Montgomery Planning

# CLIMATE ASSESSMENT FOR THE MASTER PLAN OF HIGHWAYS AND TRANSITWAYS 2025 TECHNICAL UPDATE

## PURPOSE OF CLIMATE ASSESSMENTS

The purpose of the Climate Assessments is to evaluate the anticipated impact of master plans and zoning text amendments (ZTAs) on the county's contribution to addressing climate change. These assessments will provide the County Council with a better understanding of the potential climate impacts and implications of proposed master plans and ZTAs, at the county level. The scope of the Climate Assessments is limited to addressing climate change, specifically the effect of land use recommendations in master plans and ZTAs on greenhouse gas (GHG) emissions and carbon sequestration, and how actions proposed by master plans and ZTAs could improve the county's adaptive capacity to climate change and increase community resilience.

While co-benefits such as health and cost savings may be discussed, the focus is on how proposed master plans and ZTAs may impact GHG emissions and community resilience.

## SUMMARY

The Montgomery County Planning Board anticipates that most of The Master Plan of Highways and Transitways (MPOHT) 2025 Technical Update recommendations will have positive minor impacts and a few minor negative impacts on the county's goals of addressing greenhouse gas emissions, and insignificant negative impacts on carbon sequestration, and, for the most part, minor to moderately positive or, in some cases, no significant impacts on community resilience and adaptive capacity. Removal of Highway M-83, however, would result in significant positive GHG and carbon sequestration impacts, and indeterminate negative impacts on accessibility to community and public spaces, access to transportation options, and community connectivity. On the other hand, removing M-83 would have significant positive impacts on heat-related impacts, exposure to noise, forest cover, non-forest tree canopy, other green areas, pervious cover, stormwater quality and quantity, and air quality.

## BACKGROUND AND PURPOSE OF THE MPOHT 2025 TECHNICAL UPDATE

Montgomery County's Master Plan of Highways and Transitways (MPOHT) 2025 Technical Update is a functional master plan that provides a "road map" for making transportation investments in the county. It includes provisions that impact all modes of transportation, including preserving rights-of-way to accommodate future transportation systems, identifying street classifications, the number of planned general purpose lanes and transit lanes, and designating target speeds for individual roadways. The focus of this update to the master plan is to reevaluate the classifications of all existing MPOHT roads to ensure that each road is accurately and contextually classified based on the intended roadway function, identify and reevaluate target speeds for all MPOHT roads, introduce a new approach to street design along the suburban areas of the "Growth Corridors" identified in Thrive Montgomery 2050, and reevaluate master planned transit station locations and transitways.

Also included is a recommendation to remove the northern section of Highway M-83 and retain the southern section until a more detailed planning and engineering feasibility study can be completed. This recommendation was not contained in the Public Hearing Draft Plan MPOHT but resulted from an amended plan scope to address M-83 concerns raised by public comment and the Planning Board.

## VARIABLES THAT COULD AFFECT THE ASSESSMENT

The following climate-related variables were considered in this assessment as impacted by the Master Plan 2025 Technical Update. Climate related variables include the various greenhouse gas reduction, sequestration, resilience, and adaptive capacity activities in the climate assessment checklists (Tables 1 and 8) contained in the *Climate Assessment Recommendations for Master Plans and Zoning Text Amendments in Montgomery County*.

### CLIMATE-RELATED VARIABLES

- Transportation- Vehicle miles traveled by type, Number of trips, Non-vehicle modes of transportation, Public transportation use.
- Energy – Electricity usage.
- Land Cover and Management –Area of non-forest tree canopy, Area of green cover

### COMMUNITY RESILIENCE-RELATED VARIABLES

- Exposure-Related Factors –Activity in flood-risk areas, Activity in urban heat islands, Exposure to other hazards (e.g. storms, noise)
- Sensitivity-Related Factors –Area of forest, Change to non-forest tree canopy, Change to quality or quantity of other green areas, Change to impacts of heat, Change in perviousness, Change to water quality or quantity, Change to air quality

### ADAPTIVE CAPACITY-RELATED VARIABLES

- Change to accessibility or prevalence of community and public spaces, Change to emergency response and recovery capabilities, Change in access to transportation, Change to community connectivity

### OTHER ADAPTIVE CAPACITY FACTORS

- Change in community safety, Change in community health.

