



ENVIRONMENTAL DEFENSE

finding the ways that work

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September 17, 2003

Mr. Ron Kirby
Director, Department of Transportation Planning
Metropolitan Washington Council of Governments
777 N. Capitol St. NE #300
Washington, DC 20002

Re: Response to August 20, 2003 letter from Ron Kirby to Michael Replogle concerning travel modeling for the Washington, DC metropolitan region

Dear Mr. Kirby:

Thank you for sending us a copy of your analysis, *A Comparison of the COG/TPB Travel Forecasting Model with the Smart Mobility, Inc. Enhanced Travel Model*, dated August 20, 2003. Your report shows that the COG/TPB Travel Model 2.1 is in some respects better and in some respects worse at matching base year traffic and travel behavior data, when compared with the Smart Mobility, Inc. (SMI) Enhanced Model.

However, the SMI Enhanced Model was developed for a specific subarea planning study of proposed northern Potomac River crossings. This model was never intended or proposed as a new general-purpose regional travel model for regional transportation conformity analysis, as your report and letter of August 20, 2003 imply. With the modest budget for our study, we did not expect our consultant to develop a replacement for the COG/TPB model, nor to extensively calibrate the model to match regional travel behavior outside our project's study area.

The SMI Enhanced Model was highly suitable for the Potomac River crossing study. As your own study confirmed, the SMI Enhanced model better matches overall traffic volumes across key cut-points region-wide and better matches 24 of 38 individual traffic volume screenlines, including all the crucial screenlines of interest to the northern Potomac River crossings. In my professional judgment as a civil engineer and transportation modeler with 25 years experience, the SMI model was quite adequate by standards ordinarily applied to corridor level sketch planning studies for the purposes to which it was put, and indeed was superior to the COG/TPB model for the analysis issues evaluated in our study. Having reviewed your new analysis of August 20, 2003, we continue to fully stand behind the findings and conclusions from the SMI study we commissioned, *More Sprawl, More Traffic, No Relief: An Analysis of Proposed Potomac River Crossings*, October 2002.

We appreciate that TPB staff has made improvements to the COG/TPB model in recent years, including some refinements since our critique of the version 2.0 model in October 2002. However, we continue to believe that the COG/TPB model needs further improvement if it is to serve as a basis for sound regional air quality and transportation planning. We have raised concerns about the overuse of adjustment factors and other modeling practices and assumptions in the COG/TPB model that render the model insensitive to induced traffic and diminish its capacity to fairly and reasonably reflect the likely future effects of expanding sprawl inducing highways vs. investing in better transit and smarter growth and travel incentives. These concerns have been validated by the September 8, 2003 report by the Transportation Research Board's (TRB's) Committee for Review of Travel Demand Modeling by the Metropolitan Washington Council of Governments.

That independent peer review found that, *"TPB's extensive use of adjustment factors in trip generation, trip distribution, and mode choice to enhance the match between simulated and base-year data undermines the fundamental behavioral logic of the four-step process."* (pg.3) *"Statistical measures indicate that base-year modeled link volumes do not match observed traffic counts and transit ridership as closely as committee members would typically expect in model validation."* (p. 3) *"TPB's emphasis on data-fitting to observed base-year through the introduction of mechanical adjustment factors invites the pitfalls of inaccurate and unreliable future-year travel forecasts, especially if over time there are considerable changes in demographics, land use characteristics, and transportation system attributes."* (p. 13) Other pertinent comments from this peer review, validating the earlier findings of our independent critique of the COG/TPB models, are summarized in the attached letter from Norm Marshall of SMI to you, dated September 16, 2003.

We urge you to accept fully the findings of the Transportation Research Board of the National Academy of Sciences and to quickly fix these problems. Your September 8, 2003 letter to Dr. David Forkenbrock, Chairman of the TRB peer review panel, contests some of that panel's most important findings which rearticulated many of our concerns about the adequacy of the COG/TPB model to properly evaluate the travel and emissions consequences of transportation alternatives.

The consequences of failing to respond fully and quickly to the TRB panel's findings could be considerable:

- The region's transportation planning process, conformity analysis, air quality SIP planning, and environmental impact reviews for projects such as the Inter-County Connector and Beltway widening, will be suspect and are more likely to be more exposed to legal challenge unless the issues raised by the TRB peer review are addressed by fixing the model or accounting for these modeling shortcomings and their effects on model performance in each of these applications of the model.
- The region's governments may make imprudent decisions on investments of billions of dollars in major transportation projects on the basis of flawed analysis. As our previous studies and communications have described, key shortcomings in the COG/TPB model confirmed by the TRB peer reviewers – notably the overuse of adjustment factors, feedback of highway and transit times in the model process, treatment of time-of-day-of-travel – make the model biased in favor of highway investment and biased against smart growth and transit investments.

We applaud TPB staff's continued interest in the peer review process as a means to identify ways to improve the analysis tools to better support decision-making. In addition to the above recommendations for timely model improvements to address these concerns, we hope TPB will take several other steps to strengthen public confidence in the TPB planning and analytic process:

1. facilitate expanded ongoing independent review of COG/TPB models and modeling assumptions by adopting a formal policy of making available at no cost on the TPB website all model data, model setups, and model assumptions for all applications to which the COG/TPB model is used.
2. routinely support and fund the open, independent peer review of key assumptions and other elements of the transportation modeling process as part of various model applications by TPB and its member agencies, for example as part of environmental impact reviews, conformity and SIP planning, and updates to the transportation program and plan.
3. expand opportunities and resources for the timely analysis and sensitivity testing of land use, transportation, and policy scenarios identified by key stakeholders as a part of ongoing TPB model applications.

We believe these TPB actions would help our region in finding broader consensus on transportation and land use strategies that can sustain healthy community and regional development. They could help dispel distrust of the "black box" computer model, especially as it is used to evaluate controversial matters. Timely model improvements, greater openness, transparency, and institutionalized capacity to support collaborative inquiry with these computer tools would help restore public trust.

We look forward to working with you to improve the metropolitan area's transportation and emissions analysis tools in coming months.

Sincerely,



Michael Replogle, Transportation Director
Environmental Defense

cc: Dolores Milmo, Solutions Not Sprawl
Neal Fitzpatrick, Audubon Naturalist Society of the Central Atlantic States
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