



Association of Metropolitan Planning Organizations (AMPO)

Air Quality Working Group

April 3-4, 2019

Atlanta Regional Commission (ARC)

229 Peachtree St #100

Atlanta, GA 30303

Meeting Attendees:

Bill Keyrouze, Association of Metropolitan Planning Organizations (AMPO)

Rachel Roper, Association of Metropolitan Planning Organizations (AMPO)

Cecilia Ho, Federal Highway Administration (FHWA)

David D'Onofrio, Federal Highway Administration Resource Center

Kyung-Hwa Kim, Atlanta Regional Commission (ARC)

Kofi Wakhisi, Atlanta Regional Commission (ARC)

Sara Tomlinson, Baltimore Metropolitan Council (BMC)

Russell Pietrowiak, Chicago Metropolitan Agency for Planning (CMAP)

Lubna Shoab, East West Gateway Council of Governments

Mike Conger, Knoxville Transportation Planning Organization

Saleem Salameh, KYOVA Interstate Planning Commission (KYOVA)

Harold Brazil, Metropolitan Transportation Commission (MTC)

Jane Posey, Metropolitan Washington Council of Governments (MWCOCG)

Joe MacDonald, Northeast Ohio Areawide Coordinating Agency (NOACA)

Chin-Cheng Chen, Regional Transportation Commission of Southern Nevada

Sarah Siwek, Sarah J. Siwek & Associates, Inc.

Eddie Dancausse, Federal Highway Administration (FHWA) *[phone]*

Jenny Narvaez, North Central Texas Council of Governments (NCTCOG) *[phone]*

Laura Berry, U.S. Environmental Protection Agency (EPA) *[phone]*

Melissa Savage, American Association of State Highway and Transportation Officials *[phone]*

Welcome and Introductions

Bill opened the meeting by welcoming members of the working group, thanking ARC for hosting the meeting, and going over the agenda.

Kyung-Hwa welcomed everyone on behalf of ARC.

Bill asked participants to introduce themselves. David announced that he is now with the FHWA Resource Center Environment, Air Quality, and Realty Team.

Roundtable Discussion

- MPO Updates
- TPM Implementation
- Attainment Status
 - Currently seven areas are in the process of being re-designated from moderate to serious under the 2008 National Ambient Air Quality Standards (NAAQS).
 - Are there lessons learned or notable practices that can be implemented to mitigate being reclassified for a higher standard?
- Is there a method used to demonstrate or quantify the AQ benefits of installing bus shelters for FHWA reporting?
- Resources and Needs

Bill opened the floor to discussion on air quality and Transportation Performance Management (TPM) implementation.

Sara shared that BMC will be updating their metropolitan transportation plan and Transportation Improvement Program (TIP) this summer. They are in nonattainment for the 2008 Ozone Standard. They are under the budget they are using from 1997. They do not plan to update it. Regarding performance measures for the Congestion Mitigation and Air Quality Improvement Program (CMAQ), she brought up that the CMAQ performance measures only consider the contributions of CMAQ projects while the other performance measures look at the contributions of all projects.

Jenny shared that NCTCOG recently wrapped up their emissions inventory with the 2008 reclassification. They are going to be serious under 2008 and marginal under 2015.

Jane shared that they are doing a 2017 inventory. Previously, mobile emissions had been highest emitter for NOX. They are interested to see if this will still be the case.

Bill highlighted the question regarding attainment status: Currently seven areas are in the process of being re-designated from moderate to serious under the 2008 NAAQS¹. Are there lessons learned or notable practices that can be implemented to mitigate being reclassified for a higher standard?

¹ <https://www.federalregister.gov/documents/2018/11/14/2018-24816/determinations-of-attainment-by-the-attainment-date-extensions-of-the-attainment-date-and>

Russell provided context for the discussion. They were recently re-designated to serious, which will require them to make more reductions. A new budget is being developed and the model for the Great Lakes area is being updated. They will have an attainment State Implementation Plan (SIP). Mobile emissions are only one part of their SIP. They have also had issues with data quality—for example they see fluctuations in vehicle type—and a disconnect between model and real-world results.

The working group discussed similar issues and concerns related to the role and levers of the MPO.