## MPOHT 2025 TECHNICAL UPDATE RECOMMENDATIONS

Nine categories of technical changes are recommended in the MPOHT 2025 Technical Update to provide a more up-to-date master plan document that is consistent with Montgomery County Code, Vision Zero, and the Complete Streets Design Guidelines, and will serve to support the implementation of *Thrive Montgomery 2050*:

1. Removal of Streets from the MPOHT
2. Planned Lane Reductions
3. Addition of Target Speeds
4. Changes to Street Classification
5. Removal of Transitways
6. Addition of Transitways
7. Transit Station Changes
8. Development of a Growth Corridor Area and Growth Corridor Boulevard Street Type in the Complete Streets Design Guide
9. Removal of the northern section of Highway M-83 and retaining the southern section of M-83 until a more detailed planning and engineering feasibility study can be completed.

## ANTICIPATED IMPACTS

### GREENHOUSE GAS EMISSIONS, CARBON SEQUESTRATION, AND DRAWDOWN

**Removal of Existing Streets from the MPOHT**

These recommendations would result in three short road segments (total of 0.078 miles) currently designated as Business District Streets (primary roads) being redesignated as Neighborhood Streets

(secondary roads). Because these three street segments already exist as Neighborhood Streets (secondary roads), Planning staff expects there will be no significant positive or negative GHG emission or sequestration-related impacts.

**Planned Lane Reductions**

These recommendations would result in four street segments (total of 2.9 miles) currently planned for four lanes to be reduced to two lanes. With the revised lane recommendations, these segments would remain as they are today, with two through lanes. As a result, Planning staff expects there will be minor positive GHG emission and local noise level benefits through continuing to limit traffic volumes along these streets.

**Addition of Target Speeds**

These recommendations would result in adding target speeds to 878 street segments (total of 656 miles). The great majority of these target speeds are for streets that do not currently have them. The addition of target speeds increases the potential for future speed reductions by either SHA or MCDOT. Eleven streets that currently do have target speeds are recommended for a reduced target speed. Depending on the scope of any future speed reductions, the result could be significant positive environmental impacts due to lower GHG emissions.

**Changes to Street Classification**

These recommendations would result in the reclassification of 55 street segments (total of 18 miles). Depending on the type of reclassification, these changes would be expected, for the most part, to result in minor positive GHG emissions impacts due to decreases in target speeds. In other cases, no significant impact due to no change in target speeds, and for very few roads, minor negative GHG emissions impacts due to a higher target speed.

**Removal of Transitways**

Three master planned transitways (total 16.53 miles) are recommended for removal as they are considered no longer needed as part of the plant BRT network. This is not anticipated to result in significant GHG emission-related impacts.

**Addition of Transitways**

Two transitways are recommended for addition to the MPOHT (total 0.59 miles). The US 29 BRT – Castle Boulevard Extension is currently in use by the US 29 Flash bus service, so this is formalizing an existing service, with insignificant GHG-related impacts. The White Oak to Food and Drug Administration (FDA) extension of the New Hampshire BRT may shorten transit connection times for the New Hampshire Avenue BRT between White Oak and the FDA and encourage bike and pedestrian trips to FDA from White Oak and the US 29 BRT. Any GHG emission or sequestration-related impacts would be expected to be insignificant to very slightly negative.

**Transit Station Changes**

Of 25 transit station changes recommended, 16 are recommended for addition, and 9 are recommended for removal. Of the 16 recommended for addition, 9 are relocations of the 9 stations recommended for removal, and seven are new stations recommended by this update of the MPOHT. Only a few of the added stations will involve very minor GHG-and sequestration-related negative impacts due to the removal of a few grassed areas and several street trees.

