

ITEM 9B – Information

April 20, 2022

Climate Change Mitigation Goals and Strategies: Survey Results

Background:

Staff will report out on the Climate Change Mitigation Goals and Strategies work session, which occurred just prior to the meeting. The TPB plans to take action, perhaps in May, on goals and strategies which can be supported by the majority of the TPB, based on the results of the recent survey of TPB members and subsequent discussions.

The memo/info provided for this item will be presented and discussed at the work session.

Attachments:

- Presentation
- Memorandum - Climate Change Elements For Consideration

CLIMATE CHANGE MITIGATION PLANNING ELEMENTS

Preliminary Proposal – For Consideration

Kanti Srikanth
Staff Director, TPB

Transportation Planning Board, Work Session on Climate Change Mitigation Goals
and Strategies
April 20, 2022



OUTLINE

- Climate Change Mitigation (CCM) – Planning Elements
- TPB Members input:
 - Adopting GHG reduction goals specifically for on-road transportation
 - Adopting a set of multi-modal, multi-pathway GHG reduction strategies for the on-road sector



CCM Planning Elements

- Greenhouse Gas (GHG) reduction goals specifically for on-road transportation sector
 - Short term (2030)
 - Long term (2050)
- GHG Reduction strategies – Multi-modal, Multi-pathway
 - Land-use, Highway, Transit, Non-motorized
 - Clean Fuel, Reduced VMT, Improved Operational Efficiency



GHG Reduction Goals: On-road Sector

1. 50 percent below on-road sector GHG emissions in 2005 by 2030
 2. 80 percent below on-road sector GHG emissions in 2005 by 2030
- 31 responses:
65% Adopt / 16% Explore appropriate level / 19% Other
 - Comments associated with Other response note CCMS finding that 2030 goal is not attainable OR implies support to assess what actions are viable to inform appropriate level of GHG reduction goals.
 - Climate Change Mitigation Study (CCMS) tested ten scenarios and found that the 2030 50% goal would be extremely challenging to attain. The scenario with the most aggressive assumptions (COMBO.4) attained only 38% reduction.



GHG Reduction Strategies: Adopt

No.	Description of Goals / GHG Reduction Strategy	Adopt	Explore	Other
1	C1. Convert vehicles to clean fuels. In 2030, 100% of new light duty vehicles sold; 50 percent of new medium/heavy duty trucks, and 100% of all buses on the road will be clean fuel vehicles. In 2050, 100% of new light duty vehicles sold, <u>100%</u> of new medium/heavy duty trucks sold, and 100% of all buses on the road will be clean fuel vehicles.	45%	42%	13%
2	C2. Develop an electric vehicle charging network in the region to support an accelerated shift of light-duty passenger cars and trucks to electric vehicles.	81%	13%	6%
3	C3. Add additional housing units , above current COG Cooperative Forecasts, (approximately 77,000 by 2030 and 126,000 by 2050) near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers.	57%	33%	10%
4	C8. Reduce travel times (relative to 2020) on all public transportation bus services. In 2030, travel times are reduced by 15 percent, and in 2050, travel times are reduced by 30 percent.	58%	39%	3%
5	C9. Implement projects or programs to provide walk/bike access to all TPB identified high-capacity transit stations. (Survey Question C9)	90%	0%	10%
6	Complete the TPB's National Capital Trail Network to increase walk and bike trips throughout the day.	87%	0%	13%
7	C14. Implement traffic operational improvement measures at all eligible locations, including advanced ramp metering, enhanced incident management systems, active signal controls, and transit bus priority treatments.	77%	17%	6%



GHG Reduction Strategies: Explore Further

Ref.	Description of Goals / GHG Reduction Strategy	Adopt	Explore	Other
1	C4a. Take action to shift growth in jobs and housing from locations currently forecast (COG Cooperative Forecasts) to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers, within jurisdictional boundaries, to improve the jobs-housing balance locally. See Note	29%	65%	6%
2	C 5. Make all public bus transportation in the region fare-free by 2030.	23%	73%	3%
3	C6. Make all public rail transportation in the region fare-free by 2030.	7%	73%	20%
4	C7. Price workplace parking for employees. In 2030, prices in Activity Centers would vary between \$12-\$14/day. In 2050, prices in Activity Centers would vary between \$12-\$14/day and be approximately \$6/day outside of Activity Centers. (2020 dollars to be adjusted for inflation)	27%	43%	30%
5	C11. Convert a higher proportion of daily work trips to telework. By 2030, convert 25 percent of daily work trips and by 2050 convert 40 percent of work trips to telework.	38%	45%	17%
6	C12. Charge a new fee per vehicle mile of travel (VMT) by motorized, private, passenger vehicles in addition to the prevailing transportation fees and fuel taxes. In 2030, the fee would be 5 cents/mile and in 2050, the fee would be 10 cents/mile	10%	67%	23%
7	C13. Charge a “cordon fee” of \$10 per motorized vehicle trip for all vehicles entering Activity Centers in the core of the District of Columbia, by 2030.	3%	63%	34%

Note: On a related question (Part C, 4b.) about the jurisdiction/ agency position on “Take actions to shift growth in jobs and housing from locations currently forecast (COG Cooperative Forecasts) to locations near TPB-identified high-capacity transit stations and in COG’s Regional Activity Centers across the region to improve the jobs-housing balance, regionally.”