- Working group members are seeing differences between model and real-world results because of discrepancies with the data and real-world conditions. For example, the location where trucks or rental cars are registered is sometimes driven by registration costs and not their operating locations. Vehicle condition or maintenance and the use of defeat devices also causes inconsistencies. Texas A&M University recently conducted research to test the actual emissions of trucks. This research discovered that some trucks were being altered to increase their gas mileage at the expense of emissions.
- Some have found it helpful to obtain other sources for vehicle populations (but those sources still use the same base data) or obtain the raw data. While difficult, a few have been working to reconcile the data with their department of motor vehicle registration and/or State Department of Transportation.
- It can be difficult to distinguish between the contributions that mobile and non-mobile sources are making toward air quality nonattainment. Additionally, they feel they may not be able to get much more from the non-mobile portion of the budget since significant reductions have already been made from non-mobile sources like power plants over the past several years.
- Some are coordinating with their state level environmental department especially related to data.
- There are concerns about not attaining and/or their designation being bumped up for the next several years.
- Some are doing research or considering research for example, through placing monitors in targeted locations, to help distinguish between mobile and non-mobile contributions as well as to identify potential projects for implementation.

Bill asked the working group if, in thinking about the role and levers of the MPO, there are any research projects or other efforts that AMPO (and/or AASHTO) can facilitate to assist? He reminded the working group that they will be writing four white papers as part of their scope. He asked the working group to consider if this could be a focus of one of them.

The working group also discussed the impact and potential modeling of emerging technology such as electrification, vehicle connectivity and automation for passenger and freight vehicles, and transportation network companies (TNCs).

Russell shared that they do not have an extensive charging network implemented as part of their infrastructure. The proportion of electric vehicles in their vehicle fleet is very small so he does not feel it has a significant impact on emissions at this point. They did not assume automated vehicles were electric in their model.

Chin-Cheng commented that he came across research at a travel demand modeling conference that said there has to be a significant number of autonomous vehicles before you see their benefits.

Kyung-Hwa brought up the contribution of TNCs to vehicle miles traveled and air quality. At this point, she does not feel they have the capability to model them very well yet.

Chin-Cheng added that TNCs are also impacting transit ridership.

Lubna added that there is much complexity—for example with calibrating the models and input data (which can also be modeled or have discrepancies)—that it would be difficult to compare actual vs. modeled results. However, it is the best tool available now and is constantly improving.

Bill suggested the working group discuss the question on bus shelters: is there a method used to demonstrate or quantify the air quality benefits of installing bus shelters for FHWA reporting?

David (referring to his former role at ARC) and Jane responded that they have demonstrated increased ridership since bus shelters would make buses as a transportation mode more desirable. They have written qualitative statements to demonstrate CMAQ benefits.

Russell and Kyung-Hwa added that before and after studies are difficult.

Lubna and Mike added that other factors (e.g., gas prices) could change within the before and after time frame that would affect the results.

Mike also added that there are now CMAQ targets.

Jane explained that for bicycle facilities, they do bicycle counts. Traffic lanes have been taken away for bicyclists and that has been reflected in the model.

CMAQ Survey Discussion

- *Calculating CMAQ Emissions Benefits*
- *MPO Survey and Results*
- *Recommendations and Next Steps*

Bill introduced the next agenda item. At the previous meeting in Chicago, the working group decided to work with Sarah to develop and distribute a survey on the CMAQ program. He thanked everyone for completing the survey and asked Sarah to share the results.

Sarah explained that the survey was intended to determine what methodologies are being used by MPOs to estimate the emission reduction benefits of CMAQ-funded projects. Sixty-two MPOs completed the survey. She led the working group in a discussion of results².

Discussion items included:

- Slide 6: The working group requested that the results for “how many MPOs within the TMA Area?” be clarified.
- Slides 10-13: The working group requested that the results related to the project selection process be broken out by state. Mike and Chen added that this question is helpful since there are sometimes delays in spending down the money due to for example project delivery issues or people not wanting to go through the paperwork for the application process. Sarah highlighted CMAP’s process as a best practice and having built in flexibility if projects encounter issues during project delivery. Russell shared that to be eligible, construction projects must have completed phase one engineering (which is not eligible for funding). He explained that this helps with scoping, reduces budget changes, and helps demonstrate local commitment.
- Slides 15: Saleem and Joe commented that they found this question confusing. Joe suggested that if asked in the future, respondents be allowed to provide a free response rather than preset choices. He requested that the results be broken out by state and MPO level. He also asked how many states would the question apply to that have no nonattainment or maintenance areas.
- Slides 19 and 20: The working group asked why so many respondents skipped this question as opposed to selecting the “I don’t know” response.

