UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103

SUBJECT: Technical Support Document (TSD) - Adequacy Findings for the Motor Vehicle Emissions Budgets in the 1997 Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS) Maintenance Plan for the Metropolitan Washington, D.C. 1997 $PM_{2.5}$ Nonattainment Area (DC-MD-VA).

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TO: Administrative Record for the Adequacy Findings for the Motor Vehicle Emissions Budgets in the 1997 Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS) Maintenance Plan for the Metropolitan Washington, D.C. 1997 $PM_{2.5}$ Nonattainment Area (DC-MD-VA).

02/11/14

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I. Background

On January 5, 2005 (70 FR 944, 1014), the Environmental Protection Agency (EPA) published air quality area designations for the 1997 $PM_{2.5}$ NAAQS. In that rulemaking action, EPA designated the Metropolitan Washington, D.C. Area as nonattainment for the 1997 annual $PM_{2.5}$ standard. The Metropolitan Washington, D.C. Area includes the entire District of Columbia; Arlington, Fairfax, Loudoun, and Prince William Counties and the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park in Virginia and Charles, Frederick, Montgomery, and Prince George's Counties in Maryland. *See* 40 CFR 81.309, 81.321, and 81.347. Additional background information about the Metropolitan Washington, D.C. 1997 $PM_{2.5}$ Nonattainment Area (DC-MD-VA) (hereafter, the Washington Area) is available in the notice of proposed rulemaking (NPR) in this docket.

By transmittal letters dated as shown in Table 1, the State of Maryland, the Commonwealth of Virginia, and the District of Columbia each formally submitted as a State Implementation Plan

(SIP) revision a combined 1997 $PM_{2.5}$ NAAQS Maintenance Plan (hereafter the Maintenance Plan) that included motor vehicle emissions budgets (MVEBs) for $PM_{2.5}$ and nitrogen oxides (NOx) for the Washington Area.

Table 1. State SIP Submission Dates

Jurisdiction	Submittal Date
Maryland	July 10, 2013
Virginia	June 3, 2013
District of Columbia	June 3, 2013

II. Transportation Conformity Requirements

Transportation conformity is required under section 176(c) of the Clean Air Act (CAA) to ensure that federally supported highway, transit projects, and other activities are consistent with (conform to) the purpose of the State Implementation Plan (SIP). The CAA requires federal actions in nonattainment and maintenance areas to "conform to" the goals of SIP. This means that such actions will not cause or contribute to violations of a NAAQS; worsen the severity of an existing violation; or delay timely attainment of any NAAQS or any interim milestone. Actions involving Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the Transportation Conformity Rule (40 CFR part 93, subpart A). Under this rule, metropolitan planning organizations (MPOs) in nonattainment and maintenance areas coordinate with state air quality and transportation agencies, EPA, FHWA, and FTA to demonstrate that their metropolitan transportation plans and transportation improvement plans (TIPs) conform to applicable SIPs. This is typically determined by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the MVEBs contained in a SIP.

For MVEBs to be approvable, they must meet, at a minimum, EPA's adequacy criteria found at 40 CFR 93.118(e)(4). EPA's adequacy criteria are: (1) the submitted control strategy implementation plan was endorsed by the Governor or designee and was subject to a State public hearing; (2) consultation among Federal, State, and local agencies occurred; full implementation plan documentation was provided to EPA; and EPA's stated concerns, if any, were addressed before the control strategy implementation plan was submitted; (3) the MVEBs are clearly identified and precisely quantified; (4) the MVEBs, when considered together with all other emissions sources, are consistent with applicable requirements for maintenance; (5) the MVEBs are consistent with and clearly related to the emissions inventory and the control measures in the submitted control strategy implementation plan; and (6) revisions to previously submitted maintenance plans explain and document any changes to previously submitted budgets and control measures; impacts on point and area source emissions; any changes to established safety margins; and reasons for the changes (including the basis for any changes related to emission

factors or estimates of vehicle miles traveled).

