



MEMORANDUM

TO: Transportation Planning Board
FROM: Kanti Srikanth, TPB Staff Director
SUBJECT: Overview of COG and TPB Climate Change Planning Work Activities in the Metropolitan Washington Region
DATE: October 15, 2020

This memorandum has two objectives:

1. To provide an overview of past, ongoing, and potential future work being conducted by both the National Capital Region Transportation Planning Board (TPB) and the Metropolitan Washington Council of Governments (COG) in the area of estimating and planning for on-road transportation (mobile source) greenhouse gas (GHG) emissions in the metropolitan Washington region; and
2. To document the TPB's past and ongoing commitment to mitigating climate change.

PAST ACTIVITIES

Concluding almost a yearlong effort by its staff and the staff of its member jurisdictions, the COG Board of Directors adopted the National Capital Region Climate Change Report in November 2008.¹ The most notable outcome from this report was the adoption of non-sector-specific aspirational targets that the Climate Change Steering Committee chose for reducing GHG emissions in the region. The targets adopted by the COG Board with the adoption of the report are:

- By 2012, GHG levels will be 10% below “business as usual” forecasts
- By 2020, GHG levels will be 20% below 2005 levels
- By 2050, GHG levels will be 80% below 2005 levels

That same year, the TPB began a scenario study to see how the region could achieve those goals in the transportation sector. The “What Would it Take?” Scenario Study was completed in 2010 and showed the challenge of meeting those goals. The study found that local/regional/state efforts could help the region achieve short-term GHG reduction goals, but systemwide actions implemented at the federal level would be required to meet long-term goals. The TPB began, in 2010, reporting estimates of changes in GHG emissions in future years from the projects and programs in its long-range transportation plan.

In 2015, the TPB partnered with the Metropolitan Washington Air Quality Committee (MWAQC), and COG's Climate, Energy, and Environment Policy Committee (CEEPC) to complete a study identifying potentially viable and implementable local, regional, and state strategies for reducing GHG emissions across key sectors (Energy, the Built Environment, Land Use, and Transportation). As part of this effort with the Multi-Sector Working Group (MSWG), in 2014, the TPB and MWAQC affirmed

¹ Please see the appendix for more detailed information, including footnotes of cited works.

the GHG reductions goals adopted by the COG Board in 2008. The study found that although policies implemented between 2005 and 2015 contributed to significant reductions in GHGs, ambitious regional actions could further reduce GHG emissions, and additional national-level strategies would be needed to move the region towards its 2050 goal.

More recently, in 2016, the TPB convened its Long-Range Plan Task Force to identify projects, programs, and policies to improve the performance outcomes of the region's transportation system. While the work of the Long-Range Plan Task Force was not specifically focused on climate change, the analysis, completed in 2017, showed that policies that optimize the regional land-use balance and increase employer-based travel demand management (such as teleworking policies) can improve the performance of the transportation network as well as have a noticeable impact on GHG emissions. The TPB has since adopted a set of Aspirational Initiatives and is urging members to adopt projects, programs, and policies that advance the initiatives which will, among other benefits, help reduce GHG and ozone precursor emissions.

ONGOING ACTIVITIES

The TPB continues to report GHG emissions as part of the performance analysis of its long-range transportation plans. Unlike the criteria pollutants regulated by federal law, GHGs, such as carbon dioxide, are not regulated by the federal government and are therefore not included in the Air Quality Conformity analysis. Based on the latest analysis from Visualize 2045, which was published in 2018, between 2005 and 2019, the first year of the plan, GHG emissions from on-road transportation have decreased by 7%.² By 2045, the latest analysis from Visualize 2045 shows that GHG emissions in 2045 are forecasted to be 23% below 2005 emissions levels, and 16% below 2019 emissions levels, with a slight uptick between 2040 and 2045. Emissions reductions are forecasted despite a 23% growth in population and a 29% growth in employment between 2019 and 2045.

The GHG emissions reductions forecasted for the Visualize 2045 plan are largely attributable to increased fuel efficiency standards, but the uptick between 2040 and 2045 occurs as cleaner vehicles saturate the fleet, and the benefits from fuel efficiency standards can no longer keep pace with growth-induced increases in vehicle-miles of travel (VMT).

In addition to the above, TPB staff continue to work with COG's CEEPC in the estimation of GHG inventories at regional and local levels for the GHG reduction action plans. At present, TPB staff are assisting in the development of the 2030 Regional Climate and Energy Action Plan to support the new interim 2030 GHG reduction goal. The COG Board adopted the 2030 goal at its October 14, 2020 meeting,³ and the TPB is expected to consider a resolution endorsing the goal at the October 21, 2020 meeting.⁴ Lastly, TPB staff are working with COG's Department of Environmental Programs (DEP) staff in assisting the many local jurisdictions who are developing jurisdiction-specific climate action plans.