The working group also discussed the User Profile and Access Control System (UPACS) database, target setting, and the CMAQ Emissions Calculator Toolkit and methods of calculation. UPACS supports the target setting and reporting process. There is currently only public access to the state targets, but not the MPO level targets.

Russell shared that CMAP does not use the calculator, but an elaborate spreadsheet with Motor Vehicle Emission Simulator (MOVES³) emissions rates by project type that they developed over the past years.

Sara shared that they use MOVES and the calculator.

² See PowerPoint

³ <https://www.epa.gov/moves>

Lubna shared that they developed their own method based on MOVES emission rates. They wanted a more localized approach.

David shared that he feels the calculator is a good place to start.

Joe added that it is more of an introductory approach.

Sarah reminded the working group that they had intended to discuss the survey results as part of the first white paper. She asked the working group if they still wanted to do that. She suggested highlighting notable practices.

The working group had the following recommendations:

- Highlight case studies—make sure there is size and geographic representation in the MPOs selected
- Break out the responses by:
 - Types of practices
 - MPOs that lead competitive selection and states that lead competitive selection
 - CMAQ call for projects standalone or combined with other funds
 - Amount of funding available—sometimes it is harder to work with a smaller amount of funding
 - MPO size
- Highlight notable practices on:
 - Target setting
 - How far out is money programmed
 - How do you project how you are going to reach your target if you are doing competitive selection?

The working group also discussed the intended audience of the white papers. They commented that smaller MPOs would probably benefit the most as they have less resources than larger MPOs. They also suggested that the white paper could be shared with MPO Boards and internally within MPOs to provide a better understanding of the CMAQ process and the variations in which it is carried out. They also suggested a story map or choose your own adventure type of format.

After hearing the suggestion, Sarah concluded that the white paper could discuss the CMAQ program and how it is run differently in each state. It could lay out a handful of common examples.

Russell added that it should cover how the process differs, how money/funding flows, performance targets, and project selection. Each method has advantages and disadvantages.

Bill suggested using the results to find case studies and do follow up interviews to get in more depth and help move the state of the practice forward.

AASHTO Update and Discussion

Bill introduced and welcomed Melissa Savage from AASHTO.

Melissa shared updates from AASHTO. The Air Quality, Climate Change, and Energy Subcommittee is under the Standing Committee on Environment. They will be surveying their members in the next year or so to gauge the priorities of the subcommittee. They recently established a CMAQ Task Force. Cecilia and her team are included in it along with the subcommittee. They are also collecting information from members related to the USDOT Notice of Review of Guidance⁴. The FHWA has an enormous number of guidance documents. Related to air quality, they would like to comment on the Mobile Source Air Toxic Analysis guidance.

Sarah asked if they are working on the potential conformity reform proposals and what they might be looking at legislatively and administratively.

Melissa explained that EPA released its Information Collection Request on conformity earlier this year. They typically do this every year. AASHTO puts together a package of their previous submissions. EPA seems open to addressing administratively. There is interest in understanding how much it costs nationwide for states and MPOs to go through the conformity process. EPA's estimate, however, is not the same as what Texas provided as its cost estimate. They volunteered to set up a working group with the EPA to help develop more accurate assumptions and methodologies.

Sarah added that EPA might assume that conformity is done once every four years. However, a couple of times each year is more realistic for states and MPOs to keep their programs moving. That number does not include the costs of project delays.

Cecilia suggested that maybe instead of looking at the aggregate cost, it might be helpful to look at cost per conformity.

The working group discussed common delays and issues in going through the conformity process.

AMPO White Paper Discussion

- Topic
- Structure

⁴ <https://www.federalregister.gov/documents/2019/02/05/2019-01065/notice-of-review-of-guidance>

Besides the CMAQ Survey Results previously identified as a topic, the working group discussed other potential white paper topics, including:

- Similarities and differences in how MPOs carry out the conformity process
- What is regionally significant in terms of a conformity amendment? What triggers a conformity amendment vs. an administrative modification?
 - While there is federal guidance, it is left up to states and MPOs to develop a specific definition. This is important because what triggers an amendment triggers conformity. The working group suggested looking at documentation from East West Gateway Council of Governments and Texas as best practices.
 - Discuss by TMA size
- How CMAQ is managed related to the performance measures.
 - Since projects can use multiple funding sources, the working group suggested referencing the cost effectiveness table that estimates emissions reductions by project type⁵.