**Development of a Growth Corridor Area and Growth Corridor Boulevard Street Type in the Complete Streets Design Guide**

To advance the Growth Corridor-related goals of Thrive Montgomery 2050, this MPOHT Update recommends updating the Complete Streets Design Guide to include a Growth Corridor area, and to include a Growth Corridor Boulevard street type. This will create the opportunity to provide greener street cross-sections, increased utility for bikes and pedestrians, more frequent protected crossings, lower target speeds, and other features to achieve Vision Zero. Recommending these updates to the Complete Streets Design Guide will not result in roads being reclassified or designated as growth corridor boulevards, but a tool will be provided that could be used in future area and sector master plan updates to support Thrive Montgomery's goals. As future master plans along Growth Corridors consider changes to land use, urban design, and zoning, they may also choose to designate all parts of these corridors as Growth Corridors areas and Growth Corridor Boulevards. As a result, a detailed assessment of the climate-related impacts of these MPOHT recommendations is not feasible at this time, although Planning staff expect a mix of local positive and negative minor GHG emissions and sequestration impacts. Specific local implementation of growth corridor-related Thrive goals will require future area and sector master plan updates, and will need to be considered in climate assessments done at the time of master plan revision.

**Removal of the Northern Section of Highway M-83 and Retaining the Southern Section of M-83 Until a More Detailed Planning and Engineering Feasibility Study can be Completed**

The MPOHT Update recommends removal of the northern section of Highway M-83 and retaining the southern section of M-83 until a more detailed planning and engineering feasibility study can be completed. Removal of the northern section of M-83 (approximately 4.9 miles in length) would likely have significant positive local impacts on vehicle-related GHG emission factors, as well as positive impacts on carbon sequestration-related factors resulting from retention of forest (approximately 42.7 acres), non-forest tree canopy, and other green cover. Building the southern section of M-83 (approximately 0.8 miles in length) can be expected to result in some moderate to significant local negative impacts on GHG emissions from increases in local VMT and number of trips, and minor to moderate local negative impacts on carbon sequestration-related factors from loss of forest (approximately 7.3 acres), and loss of non-forest tree canopy and other green cover. These negative impacts could be expected to vary to some degree depending on the specific alignment chosen. On the other hand, positive GHG emissions impacts (decreases in VMT and number of trips) would likely

result along nearby arterial roads due to traffic taking advantage of the southern section of M-83, if it is built.

### COMMUNITY RESILIENCE AND ADAPTIVE CAPACITY

Most of the recommendations of the Master Plan of Highways and Transitways 2025 Technical Update are anticipated to have some slightly negative to mostly slight to moderate positive impacts on community resilience and adaptive capacity. The planned lane reductions should ensure continued positive community safety, health, and connectivity (e.g. social connections, sense of place) benefits.

The addition of almost all of the target speeds is expected to have minor to moderate positive impacts on community safety, health, and community connectivity (e.g. social connections, and sense of place).

The changes to street classification include a variety of types and, depending on the type of classification, are expected to result in minor to moderate local positive impacts on accessibility or prevalence of community and public spaces, and community safety, health, and community connectivity (e.g. social connections, sense of place), and air quality for classifications that recommend street types that are more consistent with communities and neighborhoods and multimodal transportation options, and minor to moderate negative local impacts on community safety, health, community connectivity (e.g. social connections, sense of place), and air quality for recommended street types that are more consistent with commercial and industrial settings. Some classifications will result in minor increases in impervious cover resulting in minor negative stormwater quantity and quality and heat island impacts. Other classifications will involve minor decreases in impervious cover resulting in minor positive stormwater quantity and quality and heat-related impacts.

The recommended White Oak to Food and Drug Administration (FDA) extension of the New Hampshire BRT may shorten transit connection times for the New Hampshire Avenue BRT between White Oak and the FDA and encourage bike and pedestrian trips to FDA from White Oak and the US 29 BRT. Planning staff expects moderate positive local impacts on community access to transportation, emergency response and recovery capabilities, and air quality. A likely slight increase in imperviousness is expected to have a slight negative impact on stormwater quantity and quality, and heat-related effects. The increase in connectivity and multi-modal transportation options are expected to have minor to moderate local positive impacts on community safety, health, and community connectivity (e.g. social connections, sense of place).

The recommended transit station changes are intended to enhance multi-modal transportation options in key parts of the county and are expected to have moderate to significant local positive impacts on accessibility or prevalence of community and public spaces, and community safety, health, and community connectivity. In a few cases, the new stations will involve minor increases in

impervious surface with minor increases in stormwater quantity and quality, and heat-related impacts expected as a result.