- 27% responded that they lacked the specific authority to take any actions;
- 47% responded that the actions taken to balance jobs and housing within their jurisdiction would contribute to balance jobs and housing regionally; and
- 27% chose Other.



Kanti Srikanth

Director, TPB

(202) 962-3257

Ksrikanth@mwkog.org

mwkog.org/tpb

Metropolitan Washington Council of Governments

777 North Capitol Street NE, Suite 300

Washington, DC 20002



National Capital Region
Transportation Planning Board



MEMORANDUM

TO: Transportation Planning Board

FROM: Kanti Srikanth, TPB Staff Director
Erin Morrow, TPB Transportation Engineer
Dusan Vuksan, TPB Transportation Engineer
Mark Moran, TPB, Program Director, Travel Forecasting and Emissions Analysis

SUBJECT: Climate Change Mitigation Elements for Visualize 2045 – Preliminary Proposal

DATE: April 14, 2022

This memorandum presents two climate change mitigation elements that the National Capital Region Transportation Planning Board (TPB) could consider adopting for inclusion in the 2022 update of the TPB's long range transportation plan, Visualize 2045. These elements could also be added to the regional planning priorities the TPB has developed to inform future long-range transportation plans and the planning process. The intent of adding climate change mitigation considerations into the plan and planning process has been discussed by the board throughout last year and was the basis for the TPB's Climate Change Mitigation Study that was completed December of 2021.

BACKGROUND

The TPB identified, during its January 19, 2022 meeting,¹ the following two climate change elements to be considered for inclusion in Visualize 2045: (1) a set of greenhouse gas (GHG) reduction goals exclusively for the on-road transportation sector; and (2) a set of multi-pathway strategies² to reduce GHG emission in the on-road transportation sector. TPB staff conducted a survey of all TPB members,³ during February and March of 2022, to gather input from the jurisdictions and agencies represented on the TPB regarding these two elements. The survey was developed to determine the level of support for the two elements among the board members in terms of the TPB adopting them as part of its transportation planning priorities.

SURVEY STATUS

TPB members received a Climate Change Mitigation Goals and Strategies Questionnaire on February 28, 2022 and responses were due by April 1, 2022. The TPB has 44 members, of which 39 are voting members and 5 are non-voting/ex-officio members. The non-voting/ex-officio members

¹ Sebesky, Pamela, Reuben Collins, and Christina Henderson. Letter to National Capital Region Transportation Planning Board. "Process to Add Climate Change Mitigation Strategies to the Long-Range Transportation Plan and the Planning Process," January 13, 2022. <https://www.mwcog.org/events/2022/1/19/transportation-planning-board/>.

² The TPB's Climate Change Mitigation Study identified three potential pathways to reduce on-road greenhouse gases: Vehicle/Fuel Technology, VMT Reduction, and Traffic Operational Efficiencies.

³ Srikanth, Kanti. Memorandum to National Capital Region Transportation Planning Board. "Process to Solicit Member Input on Climate Change Mitigation Goals and Strategies and Incorporate TPB Action in the 2022 Update to Visualize 2045." February 10, 2022. <https://www.mwcog.org/events/2022/2/16/transportation-planning-board/>

represent federal agencies.⁴ As of April 11, 31 of the TPB voting members had responded to the survey, which implies a response rate of 70% of the 44 TPB members and 79% of the 39 voting TPB members. The 31 responses received have been compiled, reviewed, and used as the sole source for developing the preliminary on-road, transportation-sector GHG reduction goals and strategies currently proposed for the board's consideration in this memo.

PRELIMINARY CLIMATE CHANGE ELEMENTS AS PLANNING PRIORITIES

Part A of the survey focused on adopting a regional GHG reduction goal exclusively for the on-road transportation sector, which is one of the largest contributors of GHGs. Part B of the survey inquired about the member jurisdiction/agency's ability to include climate change considerations in their transportation decision making. Part C of the survey sought members' input on 15 different multi-modal and multi-pathway on-road GHG reduction strategies. These strategies included in the survey were based on the TPB's 2021 Climate Change Mitigation Study (CCMS).⁵ Responses to each of these strategies were sought on two basic aspects: (1) should the TPB adopt this goal or strategy at this time as a planning priority for the region? and (2) gauging the agency's ability to implement the strategy (if they were not already doing so). The choice of responses to the 15 strategies included adopting the strategy, conducting a more thorough examination of the strategy, or taking some other action.

By examining the closed-form responses to the questions as well as the open-form responses (i.e., comments/additional information provided by members), staff has grouped the above two climate change mitigation elements into two groups:

1. GHG reduction goals and strategies with support for adoption at this time.
2. GHG reduction goals and strategies with support for further exploration.

Generally, TPB member support for adoption was defined as the majority or a plurality of the responses had chosen that response. The remaining responses were grouped under explore further OR other. Representative comments that either qualified or expanded on the response to the question, along with staff notes, are also included herein. A summary of all comments received on every question of the survey was shared with the board members in a separate memo.⁶

⁴ Federal Highway Administration (FHWA D.C. office), Federal Transit Administration (FTA Region 3 office), National Capital Planning Commission, Metropolitan Washington Airports Authority, and National Parks Service.

