

## Daivamani Sivasailam

---

**From:** Mike Clifford  
**Sent:** Friday, July 10, 2009 8:58 AM  
**To:** Brzezinski.David@epamail.epa.gov  
**Subject:** MOVES questions

Dave,

At last week's MOVES training session held in our offices at the Washington Council of Governments in Washington, DC, I had a number of questions about the approach we might adopt in transitioning from Mobile6. I posed a couple of them to Megan, but she thought they might be better addressed via email rather than in the discussion period at the training.

Since the early 1980s, due to our need to evaluate different control strategies, we have had a fairly disaggregate mobile source emissions modeling process here (detailed documentation of our most recent air quality conformity assessment, for example, is posted on our website at: [www.mwcog.org](http://www.mwcog.org)). Our mobile source emissions inventories for SIP and conformity planning consist of emissions: (1) by trip cycle, i.e., we report separate estimates of start (based on trip origin data), running (VMT based), soak (trip destination based), and diurnal and resting loss (based upon numbers of gasoline fueled vehicles); (2) for separate components of travel demand, i.e., (a.) 'network-based' emissions, which account for the lion's share of each pollutant; supplemented by (b.) 'off-network' emissions, which are based upon local road traffic from HPMS estimates of travel in DC, MD and VA; (c.) school bus emissions, based upon VMT and operating speeds obtained from the school districts in each jurisdiction; (d.) transit bus emissions, similarly based upon VMT and operating speed data provided by all of the transit operators in the Washington area, and (e.) 'auto access to transit' emissions, i.e., vehicles which are used in driving to transit stations or park and ride lots, but which are not loaded onto our highway networks.

We prepare our emissions inventories by executing the Mobile6 model with separate VMT mixes for network (HPMS %'s), off-network (based upon extensive local count data, which show lower heavy truck %'s on local roads), school bus (100% school bus VMT), transit (100% transit bus VMT), and auto access (reflecting commuter vehicles, i.e., passenger cars and light duty trucks only). We prepare separate emissions rates in 1 mph increments for each of the 12 major jurisdictions in the Washington region, using city or county-specific vehicle age distribution, diesel fractions, and state-specific fuel and I/M programs. We then summarize our travel demand model data to align with these categories and we apply the emissions rates to the travel demand data in an emissions post-processor for each hour of the day. We also use trip table data to reflect the inter-jurisdictional nature of travel in the metro area before applying the rates. For example, using DC to illustrate, emissions rates applied to VMT in DC are not only DC's rates, but reflect the emissions rates of each jurisdiction in the region in the proportion that it contributes to DC's total VMT.

The fundamental question we have been trying to address here at COG is how to structure our analysis approach to transition to MOVES, i.e., whether we can preserve any or all of these separate components of our analysis or whether it's time to simplify our procedures. Should we even preserve our post-processor approach or switch to MOVES for the emissions calculations?

Much of the focus of the training session, of course, was on how MOVES is executed, how much better the vehicle test data are within the model, and how the drive cycles are more realistic. But, I feel like we need some guidance on how we might structure our analysis approach before we can even adequately test the model. For example, should we run it once for each county, get separate 'emissions rates', and then apply them to separate travel estimates in each county the way we do now, or develop a 'regional average vehicle' using metro averages for vehicle ages, dsf, fuel and I/M programs, and let MOVES calculate emissions? Are these other stratifications desirable or even possible?

I realize you all are working on the technical guidance documents which may answer some of these questions, but any assistance you can provide now would be appreciated. I'm at 202 962 3312 if you have any questions or would like to discuss any of this. Thanks.

Mike

8/17/2009