develop a streamlined online platform to easily share resources and report progress toward climate action implementation.

» Integrate recommended climate actions within all County master plans and policies.

» Integrate climate change considerations as part of an Equity and Social Justice Strategic Plan and build off that planning process to shape future engagement on climate action.

» Provide easy online access to information on climate change, implementation of the Climate Action Plan, and relevant local programs and resources.

» Develop a dashboard, including visual displays of data, to report progress on the implementation of the Climate Action Plan. See Priority Recommendation-A-6: Expand Information & Assistance to the Public on Climate Risks and Opportunities.

» Require ongoing climate education of County Click/311 system staff to help to address residents' climate-related concerns, from referrals to new programs and more information about how to access existing programs, to complaints about idling buses or missed food scraps pickups.

» Assign a dedicated team of County program staff to develop educational materials and deliver an outreach program for homeowners and businesses regarding why and how to make buildings more energy-efficient and resilient in the face of excess heat and extreme precipitation. This program effort would also be responsible for following:

  › Coordinate ongoing updates to the Climate Action web page and climate action information clearing house, including flood maps, heat island effects, county resources, home retrofits, cleaner transportation options, land conservation, tree canopy maintenance, and improving soil health.

  › Host in-person climate action educational events, possibly in partnership with non-profit organizations, to provide meaningful

and accessible engagement opportunities, especially in underserved communities.

- Analyze feedback from webpage users and participants in community events to identify gaps in communications and inform future messaging and programs

Step 3. Invest in cross-sector public outreach and messaging to communicate possible climate risk impacts and opportunities from building climate resiliency and community-wide transition to renewable energy.

- Develop tailored marketing for non-environmentalists, actively promote the available technical and financial assistance at non-climate-related community events, and further expand outreach by distributing promotional materials at general County service locations such as libraries, parks, senior centers, community centers, early voting centers, and schools
- Collaborate with municipalities and park programs to create interpretive materials to highlight ecosystem services of natural areas and nature-based solutions for flooding and urban heat islands.
- Coordinate with educators in K-12 schools and colleges to build on the existing environmental literacy curriculum and develop general education course outcomes that equip students to make climate-conscious decisions about lifestyle, energy usage, and consumer choices.
  - Require school counselors and career counselors have necessary knowledge and resources to provide students with information about career paths and opportunities in renewable energy, green product design, new automotive technology, transportation, regenerative and conservation agriculture, building retrofits, urban planning, forest stewardship, and waste management.
  - Expand workforce development offerings at Prince George's Community College to support students seeking careers related to renewable energy.
- Provide professional development and continuing education opportunities for teachers and health care workers concerning climate risks, solutions, and resilience through partnership with Prince George's Community College to offer climate ready training classes.
- Engage all sectors to promote cleaner, greener transportation options by the following:
  - Encourage messaging that emphasizes co-benefits, such as a Healthy People, Healthy Planet program that promotes walking, biking, and use of public transit.
  - Increase awareness and expansion of trail systems, bike-share, and safe infrastructure for pedestrians to promote active transport as an alternative to gas-powered cars.
- Create County-wide recognition programs for businesses and residents who exemplify excellence, meet new benchmarks, create clean-energy jobs, and embrace new climate mitigation and adaptation recommendations. This should also include a special County seal of approval that could be developed for inclusion in business promotional materials enabling customers to choose businesses with better practices.

Step 4. Establish and formalize a CAP Resident Advisory Group to aid in the adoption and implementation of the CAP.

» Establish a Resident Advisory Group to inform ongoing implementation of the Climate Action Plan. The Resident Advisory Group should be an inclusive, active, diverse group of County residents from every district and should have the full support of County leadership.

» Empower the Resident Advisory Group to interact with decision-makers to ensure agencies are provided with the education and resources needed to implement and motivate needed change throughout County operations. Such interaction should be enabled at the County Executive level will build public trust for the County's CAP implementation process and help to inform government leadership of residents' ideas for procurement, transportation, land use, and infrastructure.

Step 5: Establish and support, through County Council enabling legislation and bylaws, the creation of a Resilience Authority of Prince George's County. The Resilience Authority will explore and pursue private investments and alternative funding sources to support implementation of the CAP.

EQUITY CONSIDERATIONS

Some populations might be unable to access mainstream communications because of language barriers, lack of internet access or necessary technical skills, or physical impairments. Educational materials must be available in multiple languages and formats for accessibility by individuals with diverse backgrounds and learning styles

Putting Equity at the Center of Implementation:

» Ensure that underserved and overburdened communities can access and participate in the process and that investments in CAP implementation are inclusive and equitable.

» Consider establishing routine leadership and task force meetings within Equity Opportunity Zones, Low-Income Communities, and aging communities. This will also enable community members to attend by meeting people where they are.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help assess reach and effectiveness of outreach efforts.

On an annual basis, track and report the following:

- Number of climate-related official County Executive and County Council events (e.g., summits, conferences, webinars, public meetings).
- Number of climate-related community engagement opportunities (citizen science, town halls planning sessions, etc.).
- Number of stakeholders engaged, broken down by target audience (e.g., demographics and sector).
- Number of residents reached via social media and other outreach efforts (e.g., Facebook, YouTube, newsletters, website hits, etc.).
- Number of participants engaging in incentive and technical assistance programs with a breakdown based on subwatershed and council district.
- Grant applications and agency budget requests for climate-related efforts; including the status of an application, partners engaged, and funds awarded.
- Funding spent that explicitly identifies climate action impacts/co-benefits.
- County-wide survey administered every three years to measure community knowledge, interests, needs, and perceptions of County services and operations as related to Climate Action.

CAPACITY AND FUNDING NEEDS

- Dedicated budget to staff a Climate Communications and Outreach Program – responsible for centralized coordination and oversight of climate-related communications and outreach, as well as direct community outreach in underserved and overburdened communities.
- Ongoing and dedicated funding to develop, update, and maintain an easy-to-use, public-facing climate action "one-stop-shop" website that serves as a portal for the County's climate-related programs and a reporting system for communicating progress implementing the Climate Action Plan.
- Ongoing and dedicated funding to create and update educational outreach materials to adapt to changing climate impacts and resident needs (food, television ads, printouts, videos, etc.).
- Allocate dedicated funding to support climate related community citizen science programs, surveys, and polling to measure the effectiveness of engagement activities, and the creation of Climate Change and Resiliency Stakeholder Engagement Plan.
- Staff and funding for a Climate Jobs Workforce Program with a dedicated budget for program staff. The program will encourage and coordinate climate-related workforce development training, placement, and co-op program in partnership with local colleges and universities.

HELPFUL RESOURCES

Equitable Community-Driven Climate Preparedness Planning

Organization: Urban Sustainability Directors Network

Description: This document provides guidance to local governments in designing and implementing a more inclusive, equitable planning process.

A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Populations into Coastal Hazards Planning in New Jersey

Organization: Rutgers University

Description: This guide and the related project developed decision-support tools, resilience planning guidance, and training and policy options to advance efforts to address the needs of socially vulnerable populations as part of coastal climate resilience planning, but the principles apply anywhere.

Cool Block program

Organization: Empowerment Institute

Description: A place-based social support system that creates bottom-up change from consumers and voters and connects it to top-down change (technology and policy adoption) to reduce a community's carbon footprint.

Louisiana Environmental Leadership Program

Organization: Louisiana Department of Environmental Quality and various Louisiana industries

Description: A program comprised of large, medium and small businesses, federal facilities, municipalities, non-governmental organizations, and schools and universities that are committed to improving the quality of Louisiana's environment through pollution prevention, waste reduction and other environmental improvements.

BrightAction

Organization: BrightAction

Description: This platform makes it easy to help a team or community take simple, everyday actions and make an impact; see the tailored example for Albany, CA.

Prince George's County EJ Screen

Organizations: National Center for Smart Growth (NCSG) and Maryland Environmental Health Network (MDEHN)

Description: This tool allows users to explore layers of environmental justice concern, determine the overall 'EJ Score' for census tracts in the state, and view additional context layers relevant to their area of concern or story they would like to tell.

Maryland Park Equity Mapper

Organizations: University of Maryland School of Public Health and Maryland Department of Natural Resources

Description: This tool combines demographic and environmental health data from a variety of sources and maps that data onto Maryland census block groups in order to identify disparities in park access and quality. This application allows users to evaluate the green space available in their community and see how it compares to the rest of Maryland. The Park Equity Mapper can be used by city planners and park officials to identify communities in need of green space revitalization.

PRIORITY RECOMMENDATION CO-4

Commit to clean and renewable energy

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-4	Commit to clean and renewable energy	●	●	●	●	1+	

DESCRIPTION

Prince George's County must ensure a community-wide, just transition to renewable energy. As a first step, the County must prohibit direct or indirect use of tax funds or incentivizes for locating fossil fuel-driven distribution centers, storage facilities, or production plants within the County. Zoning and land-use regulations must be revised to prevent the siting of fossil-fuel driven industry within the County. The County must also work with existing fossil fuel generating plant owners to seek funding to retire those plants and replace them with renewable generation.

In partnership with neighboring counties, Prince George's County should immediately begin advocating for a statewide 100% Renewable Energy RPS Renewable Portfolio Standard (RPS) by 2030, as well as for the enabling of Community Choice Aggregation energy program, to be implemented Countywide in an equitable manner so as not to increase the energy burden on the residents least able to afford increased electricity costs.[1]

In alignment with goals of the State of Maryland, Prince George's County should completely divest from all fossil fuels by 2040.[2] By 2023, the County must establish a 15 -year transition plan requiring community-wide use of 100% renewable energy by 2040. This plan's implementation must be initiated within one year. This plan must include legislatively mandated transition benchmarks and milestones for all new construction (residential and commercial) to use 100% renewable energy by 2030. In addition to Priority Recommendation M-1: County Operations to Utilize 100% Renewable by 2025, the County should also establish and implement an economic strategy for enabling a fossil fuel-free and sustainable local economy for green job creation and sustainable local business.

In support with President Biden's May 20th, 2021 Executive Order on Climate Related Risk, our local government must now utilize our County's considerable investment powers to invest more in low-carbon renewable solutions to combat climate change and ensure the long-term financial health of our local government. As more and more institutions pursue ambitious climate goals and move away from fossil fuels, the fossil fuel sector will increasingly feel market pressures and have assets stranded, making the fossil fuel industry not only a risky investment in terms of its impact on global

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

greenhouse gas emissions but also in terms of financial risks.[3] Daily, our local government and its associated entities make fiduciary investment decisions for local tax dollars.[4] From the types of goods and services the local government provides to the community, to how public supported funds like pensions or investment of utility enterprise funds in the market, these fiduciary decisions have ripple impacts well beyond our local community. In support of a renewable energy market, the County should also partner with local academic and patient capital organizations to support and incubate business enterprises and carbon capture innovation.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, HCS, PGCPS, M-NCPPC, FCS, REDEVELOPMENT AUTHORITY, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. By 2023, create necessary resolutions and adopt or revise the County code to require the following:

- Pass a County Council resolution urging the state of Maryland to create a statewide 100% Renewable Portfolio Standard by 2030 to support Prince George's County's commitment to facilitate community-wide transition to 100% renewable energy by 2040.
- Establish and initiate the implementation of a 15-year transition plan requiring community-wide use of 100% renewable energy by 2040. The plan must include:
  - Legislatively mandated transition benchmarks and milestones for all new construction (residential and commercial) to use 100% renewable energy by 2030.
  - Identification of resilient power options from all utilities to ensure resiliency and redundancy for residents and critical infrastructures.
  - Identification of sectors that can utilize zero-emission vehicles to maintain other fuels and technology for heavy vehicles necessary for industry, construction, and farming.

Step 2. Develop a Climate-Related Financial Risk Strategy. In complementing ongoing Federal Financial Risk Strategies, by 2023 the County must develop and begin implementing a local government climate-related financial risk strategy and phasing plan. This strategic plan will accomplish the following:

- Provide for the measurement, assessment, mitigation, and disclosure of climate-related financial risk to local government (to include municipal) programs, assets, and liabilities to increase the long-term stability of all local government operations.
- Assess financing needs associated with achieving Countywide net-zero greenhouse gas emissions by no later than 2040.
- Identify government programs and engage private and public investments to play complementary roles in meeting renewable energy transition needs — while advancing economic opportunity, worker empowerment, and environmental justice.
- Stipulate the divestment of all Prince George's County assets that are currently invested in fossil fuel companies, including pension and other enterprise funds by 2025, and provide educational resources

to residents and businesses to encouraging them to do the same.

  - Remove incentives for fossil fuel-based industries.
  - Build transparency into the process by publicly tracking, monitoring, and reporting how the County manages climate-related financial risks and opportunities.

- For bond rating agencies, define proactive steps by the County to build resilience to physical impacts of climate change and ascertain the County's financial strength and ability to pay its debt.

Step 3. Invest in climate solutions and a just green economy. Increase the County's financial investments in sustainable assets and climate solutions to help promote decent jobs and a just and green economy.

- Reinvest any capital from fossil fuel stocks into climate solutions, and consider establishing or joining a green bank, revolving loan fund, or resilience authority.
- Identify and pursue economic or tax-based incentives to support partnerships with universities and national laboratories for the County to become a living lab for new opportunities and innovation.
- Coordinate with the Economic Development Corporation to identify green economy opportunities.
- Follow the recommendations of the Taskforce for Climate-related Financial Disclosures:[5]
  - Transition to a ban on all new fossil fuel projects in the County, including exploration, extraction, transportation, generation, or commercial sales.
  - Identify and divest support from any banks that provide financing for new fossil fuel infrastructure projects in the region.

Step 4. Ensure a community-wide just transition to renewable energy.

- Create and empower a Climate Workforce Equity Board to ensure that any jobs created through the process of transitioning to renewable energy are quality jobs accessible to everyone.
- Establish and require ongoing County-wide measurement and baseline benchmarking of air quality. including the identification and pursuit of opportunities to improve air quality within the County.
- Prioritize County-driven investment within local communities that have borne the brunt of climate change impacts and fossil fuel projects for new economic opportunities and the resources they need to recover from fossil fuel pollution and climate impacts. The County must undertake the following:
  - Retrain and prioritize rehiring workers and residents who have lost jobs due to the transition away from fossil fuels.
  - Study, or convene a working group to study, the feasibility, affordability, and barriers of locating renewable energy generation in the County, particularly community solar, and other solutions that may both reduce the energy burden of our residents and contribute to our larger climate goals.
  - Develop clear rules for the distributed solar market, regarding ownership, maintenance and operations, recycling and waste, etc. to enable investment.

EQUITY CONSIDERATIONS

Residents who have lost jobs *indirectly* due to the transition away from fossil fuels will not have equal access to job retraining.[6]

Putting Equity at the Center of Implementation:

» Workers and communities reliant on other fossil fuels and dependent industries — from oil and gas, to chemicals manufacturing and rail shipping, must be included in local supportive policies and programs as economic opportunities shift to renewable energy.

» Identify fossil fuel-related jobs and businesses within the County and proactively engage workers and entities on how their business can benefit, participate, and transition to support renewable energy and economic opportunities.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Dollars currently invested in fossil fuel or related industries via the County's trusts and investment portfolio.

» Funds and investments shifted to carbon-free and sustainable investments.

» Amount of public funding reinvested to build climate resiliency in municipalities, government operations, and related government entities.

» Number of fossil fuel related tank installations and repairs. Permit numbers to be included and categorized by subwatershed.

» Number of renewable energy projects supported annually (including through rebate or incentive) and/or renewable energy projects installed. Permit numbers to be included and categorized by subwatershed.

» Number of permits (for new installation, repair, or renewal of license) issued for systems that burn, store, or transmit fossil fuels in low-income, underserved, overburdened communities. Permit numbers to be included and categorized by subwatershed.

» Number of renewable energy jobs created, both within government operations and community-wide, with estimated community-based economic value.

CAPACITY AND FUNDING NEEDS

» Allocated and dedicated funds to assess the County's financial assets, research new investment opportunities, and establish and update on an annual basis any new protocols or tracking mechanisms.

» Allocated and dedicated funds to develop new green jobs training and enable retraining or business development for workers and residents who have lost jobs due to the transition away from fossil fuels.

HELPFUL RESOURCES

The Financial Case for Fossil Fuel Divestment

Organization: Institute for Energy Economics and Financial Analysis

Description: This paper presents a financial case for investment funds to divest from fossil fuel companies.

Divesting from Fossil Fuels, Investing in Our Future: A Toolkit for Cities

Organization: C40

Description: This toolkit supports cities in committing to and delivering Divest/Invest action, and explains the practical steps involved in making this happen.

Divesting from Fossil Fuels, Investing in a Sustainable Future Declaration

Organization: C40

Description: This webpage provides a deceleration template and a high -level overview of the actions a city can plan to take to meet the commitments in the Divest/Invest Declaration.

Fossil Free California

Organization: Fossil Free California

Description: Fossil Free California works to end financial support for climate-damaging fossil fuels and promotes the transition to a socially just and environmentally sustainable society.

Task Force on Climate-related Financial Disclosures

Organization: Task Force on Climate-related Financial Disclosures

Description: This organization provides climate-related financial disclosure recommendations designed to help companies provide better information to support informed capital allocation.

A Divest & Invest Guide for Local Governments: Reducing Carbon Risk and Investing in Local Economic Strength

Organization: Mayors Innovation Project

Description: This guide briefly examines the case for addressing climate risk in investments, examines potential solutions and ways to implement them, and explores how reinvestments can create good jobs.

ENDNOTES

1) https://www.cesa.org/projects/100-clean-energy-collaborative/guide/table-of-100-clean-energy-states/
2) https://governor.maryland.gov/session2020-environment
3) https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/20/executive-order-on-climate-related-financial-risk/
4) https://www.princegeorgescountymd.gov/DocumentCenter/View/34195/2020-Comprehensive-Annual-Financial-Report
5) https://www.fsb-tcfd.org/
6) https://www.edf.org/how-clean-energy-transition-affects-workers-and-communities

PRIORITY RECOMMENDATION CO-5

CO-5

Strengthen land use regulations to better align individual land use decisions with state County policies related to smart growth, natural resource conservation, and green infrastructure

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
CO-5	Strengthen land use regulations to better align individual land use decisions with state County policies related to smart growth, natural resource conservation and green infrastructure	●	●	●	●	3-5	

DESCRIPTION

To achieve the Plan 2035 vision and achieve its commitment to MWCOG's regional housing targets (provide at least 75 percent of all new housing in Activity Centers or near high-capacity transit), the County Council and M-NCPPC must change land-use decision-making processes to achieve the long-standing Growth Management Goals outlined in County Plans and approved policy. To date, less than 25% of all new housing units built within the County have been built in MWCOG Activity Centers. The percentage of new units built within MWCOG Activity Centers with rail is only 16.45% of all new units. The percentage of new units in Regional Transit Centers is less than 18% of all new units. Since the official approval of Plan 2035 in 2014, County Council has adopted few of the Growth Management policies recommended to limit suburban sprawl development.

Plan 2035 contains a Climate Change policy to assess land use decisions for potential climate change impacts. As part of this policy, the County is to implement the County's Climate Action Plan, identify strategies related to land use, and integrate climate action strategies into County codes. Seven years after the adoption of Plan 2035, most of these policies and strategies have not been implemented and the County has realized minimal success in achieving its Growth Management Goals. Most importantly, this Priority Recommendation requires revising the County's Planning Board and Council land development review process to require all land-use decisions are evaluated and scored based on future climate impacts and resilience criteria as part of a more transparent and public approval process.

The Land Use Operational Recommendation is integral to the following Priority Recommendations: M-11: No Net Loss Tree Conservation Regulation, M-7: Increase support for Activity Centers, and A3: Prioritize Preserving and Restoring Natural Resource Areas and Agricultural Open Space for Climate Resilience.

GHG Reduction · Climate Resilience · Community Health · Quality of Life · Job Creation · High Feasibility · Moderate Feasibility · Low Feasibility

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPIE, HCD, M-NCPPC, REVENUE AUTHORITY, REDEVELOPMENT AUTHORITY, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Require M-NCPPC to create and establish a public Smart Growth Dashboard that tracks approved preliminary plans of subdivisions, approved site plans and development proposals. The following will be tracked in real time via the dashboard:

- Number of dwelling units (by type), square footage of retail, office and industrial, and other relevant growth data.
- Categorization of approved site plans and development proposals by activity center type, innovation corridor, employment area, established communities (by zip code) or rural and agricultural areas (by zip code).
- Annual review and tracking of County growth trends with the following deliverables:
  - Provide a written public report measuring progress to the County Council.
  - Identify potential revisions to policies and ordinances to assist with meeting the County Growth Management Goals.[1]

Step 2. With advice from M-NCPPC, County Council must be required to rank each Activity Center by importance to Plan 2035's vision, Downtowns and Regional Transit Centers, followed by other Centers served by rail, and with suburban Centers last.

Step 3. Require the County Executive and County Council identify a Capital Improvement Plan (CIP) Review Team (e.g., OMB, Agency Technical Leads, M-NCPPC, EDC and Audits & Investigations) that annually will review the CIP program during budget preparation to ensure consistency with both CAP (climate impact and resilience criteria) and the Plan 2035 vision, goals, and policies.[2]

- For each Activity Center, the CIP Review Team will identify and coordinate the key capital improvement projects necessary to promote and facilitate economic and residential development within the Center.[3] CIP Review Team will score (negative or positive) every CIP project based on its possible climate impacts, resilience, and support of "Plan 2035 Goals," to guide in prioritizing the expenditure of CIP funds.

Step 4. Consistent with Plan 2035, the Climate Action Plan, the Green Infrastructure Plan, and previous growth plans, the County Council and M-NCPPC must identify and adopt policies and ordinances that phase new residential development to coincide with the provision of public facilities and services.[4]

Step 5. Require M-NCPPC Staff Reports to contain an analysis of the economic impact of each development proposal on the County Operating and Capital Budgets (i.e., life cycle maintenance and repair), compliance with the Climate Action Plan, and "Climate Score" for each development proposal. Low scoring development proposals shall be required to make revisions to increase the "Climate Score" or be denied.

Step 6. The new Zoning Ordinance shall be revised to achieve the following:

» Strengthen the Green Building provisions to reduce the carbon impact of development proposals

» Incorporate climate resilient policy and zoning practices.

Step 7. Require M-NCPPC and the County Council to address the residential pipeline in rural areas and established communities outside of the Beltway to curtail suburban sprawl.[5]

» County Council must cease extending current validity periods and shall adopt shorter validity periods for suburban development projects.

» Revise subdivision regulations to require older projects to be reevaluated to ensure that public infrastructure will be reconsidered and updated to ensure that public infrastructure is adequate and designs comply with revised County code.

» In coordination with M-NCPPC, the County Council must implement a residential building permit allocation program as soon as feasible to better phase the suburban residential pipeline.[6] The permit allocation program is intended to firmly steer development to Activity Centers with emphasis on areas near high-capacity transit.

Step 8. Require that mixed-use land use and medium-to-high density residential development to be limited outside of the Regional Transit Districts and Local Centers served by Metrorail or the Purple Line.[7] New Zoning Ordinance revisions should incorporate:

» Differentiation between policies supporting medium-to-high density residential development in Activity Centers as opposed to suburban development in Rural areas and Established Communities outside of the Beltway.

» Restriction of the use of site-specific amendments or rezoning to increase residential density in Rural areas and Established Communities outside of the Beltway.

Step 9. County government and its entities must not provide subsidies for residential development projects located in Rural areas, Established Communities outside of the Beltway, or Centers not served by rail.

Step 10. County Council must be required to severely limit approving water and sewer category changes for properties in the S5 and W5 categories except for residential communities experiencing hardship due to failed or compromised private systems for communities reasonably located near existing public water and sewer systems.[8]

Step 11. County Council and M-NCPPC must evaluate and provide actions on:

» Utilization of future water and sewer service areas as potential woodland conservation banks or stormwater management offset areas to meet the requirements of the Watershed Implementation Plan.[9]

» Transfer of development rights program, density exchanges, or purchase of development rights program for the Rural and Agricultural Areas.

» Explore opportunities to transfer development rights within areas and to coordinate with the Watershed Implementation Plan.[10]

Step 12. The County shall prohibit all waivers to allow development in floodplains.

EQUITY CONSIDERATIONS

Infill development within urban transit corridors can lead to displacement of the lowest-income renters who face severe housing cost burdens, often paying more than 50 percent of income toward rent (JCHS, 2016). A primary motivation for existing residents' desire to stay as revitalization occurs are the availability of services and support systems on which low-income families rely, such as affordable mass transit, economic and workforce development, and other basic services. Urban revitalization often brings new amenities that attract higher-income in-movers able to pay higher rents leading to displacement of lower income residents.[11]

Putting Equity at the Center of Implementation:

» Create and adopt law giving tenants the first right to purchase their building or home when it is put up for sale, create restrictions on how many units may go to condo conversion each year within Activity Centers, and enable non-traditional homeownership:

» Create "First Right Purchase Program" (See local example: District of Columbia Tenant Opportunity to Purchase Act) to provide financial and technical assistance to income-qualifying tenants that are attempting to use to purchase their buildings.

» Encourage Community Land Trusts which enable multi-stakeholder organizations that own land for the permanent benefit of the community, selling and renting homes with various resale restrictions to maintain long-term affordability.

» Encourage and enable limited equity cooperatives (Greenbelt as an example) that are member-run cooperative organizations that limit the equity homeowners can accumulate, thus preserving long-term affordability.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Climate scores through the development review process for all government entities, (e.g., PGCPS, Memorial Library, M-NCPPC, etc.).

  › For all public projects, scoring would be required prior to dedicating funding to initiate a design/permit process.

  › Post climate impacts and score for all CIP project valued over $500K (total for all phases, including design) feasibility stage or 15% concept development stage. Projects valued at over $500k involving any land disturbance activity over 5,000 sq. ft. (including roadway and storm drain projects within ROWs and public domains such as parks, schools, etc.) must post the required to provide an Environmental Impact Statement at 30% project initiation as part of the ongoing Climate Score reporting.

» M-NCPPC Sector Planning projects must be independently scored by DoE and publicly provided on the Dashboard.

» By June 30th of each fiscal year, all agencies and County entities must issue an overall Climate Action report card and score implementing or supporting "Plan 2035 Goals" and the CAP as part each entity's budget approval process to County Council, board, or governing commission.

» Annual public report detailing financial subsidies, by type, provided to any development projects, listed by the following: center type, innovation corridor, employment area, established communities (by zip code) or rural and agricultural areas (by zip code).

**All metrics should be tracked against demographics, equity areas, environmental*

CAPACITY AND FUNDING NEEDS

» Most of the Implementation Steps will involve revisions to the Zoning Ordinance or to comprehensive plans, and the creation of new climate related development review policies. The County Council and MNCPPC already have legal and professional staff tasked with similar responsibilities. However, it may be necessary to hire staff with professional credentials to assess climate impacts to support the development of new climate resilient policies.

» Create a process of for greater accountability and transparency by M-NCPPC Staff and leadership to provide impartial evaluations of land development proposals. Evaluation of proposed land development and all planning studies, provided to County Council and Planning Board for decisions and approvals, should prioritize and highlight climate-resilient and science-based evaluation criteria to inform and score land use recommendations.