⁵ ICF, Fehr & Peers, and Gallop Corporation, "TPB Climate Change Mitigation Study of 2021: Scenario Analysis Findings," Final Report (National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, January 7, 2022), <https://www.mwcog.org/tpb-climate-change-mitigation-study-of-2021/>.

⁶ Tim Canan, April 14, 202, "Climate Change Mitigation Goals and Strategies Questionnaire Results".

PRELIMINARY CLIMATE CHANGE ELEMENTS FOR CONSIDERATION

I Adopt On-road Transportation GHG Reduction Goals

No.	TPB formally adopting the following levels of GHG reduction goals (Survey Question A3)	Adopt	Explore	Other
1.	50% below on-road transportation GHG levels in 2005 by 2030 and	65%	16%	19%
2.	80% below on-road transportation GHG levels in 2005 by 2050			

Staff notes:

The latest TPB study, the CCMS, finds implementing all the strategies analyzed at the assumed levels of outcomes (see, for example, COMBO.4) would be insufficient to meet the above 2030 goal, though several of the analyzed scenarios were able to achieve the 2050 goal. The CCMS analysis found that:

1. For the year 2030, under a reference electrical grid assumption, four of the ten scenarios would be able to attain GHG emissions reductions of 33% to 38% (p. ix), levels that would be consistent with the assumptions in COG's 2030 Climate and Energy Action Plan,⁷ meaning that, if these transportation-sector emissions were combined with the assumed reductions in GHG emissions from the other sectors, the region would be able to attain an overall reduction of 50% GHG emissions compared to 2005 levels, by 2030.
2. For the year 2050, under a reference electrical grid assumption, one of the ten scenarios (COMBO.4) would be able to attain GHG emissions reductions above the 80% goal. However, if the region were able to attain a clean electrical grid, the CCMS found that six of the ten scenarios were able to attain or surpass the 80% reduction goal (p. ix).

There were two questions on the survey (Question A2 and Question B1) that staff developed to add supporting information for the TPB to decide on the adoption of a GHG reduction goal.

An initial review of responses to Survey Question A2, which asked if jurisdictions or agencies have identified on-road transportation sector GHG reduction goals, showed that 48% of respondents have goals and 21% of respondents are considering goals. However, in reviewing the comments, it appears that respondents were identifying qualitative policy objectives related to reductions of on-road GHG emissions (e.g., our jurisdiction has “goals to prioritize low carbon modes, reduce automobile dependency and VMT, and improve transit”), rather than quantitative GHG reduction goals.

An initial review of responses to Survey Question B1, which asked if an assessment of the potential for a proposed project, program, or policy to reduce GHG emissions reflected in jurisdiction's/agency's decision-making, showed that 49% of respondents are considering GHG emission reductions in their decision-making and 26% of respondents will be able to consider it. However, in reviewing the comments, staff realized that the assessments are not always technical/quantitative, but rather qualitative, meaning projects were generally accepted as reducing GHG emissions.

⁷ “Metropolitan Washington 2030 Climate and Energy Action Plan” (Washington, D.C.: Metropolitan Washington Council of Governments, November 18, 2020), <https://www.mwcog.org/documents/2020/11/18/metropolitan-washington-2030-climate-and-energy-action-plan/>.

Selected member comments:

- a) The TPB needs to carefully examine the levels to determine appropriateness and feasibility (chance of success), AND the impact on real people and on the individual jurisdictions.
- b) Findings from the TPB's Climate Change Mitigation Study (CCMS) note that the strategies evaluated are aggressive. Further evaluation needs to be done to determine appropriate levels.
- c) Based on the study that was presented to the TPB, we should examine how much reduction is practical for the transportation sector compared to sectors like buildings and energy production, and make a cost-effective and balanced decision on goals for the sector under our control along with recommendations for the other sectors.
- d) Because we are a small jurisdiction without jurisdiction over many aspects related to transportation emissions and have many vehicles passing through the city from other parts of the region, we strongly support these goals and find them necessary to meet our own climate change mitigation goals.
- e) Better to adopt the goals we need to reach and use them to stimulate the adoption of future new strategies as they emerge, than to adopt goals that are not [ambitious] enough.
- f) If the TPB adopts transportation goals for GHG emissions reductions, it should be reported system/region-wide.

II. Adopt On-road Transportation GHG Reduction Strategies: ~~Strategies with Strong Support~~

The TPB survey included 15 GHG reduction strategies. As shown in Table 1, a plurality or majority of the responses to seven of these favored the TPB adopting these strategies. Below the table is a description of staff notes and selected member comments for each strategy.