² Visualize 2045: A Long-Range Transportation Plan for the National Capital Region. Washington, D.C.: National Capital Region Transportation Planning Board. October 17, 2018.

https://www.mwcog.org/assets/1/28/Visualize_2045_Plan_2018_10_23_No_Crops_Single.pdf

³ COG R45-2020: Resolution Endorsing Regional Climate Mitigation and Resiliency Goals

<https://www.mwcog.org/documents/2020/10/14/certified-resolution-r45-2020---endorsing-regional-climate-mitigation-and-resiliency-goals/>

⁴ TPB R8-2021: Resolution on the Metropolitan Washington Council of Governments' Regional Multi-Sector Interim Goals for Reducing Greenhouse Gases

FUTURE ACTIVITIES

The GHG analysis completed for Visualize 2045 was based on fuel efficiency standards that were promulgated in 2012. Since that analysis, the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule was finalized earlier this year, decreasing the stringency of future fuel efficiency standards. The new standards are largely believed to provide lower GHG reductions and thus will make it more difficult for the region to attain its GHG reduction goals. This reduced effectiveness of a system-wide strategy will have to be mitigated.

As TPB and COG studies have shown, bold, system-wide actions will be needed to provide meaningful GHG reductions from the transportation sector. There is movement in two areas that could benefit the metropolitan Washington region. First, as part of the Volkswagen Clean Air Act Civil Settlement, states are receiving millions of dollars, which are being invested in various ways to help expedite the electrification of the region's vehicle fleet, including installing electric vehicle charging infrastructure and purchasing electric buses. Second, the Transportation and Climate Initiative (TCI), a coalition of Northeast and Mid-Atlantic states working to reduce GHG emissions from the transportation sector, has released a draft proposal for a cap-and-invest program that would cap carbon dioxide pollution from transportation fuels and invest revenue from the program to implement programs in the transportation sector to achieve additional GHG reduction benefits. The transportation sector will have to get fully engaged in these and similar programs.

Most of the work on climate change planning in the region has focused on climate change mitigation or reducing GHG emissions. This is important and needs to continue, but there is also a need to enhance the effort in planning for adapting to the impacts of climate change. Such adaptation planning is often seen as part of resiliency planning and generally grouped under infrastructure and operations. Along with GHG reduction targets, COG's CEEPC has recommended a set of resiliency goals, which were also adopted by the COG Board on October 14, 2020 (COG R45-2020) and are expected to be considered for endorsement by the TPB on October 21, 2020 (TPB R8-2021).

With the TPB having noted climate change as one of its focus areas of work, staff plan to bring the ongoing national and regional work efforts on infrastructure for electric vehicles and the recommendations of the TCI, including the cap-and-invest program, to the TPB. Additionally, staff have begun identifying specific work activities that the TPB can undertake with regard to resiliency planning. TPB staff will be coordinating these work activities with that COG's DEP, MWAQC, and CEEPC staff.

The memo concludes with an appendix containing more detailed information.

APPENDIX

This section summarizes the various work activities of TPB and COG and lists resources available related to the work activities completed. Included in the summary are oversight or ownership of the work, relevant dates/completion date (for completed work) or most recent analysis (for on-going work), and any planned updates to the work.

Work Activity	Relevant Dates
National Capital Region Climate Change Report	April 2007 - November 2008
“What Would it Take?” (WWIT) Scenario Study	November 2008 - May 2010
TPB Affirmation of the Region’s GHG Reduction Goals	December 17, 2014
Multi-Sector Working Group (MSWG)	January 2015 - January 2017
Long-Range Plan Task Force (LRPTF)	January 2017 - December 2017
Performance Analysis of the TPB’s Long-Range Plan (on-going)	October 17, 2018
Climate, Energy, and Environment Policy Committee (CEEPC) Climate and Energy Action Plan (on-going)	Current Plan: March 23, 2017 Interim 2030 GHG Reduction Goal Resolution adopted by COG Board Action on October 14, 2020 (COG R45-2020) 2030 Climate and Energy Action Plan scheduled for CEEPC approval on November 18, 2020
GHG Emissions Inventory Development (for local jurisdictions) (on-going)	Varies

