



**Response to Stakeholder
Comments Regarding Draft
Report: *Guidance for the
Development of Facility Type
VMT and Speed Distributions*
(M6. SPD.004) (EPA
Document Number
EPA420-P-99-004)**

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Draft Report: *Guidance for the Development of
Facility Type VMT and Speed Distributions*
(M6.SP.D.004) (EPA Document Number
EPA420-P-99-004)**

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Response to Stakeholder Comments regarding
Draft Report
Guidance for the Development of Facility Type VMT
and Speed Distributions (M6.SP.D.004)
(EPA Document Number EPA420-P-99-004)

MOBILE6 Project Stakeholder Comment Number: 86

Name of Comment Submitter/Affiliation: Gary McVoy via Jane Lao, NYSDOT

Date of Comment: August 2, 1999

Comment:

Vehicle speeds on local roads are much different from project to project and from area to area. For example, the local speed and driving pattern in New York City are much different from those in the NY upstate cities. No speed adjustment for the local roadways affects our ability to perform accurate and publicly defensible air quality analysis.

Much more detailed information and sources of information regarding geographic coverage, years of the data being collected or developed, functional class, local counts, speeds, the use of HPMS data as local data, etc. must be provided in "Guidance for the Development of Facility Type VMT and Speed Distributions," M6.SP.D.004, EPA4120-P-99-004, we have the following questions or comments: for example,

1. In Table 3c, The New York traffic count dataset (data are organized into four subsets, designated TF1 through TF4), please provide detailed information and the reference for calendar years, areas of the state this information covers, and the sources of these data.
2. Table 8a suggests that EPA has constructed percent of ADT distributions for functional class by hour. The question is what is the area of geographic coverage. The urban hourly distributions of travel for upstate are much different from those for downstate such as the New York City metropolitan area. Even to say that the 10 county area is homogeneous is not correct.

Also, what is the number of local counts. We are concerned that there may not be an adequate number of counts for the local functional class.

3. Table 8b shows free flow speeds and capacity values. Please provide the information about how these data were developed and where the speed information comes from.

4. Table 8c shows VMT total for urban New York. Is this numbers the VMT total? Please indicate the years this being reported for and the information source.

5. Table 8e shows total number of count sites. Please provide the year is this information for and the geographic coverage.

EPA Response:

Regarding MOBILE6 not having the ability to adjust speed for "local" roadways, we agree that this would be a worthwhile addition. The document "Development of Speed Correction Cycles," (M6.SPD.001) discusses how the local roadway and freeway ramp cycles were developed and why these two roadway types do not have a dependence on average speed. There are several reasons. The most critical was that developing a speed dependence would have required additional vehicle testing. We have already been criticized for the size of the vehicle samples we used for the freeway and arterial/collector driving cycles. We decided to minimize the flexibility for local roadways and freeway ramps in order to conserve resources for the freeway and arterial/collector cycle testing. This is an area where a lot of new work is being done, so MOBILE6 is not the final word on this issue.

It would be desirable for report M6.SPD.004 to be more detailed and definitive. As the report stands, however, it is merely intended to "give suggestions which will help the states..." The analysis of five urban areas in the U.S., including for New York City, are merely presented as "examples" (ref last sentence on page 5.) The report does not really evaluate the examples, or establish a standard as to what level of detail or accuracy would be adequate or acceptable for particular purposes. Admittedly this makes the report less useful than many would like.

The New York City example in particular (report section 5.3.2) contains assumptions about roadway freeflow speeds and capacities which were not entirely realistic and that "in practice, specific information regarding number of lanes, freeflow speeds, and capacities for each count site should be obtained." In general EPA is aware that New York City performs its estimates differently, and may be one of those areas mentioned on page 1 of the report that "have more sophisticated methods to determine the distributions for VMT than those described here."

Because the report is not needed to document the MOBILE6 model itself, and because of its limitations, EPA has no current plans to issue this report in final form.