III. Review of the Submitted Modeling Utilizing the Motor Vehicle Emission Simulator (MOVES2010)

To run the MOVES2010 model, a run specification (hereafter referred to as "RunSpec") must be created so the appropriate parameters are selected for the modeling run. The RunSpecs were reviewed against the following EPA document: *Technical Guidance on the use of MOVES2010 for Emission Inventory Preparation in State Implementation Plans and Transportation Conformity.* This guidance document provides guidance on the use of the MOVES model to develop inventories for SIPs as well as analysis of emissions for transportation conformity determinations.

MVEBs were submitted for the years 2017 and 2025 for the 1997 $PM_{2.5}$ NAAQS which are consistent with the rest of the emissions inventory in the Washington Area Maintenance Plan. The ten counties/cities which comprise the Washington Area were modeled using an individual RunSpec for each county/city. The Virginia counties/cities include Alexandria City, Arlington County, Fairfax County, and Loudon County. The Maryland counties include Charles County, Frederick County, Montgomery County, Prince George's County, and Prince William County. The District of Columbia was modeled as its own individual area. The submitted RunSpecs, input files and output files were reviewed and found to have followed the applicable EPA guidance provided in the *Technical Guidance on the use of MOVES2010 for Emission Inventory Preparation in State Implementation Plans and Transportation Conformity.* Table 2 presents the RunSpec parameters that were reviewed and each parameter's respective component in the submittal.

Table 2. RunSpec Reviews for the 1997 $PM_{2.5}$ NAAQS for Years 2017 and 2025 for the Washington Area

Domain/Scale	County scale was selected. County scale also accommodates independent cities, which were present in these modeling runs. Selection of county scale is acceptable for this air quality analysis.
Calculation Type	Inventory was selected which is acceptable for this analysis.
Time Aggregation Level	Hourly time aggregation was selected. Selection of hourly time aggregation level is acceptable for this analysis.
Calendar Year Of Evaluation	The appropriate calendar years were selected for each RunSpec; each RunSpec had 2017 or 2025 as the selected calendar year. MOVES2010b can model years 1990 and 1999-2050.
Month of Evaluation	All 12 months were selected for evaluation.
Type of Day of Evaluation	Weekdays and weekends were selected, which is appropriate for the evaluation of pollutant emissions related to $PM_{2.5}$.
Hours of Evaluation	Starting and ending hours create a whole day (from 0-24 hours).
Geographic Bounds	The appropriate county/city were selected for each Runspec.

	The following counties/cities were selected: Alexandria City, Arlington County, Fairfax County, Loudon County, Charles County, Frederick County, Montgomery County, Prince George's County, Prince William County, and the District of Columbia.
Vehicles/Equipment: On-Road Vehicle Equipment	Appropriate combinations of fuels and source use types were made.
Road Type	Selection included all necessary road types.
Pollutants and Processes	NO_x, sulfur dioxide (SO_2) and all forms of primary $PM_{2.5}$ were selected. Only emissions of NO_x and $PM_{2.5}$ are necessary for the analysis of $PM_{2.5}$ emissions.
On-Road Retrofits	N/A
ROP	N/A
Output Database/Unit Selection	Mass units selected to be U.S. Tons; energy units selected to be Joules; distance units selected to be miles.
Output Emission Detail in Emission Rate Calculations	Emission detail was selected via user preference. The output emissions detail does not affect the results of the modeling runs, therefore user preference is acceptable.
Advanced Performance Features	N/A

IV. Administrative Requirements for Making Adequacy Findings

EPA followed the process for determining the adequacy of the submitted SIP MVEBs in accordance with the procedures listed in the January 2008 Conformity Regulations contained in 40 CFR part 93, 118(f) "Adequacy review process for implementation plan submissions." EPA will be issuing a notice of proposed rulemaking (NPR) for a 30-day public comment period soliciting public comment for the approvability of the State of Maryland's, the Commonwealth of Virginia's, and the District of Columbia's SIP submission. The NPR also proposes approval of the MVEBs for milestone year 2017 and the out-year 2025 for the Washington Area for $PM_{2.5}$ and NO_x.

