

MOVES Task Force Meeting

April 20, 2010, 10am - noon

Meeting Summary

Present:

Diane Franks, MDE – Co-Chair
Jim Ponticello, VDOT - Co-Chair
Kevin Black, FHWA
Joon (John) Byun, FHWA
Randy Carroll, MDE
Jessica Daniels, DDOE
Sonya Lewis-Cheatham, VDEQ
Bob Owolabi, Fairfax County DOT
Howard Simons, MDOT
Chris Voigt, VDOT
Mohamed Khan, MDE (phone)
Marcia Ways, MDE (phone)

Staff:

Mike Clifford, Daivamani (Siva) Sivasailam, Eulalie Lucas, Yu Gao, Erin Morrow, JC Park, Daniel Son, Joan Rohlf, Jeff King, Sunil Kumar

Item 1: Call to Order/Introductions

The meeting of the Task Force was called to order by co-chairs Jim Ponticello and Diane Franks, which was followed by introductions of members and staff including participants who joined the meeting by phone.

Item 2: Review of March 16th Meeting Highlights

There were no comments on the March 16th meeting highlights and they were approved as written.

Item 3: Review of MOVES2010 Local Data Inputs and Recommendations

Sunil Kumar began the item with a report on the local data inputs on the emissions side. At the March meeting, the Task Force decided to contact EPA regarding approaches for developing MET data inputs and emissions calculations. Sunil Kumar contacted EPA with a request for a response by April 15th. EPA responded that it still needs more time to consider the questions. EPA-Region 3 provided responses to more general questions. EPA is still deciding what the base year for the next Ozone SIP will be - possibly 2007, 2008, or 2011. Also, the region is not required to submit a new CO maintenance plan. Sunil was asked how MOVES will affect CO inventories. Eulalie Lucas responded that she had not yet completed any Winter CO runs with MOVES, but would do so for the next meeting. At this time, the region has no problems meeting the Winter CO budget. Jim commented that the time we have to spend waiting for EPA's response on the transmitted questions is keeping us from moving forward.

Siva reviewed three of the local transportation-related inputs that had been presented at previous meetings. His first handout, a memo, contained descriptions about the vehicle population and VMT percentages by MOVES facility types. Siva explained that Tables 3B, 3C, and 3D are used to create Table 3E which shows the MOVES VMT fractions by vehicle and road type. There was discussion about the urban/rural split that MOVES requires for road types and whether 2005 HPMS base year data was the correct method for forecasting urban/rural split in the future. Jim said that the group could agree that the urban/rural split would change in future years, but similar to vehicle registration, we use a base year and apply it to the future. Diane asked Siva to sum up the recommendations for the inputs. Siva responded:

- For vehicle population, staff recommends using local registration data and the equivalency table provided by EPA.
- For vehicle age distribution, staff recommends using Mobile 6.2 age distribution and the converter provided by EPA.
- For VMT percentage by vehicle type, staff recommends a “hybrid” method - using some MOVES default data with local data from the travel demand model applied where available and HPMS data to estimate the urban/rural split.

After distributing a separate memo, Siva discussed the development of the fourth transportation-related input - annual VMT for MOVES2010. He outlined the procedure staff used by first determining what local data were available and developing the process to use that data. The recommendation from staff is that we use the new EPA convertor and the related local data (factors to convert daily traffic to annual traffic) from state traffic counts. There was a question as to whether class 13 vehicles were included in Mobile 6.2 as they are not in the registration data. Staff was also asked to check the vehicle type breakdown for MOVES2010 class50 and class60 vehicle types. Siva responded that those vehicles are incorporated in the HPMS vehicle survey and he would check the vehicle types that make up class50 and class60 vehicles.

Item 4: Experience with the MOVES 2010 Model

a) COG staff

Eulalie Lucas spoke to a handout which shows the results of MOVES2010 tests completed using inputs from DEP, DTP, and the state air agencies. There are two sets of runs using local data. Local_1 are the emissions results from the last task force meeting, which still includes default MET data and VMT distribution. Local_2 are new results with local MET data and VMT distribution. VOC and NOx are both lower for DC and Fairfax when comparing Local_1 to Local_2. On page 6, the results from a Montgomery County run using all local data (except speed distribution which is not yet available) shows the biggest drop in emissions from Local_1 to Local_2. Page 7 shows what Eulalie considered the most important table – average MOVES2010 model runtimes. Eulalie was asked about the custom domain for the Maryland jurisdictions on page 7. Eulalie responded that the custom domain created an aggregate county which, in this case, averaged vehicle age distribution, summed vehicle population, summed annual

VMT, created a weighted average of VMT distribution by vehicle type, and created a weighted average of vehicle type by facility type. All of the counties included in this particular custom domain had the same I/M programs, fuel programs, fuel formulation, MET data. The MOVES default speed distribution was used. There were questions about the runtimes not seeming to be intuitive. There was a question whether both county and custom domain approaches provided the same emissions results. Sunil responded that if the same inputs are used, the output should be the same, keeping in mind that the custom domain approach requires one average speed and one average VMT distribution for the whole custom domain consisting of a number of counties. If different average speed and VMT distributions are used for these counties (part of the custom domain) in the county approach, then the results from this approach will be different from the custom domain approach consisting of the same counties. Page 8 of the memo shows the difference between emissions outputs from a custom domain run (Maryland) versus the sum of the individual county runs.