DETAILED DESCRIPTIONS OF WORK ACTIVITIES

I. PAST WORK ACTIVITIES

1. National Capital Region Climate Change Report

Oversight: COG

Date Completed: November 12, 2008

Documentation: National Capital Region Climate Change Report⁵

⁵ National Capital Region Climate Change Report. Washington, D.C.: Prepared by the Climate Change Steering Committee for the Metropolitan Washington Council of Governments Board of Directors. November 12, 2008. <https://www.mwcog.org/documents/2008/11/12/national-capital-region-climate-change-report-climate-change/>

Study Purpose

On April 11, 2007, as part of its 50th anniversary year, the COG Board adopted Resolution R31-07, creating a climate change initiative. Part of the climate change initiative included a call for developing a greenhouse gas (GHG) inventory, setting regional goals, and identifying best practices for reducing GHG emissions. Beginning with a base year of 2005, the analysis looked at a “business as usual” future through 2050 where no actions beyond current policies and programs are implemented to reduce greenhouse gas emissions.

Major Findings

The most notable outcome from this report was the three targets that the Climate Change Steering Committee chose for reducing greenhouse gas emissions. Those reduction targets have been the framework for subsequent greenhouse gas and climate change work. The targets were adopted by the COG Board with the adoption of the report:

- By 2012, GHG emissions 10% below “business as usual”
- By 2020, GHG emissions 20% below 2005 levels
- By 2050, GHG emissions 80% below 2005 levels

The Climate, Energy, and Environment Policy Committee (CEEPC) was created by the COG Board on April 8, 2009 through Resolution R18-09 and is responsible for managing implementation of the *National Capital Region Climate Change Report*.

2. “What Would it Take?” (WWIT) Scenario Study

Date Completed: May 18, 2010

Oversight: TPB

Documentation: Final Report: What Would It Take? Transportation and Climate Change in the National Capital Region⁶

Study Purpose

The “What Would it Take?” Scenario Study was one of two scenario studies that were undertaken under the purview of the Scenario Study Task Force that the TPB established in September 2007. The WWIT Scenario Study was the TPB’s first step toward answering some major questions about climate change mitigation, specifically in the transportation sector in the Washington metropolitan region. The study examined what types of projects / programs / policies it would take in the transportation sector to meet the regional aspirational GHG reductions targets established in the National Capital Region Climate Change report and adopted by the COG Board in November 2008. The study developed the baseline GHG emissions in the transportation sector and tested the

⁶ Final Report: What Would It Take? Transportation and Climate Change in the National Capital Region. Washington, D.C.: Metropolitan Washington Council of Governments. May 18, 2010.
<https://www.mwcog.org/documents/2010/05/18/what-would-it-take-scenario-land-use-projects/>

potential reductions in GHG emissions from various projects/programs/policies would generate in the transportation sector. The intent was to determine the nature and scope of actions that would be necessary to reduce GHG in the transportation sector in the target amounts noted below.

- By 2012, 10% below “business as usual” (of the transportation sector)
- By 2020, 20% below 2005 levels (of the transportation sector)
- By 2050, 80% below 2005 levels (of the transportation sector)

Major Findings

In order to meet the region’s goals, strategies will need to be adopted across all levels of government and across the three categories of fuel efficiency, alternative fuels and travel efficiency. Systemwide measures implemented at the national level can provide substantial and dependable GHG reductions; however, near-terms goals will not be met just with systemwide measures – state, regional, and local actions are needed.

3. Multi-Sector Working Group (MSWG) / TPB Affirmation of the Region’s GHG Reduction Goals

Date Completed: January 18, 2017

Oversight: TPB/MWAQC/CEEPC

Documentation: Final Technical Report: Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region⁷

Recommendation of the Multi-Sector Working Group⁸

Study Purpose

In December 2014, the TPB and the Metropolitan Washington Air Quality Committee (MWAQC) affirmed COG’s adopted voluntary greenhouse gas reduction goal of 80% below 2005 levels by 2050,⁹ and committed staff and resources to support a multi-sector, multi-disciplinary professional

⁷ Final Technical Report: Multi-Sector Approach to Reducing Greenhouse Gas Emissions in the Metropolitan Washington Region. Washington, D.C.: Metropolitan Washington Council of Governments (submitted by ICF International). January 31, 2016. <https://www.mwcog.org/documents/2016/08/01/multi-sector-approach-to-reducing-greenhouse-gas-emissions-in-the-metropolitan-washington-region-final-technical-report/>

⁸ Recommendation of the Multi-Sector Working. Washington D.C.: Metropolitan Washington Council of Governments. January 18, 2017. <https://www.mwcog.org/documents/2017/01/18/multi-sector-working-group-greenhouse-gas-emission-reducing-strategies-air-quality-climate-mitigation-greenhouse-gas-multi-sector-working-group/>