» County Council members and Planning Board must be provided with ongoing training to increase understanding and awareness of the climate impacts from land use decisions, especially regarding transportation, natural resources, flooding, and County-specific climate change impacts.

» Require M-NCPPC staff to attain professional credential requirements to assess climate impacts of development proposals. Requirements must immediately be incorporated into all backfill position for land use development and planning review positions.

» Allocate funding for consultant services to support review and analysis of land use policy revisions.

» Allocate and dedicate funding for the creation and operation of the Smart Growth Dashboard and additional reporting requirements which may include Environmental Impact Statements.

HELPFUL RESOURCES

The National Center for Smart Growth

Organization: University of Maryland

Description: This national center supports research and training on topics related to smart growth including engaging with local Maryland communities and offering technical support.

Attracting Infill Development in Distressed Communities: 30 Strategies

Organization: U.S. Environmental Protection Agency

Description: Report to help local governments overcome obstacles and encourage infill development, particularly in distressed communities.

International Institute for Sustainable Development

Organization: International Institute for Sustainable Development

Description: Resource with case studies, articles, research, and blogs on sustainable and climate-resilient development.

U.S. Climate Resilience Toolkit: Planning and Land Use

Organization: NOAA

Description: Page on the U.S. Climate Resilience Toolkit, a collaborative effort to provide training, information, and resources for local and state governments to build resilience and protect vulnerable assets community -wide, that discusses how planning and zoning can help communities address climate vulnerabilities and build resilience.

Prince George's County Plan2035

Organization: M-NCPPC

Description: Plan2035 is Prince George's County's comprehensive 20-year general plan. It provides a blueprint for long-term growth and development.

Visualize 2045

Organization: MWCOG

Description: Visualize 2045 is the federally mandated, long-range transportation plan for the National Capital Region. It highlights projects that the region's transportation agencies expect to be able to afford between now and 2045.

[On Wedges and Corridors: A general plan for the Maryland-Washington Regional District in Montgomery and Prince George's counties (1964)]

Organization: M-NCPPC

Description: This report establishes over-all policies for development of the Regional District and to relate these policies to the new metropolitan planning framework.

ENDNOTES

1) Plan 2035 LU1.4
2) Plan 2035 LU1.5.
3) Plan 2035 LU1.6.
4) Plan 2035 LU4.2.
5) Plan 2035 LU4.2.
6) Plan 2035 LU4.3.
7) Plan 2035 LU7.1.
8) Plan 2035 Land Use Policy 10.
9) Plan 2035 LU10.3.
10) Plan 2035 LU11.4.
11) https://www.huduser.gov/portal/sites/default/files/pdf/DisplacementReport.pdf

ACTION AREA 2

MITIGATING THE CAUSE OF CLIMATE CHANGE BY REDUCING GREENHOUSE GAS EMISSIONS

PRIORITY RECOMMENDATIONS

M-1 POWER COUNTY OPERATIONS WITH 100% RENEWABLE ENERGY

M-2 INCREASE DEPLOYMENT OF SOLAR PV IN THE RESIDENTIAL AND COMMERCIAL SECTORS BY EXPANDING PARTNERSHIPS, INCENTIVES, AND FINANCING SOLUTIONS

M-3 ACCELERATE DEPLOYMENT OF RESILIENT ENERGY SYSTEMS

M-4 DEVELOP A COMMUNITY-WIDE EV DEPLOYMENT STRATEGY

M-5 ACCELERATE DEPLOYMENT OF EVS AND CHARGING INFRASTRUCTURE BY COUNTY AND OTHER PUBLIC AGENCIES

M-6 SUPPORT TELECOMMUTE POLICIES TO REDUCE VMT AND ENHANCE COUNTY RESILIENCY

M-7 INCREASE INVESTMENT IN ACTIVITY CENTERS

M-8 ACCELERATE IMPLEMENTATION OF DEEP ENERGY RETROFITS AND COMMUNITY-WIDE EFFICIENCY AND WEATHERIZATION EFFORTS

M-9 ESTABLISH BUILDING BENCHMARKING REQUIREMENTS AND ENERGY AND WATER CONSUMPTION STANDARDS

M-10 EXPAND COUNTY WASTE REDUCTION AND DIVERSION EFFORTS

M-11 ENACT AND ENFORCE "NO NET LOSS" TREE CONSERVATION REGULATION AND POLICY TO MAINTAIN AND EXPAND STREET TREE CANOPY AND FOREST AS A LAND COVER

PRIORITY RECOMMENDATION M-1

M-1

Power County operations with 100% renewable energy

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-1	Power County operations with 100% renewable energy	●	●	●	●	3-8	

DESCRIPTION

Prince George's County owns approximately 118 buildings that use an estimated 83,000 MWh of electricity per year. Streetlights and traffic signals consume an additional 10,000 MWh of electricity annually, equating to an estimated total of 93,000 MWh of electricity consumed for county government operations each year. Through a combination of procurement and renewable energy installations, the County will switch to 100% renewable energy sources by 2025. As part of this effort, the County will seek to support local renewable energy generation to the greatest extent possible. This includes continuing to deploy solar and geothermal energy in county buildings and developing renewable energy procurement policies that support locally generated renewable energy.

This is an important "lead by example" action that offers the benefits of clean energy deployment and a positive return on investment.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, HCD, MLS, PGCPS

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

IMPLEMENTATION STEPS

Step 1. Conduct an analysis of renewable-energy potential and create an inventory of County-owned properties. Perform high-level renewable energy potential analysis investigating the potential for both solar and geothermal. Data collected will allow Prince George's County to develop a renewable energy procurement plan, anticipate future County construction projects more effectively, and maintain an aggressive procurement timeline to achieve their installed capacity goals. The inventory of sites will be prioritized based on considerations of location, equity, and feasibility of construction. The analysis will identify County-owned facilities on already-developed lands that can be retrofitted to generate renewable energy while simultaneously serving their current purpose: i.e. parking lots, landfills, schools, and brownfields. This will also provide an opportunity for impervious surface reductions and other climate-resilient related site improvements.

Step 2. Incorporate solar and geothermal installations into the County's CIP. Based on the energy potential analysis of County-owned properties, the County will incorporate additional funding for implementation into the capital budget.

Step 3. Develop and issue a Request for Proposals (RFP) for the County's renewable energy projects. Contingent upon the results of the analysis of renewable-energy potential, realign the County's existing procurement processes with climate-action criteria to expedite the transition to renewable energy. RFPs for the County's renewable energy projects will be issued in phases based on determined siting priorities and the County's incremental targets and timelines.

Step 4. Develop a renewable energy procurement strategy and policy. The County will develop a renewable-energy procurement strategy, making optimum use of available procurement mechanisms, including power-purchase agreements, consumer choice aggregation, and renewable energy credits. The County will update procurement-policy definitions to require clean renewable energy (excluding trash incineration, wood burning, and other combustion methods that produce CO2 and other pollutants) and to reflect the value of locally generated renewable energy. Through a combination of on-site renewable energy development and off-site energy procurement, the County will achieve 100% renewable energy for County operations by 2025.

Step 5. Publicize the County's renewable energy targets. Create a web-based dashboard to demonstrate progress towards targets and educational resources to help the broader public understand why the County is aggressively pursuing renewable energy. County communications about the transition to renewable energy should showcase the health benefits of cleaner air as well as the financial, environmental, and climate-resilience benefits the initiative will provide for Prince George's County residents.

EQUITY CONSIDERATIONS

Equity considerations include allocating tax-based funding for improvements to County-owned facilities when many economically disadvantaged communities within the County do not have sufficient means to meet basic living needs or access to critical infrastructure.

Putting Equity at the Center of Implementation:

» Prioritize the renewable energy deployment on County buildings serving energy resilience zones and couple the planning for solar deployment with the planning of Resilient Energy Communities. Create opportunities for low-income households to experience the health benefits and energy savings from clean renewable energy.

MEASUREMENT AND TRACKING

On an annual basis, track and report the following:

- kWh of electricity used by County operations
- Total kWh of County energy demand met by the following:
  - kWh from renewable sources
  - kWh from fossil fuels
  - kWh from nuclear
  - kWh from biogas, other sources
  - kWh used by buildings
  - kWh used by EVs
- Number of fossil-fuel powered heating systems converted to electrical systems
- MW of installed renewable energy capacity

CAPACITY AND FUNDING NEEDS

- OCS will need additional funding for additional full-time staff to implement this recommendation.
- Increase current 1.5% allocation for renewable energy requirement for all CIP construction budgets to a more substantive allocation for faster implementation of renewable energy practices for the County's CIP, major renovation, and replacement projects.
- Additional resources for all CIP projects outside of OCS will need additional funding to adapt infrastructure and CIP projects currently under design to factor in climate resiliency considerations, renewable energy systems, and other waste-reducing practices.
- Funding to perform energy analysis with an inventory of County-owned properties development of monitoring system to enable a public-facing web-based dashboard to show County energy use and performance

HELPFUL RESOURCES

Solar Project Development Pathway & Resources

Organization: U.S. Environmental Protection Agency (EPA)

Description: Detailed steps for moving a solar project from conception to completion.

Municipal Energy Master Plan for the Built Environment

Organization: The City of Philadelphia Office of Sustainability

Description: Philadelphia's Municipal Energy Master Plan provides an overview of how the City plans to leverage its publicly-owned buildings, facility operations, and energy use to reduce carbon emissions and lead by example. One component of this plan speaks to the City's evaluation of their asset's renewable energy potential and how procuring this renewable energy capacity would impact their larger City targets.

FY22 Public Facility Solar Grant Program

Organization: Maryland Energy Administration

Description: This program provides grant funding to government entities to support the planning and installation of solar arrays on the existing infrastructure of public facilities. Applications are due in November 2021 and February 2022.

Solar Power Purchase Agreements: A Toolkit for Local Governments

Organization: Interstate Renewable Energy Council (IREC)

Description: A series of resources to support local governments interested in exploring power purchase agreements.

PRIORITY RECOMMENDATION M-2

M-2

Increase deployment of solar PV in the residential and commercial sectors by expanding partnerships, incentives, and financing solutions

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-2	Increase deployment of solar PV in the residential and commercial sectors by expanding partnerships, incentives, and financing solutions	◒	●	●	●	0-3	☁↓ 🌍 ♥ 🤝

DESCRIPTION

Prince George's County has several partnerships, incentives, and financing solutions in place that have already contributed to more than 20,000 solar PV installations. However, recent estimates from Project Sunroof estimate that up to 80% of buildings without solar PV in our region are viable for a roof-mounted solar PV installation. Of the 338,766 residential and commercial electric accounts in Prince George's County, only 6% of those accounts currently use solar PV.

Prince George's County will provide educational resources, explore innovative partnerships, and connect residents with financing opportunities to facilitate an additional 60,000 solar installations by 2030. Bold action to increase residential and commercial solar installations will also help the County remain a solar energy leader with the State of Maryland by continuing to install more solar systems each year and creating the most solar energy capacity.

IMPLEMENTATION TEAM

CEX, DOE, DPIE, OCS, FCS, REDEVELOPMENT AUTHORITY, HOUSING AUTHORITY

☁↓ GHG Reduction 🌍 Climate Resilience ♥ Community Health Quality of Life 🤝 Job Creation ● High Feasibility ◒ Moderate Feasibility ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1. Establish a Solar Task Force. A Solar Task Force will be responsible for leading the development of new solar PV programs and incentives, communicating the availability of these resources to residents, commercial building owners, and educating the community on the benefits of solar PV, particularly the financial aspects.

Perform solar feasibility study which must include the following:

» Analysis of available private, commercial, and governmental rooftops, parking areas, and other suitable locations throughout the County for solar panels. Identification of barriers (both financial and code) to installing solar PV and other renewable energy practices on both commercial and residential buildings.

Step 2. Expand education and outreach related to sustainable energy. Develop a sustainable energy website and outreach program to continue increasing awareness in Prince George's County of the many programs and incentives available to residents. This will be part of a more extensive, comprehensive Climate Action Plan website (see Recommendation: Lead by Example).

During community meetings for the development of this plan, residents expressed that education and outreach and trusted sources of information and service providers were vital gaps in sustainable energy adoption. The County can utilize resources, such as EnergySage and Maryland Solar United Neighbors (MD SUN), to support residents in connecting with credible solar installers. In addition, the County can use the website to provide up-to-date information on how different options work and the trade-offs (i.e. direct ownership, leasing, community solar, solar co-ops, etc.), solar financing, and case studies demonstrating the financial benefits of solar.

Step 3. Participate in the national SolSmart Program funded by the U.S. Department of Energy and seek platinum designation. This program provides support to local governments to adopt best practices in solar deployment. The program offers free technical assistance to participating communities and can help identify opportunities to improve solar permitting, expand access and engagement, and expand partnerships and innovative programming. Additionally, as part of the SolSmart designation process, the County should adopt NREL's SolarAPP+, supported by DOE. The SolarAPP+ helps communities streamline the solar PV permitting process and reduces soft costs associated with installing solar PV - two primary goals of the SolSmart program.

Step 4. Expand participation in solar financing. While FSC First Green Energy Loan Fund offers loans for green energy, including up to $250,000 for commercial buildings, to date, no business or building owner has utilized this opportunity. Through the Solar Task Force and community engagement, the County should seek to understand residents' and businesses' financing needs and assess the potential to adjust current loan products or expand offerings to meet these needs.

» Create a public recognition program to help businesses that support greener business practices gain and attract more customers. Through County Code of Ordinance or Resolution, establish a Residential Property Assessed Clean Energy Program (R-PACE) as now legislatively enabled through Maryland State House Bill 517 in 2021.

EQUITY CONSIDERATIONS

Low and moderate-income homeowners may not have access to the capital required to purchase solar, and those with poor credit scores may not be able to take advantage of financing or leasing options.

Putting Equity at the Center of Implementation:

- Provide access to grants to help subsidize costs for improvements in Equity Emphasis areas (Homeowner's Guide to the R-PACE) through the R-PACE program.
- Require specific regulatory oversight through County Energy Coaches to work with homeowners to prevent overleveraging their property's equity to make improvements through R-PACE (R-PACE creates a Super- Priority Lien).
- Provide energy coaches to work with residents to evaluate contractor proposals and review applications eligibility for free low-income Weatherization Assistance Program and other no- or low-cost programs before leveraging R-PACE.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize implementation and effectiveness of resilience hub locations

On an annual basis, track and report the following:

- Number of participants attending public education events
- Number of participants participating in PV programs, loans, and incentives
- Breakdown of participants based on categories such as households, business, churches, etc. should also be tracked
- Number of consultations with County Energy and user satisfaction ratings
- Installed capacity (kW) in the residential and commercial sectors

CAPACITY AND FUNDING NEEDS

- Allocate additional funding for consultant to conduct a county-wide solar feasibility study.
- Allocate funding to hire additional County staff for implementation of recommendations, including staff to:
  - Develop and manage an R-PACE program.
  - Design outreach materials and website content.
  - Conduct outreach to help residents and business owners identify sources of funding and navigate through the process of PV solar installation

HELPFUL RESOURCES

A Maryland Consumer's Guide to Solar

Organization: Clean Energy States Alliance and the Maryland Energy Administration

Description: This guide is intended to help Maryland consumers better understand the benefits of solar PV and their options for procuring and financing private renewable energy projects.

SolSmart Program Guide

Organization: SolSmart

Description: A guide to participation in a national solar recognition and technical assistance program funded by the U.S. Department of Energy.

EnergySage

Organization: EnergySage

Description: This online tool helps potential solar customers easily receive and compare quotes from credible solar installers.

Solar United Neighbors of Maryland

Organization: Solar United Neighbors

Description: Nonprofit helping people go solar through their community-driven bulk discount solar cooperative initiative.

EmPower Maryland

Organization: Maryland Public Service Commission

Description: Programs administered by utilities that can add or supplement energy savings or GHG reductions from those programs.

Property Assessed Clean Energy Programs

Organization: Department of Energy

Description: Website explains the differences between PACE an R-PACE programs.

PRIORITY RECOMMENDATION M-3

M-3

Accelerate deployment of resilient energy systems

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-3	Accelerate deployment of resilient energy systems	●	●	◒	◒	3-8	

DESCRIPTION

With increasingly frequent and intense storms projected to occur in our region, the reliability of our power supply is expected to become a growing concern. As we transition to renewable energy, better battery storage systems and microgrids will decrease our vulnerability to power outages. Prince George's County should also advance energy resilience by pursuing the use of battery storage (installed with solar energy) and microgrids, particularly in support of critical infrastructure. When coupled with solar PV, a battery storage system provides a backup power source for essential facilities' critical electricity loads when grid electricity is otherwise unavailable. Battery storage can also help reduce peak demand (and therefore peak demand charges) by enabling users to draw power from their batteries rather than the grid during times of high demand.

The County will deploy at least two to five large-scale battery storage and microgrid projects to support the County's commitment to exploring innovative energy resilience. Combined with on-site renewable energy or renewable energy sources for grid-generated power, battery storage systems and microgrids will become central to advancing future County clean energy and emission reduction goals.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPIE, OCS, HCD, REDEVELOPMENT AUTHORITY, MUNICIPALITIES

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1. Collaborate with local electrical utility providers (PEPCO and BGE) to complete an energy resilience feasibility study. This study should be coordinated with the solar feasibility assessment described in Priority Recommendation M-1: Power County Operations with 100% Renewable Energy. The study must also address feasibility of undergrounding of utility lines in equity focus areas and requirements of resilient energy systems.

Step 2. Ensure the Solar Task Force responsibilities include supporting the deployment of resilient energy systems. As recommended under Priority Recommendation M-2: Power County Operations with 100% Renewable Energy, the Solar Task Force will implement the following:

- Install renewable energy systems on County facilities.
- Lead community-wide battery storage and microgrid development.
- Provide residents and building owners with information, resources, and technical assistance to facilitate community adoption of battery storage and microgrids.
- Educate the community on mitigation, resiliency, and financial benefits.

Step 3. Develop an energy resilience funding and implementation strategy. Numerous funding opportunities may be available to support the County's energy resilience projects, including sources that traditionally fund renewable energy and emergency response and preparedness. The County should create a task force specifically identifying cost reducing strategies (e.g., identifying costs that should be incurred by utilities) as well as alternative funding sources (e.g., grants, C-PACE, green bank financing, corporate sponsorships).

Step 4. Create high-visibility energy resilience pilot projects. Seeing successful projects in action and experiencing the benefits of reliable, renewable power will build public support for continued deployment of more resilient systems. The County should prioritize piloting energy resilient projects at public-facing facilities such as recreation centers, schools, and subsidized housing communities. Implementing renewable energy practices at these highly visible facilities will provide easy access for the public to both see and experience the benefits of resilient energy practices.

Step 5. Monitor and assess the impact of pilot projects. To incubate innovation, share experiences widely, and spur investment in new projects, the County should partner with local colleges and universities to monitor and assess the impact of pilot projects.

EQUITY CONSIDERATIONS

Resilient energy systems are currently expensive. Communities most in need of resilient power often have aging or inadequate infrastructure, which require upgrades before implementing a new system. Additional upgrade and retrofit costs make these communities less attractive to pilot innovative but expensive energy resilient systems. In addition, low and moderate-income homeowners may not have access to the capital required to purchase solar, and those with poor credit scores may not be able to take advantage of financing or leasing options.

Putting Equity at the Center of Implementation:

» Low-income, senior, and disabled residents are often the most vulnerable to power outages. The County should prioritize the deployment of resilient energy projects to serve at-risk communities.

» Rural communities often suffer more prolonged power outages than more populated areas due to downed trees or insufficient power grid infrastructure. The County should consider both rural communities and Energy Resilience Zones for initial investments in more resilient power systems.

» Engage and consult with communities in the siting process for microgrid architecture and battery banks to ensure that communities have a say over siting and the benefits to be realized.

» Engage local Historically Black Colleges and Universities (HBCUs) - Howard University, Morgan State, Bowie State, and University of the District of Columbia - to research, develop, and pilot energy resilient system technologies.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Number of microgrid sites with feasibility assessments and implementation strategies.

» Number of critical facilities with capacity for battery storage and number of battery storage installations.

» Battery storage achieved compared to an energy resilience benchmark based on current energy use.

CAPACITY AND FUNDING NEEDS

» Allocate funding to support consultant services to perform a county-wide energy resilience feasibility study.

» Allocate additional, sustained funding for more full-time staff members at OCS.

» Increase capacity to conduct interagency coordination to streamline permitting and engaging with external business stakeholders (electrical unions, electrical suppliers, PEPCO, etc.).

HELPFUL RESOURCES

Maryland Energy Storage Income Tax Credit - Tax Year 2021

Organization: Maryland Energy Administration

Description: Available to residential and commercial taxpayers, this MEA grant program provides an income tax credit to incentivize the deployment of energy storage systems in Maryland.

Distributed Energy Resources: Integrating Energy Storage

Organization: PEPCO

Description: This utility-sponsored resource provides a high-level overview of the benefits of energy storage systems and how these resources can be integrated into the grid.

Solar-Plus-Storage 101

Organization: U.S. Office of Energy Efficiency and Renewable Energy, Solar Energy Technologies Office

Description: Produced in 2019, this document outlines the technical feasibility and benefits of pairing solar PV and other distributed renewable energy resources with energy storage systems.

Microgrids and Energy Storage

Organization: Environment America

Description: This document provides a case study of microgrid deployment in a campus environment, outlining some of the basic technical details and resiliency benefits a microgrid can provide a community.

PRIORITY RECOMMENDATION M-4

M-4

Accelerate deployment of EVs and charging infrastructure by County and other public agencies

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-4	Accelerate deployment of EVs and charging lifrastructure by County and other public agencies	●	●	●	●	3-8	

DESCRIPTION

In 2021, the "Prince George's County Government Operations: Electric Vehicle and Charging Infrastructure Action Plan" was developed to support the deployment of electric vehicles (EVs) in the County fleet and the installation of electric vehicle supply equipment (EVSE) (aka charging stations) at County facilities for the coming decade. The County will implement this plan by: installing at least 54 level 2 or DC fast chargers across 27 locations by 2026, revisiting its Green Fleet Policy, and improving signage and parking regulations to support EV deployment.

IMPLEMENTATION TEAM

DOE, DPW&T, DPIE, OCS

IMPLEMENTATION STEPS

Step 1. Update County Green Fleet Policy. The County will update its Green Fleet Policy to support EV deployment goals and align with the goals of the state signed Multi-State Medium Heavy-Duty Emission Vehicle memorandum of understanding. Within two to three years, all applicable purchases should be Zero Emission Vehicles (ZEVs). The County should continue to monitor advancing technologies such as "green hydrogen" fuel cell vehicles.

Step 2. Prioritize transitioning public transit to ZEVs. The County should transition TheBus to meet local transportation needs of its residents with fewer environmental impacts. Prioritize buses whose routes travel through low-income and underserved communities.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

Step 3. Continue work to install EVSE through Utility Pilot Program. The County should continue to work collaboratively to install 31 additional EVSE at County-owned facilities, assessing where they can have the greatest impact and achieve the most equity. As part of this collaboration, the County should ensure the establishment of maintenance schedules and procedures for EV charging stations.

Step 4: Establish EVSE Use Requirements. As identified in its EV Action Plan, the County should establish policies and strategies to support the success of EVSE. The County should amend parking ordinances to specify the regulations that apply to parking spaces designated for EVs. This includes considering applicable definitions, enforcement policies, time limits, and fees. The County should also adopt minimum dimensions for EVSE parking spaces compliant with the County zoning code and the Americans with Disabilities Act (ADA).

Step 5: Add signage requirements to County code. The Federal Highway Administration defines minimum standards for signage that the County should follow. The County should add EVSE signage requirements to the County code, including requirements for wayfinding signage, parking restrictions that prevent internal combustion engine (ICE) vehicles from using PEV-dedicated parking spaces, guidance on EVSE use, and penalties for regulation violations.

EQUITY CONSIDERATIONS

Traditional fossil fuel vehicles contribute to air pollution that negatively impacts health; however, EVs are currently expensive. Low-income residents often must rely on public transportation or older vehicles for transportation.

Putting Equity at the Center of Implementation:

- The County should prioritize the installation of EVSE for public use in energy transition zones and equity emphasis areas in tandem with the following:
  - Develop an EV or hybrid car voucher/discount program (subsidized by County) with ZIP or other related short-term car rental or car share programs in equity emphasis areas located near County installed EVSE.
  - Support (via grants and partnerships) the purchase of EVs and installation of EVSEs as part of community-wide car share program in equity emphasis areas. Local advertisement of EV car share programs should be multilingual and leverage the trusted voices of the community.
  - Prioritize TheBus fleet and collaborate with WAMATA to advocate for the transition of regional buses to ZEVs to ensure equitable access to the benefits of the EV transition.

MEASUREMENT AND TRACKING

On an annual basis, track and report the following:

» Number and type of EVSE installed at County properties

» Number and type of ZEVs purchased each year

» Percent of County fleet that are ZEVs

» Number of dollars spent on EV car share program

CAPACITY AND FUNDING NEEDS

» OCS will need funding for additional full-time staff to implement this recommendation.

» Additional funding for the purchase of EV fleet vehicles.

» Funding to establish and maintain an ongoing EV car voucher/ discount program.

» Funding to install an additional 54 EVSE in addition to the 31 EVSE currently being funded by existing grants.

HELPFUL RESOURCES

Pepco EVsmart

Organization: Pepco

Description: A summary of Pepco's EVsmart Program which includes rebates, tools, and information to support EV deployment, including resources related to the public charging network.

Pathways to EV: Preparing Cities for the Transition to Electric Vehicles.

Organization: MWCOG

Description: Provides an overview of state policies, city strategies, utilities, organization and planning, and partnerships.

Public Electric Vehicle Charging in Somerville – Status, Options, and Considerations

Organization: City of Somerville

Description: Provides an overview of Somerville's planning and strategies for increasing city-owned EVSE infrastructure.

Electric Vehicle Strategy

Organization: City of Sacramento, CA

Description: Sacramento's EV Strategy includes strategies for increasing public EVSE infrastructure at city parking areas and facilities. It also provides strategies for reaching vulnerable populations and identifying priority locations for EVSE installation.

Our Community CarShare

Organization: Sacramento Metropolitan Air Quality Management District

Description: Model car share program in Sacramento that offers residents a free membership to reserve clean zero emission vehicles.

PRIORITY RECOMMENDATION M-5

M-5

Develop a community-wide EV deployment strategy

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-5	Develop a community-wide EV deployment strategy	◒	●	●	◒	0-3	

DESCRIPTION

Currently, there are approximately 620,000 vehicles on the road in Prince George's County. To support the goal of 50% emissions reduction by 2030, the County aims to have at least 15% of those vehicles (approximately 100,000) powered by electricity (this aligns with the State of Maryland goal of having 600,000 Electric Vehicles (EVs) registered statewide by 2030). The County recognizes this ambitious goal and will require other market forces, including state and federal action, to make it a reality.