There was discussion on whether we could accept the differences in the counties to determine the average needed for the custom domain input. Eulalie suggested that a solution could be to develop separate custom domains within the states for urban and rural counties. There were questions and discussion on whether we could test conformity using a custom domain approach against SIP budgets that had been set using a county-level approach. Sunil responded that the analysis for conformity should be done by the same method as the SIP. It is possible that we will have to do the SIP base year by county, but for the rest of the inventory, we may be able to use custom domain. This question has been posed to EPA.

A question was asked as to what was EPA's intended purpose for the custom domain feature. Siva responded that it is to divide counties as needed. Mohamed said that in the Baltimore area, the city and surrounding counties have very similar input data and when modeled by county and added or modeled together as a custom domain, the results are very close. Jim quoted the MOVES Technical Guidance which defines a custom domain as "a geographical area that may consist of multiple counties, parts of counties, or combinations of counties and partial counties that can be described using a single set of inputs in the CDM." Again, the idea of multiple custom domains for each state, split by urban and rural counties came up. Eulalie determined that there was a typo in the table showing the runtimes. The runtimes should be 2.6 hours per county, 13.1 hours for all five modeled Maryland counties, and 2.6 hours for the custom domain with all five Maryland counties.

b) Maryland and Virginia Air Agency Staff

Mohamed said that he had no updates since the last task force meeting. MDE is looking at how to treat the counties where increases in vehicle population are higher than increases in VMT because they are sure that those vehicles are traveling to other counties which MOVES does not account for. When compared to Mobile6 rates, MOVES rates are coming out higher.

Sonya said that VDEQ is dealing with the fuel formulation and fuel supply inputs. There is an issue she found with ethanol percentages that is not covered in the guidance. If the surveyed ethanol percentage is less than 10%, E10 (subtype 12) cannot be used. E8 (ethanol between 5% and 10%) must be used.

Eulalie asked Mohamed about an error she received when using the Maryland fuel program. Mohamed said that if she sent it to him, he would take a look at it.

Item 5: Status Review of MOVES2010 Model Testing Work Program

Siva reviewed the status of the MOVES work program.

- I. Testing the model with default values – complete
- II. Develop local inputs – mostly complete. We are still waiting for EPA comment on MET data inputs. Transportation-related inputs are completed except for VMT percentages by speed bin.
- III. Test model with local data - Local data runs for all Maryland counties have been completed for 2005; however, staff is still working on DC and Virginia. A custom domain run has been completed for 2005 Maryland.
- IV. Emissions approach vs. rates approach – rate approach testing is time consuming. The work is on schedule and anticipated for a July completion.

Siva was asked if we need vehicle hours by 16 speed bins. Siva responded that right now, we are using default in our model tests. Staff is reviewing regional congestion monitoring data (freeway and arterial) to develop this input. He hopes to have initial results to show at the May meeting. He also said that the travel demand model probably underreports low speeds while the default appears to over report slow speeds for restricted facilities (freeways and expressways).

Item 6: Revised Technical Guidance for MOVES2010 Model

Siva told the task force that on April 7th, EPA released new technical guidance for MOVES2010. He had a handout with the e-mail notification from EPA with links to the new guidance. Sunil said that the only changes in the technical guidance are (1) if you are using a rate approach, you must provide actual VMT and vehicle population data and (2) there was a mismatch between the MOVES and Department of Motor Vehicle Administration (MVA) vehicle types and EPA is providing an equivalency table to match the two database for the purposes of developing MOVES I/M program inputs for different MOVES vehicle types.

Item 8: Next Meeting/Agenda Items

The next meeting will take place on May 18, 2010. Jim said that apparently there will be upcoming MOVES trainings. Joon may be organizing training somewhere in the Richmond to DC area. VDOT has training money available through June 30th. Joon said that FHWA was probably two weeks from receiving the training slides and training sessions could be scheduled after that. The trainings will be two days and be more focused on running the model than previous MOVES trainings.

Agenda items: hopefully by the next meeting, we will have a response from EPA on the questions Sunil submitted so that we will not have to delay our decision making. Other items include: finalize local VMT percentage by speed bin; CO wintertime inventories and rates; a first cut at a full inventory (including a milestone year between 2005 and 2030) which would be relevant to the discussions regarding establishing a new budget and inventory preparation for the next SIP; discussion about possible MySQL training.

Item 7: Other Business

Sunil reported that on the MARAMA call, there was discussion about moving from a rate to an inventory approach because of runtime. They are also trying to get the episodic temperature issue resolved. Siva asked if EPA has blessed this approach and Sunil responded that MARAMA submitted their proposal to EPA.

Mike addressed an e-mail that Chris Voigt had sent him the day before of a draft report with plots of MOVES emission rates by speed. Eulalie used Montgomery County as an example and had a handout with a similar plot for passenger vehicles. Joon Byun suggested plotting emissions in g/mi on the left side and g/hr on the right side of the chart to see whether the line begins to curve at 65 mph when engines have to work harder to maintain speed. Chris suggested a similar plot for diesel trucks would also be informative. The plots give a visual representation of the change in emissions with speed by vehicle type, which is helpful in understanding the potential benefits (or impacts) of a project or projects for which changes in vehicle operating speeds are expected.

Kevin Black reported that the FHWA NTAQS conference would be held in Cambridge, MA from August 24-26. Thursday will be a training day, but it has not been decided whether there will be a half day or full day of MOVES training.

The meeting was adjourned at 1:09 pm.