NESCAUM
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Arthur N. Marin, Executive Director

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MOVES Team
c/o John Koupal
U.S. Environmental Protection Agency
Office of Transportation and Air Quality
Assessment and Standards Division
2000 Traverwood Drive
Ann Arbor, MI USA 48105

Re: Comments on the MOVES Model

Dear Mr. Koupal:

NESCAUM appreciates the opportunity to comment on the 2004 version of the MOVES model and documentation. We have the following specific comments on the model and on plans for future versions of the model:

1. EPA Should Encourage States to Submit Local Inputs for Use in the MOVES Model

It has been a long-standing practice of USEPA to encourage states to use locality-based inputs whenever practical. For example, local information such as VMT by vehicle type by roadway type (i.e., VMT and vehicle mix by HPMS road types) and registration distributions are required "Procedures for Emissions Inventory Preparation, Volume IV: Mobile Sources."

MOVES will eventually replace MOBILE6 as the onroad mobile source model used for conformity, State Implementation Planning (SIP), and inventory preparation. In order to properly estimate emissions, locality-based model inputs and VMT are used by states in their current emission modeling estimates for non-attainment areas. These may include:

- baseline VMT and VMT projections for future years;
- temporal VMT distributions (for each hour of the day);
- seasonal VMT adjustment factors (for modeling by month);
- vehicle mixes by roadway and location;
- speed and/or speed distributions by roadway and location;
  start distributions;
- registration distributions and diesel fractions;
- IM/OBD, fuel and temperature by location.

Currently, some of these are MOBILE6 inputs, while others are utilized during post processing. In addition, many of these data are now required submissions to the National Emissions Inventory (NEI). Thus, it would be beneficial for MOVES to have the capability of outputting in NEI format.

A major goal of MOVES is to integrate all mobile source emission modeling data into a single modeling package for calculating emission inventories. As a consequence of this consolidation, MOVES will incorporate many current MOBILE6 inputs as components of the model itself. Therefore, it is appropriate that EPA encourage and support the States to submit these data during the development stage. EPA will then be able to either release the state specific data as part of the MOVES (national) model, or make them available for downloading by interested users from an EPA website.

Due to the national orientation of their regulatory analyses, EPA has focused on the need to develop a national model. Unless locality - specific information has been provided as suggested above, MOVES will have to use numerous national defaults that would then appear to be county level inputs to the casual user or reviewer, since the resultant emission estimates would be county-level outputs. Because of this, it is our belief that MOVES should not give model users emission estimates at a level smaller than the geographic area from which input data is gathered. That is, while MOVES will be capable of modeling any county in the country, it should not portray estimates based on national defaults as state or county level estimates. State or county emissions estimates should only be available as output when locality-specific information for the area in question has been incorporated into the MOVES model.

2. Amalgamation of Road Types

As MOVES is now designed, there will only be four roadway types in the model: urban limited access, urban non-freeway, rural limited access, and rural non-freeway. There will also be an "area-wide" road type for emissions such as diurnal emissions that are not attributed to any specific road type. This methodology will present significant problems in mapping the source and use type data that is obtained from federal and local transportation agencies which commonly use the 12 HPMS road types. The model needs to accept inputs for each of the 12 road types and produce output that is broken into the 12 road types. This is a very important modeling issue as it limits the number of source type distributions. Currently, MOVES will utilize only speed to differentiate between road types. This prohibits inputting distributions of source types and starts, along with driving schedules for each of the individual road types. MOVES needs to allow separate roadway type allocations for all 12 HPMS roadway types.

3. I/M Credit in MOVES

We understand that the inspection and maintenance (I/M) credit method and data gathering process is currently being developed by EPA for the MOVES model. The NESCAUM states

have several questions and/or requests regarding the development of inspection and maintenance credits in MOVES:

- Since MOVES is an object/table driven model, will the states be able to substitute their own I/M factors instead of the national average?

- As EPA develops a method to calculate the emissions reductions attributable to inspection and maintenance programs in the MOVES 2006 model, NESCAUM requests that all data being used in this estimation be made available to the states for review.

- We encourage EPA to consult with and advise our member states as the method for determining and I/M data collection proceeds.

- Will EPA be including diesel IM benefits, diesel engine deterioration and mal-performance factors?

- We understand that, as currently planned for MOVES, I/M credit will be the same for I/M 240 and for idle tailpipe testing. We encourage EPA to change this design so that states will receive a level of credit that is representative of the type of testing program in the state.

4. Calculation of Criteria Pollutant Emissions in MOVES 2006

The MOVES documentation describes a "binning" approach to normalizing data for the purpose of developing a database of energy consumption for vehicles. We understand that EPA plans to take a similar approach for the estimation of criteria pollutants in the MOVES 2006 model. This approach relies on a vehicle specific power or "VSP" calculation that is described in the MOVES documentation. As it relates to the development of different bins, how does EPA plan to normalize data from I/M programs given the following differences in data:

- differing methods of data gathering in I/M programs;
- varying QC methods in different I/M programs;
- different age distributions of the fleet in different states;
- different emissions standards (LEV and Tier 2) in different states;
- temperature differences;
- differing fuels.

How will EPA standardize the data so that an emissions distribution can be generated? A related question regarding the VSP approach is: we assume that EPA plans to calculate a distribution for emission rates at each specific power. It would be useful to see what the distribution looks like once that has been calculated. Last, how will EPA weight the different bins - in other words how will the individual bin data be used to construct a "driving cycle." The NESCAUM states

request that all of the data gathered by EPA for use in the criteria pollutant emissions estimates be made available for review.

5. Accessing Local or Vehicle-Specific Data

The NESCAUM states have the following question regarding the use of and accessibility of local and/or vehicle-specific data in MOVES: Will the MOVES model allow customized inputs of vehicle type, VMT, diesel fraction, age distribution, and other parameters for the Domain level (state, county, area) runs? The MOVES documentation states: "The more specific the data for an area, the better the output will be for that area."(Moves User Guide p65). The NESCAUM states agree with this statement and would like to know more about how this will work on a practical level.

A second, related question, is: Will EPA be aggregating vehicle types for MOVES? If so, could the MOVES model have an auxiliary table showing default breakdowns of the old (MOBILE) to new (MOVES) data types? Since most local data is now centered on the MOBILE vehicle types and road types, this would allow a quicker local customization for VMT, age distribution tables, diesel fractions, and other parameters.

Last, with the high level "Local Customization" capabilities of the MOVES Model, will EPA set up a clearinghouse of local scenarios? If so, could a standardized template be established to map out which tables have been altered? Having the ability to review how other states are customizing runs will speed up the process for all states.

Finally, the MOVES documentation notes that MOVES may be operated on a single computer or a network of computers in Microsoft Windows 2000 and later. While it may be possible for MOVES to be run on a single PC, running MOVES on a single computer could be an extremely slow process. For network-based parallel processing states may need more computers, network equipment, and a higher degree of training. For these reasons, the NESCAUM states request that EPA provide funding in the future to the states to purchase computers and to provide training for those people who will be using parallel processing to run the MOVES model.

We look forward to working with you in the development of the MOVES model.

Sincerely,

Coralie Cooper
Transportation Program Manager

Cc: NESCAUM Directors