Sarah and Bill explained that the project scope/budget includes four white papers. Bill suggested developing two, two part white papers. The goal of the white papers is to help practitioners and also help practitioners communicate air quality information to their boards and policy committees. Related to that, as part of the papers, a PowerPoint template could be developed to help MPOs share information with and educate their policy committees and boards.

Based on the discussion, Sarah suggested a white paper on CMAQ that covers project selection, emission estimating, performance target setting, and case studies. She suggested that the white paper on the conformity designation process include the definitions of regionally significant, what triggers an amendment, the timeframe conformity is done in, the sign offs required, and what is included in the conformity determination/length of documentation.

Saleem added that it would be helpful to include eligibility in the CMAQ white paper.

Bill added that the white paper structure could be modeled after a white paper developed by Metroplan that included an introduction of the topic, a series of one page case studies, and concluded with recommendations. He will share that with the group.

The working group thought this would be helpful since there is variation on how conformity is carried out nationwide. They suggested limiting the length of the white papers to keep the content digestible.

Bill explained that AMPO and Sarah will develop a proposed timeframe for the white papers in relation to the working group meetings and share that with the group.

⁵ https://www.fhwa.dot.gov/environment/air_quality/cmqaq/reference/cost_effectiveness_tables/

Jenny shared that through working with FHWA and EPA, they shortened their conformity process and developed a boiler plate document. They also recently developed a statewide conformity 101 that includes an example of conformity documentation and a list of everything that goes into the conformity documentation. She will share the links⁶. She added that a survey was done by AMPO a while back that asked how long the process takes (and the reasons for the variations in length) and challenges faced.

EPA Update and Discussion

- *South Coast II court decision conformity implementation*
- *Reminder of upcoming deadline for 2015 ozone NAAQS conformity: August 3, 2019*
- *Travel Efficiency Assessment Method (TEAM) - case studies*
- *Port emissions inventory guidance*
- *Air quality modeling update*

Bill introduced and welcomed Laura Berry from the EPA. The feedback that she has been hearing so far is that things have been workable. She asked the working group to let them know if that is not the case. She reminded the working group of some important dates, including the deadline earlier this year for the conformity determinations—it is their understanding that all areas made the deadline except for the handful of cases that rolled it with a later conformity decision—and the upcoming deadline for the ozone National Ambient Air Quality Standards (NAAQS) conformity determination in August.

She also shared current EPA efforts.

- For the Travel Efficiency Assessment Method: Three Case Studies⁷, they partnered with agencies across the nation to look at potential vehicle miles traveled and emissions reductions associated with adoptions in travel efficiency strategies. They plan to do two more case studies this year due to the high level of interest expressed in the program.
- They are also updating their Port Emissions Inventory Guidance based on the National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gasses at U.S. Ports that was released in 2016. The draft should be available for review later this year.
- A new version of AERMOD⁸, an Air Quality Dispersion Model, will be released later this year. It will include some bug fixes and general improvements, but also Rline algorithms, likely as a feature users can explore, but not used for regulatory purposes.
- They have an interagency agreement with the FHWA to conduct research to understand the effects of barriers and what happens to pollutants at the edge of barriers. They will share the report once the work is completed. The California Department of Transportation is also doing research on the effect of barriers on pollutants.

⁶ <https://www.nctcog.org/trans/quality/air/federal-air-quality/conformity> and <https://www.texastwg.org/transportation-conformity-resources/>

⁷ <https://www.epa.gov/state-and-local-transportation/travel-efficiency-assessment-method-three-case-studies>

⁸ <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>

- They are not sure when the next major MOVES update will be released, but will let us know when more information is available.

The working group also inquired about the California Air Resources Board's Emission Factors Model, EMFAC2017, the 2008 ozone revocation, and whether or not there would be a MOVES 2014c. Laura responded that she did not have information to share at this time, but would check with her team and get back to the group with an update.

Going back to a previous discussion, the working group also asked if a list of non-exempt projects was available in the regulations. Laura explained that there is a list of exempt projects and that a project and regionally significant (for the purposes of transportation conformity) is defined.