To support this transformation of the transportation sector, the County will develop a Community-Wide EV Deployment Strategy by 2024. The EV Strategy will identify goals and strategies to support the acceleration of community-wide EV deployment and reduce the number of fossil fuel powered vehicles on the road. For example, including requirements for Electric Vehicle Supply Equipment (EVSE) in parking and development regulations, mapping existing incentives, identifying gaps particularly related to multi-family and commercial properties, and continuing to promote and incentivize community-wide adoption of EV commuter alternatives. In addition, GIS analysis to highlight census tracts with the highest need for EVSE and analysis of public charging stations needed over the next 5, 10, and 30 years will be part of the comprehensive EVSE deployment strategy. This effort will also include developing an education and outreach strategy to support residents as they consider investing in EVs.

IMPLEMENTATION TEAM

DOE, DPW&T, DPIE, OCS, MUNICIPALITIES

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1. Scope EV Deployment Strategy. The County will develop a scope of work and timeline and identify the questions to be addressed in the Community-Wide EV Deployment Strategy. The following should be considered when developing the scope of work:

- Recommend policies that will enable, promote, or incentivize EV adoption by community members, including individuals, businesses, and organizations located in the County. For example, a policy that requires all new multi-family and commercial buildings to be EV charger ready.
- Recommend siting and prototypes for community-wide EV charging infrastructure, which should include summarization of code revisions and other materials needed to support permitting of EVSEs and other deployments
- Provide lessons learned, case studies, programs, policies, etc., from other regions that have already piloted successful EV programs.
- Recommend EV infrastructure service models and best practices to aid local hire and workforce development.

Step 2. Develop an inclusive EV Deployment Strategy. Working with a consultant, the County will develop a comprehensive, community-wide EV Deployment Strategy. The development of this strategy will include significant community engagement to ensure that strategies are grounded in the needs and concerns of residents. In addition, the strategy's actions will identify specific programs, policies, regulations, and outreach efforts needed to support the deployment of 100,000 EVs in Prince George's County by 2030. A big part of an EV deployment strategy should be the adoption of mass transit (including EV buses), EV car sharing, and electric shared bikes to reduce cars on the road, and address equity issues raised below.

Step 3. Improve community education and outreach. The County can play an essential role in helping residents connect with credible information and make informed decisions about investing in EVs. Based on community input and the Community EV Strategy, the County will develop educational materials and conduct community outreach, including targeted outreach to commercial and multi-family property owners.

Step 4. Engage transportation network companies in strategy development. Businesses providing transportation services are beginning to convert to electric transportation. These businesses are likely to increase their inventory of EVs as prices for these vehicles decrease and the lower total cost of ownership is realized. Likewise, demand will grow for high-powered EV charging (i.e. direct current fast charge station or DCFC) in high transit areas. Explore opportunities to partner with these entities to deploy DCFC for public use. Integrate EV deployment plans of these business entities in the County's EV strategy development.

EQUITY CONSIDERATIONS

Lower-income residents and renters are less likely to afford an EV or have access to charging infrastructure and more likely to have hesitancy associated with the reliability of EVs.

Putting Equity at the Center of Implementation:

- Create an EV or hybrid car voucher/discount program with ZIP or similar short-term car share programs and incentivize car share companies to electrify and operate in underserved areas.
- Provide technical support and incentives for EV access and infrastructure for low-income housing.
- Locate short-term rental cars in equity emphasis areas near County installed EVSE.
- Support community-wide car share program in equity emphasis areas via grants and partnership to purchase EVs and install EVSEs.
- Create a program to recondition hybrid or EVs which have been retired from the County's EV fleet for reuse in a community-wide car share program.
- Create multilingual advertisements of EV car share programs that emphasize the messages of air quality, human health impacts, and environmental justice and leverage the trusted voices of the community to disseminate information about the programs.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize communities and effectiveness of deployment plan.

On an annual basis, track and report the following:

- Number and type of EV charging stations installed in Prince George's County.
- Number of registered EVs in Prince George's County.
- Number of households previously using EVs that have switched to gasoline powered vehicles.
- Number of participants from Prince George's County accessing state & utility incentives. Include amount provided through other programs in tandem with County incentives.
- Number of outreach events and/or hours of technical assistance provided to residents to assist in the EV transition.

CAPACITY AND FUNDING NEEDS

- Allocate additional funding to support ongoing consulting services for the development of the EV Community-wide Deployment Plan.
- Allocate and budget for hiring additional full-time OCS staff dedicated to supporting the ongoing implementation of the plan and related activities.

HELPFUL RESOURCES

Electric Vehicle Charging Infrastructure Readiness Strategy

Organization: City of Alexandria, VA

Description: This city strategy provides recommendations for deploying EV charging infrastructure, strengthening local codes to support EV deployment, and enhancing communication and public awareness.

The Future of Car Sharing: Electric, Affordable, and Community-Centered

Organization: The Community Electric Vehicle Project, Forth Mobility, Hacienda CDC

Description: A case study of an EV car share pilot program coordinated by the Latino Community Development Corporation in the Cully neighborhood of Portland, OR, and the Community EV Project.

Integrating Electric Vehicle Charging Infrastructure into Commercial Buildings and Mixed-Use Communities: Design, Modeling, and Control Optimization Opportunities

Organization: National Renewable Energy Laboratory

Description: Overview of an EV charging pilot, energy modeling, and how to synergistically integrate EV charging with building loads and distributed generation.

Pathways to EV: Preparing Cities for the Transition to Electric Vehicles

Organization: CADMUS

Description: Provides an overview of state policies, city strategies, utilities, organization and planning, and partnerships.

Smart Columbus Kickstarts EV Charging Deployments at Multi-Unit Dwellings: Case Study on Multi-Unit Dwelling Charging Infrastructure

Organization: City of Columbus, OH

Description: A case study on the Smart Columbus initiative to expand the EV market by increasing access to residential EVSE at multi-family residential properties.

Electrification Coalition

Organization: Electrification Coalition

Description: Coalition that develops and implements a broad set of strategies to facilitate widespread adoption of electric vehicles, including policy development, advocacy campaigns, consumer education, fleet electrification, and community electrification planning.

EV Hub

Organization: Atlas Public Policy

Description: Online platform with actionable information on the EV market. The objective of EV Hub is to bring a data-driven approach to policymaking around transportation electrification and accelerate market growth.

PRIORITY RECOMMENDATION M-6

M-6

Support telework policies to reduce VMT and enhance County resiliency

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-6	Support telecommute policies to reduce VMT and enhance County resiliency	●	●	●	●	0-3	

DESCRIPTION

Reducing vehicle-miles traveled (VMT) is a cornerstone of decreasing greenhouse gas emissions. The County can lead by example through policies that decrease VMT for its own workforce. Throughout the COVID-19 pandemic, the County gained experience with increased levels of teleworking and expanded its technical capabilities to support remote work. The continued promotion and development of teleworking policies for the Prince George's County workforce has the potential to reduce the VMT of commuters and the associated GHG emissions, especially when coupled with more mixed use, higher density, walkable and bikeable community developments. According to the U.S. Census Bureau, 67% of the County's workforce typically drives to work alone in a single-occupancy vehicle (SOV), meaning there is significant potential to reduce VMT in the County.[1] Moreover, teleworking enhances the overall resilience of the County government and the community as a whole by enabling workers to maintain productivity in a remote working environment.

The County telework policies provide a model for other regional institutions and businesses to continue similar policies that reduce community-wide VMT and greenhouse gas emissions. Administrative Procedure 226 establishes guidelines for implementing and operating the County government's Telework Arrangement Program (TAP). This procedure requires County government agencies to support the participation of eligible employees in the TAP. To further promote telework and ensure the viability of teleworking as an alternative work arrangement, the TAP authorizes agencies to approve telework center facilities, hot desking, hoteling, and other alternative workplaces. The County can also continue to support the use of virtual meetings to further reduce VMT.

IMPLEMENTATION TEAM CEX, COUNTY COUNCIL, HUMAN RESOURCES, DOE, DPW&T, DPIE, OCS, HCD, HEALTH DEPARTMENT

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

IMPLEMENTATION STEPS

Step 1: Conduct an employee commute survey. Include questions to assess commuter preferences and behavior, amenities that teleworkers may drive to during the day, and home energy consumption and efficiency rates.

Step 2: Promote participation in telework and alternative work schedules. County agencies are encouraged to promote participation in the County's TAP and Alternative Work Schedules (AWS) Programs. For an employee working a standard five (5) day work week, working from home at least one (1) day can reduce commute related GHG emissions. Also, potential outcomes of a compressed work schedule are reductions in employees' drive-alone commutes and average VMT per employee. Furthermore, scheduling building-wide work-from-home days will promote additional energy savings from unoccupied facilities.

Step 3: Expand outreach efforts to encourage participation in TAP and AWS programs. Develop and market informational material to raise awareness of the TAP and AWS programs and to show employees how their actions can help the County reach its emission reduction goals.

Step 4: Adopt green IT and office equipment best practices. DOE created green IT best practices and an enforcement policy. This can be expanded to other government facilities.

- When possible, use an enhanced virtual environment to support employee productivity by allowing multiple users simultaneous access to applications, custom tools, etc.
- Replace older hardware with new hardware for optimized performance as well as better energy efficiency.
- Enhance cyber security standards and adopt virtual security procedures.

Step 5: Promote teleconferencing to reduce employee travel. Require all County training, information sessions, lunch and learns, meetings, etc. to be accessible via teleconference, video streaming, and other electronic media formats.

EQUITY CONSIDERATIONS

Teleworking is not possible for all job types and, in some cases, may present an additional burden for employees.

Putting Equity at the Center of Implementation:

- Offer technical and/or financial incentives to employees with disabilities or other medical needs to optimize their work from home space.
- Offer AWS as an option for job types that are not eligible for participation in the TAP. An alternative work schedule will allow employees to meet work requirements and bi-weekly eighty (80) hour requirements via compressed or flexible schedule plans.
- Provide reasonable accommodations, such as necessary equipment, to ensure that any employee who is eligible and interested in working from home has a safe and functioning workspace.
- Consider how requiring telework can increase the financial burden on employees; ensure that any telework policy is flexible and does not provide undue hardship.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» County employee VMT

» % County employees who telework vs. % County employees eligible to participate in TAP

» Employee satisfaction with telework policy

CAPACITY AND FUNDING NEEDS

» Additional technical support for home offices.

» Capacity building training and professional development for supervisors of remote workers to enhance team cohesion in a remote work environment.

HELPFUL RESOURCES

One Climate Future Climate Action and Adaptation Plan

Organization: Portland and South Portland

Description: This plan describes ways to leverage employer transit partnerships to promote more efficient or zero-emissions commuting, including strategies to increase telecommuting (beginning on page 160).

COVID Pandemic-19 Shows Telecommuting Can Help Fight Climate Change

Organization: Scientific American

Description: This article discusses the environmental benefits of telecommuting, especially in communities with clean electricity supplies that rely heavily on SOVs for commuting.

The Climate Case for Working From Home

Organization: Heated

Description: This article, published in 2020, provides insights into some of the most significant environmental benefits created from telecommuting and supporting a remote work environment.

Clean, Equitable, and Resilient: Does Telework Check All the Boxes?

Organization: State of Hawaii Climate Change Portal

Description: This article discusses the benefits of telecommuting policies while also highlighting some of the equity concerns faced when considering those who may be unable to take advantage of such policies given their occupation or other restrictions.

Prince George's County Administrative Procedure 226

Organization: Office of Human Resources Management

Description: The Telework Program provides employees of the Executive Branch, pursuant to any limitations imposed by the Appoint Authority, the option to work at home or at an alternative work site one (1) or two (2) days during each bi-weekly pay period.

ENDNOTES

1) U.S. Census Bureau. Prince George's County, Maryland. https://data.census.gov/cedsci/profile?g=0500000US24033

PRIORITY RECOMMENDATION M-7

M-7

Increase investment in activity centers

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-7	Increase Investment in Activity Centers	●	●	◒	●	8+	

DESCRIPTION

Smart growth development strategies are fundamental to achieving the County's long-term climate goals. Focusing growth in Activity Centers[1] — mixed-use locations where people can work, live, play, and shop near their homes—can reduce vehicle miles traveled (VMT) while also enabling preservation of natural areas that mitigate impacts of excess heat and extreme participation. Activity Centers near high-capacity transit provide access to wider opportunities for residents while reducing dependence on automobiles. Plan 2035 establishes several policies for smart growth, including:

» Land Use Policy 1: Direct a majority of projected new residential and employment growth to the Regional Transit Districts;

» Land Use Policy 4: Phase new residential development to coincide with the provision of public facilities and services; and,

» Housing & Neighborhoods Policy 1: Concentrate medium- to high-density housing development in Regional Transit Districts and Local Centers with convenient access to jobs, schools, child care, shopping, recreation, and other services to meet projected demand and changing consumer preferences.

Despite these clear guidelines, sprawled development continues outside Activity Centers, decreasing tree cover and locking in auto-dependent land use lifestyles for decades to come. Stronger definitions and boundaries for areas intended to support smart growth are needed to guide land use decisions for decreasing VMT and increasing climate resilience.

To achieve smart growth goals, the County will actively implement and prioritize public investment in critical infrastructure in designated Activity Centers, create incentives for infill development, support transit, enhance walkability and bikeability, and adopt strategies that bring housing and jobs to Activity Centers to reduce VMT and stimulate economic development. Activity Center planning should also include green infrastructure planning to ensure adequate stormwater management and the protection of green spaces.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, HUMAN RESOURCES, DOE, DPIE, HCD, M-NCPPC, REVENUE AUTHORITY, REDEVELOPMENT AUTHORITY, HOUSING AUTHORITY, MUNICIPALITIES, PLANNING BOARD, DISTRICT COUNCIL, COUNTY EXECUTIVE, ECONOMIC DEVELOPMENT CORPORATION

IMPLEMENTATION STEPS

Step 1. Make infill development more attractive to developers. Implement these Land Use Modeling Study recommendations for Activity Center infill development only: density bonuses, reduced parking requirements, lower development impact fees, tax incentives, and a streamlined permitting process that has provisions to ensure adequate community engagement. Create an Infill Options Map.

Step 2. Codify incentives for infill development. Create a systematic code and transparent system for proactively encouraging development in the Activity Centers with community engagement built into the planning and decision-making processes.

Step 3. Implement Plan 2035 land use strategies to direct new residential and employment growth to Activity Centers. In accordance with land use strategies outlined in Plan 2035 and the regional residential growth target of 75 percent in Activity Centers.[2]

- Invest in key capital improvements in Activity Centers to promote and facilitate economic and residential development;
- Streamline the permitting process; and
- Create a dashboard to facilitate an annual review and report on County growth trends and progress toward meeting Plan 2035 growth management goals.

Step 4. Prioritize capital projects and accelerate permit processing for land development projects that enable walking and biking safely to transit.

- For annual budget request packages, require agencies to identify capital projects that build capacity for growth in Activity Centers;
- Streamline the permit process for land development projects that incorporate complete streets in plan design and support walkability and bikeability; and,
- Establish new processes for community engagement in planning public spaces in Activity Centers.

Step 5. Discourage zoning changes that would allow for higher residential density in areas outside of Activity Centers. Revise Subtitle 27 (Zoning), Part 6 (Commercial Zones), Division 3 (Uses Permitted) and Part 7 (Industrial Zones), Division 3 (Uses Permitted) to prohibit new multi-family and townhouse development in rural areas and to establish a cap on such development in suburban areas outside Activity Centers (Addresses Strategy LU7.1, Plan 2035).

EQUITY CONSIDERATIONS

Investment in urbanized areas, including historical centers, can help revitalize communities and create new interest in development and economic growth. It may also, however, contribute to gentrification, additional pressure to develop urban forests, reduced community interaction when a project splits a neighborhood, and negative impacts on historic communities. As Prince George's County continues to plan and invest in Activity Centers, it is critical to engage with residents, support local businesses, and maintain housing affordability to counteract potential negative consequences of revitalization.

Putting Equity at the Center of Implementation:

» Prioritize capital funds to support projects that serve the needs of transit-dependent populations, especially in identified Equity Emphasis Areas, to enhance mobility of underserved populations (including seniors and persons with disabilities).[3]

» Use the Home Investment Partnership Program (HOME), administered by the County's Department of Housing and Community Development, as a tool to secure 75% of new homes in Regional Activity Centers for low and middle-income residents.[4]

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Percent of new development (housing units, commercial buildings, retail) located in MWCOG-designated Activity Centers

» Number of Zoning map and text changes for more intense land use, comparing inside and outside Activity Centers

» Number of infrastructure projects completed inside and outside of Activity Centers

» Vehicle miles traveled (VMT) for residents in Activity Centers

» VMT for residents outside Activity Centers

CAPACITY AND FUNDING NEEDS

» Annual CIP funding for new and reconstructed infrastructure in Activity Centers.

» Dedicated funding for a Planner position dedicated to interpret land use and zoning impacts, recommendations for the Climate Action Plan.

» HOME Fund – Prince George's County is eligible to receive approximately $3.5 million annually from a Federal Housing and Urban Development (HUD) appropriation.

» Economic Development Incentive (EDI) Fund – the Economic Development Corporation provides and administers financial incentives such as the EDI, a $50 million fund aimed at helping stimulate job growth, retain current jobs and businesses, and attract new businesses. The Economic Development Corporation also needs to realign its mission to meet climate action goals for transitioning to

» a renewable-energy economy and decreasing dependence on automobiles.

» Funding for a consultant to perform a zoning modeling exercise and to develop guidelines for infill development, redevelopment of developed areas, and preservation of natural areas for their ecosystem services. Guidelines must also address how to protect and expand urban ecosystems with greater development density.

HELPFUL RESOURCES

National Center for Smart Growth

Organization: University of Maryland (UMD) National Center for Smart Growth

Description: Based at UMD, this center supports research and training on topics related to smart growth including engaging with local Maryland communities and offering technical support.

Plan2035

Organization: Maryland-National Capital Park and Planning Commission (M-NCPPC)

Description: Plan 2035 is Prince George's County's comprehensive 20-year general plan. It provides a blueprint for long-term growth and development.

Visualize 2045

Organization: Metropolitan Washington Council of Governments (MWCOG)

Description: Visualize 2045 is the federally mandated, long-range transportation plan for the National Capital Region. It highlights projects that the region's transportation agencies expect to be able to afford between now and 2045.

Smart Growth Information Clearinghouse

Organization: Maryland Department of Planning

Description: An online clearinghouse of resources related to smart growth, including training and funding opportunities. Resources cover a range of related topics: Economic development, community revitalization, green infrastructure, infrastructure funding, transit-oriented development, and community resilience.

ENDNOTES

1) https://www.mwcog.org/documents/2013/01/13/activity-centers-maps/
2) Resolution R27-2019 (Housing Targets), https://www.mwcog.org/documents/2019/09/11/certified-resolution-r27-2019---housing-targets/
3) Equity Emphasis Areas, MWCOG, https://gis.mwcog.org/webmaps/tpb/clrp/ej/
4) Visualize 2045, Bringing Housing and Jobs Closer together, https://www.mwcog.org/transportation/plans/visualize-2045/

PRIORITY RECOMMENDATION M-8

M-8

Accelerate implementation of deep energy retrofits and community-wide efficiency and weatherization efforts

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-8	Accelerate implementation of deep energy retrofity and community-wide efficiency and weatherization efforts	●	●	◒	◒	3-8	

DESCRIPTION

A deep energy retrofit is a holistic approach to updating a building or residential home with energy-efficient mechanisms that lead to 50% or more energy savings as compared to pre-retrofitted conditions. Updates are typically prioritized when an end-of-life replacement or code upgrades are needed. They can be done all together or individually over time, depending on the owner's financial situation. Examples of deep energy retrofit updates include lighting, HVAC, windows, insulation, electricity, and appliances. Identifying hydrofluorocarbon (HFC) leaks, switching to low-global warming potential refrigerants as they become available, and completion of building electrification processes are also important steps towards reducing greenhouse gas emissions that can be built into deep retrofits. Prince George's County has already secured funding to complete one deep energy retrofit of a senior center and will upgrade at least 60 more buildings over the next ten years.

Prince George's County should partner with local utilities to create financial and other incentives to accelerate the number of homes and businesses implementing deep energy retrofits. County programs should help community members assess the benefits of implementing deep energy retrofits and of incrementally making changes through energy efficiency and weatherization. By leveraging connections within the community and with energy coaches, the County can engage and educate community members on the available incentives and resources. In addition, the County must ensure that senior, low-income, and other vulnerable communities are prioritized when implementing these programs and put measures in place to prevent retrofitted buildings from becoming too expensive for these groups. The County should lead by example and conduct deep energy retrofits to reduce the energy consumption by County buildings by 50%.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION TEAM

FSC, DOE, OCS, FSC, REDEVELOPMENT AUTHORITY, HOUSING

IMPLEMENTATION STEPS

Step 1. Assess current policies and programs that incentivize or hinder deep energy retrofits. Work with PEPCO and the Low-Income Energy Efficiency Program (LIEEP) to identify existing programs, technical assistance, incentives, and financing to support deep energy retrofits. Identify gaps and document the need for additional support (to inform Step 4).

Consider adopting the following code, permit, and guideline requirements to accelerate community-wide transitions towards more energy-efficient buildings:

- Require energy reporting for non-residential buildings to meet energy and water conservation performance standards.
- Require electrification of heating and hot water equipment during significant renovations of commercial and multifamily housing.
- Require energy audits at title transfer.
- Require reporting of energy use history and Energy Star scores when residential or commercial buildings are put up for sale.
- Provide guidance and support for completing deep energy upgrades over time. Consider a different permit process to avoid duplicative permit processes as the upgrades are phased.
- Adopt greenhouse gas-based energy efficiency performance standards rather than simply energy efficiency standards.
- Update and further strengthen standards in the future to ensure climate goals are met.

Step 2. Support community education and outreach related to deep energy retrofits. Hold listening sessions to better understand how to implement retrofit programming in a way that could be widely accepted throughout the County. Develop and distribute additional educational materials about deep energy retrofits, including information about incentives and financing options. Train contractors on efficient and electric technologies, in particular those from the CTE program, and make information on energy-savvy contractors easily available to the public (or encourage MEA to implement such a database). Arrange community meetings to encourage peer learning and connections with energy coaches to advise and support households and businesses for the duration of their retrofit processes.

Step 3. Lead by example. The County should lead by example by undertaking deep energy retrofits of at least 60 buildings by 2030. Data from energy benchmarking can help support building prioritization. The retrofit projects should be developed as case studies and used to help educate the community, including owners of commercial buildings.

Step 4. Advocate for statewide standards and financial support. Using the success and metrics from these programs, encourage the State of Maryland to set standards and expand financial incentives for deep energy retrofits.

EQUITY CONSIDERATIONS

Senior, low-income, and other vulnerable communities may lack the resources to implement deep energy retrofits and, therefore, may not experience the benefits of these programs unless targeted steps are taken.

Putting Equity at the Center of Implementation:

» Incentivize and subsidize the implementation of deep energy retrofits in energy resilience zones and equity areas.

» Ensure landlords engaged in deep energy solutions do not pass disproportionate costs to occupants of low to moderate-income households.

» Conduct outreach specifically with underserved communities to better understand participation barriers, and tailor incentives and programs to meet the needs of these communities.

» Prioritize retrofits for the most vulnerable communities and consider directly paying for installations or providing upfront financing to low-income families to improve access to these programs.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Number of county buildings retrofitted

» Energy and cost savings achieved in retrofitted buildings alongside information on type and size of building

» Number of buildings/homes that participate in retrofit programs

» Number of buildings/homes in energy resilience zones that participate in retrofit, resiliency, and weatherization programs

» Percent of total retrofits completed that are in energy resilience zones and/or low- and moderate-income households

» Changes in energy burden (proportion of a household's income spent on energy bills) among participating buildings/homes in energy resilience zones and/or low- and moderate-income households

CAPACITY AND FUNDING NEEDS

» The County will need increased capacity and funding to partner with PEPCO and the Low-Income Energy Efficiency Program (LIEEP).

» Additional dedicated funding for DHCD weatherization program and additional initiatives for deep energy retrofits.

» Seed funding for commercial retrofit loans.

» Funding for energy coaches.

» Funding and staff capacity to engage community members around these programs.

HELPFUL RESOURCES

Guide to Managing Deep Energy Retrofits

Organization: Rocky Mountain Institute

Description: This resource provides a framework with detailed guidance for planning and implementing deep energy retrofits of commercial buildings.

Design Guide for Commercial Building Deep Energy Retrofits

Organization: Rocky Mountain Institute

Description: This resource provides technical guidance for deep energy retrofit teams to optimize energy savings in commercial buildings.

1910 Home Deep Energy Retrofit Case Study

Organization: US Department of Energy

Description: This case study highlights the process, costs, energy use savings, and lessons learned for a deep energy retrofit of a home built in 1910.

New York State – Find a Contractor

Organization: New York State Energy Research and Development Authority (NYSERDA)

Description: This website compiles information on a statewide network of partners who offer energy efficiency solutions as well as renewable energy installation services.

ACEEE Publications and Resources Library

Organization: American Council for an Energy-Efficient Economy (ACEEE)

Description: A library of ACEEE resources that can be filtered by topic area, including retrofits.

PRIORITY RECOMMENDATION M-9

M-9

Establish building benchmarking requirements and energy and water consumption standards

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-9	Establish building benchmarking requirements and energy and water consumption standards	●	●	●	●	0-3	

DESCRIPTION

A building benchmarking program is an important step that provides critical data on building performance and supports strategic investment in energy efficiency. An increasing number of jurisdictions across the U.S., including Washington, DC and Montgomery County, MD, use building benchmarking and disclosure to ensure that building energy and water consumption are measured and made publicly available. This has enabled building owners and tenants to compare building performance and allows for targeted investment in energy efficiency.

Most building benchmarking ordinances rely on use of the Environmental Protection Agency's (EPA) ENERGY STAR Portfolio Manager. This free online benchmarking tool helps building managers track data and measure progress. Prince George's County will establish a building benchmarking and disclosure program that includes County buildings, schools, commercial buildings, and multi-family housing. The County will develop a program that clearly defines building types and sizes, considers appropriate standards, and helps link participating building owners to efficiency programs and opportunities. The County will launch the program in phases:

- All county-owned buildings benchmarked by the end of FY23;
- All public housing benchmarked by the end of FY24;
- Roll out a voluntary program for privately-owned commercial and multi-family buildings in FY23;
- Engage 100 privately-owned buildings in the voluntary program by the end of FY23;
- All privately-owned commercial and multi-family buildings of 50,000sf or greater benchmarked by the end of CY24;

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- All privately-owned commercial and multi-family buildings of 25,000sf or greater benchmarked by the end of CY26;
- All privately-owned commercial and multi-family buildings of 10,000sf or greater benchmarked by the end of CY28;
- Energy and water standards incorporated into County Building Code for new buildings by the end of FY23; and,
- Minimum energy and water conservation standards for existing buildings incorporated into County Code by the end of FY24, with future effective dates determined.

Building benchmarking and disclosure standards also establishes a foundation for broader policies aimed at increasing energy and water efficiency in all sectors by encouraging or requiring data collection and sharing. The development of the benchmarking program will also support the implementation of Recommendation A-9 and will work to ensure that high-performance buildings perform as designed.

