Attachment C

Montgomery County Council

Committee: T&E
Committee Review: Completed
Staff: Christine Wellons, Senior Legislative Attorney
Purpose: Final action – vote expected
Keywords: # ClimateImpactStudy

AGENDA ITEM #11C
July 12, 2022
Action

SUBJECT

Bill 3-22, Legislative Branch – Climate Assessments – Required

Lead Sponsors: Councilmember Hucker and Council President Albornoz

Co-Sponsors: Councilmember Friedson, Council Vice-President Glass, and Councilmembers Navarro, Katz, Riemer, Jawando, and Rice

EXPECTED ATTENDEES

N/A

COUNCIL DECISION POINTS & COMMITTEE RECOMMENDATION

- Roll call vote on whether to enact Bill 3-22 with amendments, as recommended unanimously by the Transportation and Environment (T&E) Committee.

DESCRIPTION/ISSUE

Council Bill 3-22, as amended (3-0) by the T&E Committee, would:

- require the Director of the Office of Legislative Oversight to prepare a climate assessment for each bill;
- require the Planning Board to prepare a climate assessment for each zoning text amendment, master plan, and master plan amendment;
- specify the required contents of a climate assessment;
- require the publication of climate assessment templates; and
- generally amend the law governing the enactment of legislation.

SUMMARY OF KEY DISCUSSION POINTS

Bill 3-22, as amended by the Committee, is attached at ©1.

<u>This report contains:</u>

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Agenda Item #11C
July 12, 2022
Action

M E M O R A N D U M

July 7, 2022

TO: County Council

FROM: Christine Wellons, Senior Legislative Attorney

SUBJECT: Bill 3-22, Legislative Branch – Climate Assessments – Required

PURPOSE: Action – final vote expected

Bill 3-22, Legislative Branch – Climate Assessments - Required, sponsored by Lead Sponsors Councilmember Hucker and Council President Albornoz and Co-Sponsors Councilmember Friedson, Council Vice-President Glass, and Councilmembers Navarro, Katz, Riemer, Jawando, and Rice, was introduced on February 1, 2022. A public hearing was held on March 1, 2022. Transportation & Environment (T&E) Committee worksessions were held on March 28, 2022 and June 27, 2022. Final action is scheduled for July 12, 2022.[1]

As originally introduced, the bill would:

(1) require the Director of the Office of Legislative Oversight to prepare a climate assessment for each bill, zoning text amendment, master plan, and master plan amendment;
(2) specify the required contents of a climate assessment;
(3) require an annual report; and
(4) generally amend the law governing the enactment of legislation.

BACKGROUND

In 2017, the Council approved Resolution 18-974 to:

1. declare a climate emergency; and

2. support the goals of reducing greenhouse gas emissions by 80% by 2027 and reaching 100% elimination by 2035, and initiating large-scale efforts to remove excess carbon from the atmosphere.

The purpose of Bill 3-22 is to facilitate the County's climate goals by requiring climate assessments for each bill, zoning text amendment, master plan, and master plan amendment pending before the Council.

[1] #ClimateImpactStudy

BILL SPECIFICS

As introduced, Bill 3-22 would require the Office of Legislative Oversight (OLO) to provide the Council with a "climate assessment" for each bill, zoning text amendment, master plan, and master plan amendment under consideration by the Council.

The climate assessment would consist of:

- the potential positive or negative effects, if any, of the bill, zoning text amendment, master plan, or master plan amendment upon climate change, including greenhouse gas emissions, sequestration, and carbon drawdown;
- quantitative or qualitative evaluations of the of the identified effects upon community resilience and adaptative capacity; and
- recommendations regarding amendments or other measures to mitigate any negative climate impacts.

SUMMARY OF PUBLIC HEARING

Several speakers testified in support of Bill 3-22. On behalf of the County Executive, the Acting Director of the Department of Environmental Protection (DEP) supported the bill, with amendments to require updates to the climate assessment as a bill is amended. Advocacy organizations also supported the bill with various amendments discussed below.

On behalf of the Planning Board, Director Anderson testified that the Council should avoid duplication of efforts between the Planning Department and OLO when it comes to evaluating the climate impacts of Zoning Text Amendments (ZTAs) and Master Plans. OLO has informed Council central staff that it agrees with the Planning Board's observations. The Planning Board offered several alternative options regarding the consideration of ZTAs and master plans.

The Maryland Building Industry Association voiced the following concerns about the legislation:

> In regards to this proposed legislation, it is unclear how the climate impact assessments from each proposal will actually be measured, and so we cannot support this measure without more information. For example, we are skeptical that there may be a push to impose a certain threshold that must be either met or not exceeded before a bill can proceed, which could unnecessarily delay meaningful projects.

An additional individual speaker expressed that more clarity regarding the nature of the climate assessments should be provided.

SUMMARY OF THE FIRST WORKSESSION

The Committee held an initial worksession on Bill 3-22 on March 28, 2022. Participating in the discussion were Director Cihlar, Office of Legislative Oversight; Director Wright, Deputy

Director Stern, and Mr. Findley, Montgomery County Planning Department; and Mr. Edwards, Ms. Shaw, and Ms. Curley, Department of Environmental Protection (DEP).

At the first worksession, the Committee:

- discussed making the reviews of the Planning Department and OLO consistent in terms of criteria used for the assessments;
- agreed by consensus that the Planning Department should review ZTAs and Master Plans, but that OLO should review bills;
- amended the bill to require the evaluation of adaptive capacity for ZTAs and Master Plans in addition to bills;
- discussed that the quantitative results of certain Master Plans, ZTAs, and bills would be virtually impossible to predict, and requested that staff draft language to provide that quantitative assessments will be done only where feasible and appropriate; and
- requested an additional worksession to address the outstanding issues raised in the 3/23/22 staff report.

In addition, Director Wright requested a delayed effective date of several months to develop new climate assessment tools required by the bill.

SUMMARY OF SECOND WORKSESSION

On June 27, the Committee held a second worksession on the bill. Participating in the worksession were Adriana Hochberg, Acting Director, Department of Environmental Protection; Gwen Wright, Director, Planning Department; Casey Anderson, Chair of the Planning Board; Director Cihlar of OLO; and Ms. Metchis of the CAP Coalition.

The Committee (3-0) recommended enactment of the bill with additional amendments to:

- require quantitative or qualitative evaluations of effects upon greenhouse gas emissions, sequestration, and carbon drawdown;
- eliminate the requirement for an annual report under the bill because it would be duplicative of reports of the Department of Environmental Protection;
- provide that the assessments should be provided at least 7 days prior to a public hearing;
- provide for phased-in effective dates for the requirements of the bill; and
- require the publication and periodic updating of climate assessment templates.

NEXT STEP: Roll-call vote on whether to enact Bill 3-22 as amended by the T&E Committee. The bill as amended by the Committee is at ©1.

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Bill No. 3-22
Concerning: Legislative Branch – Climate Assessments - Required
Revised: 7/7/2022 Draft No. 6
Introduced: February 1, 2022
Expires: August 1, 2023
Enacted: _____
Executive: _____
Effective: _____
Sunset Date: _____
Ch. _____, Laws of Mont. Co. _____

COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND

Lead Sponsors: Councilmember Hucker and Council President Albornoz
Co-Sponsors: Councilmember Friedson, Council Vice-President Glass, and Councilmembers Navarro, Katz, Riemer, Jawando, and Rice

AN ACT to:

(1) require the Director of the Office of Legislative Oversight to prepare a climate assessment for each bill**[[**, zoning text amendment, master plan, and master plan amendment**]]**;
(2) require the Planning Board to prepare a climate assessment for each zoning text amendment, master plan, and master plan amendment;
(3) specify the required contents of a climate assessment;
[[(3)**]]** (4) require **[[**an annual report regarding climate assessments**]]** the publication of climate assessment templates; and
[[(4)**]]** (5) generally amend the law governing the enactment of legislation.

By adding
Montgomery County Code
Chapter 2, Administration
Section 2-81D

By amending
Montgomery County Code
Chapter 33A, Planning Procedures
Section 33A-14

Boldface	*Heading or defined term.*
Underlining	*Added to existing law by original bill.*
[Single boldface brackets**]**	*Deleted from existing law by original bill.*
Double underlining	*Added by amendment.*
[[Double boldface brackets**]]**	*Deleted from existing law or the bill by amendment.*
* * *	*Existing law unaffected by bill.*

The County Council for Montgomery County, Maryland approves the following Act:

Sec 1. Section 2-81D is added as follows:

2-81D. Climate Assessments.

(a) *Definitions*. In this Section, the following terms have the meanings indicated.

Director means the Director of the Office of Legislative Oversight or the Director's designee.

Planning Board means the Montgomery County Planning Board.

(b) *Climate assessments required*.

(1) The Director must submit an assessment to the Council describing the climate impact, if any, of each bill**[[**, zoning text amendment, master plan, and master plan amendment**]]** under consideration by the Council.

(2) The Planning Board must submit an assessment to the District Council describing the climate impact, if any, of each zoning text amendment, master plan, and master plan amendment under consideration by the District Council.

(c) *Time for submission*.

(1) A climate assessment should be submitted to the Council, **[[**no more than 21 days after**]]** or the District Council, at least 7 days prior to a public hearing on a bill, zoning text amendment, master plan, or master plan amendment **[[**is introduced**]]**.

(2) If the Director or the Planning Board is unable to submit the assessment within the time required **[[**by**]]** under paragraph (1), the Director or the Planning Board must notify the Council President in writing of the delay, the reason for the delay, and the revised delivery date.

(3) If the Council President finds that the revised delivery date is unreasonable, the Council President may set a different delivery date.

(d) *Contents of climate assessment*.

(1) Each climate assessment must include:

(A) the sources of information, assumptions, and methodologies used;

(B) a description of variables that could affect the assessment; and

(C) if a bill, zoning text amendment, master plan, or master plan amendment is likely to have no climate impact, why that is the case.

(2) Each climate assessment must include:

(A) the potential positive or negative effects, if any, of the bill, zoning text amendment, master plan, or master plan amendment upon climate change**[[**, including greenhouse gas emissions, sequestration, and carbon drawdown**]]**; **[[**and**]]**

(B) quantitative or qualitative evaluations of the identified effects upon greenhouse gas emissions, sequestration, and carbon drawdown; and

[[(B)**]]** (C) quantitative or qualitative evaluations of the of the identified effects upon community resilience and adaptative capacity.

(3) Each climate assessment must identify amendments or other recommendations, if any, that would reduce or eliminate any

anticipated negative effects of the bill, zoning text amendment, master plan, or master plan amendment upon carbon dioxide removal, sequestration, drawdown, community climate resilience, and adaptive capacity.

(e) *Compliance*. Council action on a bill, zoning text amendment, master plan, or master plan amendment that is otherwise valid is not invalid because of any failure to follow the requirements of this Section.

[[(f) *Annual report*.

(1) The Director annually must submit to the Council a report that compiles and analyzes the climate assessments provided during the preceding year.

(2) The annual report must include findings and recommendations of the Director regarding the climate impacts of enacted or pending bills, zoning texts amendments, master plans, and master plan amendments.**]]**

(f) *Templates for climate assessments - required.*

(1) *Templates for the assessment of bills.*

(A) The Director must develop and publish online a climate assessment template to guide the development of climate assessments for bills under this Section.

(B) At least once every 2 years, the Director must review the template and update the template as needed.

(2) *Templates for the assessment of zoning text amendments and master plans.*

(A) The Planning Board must develop and publish online a climate assessment template to guide the development of

79 climate assessments for zoning text amendments, master
80 plans, and master plan amendments under this Section.
81 (B) At least once every 2 years, the Planning Board must review
82 the template and update the template as needed.
83 **33A-14. Greenhouse Gas Emissions and Racial Equity and Social Justice.**
84 As part of the factors and conditions outlined in Section 21-104 of the Regional
85 District Act and Section 1-201 of the Land Use Article of the Maryland Code in
86 preparing the Plan, the Planning Board must:
87 (a) [[assess the Plan's potential impact on greenhouse gas emissions in the
88 County, including a carbon footprint analysis]] conduct a climate
89 assessment under Section 2-81D; and
90 **[[**(b) consider ways to reduce vehicle miles traveled in the County;
91 (c) consider options that would minimize greenhouse gas emissions; and**]]**
92 **[[**(d)**]]** (b) consider the impact of the plan on racial equity and social justice
93 in the County, as defined in Section 2-64A.
94 **Section 2. Transition.** The Director of the Office of Legislative Oversight must
95 begin providing climate assessments under Section 1 of this Act beginning January 1,
96 2023. The Planning Board must begin providing climate assessments under Section 1
97 of this Act beginning March 1, 2023.

LEGISLATIVE REQUEST REPORT

Bill 3-22
Legislative Branch – Climate Assessments - Required

DESCRIPTION:	Bill 3-22 would require the Director of the Office of Legislative Oversight to prepare a climate assessment for each bill and zoning text amendment.
PROBLEM:	The Council needs more complete analysis of the potential climate impacts of proposed legislation.
GOALS AND OBJECTIVES:	The goal is to increase the Council's understanding of the likely climate impacts of proposed legislation.
COORDINATION:	Office of Legislative Oversight (OLO)
FISCAL IMPACT:	Office of Management and Budget (OMB)
ECONOMIC IMPACT:	Office of Legislative Oversight (OLO)
RACIAL EQUITY AND SOCIAL JUSTICE IMPACT:	Office of Legislative Oversight (OLO)
EVALUATION:	To be done.
EXPERIENCE ELSEWHERE:	To be provided
SOURCE OF INFORMATION:	Christine Wellons, Legislative Attorney
APPLICATION WITHIN MUNICIPALITIES:	N/A
PENALTIES:	N/A

\\Mcg-C058\DEPT\Central_Staff\LAW\BILLS\2203 Climate Impact Statement\LRR.Docx

Economic Impact Statement

Office of Legislative Oversight

Bill 3-22 Legislative Branch – Climate Assessments – Required

SUMMARY

The Office of Legislative Oversight (OLO) anticipates that enacting Bill 3-22 would have no direct impacts on economic conditions in the County in terms of the Council's priority indicators.

BACKGROUND

The goal of Bill 3-22 is to enhance the Council's understanding of the potential impacts of proposed legislation on climate change.[1] The Bill would attempt to achieve these goals by requiring the Office of Legislative Oversight to prepare climate impact assessments for every Bill, Zoning Text Amendment, Master Plan, and Master Plan Amendment under consideration by the Council.[2]

INFORMATION SOURCES, METHODOLOGIES, AND ASSUMPTIONS

Per Section 2-81B of the Montgomery County Code, the purpose of this Economic Impact Statement is to assess Bill 3-22's impacts on County-based private organizations and residents in terms of the Council's priority economic indicators.[3] By requiring climate impact statements for Bills, Zoning Text Amendments, Master Plans, or Master Plan Amendments, Bill 3-22 could influence Council action in the future, thereby shaping their economic impacts for private organizations and residents in the County. These potential impacts would be indirect consequences of enacting Bill 3-22. It is beyond the scope of this analysis to estimate these potential, indirect impacts.

VARIABLES

Not applicable

[1] Legislative Request Report, Bill 3-22.
[2] Bill 3-22.
[3] Montgomery County Code, Sec. 2-81B.

IMPACTS

WORKFORCE ▪ TAXATION POLICY ▪ PROPERTY VALUES ▪ INCOMES ▪ OPERATING COSTS ▪ PRIVATE SECTOR CAPITAL INVESTMENT ▪ ECONOMIC DEVELOPMENT ▪ COMPETITIVENESS

Businesses, Non-Profits, Other Private Organizations

Not applicable

Residents

Not applicable

DISCUSSION ITEMS

Not applicable

WORKS CITED

Montgomery County Code. Sec. 2-81B, Economic Impact Statements.

Montgomery County Council. Bill 3-22, Legislative Branch – Climate Assessments – Required. Introduced on February 1, 2022.

CAVEATS

Two caveats to the economic analysis performed here should be noted. First, predicting the economic impacts of legislation is a challenging analytical endeavor due to data limitations, the multitude of causes of economic outcomes, economic shocks, uncertainty, and other factors. Second, the analysis performed here is intended to *inform* the legislative process, not determine whether the Council should enact legislation. Thus, any conclusion made in this statement does not represent OLO's endorsement of, or objection to, the Bill under consideration

CONTRIBUTIONS

Stephen Roblin (OLO) prepared this report.

Fiscal Impact Statement
Bill 3-22, Legislative Branch – Climate Assessments - Required

1. **Legislative Summary.**

   Bill 3-22 would require the Director of the Office of Legislative Oversight, no more than 21 days after the Bill, to submit an assessment to the County Council describing the climate impact, if any, of each Bill, zoning text amendment, master plan, and master plan amendment under consideration by the Council.

   Under Bill 3-22, the Director of the Office of Legislative Oversight must also submit to the County Council a report that compiles and analyzes the climate assessments provided during the preceding year.

2. **An estimate of changes in County revenues and expenditures regardless of whether the revenues or expenditures are assumed in the recommended or approved budget. Includes source of information, assumptions, and methodologies used.**

   This legislation has no impact on County revenues.

   The Office of Legislative Oversight could conduct climate impact assessments for Council bills without fiscal impact, however, Bill 3-22 could require one additional analyst or funding for a consultant to conduct climate impact assessments for zoning text amendments, master plans, and master plan amendments.

   Based on recent hires, a Performance Management and Data Analyst would cost an estimated $100,000 per fiscal year, including benefits. Cost to hire a consultant is estimated at $100,000 for the first year due to the need to establish an assessment process. Ongoing costs per fiscal year thereafter for consultant are estimated at $50,000.