MOBILE6 Project Stakeholder Comment Number: 71

Name of Comment Submitter/Affiliation: Harold Nudelman via Gerry Kelpin, NYCDEP

Date of Comment: 5/12/1999

Comment:

Thank you for the opportunity to comment on the document EPA420-P-99-004, February 1999, "Guidance for the Development of Facility Type VMT and Speed Distributions, M6.SPD.004". We strongly agree with the position that wherever possible, local data, including measured speeds, appropriate for the various roadways in an area should be used in order to generate emissions that are representative of local conditions. We believe that the most accurate way to generate speeds to be used for modeling emissions for different roadway types is to start with measured average speeds. The measured average speeds can be adjusted, as necessary, for the differences between the conditions when the speed measurements were taken, and those representative of the conditions to be modeled (growth). The use of an average measured speed, as a base to be adjusted, provides a strong link to reality. The measured average speeds inherently take into account all the factors that affect speed, including some that either may not be adequately modeled and others that may not even be included in the mathematical approximations used for estimating speeds. The use of adjusted average measured speeds should result in more accurate emissions estimates than emissions estimates generated by using estimated speeds derived solely from predictive methods. This should be especially true for areas like NYC which have significant VMT under congested conditions, especially on arterial and lesser roads that are affected by cross traffic and signals.

An examination of the speed distributions by functional class data generated from count measurements taken in NYC reinforces our concern about the potential error introduced by using assumptions about traffic parameters and estimating speeds using predictive methods. The percentage of VMT for nearly every functional class for the peak 8 AM hour (Table 8d) is overwhelmingly in the maximum speed category for that class. The overestimation of speeds for the functional classes at, or below, principal arterial was recognized by the authors as a potential problem that might be the result of using traffic assumptions. The average speed for arterials and local streets in NYC has been observed to be much lower than the speed for the AM peak hour that would be estimated from Table 8d. (Tri-State Regional Planning Commission (TSRPC) had estimates of the average speeds for the different counties of NYC ranging between about 12 to 19 mph for arterial and between about 7 to 13 mph for local streets). In addition, the overestimation of speeds also appears to be a problem for the higher classes. The distribution of speed by functional class for the AM peak VMT does not present a very realistic picture for any of the classes in NYC. The fact that 11% of Freeway and Expressway VMT is given as being between 0.0 and 2.5 mph is also difficult for us to understand.

Not only are the speed distributions by functional class questionable, we also have concerns about the results for VMT by functional class for NY (Table 8c) that were estimated by applying similar procedures to those that had been developed for Charlotte. How did they determine that 41% of urban NY VMT were in the local functional class? This percentage is far too large, and does not agree with estimates

made by local agencies in this area. For example, estimates of NYC VMT made by the TSRPC, which divided VMT into expressways, arterials and locals had about 18 % of the total VMT as local. In addition, the 41% local VMT estimated on Table 8c for NY is much higher than the range of percentages of local VMT to total VMT (~5-13 %) given for the other areas in this document. Finally, since only slightly more than 1% of the count sites in NY were local streets (Table 8e) one would not expect local street VMT to constitute the large percentage of total VMT(41%) given in Table 8c. Both the count data and the method used to generate this value should be reviewed.

EPA Response:

[Much of the response to comment number 86 above is relevant here as well.]

The report certainly does advocate using local data wherever possible. EPA thinks it best, however, not to take a firm position as to which of several methods of using local data, whether individually or in combination, for estimating VMT distribution by hour or by facility type, or for estimating average speeds, is really “best”, and wants to allow for the fact that the availability of particular kinds of local data varies considerably.

Regarding the accuracy of the New York City example, the report admits on page 40 that “either counts are quite low relative to capacities, or that the assumed capacities are overestimated”. And that “the speed estimates shown for local roadways are probably overstated due to an unreasonably high assumed speed.” So we agree that the New York City example in particular is not as accurate as it could be. While ideally it should have been redone, EPA did not feel that the time and resources for doing this were warranted.