IMPLEMENTATION TEAM

COUNTY COUNCIL, DOE, DPIE, FSC, OCS, HCD, RDA, HOUSING AUTHORITY, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Evaluate existing building benchmarking programs and opportunities within the County. Several counties within the MWCOG region currently manage similar benchmarking programs and can be used as models to help design a program appropriate for Prince George's County. In addition, EPA's list of Benchmarking Programs and Policies Leveraging ENERGY STAR provides detailed information on design, requirements, and incentives being utilized by other localities. This information can be used as a baseline to evaluate the current energy efficiency incentive landscape available to the County and its constituents. This should enable the County to identify any key gaps and begin designing a program to best suit the County's needs and its energy efficiency and water use reduction targets.

Step 2. Design benchmarking codes and standards. The County will develop a building benchmarking program and requirements for buildings greater than 10,000 sf. The County will adopt building energy and water performance standards into its building code. These standards and requirements will be developed through a public process and include stakeholder input.

Step 3. Benchmark County-owned buildings. Leading by example, the County will benchmark its own buildings and create an internal program for reporting and disclosing building performance. The County will demonstrate how this process helps to identify and prioritize energy efficiency opportunities.

Step 4. Implement a voluntary benchmarking program. The County will develop a voluntary benchmarking program and provide support and technical assistance for 100 buildings to participate in the voluntary program. The County will seek feedback from the building owners/managers that can be used to improve the final program.

Step 5. Launch a mandatory building benchmarking ordinance applicable to County-owned buildings, schools, commercial buildings, and multi-family housing. The County will launch a mandatory building benchmarking program and require that all commercial and multi-family buildings greater than 50,000 sq ft participate by the end of FY24. The County will establish public disclosure requirements that provide accountability, encourage energy efficiency upgrades, and enable community members to track building performance progress and make informed decisions about where they live, shop, or otherwise interact with their community. The County will establish penalties for non-compliance and any fines collected will be used to fund retrofits in low- and moderate-income communities.

Step 6. Develop a new building benchmarking-specific webpage with an interactive energy use dashboard or enhance an existing County webpage to host relevant resources and materials. This resource will help public and private sector building managers effectively participate in the building benchmarking program. This dashboard can serve other functions by providing a place where high achievers can be recognized, information about new funding opportunities or energy efficiency technologies can be dispersed, and targets and progress can be communicated to the community. Interested community members can also visit the webpage to seek out additional energy and water efficiency resources for their homes or other buildings they own.

EQUITY CONSIDERATIONS

For most residential and business rental agreements, utilities are not included in the cost of the rent. Consequently, the additional costs and effort required for building benchmarking have no upfront financial benefit to the landlord. When a rental building is energy-inefficient, this variable expense must be covered by the renter. Renters spending more than 30% of their income on rent are considered cost-burdened.[1] For cost-burdened renters, fluctuation of utility bills from extreme heat or cold can become an unexpected expense they cannot afford to pay. Elderly renters on fixed incomes and single-parent families are especially vulnerable. These community members often must choose between paying for food or medicine instead of rent or utility bills. In addition, chronically late bill payments lead to bad credit scores, resulting in higher interest on credit cards and loans. Delinquent rental payments can also lead to eviction.

Putting Equity at the Center of Implementation:

- Information gathered can help develop targeted policies and incentives that support disadvantaged communities.
- Building benchmarking standards can reduce the energy burden on low to moderate-income communities and create new jobs in the energy efficiency sector.
- Building benchmarking, particularly when it includes public disclosure, can be an integral component of creating a more equitable energy efficiency strategy.
- Local government can leverage benchmarking information to help identify the technical and financial support to aid landlords within low to moderate-income communities to comply with new standards rather than passing that financial burden on to their renters.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Number of buildings reporting

» This action is establishing a measurement tool for Prince George's County in itself, which will be fundamental in measuring the impact of energy efficiency programming in the County.

CAPACITY AND FUNDING NEEDS

» Funding for consultants to help establish an internal program for reporting and disclosing county building performance. This will also require analyzing and interpreting benchmarking results facilitates.

» Additional staff will be required to monitor, date collection, and building benchmarking tasks for all county buildings.

» Funding to develop and maintain a webpage for building benchmarking with an interactive energy use dashboard and host relevant resources and materials.

HELPFUL RESOURCES

ENERGY STAR Portfolio Manager

Organization: Environmental Protection Agency (EPA)

Description: Portfolio Manager is the industry-leading benchmarking tool which enables building owners to benchmark the energy use of any building, all in a secure online environment.

Interactive Maps for Energy Benchmarking

Organization: ENERGY STAR, Environmental Protection Agency (EPA)

Description: Presents information related to benchmarking in ENERGY STAR Portfolio Manager and highlights active programs and policies that leverage Portfolio Manager.

Benchmarking Programs and Policies Leveraging ENERGY STAR

Organization: Environmental Protection Agency (EPA)

Description: This document summarizes national, state, and local efforts that use Portfolio Manager to improve energy efficiency in buildings.

Mid-Atlantic Technical Reference Manual V6

Organization: Northeast Energy Efficiency Partnerships (NEEP)

Description: This manual defines a framework for the development and use of common and/or consistent protocols to measure, verify, track and report energy efficiency and other demand resource savings, costs, and emission impacts to evaluate the performance of efficiency programs relative to statutory goals and facilitate planning and portfolio review.

D.C. Building Benchmarking Requirements

Organization: District Department of Energy and Environment

Description: Through a series of mandates, DC now requires that owners of all large private buildings (over 50,000 gross square feet) annually benchmark their energy and water efficiency and report the results to DOEE for public disclosure. The District government must also annually benchmark and disclose District government buildings' energy and water efficiency over 10,000 gross square feet. Starting with the calendar year 2021, the minimum building size requirements progressively mandate additional building reports on their energy and water efficiency to cover a larger proportion of the building stock.

ENDNOTES

1) https://nlihc.org/housing-needs-by-state/maryland

PRIORITY RECOMMENDATION M-10

M-10

Expand County waste reduction and diversion efforts

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-10	Expand County waste reduction and diversion efforts	●	●	●	◒	0-5	

DESCRIPTION

To move toward a vision of "zero waste," Prince George's County must expand and enhance existing programs for waste reduction, organics composting, and materials recovery. New legislation will address the growing problem of single-use plastics. Public education and outreach efforts and data sharing will increase public engagement in the circular economy while more robust systems for extended producer responsibility and materials recovery are developed.

Key goals include expanding residential curbside food scrap collection countywide no later than 2023, as well as partnering with Prince George's County Organics Composting Facility (OCF) operators to increase the commercial food scrap composting. Both efforts should involve partnering with businesses and institutions that generate significant food scraps to divert this waste from landfills. Also critical to these efforts will be County support of Maryland State Law (GET NUMBER) which requires mandatory composting for entities producing more than two tons of food scrap per week, starting in 2023. The County should pass its own similar legislation requiring commercial food scrap diversion either to composting, insect farms, and food recovery efforts such as Prince George's County Food Rescue.

Beyond food scrap diversion, Prince George's County should aggressively expand residential and commercial waste reduction and recycling. Strategies include establishing re-use centers to accept and repurpose gently-used bulk material like furniture, appliances, and house de-packaging equipment, as well as conducting robust public education and outreach efforts to help residents understand the "circular economy" and reduce their contributions to the waste stream. partnering with the State and the bottle industry to establish robust and profitable glass recycling opportunities for long-term waste reduction success. Legislative efforts will also be required to meet waste reduction goals. The Prince George's County Council should pass a ban on plastic bags and other single-use plastics, and it should pass Extended Producer Responsibility legislation to ensure businesses are minimizing waste. The County's business recycling law needs to be strengthened considerably, to remove loopholes such as allowing businesses to be

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in compliance with mandatory recycling stipulations if they recycle only one type of material. Prince George's County should also partner with the State of Maryland and with the bottle industry to establish robust and profitable glass recycling opportunities.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, SCD, PGCPS, M-NCPPC, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Conduct a feasibility study to assess and provide implementation recommendations for carbon emissions analysis of landfill operations. This should include possible timetable requiring haulers to phase out diesel trucks and use low emission vehicles. In addition, provide analysis and recommendations for eliminating leaks and minimizing the landfill's overall methane footprint. As part of analysis of impacts for new Area C of the landfill, perform assessment to identify more efficient repurposing of excess methane for Renewable Natural Gas (RNG) or biogas as may be generated by future operations in tandem with improving current repurposing operations.[1]

Step 2. Community Survey. Survey the community to understand better current awareness of composting and other waste diversion programs. Gather information on the need and potential for implementing a ReUse Center.

Step 3. Rollout of the countywide curbside composting program. Residential curbside collection of food scraps will be expanded County-wide by end of June in 2022. In partnership with its' operator of the Prince George's County Organics Composting Facility (OCF), the County will increase the commercial food scrap and food waste tonnages from being diverted from landfills to being composted.

Step 4: Enable residents to properly dispose of hazardous wastes encountered during climate resiliency and energy efficiency retrofits. Older buildings and housing stock in the County have asbestos (shingles, siding, flooring, etc.), lead, and other harmful building materials. Residents or contractors will encounter legacy hazardous materials during energy efficacy retrofits, floodproofing, and climate resilience-related improvements. Unfortunately, county residents and businesses currently do not have access to local safe disposal of legacy hazardous waste materials.

Step 5. Expand and promote community-wide recycling and waste diversion programs.

- Adoption by County Council for Zero Waste goal with an implementation plan incorporated into the Ten-Year Solid Waste Management Plan.[2]
- Perform periodic waste characterization studies (every 3 years) to monitor progress of waste diversion efforts. Use local consumption data and an embodied-carbon emissions inventory to educate the public about impacts of various consumer choices on greenhouse gas emissions and the waste stream.[3]

» Develop and implement a Pay-as-You-Throw (PAYT) fee program to encourage waste reduction and encourage recycling.[4] This program will track the average annual quantity of trash/ recyclables generated per household and savings. Information from tracking both waste and savings will help educate the public and create community-wide goals and benchmarks.

» Advertise and ensure citizens know to take back plastic bags to the grocery stores for recycling or, better yet, don't utilize plastic bags. Teach and promote the use of reusable, washable bags.

» Intensify education and enforcement of the recycling mandates, including the Expanded Polystyrene Ban and Multifamily and Commercial/ Business Recycling Laws.

» Ban or require a fee for Single-Use Disposable Bags.

» Promote source reduction and reuse programs by providing additional county staff to serve as Waste Stream Diversion Advisors. These advisors will work and educate communities and municipalities on the proper handling and disposal of hazardous materials encountered during renovation projects, repurposing building materials and salvaging household items, recycling, and other waste diversion efforts at a community-wide scale.

Step 6. Build Partnerships. Promote and build both business and institutional waste diversion programs for schools, corporations, and community businesses.

» Pilot reverse-vending machines at public gathering places to test behavioral and financial incentives to increase recycling of plastic, decrease litter and trash along roads, streams, and communities.

  › Form a study group to determine the "how, "who," "source of funding," and all of the resources needed to implement a reverse vending machine.

  › Identify equipment technicians, locations of machines, and delivery of the collected bottles to the Materials Recycling Facility.

  › Publicize the pilot program to help support statewide container deposit legislation efforts and plastic bag ban efforts.

» Partner with businesses, restaurants, and County institutions to participate in scaled-up waste diversion efforts and composting food waste through Green Business certification, promoting success stories, and educating on the cost savings of a waste reduction program.

» Provide financing, grants, or subsidies to individuals and businesses to develop the County's businesses for reuse and donation of materials.

» Develop public online clearinghouse for information about reuse programs, repair services, and donation centers in the County, so residents and businesses have easy one-stop access to opportunities to extend the lives of their materials. Businesses and residents could use the database through the County Click 311 information center or the County's website.

EQUITY CONSIDERATIONS

Increased waste diversion and repurposing operations may negatively impact the community's adjacent new satellite (ReUse or Convenience Drop-off) locations and communities near the existing landfill.

Putting Equity at the Center of Implementation:

» Ensure waste management education materials are provided in multiple languages and intentionally engage with the trusted community voices of local community-based organizations to understand needs and solutions.

» Require that the County reduces negative impacts such as noise, smell, increased traffic, and illegal dumping near the facility when locating new convenience drop-off locations or service centers.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Number of visitors to convenience drop-off sites and ReUse Center.

» Tons of food scraps diverted.

» Tons of bulk material (furniture) diverted from being landfilled.

» Number of participating households, multi-family dwellings, and businesses participating.

» Community awareness & participation (via survey).

» Reduction of small (shopping type) plastic bags being landfilled or received unintentionally at the Materials Recycling Facility via Waste Sort Study.

CAPACITY AND FUNDING NEEDS

» Allocate and budget ongoing funding for ReUse Center, including building, staffing, and collection program (specialized trucks).

» Allocate an additional budget for de-packaging equipment for OCF.

» Increase funding level for outreach and community engagement, including providing reusable bags as promotional items.

» Allocate and budget ongoing funding to develop and institute a Pay -as You-Throw (PAYT) program to pay for every bag or can of waste to motivate and prevent waste.

» Support the County Council and County Executive in adopting and implementing the PAYT fee system and Zero Waste program.

HELPFUL RESOURCES

Zero Waste Initiatives for Prince George's County, Maryland

Organizations: Prince George's County

Description: This report is a first step to achieving zero waste in Prince George's County and hence presents initiatives that can reduce the quantity of waste generated and/or divert waste away from landfill disposal toward reuse, recycling, and composting opportunities.

Residential Recycling Program

Organization: Prince George's County

Description: Prince George's County's Residential Recycling program providing information on curbside collection, convenience centers, bulky trash, organics composting facility, brown station road sanitary landfill, and household hazardous waste and electronics recycling acceptance sites.

Climate Change and Municipal Solid Waste

Organization: U.S. Environmental Protection Agency (EPA)

Description: Fact sheet explaining the link between climate change and municipal solid waste.

ENDNOTES

1) https://washingtongasdcclimatebusinessplan.com/wp-content/uploads/2020/04/200316-WGL-RNG-Report-FINAL.pdf
2) https://www.princegeorgescountymd.gov/DocumentCenter/View/21910/Zero-Waste-Initiative-Final-April-5-2018a?bidId=
3) https://www.futureofconstruction.org/solution/embodied-energy-accounting-for-building-products/
4) https://archive.epa.gov/wastes/conserve/tools/payt/web/html/index-5.html

PRIORITY RECOMMENDATION M-11

M-11

Enact and enforce "No Net Loss" tree conservation regulation and policy to maintain and expand street tree canopy and forest as a land cover

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
M-11	Enact and enforce "No Net Loss" tree conservation regulation and policy to maintain and expand street tree canopy and forest as a land cover	●	●	◒	●	5+	

DESCRIPTION

Maintaining a healthy tree cover (forest and street trees) is critical to Prince George's County's long-term ability to mitigate and adapt to climate change. Trees clean the air, provide free stormwater management, moderate air temperature, provide essential wildlife habitat, and sequester carbon. To maintain the county's 52% tree cover through 2030 and increase tree cover to 55% by 2050, the County should establish No Net Loss regulations for tree preservation, replacement, and mitigation. The Woodland and Wildlife Conservation Ordinance must be strengthened by including specific requirements for addressing climate change impacts by preserving existing woodlands, especially mature forests, and expanding the urban tree canopy. The County should legislatively enable a 52% minimum tree coverage requirement for all subwatersheds within the county. To protect vulnerable neighborhoods from excess heat and flooding, the County should also perform a county-wide Tree Shade Study and utilize tee equity to identify priority areas for stewardship grants. The County should develop tree stewardship programs that enable residents to plant and maintain trees where they are most needed.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPWT, DPIE, M-NCPPC, DPWT, REDEVELOPMENT AUTHORITY, PGCPS, MUNICIPALITIES

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IMPLEMENTATION STEPS

Step 1. Revise County codes and ordinances to strengthen tree protection. To achieve the climate resiliency benefits that trees offer, the following code revisions should be made, through an interagency technical revision and update conducted by M-NCPPC, DoE, and DPW&T.

» Revise Subtitle 25: Trees and Vegetation of the County Code of Ordinance and related Divisions to:

› Calculate tree coverage (street trees and forest requirements based on achieving a minimum of 52% tree coverage within each subwatershed, and with the goal of laying the groundwork to increase county tree cover to 55% by 2050. Revisions must include rigorous permitting requirements, updated tree preservation requirements, and substantive penalties for violations. These requirements would not apply to areas designated as rural, natural, agricultural, or open spaces.

› Prioritize preservation of urban remnant forests and specimen trees. Redefine the definition of forest to include urban remnant forests (less than 10,000 sq. ft.). Reduce the threshold triggering Woodland Conservation regulations to include land disturbances starting at 3,000 sq. ft. for any subwatershed with more than 30% impervious land cover (40,000 sq. ft. of land disturbance activities is the existing land disturbance trigger).

› All Fee-in-lieu paid must be utilized to plant trees within the same subwatershed to help achieve the mandated 52% subwatershed tree cover.

› Agree on standard tracking metrics and mapping practices for County's tree coverage.

» Based on the recommended technical revisions to Subtitle 25 (above), revise all Subtitles and associated Divisions of the Prince George's County Code of Ordinance to eliminate all exemptions, special exceptions, and variances for tree coverage requirements.

» For projects subject to the Woodland and Wildlife Habitat Conservation Ordinance, require Gross Tract Area to serve as the baseline when calculating the minimum benchmark of 52% tree cover requirement, additional preservation requirements, or calculation of other mitigation measures associated with natural resource impacts.

» Require one-to-one replacement compensation for all trees lost through land disturbance when applying Tree Canopy Requirements by Zone, except for Zones R-O-S, O-S, R-A. All other zones will be required to achieve the following:

› Minimum of 52% tree cover (preserved trees, forest, and street trees) by onsite replanting, tree preservation, or fee in-leu.

› Minimum of 25% tree cover must always be achieved through onsite planting, regardless of zone.

» To discourage development over existing woodlands ("greenfield" development), removal of trees on private land, and to encourage infill development, an additional Reduced Ecosystem Value Fee will be assessed for the following situations:

› Sites with existing tree cover over 52% of the gross tract area will be assessed an additional fee based on a sliding scale of increasing rates based on tree species and the Diameter at Breast Height (DBH) size of each tree removed over 4" DBH.

- Regardless of zone, project type, or achievement of 52% onsite tree coverage through preservation or planting, any tree 12" DBH or greater removed as part of any land disturbance activities over 3,000 square feet (residential and commercial) will be assessed additional fees to account for community-wide ecosystem services lost. These fees will be based on tree species and DBH size.

» Revise Subtitle 32: Water Resource Protection and Grading and other related Subtitles in order to prohibit any land disturbance activities which result in the removal of existing tree cover greater than 3,000 sq. ft. prior to issuance of Final Grading Plan. Currently, full tree removal and land disturbance may occur over an entire project site with only a Rough Grading Permit. Exceptions and waivers to this regulation must be narrowly restricted to only emergency access and repair as required for government operations or as required for site investigations requiring soil borings or feasibility study.

» Annually realign tree cover requirement to support other county-wide climate resiliency goals, equity tree scores, subwatershed climate-resilient stormwater management modeling (see Recommendation-A-2), and future carbon sequestration targets.

Step 2. Update the Prince George's County Environmental Technical Manual to address climate change impacts and increase required buffers for riparian buffers and wetlands. This manual, created by the Maryland-National Capital Park and Planning Commission, was created in 2010 and should be updated to support tree preservation goals.

Step 3. Increase fees for violating tree preservation regulations. Use fee and fee-in-lieu proceeds to pay for tree protection enforcement, tree replacement, maintenance, and equity considerations. Enable annual revision to fine and fee-in-lieu rates without legislation enactment. This will help offset additional and ongoing costs to the County for required tree installations and long-term maintenance responsibilities to achieve canopy goals and utilize fee-in-lieu funds as required by Maryland's Forest Conservation Act.

Step 4. Conduct annual mapping, tracking, and public reporting on the county's tree canopy cover (based on subwatershed), associated ecosystem service values, and factors contributing to canopy loss. Report must include overlay mapping of all special exceptions, exemptions, variation, waivers, amendments to zoning by the Planning Board, County Council, and as permitted by DPIE, M-NCPPC and DoE.

Step 5. Identify and prioritize areas that need tree canopy and vegetation preservation and expansion most. Use the results of thermal mapping (Recommendation #19) and build on DoE tree canopy and vulnerability analyses to identify vulnerable/priority areas, including Equity Emphasis areas, for stewardship grants and other tree canopy programs to expand tree canopy coverage to reach at-risk, historically disadvantaged populations. Utilize the UMD/DNR Park Equity mapper or similar tree equity mapping tool to focus programmatic efforts.

Step 6. Expand existing incentives for residents and local businesses to add additional new trees.

» Utilize the Woodland Conservation Fund to initially establish a Prince George's County Climate Resiliency Land Conservation Trust (see Recommendation A-3), perform tree shade study, and identify the prioritization of underground utilities to establish a healthy urban tree canopy.

» Establish and promote an ongoing community-wide grant program to provide funding for residential landowners with specimen trees or

mature native woodland and forest, to perform proactive and ongoing care of specimen trees, invasive removals, and other measures to protect healthy forests and specimen trees on private property. Grant funds could be allocated based on priority subwatersheds identified based on flooding issues, tree equity, or income-based.

EQUITY CONSIDERATIONS

Past discriminatory practices still shape our communities. Income inequality often defines who can enjoy a healthy tree canopy and who is surrounded by impervious surfaces that amplify urban heat islands and flooding issues.[1]

Putting Equity at the Center of Implementation:

» County programs should first invest in planting new trees and preserving existing trees in areas with mostly low- to medium-income households and in Equity Emphasis Areas, especially in more densely populated areas inside the Beltway. More programmatic effort should be focused on communities disproportionately affected by excess heat and flooding related to extent of impervious surfaces and inadequate tree canopy.

» M-NCPPC parks should develop more natural-surface trails with interpretive signage in stream valleys and other local natural places and provide M-NCPPC programs to provide additional opportunities for urban residents to experience the health benefits of green spaces close to home.

» Prince George's County Climate Resiliency Land Trust, as created under Recommendation A-3, should hire and train local residents as "urban tree stewards" to plant and maintain trees in their own neighborhoods.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity areas, environmental justice information, and other related datasets.

On an annual basis, track and report the following:

» Tree canopy coverage changes through spatial or mapped reports; changes linked to specific permitted and unpermitted land use and land disturbance activities (see Priority Recommendation-A-3).

» Existing tree cover by subwatershed; with increase and/or decreases at 200 square feet or greater.

» Number of approvals granting exceptions, variance, waivers, etc. to tree conservation regulations. This should include permit numbers and be mapped by subwatershed.

» Total carbon dioxide (GtCO2) sequestered in county trees and total carbon dioxide sequestration lost from trees removed.

» Land disturbance analysis to track whether the County is achieving positive sequestering towards its CAP emission reduction goals.

» Percentage of identified Tree Conservation Plan violations where enforcement actions were taken. Permit number should be included with location of all violations mapped by subwatershed.

CAPACITY AND FUNDING NEEDS

» Additional staff and funding to provide GIS mapping and analysis

» Consultant services for county-wide Tree Shade Study

» Consultant facilitation for interagency discussions to achieve consensus, seek approval, and modify policy, design guides, and Code of Ordinance language.

» Additional staff or training to monitor and evaluate progress and/or additional staff to conduct inspections will be required.

» On-going professional development and quality improvement training for staff regarding best practices, implementation of plan, and enforcement of regulations.

HELPFUL RESOURCES

Climate Safe Neighborhoods

Organization: Groundworks USA

Description: This online resource highlights the connection between housing discrimination and climate change. It includes urban case studies and recommendations for using mapping and data to build resilience to extreme heat and flooding.

Tree Equity Score

Organization: American Forests

Description: This online tool provides a tree equity score (scale of 0 to 100) for all 150,000 neighborhoods and 486 municipalities in urban America. It is intended to help communities address climate change through the lens of social equity, attract new resources, and inform technical decisions and progress tracking.

Tree Report Card

Organization: Casey Trees

Description: This online tool tracks trees against baseline measurements, including details on the amount, distribution, health, and diversity in age and species of trees in the canopy in parks and built-out environments. Used by Washington, D.C.

How Decades of Racist Housing Policy Left Neighborhoods Sweltering

Organization: New York Times

Description: This article discusses the impacts of redlining policy on urban neighborhoods.

The Economic Values of Nature: An Assessment of the Ecosystem Services of Forest and Tree Canopy

Organization: Low Impact Development Center

Description: This article discusses valuation of trees and tree co-benefits.

ENDNOTES

1) https://www.nytimes.com/interactive/2021/06/30/opinion/environmental-inequity-trees-critical-infrastructure.html

ACTION AREA 2

ADAPTING TO COMING CLIMATE IMPACTS

PRIORITY RECOMMENDATIONS

A-1 INTEGRATE CLIMATE RESILIENCE CRITERIA INTO LONG-RANGE COUNTY PLANS, POLICIES, AND CIP PROGRAMS BY 2026

A-2 IMPLEMENT CLIMATE RESILIENT STORMWATER MANAGEMENT AND EXPAND FLOOD MITIGATION PROGRAMS

A-3 PRIORITIZE PRESERVING AND RESTORING NATURAL RESOURCE AREAS AND AGRICULTURAL OPEN SPACE TO REDUCE FLOOD RISK

A-4 EVALUATE AND ADDRESS CLIMATE RISK TO DAMS AND LEVEES

A-5 REQUIRE COMMUNITY-WIDE CLIMATE RESILIENT GREEN INFRASTRUCTURE

A-6 EXPAND INFORMATION AND ASSISTANCE TO THE PUBLIC REGARDING IMPACTS OF CLIMATE RISKS AND OPPORTUNITIES TO IMPLEMENT CLIMATE ACTIONS

A-7 REDUCE EXPOSURE OF VULNERABLE POPULATIONS TO EXTREME HEAT

A-8 ESTABLISH RESILIENCE HUBS TO SERVE THE NEEDS OF VULNERABLE COMMUNITIES.

A-9: ADOPT CODES, STANDARDS, AND PRACTICES TO SUPPORT CLIMATE-READY, GREEN BUILDINGS, AND DEVELOPMENT

A-10: PROMOTE A HEALTHY FOOD SYSTEM SUPPORTED BY LOW-CARBON, CONSERVATIONIST AGRICULTURAL PRACTICES

PRIORITY RECOMMENDATION A-1

A-1

Integrate climate resilience criteria into long-range County plans, policies, and CIP programs by 2026

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-1	Require all County agencies and government operations to anticipate impacts from climate hazards and integrate climate resilience goals into all long-range county plans, policies, and CIP programs by 2026	●	●	●	●	3-8	

DESCRIPTION

To decrease adverse climate impacts on the health and wellbeing of County residents, the County must embed climate mitigation and adaptation into all County decision making. All long-range County plans must incorporate climate resilience criteria, prioritizing nature-based solutions and County agencies must receive the dedicated annual funding required to implement the plans. All building projects and horizontal infrastructure CIP projects, repair, and replacement programs should be required to integrate green infrastructure stormwater management solutions and prioritize sustainable building practices. These green infrastructure integration requirements will apply to all aspects of transportation projects; roadway, bridge, and highway improvements; storm drain and culvert systems; development required utility infrastructure; and stormwater management facilities. Countywide emergency management and public health systems and healthcare facilities should also be required to incorporate climate resilience criteria to emergency management systems (police, hospitals, targeted government operations.)