3. **Revenue and expenditure estimates covering at least the next six fiscal years.**

   Per the response to Question #2, this Bill could increase County expenditures by an estimated $300,000 to $600,000 over the next six fiscal years, dependent upon whether the Department hires a new staff analyst or utilizes consultant services to conduct the assessments. These estimates do not include an assumption for future inflation or compensation costs.

4. **An actuarial analysis through the entire amortization period for each bill that would affect retiree pension or group insurance costs.**

   Not applicable.

5. **An estimate of expenditures related to County's information technology (IT) systems, including Enterprise Resource Planning (ERP) systems.**

   Not applicable.

6. **Later actions that may affect future revenue and expenditures if the Bill authorizes future spending.**

   Bill 3-22 does not authorize future spending.

7. **An estimate of the staff time needed to implement the Bill.**

   The implementation of this Bill is expected to have a minimal impact on staff time to conduct climate impact assessments for Council bills, however, the Department would need one additional analyst or contactor support for climate impact assessments of zoning text amendments, master plans, and master plan amendments.

8. **An explanation of how the addition of new staff responsibilities would affect other duties.**

   Per the response to Question #2, implementing this Bill could require one additional FTE to conduct climate impact assessments for zoning text amendments, master plans, and master plan amendments.

9. **An estimate of costs when an additional appropriation is needed.**

   Not applicable.

10. **A description of any variable that could affect revenue and cost estimates.**

    Not applicable.

11. **Ranges of revenue or expenditures that are uncertain or difficult to project.**

    Not applicable.

12. **If a Bill is likely to have no fiscal impact, why that is the case.**

    Not applicable.

13. **Other fiscal impacts or comments.**

    Not applicable.

14. **The following contributed to and concurred with this analysis:**
    Blaise DeFazio, Office of Legislative Oversight
    Julie Knight, Office of Management and Budget

2-24-21

Jennifer R. Bryant, Director
Office of Management and Budget

Date

Racial Equity and Social Justice (RESJ) Impact Statement

Office of Legislative Oversight

BILL 3-22: LEGISLATIVE BRANCH — CLIMATE ASSESSMENTS — REQUIRED

SUMMARY

The Office of Legislative Oversight (OLO) anticipates that Bill 3-22 will likely narrow inequities by race, ethnicity, and income at least marginally since efforts to mitigate climate change could disproportionately benefit residents of color and low-income communities. As such, OLO anticipates a favorable impact of Bill 3-22 on racial equity and social justice.

PURPOSE OF RESJ IMPACT STATEMENTS

The purpose of racial equity and social justice (RESJ) impact statements is to evaluate the anticipated impact of legislation on racial equity and social justice in the County. Racial equity and social justice refer to a **process** that focuses on centering the needs, power, and leadership of communities of color and low-income communities with a **goal** of eliminating racial and social inequities.[1] Achieving racial equity and social justice usually requires seeing, thinking, and working differently to address the racial and social harms that have caused racial and social inequities.[2]

PURPOSE OF BILL 3-22

Greenhouse gas emissions are a significant driver of climate change. In 2017, the County Council declared a climate emergency with the goal of reducing green house emissions by 80 percent by 2027 and by 100 percent by 2035.[3] The purpose of Bill 3-22 is to advance the County's climate goals by requiring the Council to consider the anticipated impact of proposed legislation and land use decisions on climate change.[4] More specifically, the Bill would require OLO to prepare climate assessments for each proposed bill and three types of land use decisions: zoning text amendments, master plans, and master plan amendments. If a climate assessment rated a bill or land use decision as having a negative climate impact, Bill 3-22 would also require OLO to identify amendments or other recommendations that would reduce or eliminate the anticipated negative climate impact. Bill 3-22 would also require OLO to develop annual reports on its climate assessments. Bill 3-22 was introduced to the Council on February 1, 2022.

THE CLIMATE GAP AND RACIAL EQUITY

Understanding the impact of Bill 3-22 on racial equity and social justice requires understanding the historical drivers of the climate gap – the disproportionate impact that global warming has on people of color and low-income communities. To describe this context, this section describes racial inequities that contribute to the climate gap and its consequences.

- Redlining, racial covenants, exclusionary zoning, the Federal Housing Administration, the Social Security Act, GI Bill, and Departments of Transportation policies and practices have fostered **housing segregation** by race and ethnicity that have undermined wealth building and housing equity for Black, Indigenous, and other people of color (BIPOC) residents.[5] Housing segregation has also fostered the concentration of BIPOC residents into densely populated neighborhoods with fewer trees and larger amounts of impervious surfaces that make them more vulnerable to harmful effects of excessive heat and flood events exacerbated by climate change.[6]

- Inequities in housing, income, employment and health has fostered **"the climate gap**" - the unequal impact that climate change has on BIPOC and low-income communities due to their higher risk of experiencing the consequences of climate change combined with a lack of resources to adjust to the consequences of climate change.[7] The heightened risk for experiencing the negative consequences of climate change and the diminished ability to adjust to climate change means that BIPOC and low-income communities will suffer more during heat waves with increased illness and deaths, will breathe even dirtier air due to global warming, will pay more for basic necessities, and may have fewer job opportunities with increased climate change.[8]

- The locating of BIPOC and low-income communities near polluting and environmentally hazardous industries[9] foster **health inequities and disparities** that manifest as higher rates of cancer, lung conditions, heart attacks, asthma, low birth weights, and high blood pressure.[10] The County's Climate Action Plan, for example, show that communities with high concentrations of BIPOC and low-income residents are located in areas of the County with higher levels of traffic and air pollution.[11] Local data also show that Black residents had the highest rates of emergency room visits for chronic lower respiratory diseases at more than 1,538 visits per 100,000 followed by Latinx residents at 815 visits per 100,000 compared to 543 visits per 100,000 White residents.[12]

Anticipated RESJ Impacts

OLO anticipates a favorable impact of Bill 3-22 on diminishing racial and social inequities because it will require the Council to consider the potentially negative impact of proposed legislation and land use decisions on the climate. Diminishing the potentially negative impact of bills, zoning text amendments, master plans, and master plan amendments on the climate – the fundamental purpose of the Bill could disproportionately benefit BIPOC residents and low-income communities because they are most vulnerable to greenhouse gas emissions and climate change. As such, efforts aimed at making the Council more cognizant of the potential negative impact of policy decisions on climate change are likely to narrow racial and social inequities related to climate change or at least to not exacerbate them.

Recommended Amendments

The County's Racial Equity and Social Justice Act requires OLO to consider whether recommended amendments to bills aimed at narrowing racial and social inequities are warranted in developing RESJ impact statements.[13] OLO finds that Bill 3-22 is likely to advance racial equity and social justice. As such, this RESJ statement does not offer recommendations.

Caveats

Two caveats to this racial equity and social justice impact statement should be noted. First, predicting the impact of legislation on racial equity and social justice is a challenging, analytical endeavor due to data limitations, uncertainty, and other factors. Second, this RESJ impact statement is intended to inform the legislative process rather than determine whether the Council should enact legislation. Thus, any conclusion made in this statement does not represent OLO's endorsement of, or objection to, the bill under consideration.

Contributions

Elaine Bonner-Tompkins, OLO Senior Legislative Analyst, drafted this RESJ impact statement.

[1] Definition of racial equity and social justice adopted from "Applying a Racial Equity Lends into Federal Nutrition Programs" by Marlysa Gamblin, et.al. Bread for the World, and from Racial Equity Tools https://www.racialequitytools.org/glossary
[2] Ibid
[3] Montgomery County Council, Resolution 18-974, Emergency Climate Mobilization, Adopted December 5, 2017 https://www.montgomerycountymd.gov/green/Resources/Files/climate/Montgomery-County-Climate-Action-Resolution.pdf
[4] Montgomery County Council, Bill 3-22, Legislative Branch – Climate Assessments - Required https://apps.montgomerycountymd.gov/ccllims/DownloadFilePage?FileName=2744_1_20010_Bill_3-2022_Introduction_20220201.pdf
[5] Kilolo Kijakazi, et al, The Color of Wealth in the Nation's Capital, November 2016 https://www.urban.org/research/publication/color-wealth-nations-capital
[6] Iverson, L.R. and E.A. Cook, Urban Forest Cover of the Chicago Region and Its Relation to Household Density and Income, Urban Ecosystems, 2000 cited in Zero Cities Project, Equity Assessment Tool and Rolf Pendall, A Building Block for Inclusive Housing for Community Level Diversity, Participation and Cohesion, Urban Institute, September 2017 cited in Zero Cities Project, Equity Assessment Tool https://www.usdn.org/uploads/cms/documents/equity_assessment_tool_-zero_cities_project_-_race_forward_2019.pdf
[7] Rachel Morello-Frosch, et al, The Climate Gap: Inequities in How Climate Change Hurts Americans and How to Close the Gap, Dornsife Center, University of Southern California, 2009
[8] Ibid
[9] Iverson, L.R. and E.A. Cook, Urban Forest Cover of the Chicago Region and Its Relation to Household Density and Income, Urban Ecosystems, 2000 cited in Zero Cities Project, Equity Assessment Tool and Rolf Pendall, A Building Block for Inclusive Housing for Community Level Diversity, Participation and Cohesion, Urban Institute, September 2017 cited in Zero Cities Project, Equity Assessment Tool https://www.usdn.org/uploads/cms/documents/equity_assessment_tool_-zero_cities_project_-_race_forward_2019.pdf
[10] Rolf Pendall and American Public Health Association, Climate Change, Health, and Equity: A Guide for Local Health Departments, https://www.apha.org/-/media/Files/PDF/topics/climate/Guide_Section2.ashx
[11] Montgomery County Climate Action Plan
[12] Health in Montgomery County, 2008 – 2016: A surveillance report on population health, https://www.montgomerycountymd.gov/HHS/Resources/Files/Reports/PopHealthReportFINAL.pdf
[13] Montgomery County Council, Bill 27-19, Administration – Human Rights - Office of Racial Equity and Social Justice – Racial Equity and Social Justice Advisory Committee - Established

MONTGOMERY COUNTY PLANNING BOARD
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

March 1, 2022

The Honorable Gabe Albornoz
Council President
Montgomery County Council
Council Office Building
100 Maryland Avenue, 4th Floor
Rockville, Maryland 20850

Re: **Planning Board Comments on Bill 3-22, Legislative Branch – Climate Assessments - Required**

Dear Council President Albornoz:

On February 24, 2022, Montgomery County Planning Department staff briefed the Montgomery County Planning Board on Bill 3-22, Legislative Branch – Climate Assessments – Required. Given that this bill would create a new requirement for the Office of Legislative Oversight (OLO) to produce climate assessments of zoning text amendments, master plans and master plan amendments, which fall under the Planning Board's review as land use advisors to the Council, Planning staff asked the Planning Board to provide comments on the bill in time for the public hearing on March 1, 2022.

The Planning Board and Planning Department have a strong commitment to addressing climate change through innovative recommendations in Thrive Montgomery 2050, our master plans, regulatory reviews of development projects, environmental guidelines, and other planning initiatives. However, the Board is concerned that a new requirement for OLO to produce climate assessments for master plans is duplicative of an existing statutory requirement for the Planning Board to produce carbon footprint analysis for master plans. Since 2008, Montgomery County Code Section 33A-14 requires the Planning Board to assess a master plan's potential impact on greenhouse gas emissions in the County, including a carbon footprint analysis; to consider ways to reduce vehicle miles traveled (VMT) and to consider options that would minimize greenhouse gas (GHG) emissions. The Planning Board includes a carbon footprint analysis and recommendations for reducing VMT and GHG emissions in each master plan transmitted to County Council since 2008.

Montgomery Planning staff perform carbon footprint analysis for master plans using a GHG emissions modeling spreadsheet created by King County, WA and adjusted for use in Montgomery County. The model estimates GHG emissions from embodied energy, building energy use, and transportation used by residents and workers in the master plan area. The model then compares estimated emissions from master plan recommendations for land use, zoning, development density and transportation systems against a baseline estimate using existing conditions. Attached to this letter are examples of carbon footprint analysis produced for the following plans: Thrive Montgomery 2050; Corridor Forward; and Silver Spring Downtown and Adjacent Communities Plan.

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We rely on the expertise of environmental planners already on staff and their ongoing collaborations with the Department of Environmental Protection to both inform the development of master plan recommendations to reduce climate impacts and to conduct the carbon footprint analysis. The Board is concerned that adding an OLO climate assessment requirement to ZTAs and master plans will both duplicate effort and potentially cause delays in the Council's review process. The Board points to the experience of how the Council's request for OLO to produce a racial equity and social justice impact statement for Thrive Montgomery resulted in further delay of the start of the full Council's review of this critical plan.

Another question the Board identified is whether an assessment tool designed for a targeted legislative action such as a bill or ZTA is appropriate to apply to a more policy- and long-range-oriented product such as a master plan. The Board notes the example of the fiscal impact statement produced for Thrive Montgomery 2050. The FIS ultimately was less useful in identifying the fiscal impacts of this 30-year plan which primarily contains long-range, high-level policies and not specific actions that can be easily quantified in terms of fiscal impact. The Board feels a tool that is not calibrated to assess the kinds of recommendations made in a master plan could cause confusion in evaluation of impacts and potentially delay implementation.

If the Council chooses to create a new OLO role in climate review, the Council may want to consider whether to apply it to the capital improvements process. Construction of infrastructure, schools and other facility projects have direct impacts on the built and natural environment, so a consideration of the climate impacts of those projects may also be appropriate.

The Planning Board recommends that, rather than creating a duplicative climate assessment process conducted by another agency, the Council adopt the more efficient process of having only one agency responsible for producing climate assessments for master plans and ZTAs. The Board offers the following options for how to structure this alternative process:

1) Rely on existing Montgomery Planning expertise to produce climate assessments for master plans and ZTAs and OLO can review the assessments for adequacy; or
2) Require OLO to contribute analysis to Montgomery Planning's carbon footprint/GHG/VMT assessments already required by law, which would then be transmitted to the Council at the same time; or
3) Remove the County Code requirement for the Planning Board to produce carbon footprint analysis for master plans and rely solely on OLO to produce climate assessments for master plans and ZTAs.

Regardless of which option the Council chooses, the Planning Board strongly encourages the Council to avoid duplication in evaluating the climate impacts of land use plans and zoning actions. The Planning Board looks forward to further discussion of these recommendations.

Sincerely,

Casey Anderson
Chair

Attachments:
Thrive Montgomery 2050 Carbon Footprint Analysis
Corridor Forward I-270 Transit Plan Carbon Footprint Analysis
Silver Spring Downtown and Adjacent Communities Master Plan Carbon Footprint Analysis

cc: Montgomery County Planning Board
Gwen Wright, Director, Montgomery Planning
Tanya Stern, Deputy Planning Director, Montgomery Planning
Christine Wellons, Montgomery County Council
Chris Cihlar, Director, Office of Legislative Oversight
Montgomery County Council

Carbon Footprint Analysis

Thrive Montgomery 2050--Planning Board Draft Plan

October 12, 2021

Introduction

Since 2010, the Planning Board has included a carbon footprint analysis and recommendations to reduce vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions in each of the county's master plans to satisfy the requirement of Montgomery County Code Chapter 33A, Section 33A-14. Specifically, the law requires that the Planning Board must:

(a) Assess the Plan's potential impact on greenhouse gas emissions in the County, including a Carbon Footprint Analysis;
(b) Consider ways to reduce vehicle miles traveled in the County;
(c) Consider options that would minimize greenhouse gas emissions; and
(d) Consider the impact of the plan on racial equity and social justice in the County (as defined in Section 2-64A).

What is carbon footprint

Carbon footprint is the amount of carbon dioxide including "direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs). [A] carbon footprint is usually expressed as a measure of weight, as in tons of CO2 or CO2 equivalent per year.".[i]

Carbon Footprint Analysis

A typical carbon footprint analysis measures only the direct emissions generated by fossil fuel consumption for transportation, manufacturing and building energy use. In conducting a carbon footprint analysis, the Planning staff has generally relied on a spreadsheet model that uses existing and projected square feet of non-residential development, numbers of existing and projected single family and multi-family residential units, current and future VMT, pavement, and population changes to estimate the change in both total and per capita emissions that may occur as a result of the Master Plan recommendations. Some functional Master Plans, such as the Bicycle Master Plan and Countywide Transit Corridors Functional Master Plan, have used a modified approach focused exclusively on changes in VMT in the carbon footprint analysis, since those plans did not include specific land use recommendations (such as zoning) that would generate data on projected square feet of non-residential development or numbers of residential units.

Unlike the county's typical master or countywide functional plans, Thrive Montgomery 2050 is a high-level policy document with a 30-year horizon that focuses on long-range planning and policies to guide the physical development of the county, including where and how land will be preserved or developed for housing, office buildings, parks, agriculture, recreation, and transportation infrastructure. These decisions have a major influence on GHG emissions, carbon sequestration, and adaptation to climate

change. But the Plan does not propose specific zoning changes or other recommendations that can be used to generate specific data on projected square feet of commercial development, residential units, and specific infrastructure improvements. Therefore, this analysis is mainly a qualitative assessment of possible reductions in GHG emissions that can be attributed to Thrive's policy recommendations. But it also includes a quantitative section that estimates potential reduction in VMT based on a transportation analysis conducted to test the impacts of Thrive's land use and transportation recommendations on three different growth scenarios.

Major recommendations of Thrive Montgomery 2050 (or Thrive) include compact, corridor-focused growth, Complete Communities and an emphasis on walking, biking and public transit. The GHG reduction benefits of these recommendations will be a combined result of reductions in VMT, building energy savings from reduced residential and commercial development footprints, and the reduction in forest and tree canopy loss in the areas outside of the targeted growth areas. All three of these sources of reduced GHG emissions are influenced by how we plan and build our communities. And, until we consume all energy generated by renewable sources, we must employ all strategies to reduce the amount of energy used in our buildings and transportation system and take emissions out of the atmosphere through sequestration.