⁹ TPB R10- 2015: Resolution on the Metropolitan Washington Council of Governments’ Regional Multi-Sector Goals for Reducing Greenhouse Gases. Washington, D.C.: National Capital Region Transportation Planning Board. December 17, 2014. <https://www.mwcog.org/file.aspx?&A=NORpyfkLR1A9O4KiCx0%2bhAVEs%2fy07kl1bNCWYEItoHU%3d>

working group to be convened by COG to:

- Identify viable, implementable local, regional, and state actions to reduce GHG emissions in four sectors (Energy, the Built Environment, Land Use, and Transportation) in accordance with the voluntarily adopted goals;
- Quantify the benefits, costs and implementation timeframes of these actions;
- Explore specific GHG emission reduction targets in each of the four sectors; and
- Jointly develop an action plan for the region

Major Findings

The MSWG work was directly related to the greenhouse gas reduction targets laid out in the National Capital Region Climate Change Report. The technical analysis showed that policies implemented between 2005 and 2015 made a significant contribution to reducing future GHG emissions in the region. The analysis then looked at 22 strategies – nine in the Energy/Built Environment (EBE) Sector and twelve in the Transportation/Land Use (TLU) Sectors, along with one strategy focused on community engagement, which cross-cuts all of the sectors. The additional regional strategies could further reduce GHG emissions significantly, but still not achieve the 80% reduction goal by 2050. The analysis identified potential national-level strategies that could get the region to the 80% reduction goal; however, those strategies would likely require significant breakthrough improvements in existing technology.

4. Long-Range Plan Task Force (LRPTF)

Date Completed: December 20, 2017

Oversight: TPB

Documentation: An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the Long-Range Plan Task Force¹⁰

R-8 2018: TPB Resolution endorsing initiatives recommended by the LRPTF¹¹

Study Purpose

TPB Resolution R16-2017, adopted on March 15, 2017, directed the Long-Range Plan Task Force to identify a limited set (6-10) of projects, policies, or programs that would have the potential to

¹⁰ An Assessment of Regional Initiatives for the National Capital Region: Technical Report on Phase II of the Long-Range Plan Task Force. Washington, D.C.: National Capital Region Transportation Planning Board (prepared by ICF International). December 20, 2017. <https://www.mwcog.org/documents/2017/12/20/long-range-plan-task-force-reports-projects-regional-transportation-priorities-plan-scenario-planning-tpb/>

¹¹ TPB R-8 2018; TPB Resolution endorsing initiatives recommended by the LRPTF. Washington, D.C.: National Capital Region Transportation Planning Board (prepared by ICF International). December 20, 2017. <https://www.mwcog.org/documents/2017/12/20/r8-2018--resolution-endorsing-initiatives-recommended-by-the-long-range-plan-task-force/>

improve the performance of the region's transportation system and to make substantive progress towards achieving the goals laid out in TPB's and the Metropolitan Washington Council of Government's (COG's) governing documents. As a part of this study, among other measures, GHG impacts of each initiative were analyzed in relationship to the Planned Build. TPB endorsed five analyzed initiatives with greatest potential to significantly improve the performance of the region's transportation system for future concerted TPB action and directed staff to include these initiatives in the aspirational element of the TPB's long-range transportation plan, Visualize 2045 (two "non-motorized" initiatives were subsequently added to the aspirational element for a total of seven aspirational initiatives).

Major Findings

While the work of the Long-Range Plan Task Force was not specifically focused on climate change, two of the initiatives, Initiative 8 (Optimize Regional Land-Use Balance) and Initiative 10 (Amplified Employer-Based Travel Demand Management), stood out as strategies that improve the performance of the transportation network as well as have a notable impact on GHG emissions.

II. ON-GOING WORK ACTIVITIES

1. Performance Analysis of the TPB's Long Range Plan

Oversight: TPB

Most Recent Analysis: October 17, 2018

Documentation: Visualize 2045: A Long-Range Plan for the National Capital Region¹²

Study Purpose

A federally-required conformity analysis is conducted every time the long-range plan is updated or amended. Therefore, a conformity analysis has been typically conducted at least every other year. Since 2010, in addition to the mandatory air quality conformity analysis, the TPB has voluntarily estimated greenhouse gas emissions for the constrained element of its long-range plan. Greenhouse gas emissions are estimated for the analysis years required for the conformity analysis and are calculated each time a conformity analysis is conducted. Historic greenhouse gas emissions estimates for 2005 and 2012 are also typically included in the analysis.

Update to Emissions Estimates

Greenhouse gas emissions estimates will be updated with the next major quadrennial update to the long-range transportation plan in 2022.