As with the previous discussion of GHG and sequestration-related impacts of the recommended additions to the Complete Streets Design Guide, a detailed assessment of the climate-related impacts of these MPOHT recommendations is not feasible at this time, although Planning staff expect generally positive community resilience and adaptive capacity impacts, with some negative stormwater quantity and quality, heat-related, and air quality impacts. Specific local implementation of growth corridor-related Thrive goals will require future area and sector master plan updates, and will need to be considered in climate assessments done at the time of master plan revision.

Not building the northern section of M-83 would likely have some indeterminate negative impacts on accessibility to community and public spaces, access to transportation options, and community connectivity. On the other hand, it would have significant positive impacts on heat-related factors, exposure to noise, exposure to flood risk areas, exposure to other hazards, forest cover, non-forest tree canopy, other green areas, pervious cover, stormwater quality and quantity, and air quality. These impacts could be expected to vary to some degree depending on the specific alignment chosen. Building the southern section of M-83 would result in moderate to significant local negative impacts on heat-related factors, exposure to noise, exposure to flood risk areas, exposure to other hazards, forest cover, non-forest tree canopy, other green areas, pervious cover, stormwater quality and quantity, and air quality. On the other hand, it would have positive impacts on community resilience and adaptive capacity factors including accessibility to community and public spaces, access to transportation options, and community connectivity. It would also increase air quality along nearby arterial roads that would experience less traffic.

## RELATIONSHIP TO GREENHOUSE GAS REDUCTION AND SEQUESTRATION ACTIONS CONTAINED IN THE MONTGOMERY COUNTY CLIMATE ACTION PLAN (CAP)

The CAP details the effects of a changing climate on Montgomery County and includes interagency strategies to reduce greenhouse gas emissions and climate-related risks to the county's residents, businesses, and the built and natural environment.

The CAP includes 86 climate actions as a pathway to meet the county's ambitious climate goals while building a healthy, equitable, and resilient community. Each county department has responsibilities for specific climate actions that are relevant to the work of that department. The following section provides a list of the CAP action items relevant to Montgomery Planning and addressed within the MPOHT 2025 Technical Update. While it is not possible to know the rate of implementation, development, funding, or other implications, each action item was rated high, medium, or low for its potential to reduce GHG gas emissions or sequester carbon.

### TRANSPORTATION ACTIONS

- T-1: Expand Public Transit: High. There are recommendations for increasing access, stations, stops, and frequency of public transit.
- T-2: Expand Active Transportation and Micro-mobility Network: High. There are recommendations that would increase multi-modal options such as bicycle lanes, and pedestrian options, and increase access, stations, and frequency of public transit.
- T-8: Transportation Demand Management: High. There are recommendations intended to influence people's transportation choices and reduce the use of single occupancy vehicles.
- T-9: Traffic Management Systems: High. There are recommendations that would affect vehicle miles traveled, number of trips, and non-vehicle modes of transportation.

### CARBON SEQUESTRATION ACTIONS

- S-1: Retain and Increase Forests: High (for forest retention), Low (for increase in forest). Removing M-83 would save significant forested areas.
- S-2: Retain and Increase Tree Canopy: Medium. Recommendations would foster increasing tree canopy cover within the rights-of-way.

## RECOMMENDED AMENDMENTS

The Climate Assessment Act requires the Planning Board to offer appropriate recommendations such as amendments to the proposed Master Plan of Highways and Transitways 2025 Technical Update or other mitigating measures that could help counter any negative impacts identified through this Climate Assessment. No amendments to the Plan are recommended by Staff as most of the impacts are positive. Negative impacts are mostly minor, and existing code requirements that govern the implementation of recommendations involving design and construction include specifications intended to limit negative impacts. In addition, for some of the recommendations, negative impacts occur in conjunction with positive impacts.

## SOURCES OF INFORMATION, ASSUMPTIONS, AND METHODOLOGIES USED

The climate assessment for The Master Plan of Highways and Transitways 2025 Technical Update was prepared using the methodology for master plans contained within the *Climate Assessment*

*Recommendations for Master Plans and Zoning Text Amendments in Montgomery County, December 1, 2022*.