This analysis therefore estimates the impacts of the Plan's policy recommendations on GHG emissions for the following three areas:

- Reductions in new GHG emissions by reducing vehicle miles travelled
- Reduction in new GHG emissions through more compact and energy efficient buildings
- Sequestration through increased forest and tree canopy

While some estimates can be made for the contributions to GHG reductions from reduced VMT and increased protection and expansion of forests and tree canopy, the variability of specific development footprints, building materials, etc. makes Montgomery county-specific estimates of building energy savings from compact growth difficult and impractical.

Findings

The results of this analysis indicate that Thrive Montgomery 2050 will help reduce our GHG emissions and the county's overall carbon footprint due to reductions in VMT; reductions in the use of energy in buildings and infrastructure; and sequestration of carbon in the atmosphere through reduction in tree loss, increases in tree cover, and protection of forested areas.

Reductions in Daily VMT and Annual GHG Reductions

To get a true picture of the Thrive Montgomery 2050's contribution in reducing VMT and GHG emissions it is important to compare the impacts of Thrive to a no-Thrive situation. As part of developing the policy recommendations for Thrive, Planning staff conducted a transportation analysis[ii] that estimated daily VMT in the year 2050 based on current trends, and how much that figure could change due to the recommendations in Thrive Montgomery 2050. The analysis compared the results of the three scenarios with the existing conditions in the year 2015 as the base year: "Business as Usual," "On the Road," and "Home Alone Together."

A Business-as-Usual scenario assumed continuation of our current planning framework without any significant disruption in by external factors outside of our control (e.g., a fully autonomous travel network, a different economic structure, etc.) in the way we live, work, and travel, and related changes in how we plan our land use, infrastructure and public and private services and amenities. An On-the-Road scenario assumed mass adoption of autonomous vehicles and where employment growth was focused on specific industries concentrated in a few locations leading to substantially higher numbers of vehicle trips, vehicle miles traveled (VMT) and travel times by automobile, compared to 2015 baseline levels. Conversely, a Home-Alone-Together scenario assumed the mass adoption of teleworking and e-commerce and where employment growth was focused broadly on a wide variety of jobs and locations resulting in fewer vehicle trips, reductions in VMT and fewer trips by automobile, compared to the 2015 baseline levels.

The transportation analysis showed that, although per capita VMT will be reduced in each case, the overall amount of VMT will be higher in two of the three scenarios compared to the 2015 baseline levels. However, the application of relevant Thrive policies yielded reductions in VMT in all three scenarios.

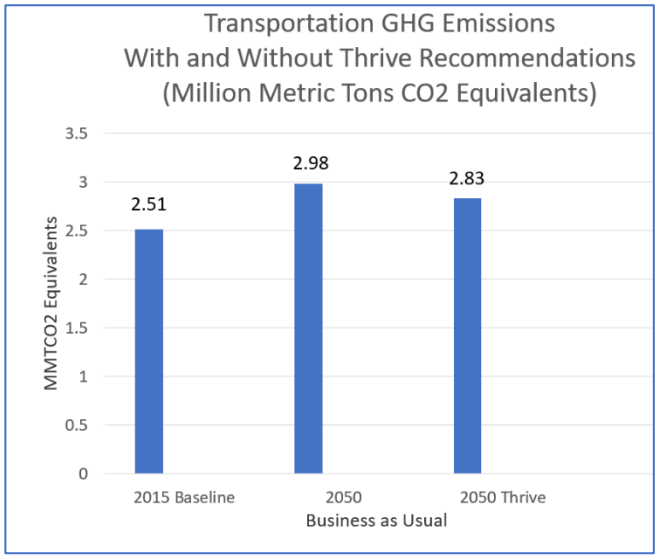
Planning staff used the results of the transportation analysis to calculate the changes in GHG emissions for the same three scenarios. Staff used the same modeling approach used for the Bicycle Master Plan and the Countywide Transit Corridors Functional Master Plan to convert projected VMT into estimated metric tons of CO2 equivalents and compared emissions for 2050 against 2015 as baseline levels. Under the "Business-as-usual" scenario, our VMT, and therefore, GHG emissions in 2050 are forecast to increase over 2015 baseline levels, but they are reduced by 5.0 percent when Thrive policies are applied to this scenario. In the "On the Road" scenario, overall VMT are projected to be higher than the 2015 baseline levels, but they are reduced by 3.6 percent when Thrive policies are applied to this scenario. "Home Alone Together" is the only scenario that projects a reduction in VMT over the 2015 base levels, which are further reduced by 3.7 percent when the Thrive Montgomery 2050 policies are added.

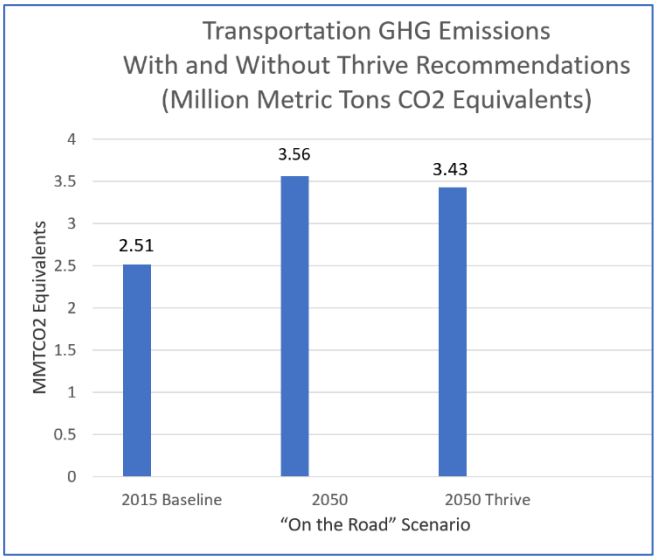
The following table summarizes the VMT projections based on the transportation modeling analysis and then translates those VMTs into GHG emissions. It compares the 2015 baseline levels against the three scenarios with and without the impacts of Thrive in 2050:

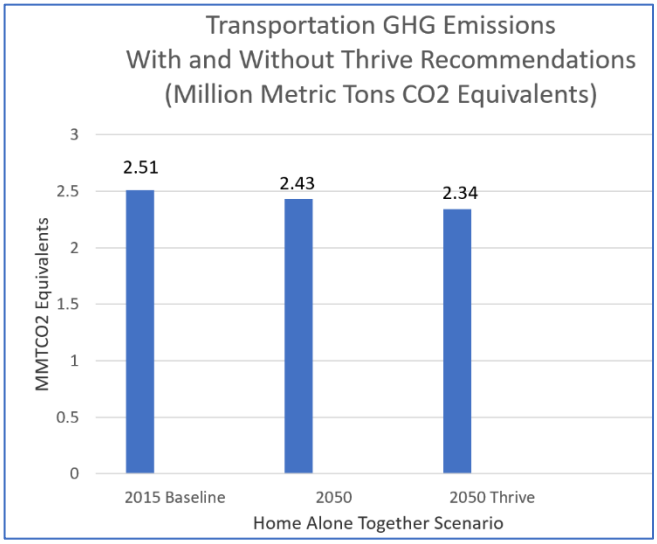
Table 1: Estimates of VMT and GHG emission in 2015 and 2050

Daily Vehicle Miles Traveled (VMT) for Trips Beginning or Ending in Montgomery County (millions)			
	Business-As Usual	**On the Road**	**Home Alone Together**
2015 Baseline levels	20.2	20.2	20.2
2050 no-Thrive	24.0	28.6	19.6
2050 with Thrive	22.8	27.6	18.8
Reduction in VMT attributed to Thrive	**1.2** (~ 5% reduction)	**1.0** (~ 3.5% reduction)	**0.8** (~ 4% reduction)
Annual Emissions--Metric Tons of CO2 Equivalent (millions except as noted)			
2015	2.51	2.51	2.51
2050 no-Thrive	2.98	3.56	2.43

2050 with Thrive	2.83	3.43	2.34
Reduction in GHG emissions attributed to Thrive	**0.15** (~150,000 metric tons)	**0.13** (~128,000 metric tons	**0.09** (~93, 800 metric tons)
Percent reduction over 2050 No-Thrive scenario	**5.0%**	**3.6%**	**3.7%**
Note: The numbers have been rounded off for simplicity. See Appendix C for full numbers			







GHG Reduction Through More Energy Efficient Buildings

Reducing building energy emissions is an important goal of Thrive Montgomery 2050, the county's Climate Action Plan, and of other county programs and initiatives, such as the International Green Construction Code. Thrive contributes to the implementation of this goal through recommendations in various chapters of the Plan. Notable recommendations that will help reduce building energy emissions

are included in the Design, Arts and Culture chapter, especially under the goal to "Promote design strategies and retrofits to make new and existing buildings more sustainable and resilient to disruption and change." This section includes recommendations to:

- encourage net-zero building design, biophilic design and on-site energy generation for new public buildings and large private developments on sites across the county;
- promote cost-effective infill and adaptive reuse design strategies to retrofit single-use commercial sites such as retail strips, malls, and office parks into mixed use developments;
- incentivize the reuse of historic buildings and existing structures to accommodate the evolution of communities, maintain building diversity, preserve naturally occurring affordable space, and retain embodied energy of structures; and
- implement policies to ensure that new buildings and parking structures are adaptable to changing technologies and market preferences and are able to mitigate effects of climate change over time. While it is difficult to quantify the emissions reductions from these actions, their implementation is important to reducing the County's carbon footprint.

Sequestration Through Increased Forest and Tree Canopy

In addition to reducing emissions, increases in the effects of Climate Change can be mitigated by drawing down excess carbon in the atmosphere. While technological solutions, such as engineered systems for carbon capture and storage, are being explored, they have not yet been developed to the point where they can be practically implemented on a large scale. Natural climate solutions are available now and are cost-effective and practical to implement. These solutions primarily focus on protecting existing forest and tree canopy and expanding the coverage of these resources. Protection and planting of forests and tree canopy also have numerous co-benefits for human health, recreational opportunities, energy conservation, water quality improvement and runoff reduction, and provision of critical habitat.

In July 2020, the Montgomery County Department of Environmental Protection (MCDEP) released a report titled "*Examining the Role of Forests and Trees in Montgomery County's Greenhouse Gas Inventory*." The report, which was coordinated for Montgomery County by MCDEP, was authored by investigators from the World Resources Institute, the Climate and Land Use Alliance, and the Woods Hole Research Center (now called the Woodwell Climate Research Center). Staff from the Montgomery County Planning Department provided input on the study and development of the approach to quantifying the contribution of forests and trees in mitigating Montgomery County's GHG emissions.

Among the key findings of the report are the following points (page 2 of the report):

- Roughly one third of Montgomery County's land base is forest. Many areas outside of forests are also covered by trees, including an average of nearly 50 percent tree canopy in developed areas.
- In the period 2011-2016, average annual emissions were less than in the period 2001-2011 due to a reduction in the loss of forests and trees.
- The County's tree canopy also increased during the 2011-2016 period, which resulted in higher annual removals of CO2 compared to 2001-2011.

- Between 2005 and 2015, overall (i.e. all sectors) emissions in Montgomery County dropped 14%. When including the impact of forests and trees, this emission reduction increases to 16%.
- Montgomery County's net GHG emissions could be lower if additional forests and trees were added to its land base, or if losses of these resources were reduced further.

The reduction in emissions from forest loss between 2001 and 2016 corresponds with a move away from greenfield development toward infill and redevelopment as the availability of greenfield development areas in Montgomery County diminished and the large forest losses associated with those developments declined. This underscores the importance of the Compact Growth recommendations in Thrive Montgomery 2050 for protecting and expanding forests and tree canopy.

It is also important to note from this report that forest and tree removals constitute a net increase in emission of GHGs. This is because most of the forest and trees removed for development are not converted into wood products that continue to store carbon, but instead decompose and release the stored carbon back into the atmosphere. The study estimates that approximately 41 million metric tons of CO2 were stored in the standing stock of Montgomery County's forests and trees in 2016. About 30 million metric tons of CO2 were bound up in Montgomery County's forests, and the remaining 11 million metric tons of CO2 were stored in trees outside of forests. The trend at that time was that both figures were increasing.

Spreadsheets accompanying the report include carbon removal rates for forests and trees outside of forests in the County. The county's deciduous forests, for example, remove approximately 6.7 metric tons of CO2 equivalents per hectare per year from the atmosphere. The actions in the Appendix B to this carbon footprint analysis include Thrive recommendations to develop forest cover and tree canopy goals for different land uses and locations in the County. These sequestration factors can be used to estimate the sequestration of potential increases in forest cover and tree canopy to help understand the effects of different forest and canopy cover recommendations.

Planning staff updated the information in the MDEP report using the county's Geographic Information System. The updated information was used to generate some estimates of the amount of carbon dioxide stored and the amount of greenhouse gases sequestered annually, expressed in carbon dioxide equivalent measures, by the county's forests and trees outside of forests. These figures are presented in the table below.

Table 2: Forest and Trees Outside of Forest Carbon Storage and Sequestration

	Carbon Stored--Metric Tons of CO2 (Millions)	**Annual Sequestration--Metric Tons of CO2 Equivalents**
Forest	30	296,174
Trees Outside of Forest	11	285,064
Total	**61**	**581,238**

Implementing Thrive's recommendations and action items should increase the carbon capture and storage from these natural systems and reduce the county's carbon footprint.

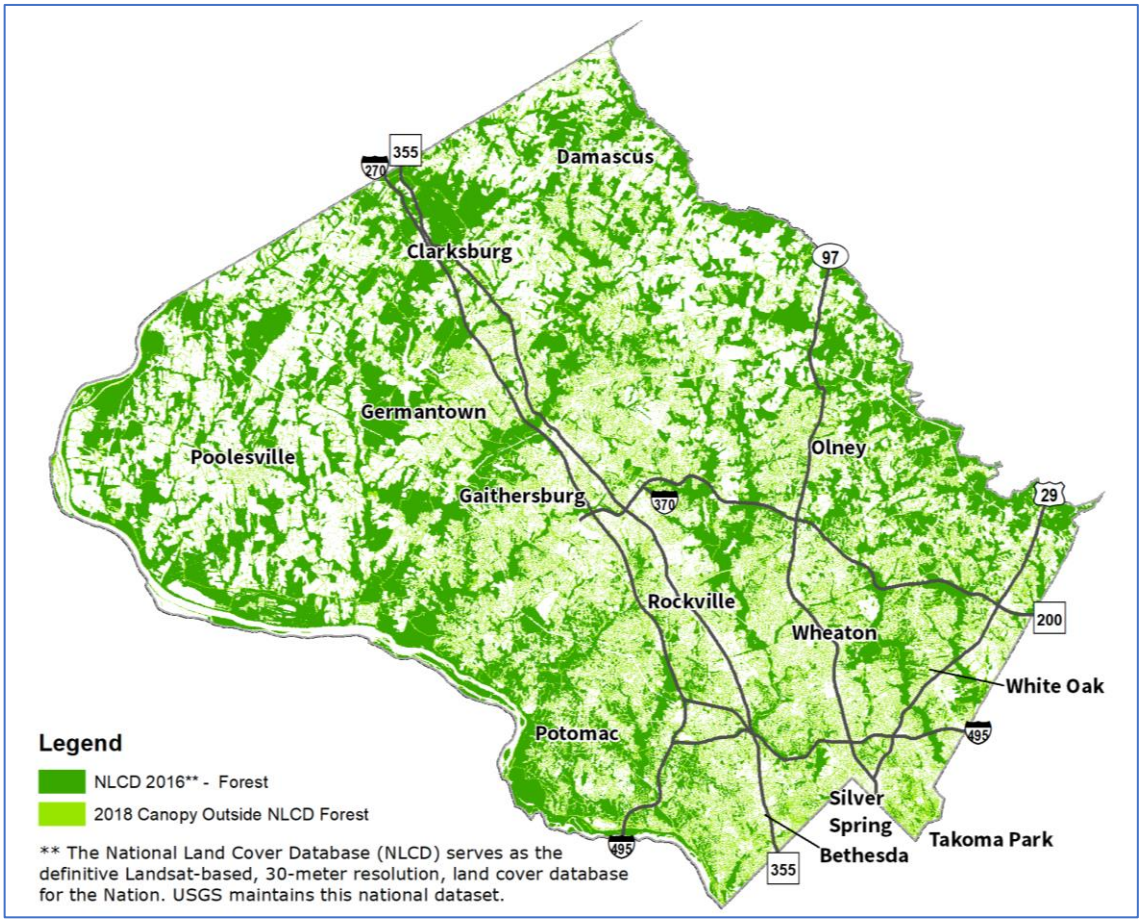


Figure 1: Forest and Tree Canopy Cover in Montgomery County

Thrive Montgomery 2050's Role in Combatting Climate Change

Thrive Montgomery 2050 builds upon the framework established by the 1964 Wedges and Corridors Plan and subsequent master plans and functional countywide plans that have focused growth into more compact areas around major transit hubs and transportation corridors, and preserved areas of lower density development, open spaces and agricultural lands that protect natural resources critical to climate mitigation, sequestration, and resilience.

Thrive Montgomery 2050 includes recommendations that focus on the critical land use component of our efforts to reduce and draw down excess carbon in the atmosphere, and ultimately help achieve the county's goal of eliminating all GHG emissions by 2035. It recommends that future development in the county be compact, bikeable and walkable, and served by public transit. It also recommends transforming our existing neighborhoods into complete communities across the county. Compact growth focused around transit stations and along major corridors in Complete Communities is the Plan's most important strategy in reducing VMT, reducing imperviousness and saving our environmental

resources that dovetail with the increasing preference across age groups to live in mixed-use and diverse walkable places.