¹² Visualize 2045: A Long-Range Plan for the National Capital Region. Washington D.C.: National Capital Region Transportation Planning Board. October 17, 2018. <https://www.mwcog.org/visualize2045/document-library/>

2. Climate, Energy, and Environment Policy Committee (CEEPC) Climate and Energy Action plan

Oversight: CEEPC

Most Recent Analysis: March 23, 2017

Documentation: Regional Climate and Energy Action Plan (2017-2020 Plan)¹³

Study Purpose

The Climate, Energy and Environment Policy Committee (CEEPC) was created by the COG Board on April 8, 2009 through Resolution R18-09 as its principal policy adviser on climate change, energy, green building, alternate fuels, solid waste and recycling policy issues, and other environmental issues that the board may assign. CEEPC is responsible for managing implementation of the National Capital Region Climate Change Report adopted by the COG Board of Directors in 2008. This responsibility includes development of a regional climate change strategy to meet the regional greenhouse gas reduction goals adopted by the board.

CEEPC updates its Climate and Energy Action Plan, which addresses all sectors, every three years. The plan includes a measurement of progress towards reaching the region's greenhouse gas reduction goals. The most recent plan covers years 2017-2020. The 2017-2020 plan reports mobile source greenhouse gas emissions for 2005, 2012, 2015, and 2016.

CEEPC is currently developing the 2030 Climate and Energy Action Plan, which is scheduled for approval on November 18, 2020. Related to this plan, CEEPC is also in the process of updating the non-sector-specific climate goals, introducing a proposed interim climate mitigation goal of 50 percent greenhouse gas emission reductions below 2005 levels by 2030. In addition to the 2030 greenhouse gas reduction goal, the COG Board Resolution (R45-2020), adopted on October 14, 2020, also places focus on resiliency and equity.

On-road GHG inventory calculations are mainly developed by TPB staff, with some post-processing conducted by COG-DEP staff. Regional inventories for all sectors are documented in the final report The 2030 Climate and Energy Action Plan included development of 2018 GHG emissions inventories for the first time, as well as re-estimation of 2005, 2012 and 2015 historic estimates to ensure that a consistent set of modeling tools and assumptions was used for all analysis years.

In the long term, staff will continue to assess emerging methods for estimating GHG emissions for subsequent updates. For the next update, staff will develop emissions inventories for 2020, which was identified as a major milestone year in the Climate Change Report (discussed in subsequent sections of this memorandum).

¹³ Regional Climate and Energy Action Plan (2017-2020 Plan). Washington D.C.: Metropolitan Washington Council of Governments. March 23, 2017. <https://www.mwcog.org/documents/2017/03/23/regional-climate-and-energy-action-plan-climate-energy-climate-change-energy/>

3. GHG Emissions Inventory Development (for local jurisdictions)

Oversight: COG-DEP Staff

Most Recent Analysis: Varies

Documentation: N/A

Study Purpose

Local jurisdictions have requested COG's and TPB's assistance with for their own climate change planning work. These requests typically come through COG-DEP staff and are often closely related to the CEEPC's Climate and Energy Action Plan activities.

TPB staff do not develop actual GHG inventories for member jurisdictions beyond those that are developed for long-range plan performance analysis and subsequently transmitted to COG-DEP staff for GHG planning activities. For development of individual jurisdiction inventories, TPB staff typically provide other types of transportation data such as VMT estimates, which local jurisdictions subsequently use in development of greenhouse gas inventories. Along with the data, TPB staff provide caveats related to the data to ensure that the data recipients understand the data strengths and limitations (for example, additional post-processing and validation of regional model output may be needed for jurisdiction-level analysis).

At this time, ICF and Cadmus are under contract with COG for support on a range of climate change topics including local and regional greenhouse gas inventories, mitigation, and adaptation/resiliency initiatives. Using this vehicle, COG-DEP staff have worked on development of GHG inventories for Fairfax County, relying on some of the data generated by TPB staff. TPB staff have also served as a technical resource and have participated in study team meetings to explain the methodology for development of regional GHG inventories.

Some of the COG members seek recognition by state and national sustainability programs such as Sustainable Maryland, Go Green Virginia, STAR Communities, and Leadership in Energy and Environmental Design (LEED) for Cities and Communities. (Note: In 2018, STAR Communities merged with LEED for Cities). These programs recognize local jurisdictions for comprehensively adopting and implementing sustainability practices that are complimentary to CEEPC's Climate and Energy Action Plan. The application and review process can be intensive, requiring a variety of data and documentation to be submitted. Upon request, COG-DEP supports COG members with data needs, which occasionally requires coordination with TPB staff. Examples of data requests include greenhouse gas inventories, vehicle miles travelled (VMT), and VMT per capita.