Table 1 On-road transportation GHG reduction strategies that received support by respondents of the TPB survey

No.	Description of Goals / GHG Reduction Strategy	Adopt	Explore	Other
Strategies with Support For Adoption				
1.	Convert vehicles to clean fuels. In 2030, 100 percent of new light duty vehicles sold; 50 percent of new medium/heavy duty trucks, and 100 percent of all buses on the road will be clean fuel vehicles. In 2050, 100 percent of new light duty vehicles sold, 100 percent of new medium/heavy duty trucks sold, and 100 percent of all buses on the road will be clean fuel vehicles. (Survey Question C1)	45%	42%	13%
2.	Develop an electric vehicle charging network in the region to support an accelerated shift of light-duty passenger cars and trucks to electric vehicles. (Survey Question C2)	81%	13%	6%
3.	Add additional housing units, above current COG Cooperative Forecasts, (approximately 77,000 by 2030 and 126,000 by 2050) near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers. (Survey Question C3)	57%	33%	10%
4.	Reduce travel times (relative to 2020) on all public transportation bus services. In 2030, travel times are reduced by 15 percent, and in 2050, travel times are reduced by 30 percent. (Survey Question C8)	58%	39%	3%
5.	Implement projects or programs to provide walk/bike access to all TPB identified high-capacity transit stations. (Survey Question C9)	90%	0%	10%
6.	Complete the TPB's National Capital Trail Network to increase walk and bike trips throughout the day. (Survey Question C10)	87%	0%	13%
7.	Implement traffic operational improvement measures at all eligible locations, including advanced ramp metering, enhanced incident management systems, active signal controls, and transit bus priority treatments. (Survey Question C14)	77%	17%	6%

Strategy C1 Convert vehicles to clean fuels.

Staff notes: In general, the CCMS did not analyze individual strategies, but rather groups of strategies, where each grouping formed one of the 10 "bottom-up" scenarios. However, scenarios VT.1 and VT.2 were, in fact, focused on one strategy: converting vehicles to clean fuel. Thus, based on the findings of the CCMS, this strategy was one of the most effective strategies analyzed. While there is general support for a strategy to convert motor vehicles to clean fuels (it received a plurality of responses), many of the respondents noted, however, that the proposed goals for clean fuel vehicles for 2030 would be unachievable.

Selected member comments:

- a) It should be noted current federal guidelines related to transit buses would not even allow for the County to convert its entire fleet and maintain existing levels of service.
- b) Be mindful that Metro and other transit agencies have already determined it will be impossible to achieve the 2030 goal of all buses on the road being clean-fuel vehicles, given bus lifecycle requirements, procurement lead times, and the need to coordinate with utilities, jurisdictions, and others to upgrade the rate structure and power supply to bus facilities.
- c) Visualize 2045 should set a more realistic but ambitious light duty electric vehicle adoption target somewhere between the 50% Biden administration goal and the 100% goal. Goals for medium-heavy duty trucks and buses should likewise be set at ambitious but achievable levels.
- d) The current Governor and House Majority believe market forces will take care these changes.
- e) TPB should adopt a more rigorous strategy like the one in my jurisdiction's climate action plan which states that 100% of the private and public transportation will need to be powered by zero emissions technology by 2035 and the jurisdiction's electric supply must be 100% carbon-free.

Strategy C2 Develop an electric vehicle charging network

Staff notes: The CCMS did not analyze the development of an EV charging network as a standalone strategy, so it did not estimate the GHG reductions from it. Rather this strategy is treated as a prerequisite to realize the strategy of converting the vehicle fleet to clean fuel, including moving toward clean electricity, via use of renewable energy sources.

Selected member comments:

- a) TPB should adopt the strategy in partnership with local agencies by taking the lead to coordinate a comprehensive regional plan for electric charging infrastructure to support the transition.
- b) It is clear that the sooner we begin electrification the better, and that substantial efforts are needed for the drastic conversion needed.
- c) There needs to be coordination in purchase and maintenance contracts.
- d) As a region, we need to look at the environmental and fire hazard implications of relying on battery-powered vehicles, including the environmental devastation around nickel mining to manufacture batteries for vehicles.
- e) More information needs to be researched on hydrogen fuel cells versus electric.
- f) Visualize 2045 should identify the estimated numbers and types of charging stations needed in the region to support its EV adoption goal (for example, see the COG 2030 climate plan). It should also specify how it will meet equity requirements and ensure that multifamily residential developments are adequately served.

Strategy C3 Add additional housing units, above current COG Cooperative Forecasts

Staff notes: In the CCMS, this strategy was grouped with others such as increased teleworking, reduced transit travel times, under MS.1, MS.2, and MS.3 scenarios and not analyzed independently. However, based on past studies, land use and land use changes are one of the more effective strategies to reduce vehicle miles of travel (VMT) and GHG emissions. The amount of additional housing assumed is similar to both the TPB's Long-Range Plan Task Force analysis (130,000 more housing units in 2040 versus the CCMS assumption of 126,000 new households in

2050) and the housing targets adopted by the COG Board in 2019 (75,000 new housing units by 2030 versus the CCMS assumption of 77,000 new housing units in 2030).⁸

Selected member comments:

- a) Maximizing transit-oriented development of both housing and jobs is critical to the long-term viability and sustainability of both Metro and National Capital Region.
- b) As part of this strategy consideration should be made of existing urban natural resource areas and tree canopy around these centers. Commitment to preserve existing natural resource areas and expand these existing natural areas are critical to climate resilience.
- c) Adding additional housing units near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers may require amendments to local comprehensive plans and local legislation, including rezoning.
- d) We support this as long as there is a commitment to significantly expanding the number of high-capacity transit stations and not constraining growth to existing stations.
- e) It would be worthwhile for TPB to consult with jurisdiction's housing staff, especially in relation to affordable housing and the development industry
- f) Adding housing is desired, and especially affordable housing, but this is challenging in jurisdictions without high-capacity transit.
- g) Redevelopment outside transit areas also accomplishes environmental goals - with more efficient buildings, removal of surface parking lots, stormwater treatment, etc. Walking and biking can and do occur outside of transit station areas. Through redevelopment, these areas can become more walkable and provide non-vehicle access to daily needs, including recreation.