Compact Growth

This emphasis on compact growth is based on the idea that the efficient use of land through compact corridor-focused growth complemented by a rural pattern outside of the growth corridors is the best land use strategy to make development more environmentally sustainable and to reduce GHG emissions. Staff has found that overwhelming body of research provides evidence that compact growth reduces VMT over conventional sprawl, which causes more vehicle miles traveled simply because destinations are farther apart and generally accessible only by motor vehicles. A 2008 study, *Growing Cooler*[iii], published by the Urban Land Institute and partially funded by EPA, concluded that compact development alone can reduce vehicle miles traveled by 20 to 40 percent compared to conventional development. Based on the amount of new development and the percentage of that development that could reasonably be expected to be compact infill, the study estimated that compact development could reduce carbon dioxide (CO2) emissions by 7 to 10 percent in 2050. A subsequent study by ULI in 2009, *Moving Cooler*[iv]*,* found that a combination of more compact development and investments in transit and other transportation options could reduce greenhouse gas emissions from transportation by 9 to 15 percent by 2050.

Compact growth also leads to smaller homes which produce energy savings. A December 2019 BBC report[v] on climate change stated that, "Though the differences are not huge, on average, homes in large towns emit slightly less CO2 per person than their more rural counterparts. They tend to be smaller, denser and easier to heat. One of the biggest differences in carbon emissions comes from transport, with CO2 emissions per head 66% higher away from cities. This is probably because more people drive private cars and make longer journeys for work and leisure."

Complete Communities and 15-minute Living

Thrive Montgomery 2050 further reinforces the concept of compact growth by adding Complete Communities and 15-minute living as organizing principles for making our neighborhoods more walkable and sustainable. Complete Communities include a mix of uses, infrastructure, diverse housing types suitable for different household types and income levels, and services and amenities within walking or biking distance.

Many of our existing amenity-rich neighborhoods near transit are not affordable to low-income households forcing them to live farther away from job centers in places that are not well-served by Transit. This in turn causes them to drive longer distances resulting in higher VMTs. Thrive Montgomery proposes reimagining these neighborhoods as Complete Communities to provide more diverse housing through infill and redevelopment to make them affordable to low-income families who are more likely to use transit resulting in reductions in VMT.

The related concept of 15-minute living is another way of reimagining existing communities to maximize their attractiveness and efficiency by mixing housing, offices, and retail uses in each neighborhood or district as much as feasible so services, infrastructure, facilities, and amenities to serve the daily needs of people who live or work there or are within walking distance. The ideas of compact growth, 15-

minute living and Complete Communities are not just for urban areas. Although more people living near mid- to high-density centers in downcounty and midcounty areas will be able to walk to their daily needs, but even in the low-density suburban and rural locations people will be able drive to a well-connected, compact town center, park their vehicles once and walk to stores and other destinations instead of driving from store to store.

Many of Thrive recommendations will help reduce our carbon footprint, but the following recommendations play a more direct role in reducing our VMT and GHG emissions:

- Concentrate new growth in a limited number of places that already have the infrastructure and service to support additional new growth.
- Allow appropriate densities needed to support the efficient provision of transit service along growth corridors.
- Improve the environmental sustainability of growth by encouraging infill and redevelopment to curb sprawl and improve storm water management and sustainability in older neighborhoods built long before current environmental standards.
- Create complete communities to provide more options for people to reach their daily needs by walking, biking or rolling in as many places as possible in all parts of the county.
- Apply flexible approaches to accommodate infill and redevelopment that improve access to amenities, active transportation, parks, and open spaces, and a broader range of housing types at the neighborhood scale
- Make existing and new public facilities more reachable to the surrounding neighborhoods through active transportation improvements that prioritize walking, biking, rolling, and transit use.
- Create mixed-use employment clusters with retail, amenities, and transit, and integrate them into the surrounding communities.
- Develop a convenient and attractive transit system to reduce our reliance on automobiles.
- Ensure safe and comfortable access to transit stations via walking, rolling, and bicycling.
- Stop planning or constructing new highways or major road widenings for cars.
- Provide safe, comfortable, and attractive sidewalks, bikeways, roadway crossings, and other improvements to support walking, bicycling, and transit.
- Encourage the proliferation of non-polluting vehicles by upgrading government fleets and requiring appropriate infrastructure.
- Incentivize residential infill, redevelopment, and repositioning of office parks, shopping malls, and other underutilized properties.
- Facilitate the development of a variety of housing types in every part of the county but especially in areas near transit, employment, and educational opportunities.
- Integrate park trails and paths into transportation planning and better use them to connect residents to jobs and centers of activity.
- Acquire additional land to protect sensitive natural resources and increase tree cover, along with other environmental goals.
- Create a resiliency plan to improve the ability of park and recreation facilities and natural resources to withstand the effects of climate change.

Additional Contributions from Thrive Montgomery 2050

The Compact Growth chapter also contains recommendations to "Preserve and enhance the Agricultural Reserve and manage it to maintain a rural pattern of development for the benefit of the entire county," including a recommendation to "Maximize the benefits of the Agricultural Reserve through policies designed to ensure the continued viability of farming as an economically productive and sustainable activity, discourage sprawl, facilitate a broad range of outdoor recreation and tourism activities, conserve land and natural resources, and promote practices that advance environmental quality." The existence of the Agricultural Reserve and the original "Wedges and Corridors" approach to land use has helped focus Montgomery County's growth into more compact forms along transportation corridors. The continued preservation and use of the Agricultural Reserve to discourage sprawl and maintain large areas of forest and pastureland through the recommendations of Thrive Montgomery 2050 presents the county with a resource that enables the continued storage and sequestration of large amounts of carbon and contributes to the county's resilience. Actions related to the implementation of this recommendation can improve the productivity of agricultural soils while also enhancing their ability to store carbon.

The Parks and Recreation chapter contains recommendations for the continued stewardship of natural resources in our award-winning Park system, including recommendations to "selectively acquire additional land where needed to protect sensitive natural resources, improve water quality, increase tree cover, enhance wildlife corridors, curb invasive species, and achieve other environmental goals," and to" create a resiliency plan to improve the ability of park and recreation facilities and natural resources to withstand the effects of climate change." As discussed previously in the section on sequestration, these actions will increase the ability of our Park system to capture and store carbon while providing many additional benefits.

Relationship Between Thrive Montgomery 2050 and the Climate Action Plan

In December 2017, Montgomery County adopted Resolution 18-974 committing to reduce the county's GHG emissions of 80 percent by 2027 and reaching 100 percent elimination by 2035. In June 2021, the county released a Climate Action Plan (CAP) that details the effects of climate change on Montgomery County and includes strategies to achieve the goals of Resolution 18-974.

Thrive Montgomery 2050 was drafted in coordination with the CAP, which outlines ways to reduce the county's net greenhouse gas emissions to zero by 2035. The CAP also recommends approaches to deal with the hazards of climate change predicted for Montgomery County: extreme heat, extreme precipitation, high winds, and drought. The Planning Department staff worked with executive branch representatives to ensure that the goals, policies, and actions recommended by Thrive Montgomery 2050 and the CAP are complementary rather than duplicative.

Thrive Montgomery 2050 is a high-level document that focuses on long- range planning and policies to guide the physical development of the county, including where and how land will be preserved or developed for housing, office buildings, parks, agriculture, recreation, and transportation infrastructure. These kinds of decisions have a major influence on greenhouse gas emissions, carbon sequestration, and

adaptation to climate change. The CAP, on the other hand, recommends specific actions to be taken in the near-term to achieve the goal of eliminating greenhouse gas emissions by 2035 and to mitigate or adapt to the effects of climate change. Thrive Montgomery 2050 incorporates a wide range of recommendations related to climate change and its connection to land use, transportation, and parks, and the Planning and Parks Departments will implement recommendations in the CAP that are within the scope of the M-NCPPC's responsibilities. Together these plans will create a comprehensive approach to climate change at the local level.

Building Capacity to Improve GHG Modeling, Help Track Progress

Planning staff recognizes that estimating the effects of Thrive Montgomery 2050's recommendations and tracking the progress of implementation will require new tools and additional efforts in the coming years. In addition to our existing tools there are newer, better tools and approaches being developed that will help us to better address and track progress in climate change mitigation, sequestration and resilience moving forward. One of the actions that maybe considered for Thrive's implementation is to create or choose tools to evaluate the effect of land use options on greenhouse gas reduction goals. Like other agencies, the Montgomery County Planning Department will be considering ways to build our capacity to address the many issues and challenges we will encounter as we seek to reduce our carbon footprint and find ways to adapt and become more resilient in the face of climate change.

Appendix A: Thrive Montgomery 2050—Recommendations Related the VMT and GHG Emissions Reduction

(Note: these recommendations are from the Planning Board Draft and may be modified during the PHED Committee or the full Council review).

Compact Growth chapter

Concentrate growth in centers of activity and along corridors through compact, infill development and redevelopment to maximize efficient use of land.

- Focus future land use and public infrastructure planning on growth corridors so as to direct development in ways that facilitate the emergence of Complete Communities. Evaluate appropriate land uses, transportation facilities, and community design that will encourage and enable full use of centers of activity and creation of Complete Communities. (Ec, Env, EQ)
- Amend land use, design, and zoning regulations, including the Zoning Ordinance and Subdivision Regulations, to support corridor-focused compact development. Appropriate densities will vary but should be sufficient to support, at a minimum, the efficient provision of transit service along these corridors. (Ec, Env, Eq)
- Improve the environmental sustainability of growth by encouraging infill and redevelopment to curb sprawl and bring areas built out in an era with little or no environmental regulations up to robust standards for stormwater management and other state-of-the-practice environmental standards. (Env)

Promote and prioritize public investment in infrastructure along growth corridors and leverage it to attract future private investment in a compact form.

- Establish high-quality transit infrastructure along growth corridors through capital investment and ensure reliable, frequent service through operational investment. (Ec, Env, Eq)
- Leverage federal, state and local incentive programs, publicly owned land and land investment opportunities for corridor infill development and redevelopment. (Ec, Env, Eq)

Limit growth beyond corridors to compact, infill development and redevelopment in Complete Communities to prevent sprawl. Apply principles of urbanism at an appropriate scale along a rural-to-urban transect as outlined in the Complete Communities chapter. (Env, Eq)

- Sustainably manage land outside growth corridors and Complete Communities to increase biodiversity, improve the health of natural habitats, preserve privately owned forests, protect watersheds and aquifers, and improve water quality while providing expanded opportunities for outdoor recreation, including vigorous physical activity. (Env, Eq)

Preserve and enhance the Agricultural Reserve and manage it to maintain a rural pattern of development for the benefit of the entire county.

- Maximize the benefits of the Agricultural Reserve through policies designed to ensure the continued viability of farming as an economically productive and sustainable activity, discourage sprawl, facilitate a broad range of outdoor recreation and tourism activities, conserve land and natural resources, and promote practices that advance environmental quality. (Ec, Env)

Complete Communities chapter

Identify and integrate elements needed to complete centers of housing, retail, and office development and plan to make 15-minute living a reality for as many people as possible.

- Promote zoning allocations and standards to encourage the integration of varied uses, building types and lot sizes. (Ec, Env, EQ)
- Apply flexible approaches to accommodate infill and redevelopment that improve access to amenities, active transportation, parks, and open spaces, and a broader range of housing types at the neighborhood scale. (Ec, Env, EQ)
- Prioritize neighborhood-level land use planning as a tool to enhance overall quality of community life and avoid reinforcing outdated land use patterns. (EQ)
- Allow sufficient densities to make a wide range of uses economically viable in Complete Communities. Encourage densities sufficient to support convenience retail and other local-serving amenities at the neighborhood level. Provide guidance for accommodating additional density in a context-sensitive manner. (Ec, Env, EQ)
- Ensure that Complete Communities are integrated into their surroundings and supported by a public realm that encourages walking, biking and rolling, as well as social interaction through the configuration of sidewalks, paths, landmarks, and gathering spaces. (Ec, Env, EQ)

Encourage co-location and adjacency of all essential and public services, especially along growth corridors and in Complete Communities.

- Maximize the utility of public facilities by locating them in places that promote integration with other public and private uses and infrastructure. (Env, EQ)
- Promote active transportation improvements that prioritize walking, biking, rolling, and transit use to enhance public access to these co-located facilities. (Env, EQ)
- Develop standards for colocation of public facilities that promote mixing of uses or services and compact development strategies. Encourage public-private partnerships and ensure they promote social interaction and physical activity. (Ec, Env, EQ)

Retrofit centers of activity and large-scale older facilities such as shopping centers, abandoned federal campuses, office parks, and other single-use developments to include a mixture of uses and diversity of housing types and to provide a critical mass of housing, jobs, services, and amenities for vibrant, dynamic Complete Communities.

- Ensure employment uses in economic clusters develop in a mixed-use format along with housing, retail, amenities, and transit, and ensure they are integrated into the surrounding communities. (Ec, Env, EQ)
- Allow creation of co-located housing, discussed further in the Affordable and Attainable Housing Chapter, including for industries that employ large numbers of employees (permanent or seasonal). (Ec, Env, EQ)
- Encourage higher density economic and housing cooperatives (live/work areas such as home occupations, artist villages, farmers' market/villages, tech/life-science startup incubators). (Ec, Env, EQ)

Design, Arts and Culture chapter

Use design-based tools to create attractive places with lasting value that encourage social interaction and reinforce a sense of place and inclusion.

- Design buildings, streets, and parking to prioritize the pedestrian scale and encourage walking and bicycling through smaller blocks, narrower streets, buffered bike lanes and sidewalks. Slow vehicle speeds and minimize surface parking while adequately accommodating automobiles. (Eq, Env)
- Adopt rules for alternative housing types such as tiny houses, cottages, courtyard clusters, duplexes, multiplexes, small apartment buildings; shared housing, co-housing and accessory dwelling units (ADUs). (Eq, Env)

Promote design strategies and retrofits to make new and existing buildings more sustainable and resilient to disruption and change.

- Encourage state-of-the-practice sustainability features such as net-zero/carbon-positive buildings, biophilic design and on-site energy generation for new public buildings and large private developments on sites across the county. (Env)
- Promote cost-effective infill and adaptive reuse design strategies to retrofit single-use commercial sites such as retail strips, malls, and office parks into mixed use developments. (Ec, Env)
- Incentivize the reuse of historic buildings and existing structures to accommodate the evolution of communities, maintain building diversity, preserve naturally occurring affordable space, and retain embodied energy of structures. (Eq, Env)
- Implement policies to ensure that new buildings and parking structures are adaptable to changing technologies and market preferences and are able to mitigate effects of climate change over time. (Env)

Transportation and Communications Network chapter

Develop a safe, comfortable and desirable network for walking, biking, and rolling.

- Expand the street grid in downtowns, town centers, transit corridors, and suburban centers of activity to create shorter blocks. (Ec, Env)
- Stop proposing new four+ lane roads in master plans. (Env)
- Do not give priority to construction of new four+ lane roads or major road widenings for cars. (Env)
- Convert existing traffic lanes and on-street parking to create space for walkways, bikeways, and street buffers with landscaping and street trees. (Env)
- Prioritize the provision of safe, comfortable, and attractive sidewalks, bikeways, roadway crossings, and other improvements to support walking, bicycling, and transit usage in capital budgets, development approvals and mandatory referrals. (Env)

Build a world-class transit system.

- Build a network of rail, bus rapid transit, and local bus infrastructure and services that make transit the fastest, most convenient and most reliable way to travel to centers of economic, social and educational activity and opportunity. (Ec, Eq, Env)
- Convert existing general purpose traffic lanes to dedicated transit lanes, as consistent with other county policies. (Ec, Eq, Env)

- Ensure safe and comfortable access to transit stations via walking, rolling, and bicycling. (Eq, Env)

Adapt policies to reflect the economic and environmental costs of driving alone. (Eq, Env)

- Employ pricing mechanisms, such as congestion pricing or the collection and allocation of tolls to support walking, rolling, bicycling, and transit. (Env)
- Manage parking efficiently by charging market rates and reducing the supply of public and private parking. (Ec, Env)
- Encourage the proliferation of non-polluting vehicles by upgrading government fleets and requiring appropriate infrastructure. (Env)

Develop and extend advanced communications networks

- Support teleworking by accelerating deployment of information and communications technology and making working from home easier by facilitating Complete Communities. (Ec, Env)

Attainable and Affordable Housing chapter

Encourage the production of more housing to better match supply with demand

- Expand opportunities to increase residential density, especially along major corridors and in locations where additional housing can assist in the development of Complete Communities. (Ec, Eq, Env)
- Increase regulatory flexibility to incentivize residential infill, redevelopment, and repositioning of office parks, shopping malls, and other underutilized properties. (Ec, Eq, Env)
- Provide financial incentives such as Payment in Lieu of Taxes to boost housing production for market rate and affordable housing, especially near transit and in Complete Communities. (Ec, Eq, Env)

Plan for a wide range of housing types and sizes to meet diverse needs

- Facilitate the development of a variety of housing types in every part of the county but especially in areas near transit, employment, and educational opportunities. (Ec, Eq, Env)
- Support creative housing options including personal living quarters and/or micro units; "missing middle" housing types such as tiny houses, cottages, duplexes, multiplexes, and small apartment buildings; shared housing, co- housing, accessory dwelling units (ADUs), social housing and cooperative housing to help meet housing needs and diversify housing options. (Ec, Eq, Env)
- Encourage provision of multi-bedroom units suitable for households with children in multifamily housing. (Eq, Env)

Parks and Recreation chapter

Focus on creating high quality urban parks

- Prioritize acquisition of land for parks in urban centers and other intensively developed places along growth corridors and in Complete Communities using the Legacy Urban Space CIP commitment and the Energized Public Spaces Functional Master Plan (EPS Plan) as a starting point. (Ec, Eq, Env)

Maintain high standards of environmental stewardship in park management and operations

- Selectively acquire additional land where needed to protect sensitive natural resources, improve water quality, increase tree cover, enhance wildlife corridors, curb invasive species, and achieve other environmental goals. (Env)
- Create a resiliency plan to improve the ability of park and recreation facilities and natural resources to withstand the effects of climate change. (Env)

Integrate parks/rec/public spaces into economic development strategies and land use planning to attract employers and workers, build social connections, encourage healthy lifestyles, and create vibrant places, especially as part of Complete Communities. (Ec, Eq, Env)

Appendix B: Thrive Montgomery 2050-- Proposed Actions Related to GHG Emissions Reduction

Compact Growth: Corridor-Focused Development

G-4. Implement recommendations in the county's Climate Action Plan (CAP) within the authority of the M-NCPPC in order to achieve the climate change goals and related objectives of both the CAP and Thrive Montgomery 2050.