Existing and future County planning documents, policy, County code, agency design guides, and engineering manuals will require periodic and ongoing cyclic updates to integrate and respond to evolving climate risks using best available science to guide best practices and adapt to changing conditions. The County must annually perform GIS study, analysis, and modeling of the County's natural resources (tree canopy, wetlands, floodplains, etc.) .Loss of natural resources and impacts on climate resilience from land disturbance activities must be monitored and quantified for public planning purposes to enable decision-makers to weigh climate impacts in all planning, permitting, and zoning actions concerning development plans.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, HCD, OEM, M-NCPCC, SCD, PGCPS, MEMORIAL LIBRARY SYSTEM, RDA, MUNICIPALITIES

IMPLEMENTATION STEPS

First, the County will create a County task force or agency body to drive the integration of climate resilience goals and anticipated climate hazards into all major County plans, ensure consistency across efforts, and pass a resolution to cement climate resilience integration into law. Next, agencies will need to support the training of staff in how to update plans. Third, the County will need to establish a climate resilience consistency review process to ensure agency projects and programs are consistent with the CAP's recommendations. Finally, regular, publicly available updates on progress must be provided for accountability and increased public visibility, as well as to build and maintain public support for CAP implementation. By 2026, Steps 1-8 must be implemented, all necessary programmatic processes underway, and regulatory requirements as outlined enabled.

Step 1. Office of Climate Resilience Integration (OCRI): Create a County cross-departmental/agency body that helps identify opportunities for climate resilience integration into County planning , ensures consistency across efforts, and leads in forming Committees or Working Groups to coordinate the work. DoE should hold a seat on each committee to help ensure this climate integration and that the planning is consistent with the CAP.

Step 2. Office of the County Executive must introduce and support a County Council resolution requiring the County to integrate extreme weather and energy-efficiency criteria into building codes, with grants and subsidies for business and residential property owners in Equity Emphasis Areas.

Step 3. Enlist regional, state, and federal regulatory support when reviewing and updating County-wide hazard mitigation, emergency response, and other relevant plans noted above to reflect current climate risks and future projections.

Step 4. Host a training series with partners such as COG and UMD on how to incorporate resilience and the goals of this CAP into government plans and capital planning processes. Develop toolkit (s) or guides as needed.

Step 6. Establish a County Council climate resilience review process to determine if/how climate resilience has been integrated into development plans submitted for approval by Council and to assess whether they are consistent with the CAP recommendations before Council grants approval.

Step 7. Provide annual updates to the County Council on the progress of integrating climate resilience into agency design and engineering manuals required for permitting.

- By 2024, adopt incentives to implement green/cool solar photovoltaic (PV) or green roofs.
- By 2023, require update of DPW&T Standards and Specifications and the Roadway Design Manual for County Roads and Sidewalks to require mandatory use of all cool surfaces with lower solar reflectivity. This will include all DPW&T CIP projects, sidewalk repair, replacement, improvement programs and as a new standard to be applied for all new streets within developments by 2024.

Step 8. Publish annual reports and maintain a web-based CAP implementation dashboard on the County's publicly accessible CAP website detailing how climate action is integrated into County planning, capital improvements, procurement, repair, and replacement programs. Providing this transparency will help improve accountability, increase public visibility, and build and maintain public support for CAP implementation.

EQUITY CONSIDERATIONS

Investment of critical infrastructure upgrades may be driven by economic factors versus prioritization of serving residents most vulnerable to infrastructure failures.

Putting Equity at the Center of Implementation:

» Prioritize implementation of County projects in Equity areas which update critical infrastructure (e.g., but not limited to bridges, roads, storm drain system upgrades and repairs, land acquisition for green spaces) improvements, upgrades and replacement.

» Ensure community input is part of the initial evaluation process when ranking and prioritizing climate resilient capital improvement projects.

MEASUREMENT AND TRACKING

On an annual basis track and report on the following:

» Timing and progress to revise existing County documents.

» County staff trained to incorporate climate resilience actions and goals into program efforts and/or projects.

» Projects and programs revised to incorporate CAP climate resilience goals.

Track, report and spatially map the following:

» Percent of cool surfaces and roads installed with solar reflectivity.

» Square feet of reduced impervious surfaces.

» Trees planted, tree cover preserved, and tree cover removed by County driven projects tracked and mapped by project type and entity.

» Estimated tree loss and impervious surface increases from all CIP projects in the planning stages.

» Exceptions or waivers granted for stormwater management, tree conservation regulations, and climate resilience criteria requirements.

CAPACITY AND FUNDING NEEDS

» Dedicated staff (Leadership paired with senior technical advisement) from each agency and government entity assigned to fast track modifying existing County plans and guiding policy to incorporate Climate Action Plan goals and recommendations as an integral part of government operations.

» Pursuit of additional and alternative funding sources to supplement available County funding will be critical to integrating climate resilience into County plans and aligning with other climate resilience initiatives. Additional funding for staff specifically assigned for grant writing and support will be required to achieve climate action goals.

» Create and manage a centralized website to digitally access all climate action plan measures, resources, agency contacts, progress reports and both legislative and County Executive initiatives to implement the CAP. The County will need personnel to create and continually update this public-facing website that publishes monitoring and tracking data, reports and assessments of all government efforts toward climate mitigation and resilience.

- County outreach workers who engage with the public online, by phone, and in-person must be encouraged and provided resources to help facilitate open public discussions on climate change issues and resilience practices.
- OCS should work with a consultant to estimate costs for each agency to implement measures as recommended by the CAP with report to County Council and County Executive as a mandatory requirement to include percent and programs enacting recommendations as part of fiscal planning.
- All procurement and grant application processes must be revised to require interagency collaboration to streamline grant applications and contract approvals for fast-tracking implementation of climate resilient and renewable energy projects.
  - Leadership commitment must be made to enforce, enable and prioritize permit and regulatory review of all climate related projects.
  - Require all County agencies responsible for project reviews, permitting, and procurement approvals fast-track permit review of for projects tied to grant funding to enable successful grant management and achieve deliverables on time without time extensions.

HELPFUL RESOURCES

Office of Environmental and Energy Coordination (OECC)

Organization: Fairfax County Virginia

Description: County body responsible for the cross-organizational development and implementation of effective environmental and energy policies, goals, programs and projects and engaging county departments, authorities, businesses and residents to advance environmental and energy priorities. Areas of focus include Community-wide Energy and Climate Action Plan (CECAP), renewable energy targeting, reviewing land-use and green building policies to encourage environmentally sustainable development.

Recommendations for Integrating Green Infrastructure into the Maricopa County Multijurisdictional Hazard Mitigation Plan

Organization: EPA, FEMA, Flood Control District of Maricopa County, et. al.

Description: Guide on integrating green stormwater infrastructure and Low Impact Development (GI/LID) into Hazard Mitigation Plans (HMPs).

Incorporating Resilience into Transportation Planning and Assessment

Organization: Rand Corporation

Description: Recommendations to incorporate resilience into transportation planning. These are based on four resilience indicators which acknowledge the interaction of the criticality and exposure of the assets: absorptive capacity, restorative capacity, equitable access, and adaptive capacity.

Integrating Coastal Resilience Into Local Plans, Policies, and Ordinances

Organization: Hampton Roads Planning District Commission, et. al.

Description: Recommendations for local governments to promote coastal resilience. Includes review of local plans, policies, and regulations in Virginia's coastal zone; case studies from other coastal communities and regions; best practices for localities.

ZONING FOR SEA-LEVEL RISE: A Model Sea-Level Rise Ordinance and Case Study of Implementation Barriers in Maryland

Organization: Georgetown Climate Center

Description: 2015 study focusing on how to integrate climate adaptation through land use regulation best.

The Use of Climate Data and Assessment of Extreme Weather Event Risks in Building Codes Around the World: Survey Findings from the Global Resiliency Dialogue

Organization: International Code Council (ICC), National Research Council Canada, et. al

Description: Report detailing survey's findings on how climate-based risks are – and are not – currently considered within international building codes and standards.

Montgomery County Climate Action Plan

Organization: Montgomery County

Description: Actions G-1 to G-11 (pp. 231-246) detail recommendations for county government to incorporate climate resilience into long-term plans structures, budgeting and procurement.

PRIORITY RECOMMENDATION A-2

A-2

Implement climate resilient stormwater management and expand flood mitigation programs

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-2	Implement Climate Resilient Stormwater Management and Expand Flood Mitigation Programs	●	●	●	◒	0-3	

DESCRIPTION

Improving and expanding the County's existing flood mitigation programs must be a top priority. From 2018-2021, there were 4,362 complaints to the County's 311 hotline that were water-related: flooded basements, backyards, streets and even sinkholes. Flooding is front-and-center as one of the primary concerns of County residents.[1] With the number of properties at risk of flooding expected to increase by 4.4% over the next 30 years, the County will experience an estimated $15.8 million of annual flood damage, an 18% increase from today.[2] Reevaluation of the County's storm-water standards, guides and code to include climate resilience factors will be key to creating community-wide climate resilience.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OEM, M-NCPCC, SCD, PGCPS

IMPLEMENTATION STEPS

Step 1: Refine Current Draft Best Management Practice Technical Standard Updates and Pass a County Council Resolution to Update County Standards to limit residential flooding from stormwater and address drainage complaints.

» Implement recommendations as compiled by DPIE, DoE, and DPW&T in 2020 as actionable and wide-ranging mid-term and long-term recommendations to reduce residential and commercial flooding.

» Perform a study to inform revisions of code and design guidelines referenced in County Code of Ordinance (Subtitle 32: Water Resources Protection and Grading) for greater climate resilience. The study will also explore solutions for high groundwater tables, inland flooding from extreme precipitation, benefits of using a higher range of runoff coefficient factors (for example with lawns) and innovative solutions for runoff and flooding during extreme precipitation events.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

Step 2: Require County Stormwater Management (SWM) Standards to Incorporate Projected Climate Change Impacts by using approved downscaled and up-to-date climate impact information to reevaluate peak rainfall estimates and future design storm profiles. Evaluate SWM standards using this criterion at least every three (3) years. Require all upgrades of County storm drain systems and CIP roadway, bridge, culvert and stormwater management repair or renovation projects to meet these updated climate-resilient design criteria.

Step 3: Revise Prince George's County Code of Ordinance to Incorporate and Require Climate-resilient Practices.

Revise Subtitle 32: Water Resources Protection and Grading and related Divisions to:

- Define Maximum Extent Possible (MEP) based on adaptive subwatershed modeling criteria (EPA's SWMM or other comparable models) rather than existing code's allowance for discretionary review recommendations.
- Deter and discourage land disturbance activities or structures within floodplains and known flood-prone areas. Strictly enforce the minimum standard requiring any proposed or existing structures under permit for renovation, within floodplains and known flood-prone locations (non-riverine flooding), to be elevated three feet above the site's 1% (100-year) storm flood elevation to increase structures' flood resilience.
- Eliminate exemptions from requirements, variances, waivers and other exceptions that allow altering elevations to build in the floodplain.

Revise Subtitle 4: Building and related divisions to:

- Encourage residential greywater reuse as a Net-Zero practice and an accepted regulatory green infrastructure stormwater management practice.
- Require floodproofing, locating mechanical and electrical equipment above the base flood elevation and backup electrical and water feeds for new structures.
- Add new drainage design criteria requiring flood and mold protections for building permits and/or licensing of rental housing. Inspection criteria should be updated accordingly.

EQUITY CONSIDERATIONS

Historical development practices placed low-income people and communities of color in flood-prone areas.

Putting Equity at the Center of Implementation:

- Require CIP or other processes to prioritize infrastructure maintenance and upgrades in Equity Emphasis Areas.
- Provide financial assistance for homeowners and landlords that demonstrate need for floodproofing and mold abatement from high water tables or chronic drainage issues.
- Develop an educational campaign in multiple languages on the issue of basement flooding and mold..
- Prioritize providing residents of Equity Emphasis Areas with access to clean-up assistance (including pumping), dumpsters, and other necessary resources after a major flood or storm event.
- Prioritize and increase buyouts of flood-prone structures to help residents in floodplains relocate.
- Promote and possibly incentivize the purchase of flood insurance, especially among renters, regardless of whether or not a structure is located within an official floodplain.

MEASUREMENT AND TRACKING

Create publicly available and interactive GIS maps by subwatershed with the following data tracked and mapped on an interactive dashboard that is updated on a monthly basis:

- Number and location of all development projects in planning, under construction or completed, including permit number.
- Number and location of all drainage and flooding complaints.
- Impervious surface area (% of total area) reductions and gains. This information should be aligned with drainage and flood complaints as well as tree coverage losses and gains.
- Number and location of flood insurance claims with storm incident information.
- All waivers, letters of revision, exemptions, and variances issued for Stormwater Management regulations, FEMA floodplains or County Floodplains (tracked by subwatershed and overlaid with drainage and flood complaints over the last three years).

CAPACITY AND FUNDING NEEDS

- Support and coordination of the County Executive and County Council Office to revise the County Code of Ordinance.
- Allocate an ongoing annual budget for dedicated consultant support to aid in modeling efforts and revisions to design manual standards with climate-resilient criteria, including updated or projected precipitation data.
- Dedicated, ongoing funding to revise existing CIP projects under design to include climate-resilient flood and stormwater management practices with a specific focus on the following types of projects: drainage improvements, roadways, bridges, culverts, SWM facilities, stream restoration and flood mitigation.
- Creation of a sustainable funding source for Climate Resilience Rebates to implement Net-Zero Runoff practices and climate-resilient practices for all residential properties (including multi-family complexes).
- Increase the funding available for the Rain Check Rebate Program and offer bridge funding, loans, preapproval of plans, or project management for low-income families so that they can take advantage of the Rain Check Rebate Program or other similar residential programs.
- Conduct education and outreach for the public as well as real estate agents and other relevant professionals regarding the importance of stormwater structures and net-zero runoff practices as well as available rebate programs and other County resources that support better landscaping practices and runoff control.
- Provide professional development for County workers regarding new regulations, design guidelines, and enforcement of code changes.

HELPFUL RESOURCES

Flood Factor

Organization: First Street Foundation

Description: A mapping tool that uses past floods, current risks, and future projections to communicate flood risks based on peer-reviewed research from the world's leading flood modelers.

Residential Drainage: A Homeowner's Guide to Drainage Problems and Solutions

Organization: Prince George's County Department of the Environment

Description:

Incorporating Climate Change into Stormwater Design Standards

Organization: RAND Corporation, Cornell University, Carnegie Mellon University

Description: Presentation on developing Intensity Duration Frequency (IDF) curves for the Chesapeake Bay Watershed based on future projections.

Developing a Stormwater Quality Management Standard (QMS) in Light of a Changing Climate

Organization: Engineers Canada

Description: Study on development of risk and quality management standard to assist municipalities and engineers in designing, operating, maintaining and improving stormwater management systems ready for a changing climate. Includes stormwater and flood management guidelines, select municipal stormwater design standards, existing international risk and quality management standards and best practices to integrate climate change considerations into SW planning and management.

Community Solutions for Stormwater Management

Organization: EPA

Description: Long-term planning guide. Includes components of a stormwater plan and progress checklists.

Stormwater Stewardship Grant Program

Organization: Prince George's County DOE

Description: Funds on-the-ground restoration activities that improve neighborhoods, improve water quality and engage Prince George's County residents in the water restoration and protection.

ENDNOTES

1) Drainage and Flooding in Prince George's County', Prince George's County Department of Permitting, Inspections and Enforcement (DPIE) / Department of Public Works and Transportation (DPW&T) / Department of the Environment (DOE)
2) Flood Factor (n.d.). Flood risk is increasing for Prince George's County. https://floodfactor.com/county/prince-george's-county-maryland/24033_fsid#summary

PRIORITY RECOMMENDATION A-3

A-3

Prioritize preserving and restoring natural resource areas and agricultural open space to reduce flood risk

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-3	Prioritize Preserving and Restoring Natural Resource Areas and Agricultural Open Space to Reduce Flood Risk	●	●	◒	◒	3-8	

DESCRIPTION

Prince George's County's land-use and zoning do not sufficiently discourage the development of agricultural land and natural spaces such as forests and wetlands. Our County's farmland and natural resource areas have long been undervalued – considered secondary to the short-term gains offered by residential and commercial development. But with every acre of forest or farmland lost to development, we lose critical ecosystem services such as food production, temperature regulation and flood mitigation.

In addition, every acre of agricultural open space or natural land cover permanently converted to the built environment creates long-term financial burdens from the inevitable lifecycle costs of repair and maintenance of the grey infrastructure serving this development. Given the coming unpredictability of future extreme weather, the loss of these assets will present an exponentially greater threat to our residents' wellbeing and to the strength of our local economy. The ripple effects quickly compromise our County's ability to become climate-resilient, which may soon reduce our County's financial capacity to borrow or attract investment.[1]

However, there are innovative land use valuation and zoning practices that could monetize the long-term value of preserving ecosystem services and local food production capacity as a highest value land use.[2] There are economic incentives that could create a resilient economic development system that rewards protecting foundational elements to our County's long-term climate resilience and better ensuing a sustainable future. [3]

As a first step and common-sense approach to building climate resilience, our County must immediately prohibit any new development within its floodplains. Our region is projected to receive more precipitation, often delivered in sudden extreme events without dependable frequency. With the

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IMPLEMENTATION

rapid and intensifying impacts of climate change already occurring, there is no certainty that today's engineering standards will be adequate in the future. Our County must stop the practice of permitting the reconfiguring of floodplain storage areas within a natural riverine system by creating alternate man-made storage to accommodate developments. This practice is unwise and it will be untenable if future precipitation patterns reveal that these modified storage areas are insufficient to accommodate flood waters.

Further, Prince George's County must strengthen its land use policies and regulations to protect its key resilience assets -- undeveloped farmland, forests, wetlands, and riparian buffers. The most cost-effective adaptation strategies involve protecting the natural resources that provide free resilience benefits: flood mitigation from wetlands and trees, heat moderation from urban forests and food security from productive farmland. As a community, our future well-being depends on how effectively we protect our agricultural and natural lands today. This requires County policies and codes to protect what we can protect, and to incorporate long-term monetary incentives to motivate the private sector to help preserve our region's climate resilience assets. We must also immediately refocus our County's economic investment in designated Activity Centers, to reduce market pressures to develop farmland and natural resource areas that are essential for our long-term sustainability.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DPIE, M-NCPPC, SCD, RDA, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1: Restrict Development in the Floodplain. Preserve the flood retention capacity of existing natural floodplains by prohibiting development within them.

Step 2: Revise Subtitle 32: Water Resource Protection and Grading Code and related Divisions to require:

» Publicly posted climate-resilient impact assessment for all applications for waiver(s), exemptions, and regulatory departures from any floodplain requirements and regulations.

» Limit what constitutes "unreasonable hardship" and narrowly define any discretionary power of the permitting agencies to grant, waivers, or interpret development regulations within both the County floodplain and the FEMA floodplain. Dedicate all areas within the County floodplain for public use or conservation easement and prohibit stormwater management facilities from being sited in the floodplain. Exclude the ability to waive this requirement.

Step 3: Revise Subtitle 15A: Consolidated Housing and Community Development and Subtitle 15B: Redevelopment Authority to::

» Create a transparent, public, and science-based land development site selection process that requires explicit assessment of costs

» gas emissions, and carbon sequestration. The assessment must provide quantification of the value of ecosystem services lost with conversion of other agricultural land and woodlands to other uses.

» Advance resilient economic development by requiring an explicit plan to decrease climate impacts and by providing incentives for

developers to adopt climate resilience practices through more on-site natural resource preservation.

Step 4: Align Economic Development Plans with the Climate Action Plan, preserving existing agricultural land and natural areas and promoting development in already-developed areas near high-capacity transit.

» Perform an economic development and climate adaptation analysis of existing agricultural land and natural areas that are crucial to climate resilience on a subwatershed basis.

» Identify areas of open space for preservation and optimum use for climate resilience.

» Include ecosystem services and climate resilience in evaluation of costs and benefits of development proposals

» Provide incentives for infill development and redevelopment in already built-up areas, especially near high-capacity transit.

Step 5: Prioritize Transfer and/or Purchase of Government-owned or Controlled "vacant land" for tree canopy planting preservation of existing canopy, selecting trees that benefit the community by providing food and natural habitat.

» Create a Prince George's County Climate Resilience Land Conservation Trust or manage future trading of climate resiliency or carbon credits in order to help fund maintenance of purchased natural resources or incentives for preservation.

EQUITY CONSIDERATIONS

Low-income and Equity Emphasis Areas often do not have access to fresh, healthy foods and are located near or even in floodplains due to past land-use patterns. In addition, restrictions on what landowners can do with their property might be seen as unfair interference with their ability to profit from the "market value" of land if it is sold to developers. This could contribute to the racial wealth gap.

Putting Equity at the Center of Implementation:

» Incentivize urban farms through zoning and green business development and accelerate the purchase of flood-prone structures to be repurposed as natural resource areas for flood resilience or urban farm plots using regenerative agriculture practice and square foot gardening.[4]

» Offer fair buy outs to owners of land in flood plains and incorporate the value of the ecosystem services provided by open space in transactions involved in preservation of parcels that might otherwise be converted from open space to developed land.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets.

Require the following by subwatershed on an annual basis:

» GIS mapping of agricultural and natural resource land lost or gained, conservation easements and development rights acquired to preserve agricultural lands, woodlands and wetlands.

» Metrics to track water quality impacts of land conversion, including stream flood days, peak flow and nutrient levels.

» Floodplain disturbance permitted by location, permits, and size.

- Carbon sequestration, water absorption and cooling by forested lands.
- Acres of working farmland.
- Quantity of local food production.

CAPACITY AND FUNDING NEEDS

- Funding for annual assessments and public reports to the County Council and the County Executive by independent third-party on the annual loss or gain (on a subwatershed basis) of open space, natural resources, tree canopy and impervious surfaces.
- Funding to perform a study with recommendations on preserving lands critical to climate resilience either through Resource or Protection Zoning and other innovative zoning techniques that redefine what is considered vacant or prime development property.
- Provide climate resilience risk management training for County staff and decision makers as part of ongoing professional development.

HELPFUL RESOURCES

Flood Adaptation Types

Organization: Flood Factor

Description: Lists various flood adaptation project types and examples from U.S. cities.

Resiliency through Restoration Initiative

Organization: Maryland Department of Natural Resources

Description: Directly supports on-the-ground implementation of nature-based projects through technical assistance, monitoring and community outreach and education support.

'Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities'

Organization: FEMA

Description: Guide for communities includes definitions, co-benefits, and cost savings, planning and policymaking, implementation and funding information.

Prince George's County Zoning Rewrite

Organization: Prince George's County

Description: Website describing the County's two-phase process creating 21st Century Zoning Ordinance and Subdivision Regulations.

The Economic Values of Nature: An Assessment of the Ecosystem Services of Forest and Tree Canopy

Organization: The Low Impact Development Center

Description: An evaluation of the economic value of the ecosystem services of trees and the dollar value of these services to the county.

"Highest and Best Use" Philosophy Leads to Protection of 80-Acre Fleese Farm

Organization: The Leelanau Conservancy

Description: Article of one man's story working with a land conservation group to protect agricultural land into the future.

ENDNOTES

1) https://www.moodysanalytics.com/-/media/article/2019/economic-implications-of-climate-change.pdf
2) https://www.bu.edu/eci/files/2020/06/Land-Economics_final.pdf
3) https://www.c2es.org/site/assets/uploads/2020/10/the-resilience-factor-competitive-edge-for-climate-ready-cities.pdf
4) Michigan Urban Farming Initiative: https://www.miufi.org/

PRIORITY RECOMMENDATION A-4

A-4

Evaluate and address climate risk to dams and levees

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-4	Evaluate and Address Climate Risk to Dams and Levees	●	◒	●	●	3-8	

DESCRIPTION

Prince George's County operates and maintains a network of flood control structures, including dams and levees, to manage and mitigate flood risk. Due to climate change, more frequent and intense precipitation events raise the risk of a dam and levee failure. The County built many of these structures decades ago to provide flood control for the 100-year flood, probable maximum flood, or other design flood event. Typically, engineers base their designs on past weather, considering what prior decades of data showed about the maximum probable flood that a structure would expect to control.

The basis of designs for much of the County's existing flood control structures are on rainfall values established by **Technical Paper 40 (US Department of Commerce, 1963).** In 2006, NOAA released local rainfall estimates that exceed TP-40 rainfall values. Future storm-driven flows may exceed the design storage and conveyance capacity of existing structures. In 2016, Prince George's County Department of Permitting, Inspections, and Enforcement (DPIE) issued Techno-Gram 007-2016. Stating that NOAA Atlas 14 Precipitation Frequency Estimate for Central Prince George's County is to be used for computing 100-year discharge in the design of stormwater management ponds, dam safety, and 100-year flood control attenuation.

Prince George's County owns seven (7) "High Hazard Dams," each having an emergency action plan. Dams are classified as "High Hazard" if they threaten a loss of life or severe damage to buildings and infrastructure. The County will assess the climate impacts on all high-hazard dams, constructed prior stipulations of Techno-Gram 007-2016 taking effect, and levees to understand the risks better and determine what infrastructure upgrades or other long-term investments are most needed.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OEM, M-NCPPC, SCD

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1: Assess Climate Projections and Consequences of Failure. Analyze baseline conditions against local/regional climate projections to highlight future vulnerabilities and risk. Model hydrological loads to the consequences of failure under present and future conditions and jointly evaluate dams, levees, and interdependent components.

» Vulnerability assessment should be performed to help prioritize which of the existing high-hazard infrastructure needs should be prioritized.

» Create preliminary financial plan for high-hazard infrastructure upgrades as part of the assessment.[1]

Step 2: Incorporate Findings in Emergency Action Plans. Revaluate and update each high-hazard dam's emergency action plan to incorporate future climate change projections and impacts and identify areas of concern for public safety. Leverage near-term restoration or other improvement projects at dam sites to perform climate impact analyses.

Step 3: Prioritize Upgrades. The five-year update to Prince George's County Hazard Mitigation Plan, due 2022, offers the opportunity to make high-hazard dam and levee system upgrades a priority action item. Dedicate a meeting of the inter-agency Hazard Mitigation Planning group to discuss priority infrastructure upgrades and other long -term investments and incorporate them into capital planning. Upgrade priority flood control structures (pump stations, levees, high-hazard dams) to increase capacity where applicable to provide relief.

Step 4: Avoid Future Development in Flood Inundation Areas Below Existing High-hazard Dams. Require that plan sets for subdivision proposals and permit applications to show the danger reach and inundation area and prohibit new construction in these areas.

EQUITY CONSIDERATIONS

Generally, community members are unaware of their flood hazard risk and the flood control structures to protect them.