FHWA Update and Discussion

- *CMAQ Toolkit*
- *Cost-effectiveness Tables*
- *Research*

Cecilia provided the FHWA update:

- Cecilia also provided information on the interagency agreement with the EPA. In addition to what Laura shared, the FHWA is working with Melissa Savage from AASHTO to set up a webinar with State Departments of Transportation on lessons learned using dispersion models. If MPOs have experience that they would like to share, please let her know. This is especially relevant now as the end of the grace period (January 17, 2020) for using AERMOD for project level hot-spot analysis for PM.
- The CMAQ Emissions Calculator Toolkit has two new tools: one for diesel idle reduction technologies and another for bicycle/pedestrian improvements. They are also in the process of developing a managed lane (High Occupancy Vehicle [HOV] and High Occupancy Toll [HOT] lanes) tool.
- They are also hoping to do some research on connected and automated vehicles and their potential of emission reduction. They are looking at what has already been done and where gaps may be. Installation of vehicle to infrastructure communications equipment is eligible for CMAQ. They have received a lot of questions on exactly what is eligible so they are also looking into that.
- They are updating the cost effectiveness tables using emissions rates from MOVES2014b and the expanded project types from MAP-21 and the FAST Act. They are hoping to have the updated tables completed this summer.
- They are conducting research that looks at three data sets (the Highway Performance Monitoring System [HPMS], National Performance Management Research Data Set [NPMRDS], and Travel Monitoring Analysis System [TMAS]) to see how data could be extracted to be used in emissions and noise analyses.

- They would like to include the working group’s input (including what was discussed during this meeting) as they develop their next research plan.
- They are going to host two webinars at the end of April. One will be on potential improvements to the CMAQ website and the other on It All Adds Up to Cleaner Air and case studies. Cecilia asked the working group to share any project recommendations (especially outside of traffic signalization projects) for the case studies.
- Cecilia also updated the group on new staff in air quality at FHWA Headquarters and in the Resource Center.

The working group also discussed the impact of transportation network companies (TNCs), electric scooters, and electric bicycles on vehicle miles traveled, air quality, and transit ridership. Cecilia shared that she believes the Federal Transit Administration (FTA) is looking into this issue.

Bill added that the San Francisco County Transportation Authority did a report on TNCs and Congestion⁹.

Chin-Cheng shared that they plan to do similar research in their region.

Related to the discussion on connected and automated vehicles, Kofi shared that as part of the Signal Phasing and Timing (SPaT) Challenge, Dedicated Short Range Communications (DSCR) has been deployed along corridors in downtown Atlanta.

South Coast Air Quality Management District v. EPA

- *Implementation Update*
- *Resources and Needs*

The working group discussed the South Coast Air Quality Management District v. EPA decision. As they have discussed this at previous working group meetings, the discussion was brief.

The working group shared that they found the EPA and FHWA guidance helpful.

2015 ozone standard nonattainment designations

- *Implementation Update*
- *Resources and Needs*

The working group shared that since the revocation of the ozone standard, it has been difficult because they are unable to project anything into the future regarding conformity determinations. EPA has not released guidance on SIPs.

Cecilia responded that the EPA released the proposed rule for the 2015 ozone implementation a few years ago, but has not finalized it. She encouraged the working group to review EPA’s

⁹ <https://www.sfcta.org/projects/tncs-and-congestion>

Transportation Conformity Guidance for 2015 Ozone NAAQS Nonattainment Areas¹⁰. FHWA will be preparing a list of questions to supplement EPA's. She asked the working group to let her know if they have suggested topics.

Roundtable Discussion:

- Other issues?
- Next Meeting Location and Date

Bill suggested that the next working group be held in October or November (avoiding the AMPO Annual Conference which will be held at the end of October in Baltimore).

The working group asked if the next meeting could be held in conjunction with the AMPO Annual Conference to allow members the option of attending both the working group meeting and the conference. They suggested another possibility of hosting it in conjunction with STAQs at the end of August.

Bill responded that he would send a Doodle poll to the working group to help narrow down the best dates for everyone's availability.

Wrap-up and Adjourn

Bill thanked everyone for attending and ARC for hosting the meeting. He closed the meeting.

¹⁰ <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UN3X.pdf>