Strategy C8 Reduce travel times on all public transportation bus services

Staff notes: Past studies have shown that travelers greatly value travel time reliability, which this strategy does not directly address, and frequent service,^{9 10} which is not specifically mentioned in this strategy, though frequent service should result in shorter wait times, which should, in turn, result in reduced travel times. Also, although any improvement in transit service would likely result in a reduction in GHG emissions and could provide many other co-benefits, past studies have indicated only small reductions in GHG emissions even with large increase in transit service.

Selected member comments:

- a) Dedicated travel lanes for buses without more car lanes as an offset for traffic will allow faster movement without traffic tie ups. Less waiting in traffic means less idling, emissions, air pollution emitted from fossil fuel buses still in commission.
- b) The easiest ways to do this (bus stop consolidation and fare pre-pay) are broadly controlled by WMATA. Regional best-practices and coordination would benefit local operations.

⁸ "Resolution Adopting Targets to Address the Region's Housing Needs," Resolution (Washington, D.C.: Metropolitan Washington Council of Governments, September 11, 2019), https://www.mwcog.org/ASSETS/1/28/10042019_-_ITEM_2_-_COG_HOUSING_RESOLUTION1.PDF.

⁹ See, for example, Catherine Vanderwaart, "High Cost of Low Bus Speeds," <https://www.mwcog.org/events/2021/10/1/tpb-regional-public-transportation-subcommittee/>.

¹⁰ ICF, "Voices of the Region Survey," Final Report (Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, March 11, 2021), <https://www.mwcog.org/documents/2021/03/16/voices-of-the-region-survey-visualize-2045/>.

- c) Each agency collects and reports different metrics related to travel times. This is a difficult metric to track reliably and would require data unification prior to any strategy adoption.
- d) Too many unknowns on implementation to support at this time.
- e) The environmental benefits of this strategy should be considered relative to the costs and relative to the cost-effectiveness of other strategies.

Strategy C9 Provide walk/bike access to all TPB identified high-capacity transit stations

Staff notes: The CCMS did not analyze access improvements to high-capacity transit stations as a standalone strategy and quantify the GHG reductions from it. Although this strategy would likely result in only a very small reduction in GHG emissions, this strategy is viewed as a prerequisite to reduce VMT by increasing transit ridership and increasing non-motorized travel and would also provide many other co-benefits.

Selected member comments:

- a) We support a general shift in regional focus and funding from road construction, which encourages more single-occupancy vehicle usage, to the provision of infrastructure and programs for microtransit and active transportation.
- b) The TPB should adopt this strategy and ask member agencies to increase this as a funding priority.

Strategy C10 Complete the TPB's National Capital Trail Network

Staff notes: The CCMS did not analyze a network of biking and walking trails as a standalone strategy and quantify the GHG reductions from it. Although this strategy would likely result in only a very small reduction in GHG emissions, this strategy would provide many other co-benefits and reduce VMT by increasing non-motorized travel.

Selected member comments:

- a) The development of an integrated and connected trail network is essential in creating healthy lifestyles and vibrant communities.
- b) Should adopt this strategy and ask member agencies to increase this as a funding priority.
- c) Funding for implementation will need to be identified or it would need to compete for construction funds.
- d) We support this strategy, but in our jurisdiction, most of the easy-to-build segments are already built. The remaining segments are difficult and/or expensive to build, and difficult to fund under current state and regional funding environments that prioritize highway congestion.

Strategy C14. Implement traffic operational improvement measures at all eligible locations

Staff notes: Although the CCMS found Transportation Systems Management and Operations (TSMO) strategy to be least effective in reducing GHG, this strategy is likely to have other co-benefits, including safety.

Selected member comments:

- a) My jurisdiction supports the use of these advanced technologies to create efficiencies for roadway travelers; however, selected traffic operational improvement measures should not compromise the safety of pedestrians and bicyclists.
- b) “All eligible locations” should be more clearly defined. This strategy should be studied further to better understand the cost and benefits of implementation.
- c) Funding for implementation will need to be identified or it would need to compete for construction funds
- d) Does this strategy conflict with other strategies that encourage increased transit use and reduce reliance on SOV?

II. On-road Transportation GHG Reduction Strategies to Explore Further OR Other Action

The TPB survey included 15 GHG reduction strategies. As shown in Table 2, a plurality or majority of the responses to seven of these called for further exploring the implications and implementation actions OR to take some other action at this time. Below the table is a description of staff notes and selected member comments for each strategy.