G-8. Create or choose tools to evaluate the effect of land use options on greenhouse gas reduction goals.

G-9. Evaluate opportunities for siting alternative energy production and storage systems.

G-11. Research and create guidance for innovative development, retrofit and construction designs, and techniques that minimize imperviousness.

G-17. Identify for protection forests and other natural areas with high value for climate mitigation, resilience, and biological diversity.

G-18. Establish appropriate forest and non-forest canopy goals and strategies to protect plant and wildlife diversity and human health while accommodating and complementing land use policies such as redevelopment and infill in areas identified as appropriate for growth.

G-21. Develop a long-range forest quality management plan to address fragmentation, deer pressure, invasive threats, and the forest's capacity to withstand and mitigate climate impacts.

G-22. Develop recommendations to improve the vitality and survivability of planted forests and trees.

Design, Arts and Culture chapter

D-7. Update the Historic Preservation Ordinance, the zoning code, and Historic Resources Preservation Tax Credit program to incentivize and facilitate adaptive reuse and/or repurposing of existing buildings.

D-8. Develop a sprawl repair manual to promote cost-effective design strategies and establish regulatory approaches to accommodate retrofitting of single-use commercial sites such as retail strips, malls and office parks into mixed-use developments that are more energy efficient.

D-9. Develop guidelines and standards for climate-sensitive design principles and materials for new public and private development projects. Ensure these standards include strategies to maximize greenhouse gas reductions in the built environment, including generating clean renewable energy and reducing heat island effect.

Transportation and Communications Network chapter

T-2. Remove master-planned but unbuilt highways and road widenings that are not consistent with this plan, add dedicated transit lanes, upgrade transitways to median running, and repurpose general-purpose lanes and on-street parking for sidewalks, bikeways, transit lanes, street buffers, street trees, and stormwater management.

T-8. Create guidelines for prioritizing transportation projects to improve walking, bicycling, and transit in Equity Focus Areas.

T-17. Develop short-term and long-term bus transit plans to extend local and regional bus service to underserved communities in Montgomery County, improve reliability, frequency, and span of service and restructure local and regional bus service to integrate with existing and planned rail and Bus Rapid Transit (BRT).

T-19. Expand commuter rail capacity on the MARC Brunswick Line to provide additional station locations in Montgomery County and provide frequent bidirectional all-day service, seven days a week.

T-21. Eliminate motor vehicle parking minimums for new development projects in downtowns, town centers, rail and BRT corridors and adjacent communities to encourage travel by walking, bicycling, and transit.

T-24. Develop an implementation plan for transitioning to zero emission fueling in residential and commercial development and public facilities and spaces.

T-25. Update all county fleets and contracted fleet providers to zero emission vehicles.

T-26. Develop county incentives to accelerate conversion of privately-owned fleets to sustainable, zero emission vehicles.

Appendix C: VMT and GHG Emissions Projections

Daily Vehicle Miles Traveled (VMT) For Trips Beginning or Ending in Montgomery County			
	Business-As Usual	On the Road	Home alone Together
2015	20,228,973	20,228,973	20,228,973
2050 no-Thrive	24,012,055	28,639,289	19,583,130
2050 with Thrive	22,808,430	27,604,428	18,827,231
Reduction in VMT attributed to Thrive	**1,203,625**	**1,034,861**	**777, 899**

Annual Emissions (Metric Tons of CO2 Equivalent)			
2015	2,511,431	2,511,431	2,511,431
2050 no-Thrive	2,981,101	3,555,573	2,431,249
2050 with Thrive	2,831,671	3,427,001	2,337,404
Reduction in emissions attributed to Thrive	**149,430**	**128,572**	**93,845**
% reduction over 2050 no-Thrive scenario	**5.01%**	**3.61%**	**3.86%**

Endnotes

[i] https://www.britannica.com/science/carbon-footprint

[ii] https://montgomeryplanning.org/wp-content/uploads/2021/10/FINAL-Thrive-Montgomery-Transportation-Analysis-Report.pdf

[iii] https://www.nrdc.org/sites/default/files/cit_07092401a.pdf

[iv] https://www.issuelab.org/resources/10329/10329.pdf

[v] https://www.bbc.com/news/science-environment-49639003

APPENDIX 5: CARBON FOOTPRINT ANALYSIS

Since 2010, the Planning Board has included a carbon footprint analysis and recommendations to reduce vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions in each of the county's master plans to satisfy the requirement of Montgomery County Code Chapter 33A, Section 33A-14. Specifically, the law requires that the Planning Board must:

(a) Assess the Plan's potential impact on greenhouse gas emissions in the County, including a Carbon Footprint Analysis;
(b) Consider ways to reduce vehicle miles traveled in the County;
(c) Consider options that would minimize greenhouse gas emissions; and
(d) Consider the impact of the plan on racial equity and social justice in the County (as defined in Section 2-64A).

In addition, Montgomery County completed its Climate Action Plan in June 2021, committing to cut greenhouse gas emissions by 80 percent by 2027 and 100 percent by 2035. he Climate Action Plan details the effects of a changing climate on Montgomery County and includes strategies to reduce GHG emissions and climate-related risks to the County's residents, businesses, and the built and natural environment. The Climate Action Plan focuses on seven pillars to reduce greenhouse gas emissions and climate change impacts: clean energy; buildings; transportation; carbon sequestration; climate adaptation; climate governance; and public engagement, partnerships, and education.

WHAT IS CARBON FOOTPRINT?

Carbon footprint is the amount of carbon dioxide including "direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs). [A] carbon footprint is usually expressed as a measure of weight, as in tons of CO2 or CO2 equivalent per year".[1]

CARBON FOOTPRINT ANALYSIS

A typical carbon footprint analysis measures only the direct emissions generated by fossil fuel consumption for transportation, manufacturing, and building energy use. Some functional master plans, such as the 2018 *Bicycle Master Plan* and 2013 *Countywide Transit Corridors Functional Master Plan*, have used a modified approach focused exclusively on changes in VMT in the carbon footprint analysis, since those plans did not include specific land use recommendations (such as zoning) that would generate data on projected square feet of non-residential development or numbers of

[1] https://www.britannica.com/science/carbon-footprint

residential units. Corridor Forward: The I-270 Transit Plan (Corridor Forward) employs a similar approach to those functional master plans.

RESULTS

The results of the VMT analysis are included in **Table 1**, which includes the daily totals for four different geographies: the entire metropolitan Washington region, Montgomery County, Equity Focus Areas (EFAs) within Montgomery County, and the areas of Montgomery County not designated as an EFA (non-EFAs). The analysis was conducted for several scenarios, including an existing condition, a future "no build" baseline condition, the six transit options selected for detailed study, and the three transit network packages (which are a combination of the transit options, with some modifications).

The carbon footprint analysis, included in **Table 2**, is built off the VMT analysis. For each scenario, a factor was applied to the VMT results to calculate each type of emissions (CO2 emissions, hydrocarbons, etc.). As a result, the relationship between each scenario is the same for the VMT and carbon footprint analysis. For ease of explanation, only the VMT analysis results are described below. However, the findings and relationship between each scenario is the same for the VMT and carbon footprint analysis.

Consistent with the anticipated population and employment growth in the region and Montgomery County between 2015 and 2045, VMT is anticipated to rise in the coming decades. Each of the transit options and networks evaluated would reduce VMT from the "no build" baseline, but that reduction is relatively small. At the regional level, VMT reductions do not exceed 0.2%, and reductions within Montgomery County do not exceed 1% of "no build" VMT.

VMT reductions for the network packages exceed the VMT reductions for the individual options, indicating that a combination of transit options is more effective at reducing emissions than a singular transit project. The recommended transit network includes elements from Network Package 2 and Network Package 3, discussed in greater detail in Appendix 3 – Metrics and Performance.

EQUITY ANALYSIS

In addition to understanding emissions regionwide and countywide, an additional analysis was conducted to evaluate the how VMT reductions are distributed across the county, specifically between EFAs and non-EFAs. Approximately one quarter of the county's population lives in EFAs, yet in all scenarios, about a third of trips are generated by EFAs.

This overrepresentation of VMT associated with EFAs represents a disparity – residents of EFAs experience more VMT (and the resulting emissions) per capita than non-EFAs. This disparity is because EFAs – in addition to hosting a concentration of low-income households, people of color, and residents with limited English proficiency – also represent some of the county's job centers, such as Wheaton, Rockville, and Silver Spring. This disparity does not mean that people living in EFAs generate more VMT, but instead that the mix of uses present in EFAs generate more VMT. Residents of EFAs do not drive more than residents elsewhere in the county, but EFAs tend to be areas of greater

activity, and therefore the VMT in those areas are disproportionately high relative to other parts of the county (see Appendix 6 – Equity Assessment for additional information).

Similar to the regionwide and countywide results, the greatest VMT reductions in EFAs are associated with the network packages. However, it is important to note that for all scenarios, non-EFAs experience a greater reduction in VMT than EFAs (as a percent of "no build" VMT), indicating that the existing emissions disparity will not be mitigated by the recommended transit network. In addition to the provision of new transit infrastructure and service, other interventions could be considered to evaluate how VMT and disparities can be reduced, such as lane repurposing, parking management, travel pricing, and travel demand management strategies.

Table 1. Daily Vehicle Miles Traveled

Region											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
Value	178,017,268	218,640,994	218,567,959	218,483,583	218,611,629	218,596,499	218,481,570	218,530,978	218,357,797	218,355,996	218,347,324
Change from No Build	-	-	-73,035	-157,410	-29,365	-44,495	-159,424	-110,016	-283,196	-284,997	-293,670
% Change	-	-	-0.04%	-0.09%	-0.02%	-0.02%	-0.09%	-0.06%	-0.16%	-0.16%	-0.16%
Montgomery County											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
Value	19,445,335	22,515,296	22,482,035	22,431,609	22,491,971	22,503,393	22,462,035	22,468,730	22,368,362	22,365,431	22,377,158
Change from No Build	-	-	-33,261	-83,687	-23,325	-11,903	-53,261	-46,566	-146,934	-149,865	-138,138
% Change	-	-	-0.17%	-0.43%	-0.12%	-0.06%	-0.27%	-0.24%	-0.76%	-0.77%	-0.71%
Montgomery County - Equity Focus Area											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
Value	6,556,666	7,622,522	7,616,998	7,595,923	7,618,222	7,620,587	7,610,288	7,611,713	7,586,231	7,581,613	7,585,779
Change from No Build	-	-	-5,524	-26,600	-4,300	-1,936	-12,235	-10,810	-36,291	-40,910	-36,744
% Change	-	-	-0.08%	-0.41%	-0.07%	-0.03%	-0.19%	-0.16%	-0.55%	-0.62%	-0.56%
Montgomery County - Non-Equity Focus Area											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
Value	12,888,668	14,892,774	14,865,037	14,835,687	14,873,749	14,882,806	14,851,748	14,857,017	14,782,131	14,783,818	14,791,379
Change from No Build	-	-	-27,737	-57,087	-19,025	-9,967	-41,026	-35,757	-110,643	-108,956	-101,395
% Change	-	-	-0.22%	-0.44%	-0.15%	-0.08%	-0.32%	-0.28%	-0.86%	-0.85%	-0.79%

Table 2. Emissions Associated with Daily Vehicle Miles Traveled (kilograms)

Region											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
CO_2 Emissions	71,918,976	88,330,961	88,301,455	88,267,368	88,319,098	88,312,985	88,266,554	88,286,515	88,216,550	88,215,823	88,212,319
Hydrocarbons	107,344	131,841	131,796	131,746	131,823	131,814	131,744	131,774	131,670	131,669	131,663
Exhaust Carbon Monoxide	1,086,795	1,334,803	1,334,357	1,333,842	1,334,624	1,334,532	1,333,830	1,334,132	1,333,074	1,333,063	1,333,010
Exhaust Nitrogen Oxides	244,774	300,631	300,531	300,415	300,591	300,570	300,412	300,480	300,242	300,239	300,228
Exhaust PM2.5	7,121	8,746	8,743	8,739	8,744	8,744	8,739	8,741	8,734	8,734	8,734
Breakwear PM2.5	712	875	874	874	874	874	874	874	873	873	873
Tirewear PM2.5	356	437	437	437	437	437	437	437	437	437	437
Montgomery County											
	Existing (2015)	**No Build (2045)**	**Enhanced MARC**	**Red Line Ext**	**CCT**	**Purple Line Ext**	**Rail to Frederick**	**Enhanced Commuter Bus**	**Network Package 1**	**Network Package 2**	**Network Package 3**
CO_2 Emissions	7,855,915	9,096,180	9,082,742	9,062,370	9,086,756	9,091,371	9,074,662	9,077,367	9,036,818	9,035,634	9,040,372
Hydrocarbons	11,726	13,577	13,557	13,526	13,563	13,570	13,545	13,549	13,488	13,486	13,493
Exhaust Carbon Monoxide	118,714	137,456	137,253	136,945	137,313	137,383	137,131	137,172	136,559	136,541	136,613
Exhaust Nitrogen Oxides	26,737	30,959	30,913	30,843	30,926	30,942	30,885	30,895	30,756	30,752	30,769
Exhaust PM2.5	778	901	899	897	900	900	898	899	895	895	895
Breakwear PM2.5	78	90	90	90	90	90	90	90	89	89	90
Tirewear PM2.5	39	45	45	45	45	45	45	45	45	45	45

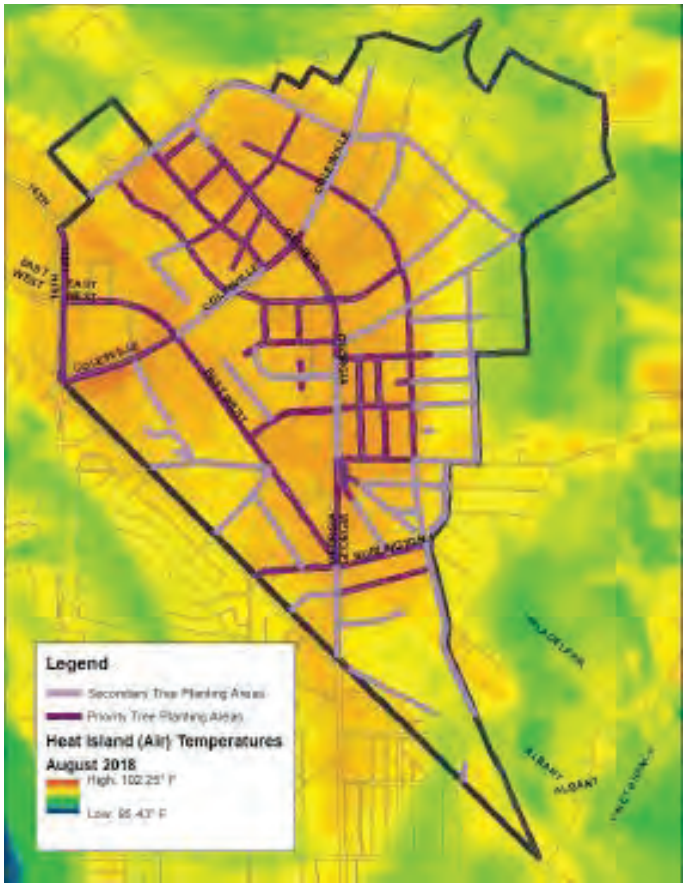
Table 2. Emissions Associated with Daily Vehicle Miles Traveled (kilograms) - Continued

Montgomery County - Equity Focus Areas											
	Existing (2015)	No Build (2045)	Enhanced MARC	Red Line Ext	CCT	Purple Line Ext	Rail to Frederick	Enhanced Commuter Bus	Network Package 1	Network Package 2	Network Package 3
CO_2 Emissions	2,648,893	3,079,499	3,077,267	3,068,753	3,077,762	3,078,717	3,074,556	3,075,132	3,064,837	3,062,972	3,064,655
Hydrocarbons	3,954	4,596	4,593	4,580	4,594	4,595	4,589	4,590	4,574	4,572	4,574
Exhaust Carbon Monoxide	40,028	46,535	46,502	46,373	46,509	46,524	46,461	46,470	46,314	46,286	46,311
Exhaust Nitrogen Oxides	9,015	10,481	10,473	10,444	10,475	10,478	10,464	10,466	10,431	10,425	10,430
Exhaust PM2.5	262	305	305	304	305	305	304	304	303	303	303
Breakwear PM2.5	26	30	30	30	30	30	30	30	30	30	30
Tirewear PM2.5	13	15	15	15	15	15	15	15	15	15	15
Montgomery County - Non-Equity Focus Areas											
	Existing (2015)	No Build (2045)	Enhanced MARC	Red Line Ext	CCT	Purple Line Ext	Rail to Frederick	Enhanced Commuter Bus	Network Package 1	Network Package 2	Network Package 3
CO_2 Emissions	5,207,022	6,016,681	6,005,475	5,993,617	6,008,994	6,012,654	6,000,106	6,002,235	5,971,981	5,972,662	5,975,717
Hydrocarbons	7,772	8,980	8,964	8,946	8,969	8,974	8,956	8,959	8,914	8,915	8,919
Exhaust Carbon Monoxide	78,685	90,920	90,751	90,572	90,804	90,860	90,670	90,702	90,245	90,255	90,301
Exhaust Nitrogen Oxides	17,722	20,478	20,439	20,399	20,451	20,464	20,421	20,428	20,325	20,328	20,338
Exhaust PM2.5	516	596	595	593	595	595	594	594	591	591	592
Breakwear PM2.5	52	60	59	59	59	60	59	59	59	59	59
Tirewear PM2.5	26	30	30	30	30	30	30	30	30	30	30

The right-of-way is an opportunity area for bolstering carbon sequestration, cooling the streetscape and community, and proving enhanced ecological benefits that bring nature back to the urban landscape. Green infrastructure is a network of nature-based solutions such as stormwater management, trees and vegetation, and porous pavements. Its components provide multiple ecological benefits to cool streets and communities, improve air and water quality, beautify the landscape, and provide vegetation that supports the survival of animal and insects as they live and migrate through the community. These affordable elements are integral for designing a resilient, healthy, safe, and economically viable future in the face of climate change.

