

June 30, 2009

MOVES Model Comments
US EPA NVFEL ASD
2000 Traverwood Drive
Ann Arbor, MI 48105

Re: EPA's Request for Comments on the Draft MOVES2009 Model

Dear Sir or Madam:

The American Association of State Highway and Transportation Officials (AASHTO) appreciate the opportunity to review and comment on EPA's Draft MOVES2009 model. We would also welcome the opportunity to review draft guidance documents related to the model such as the MOVES Technical Guidance for SIPs and Conformity, the Project Level Conformity Guidance for PM, and the MOVES SIP and Conformity Policy Guidance before their release.

In reviewing the Draft MOVES2009 model, AASHTO has identified a number of areas that EPA should address in the Final MOVES model and/or the supporting guidance that will be released along with the model. Having these issues addressed will allow AASHTO and other affected stakeholders to more meaningfully and effectively transition to the new MOVES model.

Conformity Implications

- **Develop Comprehensive Comparisons between Emissions Models:** EPA's background information on the MOVES model indicates that it has done a preliminary comparison of the Draft MOVES2009 and MOBILE6.2 models. However, since the MOVES model has the potential to significantly increase emissions over the MOBILE6.2 model, AASHTO recommends that EPA complete a comprehensive comparison of emissions between the final version of MOVES and MOBILE6.2 and release this comparison with the final model.
- **Provide Guidance for Transitioning Between Models:** Changing to a new emissions model can have conformity implications if the new MOVES model has to be used for conformity determinations prior to new Ozone and PM budgets being found adequate or approved with the new model. Consequently, it is recommended that EPA provide guidance and develop best practices on how MPOs and State DOTs can effectively transition between various emissions models when the SIP budgets and conformity determinations are based on different models.
- **Maximize Grace Period for Conformity:** AASHTO recommends that EPA allow the maximum grace period for both regional and project level conformity determinations before the use of the MOVES model is required. As MOVES is a very complex model, the

maximum grace period will be necessary to minimize conformity problems for State DOTs and MPOs during the transition period.

Technical Guidance/Research Needs

- **Provide Guidance on the Project Domain Manager:** The implications of the MOVES model at the project scale revolve around the project domain manager inputs, which include: age distribution; meteorology; fuel; I/M program; links; link source type; link drive schedule or operating-mode distribution; and off-network. AASHTO understands that EPA is developing guidance on specifying these inputs for PM_{2.5} hotspot analyses, which is due out by the end of the year. However, the challenge for DOTs will be characterizing link drive schedules for project alternatives, especially at the project development (planning) phase. Consequently, AASHTO recommends that EPA include guidance on how much design information, such as roadway grades, will have to be known to construct such drive cycles when supporting guidance with the final MOVES model is issued.
- **Complete Sensitivity Analysis:** The MOVES model contains a large number of input parameters that could overwhelm smaller States and MPOs. AASHTO therefore recommends that EPA complete detailed sensitivity analyses for the various parameters so that practitioners know which ones are more critical for their analysis. This guidance should be released with the final version of the MOVES model.
- **Provide Guidance on Mobile Source Air Toxics (MSATs) Emissions Analysis:** The February 26, 2007 Final MSATs Rule expanded EPA's list of MSAT compounds of concern to include polycyclic organic matter (POM) and naphthalene. However, the current version of the EPA Draft MOVES2009 model does not estimate emissions for the POM compounds. Consequently, EPA should provide guidance on how to conduct quantitative emissions analyses for these compounds. Also the definition of "project level analysis" needs to be more clearly defined. It appears that the definition applies to hotspot analyses for specific projects such as park and ride lots. However, NEPA project level analyses typically also include sub-regional or corridor level analyses.
- **Provide Guidance on Data Management:** The database management between the outputs from travel models and the inputs for the MOVES model can be cumbersome. Detailed guidance on this data manipulation is needed.
- **Continue Collaborative Research Efforts with DOT on the Interface Between Emissions Models and Travel Models:** AASHTO recognizes that there is research underway on the interface between the MOVES model and current travel models, and supports such research. Any guidance that results from this research should be released with the final version of the MOVES model. However, as these models continue to change over time, future research efforts will be needed to ensure these models effectively work together.
- **Provide Periodic Updates of the MOVES Model:** A problem associated with models is the uncertainty associated with future predictions of vehicle mix including the use of hybrids, vehicle activity levels, age distribution, percent diesel trucks, changes in driving

habits, etc. Therefore, AASHTO recommends that EPA commit to making periodic updates to incorporate the latest and most accurate data into the MOVES model.

- **Conduct Validation Studies:** The accuracy of future emissions predictions from the MOVES model will be critical to project level and regional level analyses. Consequently, AASHTO recommends that EPA evaluate models as they are implemented to see if forecasts of future events correlate with follow-up measurements. If not, adjustments should be made to the models to make them more accurate.

Technical Changes

- **Clarify the Inventory Calculation Aspects of the MOVES Model:** MOVES can be used as an inventory model, but to input activity levels such as VMT it only accepts high level summaries by vehicle type and does not accept link-based VMT when running regional conformity analyses. The model needs a data importer that allows the input of link-by-link data from local travel demand models. It should then internalize the use of lookup tables to match emission rates to links by speed, multiply by VMT to get total emissions and sum up all links to get the inventory for the region. Currently analysts must get emission rate outputs from MOVES and continue to do the calculation outside of the MOVES model in a spreadsheet, database, or travel demand model post-processor. Therefore, further clarifying the inventory calculation aspects of the model and indicating what all the future uses of the model are expected to be would be helpful.
- **MOVES Should Include Estimates for Diesel Particulate Matter (DPM):** The MOVES model does not specifically give estimates for DPM. While DPM emission estimates can be obtained by doing off model calculations, AASHTO recommends that the MOVES model provide estimates directly for DPM.
- **Provide Separate Roadway Type for Ramps:** MOVES provides a percent input for ramps rather than a separate road type. Travel demand models know which links are ramps. AASHTO therefore recommends that MOVES provide a separate roadway type for ramps, but that the percent input for ramps be used as a default for areas that do not have a travel demand model.
- **Include "Non-Running" Emissions in Look-Up Tables:** "Non-running" emissions should be included in the look-up tables on a gram/vehicle-hour basis. Since they are not associated with a specific roadway the activity measure should be based on hours of operation rather than on VMTs.
- **Provide Documentation of Fleet Fuel Economy Assumptions:** AASHTO recommends that the MOVES supporting documentation give a description of the fleet fuel economy assumptions that were used, and how they are incorporated into the model because of the ever-changing fuel economy standards.

Technical Assistance and Training

- **Provide Technical Assistance on the Installation of the Model:** Installing the MOVES model on a computer can be cumbersome. The model can be especially hard

to install and operate on computers using the Windows Vista operating system, which newer systems use. AASHTO therefore recommends that EPA provide additional technical assistance to State DOTs on the installation of the Draft MOVES2009 as well as the final version of MOVES when it is released.

- **Continue to Provide Training on the MOVES Model and Maximize the Use of Electronic Media:** AASHTO appreciates the training that EPA and FHWA are providing on the Draft MOVES2009 model. This training should be continued after the final version of the MOVES model is released. AASHTO recommends that EPA maximize the use of electronic means such as live satellite/web teleconferences and training sessions, webinars, on line tutorials, archiving video presentations on the web, etc. to get the information and technical assistance out more quickly.

Thank you for the opportunity to comment on the Draft MOVES2009 model. Should you have any questions, please contact Janet Oakley, Policy and Government Relations Director at 202-624-3698.

Sincerely,

John Horsley
Executive Director