Table 2 On-road transportation GHG reduction strategies to be explored further OR other action

Ref.	Description of Goals / GHG Reduction Strategy	Adopt	Explore	Other
Strategies with Support To Explore further OR Other Action				
1.	Take action to shift growth in jobs and housing from locations currently forecast (COG Cooperative Forecasts) to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers, <u>within jurisdictional</u> boundaries, to improve the jobs-housing balance locally. (Survey Question C4a) (Regarding Survey Question C4b, please see note below)	29%	65%	6%
2.	Make all public bus transportation in the region fare-free by 2030. (Survey Question C5)	23%	73%	3%
3.	Make all public rail transportation in the region fare-free by 2030. (Survey Question C6)	7%	73%	20%
4.	Price workplace parking for employees. In 2030, prices in Activity Centers would vary between \$12-\$14/day. In 2050, prices in Activity Centers would vary between \$12-\$14/day and be approximately \$6/day outside of Activity Centers. (2020 dollars to be adjusted for inflation) (Survey Question C7)	27%	43%	30%
5.	Convert a higher proportion of daily work trips to telework. ¹¹ By 2030, convert 25 percent of daily work trips and by 2050 convert 40 percent of work trips to telework. (Survey Question C11)	38%	45%	17%
6.	Charge a new fee per vehicle mile of travel (VMT) by motorized, private, passenger vehicles in addition to the prevailing transportation fees and fuel taxes. In 2030, the fee would be 5 cents/mile and in 2050, the fee would be 10 cents/mile. (Survey Question C12)	10%	67%	23%
7.	Charge a "cordon fee" of \$10 per motorized vehicle trip for all vehicles entering Activity Centers in the core of the District of Columbia, by 2030. (Survey Question C13)	3%	63%	34%

Note regarding Survey Question C4b, which asked about the jurisdiction/agency position on "Take actions to shift growth in jobs and housing from locations currently forecast (COG Cooperative Forecasts) to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers across the region to improve the jobs-housing balance, regionally."

- 27% responded that they lacked the specific authority to take any actions; 47% responded that the actions taken to balance jobs and housing within their jurisdiction would contribute to improving the jobs and housing balance regionally; and
- 27% chose "Other."

¹¹ Teleworking in 2019 (pre-COVID period) was approximately 10 percent of daily commute trips and approximately 50 percent of the jobs in the region were telework compatible.

Strategy C4a Shift growth in jobs and housing to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers, within jurisdictional boundaries.

Staff notes: As noted earlier, land use changes can be one of the most effective ways to reduce single-occupant vehicle (SOV) travel, increase transit, lower GHG emissions, and improve equity outcomes. While the closed-form response to this strategy showed weak support for this strategy of balance within jurisdictional, many of the comments indicated support for the concept noting that the TPB should consult with the local jurisdictions on this strategy.

Selected member comments:

- a) Taking aggressive action to better balance the region, in particular, in terms of jobs closer to housing and through Transit Oriented Development is one of the single most important action that TPB and COG can take to reduce GHG, increase sustainability, and resilience, while also addressing the tremendous equity issues is imperative.
- b) Among the core jurisdictions, there is limited opportunity to increase this strategy beyond the levels at which it's already being implemented.
- c) Shifting growth in jobs and housing to locations near TPB-identified high-capacity transit stations and COG's Regional Activity Centers may require amendments to local comprehensive plans and local legislation, including rezoning.
- d) TPB should consult with jurisdictions, and the TPB should have a thorough discussion of these strategies soon to determine a path. A process for ensuring COG's Regional Activity Center designations are up-to-date and what the overall process is for updating needs to be considered as part of this discussion.
- e) In our experience, residents and businesses choose to locate based on economic and lifestyle factors despite government efforts. Businesses choose locations that are often pricier than their employees, resulting in the need for commuting. In addition, housing choices are "stickier" than jobs, in other words, people change jobs more frequently than changing residences, so initial choices for jobs and housing can change for good reasons other than commuting times.

Strategy C4b Shift growth in jobs and housing to locations near TPB-identified high-capacity transit stations and in COG's Regional Activity Centers, across the region to improve the jobs-housing balance, regionally.

Staff notes: Member input on this variation of the land use strategy above, 4, was sought only with regard to the ability of the jurisdiction to take any action. The responses and the comments associated with the responses indicate that many members lack the specific authority to take any action and balancing jobs and housing within each jurisdiction would contribute to balance jobs and housing at a regional level.

Selected member comments:

- a) Shifting growth in jobs and housing across the region to locations near TPB-identified high-capacity transit stations and COG's Regional Activity Centers may require amendments to local comprehensive plans and local legislation, including rezoning.
- b) Please consider that any "actions" will be shaped by zoning law, developer intent, potential state incentives and other factors.



- c) One problem our jurisdiction faces, and perhaps other outer jurisdictions also face, is the ability to attract Class-A office space, when the inner jurisdictions are geographically more attractive to corporate headquarters. Although our jurisdictions individually work with industry leaders, as a region, we don't appear to have a mechanism to fully understand how corporations make location decisions and how those decisions impact our transportation and housing decisions.
- d) As recent analysis by TPB is showing, this is a widening gap, therefore, a regional response is required, and MWCOG and TPB must play a role. This issue is one of the most central to addressing sustainability, and equity.
- e) TPB and COG need to facilitate regional coordination to achieve this critical strategy to address the east-west jobs-housing imbalance that is the source of many of the region's equity and transportation problems.