Putting Equity at the Center of Implementation:

» Expand education and outreach efforts (e.g., providing accessible maps – online and static/paper maps of flood control structures) to the community for more awareness of their risk level and strategies to protect their neighborhoods.

» Engage and educate local real estate industry professionals on dam and flood hazard disclosure requirements. This should include how to obtain relevant property confirmation to confirm if a property is considered at risk to flooding or a high hazard dam.

» Require all real estate transfers and leasing transactions to make realtors. home inspectors, leasing agents to communicate potential dam risks to home buyers, businesses, and renters.

» Develop an outreach and education campaign that raises awareness and equips residents to respond to a failure event.

» Invest in street signage using international standards for symbols that indicate safety issues and evacuation routes.

» Create a warning system to ensure impacted communities are notified in the event of failure.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize infrastructure upgrades.

On an annual basis, track and report the following:

» Number of designated high hazard dams with degree of hazard.

» Number of dams and levees with an assessment based on best available climate data.

» Number of events and communications to communities near high hazard dams to raise awareness of potential dam failure risks and educate on protection strategies.

CAPACITY AND FUNDING NEEDS

» Funding to perform new hydrologic analysis for each existing high hazard dam and flood control levee system is warranted to enhance climate preparedness and resilience in Prince George's County. These analyses would account for observed and expected climate impacts and inform subsequent assessments of risks to "flood protected areas." The County may include such analyses in tasks required for Emergency Action Plan updates for high hazard dams.

» Funding for technical assistance from USACOE and engineering consultants for the performance of such hydrologic analyses may require technical assistance for flood control levee systems. USACOE designed several levee systems in the Anacostia River Watershed and issued positive evaluation reports for such systems.

» Funding for new hydrologic analyses and may apply Stormwater Enterprise Funds to the performance of these analyses.

HELPFUL RESOURCES

Planning Assistance to States

Organization: USACE

Description: Assistance in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.

Federal Guidelines for Dam Safety: Emergency Action Planning for Dams.

Organization: FEMA

Description: Planning support document and guidelines for developing an emergency action plan. Includes direction for preparing an Emergency Action Plan, a suggested outline, checklist, and other sample forms and resources.

Emergency Preparedness Guidelines for Levees (fema.gov) and Guidance for Flood Risk Analysis and Mapping

Organization: FEMA

Description: Provides guidance to support the requirements and recommends approaches for effective and efficient implementation of Risk Mapping, Assessment, and Planning.

Prince George's County Hazard Mitigation Plan (2017)

Organization: Prince George's County

Description: Hazard Mitigation Plan for Prince George's County – lists and describes dams at risk.

GUIDANCE FOR DAM ENGINEERING ASSESSMENT REPORTS

Organization: New York State Department of Environmental Conservation (NYDEC)

Description: NYDEC Program Policy provides guidance to dam owners and engineers on the preparation of, and government staff on the review of, Engineering Assessment Reports

ENDNOTES

1) https://www.chesapeakebay.net/documents/Prince_Georges_Final_Report_7.29.16.pdf

PRIORITY RECOMMENDATION A-5

A-5

Require community-wide climate resilient green infrastructure

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-5	Require Community-Wide Climate Resilient Green Infrastructure	●	●	●	◒	0-5	

DESCRIPTION

As a first step, The County should redefine its use of the term green infrastructure to align with the Environmental Protection Agency (EPA)'s definition. In addition, the County should adopt and require integration of onsite nature-based solutions as the preferred stormwater management practice for all site development. Prince George's County stormwater management code must be revised to require subwatershed climate-resilient stormwater management modeling (SWMM or similar). Codes applicable to preserving street trees and forests would benefit from review and revision to strengthen enforcement measures. A Climate Resiliency Fee based on a property's cumulative annual runoff (both treated and untreated) volume entering the County's storm drain system and local waterway should be established to support the implementation an maintenance of green infrastructure based climate solutions. Finally, new climate-resilience requirements should increase the minimum regulatory riparian buffers for all zones and land uses.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, M-NCPPC, SCD, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1: Update and Revise All County Documents to define Green Infrastructure as Federally Defined by the 2019 Water Infrastructure Improvement Act and to Align with EPA's Definition of Green Infrastructure.

» Revise County Stomrwater Code to require integration of on-site nature-based solutions as the County's preferred stormwater management practice for all site development. The code revision must require nature-based stormwater management systems that use vegetation and soil (green roofs, green streets, rain gardens, tree

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trenches, permeable pavers, etc.) working in tandem with existing natural systems to perform ecosystem services and increase climate resilience. Consider adopting the following as guidelines for the County's nature-based solutions:

- FEMA's 'Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities' Conservation International's Practical Guide to Implementing Green-Gray Infrastructure.
- ILC's 'Sponge Handbook, or IBD's Increasing Infrastructure Resilience with Nature Based-Solutions.

» Evaluate and provide recommendations of what existing national or international engineering codes, design documents, or standards could be adopted or modified for inclusion in-lieu of creating new guidelines to implement community-wide climate-resilient stormwater management.

» Consider additional terminology alignment with the proposed Maryland Comprehensive Conservation Finance Act to help pursue future funding opportunities.

Step 2: Revise Prince George's County Code of Ordinance and Applicable Zoning to Support Nature-based Solutions.

Under definitions of Code of Ordinance: Subtitle 27: Zoning revise to achieve the following:

» Revise the definition of Open Space to encourage augmentation of ecosystem services through woodland preservation, conservation landscaping and native tree planting. Definition should discourage lawn as an open space cover.

» Revise and update all companion planning design guidelines to promote and incentivize conservation landscaping and tree cover as the preferred Open Space land cover.

Revise Subtitle 32: Grading, Drainage, and Erosion and Sediment Control to achieve the following:

» Revise subtitle to require subwatershed level Storm Water Management Model (SWMM) or similar model to more accurately model runoff quantity and quality.

» Revise subtitle to decrease threshold for disturbance requiring ESC plan. Suggested threshold to trigger an ESC Plan would be 2,500 sq. ft. versus 5,000 sq. ft. of land disturbance activity.

» Revise subtitle to allow land disturbance activities which involve tree removals or natural resource impacts only after approval of Final Grading Permit.

Step 3: Issue a Green Municipal Bond (GMB) to Initiate Projects in Tandem with Creating a Climate Resilience Fee under Subtitle 10: Finance and Taxation to Pay for Long-term Life Cycle Costs of Green Infrastructure in the Public Rights-of-way.

» Calculate fees for the Climate Resilience Fee based on a property's cumulative annual runoff volume (both treated and untreated) entering the County's storm drain system and local waterway. 1

» Require an annual update of the 5- to 10-year CIP infrastructure improvement blitz to build climate resilience. Update should include the "cost from consequences of doing nothing to adapt" as a budget comparison.

IMPLEMENTATION STEPS

Step 4: Adopt and Enforce Policies to Require Green Infrastructure Practices for New and Existing Properties, especially native plantings, rain gardens, green corridors, runoff retention, and other nature-based ways to reduce and naturally filter runoff on private and public properties. Insert specific enforceable language in guiding County documents related to proposed and existing development.

» Adopt the revised Prince George's County Specifications and Standards for Roadway & Bridges in 2019 to include green infrastructure standards and revised right-of-way widths.

» Create and adopt a Green Street Design Guideline, which provides design criteria and guidelines for implementing green infrastructure within the public right-of-way for new construction and to retrofit existing streets to incrementally reduce stormwater.

» Revise Standard Details for Stormwater Management Construction (last updated in 2001) to include climate-resilient requirements and related standards.

» Review State Code-Land USE 23-103-Dedication of land for roads to identify legislative actions required to adopt new right-of-way widths per revised Prince George's County Specifications and Standards for Roadway & Bridges. The review must require assessing and evaluating adverse environmental impacts on natural resources from wider ROW standards.

Step 5: Prioritize Preservation of Existing Natural Resources in Land Development Planning. The County's Economic Development Authority must prioritize preserving existing natural resources when evaluating long-term land development potential and environmental impacts. County entities responsible for economic growth and land development must lead by example by publicly providing metrics on an annual basis information to evaluate the following:

» Commitment to innovative practices for onsite stormwater management, such as Net Zero Runoff, rainwater harvesting, and greywater reuse.

» Assessment of the ongoing vulnerability of private assets and business districts to climate change to annually update the County's focus for economic development.

» Support and development of designated climate-resilient business districts with prioritization of investment in low-income areas.

» Incentives presented to developers to voluntarily adopt resiliency measures and/or pursue infill redevelopment versus greenfield development.

Step 6: Update County's Stormwater Regulations to require climate-resilient design and criteria within the following:

» Prince George's County Stormwater Management Design Manual (DPIE)-September 2014.

» MDE's "NPDES General Discharge Permit for Stormwater Discharges Associated with Industrial Activity" permit and County retrofit activities.

» Stormwater pollution prevention plan (SWPPP) which provides industrial facilities with the behavioral and structural guidelines necessary to reduce contaminants from entering the storm drains, conveyances, local streams, and rivers.

EQUITY CONSIDERATIONS

Low- to moderate-income communities and urban neighborhoods often have more impervious areas than tree cover. In addition, these communities also typically have inadequate and antiquated storm drain infrastructure to convey runoff from impervious areas. Overhead utility lines and insufficient tree box spaces also contribute to urban neighborhoods being devoid of street trees and without shade.

Putting Equity at the Center of Implementation:

» Recognize that green infrastructure and nature-based design, construction, installation, and maintenance may present barriers for entry for local builders from historically disadvantaged populations and communities without training in specific technologies.

» Prioritize the co-development and co-management of solutions and integrate community-based planning board or equity councils into planning and implementation efforts.

» Provide green infrastructure training for small businesses and CO-OP opportunities for local trade schools and Prince George Community College students to design, install, and maintain new and emergent green infrastructure and nature-based solutions for climate change.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize infrastructure upgrades.

» Existing and proposed impervious surface area (% of total area) overlaid with five-year history of 311 complaints drainage and flood complaints history.

» Impervious surface area (% of total area) reduced or retrofitted.

» Stormwater/flooding mitigation reduction: billions of gallons/year mitigated with break out of storage required for climate resilience vs. water quality.

» Green Infrastructure installation mapped by subwatershed and permit number to compare history of 311 flooding or drainage complaints to number of 311 complaints post installation.

CAPACITY AND FUNDING NEEDS

» Provide dedicated enterprise or bond funding to perpetually maintain, repair and provide life cycle replacement costs for all green infrastructure facilities located within the County's public domain.

» Provide County staff with ongoing professional development to adapt to changing conditions and adopt evolving best practices.

» Provide additional funding for County grant specialists and grant managers to pursue and manage climate-resilience grants from federal and state funding sources and facilitate coordination across County departments.

» Create and fund new County staff positions assigned to review all proposed green infrastructure designs, perform facilities inspections, and oversee maintenance operations for green infrastructure facilities.

» Allocate ongoing funding to revise, update and approve green infrastructure standards and stormwater management design

manuals to anticipate and respond to evolving climate change impacts.

» Allocate funding for building and monitoring innovative pilot projects at County-owned or municipal sites to test new practices for possible use within the established public domain.

HELPFUL RESOURCES

The Resilience Factor: A Competitive Edge for Climate-Ready Cities

Organization: Center for Climate and Energy Solutions

Description: This report explores how the economic competitiveness of U.S. cities will be impacted as climate impacts worsen – and how enhanced climate resilience could provide a competitive advantage.

How to Issue a Green Muni Bond

Organization: Climate Bonds Initiative

Description: Provides guidance for cities and other public entities that issue municipal bonds to pay for infrastructure. It describes the state of the market, the benefits of issuing green bonds, how the market defines what is green and the steps cities need to take to access this growing market.

Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities

Organization: FEMA

Description: Guide for communities includes definitions, co-benefits and cost savings, planning and policy-making, implementation and funding information.

Practical Guide to Implementing Green-Gray Infrastructure

Organization: Conservation International

Description: Implementation guide includes technical definitions, co-benefits and cost savings, planning and policy-making, implementation and funding information.

Green Area Ratio (GAR)

Organization: Washington, DC Department of Energy & Environment

Description: Municipal environmental sustainability zoning regulation that sets standards for landscape and site design to help reduce stormwater runoff, improve air quality and reduce extreme heat impacts.

Green Infrastructure Resilience program

Organization: Maryland Department of Natural Resources

Description: Helps local governments assess their stormwater and riparian flooding hazards and evaluate how green infrastructure practices can improve their resilience.

M-NCPPC Resource Conservation Plan

Organization: Maryland-National Capital Park and Planning Commission and Prince George's County Planning Department

Description: This countywide functional master plan combines the related elements of green infrastructure planning and rural and agricultural conservation into one functional master plan. Document contains goals, measurable objectives, policies, and strategies pertaining to green infrastructure planning, agricultural and forestry conservation, and rural character conservation.

Resiliency through Restoration Initiative

Organization: Maryland Department of Natural Resources

Description: Directly supports on-the-ground implementation of nature-based projects through technical assistance, monitoring, and community outreach and education support.

ENDNOTES

1) https://www.dcwater.com/impervious-area-charge: Fee structure based on the amount of impervious area on a property; owners of large office buildings, shopping centers, and parking lots will be charged more than

PRIORITY RECOMMENDATION A-6

A-6

Expand information and assistance to the public regarding Impacts of climate risks and opportunities to implement climate actions

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-6	Expand Information & Assistance to the Public Regarding both Impacts of Climate Risks and Opportunities to Implement Climate Actions	●	●	●	●	0-3	

DESCRIPTION

Climate-readiness requires community-wide engagement, powered by educational resources, technical assistance, and financial assistance in vulnerable communities. The County will augment their own websites and mobilize existing educational resources, including libraries, schools, and colleges, to empower residents with practical knowledge for needed change. An online climate dashboard, along with toolkits and factsheets, will provide easy access to up-to-date, local information about climate risks and recommended actions. Resilience hubs, schools, community centers, and libraries can be used for convening community workshops and coordinating educational efforts. The 311phone system can be expanded to provide answers to questions about climate actions and related resources. Educational materials will be inclusive and available in multiple languages and formats to help all residents make informed decisions to increase climate resilience.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, DPIE, OCS, PGCC, OEM, M-NCPPC, SCD, MEMORIAL LIBRARY SYSTEM

IMPLEMENTATION STEPS

Step 1. Identify and connect existing support programs to CAP recommendations. Prince George's County has numerous programs, including technical and financial assistance, already in place across multiple agencies and County entities.1 However, these resources are underutilized. Many residents are unaware of the opportunities and unable to access necessary information with existing web resources. Identification of strengths and weaknesses in existing resources will

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facilitate development of a more user-friendly, centralized clearinghouse of information on available programs and services.

» Establish a cross-cutting focus group to of staff from (name agencies) to develop, organize, and update centralized resources for environmental education, tree planting and stewardship programs, stormwater management rebates and grants, energy-related programs, transportation programs, and programs for prevention and treatment of heat-related illness and other climate-related health problems. The focus group will:
    › Create an inventory of existing relevant programs, services, and information applicable to building resiliency or climate change.
    › Identify programs, services, and information to be revised to include climate change and resiliency information.
    › Develop an ongoing system to enable government entities to share information, to provide the public with regularly-updated information for accessing services, to provide transparency through reporting data about program implementation, to avoid unnecessary duplication, and to connect complementary programmatic efforts.
» DoE will conduct a county-wide programmatic assessment that includes:
    › A survey of residents or focus groups to better understand residents' knowledge of what programs and services are available and how to obtain access to these programs.
    › Recommendations on how to integrate climate and equity considerations into all programs.

Step 2. Develop a Climate Resilience Website. An active and engaging online presence helps maintain a more active and involved public. The County will enlist a consultant to develop an online clearinghouse for climate resilience information, which is easy for the public to use and easy for county staff to update. The Climate Resilience Website should include:

» A dashboard to track the County's climate action timeline highlighting past progress and future milestones, story sections for personal testimonials, highlights of projects, and Recommendation Champions. The dashboard should also include the following:
    › Comparative analysis to simulate the "Costs of Doing Nothing."
    › A public input portal to facilitate ongoing community engagement.
    › Links to any relevant state and federal tracking related to how the County's actions work towards these larger goals.
» Implementation toolkits for residents to calculate their carbon footprints as consumers and simulate carbon footprint reductions by individual action to motivate and become active participants in the CAP, for example, such as the Cool Climate Network Calculator at https://coolclimate.berkeley.edu/calculator .
» Information on the climate risks and vulnerability assessment with user-friendly visual data displays, including maps with demographic data layers that allow users to explore connections between climate risk and inequity.
» Descriptions of, and links to, current county programs for technical and financial assistance, services, and resources such as energy coaches and lists of certified green businesses and service providers.

» Promotion of and links to local neighborhood education initiatives such as coolblock.org (https://coolblock.org).

» Recognition of climate resilience achievements by homeowners, businesses, municipalities, and county workers.

Step 3. Create a Prince George's County Climate Action Operations Toolkit:[2] The Climate Action Operations Toolkit will enable county government entities, municipalities, homeowners' associations, developers, and businesses to conduct an inventory of their greenhouse gas emissions, quantifying emissions from transportation, buildings, and industrial activity. The toolkit will:

» Create a centralized dashboard or platform for municipalities and all County government entities (libraries, schools, M-NCPPC) to access the County's energy management program to submit energy usage data. The dashboard will align with County monitoring and baseline emission reductions for community-wide tracking.

» Align data from users with the County's greenhouse gas inventory and Climate Action Plan goals based on the primary sources of emissions from their community or entity.

» Create a calculator with visual data displays for comparing over time the "costs of doing nothing" with the costs and benefits of transition to renewable energy and adoption of solutions for climate resilience.

Step 4. Build Partnerships to Expand Climate Education. Prince George's County has a rich array of existing educational resources for supporting community education, outreach, and engagement, including libraries, schools, colleges and universities, faith-based organizations, and non-profit groups. In partnership with these existing resources, the county should:

» Support and expand opportunities for citizen science, green business creation, and piloting innovative green technology.

» Create a paid cooperative education program to engage university and college-level students in climate-related curriculum or trades to gain practical experience in their field of study and as future hires for the next generation of County municipal service employees.

» Expand workforce development programs to prepare residents for jobs in renewable energy, building energy-efficiency retrofits, floodproofing, regenerative agriculture, low-carbon landscaping, natural resource stewardship, and waste management.

» Provide teachers with resources for fully implementing the environmental literacy curriculum and improving student achievement of specific course outcomes related to greenhouse gas emissions, climate risks, and solutions.

Step 5. Require and establish cross-sector collaboration for climate change funding and community-wide initiatives.

» Create a partnership with universities, municipalities, regional government, and agencies to identify and jointly pursue state and federal grant funding.

» Promote available technical and financial assistance through community-based organizations and at community events, and further expand outreach at senior centers, community centers, libraries, and schools.

» Create public engagement events such as Sustainability Days or Climate-Ready Drives that involve local businesses.

› Promote and facilitate replacement of diesel and gas-powered lawn and garden equipment with electric and battery-powered equipment.

› Promote and facilitate repair, exchange, and replacement of inefficient and inoperable window air-conditioning units in Equity Emphasis Areas.

EQUITY CONSIDERATIONS

The County must relate and communicate opportunities, services, and programs to residents who may not be comfortable accessing digital resources or without direct access to web-based information due to technology or communication barriers.

Putting Equity at the Center of Implementation:

» Remove communication barriers for residents with disabilities and health issues (eyesight, hearing.) which could impact relaying important climate-related information and opportunities.

» Develop multilingual enable websites and communication materials that are easily accessible for the public, and delivering information through multiple channels, including online, in-person, and through trusted organizations and messengers, is central to this recommendation.

» Commitment to providing free nondigital communication equipment for Equity Emphasis Areas in tandem with the creation of a "Buddy System" to relay emergency information.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize outreach efforts.

On an annual basis, track and report on the following:

» Number of people taking advantage of educational resources, such as number of toolkit downloads

» Satisfaction with online experience via popup surveys with questions such as:

  › Did you find what you needed?

  › What change will you make based on what you learned during this visit?

  › What did you need that you didn't find here today?

» Number of in-person events and attendance at events, including demographic data.

CAPACITY AND FUNDING NEEDS

» A designated Climate Resilience Communications Coordinator will be needed to work with dedicated staff from all County entities to provide County residents and businesses with information needed for climate resilience. The Climate Resilience Communications Coordinator will lead in developing climate action messaging and web content to promote climate action County programs and services.

» Funding will be needed for additional staff for grant writing and support to integrate climate resilience into both county and municipal programs.

» Identify or create a centralized, public-facing website to house all climate action plan measures, resources, agency contacts, progress reports, and legislative and County Executive initiatives to implement the CAP. The website should track a suite of key measures as well as impacts to these measures of each Council level development review decision.

» Public input must be elicited, tracked, and used to inform further outreach and engagement efforts.

» Funding will be needed for consultant services to create publicly

accessible and interactive county websites to facilitate tracking of needed changes, for transparent program evaluation and for promotion of programs and services.

» Create a fast-tracked grant application process for funding opportunities and community-wide collaboration for funding opportunities. The County should expedite permitting and reviewing of projects with grant funding to enable successful grant management with deliverables achieved on time without extensions.

HELPFUL RESOURCES

U.S. Climate Resilience Toolkit

Organization: U.S. Government

Description: The public website contains a wealth of information on steps to resilience – the basic process for climate action, case studies, tools based on U.S. regions, links to experts, reports, and training courses.

Climate Change Communication Toolkit

Organization: National Park Service

Description: Public website includes sections on understanding the science, adapting to change, mitigating the cause, stories, and resources. Compliments the NPS National Climate Change Interpretation and Education Strategy.

Climate Ready Boston

Organization: City of Boston

Description: Public website which links to overarching strategic plan, individual neighborhood plans. Includes progress tracker tool and public resources on climate change risks and projections, resilience strategies, and story projects highlighting social resilience. Links to Climate Ready Boston Map Explorer.

Resilient Together

Organization: Cities of Beverly and Salem, Massachusetts

Description: Public website with 'dashboard' showing climate change risks & projections, GHG inventory, and sector actions. Includes How You Can Help sections and link to action plan.

One Climate Future

Organization: Cities of Portland and South Portland, ME

Description: Public website with overview of One Climate Future planning process, climate impacts and vulnerability assessment, GHG inventory, facts sheets, and other resources.

National Climate Assessment

Organization: U.S. Global Change Research Program

Description: Public website explaining climate change, future climate, and impacts to sectors and regions. Includes link to report.

ENDNOTES

1) https://www.princegeorgescountymd.gov/sitemap
2) https://kingcounty.gov/services/environment/climate/actions-strategies/initiatives-programs/climate-action-toolkit.aspx

PRIORITY RECOMMENDATION A-7

A-7

Reduce exposure of vulnerable populations to extreme heat

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-7	Reduce Exposure of Vulnerable Populations to Extreme Heat	●	●	●	●	0-4	

DESCRIPTION

As we plan for a future with higher temperatures and more heat waves, the County must make changes to the environment to lower temperatures while also employing strategies for prevention and treatment of heat-related illness, especially in high-risk populations.

To provide resources where they are needed most, the County needs accurate, granular, up-to-date data about where more vulnerable people are exposed to more heat. Thermal mapping, a study of tree canopy cover and a targeted Shade Study will provide data for a better understanding of heat distribution throughout the County. These studies will be used for a County-wide Heat Vulnerability Assessment that incorporates environmental factors, demographic data and social determinants of health to calculate and map heat vulnerability indices for different locations. Populations at increased risk of adverse health outcomes related to heat exposure include people who work and play outdoors, older adults, children, people of color, people in lower-income households and people experiencing homelessness. Mapping that brings data on excessive heat and vulnerable populations together will help county decision makers invest first in programs for neighborhoods with the greatest need.

The Heat Vulnerability Index combined with study maps will inform and prioritize implementation strategies in the most heat vulnerable neighborhoods. As part of this recommendation, the County will also pursue and support a pilot agreement with public utility providers to implement undergrounding (burial) of overhead utilities within designated priority areas of vulnerable communities. Undergrounding aerial utilities improves reliability of electricity during storms and will ultimately enable long-term tree canopy growth to increase shade while also creating a more inviting streetscape at important gatherings and street-side commercial corridors within the community.1

The thermal mapping, tree canopy cover study and Heat Vulnerability Assessment will be completed by 2022. The resulting Heat Vulnerability Index and maps will inform and prioritize implementation strategies in the most heat vulnerable neighborhoods. Through stakeholder and community

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engagement, the County will develop, workshop and prioritize a list of heat mitigation and adaptation strategies by 2023, ready for implementation by 2024. By 2024, the County will also have entered into a pilot agreement for public utility providers to implement undergrounding of specific segments of overhead utilities within designated priority areas to provide space for tree canopy growth at gathering places and street-side commercial corridors within the community.

IMPLEMENTATION TEAM

DOE, DPW&T, HEALTH DEPARTMENT, OEM, M-NCPPC, SCD, MEMORIAL LIBRAY SYSTEM, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Conduct County-wide Thermal Mapping of Tree Canopy Cover with Shade Study, and Aerial Utility Mapping exercises. With the support of a consulting firm, university researchers, or other partner organizations, the County will conduct comprehensive mapping using remote sensing technologies and ground-level monitoring to create land surface temperature spatial data. The thermal maps will be overlaid with the following spatial data: Tree cover, impervious areas, and aerial utility coverage. The results from this analysis will highlight the urban heat island hot spots across the County. In addition, the County will conduct shade study modeling in targeted areas of the County identified as heat island hot spots and Equity Emphasis Areas.

Step 2. Conduct a Heat Vulnerability Assessment: Using the land surface temperature and tree cover maps developed in Step 1, the County will incorporate health inequity data and Equity Emphasis Area maps to conduct a neighborhood-level Heat Vulnerability Assessment. As part of this step, a Heat Vulnerability Index will be created to identify the County's most heat-exposed areas and populations. Subsequently, heat vulnerability maps will help identify high-risk areas and target specific neighborhoods or sites to prioritize and expand implementation of heat mitigation and adaptation strategies.

Step 3. Stakeholder Engagement. With the Heat Vulnerability Assessment results, the County will develop and prioritize heat mitigation and adaptation opportunities (e.g., existing policies and programs, plan expansion to incorporate a heat component). The strategies should be developed and vetted through inter-agency collaboration with community workshops, such as a series of heat strategy workshops or the formation of an extreme heat working group. The goal of this engagement should be to (1) better understand how residents currently struggle with the heat and what their go-to coping measures are, (2) to gauge interest and receive feedback on the list of prioritized heat mitigation strategies and (3) inform the public about adaptation strategies.

Step 4. Finalize Heat Strategies. Finalize the heat mitigation and adaptation strategies and initiate implementation. Outline the timeline, implementation leaders and partners, performance metrics and other relevant information for each strategy's action by the end of 2022. Build in flexibility to be able to conduct research during heat waves and accelerate certain strategies in the event of a crisis.

Step 5. Specific Code Revisions. Revise Prince George's County Code of Ordinance under Subtitle 4: Building, Subtitle 23-Roads and Sidewalks, and Subtitle 27A-Urban Centers and Corridor Nodes Development and Zoning Code to achieve the following:

» Require Green/Cool/PV Roof and Pavement Code with a specific focus to immediately require all County and local governments' street and sidewalk replacement and repaving projects to use green/cool pavements in heat vulnerable areas.