Recommendations

- Provide streets and open space through the planting of native canopy trees prioritizing lower income areas, the Green Loop, and the hottest streetscape areas (see map).
- During street renovations and routine replacements consider installing smart street elements such as: solar lighting, solar metering, solar crosswalks, LED lighting, electric vehicle charging portals, and/or other technologies that emerge.
- Implement cooling strategies into all streetscape plans during the site planning process, and street renovation and improvement projects. Cool Streets Recommendations will be included in the Design Guidelines.
- Encourage car-free, flexible, and car-lite streets through flexible streets, road diets, alternative modes of transportation, and bike/vehicle sharing programs.
- Encourage more vehicle charging stations than currently required on private property and within the right-of-way (ROW) where appropriate to support a growing electric vehicle demand.



Greenhouse Gas Modeling

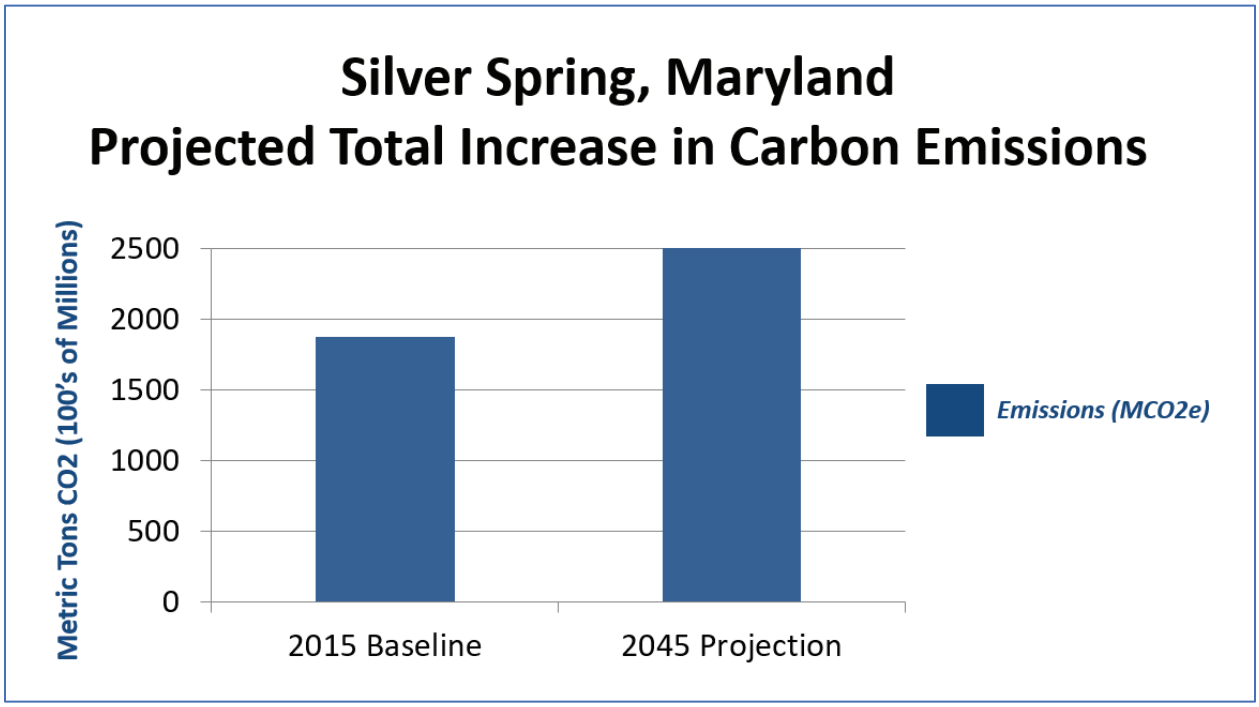
Montgomery County Code Chapter 18A-15 requires the Planning Board to model the carbon footprint of planning areas as part of Sector Plans. Another law (Montgomery County Code Chapter 33A-14) requires the Planning Board to estimate the carbon footprint of areas being master planned, and to make recommendations for carbon emissions reductions. Carbon footprint is calculated by estimating the greenhouse gas (GHG) emissions from construction and operation of the projected development.

There are three main components to greenhouse gas emissions: embodied energy emissions, building energy emissions and transportation emissions in projecting total emissions for an area. Embodied emissions are emissions that are created through the extraction, processing, transportation, construction and disposal of building materials, as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass). Building energy emissions are created in the normal operation of a building, including lighting, heating cooling and ventilation, operation of computers and appliances, etc.

Transportation emissions are released by the operation of cars, trucks, buses, motorcycles, etc. Results are given for the total life of the development from construction to demolition and are given in metric tons of carbon dioxide equivalents (MTCO2e).

The Sector Plan focuses on areas that are most likely to redevelop which will increase the numbers of housing units and non-residential spaces. Population and use are intended to increase, smart growth policies such as increased density, transit options, and the construction of energy efficient buildings will be constructed. However, the model being used today was developed in King County, Washington in 2007. It is outdated and does not take into consideration new energy efficient building materials and requirements, the rise of electric vehicles, and energy efficient non-electric vehicles. Therefore, we need to state that the numbers shown do not reflect true carbon forecasting. Forecasting and carbon modeling have become quite complex and can often take months if not years of full staff dedication. The forecast below may or may not reveal actual carbon outputs. The results of the carbon analysis show an increased greenhouse gas emission above the existing conditions. However, when considered population increases the carbon emissions per capita will likely decline.

Recommendations for reducing energy demand and use are woven throughout the content of the Sector Plan. Some significant carbon reduction recommendations include building efficiencies, increased alternative modes of transportation, increased density, and increased tree and vegetation to sequester carbon and reduce heat island effect.



Carbon Analysis Methodology

MNCPPC currently uses a greenhouse gas model developed by King County, Washington. The inputs are derived from national averages, and wherever possible we have substituted Montgomery County data obtained by the Planning Department's Research and Technology and the Transportation Division. The results are reported in terms of the equivalent effect of a given volume of carbon dioxide ("carbon dioxide equivalents").

To project total emissions for the Silver Spring Sector Plan, the spreadsheet model considered embodied energy emissions, building energy emissions, and transportation emissions. The model documentation defines embodied emissions as “emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass). Building energy emissions are created in the normal operation of a building including lighting, heating cooling and ventilation, operation of computers and appliances, etc. Transportation emissions are released by the operation of cars, trucks, buses, motorcycles, etc.

Inputs for Silver Spring Sector Plan include the numbers and types of housing units and the square footage of different categories of retail, commercial, and public buildings. The model was run once using 2015 data to establish baseline results. The model was run again using housing units, and commercial and retail space projected to develop under the sector plan (2045) to estimate future greenhouse gas emissions. The model estimates emissions over the life of the development, and results are given in metric tons of CO2 equivalents. The actual outcome of the model is higher than the reality due to continuous changes in technology, energy efficiencies, and alternative energy sources.

To project total emissions for an area, the spreadsheet model also considered embodied energy emissions, building energy emissions, and transportation emissions. The model documentation defines embodied emissions as “emissions that are created through the extraction, processing, transportation, construction and disposal of building materials as well as emissions created through landscape disturbance (by both soil disturbance and changes in above ground biomass). Building energy emissions are created in the normal operation of a building including lighting, heating cooling and ventilation, operation of computers and appliances, etc. Transportation emissions are released by the operation of cars, trucks, buses, motorcycles, etc.

The emissions model does not calculate and future carbon offsets from either best management practices, vehicle and/or building efficiencies or conversions to electric, or other unknown carbon reductions. The estimates from the existing methodology assume “business as usual” when projecting emissions.

MARYLAND BUILDING INDUSTRY ASSOCIATION
11825 West Market Place | Fulton, MD 20759 | 301-776-6242 | marylandbuilders.org

February 28th, 2022

Hon. Gabe Albornoz
President, Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Re: Bill 3-22, Legislative Branch – Climate Assessments - Requirements

Dear President Albornoz and Council Members,

The Maryland Building Industry (MBIA) is submitting testimony in regards to Bill 3-22 – Climate Assessments, which would require the Director of the Office of Legislative Oversight to prepare a climate assessment for each bill, zoning text amendment, master plan, and master plan amendment. We understand the goal of this bill is to continue the push in addressing the County's climate goals as part of the 2017 resolution declaring a climate emergency, as well as increase the councils understanding of climate impacts in proposed legislation.

MBIA and the industry as a whole supports combating climate change and working with the county in doing so. In regards to this proposed legislation, it is unclear how the climate impact assessments from each proposal will actually be measured, and so we cannot support this measure without more information. For example, we are skeptical that there may be a push to impose a certain threshold that must be either met or not exceeded before a bill can proceed, which could unnecessarily delay meaningful projects. Will there a formula (s) or metrics that Legislative Oversight will use to conduct these assessments, so that bill sponsors, proponents, or opponents can objectively weigh the assessments produced? Again, will those metrics be static, or could they vary based on the type of proposal? It is also important to factor in the time that these studies could cause, which could delay proposals from moving forward. In regards to the economic and fiscal impact of this proposal, it states 'to be provided,' it would seem that this bill an office or officer to be created in order to oversee this policy separate from OLO.

We have not yet determined whether to support or oppose this measure, in large part because these are important questions that need to be addressed, the industry is eager to work with the county in crafting energy efficient and environmental policies and appreciates the opportunity to offer our feedback.

Should you have any questions or concerns, please contact Griffin Benton, Vice President of Government Affairs at gbenton@marylandbuilders.org or 202-815-4249. Thank you again for your consideration.

cc:Montgomery County Council and Staff

March 8, 2022

Herb Simmens Silver Spring Maryland commenting as an individual on 3-22 the climate assessment bill:

No single climate action is more potentially transformational than the application of a well designed and carefully executed climate assessment requirement.

A climate assessment helps assure that the expenditures and policy, planning and regulatory decisions that are routinely being made by Montgomery county will be more closely aligned to achieve the county's incredibly ambitious yet absolutely necessary greenhouse gas and other climate goals.

A second critical advantage is that an assessment has the potential to help change the culture of county government by creating processes that make county staff in virtually every department and agency and office much more aware of the need to integrate climate into legislative and key executive decisions.

A third reason why a thorough and careful deliberation is especially needed is that few governments have such an assessment. The county will be breaking important ground in sorting out the many novel issues that are almost inevitably arise as these assessments are conducted

Lastly as a result of Montgomery County's leadership on climate in general and specifically with this legislation it is highly likely that other governments will be looking to Montgomery County's model for application and use in their jurisdictions. Thus the decisions the council makes on the specifics of the legislation as well as the substance of the assessments will likely have national implications.

It cannot be emphasized enough that however successful Montgomery County is in sharply reducing emissions and beginning to remove large scale quantities of carbon dioxide from the atmosphere this will mean little in a world with close to 40,000,000,000 tons of CO2 equivalent emitted annually. Thus everything should be done in this legislation and in every legislative and planning effort to maximize the incentives and opportunities for other jurisdictions and the private sector to accelerate their emission reductions and greenhouse gas removals

Montgomery County having declared the first climate emergency in the United States and having set the most ambitious climate target of an 80% reduction in countywide GHG by 2027 as well as complete elimination by 2035 must avail itself of every opportunity to assess its activities for compatibility with these targets.

I feel that the current draft legislation is entirely inadequate particularly in its absence of criteria to be employed in undertaking the assessments. The sparse language that is in the bill is often duplicative and ambiguous and needs significant rewriting.

It is essential that specific assessment criteria be included in the legislation as they are essential to ensure that a comprehensive and multifactorial assessment is accomplished. The OLO staff will still have significant discretion in applying these criteria

The absence of criteria and the confusing contradictory and duplicative language in the bill leads me to strongly recommend that this draft should be set aside and a new bill created from scratch. This new draft should be informed by the following recommendations:

Recommendations by sections of the current draft

Section (1) (B) what does ‘a description of the variables that could affect the assessment’ even mean? Virtually any variable out of millions could potentially affect the assessment so this language should be either entirely eliminated or clarified to better reflect the intent of whoever proposed the language. I would remove this section in its entirety.

Section (1) (C) this section is unnecessary since any action being assessed will have a description of its positive neutral or negative impacts. To single out only those bills that will have no effect is redundant and confusing.

Sections (2) (A) and (B) there is a lack of clarity, as well as inconsistencies, contradictions, and redundancies in these two sections

Positive and negative impacts are required on climate change and carbon dioxide removal in (A) yet quantitative and qualitative effects of identified effects are required for analysis of community resilience and adaptive capacity in (B)

I have great familiarity with both legislation and climate change and yet even after reading this multiple times I have no idea why the terms quantitative and qualitative are used for one category of climate action impacts and positive and negative are used for another category of climate impacts. This needs to be clarified and entirely rewritten after consultation with the original author of the section.

While I see no reason why both positive and negative and quantitative and qualitative impacts cannot be used for all aspects of climate action - greenhouse gas reduction, carbon dioxide removal, community resilience and adaptive capacity what is so puzzling is that quantitative measures are much more relevant to greenhouse gas reductions and carbon dioxide removal than they are to adaptive capacity and community resilience. Yet this language only requires quantitative assessments of the two items - community resilience and adaptive capacity - that are least amenable to quantification.

(d)(3) this section requires proposed amendments to ameliorate negative consequences of the action being assessed while making no mention of the need for proposed amendments to turn a neutral action into a positive one and a positive one into a more positive one. This clause needs

to be rewritten to support the need for recommendations focused on positivity as well as negativity.

The bill also needs clear definitions. For example what does adaptive capacity mean? How is it different then climate resilience and what does climate resilience mean?

Sequestration, carbon drawdown, drawdown, and carbon dioxide removal are terms that are used in two sections. In common practice they are generally used synonymously. The authors of this legislation should therefore be asked why they list all four of these terms but only list three in one clause and two in another clause. I am unable to discern any rationale for either the use of multiple terms or the listing of a different combination of terms in two different clauses.

The bill should either define and clarify the distinctions between these four largely synonymous terms or choose just one term to be used and eliminate the others. It is puzzling that in a bill that otherwise is so absent basic assessment criteria has such a plethora of words and terms that are essentially indistinguishable.

I would strongly suggest using just the term ‘carbon dioxide removal’ as that is the term used in the Emergency Climate Mobilization Resolution and it is most clearly understandable to the general public.

Provisions that should be included in this legislation include the following. The category headings include items many of which overlap more than one category.

Procedures:

The county executive is strongly encouraged to provide written feedback on the proposed action as early in the process as possible and to attend pre-proposal pre-legislative meetings with OLO staff

An Intergovernmental agreement with the Washington metropolitan COG to support the use of this methodology by the COG and by its member governments should be sought. Agreements and data sharing with other governments, private entities and the state of Maryland should also be encouraged to improve the quality of the data, the quality of the assessment and to encourage the dissemination of these assessment methodologies to neighboring communities and jurisdictions

The bill should make clear that given the existential emergency that Climate presents and the critical need to act as fast as humanly possible that all participants in this process shall be strongly encouraged to perform their duties as quickly as humanly possible and that in general speed will be preferred over thoroughness.

Council members, executive staff and the public with ideas for actions requiring assessment are strongly encouraged to meet with OLO as early as possible in the process to discuss the aims

of the action, the kinds of criteria likely to used to evaluate the process and to establish a agreed upon arrangement for ongoing coordination during the development of the action.

Wherever possible coordinated and multidisciplinary reviews of subject actions incorporating budgetary economic, RESJ and climate impact assessments shall be undertaken by OLO. These efforts are likely to result in a more efficient process and equally importantly identify issues that are best evaluated through an interdisciplinary lens.

Staff:

Staff shall be trained to undertake multiple categories of assessments

The Certified Climate Change Professional® (CC-P®) credential or equivalent should be obtained by OLO staff within six months or as soon as practicable

Assessment coverage:

All General Plans, functional plans such as housing, transportation and open space, and facilities plans shall be covered in addition to the categories already enumerated in the current bill.

Within one year after establishment of these assessments, council will consider upon recommendation of OLO extending the assessment efforts to cover affiliated governmental agencies such as the MCPS, MCC and WSSC to the extent allowed by law.

Data:

The assessments should utilize ranges of values given the inherent high level of uncertainty in projecting future impacts

Climate costs should be characterized by:
cost to the county
cost to other governmental agencies or by the
Cost to the general public or to
Specific sectors or geographic areas as appropriate

GHGe shall utilize a methane multiplier of 84 rather than the hundred year global warming potential methane multiplier of 26 given the additional risk of short term heating that could activate multiple tipping points leading to catastrophic impacts. These multipliers can be changed provided the changes are justified with reference to qualified expert sources.