On February 5, 2014, notices were posted on EPA's web site located at: http://www.epa.gov/otaq/stateresources/transconf/currsips.htm, for the purpose of opening EPA's 30-day public comment period on the adequacy/approvability of the budgets in the Washington Area Maintenance Plan. The notices were posted separately for the State of Maryland, the Commonwealth of Virginia, and the District of Columbia. The purpose of the notices is to inform the public of the availability of the Washington Area Maintenance Plan on its own website. EPA's website notice provides a link where interested members of the public could access the Washington Area Maintenance Plan. Following EPA's public comment period, responses to any comments received on the proposed mobile budgets will be addressed in an amendment to this TSD.

This TSD will be an enclosure to the letters from EPA to the Maryland Department of the

Environment (MDE), the Virginia Department of Environmental Quality (VADEQ), and the District of Columbia Department of the Environment (DCDOE) informing the jurisdictions of EPA's findings on MVEBs of the Washington Area Maintenance Plan. EPA will publish a Federal Register notice announcing the adequacy findings. The effective date of the adequacy findings will be 15 days after the publication date of that notice. Once EPA has published the Federal Register notice, the letters sent to MDE, VADEQ, and DCDOE, and this TSD will also be posted at the EPA website.

Shown in Table 3 and Table 4 are the budgets from the Washington Area Maintenance Plan. The Washington Area Maintenance Plan includes a Tier 1 and Tier 2 approach for MVEBs and will be applied to all future transportation conformity determinations and analyses for the 1997 annual $PM_{2.5}$ NAAQS. The Tier 1 MVEBs shown in Table 3 will be the applicable motor vehicle emissions budgets after the adequacy findings are effective. The Tier 2 MVEBS shown in Table 4 adds a twenty percent (20%) transportation buffer to the mobile emissions inventory projections for $PM_{2.5}$ and NOx in 2017 and 2025. The Tier 2 MVEBs will become effective only if it is determined that technical uncertainties due to model changes and to vehicle fleet turnover, which may affect future motor vehicle emissions inventories, lead to motor vehicle emissions estimates above the Tier 1 MVEBs. The determination will be made through the interagency consultation process and fully documented within the first conformity analysis that uses the Tier 2 MVEBs.

Table 3. Tier 1 On-road MVEBs Contained in the Washington Area Maintenance Plan for the 1997 $PM_{2.5}$ NAAQS

Year	Motor Vehicle Emissions Budget for $PM_{2.5}$ On-Road Emissions (tons per year)	Mobile Vehicle Emissions Budget for NOx On-Road Emissions (tons per year)
2017	1,787	41,709
2025	1,350	27,400

Table 4. Tier 2 On-road MVEBs Contained in the Washington Area Maintenance Plan for the 1997 $PM_{2.5}$ NAAQS

Year	Motor Vehicle Emissions Budget for $PM_{2.5}$ On-Road Emissions (tons per year)	Mobile Vehicle Emissions Budget for NOx On-Road Emissions (tons per year)
2017	2,144	50,051
2025	1,586	32,880

V. Evaluation of the Adequacy of the MVEBs in the Washington Area Maintenance Plan for the 1997 $PM_{2.5}$ NAAQS

In this TSD, we are evaluating the MVEBs associated with the Washington Area Maintenance Plan for conformity purposes. We are using the evaluation criteria detailed in the Transportation Conformity Rule, 40 CFR part 93.102(b)(2)(v), 93.102(b)(2)(v), 93.102(b)(3), and part 93, 93.118(e)4 through 93.118(e)5. The evaluation is presented in Table 5, below.