› Require new roof and major roof replacements to be one following: Green roofs with native plants or vegetables and soil deep enough to support them, (2) house solar photovoltaic (PV) systems tied to the building or (3) cool/high-albedo roofs.

› Require all new sidewalks or sidewalk repair projects to create soil volume and use tree-friendly permeable paving materials with low reflectance and cooling properties.

› Revise maximum allowable street tree spacing from 50' cn center (O.C.) spacing to 30' maximum spacing.

› Prohibit placement of trees intended to serve as street trees, provide long-term screening, or landscape buffers within a stormwater management (SWM) facility. SWM facilities that promote long-term tree growth with stormwater management, such as Tree Trenches and tree-centric facilities, would not be included with this restriction. Filterra and similar facilities do not qualify for the exclusion.

EQUITY CONSIDERATIONS

Past discriminatory and racist housing practices, such as redlining, have left many older neighborhoods devoid of shade.[2] Non-English speakers and people without internet might lack access to important information, such as heat advisories. Outdoor workers and people without air conditioning face increased risks.

Putting Equity at the Center of Implementation:

» Invest first in heat mitigation and adaptation programs n neighborhoods with the greatest need.

» Outreach programs for landlords, tenants and residential property owners should promote installation of energy-efficient HVAC systems and weatherization. Community-wide County grant programs will supplement existing federal and state rebates for energy-efficiency upgrades.

» Provide information, incentives and subsidies to low- and moderate-income households and rental properties to support efficient use of water and energy, reduction of waste heat and minimization of urban heat gain.

» Provide incentives and subsidies for low- and moderate-income households and rental properties to reduce waste heat and minimize urban heat gain.

» Initiate an immediate tree conservation overlay for identified high-risk areas.

» Prioritize identified high-risk communities for canopy tree planting.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize outreach efforts.

On an annual basis track, update, and map the following:

» Impervious areas created and removed and tree cover gained or lost in heat-vulnerable areas. This should be aligned with cooling strategies deployed in heat-vulnerable areas.

» Aerial utilities undergrounded for the entire County.

» Installed cool and permeable paving and soil volume enhancements overlaid with trees lost or gained in the rights-of-way (ROW) for the entire County (total square feet installed).

» CIP and municipal sidewalk replacements and tree plantings (both accomplished and planned) over a 1-2-year span (total square feet installed and trees planted).

» Temperature mapping and Heat Vulnerability Index (HVI) and changes in HVI over time.

» Emergency room/urgent care visits, hospitalizations and self-reported rates for heat-related illness such as heat stroke, asthma, heat-related upper respiratory emergencies and mental health emergencies. This should include deaths during heat waves.

» Number of neighborhoods with decreasing HVI., elderly residents participating in buddy program, first responders and first aiders trained to recognize and treat heat-related illness, water bottle refill stations at M-NCPPC parks and recreation facilities, households using energy assistance program, people using cooling centers, households without air conditioning.

CAPACITY AND FUNDING NEEDS

» Funding complete the recommended thermal mapping and land cover studies and partnering with an educational organization or institutional experts with expert knowledge in this area (e.g., NASA Develop, Portland State University, University of Maryland Center for Community Engagement, Environmental Justice, and Health).

» Funding for hiring additional full-time County staff to manage and facilitate a community-wide effort to engage in heat strategy measures.

» Funding and ongoing budget for DPW&T to adapt to new sidewalk repair and replacement requirements.

» Technical support for municipalities to adopt and implement new cooling strategies and pavement practices.

» Funding for the health department to implement education and outreach programs targeted to neighborhoods with high heat vulnerability indices.

HELPFUL RESOURCES

Urban Cooling Toolbox

Organization: C40

Description: Guidance on urban cooling solutions, including description of the strategy, things to keep in mind, achievable co-benefits and city examples.

Beat the Heat Toolkit

Organization: City of Philadelphia

Description: City departments and neighborhood groups in Hunting Park worked together to create resources for building climate resilience. These documents provide all the tools needed to start your own Beat the Heat project.

Reducing Urban Heat Islands: Compendium of Strategies

Organization: EPA

Description: Provides an overview of heat islands (how they form, their impacts, etc.) and describes various strategies for state and local governments to mitigate heat, outlining how they work, benefits and costs, initiatives and available resources.

Georgetown Climate Center Heat Island Toolkit,

Organization: Georgetown Climate Center

Description: Provides guidance to aid local governments in determining the right heat mitigation strategy and policy tools (e.g. mandates, incentives, public education programs, etc.) available.

Georgetown Climate Center Green Infrastructure Toolkit,

Organization: Georgetown Climate Center

Description: Provides guidance to local governments in planning, implementing, and funding green infrastructure. The toolkit also includes best practices and lessons learned for integrating green infrastructure into existing processes and communication strategies.

ENDNOTES

1) https://www.anthropocenemagazine.org/2021/07/tree-shade-can-cancel-urban-heat-island-effect/
2) https://www.nytimes.com/interactive/2020/08/24/climate/racism-redlining-cities-global-warming.html

PRIORITY RECOMMENDATION A-8

A-8

Establish resilience hubs to serve the needs of vulnerable communities.

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-8	Establish Resilience Hubs to Serve the Needs of Vulnerable Communities	●	●	●	◒	3-8	

DESCRIPTION

Both during and after severe climate change induced storms or related power outage events, providing basic services must be a critical component of our County's resilience strategy. Climate resilience hubs will serve as essential lifelines to enable cost-free access to charge a phone, use web-based communications, refrigerate medication, and connect with the larger community. These hubs will also provide a central location for residents impacted to gain immediate access to existing County and State government resources to aid in the overall community's recovery.

Establishing resilience hubs in tandem with other resilience strategies will be only the start of what must be long-term commitment by our County to create energy resilient communities for our most vulnerable residents. It should be noted, resilience hubs do not take the place of emergency shelters but rather offer another tool to complement standard emergency operations facilities to help meet the needs of vulnerable communities. The Recommendation's goal will be to implement at least ten resilience hubs in climate-impacted vulnerable communities by 2030.

IMPLEMENTATION TEAM

CEX, DOE, DPIE, OCS, HEALTH DEPARTMENT, OEM, HCD, FSC, M-NCPPC, SCD, MUNICIPALITIES

IMPLEMENTATION STEPS

Step 1. Identify High Priority Locations for Resilience Hubs. Using existing maps, including energy resilience zones, equity emphasis areas, thermal maps (Recommendation A-7) and other relevant map layers, the County will prioritize ten locations for resilience hubs.

Step 2. Identify Partner Organizations. Identify likely partners based on the priority areas and issue Request for Proposals or similar application process for engaging community partners. Several partner organizations may need to be identified in each priority zone.

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

Step 3. Engage Community in Resilience Hub Design.

» Ensure a community-specific approach by first engaging with residents through workshops, surveys, and other means to understand the types of support most needed or and wanted based on the specific Hub location. Partnering with trust organizations deeply rooted in the communities they serve and considering the use of existing community centers, churches, etc., are key strategies to increase the likelihood of success

» County permitting and code compliance should prioritize streamlined permitting, technical assistance of for all Resiliency Hub-related improvements to encourage partnership participation.

» Incorporate Resilience Hubs into the County's Economic Development Plans to incubate resiliency innovation and entrepreneurship through public-private partnerships.

» Reward participating businesses or entities through public recognition and through fee and tax reduction incentives.

Step 4. Develop Funding Strategy. Co-develop funding strategies with the Resilience Hub partners. Different partners may have access to different funding sources, and a co-proposal may appeal to many funders. Funding strategies should include the MEA Resiliency Hub Grant Program and grant funders which have traditional interest in supporting vulnerable communities, disaster preparedness, environment, and energy (FEMA, HUD, for example). Consider the role of for financial incentives for a public-private partnership to retrofit existing facilities more quickly into Resilience Hubs.

EQUITY CONSIDERATIONS

Potential partnering organizations within vulnerable communities may be cash strapped and/or place greater priority investing available resources on the community's existing issues which may be considered more critical to everyday life versus investment in preparing for future impacts of climate change.

Putting Equity at the Center of Implementation:

» Engage directly with the community to inform the location, design, and services of Resilience Hubs. Multi-lingual workshops should be provided based on specific community demographics.

» Creation and location of Resilience Hubs should be considered part of every economic redevelopment plan for equity areas.

» Specific consideration of how to provide timely support for businesses within vulnerable communities to remain open for services and solvent after a severe climate change induced storm or related power outage events.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize implementation and effectiveness of resilience hub locations.

On an annual basis, track and report on the following:

» Number of Resilience Hubs serving Energy Resilience Zones and/or Extreme Heat "Hotspots".

» Number of residents served by Resilience Hubs (including specific workshops or events as well as use during specific incidents).

CAPACITY AND FUNDING NEEDS

- Demographic information (age, race, income, address/housing status, etc.) for users of Resilience Hubs.
- Funding to hire additional full-time County staff. The implementation and operational costs of Resilience Hubs will vary based on the proposed site and the size of the population the Hub is intended to serve.
- Dedicated and ongoing budget for financial incentives and support for community organizations who are the "trusted voices" within a community, including community centers, recreation facilities, and churches, to serve as Resilience Hubs.
- Funding for a renewable energy opportunity analysis will be needed to inform the Resilience Hub strategy.
- Increase existing emergency outreach and education efforts to alert

HELPFUL RESOURCES

Resilience Hubs Website

Organization: Urban Sustainability Directors Network

Description: A clearinghouse for information on Resilience Hubs, including case studies and resources.

MEA FY22 Resiliency Hub Grant Program

Organization: Maryland Energy Administration (MEA)

Description: Information including grant requirements and proposal deadlines for the Resiliency Hub Grant Program.

Baltimore City Community Resiliency Hub Program

Organization: City of Baltimore

Description: This website summarizes the Baltimore Resiliency Hub Program, including a map of the ten resiliency hub partner locations.

Resilience Hub Business Plan

Organization: Cambridge Community Center

Description: A business plan for the implementation of a Resilience Hub in Cambridge, Massachusetts including detailed implementation steps, timeline, roles and responsibilities, and costs.

PRIORITY RECOMMENDATION A-9

A-9

Adopt codes, standards, and practices to support climate-ready, green buildings, and development

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-9	Adopt Codes, Standards, and Practices to Support Climate-Ready, Green Buildings, and Development	●	●	●	●	0-3	

DESCRIPTION

Climate change dictates that we need to build and develop differently: high-performance, carbon-free buildings that keep occupants safe during floods, extreme heat and storms. While the County has made meaningful progress on green building design using LEED standards, new criteria are needed to ensure that our buildings can withstand anticipated climate impacts such as excess heat and floods. The County's building codes require updates to meet Climate-Ready criteria. Building codes must be based not only on past weather experience but also on science-based projections regarding future temperature conditions and precipitation events.[1]

Prince George's County will develop a Climate-Ready Buildings strategy by adopting a building standard to ensure the construction of the buildings are consistent with climate mitigation and resilience goals. In addition to adopting new building regulations, the County will also support climate-ready buildings in the near term by developing a resilience checklist that will help permitting officials determine how proposed developers plan and implement measures to ensure that building projects adhere to climate-readiness criteria. The County will adopt a resilient buildings guide, similar to such guides as prepared for Washington, DC and New York City (see 'Resources' section), to guide building retrofits and new construction.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPW&T, M-NCPPC, DPIE, OCS, HCD, REDEVELOPMENT AUTHORITY, HOUSING AUTHORITY

IMPLEMENTATION STEPS

Step 1. Research Potential Standards. There are currently numerous green building standards and programs and likely more under development. As a first step, the County will enlist the support of a consultant to prepare a report on the existing and proposed standards

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | High Feasibility | Moderate Feasibility | Low Feasibility

IMPLEMENTATION STEPS

with strengths and weaknesses of each program to inform the development of County standards. Factors to be considered will include clear enforceable criteria for greenhouse gas emissions reductions as well as climate resilience, potential gain from implementation, ease of implementation, education of enforcement and inspections staff, additional costs to project developers for implementation, timeframe and policy barriers.

Step 2. Create Locally Downscaled Climate Projections. Work with partner organizations, universities, and consultants if necessary to develop locally downscaled climate data. Make data available and readily understandable to project developers and the public.

Step 3. Adopt and enforce a Climate-Ready Building Standard. The County should adopt codes by reference so that they can evolve and adapt to changing impacts, new practices, and advancing technology. At a minimum, standards should:

» Require floodproofing, mechanical and electrical equipment to be located above projected flood elevations and backup electrical and water feeds.

» Embed consideration of climate-change in site design, requiring inclusion of nature-based solutions and green infrastructure. Include green building techniques and green neighborhood design practices to reduce energy use, accelerate electrification, manage stormwater runoff and minimize the heat island effect.

» Incorporate up to date climate projections, such as NOAA Atlas 14, that are linked to locally downscaled climate data.

» Align with MWCOG Green Building requirements to facilitate tracking and reporting

Step 4. Create a Simple, Clear Resilience Checklist that supplements the building standard and requires developers of projects to provide information on how the development will address climate impacts to receive a permit. Inspectors will use information provided to the County database during the permit review process for ongoing inspections and enforcement. The Resilience Checklist should be updated regularly to align with climate projections, evolving best practices and revised standards, at least every five years.

Step 5. Conduct a County-wide Flood Assessment to understand the impact of updated rainfall intensity estimates per the latest version of NOAA Atlas 14, recent elevation data and stormwater controls.

» For new or substantially improved critical and essential facilities in identified flood hazard areas, revise Subtitle 32 (Water Resources Protection and Drainage Code) to require elevation of such facilities above the 0.2% (500-year) flood elevation.

» Revise Subtitle 32 to make 10-year quantity control a minimum requirement for new land development projects that drain to existing undersized storm drain systems.

» Develop and evaluate conceptual flood mitigation solutions to protect buildings from (1) riverine flooding during the 1-percent annual chance flood (aka 100-year flood) and (2) urban flooding during 10% annual chance flood (aka 10-year flood).

Step 6. Promote Nature-Based Solutions and Low-impact Stormwater Management Practices through participation in the County's RainCheck Rebate Program. Encourage residents and County businesses to take advantage of this program's portfolio of methods to manage stormwater. Best management practices include, but are not limited to, rain barrels and cisterns, green roofs, permeable pavers, tree planting and rain gardens.

EQUITY CONSIDERATIONS

The costs of implementing green building and climate-ready building standards may be passed on to tenants and building occupants and create or exacerbate affordability issues. To mitigate these impacts, the County can develop incentive and/or subsidy programs for small-to-medium enterprises (SME), low-income homeowners and housing developers, as well as facilitate access to technical assistance and financial incentives including tax rebates, subsidies and permit waivers or expedited permitting.

Putting Equity at the Center of Implementation:

» Prioritize the adoption of multi-family and low-income housing requirements to minimize the impact of global warming on our most vulnerable populations. Provide incentives for these types of projects and ensure enforcement of requirements to ensure residents are protected.

» Develop a local workforce that can design, build and maintain climate-ready housing and landscaping.

» Partner with County-based educational and vocational institutions (e.g., Prince George's Community College, Plumbers and Gasfitters Local 5 Training Facility, Prince George's County Public Schools Career and Technical Education Program, etc.) to build out climate-related job training opportunities (e.g., new, and existing buildings efficiency, heating, ventilation, and air conditioning (HVAC) repair and maintenance, green infrastructure maintenance, tree care and high-performance building construction and design).

» Training opportunities should include interpretive services for non-English speakers and hearing-impaired residents.

MEASUREMENT AND TRACKING

On an annual basis, track (per subwatershed) and report on the following:

» Resilience checklist scores for all County projects and development projects.

» Number and location of buildings constructed to meet the County climate-ready building standards.

» Number of project and location of projects implementing nature-based solutions. Track County projects and private projects separately. Quantify ecosystem values gained by the NBS approach.

CAPACITY AND FUNDING NEEDS

» Staff time to research model policies and best practices, conduct analyses and modify existing and develop new policy language.

» Funding to hire outside consultant(s) to help conduct analyses.

» Funding to maintain and update the ongoing databases with information from the Resilience Checklist.

» Funding to hire additional professional County staff to perform additional inspections, engage building designers and contractors to explain new requirements.

» Budget for building inspector professional development and training on the new codes and standards.

HELPFUL RESOURCES

Climate Resilient Design Guidelines

Organization: Climate Ready DC

Description: 40 detailed Buildings and Site & Landscape strategies to help enhance the resilience of buildings and other facilities. Specific guidance is offered for each strategy, with applicability, relative costs and relevant District rules and regulations.

Climate Resiliency Design Guidelines

Organization: NYC Mayor's Office of Resiliency

Description: Step-by-step instructions to go beyond building code and standards, informed with historic climate data. Uses forward-looking climate data for use in the design of City facilities.

Boston Climate Resiliency Checklist

Organization: Boston Planning and Development Authority (BPDA)

Description: Checklist used to document how developments subject to large project, planned development area (PDA, and institutional master plan review will consider and analyze future climate impacts and project planning, design and construction mitigation/adaptation measures.

Fairfax County Virginia Sustainable Development Policy for Capital Projects

Organization: Fairfax County Virginia

Description: Provides a framework to preserve natural resources to meet or exceed federal, state, and local standards for water quality; ambient air quality and other environmental standards; energy efficiency and energy conservation; and natural environment and open space preservation.

Building Code Effectiveness Grading Schedule (BCEGS)

Organization: ISO Mitigation

Description: Assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards.

Built to Last Act

Organization: U.S. Senate

Description: Bipartisan legislation to require NOAA to identify a consistent, federal set of best available forward-looking metrological information and National Institute of Standards and Technology (NIST) to make that information available to standards-developing organizations, with advice and technical assistance to help ensure organizations can incorporate this information into standards, building codes and voluntary certifications.

Projected Intensity-Duration-Frequency (IDF) Curve Data Tool for the Chesapeake Bay Watershed and Virginia.

Organization: Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA)

Description: This interactive tool makes climate-change informed intensity-duration-frequency (IDF) curves available to view and download for counties across the Chesapeake Bay Watershed and Virginia. Using the tool, IDF curves can be easily integrated and used to plan, design, and build infrastructure assets to be more resilient to climate change.

ENDNOTES

1) The Use of Climate Data and Assessment of Extreme Weather Event Risks in Building Codes Around the World: Survey Findings from the Global Resiliency Dialogue

PRIORITY RECOMMENDATION A-10

A-10

Promote a healthy food system supported by low-carbon, conservationist agricultural practices

Rec #	Recommendation	Within County Control	Existing Initiative Alignment	Technical Feasibility	Cost Effectivness	Timeline (Years)	Co-Benefits
A-10	Promote a Healthy Food System Supported by Low-Carbon, Regenerative Agricultural Practices	◒	●	●	◒	0-3	

DESCRIPTION

A county-wide heathy food system requires a sustainable and systemic approach to the entire life cycle of food with the county. Agricultural land preservation in our rural and urban communities is a central tenet of this recommendation. As our climate changes, the "breadbaskets" of the American West may experience droughts and other climate impacts, disrupting traditional food supply networks. Prince George's County's resilience depends on preserving and enhancing our capacity to produce food locally. Tools to support this include zoning regulations and County codes that promote, enable, and provide incentives for permanently zoned agricultural lands. Dedicated lands for urban farming could also turn our county's food deserts into vibrant urban communities with direct access to their own locally sourced, fresh food. Local food production, in turn, drives local job creation and helps curb diets toward lower-carbon, healthy foods. From the garden plot to the table, urban farms can create and sustain community-based businesses and jobs.

Supporting a local and sustainable food system also has many intersections with climate planning. Regenerative agriculture on rural and urban farms will improve soil health, increase carbon sequestration, increase water retention, and decrease the emission of nitrous oxide, a greenhouse gas associated with the use of synthetic nitrogen fertilizer. By reducing the distance that food travels from farm to plate, this recommendation helps to reduce transportation emissions.

IMPLEMENTATION TEAM

CEX, COUNTY COUNCIL, DOE, DPIE, SCD, HEALTH DEPARTMENT, HCD, PRINCE GEORGE'S COMMUNITY COLLEGE, PGCPS, MUNICIPALITIES

GHG Reduction | Climate Resilience | Community Health | Quality of Life | Job Creation | ● High Feasibility | ◒ Moderate Feasibility | ○ Low Feasibility

IMPLEMENTATION STEPS

Step 1: Integrate climate resilience into local food system efforts. Develop partnerships to ensure that climate resilience, including related carbon sequestration goals and land use planning, are integrated into existing food system planning and support efforts. As part of this effort, DoE and SCD will work in concert to articulate the carbon sequestration benefits of local agriculture and help track that metric. The County will also identify funding opportunities for projects and programs that align food system planning with climate action goals.

Step 2: Expand community education on food and climate. Through its partnerships, the County will support expanded community education and engagement which will achieve the following:

- Educate and engage the agricultural community and consumers to understand what actions they can take to reduce the carbon intensity of their food choices and farming practices. This recommendation and any related recommendation must be adapted to reflect the nutrition security recommendations made by the County's Food Security Task Force.
  - Encourage urban farmers to obtain a nutrient management, soil conservation and water quality plan.
  - Increase public awareness of agricultural technical and financial assistance programs.
- Integrate climate resiliency education with the following County-sponsored education and training resources for local food production and farming:
  - Prince George's County Community College Agricultural/Urban Farming curriculum.
  - PGCPS Career and Technical Education program under Environmental, Agricultural, and Natural Resources.
  - Maryland Extension Service-Master Gardener Program.
- Establish a new Food Policy Director position within County government to support part of wider recovery and resilience-building efforts. The new position would support the following:
  - Coordinate emergency food assistance.
  - Attract food-based economic development.
  - Secure government grants.
- Reduce spending by improving coordination between agencies and outside groups on food and farm issues.

Step 3a: Increase demand for local food and native plant production. Leverage the County's purchasing power to support local food production and agriculture through procurement policies:

- Support local native plant production through start-up grants for local non-profits and small farms to initiate contract growing of native plants for County CIP stormwater management, street trees, and restoration projects.
  - Provide incentives for businesses that make space available for markets in urban areas.
  - Highlight local farm-to-table producers at County-sponsored events that serve foods or beverages.
- Create dedicated grant and rebate programs to support community gardens, planting fruiting trees, and edible landscapes.
- Create the Prince George's County Land Trust to transfer, purchase, or lease land from the County, government surplus land, or other private landowners for agricultural use.
- Develop policy and programs that allow the use of vacant or

IMPLEMENTATION STEPS

paved County lots for agricultural production with guidance on the soil remediation of potential contamination to protect public health.

» Encourage the adaptation of vacant and unwooded lots for agricultural production by allowing Land Trust first choice for all available government surplus land transfers.

» County government must acknowledge the importance of shifting to more climate-friendly diets and establish a target to baseline and reduce by 25% emissions associated with the County's public food purchasing.

» Require County agencies that purchase food to adopt the Good Food Purchasing Program (GFPP) which is a flexible, values-driven procurement policy that prioritizes nutrition, environmental sustainability, transparency, racial equity, a valued workforce, local economies, and animal welfare.

Step 3b: Revise Prince George's County Code of Ordinance and applicable zoning regulations to support a healthy food system. Revisions should aim to:

» Increase local food production by providing financial incentives and technical assistance for urban and traditional county farmers to implement climate-friendly practices that promote soil health and improved water quality. Create additional incentives for conservation practices such as no-till, cover crop, mulching, etc. for agricultural operations under 5 acres.

» Explore ways to utilize COVID relief and infrastructure funding to support generative agriculture and nutrition assistance.

» Adopt in full the recommendations of the December 2014 Prince George's County Zoning Ordinance and Subdivision Regulations Rewrite Section IV.B. "Support Preservation and Protection of Rural and Agricultural Lands" and Section V.E. "Open Space."

» Specify which zones allow urban agriculture in all land use tables, for greater clarity about where agricultural activities are permitted and to ensure legal protection for agricultural land use.

» Promote rainwater harvesting and onsite greywater reuse to irrigate and reduce onsite runoff.

» Enable onsite sale of farm produce without triggering commercial parking and additional facility requirements. Zoning and code revisions should also provide limited flex zoning for urban and rural farming (restaurant, produce stands).

» Enable utilization of utility easements for dedicated community gardens and composting.

» Explore and pursue other agriculture adaptation strategies as outlined by the Climate Vulnerability Assessment for Maryland Agriculture.

EQUITY CONSIDERATIONS

Healthy food access and opportunities to farm or garden are not equitably distributed in urban areas.

Putting Equity at the Center of Implementation:

» Allow non-commercial agricultural production. Commercial agricultural production is intended for sale, but not all urban growers want to sell their products. Allowing residents to access land for non-commercial food production can increase their ability to grow food for themselves, their families, and their communities.

- Utilize Environmental Justice and Food Equity tools to identify key areas in the county to work to develop both commercial and non-commercial access to food.
- Revise the County's tree rebate program to create a tract to promote edible landscapes and planting fruit trees in tandem with pollinator gardens.
- Provide grants to enable "corner stores" with refrigerators, increase shelf space, and train owners to handle fresh produce to ensure that items ripen slowly and have a longer shelf life.
- Increase opportunities for student access to resources and opportunities in food across the county, including increased access to community/school programs such as 4-H.

MEASUREMENT AND TRACKING

All metrics should be tracked against demographics, equity area, environmental justice information, and other related datasets to help prioritize communities and effectiveness of program efforts.

On an annual basis, track, spatially map, and report on the following:

- Acres in agricultural and horticultural (native plant) production.
- Tons of local fresh produce.
- Number and location of Farmer's Markets.
- Number and location of orchards in the county.
- Number of secondary productions—wine, micro-breweries.
- Number of agricultural jobs.
- Number of farms (rural and urban).
- Estimated carbon sequestration provided by agricultural lands.

CAPACITY AND FUNDING NEEDS

- Additional funding to expand the County's University of Maryland Extension Services by hiring additional agents and supplemental programmatic support.
- Additional funding to the Historic Agricultural Resources Preservation Program (HARPP).
- Funding to hire additional County staff to create and manage the Prince George's County Climate Resiliency Land Trust(see Recommendation A-3) for robust natural resource preservation and dedicated spaces for local food production.
- Pursue enhancement of community college courses about regenerative agriculture and conservation agriculture.
- Additional funding and resources provided for Soil Conservation District.

HELPFUL RESOURCES

Zoning for Urban Agriculture: A Guide for Updating Your City's Laws to Support Healthy Food Production and Access

Organization: Healthy Food Policy Project

Description: Summarizes zoning laws that promote and support agriculture in urban municipalities and regional strategies.

Historic Agricultural Resource Preservation Program (HARPP)

Organization: Prince George's Soil Conservation District

Description: Funding to preserve smaller farmland properties that do not qualify for other state preservation programs.

Conservation Agriculture

Organization: Food and Agriculture Organization (FAO) of the United Nations

Description: Website with fact sheets, resources, news, and case studies related to conservation agriculture.