While the use of data methodologies and other information published by government agencies and the IPCC is encouraged to be used the OLO is also encouraged to use any authoritative data source given the well known problems and deficiencies with IPCC reports

Public engagement:

A *Climate Assessment Advisory Board is* created consisting of five citizens, at least three of whom have substantial experience in climate change or a related field. This board shall meet at least quarterly to review recommended improvements in assessments and also shall serve to communicate to the broader public the activities and conclusions undertaken and reached by the OLO. it will also be given the opportunity to review the draft annual report and make comments as necessary to improve it

Periodic reevaluations of adopted legislation based upon actual in addition to projected GHG's and other data should be periodically undertaken to improve the accuracy of the modeling and projections done by OLO.
Reevaluation results should be included in an annual report to be prepared by OLL that describes the number of assessments, salient observations about the assessments that have had the most positive or negative impacts,trends from past years and recommendations for legislative or administrative improvements to facilitate the assessment process

Assessment guidelines and Criteria:

1 All estimated greenhouse gas reductions shall be calculated annually and cumulatively to the target years enumerated in the emergency Climate Mobilization Resolution of 80% by 2027 and 100% by 2035.

2. The estimated carbon dioxide removal and other potential greenhouse gas removals shall be calculated annually and cumulatively up through the target years of 2027 and 2035.

2 The likely cobenefits and co-costs of the action shall be calculated annually and cumulatively to the target years enumerated in the emergency cClimate Mobilization Resolution of 2027 and 2035.

4. In order to operationalize the emergency climate resolution goal of helping to lead a worldwide mobilization the GHG, CDR and adaptive resilience goals must be described and calculated both inside and outside the county annually and cumulatively through the target years of 2027 and 2035.

5. A statement recognizing the degree of consistency of the action with the most recent climate action plan (CAP) as well as other key county plans and regulations including Thrive2050, local master plans, functional plans and plans adopted by affiliated agencies and governmental entities including but not limited to the Montgomery county public schools, Montgomery county

college, Maryland national Park and planning commission, WSSC and others fitting this category shall be included in the assessment.

6. Climate actions shall be categorized as either direct or indirect. Examples of direct emission reduction include the acquisition of low carbon vehicles that directly replace ICE vehicles and installation of heat pumps that replace gas powered powered systems
Programs that reduce demand for high carbon goods or services or that facilitate the acquisition and use of low carbon products such as vehicle electric chargers and programs that generally increase public awareness of climate action generally or specifically are considered to be indirect.

7. The cost per ton of GHG‘s reduced to be estimated through the target years of 2027 and 2035

8. For a project that emits significant emissions alternatives that should be considered and analyzed to reduce its impact include cancellation, delay, relocation, redesign or reconception

I am writing to add an additional recommendation to my earlier testimony on the climate assessment bill.

All regulations that come in front of counsel for review and or approval shall be subject to the provisions of this legislation.

Herb Simmens Silver Spring Maryland built 3-22 climate assessment

This is an addendum to the testimony I just submitted a few minutes ago.

Another key criteria thatmust be included in the bill is to ensure that data is requested and obtained where available to estimate the embedded or upfront emissions of buildings, vehicles and other capital items that generate greenhouse gas emissions during their construction or fabrication.

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Climate & Environment

Humanity has a 'brief and rapidly closing window' to avoid a hotter, deadly future, U.N. climate report says

Latest IPCC report details escalating toll — but top scientists say the world still can choose a less catastrophic path

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A sign at Death Valley National Park in California warns visitors of extreme heat in July 2021. (Melina Mara/The Washington Post)

By Sarah Kaplan and Brady Dennis
Today at 6:00 a.m. EST

107

In the hotter and more hellish world humans are creating, parts of the planet could become unbearable in the not-so-distant future, a panel of the world's foremost scientists warned Monday in an exhaustive report on the escalating toll of climate change.

10 steps you can take to lower your carbon footprint →

Unchecked greenhouse gas emissions will raise sea levels several feet, swallowing small island nations and overwhelming even the world's wealthiest coastal regions. Drought, heat, hunger and disaster may force millions of people from their homes. Coral reefs could vanish, along with a growing number of animal species. Disease-carrying insects would proliferate. Deaths — from malnutrition, extreme heat, pollution — will surge.

These are some of the grim projections detailed by the Intergovernmental Panel on Climate Change, a United Nations body dedicated to providing policymakers with regular assessments of the warming world.

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Drawing on thousands of academic studies from around the globe, the sweeping analysis finds that climate change is already causing "dangerous and widespread disruption" to the natural world, as well as billions of people around the planet. Failure to curb pollution from fossil fuels and other human activities, it says, will condemn the world to a future that is both universally dangerous and deeply unequal.

Low-income countries, which generate only a tiny fraction of global emissions, will experience the vast majority of deaths and displacement from the worst-case warming scenarios, the IPCC warns. Yet these nations have the least capacity to adapt — a disparity that extends to even the basic research needed to understand looming risks.

[Postcards from Earth's climate futures]

"I have seen many scientific reports in my time, but nothing like this," U.N. Secretary General António Guterres said in a statement. Noting the litany of devastating impacts that already are unfolding, he described the document as "an atlas of human suffering and a damning indictment of failed climate leadership."

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"This abdication of leadership is criminal," Guterres added. "The world's biggest polluters are guilty of arson of our only home."

Yet if there is a glimmer of hope in the more than 3,500-page report, it is that the world still has a chance to choose a less catastrophic path. While some climate impacts are destined to worsen, the amount that Earth ultimately warms is not yet written in stone.

The report makes clear, however, that averting the worst-case scenarios will require nothing less than transformational change on a global scale.

The world will need to overhaul energy systems, redesign cities and revolutionize how humans grow food. Rather than reacting to climate disturbances after they happen, the IPCC says, communities must more aggressively adapt for the changes they know are coming. These investments could save trillions of dollars and millions of lives, but they have so far been in short supply.

The IPCC report is a warning letter to a world on the brink. The urgency and escalating toll of climate change has never been clearer, it says. Humanity can't afford to wait one more day to take action — otherwise we may miss the "brief and rapidly closing window of opportunity to secure a livable and sustainable future for all."

Unavoidable upheavals

Monday's report is the second of three installments in the IPCC's latest assessment for world leaders.

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The first section, on the "physical science" of climate change, was published in August and provided a "code red for humanity," Guterres said at the time, warning that people have already heated the planet at a startling pace.

Humanity has unleashed more than a trillion tons of carbon dioxide since the start of the Industrial Revolution, driving up global temperatures by more than a degree Celsius (1.8 degrees Fahrenheit). Combined with the effects of air and water pollution, habitat loss and widespread poverty, this unprecedented warming is wreaking havoc on natural and human systems alike, the report finds.

[Humans have pushed the climate into 'unprecedented' territory, landmark report finds]

Already, climate change has caused the local disappearance of over 400 plant and animal species. Since 1945, warming-induced severe drought has killed up to 20 percent of trees in North America and parts of Africa.

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Activities that drive climate change, primarily the burning of fossil fuels, doubled the area burned by wildfires in western North America between 1984 and 2017. In the oceans, warming has triggered "abrupt and often irreversible" melting of sea ice, bleaching of coral reefs and the demise of kelp forests, the IPCC report says.

Human communities also are dealing with increasingly deadly threats. One study of the world's 150 biggest cities found that these areas have seen a 500 percent increase in extreme heat since 1980. An average of 20 million people per year are forced from their homes by weather disasters as the warming atmosphere intensifies hurricanes, adds fuel to wildfires and heightens the risk of cataclysmic floods.

These escalating calamities are beginning to reverse decades of progress in agriculture, infrastructure and health — cutting into crop yields, damaging buildings and transit systems and incubating the microbes and insects that spread disease. Every year, roughly 40 million premature deaths can be attributed to malaria, cholera, heat stress and other climate-related illnesses.

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"We are losing living spaces for species, and for ourselves as well, because with climate change, some parts of the planet will become uninhabitable," Hans-Otto Pörtner, a German climate researcher and an IPCC co-chair, recently told reporters.

Within the next decade, global average temperatures could reach 1.5 degrees Celsius (2.7 degrees Fahrenheit) above preindustrial levels — a threshold scientists say is critical to avoid a series of irreversible changes. World leaders pledged in the 2015 Paris climate agreement to limit warming to "well below" 2 degrees Celsius (3.6 degrees Fahrenheit), with a goal of not exceeding 1.5 C.

Scientific studies have not identified a single point at which climate impacts go from catastrophic to civilization-ending. Instead, the IPCC warns, the risk of crossing certain "tipping points" increases as the world warms beyond 1.5 degrees Celsius.

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Yet even if humanity musters the willpower to take drastic action, the world cannot avoid grappling with upheavals that are already underway.

By 2030, the number of children whose growth is stunted by malnutrition is projected to grow by at least half a million, the report finds. The glaciers of Mount Kilimanjaro will be completely gone in 2040. By the mid-century, between 31 million and 143 million people across Latin America, sub-Saharan Africa and South Asia could be displaced by weather extremes.

Some baked-in climate impacts will transpire no matter how vigorously the world cuts emissions and adapts to rising temperatures, the IPCC report says. This finding could bolster vulnerable communities' calls for compensation to cope with the "loss and damage" that comes with inevitable change.

[Voices from around the world on what's at stake as climate change worsens]

Nigerian climate activist Philip Jakpor, director of programs for the Lagos-based nonprofit Corporate Accountability and Public Participation Africa, said many Africans have endured tremendous losses caused by global warming. Farmers have watched their croplands turn to desert. Coastal communities have seen their homes swallowed by the sea. Yet most African countries don't have the funds needed to recover and rebuild.

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Industrialized nations — whose wealth was created using the fossil fuel emissions now warming the planet — have a "historic responsibility" to assist, Jakpor said.

"They should pay for the damages from what they have unleashed on the world."

A dangerous and unequal future

A key aspect of Monday's report is global inequity, and how the basic unfairness of climate change crosses continents and spans generations. The more temperatures rise, the wider the chasm between rich and poor will probably become, and the harder it will be for all communities to withstand the intensifying costs.

"That's one of the clearest things the scientific evidence shows about the impacts of climate change — the injustice of it," said Saleemul Huq, director of the International Centre for Climate Change and Development in Bangladesh. "It affects poor people more than rich people, but it's caused by rich people's emissions."

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"That's one of the clearest things the scientific evidence shows about the impacts of climate change — the injustice of it"
— Saleemul Huq, director of the International Centre for Climate Change and Development in Bangladesh

Roughly 80 percent of those at risk of hunger in the worst-case warming scenarios will live in Asia and Africa. People in low- and middle-income countries, especially those in rural areas, are most likely to be displaced by extreme weather.

In Africa, which has generated less than 3 percent of the world's cumulative greenhouse gas emissions, people will endure a 118-fold increase in exposure to extreme heat if the world warms by 4 degrees Celsius (7.2 degrees Fahrenheit). By contrast, heat exposure in Europe — the source of one third of all planet-warming pollution — will go up just fourfold, the report finds.

"The differences in vulnerability around the globe are really striking," said Rachel Bezner Kerr, a professor of global development at Cornell University and a lead author of the IPCC report. "And it's not just between the global South and global North, but within countries."

Higher temperatures are linked to increased rates of violence against women and girls. People with disabilities are less able to evacuate from escalating natural disasters. Indigenous communities will suffer disproportionately as extinctions alter sacred landscapes and deplete traditional food sources.

The disparity is also intergenerational, scientists make clear. Most people currently in power will not live to see the most extreme consequences of continued emissions. It is today's children whose lives will be defined by the problems their parents failed to solve.

"I have so many emotions," said Farzana Faruk Jhumu, a 23-year-old Fridays for Future activist from Bangladesh. "Sometimes it's rage, and sometimes it's sadness. ... I try not to lose hope, but I'm not sure how much hope I have left."

[Countries' climate pledges built on flawed data, Post investigation finds]

Members of Jhumu's generation will see a fivefold increase in extreme events if the world warms 3 degrees Celsius (5.4 degrees Fahrenheit) by the end of the century, the IPCC reports. But under any warming scenario, people over the age of 55 — a demographic that includes the vast majority of world leaders and CEOs — will never endure such frequent catastrophes.

"They are making the decision of our life," Jhumu said of older generations. "It's disappointing they are not even seeing the future that is not that far away."

So far, the world's richest countries have failed to generate the pledged $100 billion in annual funding to help developing countries build greener economies and deal with the intensifying catastrophes caused by climate change — a promise that was enshrined in the 2015 Paris climate

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Wealthy nations must make good on that broken pledge, while at the same time directing a greater share of funding toward adaptation, said Tina Stege, climate envoy for the Marshall Islands.

With sea levels rising at their fastest rates in more than 3,000 years, the low-lying atoll nation is bracing for saltwater contamination of aquifers, the loss of vital fisheries and near-constant floods. Stege said officials in the Marshall Islands have worked hard to develop adaptation plans, but like other resource-strained nations that did little to fuel climate change, it cannot shoulder the costs of worsening impacts without help from the outside world.

"We don't have the ability to go it alone," Stege said. "Honestly, no one else does."

Time to transform

The enormity of the world's task to slow climate change was underscored by another escalating crisis this week, as Russian troops invaded Ukraine while representatives from 195 countries worked to finalize the IPCC report.

The head of the Ukrainian delegation, Svitlana Krakovska, continued to participate in the virtual meeting in recent days, even as bombs fell on her home city of Kyiv. The violence only underscored the dangers facing all people as the planet warms, she told an international gathering of negotiators over the weekend, according to two participants.

"Human-induced climate change and the war on Ukraine have the same roots: fossil fuels and our dependence on them," Krakovska said in an impassioned speech Sunday. "We will not surrender in Ukraine. And we hope the world will not surrender in building a climate-resilient future."

[E.U. will unveil a strategy to break free from Russian gas, after decades of dependence]

Whether people can achieve that future is an open question. But the Earth is destined to undergo a radical transformation in any scenario, the IPCC report makes clear. Either humans will change voluntarily — aggressively transitioning away from fossil fuels — or the planet will force a far more painful transformation.

Policies and pledges made at a key U.N. climate summit in Glasgow in November put global temperatures on track to rise between 2.5 degrees and 2.7 degrees Celsius by the end of the century. This would yield a future defined by suffering, one where rich and poor alike face increased deaths from extreme heat and disease, where populations fight over food and water and raging fires and rising seas make entire communities unfit for habitation.

Avoiding such catastrophe "would require substantial and sustained reductions of greenhouse gas emissions," IPCC scientists wrote in August's installment.

Humanity has the tools to do so. Technologies that would allow the world to travel, produce energy and heat homes without polluting fuels have been invented. Social scientists have plotted out the policies needed to protect the environment while creating a safer world for people.

"The bottleneck for a sustainable future," said Pörtner, the IPCC co-chair, "is political will."

The IPCC authors detail how progress on adaptation "has been observed across all sectors and regions, generating multiple benefits."

Despite the broken promises of the past, leaders of the world's developed nations have promised to scale up funding that would allow cash-strapped, developing nations to adapt to climate threats and to create greener economies. Private-sector finance for climate action, including adaptation, has also grown substantially in recent years.

But Monday's report is unequivocal that current adaptation efforts have been "uneven" and that "there are increasing gaps between action taken and what is needed to deal with increasing risks." Too often, scientists say, the responses to rising seas, extreme heat and other problems have been reactive and small in scale, in contrast to the far-reaching measures that are warranted. One example: sea walls that actually increase the exposure of a low-lying area by allowing more intense development in the near term.

In many locations around the planet, the report says, the capacity for adaptation is already significantly limited. And as climate change worsens, humanity risks running into "hard limits" on its ability to cope. Tropical cities may experience temperatures and humidity levels too hot for the human body to tolerate. Droughts may become so intense that even crops that have been genetically modified to withstand water shortages will wither.

"The destruction and loss of life is not in the future; it is happening now, today," said Chikondi Chabvuta, the Malawi-based Southern Africa advocacy leader for Care International.

That is why developed nations must drastically cut their emissions, direct more money toward adaptation, and live up to their climate finance promises, she said.

"It's time to act," Chabvuta added. "Otherwise, it's a world for just a few, and the others are left off to perish."

More on climate change

After two weeks of talks in Glasgow, diplomats from almost 200 countries reached an agreement to ramp up their carbon-cutting commitments, phase down fossil fuels and increase aid to poor countries on the front lines of climate change. **Read the full text of the agreement here, with annotations.**

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Montgomery County Council
Legislation: Bill 3-22 Legislative Branch-Climate Assessment Required
Organization: The Climate Mobilization, Montgomery County Chapter
Position: Favorable with Amendments
Council Hearing: March 1, 2022

My name is Kevin Walton.
I live in Bethesda.

Dear Council President Albornoz and Council Members,

Please accept this update to the written testimony previously submitted. This document includes additional guidance directed to the Montgomery County Office of Legislative Oversight (OLO), intended to provide suggestions as they implement the requirements of Bill 3-22.

Thank you for this opportunity to testify in support of the Climate Assessment Bill, with amendments, on behalf of The Climate Mobilization of Montgomery County.

The guiding principle of The Climate Mobilization is that we are in a climate emergency. Without an all-hands-on-deck perspective, there is no chance for our society to limit the impact of climate change on our civilization. When Montgomery County declared a Climate Emergency in 2017, we were cheered that the county was taking this issue as seriously as it needed.

This bill by the Council significantly moves forward its work to address climate change. We enthusiastically support this bill that requires all bills and other Council actions, zoning text amendments, master plans, and master plan amendments to be considered through the lens of its impact on climate change. Climate change needs to be the overarching calculus for the county if there is to be any hope that it will meet the targets in the county's Climate Action Plan and that the worst effects of our changing climate can be mitigated.