Strategy C5 All public bus transportation in the region fare-free

Staff notes: CCMS scenario MS.3 ("Amplified mode shift plus road pricing") included free transit (both bus and rail). Scenario MS.3 achieved a 26% reduction in GHG emissions, which was the largest GHG reduction of all the mode shift and travel behavior scenarios analyzed in the CCMS. Although only about 23% of respondents supported adoption of this strategy, based on the comments in the survey, the TPB could consider a scaled-back version of this strategy, such as larger subsidies for some segments of the population, such as low-income residents or the elderly.

Selected member comments:

- a) One of the best ways to build (or rebuild) ridership is to reduce or eliminate barriers to entry. Fare-free options incentivize folks to strongly consider using public transit in place of personal vehicles.
- b) Though a fare-free system should be explored and considered, it must be noted that considerable research and surveys have shown that customers prioritize service that is fast, frequent, and reliable more than cost
- c) A policy to make all bus transportation fare-free would require intensive analysis, clear explanations of tradeoffs, political will, and an unambiguous commitment from funding jurisdictions to a) fund the regional transit system without collecting passenger revenue, and b) provide enough funding flexibility to improve service when warranted.
- d) We would need to understand the impact to the WMATA budget and other local bus service budgets and by extension, the impact to locality subsidies to those bus services.

Strategy C6. Make all public rail transportation in the region fare-free

Staff notes: As noted above, the free transit option, which included both free bus and rail transit, was part of the CCMS package of strategies that achieved the greatest GHG reductions of all mode shift and travel behavior strategies (MS.3).

Selected member comments:

- a) We would need to understand the impact to the WMATA budget and other regional rail service budgets and by extension, the impact to locality subsidies to those rail services.
- b) Rail fares generate a significant amount of revenue for Metrorail and local subsidies would have to be significantly higher to cover the operating costs. Reduced rail fares are more realistic and



can be available to those riders in need of financial assistance as opposed to all potential rail riders.

- c) Free rail is more expensive [than free transit bus service] and could have the unintended consequence of encouraging more people to commute greater distances because the cost of commuting would be free.
- d) The fare-free strategy will impact liability risk / insurance premiums and the assumed increase in ridership volume will yield pressure on capacity constraints, safety & security issues.
- e) Respondents noted that VRE has a policy to have minimum 50% fare box recovery for operations and the Purple Line Public Private Partnership (PPP) is financial bound by bonding constraints requiring revenue from fares.

Strategy C7. Price workplace parking for employees.

Staff Notes: Pricing strategies (e.g., parking pricing, VMT taxes, gas taxes, and carbon taxes) are some of the most cost-effective strategies for reducing vehicle miles of travel (VMT) and GHG emissions, but they are also unpopular with commuters/travelers. Many studies have shown that driving a motor vehicle is underpriced¹² (both compared to what other countries pay and in terms of the negative externalities caused by driving, such as pollution and traffic injuries). When a commodity is underpriced, people tend to use too much of it, which, in the case of the private automobile, leads to congestion and increased GHG emissions. One criticism of pricing strategies is the regressive nature of taxes and fees, but these can be overcome by subsidies to low-income households.¹³ And, of course, pricing strategies generate revenue, which is often desperately needed by many transportation programs.

Selected member comments:

- a) Parking pricing is a major factor in the decision to drive and the availability of free or reduced parking pricing will need to be eliminated to support reductions in VMT.
- b) Should adopt with a paired strategy of providing a flexible cash workplace commuter benefit (if an employer subsidy or commuter benefit is offered) that all employees can use as they need, e.g., living closer to work, transit, bicycling, micromobility, carpool, or private car/ride hail.
- c) Workplace parking for employees in Activity Centers that is twice as expensive (or more) as parking outside of Activity Centers may have the unintended consequence of encouraging development outside of Activity Centers.
- d) We have equity concerns with this strategy. Lower-moderate income motorists, who have to drive, would not be able to afford the higher prices while not affecting those in the higher income brackets.

¹² See, for example, Chapter 5 of Michael Mehaffy et al., “The Road Forward: Cost-Effective Policy Measures to Decrease Local and Global Emissions from Passenger Land Transport” (KTH Royal Institute of Technology, Copenhagen Centre on Energy Efficiency, UNEP DTU Partnership, and Sustasis Foundation, 2022), https://c2e2.unepdtu.org/kms_object/the-road-forward-cost-effective-policy-measures-to-decrease-emissions-from-passenger-land-transport/.

¹³ For example, Canada currently has a carbon tax and to compensate for the cost-of-living increase of the tax, the government has said it will continue to return most of the money collected by this program through rebates, as noted in this article: John Paul Tasker, “Ottawa to Hike Federal Carbon Tax to \$170 a Tonne by 2030,” Canadian Broadcasting Corporation, December 11, 2020, <https://www.cbc.ca/news/politics/carbon-tax-hike-new-climate-plan-1.5837709>.