Food, Agriculture, and Land Use Solutions

Organization: Project Drawdown

Description: Solutions to reduce greenhouse gas (GHG) emissions and/or sequester carbon dioxide with benefit-cost data. Includes conservation agriculture, farm irrigation efficiency, nutrient management, plant-rich diets, reduced food waste, regenerative annual cropping. Each solution with Technical Assessment References resources

Cool Farm Tool

Organization: Cool Farm Alliance

Description: Online GHG, water, and biodiversity calculator for farmers.

Prince George's County Food Equity Council

Organization: Prince George's County Food Equity Council

Description: This organization aims to develop and support policies, approaches, procedures, practices and initiatives that create systemic change to the local food system, promoting health, economic opportunity, food security, and wellbeing, especially among communities that have been negatively impacted by the current food system.

Maryland Department of Agriculture

Organization: Maryland Department of Agriculture

Description: The State of Maryland's agency that provides support to farmers and others in the agricultural sector.

University of Maryland Extension (UME)

Organization: University of Maryland

Description: A public support arm of the University of Maryland that provides a wide variety of educational programs and problem-solving assistance to residents across the state.

Soil Health Institute

Organization: Soil Health Institute

Description: An organization that provides a variety of resources and information that help advance soil health.

PHOTO SOURCES

Page #	Location	Description	Source
Cover	Top left	A great blue heron flies above the Anacostia River	Chesapeake Bay Program, Flickr| Link
Cover	Top center left	A teacher from Tall Oaks High School explains stormwater treatment device to students	The Clean Water Partnership
Cover	Top center right	Student protest sign at the Annapolis Youth Climate Strike in Annapolis, MD on March 15, 2019	Chesapeake Bay Program, Flickr | Link
Cover	Top right	Flooding in Brentwood, MD from the September 2020 flash flood event	Prince George's County Department of Public Works & Transportation
Cover	Bottom left	Oxon Cove Park and Oxon Cove Farm, operated by the National Park Service	Ken Lund, Flickr | Link
Cover	Bottom center left	A living shoreline at Patuxent Research Refuge in Laurel, MD	Chesapeake Bay Program, Flickr | Link
Cover	Bottom center right	A road through forested land in Upper Marlboro, MD	Chesapeake Bay Program, Flickr | Link
Cover	Bottom right	Solar panels at Bowie State University Student Center	Bowie State University
i	Background	A road through forested land in Upper Marlboro, MD	Chesapeake Bay Program, Flickr | Link
ii	Bottom	Angela Alsobrooks swearing in ceremony at The Show Place Arena	Office of the Maryland Governor, Flickr | Link
iii	Left column, top left	Clagett Farm CSA	The Bitten Word, Flickr | Link
iii	Left column, top right	Hyattsville VFD 5-Mile Run at intersection of Belcrest, Queens Chapel and Queensbury Roads	Elvert Barnes, Flickr | Link
iii	Left column, middle left	Greenbelt community garden	Environmental Finance Center at The University of Maryland
iii	Left column, middle right	Lunch at home in West Hyattsville, MD	Elvert Barnes, Flickr | Link
iii	Left column, bottom left	Health screening at Veterans Stand Down and Homeless Services Day in Prince Georges County	Office of the Maryland Governor, Flickr | Link
iii	Left column, bottom right	District Heights Community Garden	Environmental Finance Center at The University of Maryland
iii	Right column, top	Electric vehicle charger in Hyattsville	City of Hyattsville
iii	Right column, bottom left	Town of Edmonston, MD Green Power Community sign	Environmental Finance Center at The University of Maryland
iii	Right column, bottom right	Solar panels installed on Mount Rainier City Hall	Environmental Finance Center at The University of Maryland
iv	Left column, top left	Anacostia River Trail near Bladensburg, MD	Office of the Maryland Governor, Flickr | Link
iv	Left column, top right	Cottage City electric vehicle used for code enforcement	Environmental Finance Center at The University of Maryland
iv	Left column, bottom	Prince George's County operates TheBus to meet local transportation needs	Prince George's County

Page #	Location	Description	Source
iv	Right column, top	NASA Goddard and MD Business Roundable STEM girls' night in Prince George's County, 2016	NASA Goddard Space Flight Center, Flickr | Link
iv	Right column, bottom left	Community Forklift bus	Environmental Finance Center at The University of Maryland
iv	Right column, bottom right	ECO City Farm sign in Bladensburg	Environmental Finance Center at The University of Maryland
v	Left column, top	Solar panels on single family residential, District Heights	Environmental Finance Center at The University of Maryland
v	Left column, bottom right	Explanation of geothermal heating and cooling systems.	Argonne National Laboratory, Flickr | Link
v	Right column, top	Veterans Stand Down and Homeless Services Day Prince Georges County	Office of the Maryland Governor, Flickr | Link
v	Right column, bottom left	Students planting native plants at local school	Chesapeake Bay Trust
v	Right column, bottom right	Anacostia River tour by Anacostia Watershed Society at Bladensburg Waterfront Park	Chesapeake Bay Program, Flickr | Link
vi	Left column, bottom	Bowie Green Expo 2018	Environmental Finance Center at The University of Maryland
vi	Right column, top left	Water quality monitoring with Bowie State students	Chesapeake Bay Program, Flickr | Link
vi	Right column, top right	Volunteers pick up trash along Paint Branch in College Park	Chesapeake Bay Program, Flickr | Link
vi	Right column, bottom left	Spotlight on Central High School IB science teacher	Prince George's County
vi	Right column, bottom right	Adults in classroom	Environmental Finance Center at The University of Maryland
1	Right column, bottom right	Solar panels and green roof at Forest Heights Town Hall	Environmental Finance Center at The University of Maryland
2	Left column, bottom	National Climate Assessment: Temperature Change	NASA National Climate Assessment | Link
2	Right column, top	Litter on beach	NOAA National Ocean Service | Link
2	Right column, middle left	Chalk Point generating station in Prince George's County	Adrian Jones, Integration and Application Network | Link
2	Right column, bottom right	Protester holding "We Demand Climate Justice" sign	Mark Dixon, Flickr | Link
2	Right column, bottom left	Brown Station Road Landfill, Prince George's County, MD	Prince George County Department of the Environment
3	Bottom right	Green roof on large building	Geoplast Global
4	Bottom left	Wind turbines	National Renewable Energy Lab, Flickr | Link
4	Right	Homegrown School Lunch Week at Gwynn Park High School	Maryland Department of Agriculture, Flickr | Link
5	Left column, top left	Solar Panels near barn at Merkle Wildlife Sanctuary	Chesapeake Bay Program, Flickr | Link
5	Left column, bottom left	Electric code compliance vehicle in Upper Marlboro, MD	Environmental Finance Center at The University of Maryland
5	Middle column, top	USGBC Leed Gold Sign at Bowie Town Hall	Environmental Finance Center at The University of Maryland
5	Middle column, bottom	Electric Vehicle charging station in Bowie, MD	Environmental Finance Center at The University of Maryland
5	Right column, top	Solar Panels on roof at Brentwood Town Hall	Environmental Finance Center at The University of Maryland
5	Right column, middle	Solar Parking Canopies at FedEx Field	Environmental Finance Center at The University of Maryland
5	Right column, bottom	Sign in field that reads "Cover Crops…Protecting the Bay"	Prince George's County Soil Conservation District

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6	Background	Flooding near Cheverly on September 10th, 2020	Prince George's County Fire/EMS Department, Twitter I Link
7	Left	Sunrise in Upper Marlboro, MD	Flickr user Jarrett Hendrix | Link
8	Top	Children participating in Festival del Rio in Bladensburg	Chesapeake Bay Program, Flickr | Link
8	Bottom left	Food vendor participating in Festival del Rio in Bladensburg	Chesapeake Bay Program, Flickr | Link
8	Bottom right	Man in wheelchair at health event	Office of the Maryland Governor, Flickr | Link
9	Bottom right	CAP meeting presentation	Prince George's County Department of the Environment
12	Right column	Sustaining Women in STEM roundtable	Nasa Goddard Space Flight Center, Flickr | Link
14	Left column	Covid-19 Vaccination at Six Flags in Bowie	Office of the Maryland Governor, Flickr | Link
15	Left column	National Harbor	John Sonderman, Flickr I Link
15	Middle column, top	Merkle Wildlife Park, MD	Chesapeake Bay Program, Flickr | Link
15	Right column, top right	Traffic in Prince George's County	Environmental Finance Center at The University of Maryland
15	Middle column, middle	Hyattsville Arts District	Dan Reed, Flickr | Link
15	Right column, middle right	Apartment in Bladensburg, MD	Ken Firestone, Flickr | Link
15	Middle column, bottom	House in Hyattsville, MD	Elvert Barnes, Flickr | Link
15	Right column, bottom right	Patuxent River Park	Chesapeake Bay Program, Flickr | Link
16	Left column, top	"Bond 45" restaurant sign	Johnny Silvercloud, Flickr I Link
16	Middle column, top	Patuxent River Park in Prince George's County, Md.	Chesapeake Bay Program, Flickr | Link
16	Right column, top	Boats at National Harbor	John Sonderman, Flickr | Link
16	Left column, bottom	P.G. Liquors	Ken Firestone, Flickr I Link
16	Middle column, bottom	Man on bike	Elvert Barnes, Flickr I Link
16	Right column, bottom	Boarded warehouse	Elvert Barnes, Flickr I Link
17	Right column, bottom	Large crowd at Prince George's Community College	Office of the Maryland Governor, Flickr | Link
18	Right column, top	Graduates at University of Maryland, College Park	Office of the Maryland Governor, Flickr | Link
19	Left column, top left	Lightbulbs	Austin Gruenweller, Flickr I Link
19	Left column, top right	Window A/C unit	Jason Eppink, Flickr I Link
19	Left column, bottom	Traffic in Brandywine	Elvert Barnes, Flickr I Link
19	Right column, top	Concrete batching plant	Armcon Precast, Flickr I Link
19	Right column, bottom	Cars on Queens Chapel Road	Elvert Barnes, Flickr I Link
20	Left column, bottom	Highway construction in Laurel	thisisbossi, Flickr I Link
20	Right column, top	Cars at gas station	Mike Mozart, Flickr I Link
20	Right column, bottom	Construction site with tree removal	Fred Schroeder, Flickr I Link

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21	Right column	Solar panels at USDA in Beltsville	U.S. Department of Agriculture, Flickr I Link
29	Background	Houses near wetland in Prince George's County	Chesapeake Bay Program, Flickr | Link
30	Right column	Three screenshots of PG Atlas	Prince George's County Planning Department
32	Right column	Screenshot of MWCOG transit focus area map	Metropolitan Washington Council of Governments
34	Right column	Flooding in Prince George's County	Prince George's County Department of the Environment
36	Right column, top	MD 450 just west of junction with MD 202	Ken Firestone, Flickr I Link
36	Right column, bottom	Construction workers	Elvert Barnes, Flickr I Link
37	Left column, top left	Highly impervious area in Bladensburg	Ken Firestone, Flickr I Link
37	Left column, bottom left	Metrobus at stop	Ken Firestone, Flickr I Link
37	Right column, bottom	Cars buried in snow following a Maryland blizzard in 2010	Aliazimi, Wikimedia Commons I Link
38	Right column	Flooding in Landover on September 10th, 2020	Prince George's County Fire/EMS Department I Link
39	Right column	Flooding in Bladensburg on September 10th, 2020	Prince George's County Fire/EMS Department I Link
41	Left column	Lightning during a storm	F Delventhal, Flickr I Link
41	Right column	Storm damage from Hurricane Isaias in 2020	Prince George's County Fire/EMS Department I Link
43	Right column	Flooding in Prince George's County in July 2019	Prince George's County Office of Emergency Management, Twitter I Link
44	Right column	Flooding in Laurel in 2014	Reinhard Borchardt, Flickr I Link
45	Right column	Transit riders	Elvert Barnes, Flickr I Link
46	Bottom	Langley Park	thisisbossi, Flickr I Link
52	Right column	President Biden speaking at Build Back Better podium	Joe Biden Flickr | Link
53	Left column	Number of U.S. leaders committed to supporting climate action to meet the Paris Agreement	We Are Still In webpage | Link
53	Right column	Maryland counties committed to supporting climate action to meet the Paris Agreement	We Are Still In webpage | Link
57	Left column	Watershed education at Festival del Rio in Bladensburg	Chesapeake Bay Program, Flickr | Link
57	Right column	Outreach at Festival del Rio in Bladensburg	Chesapeake Bay Program, Flickr | Link
58	Bottom right	NASA staff teaching earth science lesson to middle school students at the Goddard center in Greenbelt	NASA Goddard Space Flight Center, Flickr I Link
59	Left column, top	UMD Solar Decathlon photo	University of Maryland
59	Middle column, top	UMD 2011 Department of Energy Solar Decathalon entry, WaterShed, takes first place	Jim Tetro, U.S. Department of Energy Solar Decathlon
59	Right column, top	UMD Solar Decathlon photo	University of Maryland

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59	Left column, bottom	Bowie State University LEED building	Bowie State University
59	Right column, bottom	Prince George's Community College website	Prince George's Community College
60	Right column, top left	Cooking demonstration - 2014 Homegrown School Lunch Week Kickoff at Gwynn Park High School	Maryland Department of Agriculture, Flickr | Link
60	Right column, top right	2014 Homegrown School Lunch Week Kickoff at Gwynn Park High School	Maryland Department of Agriculture, Flickr | Link
60	Right column, middle	Tour of Forested forest garden in Bowie	Chesapeake Bay Program, Flickr | Link
60	Left column, bottom left	Wetland seed harvesting in Prince George's County with the Anacostia Watershed Society	Chesapeake Bay Program, Flickr | Link
60	Middle column, bottom	Wetland seed harvesting in Prince George's County with the Anacostia Watershed Society	Chesapeake Bay Program, Flickr | Link
60	Right column, bottom right	Freshwater mussels used for water quality experiments in the Anacostia River	Chesapeake Bay Program, Flickr | Link
61	Right column, top left	Kids decorating rain barrel at Festival del Rio, Bladensburg	Chesapeake Bay Program, Flickr | Link
61	Right column, top right	Mount Rainier Easter Egg hunt	Trish N, Flickr | Link
61	Right column, middle left	"Draw a picture of a bug"	Chesapeake Bay Program, Flickr | Link
61	Right column, middle	Participants at Festival del Rio in Bladensburg	Chesapeake Bay Program, Flickr | Link
61	Right column, middle right	Face painting at Mount Rainier Easter Egg Hunt	Trish N, Flickr | Link
61	Left column, bottom left	Recycling PSA	Prince George's County Department of the Environment
61	Left column, bottom right	Resource Recovery Flyer	Prince George's County Department of the Environment
61	Right column, bottom left	Curbside biodegradable bag flyer	Prince George's County Memorial Library System
61	Right column, bottom right	Map at Festival del Rio, Bladensburg	Chesapeake Bay Program, Flickr | Link
62	Left column, bottom	Route One Summit Group meeting	Environmental Finance Center at The University of Maryland
63	Background	Exit 15A, Largo, Interstate 495, Maryland	Ken Lund, Flickr | Link
64	Right column	Solar panels on top of College Park DPW	Environmental Finance Center at The University of Maryland
65	Right column	Solar carport at Wayne K. Curry Administration Building	Prince George's County
66	Left column	Solar panels on top of Cheverly residence	Environmental Finance Center at The University of Maryland
67	Left column	Explanation of how net metering works	Proteus Global
68	Right column	Traffic along Queens Chapel Road, Prince George's County	Elvert Barnes, Flickr | Link
69	Right column	Solar PV diagram	University of Central Florida Energy Research Center

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71	Right column	Infographic of smart home energy management system (sHEMS) with renewable energy sources (RES) and electric vehicles (EV)	Mingfu Li 1,2, Guan-Yi Li 1, Hou-Ren Chen 1 and Cheng-Wei Jiang, Creative commons | Link
72	Right column	Traffic in Prince George's County	Environmental Finance Center at The University of Maryland
73	Left column, top	Excerpt from DPW&T Sustainability Report 2021	Prince George's County DPW&T
73	Left column, bottom	Excerpt from DPW&T Sustainability Report 2021	Prince George's County DPW&T
73	Middle column, bottom	The Bus	Prince George's County DPW&T
73	Right column, bottom right	EV Charging and PHEVs at County office building	Prince George's County
74	Left column	Electric Vehicle charging station in Bowie	Environmental Finance Center at The University of Maryland
74	Right column, bottom	Hyattsville, MD unveils its first fully electric trash truck	Prince George's Community Television
75	Right column	New Carrollton Staton Metro sign	Environmental Finance Center at The University of Maryland
76	Left column	Excerpt from M-NCPPC Zoning document	Maryland-National Capital Park and Planning Commission Prince George's County Planning Department
78	Left column	Metro train at New Carrollton station	Ben Schumin, Flickr | Link
78	Right column	Electricfy America EV Charging Stations	Ken Fields, Flickr I Link
79	Right column	Solar Panels on Brentwood Town Hall	Environmental Finance Center at The University of Maryland
80	Left column, bottom	Infographic of energy efficient home	Inside Climate News
81	Left column	Rainwater cistern at Town of Cheverly Community Center	Environmental Finance Center at The University of Maryland
81	Right column	Exterior photo of Net Zero house in Suitland	Redevelopment Authority of Prince George's County
82	Right column	Worker weatherizing home in Prince George's County	Prince George's County
84	Right column	Sorting recycling at County Materials Recycling Facility	Prince George's County Department of the Environment
85	Bottom	Organics composting at the County's Western Branch Composting Facility	Prince George's County Department of the Environment
86	Left column	Bulk waste processing at Brown Station Road Landfill	Prince George's County Department of the Environment
86	Right column	Man working at landfill	Prince George's County Sierra Club
88	Right column	Forest in Greenbelt Park	Chesapeake Bay Program, Flickr | Link
89	Left column	PG Atlas screen shot	Prince George's County Planning Department
89	Right column	Photo of street with a lot of impervious surface	
90	Left column	Aerial of subdivision near forest in Prince George's County	Chesapeake Bay Program, Flickr | Link
90	Right column	Oxon Cove Farm in Prince George's County	Ken Lund, Flickr I Link
91	Right column	Arbor Day Every Day group planting a tree	Prince George's County Department of the Environment
93	Left column	Oxon Cove Farm in Prince George's County	Ken Lund, Flickr I Link

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93	Right column	Birds at Merkle Wildlife Sanctuary, Upper Marlboro, MD	Chesapeake Bay Program, Flickr | Link
94	Right column	Jug Bay Natural Area, Prince George's County	Matthew Beziat, Flickr I Link
95	Top right	Flood control structure	Prince George's County DPW&T
96	Bottom left	Participants at a Sustainable Maryland Certified event	Environmental Finance Center at The University of Maryland
97	Top right	Merkle Wildlife Sanctuary, Upper Marlboro, MD	Chesapeake Bay Program, Flickr | Link
98	Bottom left	Veterans Stand Down and Homeless Services Day Prince Georges County	Office of the Maryland Governor, Flickr | Link
99	Top right	Suitland Road and Regency Parkway Outfall Repair	Prince George's County DPW&T
100	Bottom	Flood aftermath	Christine, Flickr | Link
104	Bottom	CSA pickup at Clagett Farm in Upper Marlboro	F Delventhal, Flickr I Link

GLOSSARY AND ACRONYMS

Glossary

The table below provides definitions of key terms used in the Plan.

Term	Definition
Activity Centers	Vibrant community hubs where people shop, work, meet, relax, and often live. They range in size, from local neighborhood shopping strips to centers that include universities and major regional shopping malls.
Adaptation	Steps taken to adjust natural or human systems to the expected impacts of climate change. This generally involves either reducing vulnerability to the harmful effects of climate change (i.e., adopting practices to avoid harm from more intense weather events or sea level rise) or making the most of potential beneficial opportunities associated with climate change (i.e., longer growing seasons).
Carbon Offset	A reduction in GHG emissions or an increase in carbon storage that is used to compensate for emissions that occur elsewhere.
Carbon Sinks	Any process or mechanism that removes carbon dioxide from the atmosphere. A given carbon pool can be a sink, during a given time interval, if carbon inflow exceeds carbon outflow.
Climate Action Plan	A detailed and strategic framework for measuring, planning, and reducing greenhouse gas (GHG) emissions and related climatic impacts. Plans generally focus on those activities that can achieve the relatively greatest emission reductions in the most cost-effective manner and may also include additional components such as resilience strategies, clean energy targets, and economic and social goals.
Cost of Inaction	The likely social, environmental, and economic costs associated with not deploying necessary policies, strategies, and technologies to mitigate and adapt to climate change.
Ecosystem Services	Benefits people obtain from ecosystems, including the provision of food, fresh water, fuel, fiber, and other goods; regulation of climate, water, and pollution; support of soil formation and nutrient cycling; and educational, aesthetic, and cultural heritage values as well as recreation and tourism.
Environmental Justice	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.
Exposure	The presence of people, livelihoods, species or ecosystems, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that could be adversely affected by a hazard.
Fee-in-lieu	A payment of money in place of meeting all or part of a performance standard required by an ordinance.
Floodplain	Area along a stream, river, drainage course, lake, or pond that has a 1% or greater probability of flooding in any given year
Forest	Biological community dominated by trees and other woody plants (including plant communities, understory, and forest floor) covering a land area which is 10,000 square feet or greater, and at least 50 feet wide. Areas that have at least 100 trees per acre with at least 50 percent of those trees having a two-inch or greater diameter at 4.5 feet above the ground.
Green Infrastructure	Strategically planned and managed network of natural lands, working landscapes, and other open spaces that conserves ecosystem value and functions and provides associated benefits to human populations.

Term	Definition
Greenhouse Gas Inventory	A list of emission sources and the associated emissions quantified using standardized methods.
High Hazard Dam	A classification standard for any dam whose failure (breach) or mis-operation (unscheduled release) will cause loss of human life and significant property destruction.
Marlboro Clays	A geologic formation that outcrops in Prince George's County, Maryland. A continuous stratum of thick silvery-gray to pale-red plastic clay that is highly susceptible to slope failure. As overlying permeable sediment becomes heavily saturated with infiltrating precipitation, the frictional resistance lowers along the contact with the low permeability Marlboro Clay producing a slide surface which could potentially lead to slumps and earthflows. This occurrence is particularly numerous in south-western and east-central Prince Georges County.
Metric tons of carbon dioxide equivalent	Unit of measurement in this tool. The unit "CO2e" represents an amount of a GHG whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) of the gas.
Microgrid	A self-sufficient energy system that serves a discrete geographic footprint, such as a college campus, hospital complex, business center, or neighborhood.
Mitigation	Steps taken to limit the magnitude and stabilize the rate of climate change. This generally involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (e.g., improving energy efficiency and switching away from fossil fuels) or enhancing the "sinks" that accumulate and store these gases (e.g., forests and soil).
Nature-based solutions	Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.
Net-Zero	Strategies, approaches, and technologies to consume only as much energy as produced, achieve a sustainable balance between water availability and demand, and eliminate solid waste sent to landfills.
Regenerative Agriculture	All forms of agricultural practice that actively restore soil quality, biodiversity, ecosystems health, water quality while producing sufficient food of high nutritional quality.
Resilience	The capacity of a community to anticipate, prepare for, and respond to climate change to thrive and prosper. This will require communities to adopt a continuous process of learning, leading, and implementing both mitigation and adaptation strategies to ensure the long-term health, safety, and financial well-being of its residents.
Resilience Hub	Resilience Hubs are community-serving facilities augmented to support residents and. coordinate resource distribution and services before, during, or after a natural hazard event.
Risk	The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions in a given area and time period.
Sequestration	The process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.
Urban Heat Island	Heavily developed areas which experience higher temperatures than surrounding rural areas. Urban heat islands typically feature less tree canopy cover and green space, and more impervious surfaces.
Urban Tree Canopy	Refers to the layer of tree leaves, branches, and stems that provide tree coverage of the ground when viewed from above.

Term	Definition
Vulnerability	The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. Vulnerability is determined by a combination of the exposure, sensitivity, and adaptive capacity of the city's assets, populations, and neighborhoods.
Vulnerable Communities	Groups and communities at a higher risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts because of the barriers they experience to social, economic, political, and environmental resources as well as limitations due to illness or disability.
Weatherization	The practice of protecting a building from weather and making a building's envelope more energy efficient.

Acronyms

AWS	alternative work schedule
BAU	business as usual
C-PACE	Commercial Property Assessed Clean Energy
C&D	construction and demolition debris
CAC	Climate Action Commission
CAP	climate action plan
CCA	Community Choice Aggregation
CEX	County Executive
CH4	methane
CIP	capital improvement program
CO2	carbon dioxide
CTE	Career and Technical Education program
DBH	diameter at breast heigh
DCFC	direct current fast charger
DHCD	Maryland Department of Housing and Community Development
DMV	District Colombia, Maryland, Virginia Region
DNR	Maryland Department of Natural Resources
DoE	Department of the Environment
DPIE	Department of Permitting, Inspections, and Enforcement
DPW&T	Department Of Public Works & Transportation
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
EVSE	electric vehicle supply equipment
FY	fiscal year
GHG	greenhouse gas
GI	green infrastructure
GIS	geographic information systems
HA	Housing Authority
HBCU	Historically black colleges and universities
HCD	Housing and Community Development
HD	Health Department
HFC	hydrofluorocarbon
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
IPCC	Intergovernmental Panel on Climate Change
kWh	kilowatt hour
LEED	Leadership In Energy and Environmental Design
LIEEP	Low-Income Energy Efficiency Program
LPG	liquid petroleum gas
M-NCPPC	Maryland-National Capital Park and Planning Commission
MCCC	Maryland Commission on Climate Change
MDE	Maryland Department of Environment
MDE	Maryland Department of Environment
MEA	Maryland Energy Administration
MEP	maximum extent possible
MHDV	medium- and heavy-duty vehicle
MLS	Memorial Library System
MSW	municipal solid waste
MTCO2e	metric tons of carbon dioxide equivalent
MWCOG	Metropolitan Washington Council of Governments
MWh	megawatt hour
NBS	nature-based solutions
NGO	non-government organization
NOAA	National Oceanic and Atmospheric Administration
OCF	Organics Composting Facility

OCS	Office Of Central Services
OEM	Office Of Emergency Management
OHR	Office of Human Resource Management
PAYT	pay-as you-throw
PGCC	Prince George's Community College
PGCPS	Prince George's County Public Schools
PHEV	plug-in hybrid electric vehicles
PPA	power purchase agreement
PV	photovoltaic
PZEV	partial zero-emission vehicles
R-PACE	Residential Property Assessed Clean Energy
RA	Revenue Authority
RAG	resident advisory group
RDA	Redevelopment Authority
RFP	request for proposal
RNG	renewable natural gas
RPS	Renewable Portfolio Standards
SCD	Soil Conservation District
SOV	single occupancy vehicle
SWMM	stormwater management modeling
TAP	Telework Arrangement Program
TCP	tree conservation plan
TPB	National Capital Region Transportation Planning Board
UMD	University of Maryland
VMT	vehicle miles traveled
WMATA	Washington Metropolitan Area Transit Authority
WSSC	Washington Suburban Sanitary Commission
WTE	waste-to-energy
ZEV	zero-emission vehicles