The key outcome of this bill, however, depends on the response by the Council to the information that the climate assessments provide. The bill calls for each assessment to include, if needed, amendments or recommendations that would reduce or eliminate the climate impact of the proposed Council action. We cannot assume these recommendations will come with no cost, either financially or otherwise. The Council must place a priority on incorporating the amendments or recommendations in order for this climate assessment bill to have value.

Further, we support the four amendments, with some adjustments, as proposed by the CAP Coalition that mirror language in the Racial Equity and Justice Act. They are:

1. In (c), Time for Submission, require the Climate Assessment be provided no later than 7 days before the public hearing, giving time for public review and comment.
2. In (d)(2)(A), amend the language to "including QUANTITATIVE MEASURES OF greenhouse gas emissions, sequestration, and carbon drawdown" to clarify that the climate assessment must include an estimate of the impact on greenhouse gas emissions by the legislation.
3. In (e), Compliance section, only allow waiving the climate assessment requirement in the case of an 'expedited' bill.

4. In (f), on the Annual Report, require an assessment of the cumulative results of the legislation to measure progress toward meeting the goals of the climate emergency resolution, not just a summary of the climate assessments done that year.

Regarding implementation of Bill 3-22, TCM requests that OLO include the following as they develop processes to provide review of the climate impact of covered Council actions:

1. The assessments should include a review of whether each Council action aligns with the county's Climate Action Plan. If it does not, then the OLO should provide recommendations on how the Council action can be brought into alignment.
2. The quantification of the climate impacts of each Council action should also include an evaluation of the cost per ton of GHG emissions, and indicate whether this is a decrease or an increase. This will help the Council and the public understand the savings or costs associated with the Council action.
3. Analyses of GHG emissions and savings/costs should be projected out to the key target dates of 2027 and 2035. This will provide to Council and the public a full understanding of the impact of each Council action.
4. The analyses should pay special attention to the requirement of the legislation to the "quantitative or qualitative evaluations of the identified effects upon community resilience and adaptative capacity", as a full understanding of the co-benefits or -costs is needed to truly understand the climate impact of each Council action.

Thank you for your time.
Kevin Walton
The Climate Mobilization, Montgomery County Chapter

Montgomery County Council Transportation & Environment Committee
Legislation: Bill 3-22 Legislative Branch-Climate Assessment Required
Organization: Environmental Justice Ministry Cedar Lane Unitarian Universalist Church
Position: Favorable with Amendments
Hearing: March 1, 2022

Dear Chairman Hucker and Council Members,

The Cedar Lane Church Environmental Justice Ministry supports the Climate Assessment bill (3-22) with amendments that will help Montgomery County meet its Climate Emergency Resolution of reducing greenhouse gas emissions by 80% by 2027 and 100% by 2035. As a faith group holding respect for the interdependent web of all existence of which we are a part, and the inherent worth and dignity of every person, the Council's unanimous support of and co-sponsorship of this important bill is outstanding as Montgomery County may be one of the first counties in the US to enact a climate assessment bill.

Ensuring that every action and decision taken by Montgomery County will be assessed for Climate will be critical as the County moves forward in its huge task of meeting its reduced emission goals. This is only one of many actions that will be required to fully address our climate emergency. Passage of the Building Energy Performance Standards bill, movement away from dependence on fossil fuels and Community Choice Aggregation are also key to the County's success.

We support the four amendments proposed by the CAP Coalition that mirror language in the Racial Equity and Justice Act. They are:

1. *In* **(c), *Time for Submission***, *require that the Climate Assessment be provided no later than 7 days before the public hearing to give time for public review and comment.*
2. *In* **(d)(2)(A),** add the word 'quantity' to clarify that the **climate assessment** must include an estimation of how much greenhouse gas mitigation will be achieved with the action.
3. *In* **(e), *Compliance*** *section, only allow waiving the climate assessment requirement in the case of an 'expedited' bill.*
4. *In* **(f)** *on the* ***Annual Report****, require an assessment of* ***the cumulativ****e results of legislation to measure progress toward meeting the goals of climate emergency, not just a summary of the climate assessments done that year.*

Finally, we agree with the CAP Coalition that annual statistics must be available for the County to monitor its compliance with the Climate Assessment bill.
Thank you for this opportunity to present.
Nanci Wilkinson
Environmental Justice Ministry Team
Cedar Lane Unitarian Universalist Church

Task Order Request (Scope of Work)
Climate Assessment for Master Plans and Zoning Text Amendments (ZTAs)
Montgomery County, MD

Introduction

Montgomery County Planning Department (Montgomery Planning) of the Maryland-National Capital Park and Planning Commission (M-NCPPC) is seeking assistance to explore alternative methodologies to conduct climate assessments of proposed master plans and zoning text amendments (ZTAs) as required by the proposed Montgomery County Bill 3-22.

As currently proposed, Bill 3-22 will require a climate assessment for each bill, zoning text amendment, master plan, and master plan amendment under consideration by the Council. It specifies that the climate assessment must include:

- the sources of information, assumptions, and methodologies used;
- a description of variables that could affect the assessment;
- if a bill, ZTA, master plan, or master plan amendment is likely to have no climate impact, why that is the case;
- the potential positive or negative effects, if any, of the bill, ZTA, master plan, or master plan amendment upon climate change, including greenhouse gas emissions, sequestration, and carbon drawdown; quantitative or qualitative evaluations of the identified effects upon community resilience and adaptive capacity; and
- amendments or other recommendations to reduce or eliminate any anticipated negative effects of the bill, ZTA, master plan or master plan amendment upon carbon dioxide removal, sequestration, drawdown, community climate resilience and adaptive capacity.

Under Bill 3-22 as currently written, the county's Office of Legislative Oversight (OLO) would be responsible for conducting climate assessments for bills, master plans and ZTAs. However, the Planning Board recommended to the Council that Montgomery Planning conduct climate assessments for master plans and ZTAs, and OLO to review those assessments for adequacy. Based on recent Council committee deliberations, it is expected that the Council will amend the bill to reflect that change. Therefore, Montgomery Planning is seeking consultant support to help the department prepare to conduct these assessments.

Background and Context

Montgomery County is known for its leadership in environmental preservation and sustainable development. It has always placed great emphasis on protecting the county's natural and environmental resources. However, climate change has created a new challenge for the county to make its future land use and development as sustainable as possible and meet the County's goal of eliminating greenhouse gas (GHG) emissions by 2035. Starting in 2007, Montgomery County established a goal to stop increasing GHG emissions by the year 2010, and to reduce emissions to 20 percent of 2005 levels by the year 2050

(Bill 32-07). Another county law (Bill 34-07) required the Planning Board to estimate the carbon footprint of master plan recommendations, and to make recommendations for carbon emissions reductions. Montgomery County also completed its Climate Action Plan (CAP) in 2021 which presents a wide range of strategies to reduce climate-related risk to county residents, businesses and the built and natural environment. The CAP's strategies are intended to cut GHG emissions 80% by 2027 and 100% by 2035, compared to 2005 levels.

Currently, Section 33A-14 (Greenhouse Gas Emissions and Racial Equity and Social Justice) of the Montgomery County Code requires the Planning Board to assess a master plan's potential impact on greenhouse gas emissions in the county, including a carbon footprint analysis; and to consider ways to reduce vehicle miles traveled (VMT), consider options to minimize GHG emissions, and consider the plan's impact on racial equity and social justice in the county.

Since 2010, the Planning Board has included a carbon footprint analysis and recommendations to reduce VMT and GHG emissions in each master plan. The analysis has relied primarily on the use of a GHG emissions modeling spreadsheet first created by King County, Washington, and adjusted for use in Montgomery County. It estimates GHG emissions from embodied energy, building energy use, and transportation used by residents and workers in the master plan area. It uses existing and projected square feet of non-residential development, numbers of existing and projected single family and multi-family residential units, current and future VMT, pavement, and population changes to estimate the change in both total and per capita emissions that may occur as a result of the master plan recommendations. Some functional Master Plans, such as the Bicycle Master Plan and Countywide Transit Corridors Functional Master Plan, have used a modified approach focused exclusively on changes in VMT in the carbon footprint analysis, since these plans did not include specific land use and zoning recommendations that would generate data on projected square feet of non-residential development or numbers of residential units.

Examples of Carbon Footprint Analyses conducted by Montgomery Planning for master plans

1. Ten Mile Creek Amendment Carbon Footprint Analysis
2. Montgomery county Bicycle Master Plan Carbon Footprint Analysis
3. Bethesda Downtown Sector Plan Carbon Footprint Analysis
4. Gaithersburg West carbon footprint Analysis
5. Environmental analysis—Bethesda Downtown Sector Plan
6. Grosvenor-Strathmore Metro Area Minor Master Plan- Environmental Analysis
7. Thrive Montgomery 2050 Planning Board Draft—Carbon Footprint Analysis

Project Description

The purpose of this project is to develop a framework/methodology for Montgomery Planning to comply with the proposed County Bill 3-22. The consultant will help explore a variety of innovative approaches ranging from a more conceptual framework to a well-defined data driven methodology to assess the potential impacts of proposed master plans and ZTAs on climate change. Montgomery Planning is open to the possibility of two different frameworks/methodologies, one for master plans and one for ZTAs. Master plans are typically broader in scope than ZTAs as their recommendations can

encompass several land use and development related impacts on climate, whose full assessment can be more time consuming. The longer time (typically 18-24 months) allowed for development of master plans would allow a more detailed and qualitative climate assessment to be conducted as part of the analyses and recommendations phase of the master plan development process. Most ZTAs on the other hand address very specific issues, may be limited in scope. Additionally, Montgomery Planning and the Planning Board have a very limited timeframe, two to three weeks, to review and provide comments on proposed ZTAs to the County Council prior to the Council's public hearing. Therefore, the new ZTA assessment process should enable the Planning staff to triage ZTAs to determine which ones are appropriate for a simplified determination of no or limited impact due to insignificant, immeasurable, or no climate-related factors, and those that may involve significant climate-related factors and require a full analysis. In all cases, the ZTA climate assessment process will need to be streamlined to allow the assessment to be completed within the quick turnaround time allowed in the Board's standard ZTA process.

Anticipated Tasks and Deliverables

Montgomery Planning encourages the consultant to investigate best practices and present a range of options that they think will best meet the requirements of the proposed Bill 3-22. This analysis of various options should include pluses and minuses of each option based on the complexity of the methodology involved, the need for any additional staff and other resources to implement the new process, and the ability to present easy to understand choices to the decision makers (Planning Board and the Council). As currently envisioned, the consultant's work will encompass three major products:

1. Literature search and exploration of how other jurisdictions in the U.S. and Canada are conducting climate assessments;
2. A range of frameworks/methodologies for conducting climate assessments of ZTAs as required by Bill 3-22; and
3. A range of frameworks/methodologies for conducting climate assessments of proposed master plans as required by Bill 3-22.

Montgomery Planning anticipates the following minimum set of tasks to be completed for the project. The Consultant should feel free to propose additional steps they think will be needed to produce the required deliverables.

1. A kickoff meeting with Montgomery Planning to discuss the project's goals and expectations, existing documents and resources, Montgomery Planning's experience with the current carbon footprint assessment tool, deliverables, schedule, and other questions to better understand the goals of the project and learn about the master plans and ZTAs.
2. Literature search and exploration of what other jurisdictions are doing to address similar questions.
3. Subsequent meetings to share the consultant's findings from the literature search with Montgomery Planning and discuss different alternatives to perform climate assessments per Bill

3-22. The Office of Legislative Oversight may be included as a stakeholder in discussions of potential assessment options.

4. Draft recommendations for conducting climate assessments for ZTAs and master plans as required by County Bill 3-22.
5. Final report outlining a conceptual approach and recommended framework(s).
6. Informational briefing to the Planning Board.

Project Cost:

The overall project cost is not to exceed $61,200.

Project Schedule

Pre-bid meeting:	Week of 5/16
Statement of Work due from consultant:	Week of 5/23
M-NCPPC to approve purchase order:	Week of 5/30
Consultant to start work on the project:	Week of 6/6
Share results of the literature search with Montgomery Planning:	Mid-July
Discuss preliminary options with Montgomery Planning:	September
Draft recommendations:	October
Final report due:	November

What is a master plan?

A master plan is a long-term plan to guide the physical development of all or a portion of Montgomery County. A master plan creates a vision and establishes a planning framework to achieve that vision over the next 15-30 years. It typically includes recommendations regarding land use; zoning; infrastructure (multi-modal transportation systems, parks, open spaces, recreation facilities, schools and other public facilities); preservation of sensitive historic, cultural and environmental resources and other aspects of land use and development in the plan area.

The following are the different kinds of master plans in Montgomery County:

The General Plan

The General Plan is the highest-level view of the county with the longest time horizon of 30 years. It sets a vision for the county and encompasses broad, county-wide policy recommendations for land use, zoning, housing, the economy, equity, transportation, parks and open space, the environment, and historic resources. …On Wedges and Corridors, a General Plan for the Maryland-Washington District (1964 General Plan) was Montgomery County's first comprehensive general plan adopted in 1964. It was updated in 1969, and a limited amendment in 1993, General Plan Refinement of Goals and Objectives for Montgomery County updated the goals and objectives of the General Plan. A new general plan, Thrive Montgomery 2050, is currently underway and expected to be approved by the Council in the fall of 2022.

Functional Plans (or Functional Master Plans)

Functional plans are master plans that take a closer look at the entire county or a big chunk of the county to analyze a specific function or system, such as traffic circulation or green infrastructure, or a policy such as agricultural preservation or housing, and include more detailed guidance than the general plan. Functional plans amend the General Plan but do not recommend changes to specific land use or zoning designation of properties. The Master Plan of Highways and Transitways, the Energized Public Spaces Functional Master Plan, and the Master Plan for Historic Preservation are examples of functional plans.

Area Master Plans (or Master Plans)

Area master plans look at smaller portions of the county—one or more planning areas, a neighborhood or an employment center-- and provide detailed land use, zoning, infrastructure, community amenities, and other growth-related recommendations with a planning horizon of 15-20 years. It is at this level that the full impact of expected growth and the public costs of infrastructure to support that growth can be reliably estimated for planning purposes.

Master plans determine the detailed parameters of development primarily through zoning recommendations which define the permitted uses, density, building types, height and setback and other details of the development that can take place on each property. Master plan recommendations are then used to update the county's zoning map as well as other planning and land use controls such as the Ten-Year Comprehensive Water Supply and Sewerage Systems Plan (Water and Sewer Plan).

Sector Plans
Sector plans are comprehensive plans like area master plans except that they cover a smaller area. They are usually done for a portion of a master plan area such as a Metro station area, a town center, or other small area characterized by intense development or unique characteristics.

Minor Master Plans
Minor master plans encompass small cluster of properties such as the Grosvenor-Strathmore Metro Area Minor Master Plan. Their limited scope allows them to be prepared in a shorter timeframe than a master or sector plan amendment.

Comprehensive vs limited amendments
A comprehensive master plan amendment replaces the previous plan and becomes the new master plan for the area or the functional plan. A limited or minor amendment does not replace the previous master plan but only amends one or more specific recommendations of the current master plan. For example, Grosvenor-Strathmore Metro Area Minor Master Plan is called a minor master plan because it covers a small area, but it is a new, comprehensive amendment as it encompasses all elements of a master plan. Aspen Hill Minor Master Plan Amendment on the other hand does not create a new master plan for small area but only amends a small portion of the larger Aspen Hill Master Plan. Similarly, the Shady Grove Minor Master Plan Amendment addresses the staging trigger in the Shady Grove master Plan.

All master plans and master plan amendments (comprehensive or limited) amend the General Plan as well as the relevant functional, master and sector plans.

What is a ZTA?

A ZTA is a Zoning Text Amendment which involves a change in the text of the Zoning Ordinance (Chapter 59 of the Montgomery County Code). The County Council may amend the text of the Ordinance to create new zones, delete existing ones, or change standards governing the development and uses allowed in particular zones. ZTAs can range from simple, technical clarifications to new zones and significant overhaul of existing regulations with far-reaching impacts. The review time for ZTAs is generally shorter than for master plans. The County Council makes the final decision on all ZTAs after a public hearing and receiving recommendations from the Planning Board, the County Executive, the Board of Appeals, and the Hearing Examiner, as well as feedback from the public.

According to Section 7.2.4. Zoning Text Amendment, of the Zoning Ordinance, after introduction of a ZTA by the County Council, the Council must send the ZTA to the Planning Director, the County Executive, the Board of Appeals, and the Hearing Examiner and notify them of the District Council's public hearing date. The Planning Director must publish a report and recommendation on the proposed ZTA minimum of 7 days before the Planning Board public meeting. To comply with the requirements of Bill 3-22, this report will need to include a climate assessment of the proposed ZTA, which will be included in the Planning Board's recommendations on the proposed ZTA and transmitted to the County Council. Typically, there is a very short turnaround time (2-3 weeks?) for the Planning Staff to analyze

the proposed ZTA and prepare a staff report to be published at least a week before the Planning Board Hearing date.

Examples of ZTAs

1. Zoning Text Amendment No. 19-01: Concerning: Accessory Residential Uses – Accessory Apartments
2. Zoning Text Amendment No. 17-03: Concerning: Accessory Residential Uses - Short-Term Rental
3. Zoning Text Amendment No. 20-04: --Concerning: Farming Defined –Accessory Mulching and Composting
   Zoning Text Amendment No. 21-10: Concerning: Accessory Structures –Use Standards
4. Zoning Text Amendment No. 20-08: Concerning: Residential Care Facility– Continuing Care Retirement Community
5. Zoning Text Amendment No. 21-11: Sandy Spring/Ashton Rural Village Overlay Zone - Amendments
6. Zoning Text Amendment N. 21-04: Germantown-Churchill Village Overlay Zone
7. Zoning Text Amendment No. 21-01: Sign Ordinance – Bus Shelter Advertising