Table 5. Adequacy of the MVEBs Contained in the Washington Area Maintenance Plan for the 1997 $PM_{2.5}$ NAAQS		
Transportation Conformity Rule 40 CFR Part 93, 93.118	Review Criteria	Was the Criterion Satisfied? If Yes How was this Criteria Satisfied?
93.102(b)(2)(iv)	Have EPA and the States made a finding that NO_x is an insignificant contributor to the direct mobile PM emissions?	Neither EPA nor the States have made such a finding.
93.102(b)(2)(v)	Has EPA or States made a finding that VOCs, Sulfur Oxides (SO_x) or Ammonia (NH_3) as precursors to be a significant contributor to the mobile $PM_{2.5}$ emissions?	Neither EPA nor the States have made any findings that VOCs or NH_3 are significant contributors to the $PM_{2.5}$ mobile emissions, and therefore, they have not been included in the SIP. The States have requested that SO_2 be found an insignificant contributor to the mobile PM emissions. This request is based on the States finding that onroad mobile source SO_2 constitutes less than two percent (2%) of the area's total SO_2 emissions in the 2017 and 2025 horizon years. Although the State requested insignficance, SO_2 isn't considered to be a significant contributor to mobile PM and therefore does not have to be part of a $PM_{2.5}$ maintenance strategy.
93.102(b)(3)	Has the EPA or the States made a finding that re-entrained road dust is a significant contributor to the PM mobile emissions?	Neither EPA nor the States have made such a finding.

Sec. 93.118(e)(4)(i)	Was the submitted revised plan endorsed by the Governor (or his or her designee) and subject to a State public hearing?	Yes. The submitted Washington Area Maintenance Plan were endorsed and submitted as a SIP revision by the Governor's designee, the Secretaries of Maryland Department of the Environment and Virginia Department of Environmental Quality and the Director of District of Columbia Department of the Environment. A public hearing on the SIP proposal was held in all three jurisdictions.
Sec. 93.118(e)(4)(ii)	Before the maintenance plan was submitted to EPA, did consultation between federal, State and local agencies occur; was full implementation plan documentation provided to EPA, and was EPA's stated concerns, if any, addressed?	Yes. Consultation has occurred among all required federal, state and local agencies.
Sec. 93.118(e)(4)(iii)	Was the motor vehicle emissions budget(s) clearly identified and precisely quantified?	Yes, the budgets are clearly identified on pages 8-12 of the Washington Area Maintenance Plan prepared by the Metropolitan Washington Council of Governments and submitted by the State of Maryland, the Commonwealth of Virginia, and the District of Columbia.
Sec. 93.118(e)(4)(iv)	Is the motor vehicle emissions budget(s), when considered together with all other emission reductions, consistent with applicable requirements for maintenance?	EPA believes the budgets can be declared adequate because in conjunction with the other emission reductions, they demonstrate continued maintenance for years 2017 and 2025.

Sec. 93.118(e)(4)(v)	Is the motor vehicle emissions budget(s) consistent with and clearly related to the emissions inventory and the control measures in the Plan?	EPA believes that the budgets are clearly related to the emissions inventory and the control measures in the SIP submittal.
Sec. 93.118(e)(4)(vi)	Revisions to previously submitted attainment demonstrations: explain and document any changes to previously submitted budgets and control measures; impacts on point and area source emissions; any changes to established safety margins (see Sec. 93.101 for definition); and reasons for the changes (including the basis for any changes related to emission factors or estimates of vehicle miles traveled).	Yes, the Washington Area Maintenance Plan provides new MVEBs for years 2017 and 2025. The addition of safety margins to the MVEBs is consistent with continued attainment.
Sec. 93.118(e)(5)	Did they provide and we review public comments and the State's responses to those comments with the submitted control strategy SIP?	Yes

VI. Findings

Based upon our review and evaluation of the MVEBs contained in the three jurisdictions submittals of the Maintenance Plan for the Metropolitan Washington, D.C. 1997 $PM_{2.5}$ Nonattainment Area, EPA finds the MVEBs adequate for conformity purposes and recommends that the MVEBs be SIP approved.