- e) This issue is nuanced. The answer is not a one for one, as there are many ways to charge for parking, such as direct to the driver/parker, or through higher taxes on companies that provide free parking.
- f) This is likely to be difficult in the near term, particularly in auto-dependent suburban areas with limited transit service and abundant parking (both private and public parking). Strategic planning for parking maximums and increased transit options may be required to complement increased parking costs.

Strategy C11. Convert a higher proportion of daily work trips to telework

Staff Notes: Telework is a very effective method of reducing VMT and GHG emissions, as shown both by the CCMS and TPB's Long Range Plan Task Force analysis. Washington, D.C. and San Francisco have been rated as the top two cities in the U.S. in terms of jobs that are amenable to teleworking, with an estimate that 50% of all jobs in these two cities are amenable to telework.¹⁴

Selected member comments:

- a) Should adopt the 25% strategy as an interim approximate level and conduct a more comprehensive examination as post-pandemic levels of telework become clearer over the next few years.
- b) Adopting this regional telework strategy will help maintain and encourage continued investments into telework resulting in a reduction in peak hour and daily commuting trips, leading to reduced congestion and GHG emissions.
- c) This initiative needs additional discussion as it is fleshed out, with a focus on equity and implications related to development.
- d) More study should be conducted on this strategy to better understand the economic impacts it would have on downtown DC
- e) While a full "return to office" future seems unlikely and undesirable, TPB data must take into account the possibility that telework has negative effects on transportation emissions due to reduced transit ridership/service. It would be invalid to continue with the assumption that telework simply results in emissions disappearing.
- f) TPB should conduct a more comprehensive examination of the percentage of daily work trips to convert to telework. These targets may not be able to be implemented equally throughout the region.
- g) Implications will need to be considered for how existing office developments may be used in the future and what may replace economic development that previously depended at least partly on commuters.

Strategy C12. Charge a new fee per vehicle mile of travel by motorized, private, passenger vehicles.

Staff Notes: This strategy was part of the CCMS package of strategies that achieved the greatest GHG reductions of all mode shift and travel behavior strategies (MS.3). As noted earlier, pricing strategies are the most economically efficient ways to reduce VMT and GHG emissions but are unpopular with the public.

¹⁴ Jonathan I. Dingel and Brent Neiman, "How Many Jobs Can Be Done at Home?," White Paper (Chicago, Illinois: University of Chicago, Booth School of Business, June 19, 2020), <https://bfi.uchicago.edu/working-paper/how-many-jobs-can-be-done-at-home/>.



Selected member comments:

- a) My jurisdiction supports the general concept of the proposal in order to help solve the overall highway funding issues, but not in the manner that it is presented in this strategy. It would be recommended that this strategy include measures addressing heavy trucking and a method to differentiate between rural and urban transportation costs for private passenger vehicles.
- b) My agency is currently looking at Mileage Based User Fees (MBUF) and other solutions; however, there are considerable challenges to reconcile before adopting this strategy.
- c) Should adopt a general road and congestion pricing strategy that includes free/reduced transit fares and increased service along priced corridors and free/discounted driving fees for low/moderate-income commuters who drive.
- d) Equity considerations are important as a component of this, as some of the more affordable locations for residents with low incomes to live are not accessible to transit, and additional fees should be balanced to ensure there is not a disproportionate impact on low-income residents. Transit routes and frequency also need to be in place to allow for residents who work lower-pay jobs with hours outside 8-5 weekdays.
- e) If road transportation evolves to zero-emission vehicles, why is this necessary?
- f) Our recommendation is to study this issue, including cost-benefits and implications for equity, economic development, and housing implications.
- g) This [strategy] may be politically difficult to implement. It will also likely require coordination beyond the TPB region.

Strategy C13. Charge a “cordon fee” of \$10 per motorized vehicle trip for all vehicles entering the core of the District of Columbia.

Staff Notes: This strategy was part of the CCMS package of strategies that achieved the greatest GHG reductions of all mode shift and travel behavior strategies (MS.3). Only 3% of jurisdictions or agencies (1 response) responded affirmatively that the TPB should adopt this strategy regionally.

Selected member comments:

- a) My jurisdiction supports the strategy to adopt a “cordon fee” assuming the boundaries are distinctly identifiable to travelers (bridges) and the necessary up-front investments to the transit network are made allowing users the ability to seamlessly transition from vehicles to transit. There is some discomfort with this idea, though we understand the general intent.
- b) Cordon pricing would be difficult to implement due to the many ways to circumvent the cordon fee and the high cost of vehicle monitoring at cordon sites. It becomes a commuter tax for persons travelling to/from the core of the District of Columbia.
- c) Transit and multimodal alternatives are essential to having the public support to implement such a fee. Until there is equity in available transportation services, this kind of fee will be challenging to implement.
- d) Merits more study in the post-pandemic travel and office context and should be considered in comparison to the benefits of a regional VMT fee. The District of Columbia’s Decongestion Pricing Study may provide helpful findings on ways to address equity issues and how congestion pricing can benefit all travelers, including drivers.
- e) COG should also evaluate the impact of this fee on tourism and the negative message it may send to people visiting the District of Columbia.
- f) [This strategy] may have impacts such as discouraging future development in the core or increasing congestion outside of the core.
- g) Consider equity and socioeconomic impact.

