

7.0 ON-ROAD MOTOR VEHICLE EMISSION BUDGETS

Consistent with requirements established in the Clean Air Act as amended¹, the Transportation Conformity Rule was promulgated on November 24, 1993 in the *Federal Register*². It has been amended several times since, most recently to incorporate changes resulting from federal transportation legislation passed in 2005 and from EPA guidance for implementing the 8-hour ozone and PM_{2.5} national air quality standards.

A summary of currently applicable conformity requirements is provided below. With the exception of on-road motor vehicle emission budgets identified for specific years as included in this SIP revision, the summary includes references to current federal, state and local regulations and other requirements that are provided for information only and do not constitute control measure or programs established as part of this SIP revision. Additionally, the referenced regulations and other requirements are subject to change.

In general, for transportation plans and programs to be found in "conformity" with air quality plans, regional total emissions generated by on-road motor vehicle sources must meet certain tests. The relevant conformity requirements include:

- When an on-road motor vehicle emissions budget SIP has been submitted and found adequate, on-road motor vehicle emissions must not exceed the on-road motor vehicle emissions budget established in the SIP;
- In PM_{2.5} nonattainment areas, prior to adequate or approved PM_{2.5} SIP budgets, EPA allows two methods to demonstrate conformity. The options are build no greater than no-build or build no greater than 2002 base year on-road motor vehicle emissions inventory. In the interim period before new SIP budgets are established, only NO_x and PM_{2.5} Direct are subject to the conformity requirements. Through interagency consultation, the interim test that is being used in the Metropolitan Washington region is the option of build no greater than 2002 base year.

In 2005 federal transportation legislation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU),³ amended transportation conformity requirements. Under the new legislation, conformity determinations for transportation plans and Transportation Improvement Programs (TIPs) are required a minimum of every four years. Conformity for plans and TIPs must be re-determined not later than two years after new emissions budgets are found adequate. Metropolitan Planning Organizations (MPOs) are required to demonstrate conformity for the years the on-road motor vehicle emissions budgets are established, for the final year of the transportation plan, and for appropriate interim years to ensure that analysis years are no more than ten years apart. Transportation Control Measures (TCMs) can be substituted in approved SIPs with the

¹ CAA §176(c), 42 USC §§7401-7671(q).

² 40 CFR Parts 51 and 93.

³ SAFETEA-LU, Public Law 109-56, August 10, 2005.

concurrence of the MPO, the air agencies, and EPA. A conformity lapse will not occur until 12 months after an applicable deadline has passed.

SAFETEA-LU requires MPOs to consult with agencies responsible for land use management, natural resources, environmental protection, and conservation and historic preservation in the development of transportation plans. In addition, a public participation plan is required for approval of a transportation plan. Public comment is required before the conformity determination and transportation plans can be approved.

The Clean Air Act provides penalties for MPOs in nonattainment areas that do not demonstrate conformity:

- A conformity lapse, during which limitations are imposed on which projects may be allowed to advance, occurs when the conformity determination for a transportation plan or TIP has expired,
- Highway sanctions may result if the SIP is not submitted or if EPA finds the SIP incomplete or disapproves the control strategy, and lastly,
- SIP disapproval without a protective finding for the on-road motor vehicle emissions budgets. A conformity freeze occurs immediately upon notification of the disapproval in this event. In a conformity freeze, no new projects may proceed.

A conformity freeze has some exceptions, similar to those in a conformity lapse. Those exceptions are listed in the Transportation Conformity Rule and amendments.

7.1 On-Road Motor Vehicle Emissions Budgets and the Washington Area Transportation Conformity Process

In the Metropolitan Washington region, regional growth requires that the Transportation Improvement Program (TIP) and the Constrained Long-Range Plan (CLRP) be updated, revised, and approved on an annual basis. The TIP includes transportation modifications and improvements on a 6-year program cycle. Modifications to the existing regional transportation network are advanced through the Transportation Planning Board (TPB) by state, regional, and local transportation agencies. To meet conformity requirements, forecast regional total emissions from the transportation system following the implementation of the CLRP and 6-year TIP cannot exceed the budget or budgets established in the SIP. The regional emissions analysis of the transportation plan must include all regionally significant projects included in the TIP and CLRP.

7.2 Budget Level for On-Road Motor Vehicle Source Emissions

In developing the SIP, MWAQC consults with the Transportation Planning Board (TPB), to establish on-road motor vehicle emissions budgets. For the annual PM_{2.5} standard, the projected on-road motor vehicle source emissions for 2009 less reductions attributable to Transportation Control Measures and other vehicle technology, fuel, or maintenance-based measures included in the SIP become the on-road motor vehicle emissions budget for the region unless MWAQC takes actions to set other budget levels.

The 2009 on-road motor vehicle emissions inventories reflect the most recent models available, EPA's MOBILE6.2.03 and the Travel Demand Model version 2.1d#50, used by MWCOG's Transportation Planning Department, along with the most recent data available, namely, 2005 vehicle registration data. The emissions inventories also reflect MWCOG's Cooperative Forecasts Round 7.0a, which do not reflect any land use changes expected as a result of U.S. Department of Defense (DoD) Base Realignment and Closure (BRAC) plans. The methodology used to develop motor vehicle source inventories for 2009 is discussed in Sections 3.2.3 and 4.3.4. See the appendices for detailed input parameters used in modeling the inventories.

7.2.1 Attainment Year 2009 On-Road Motor Vehicle Emissions Budgets

The Motor Vehicle Emission Budgets (MVEBs) for the 2009 attainment year are based on the projected 2009 on-road motor vehicle emissions source emissions, accounting for the emission reductions from on-road motor vehicle source control measures identified in Chapter 5, including Transportation Control Measures and vehicle technology, fuel, or maintenance-based measures.

MVEBs for 2009 attainment year:

PM_{2.5} Direct = 1,105.4 tons/year

NO_x = 52,052.9 tons/year

7.2.2 Contingency Budget

The Motor Vehicle Emission Budget (MVEB) for the 2010 year is based on the projected 2009 on-road motor vehicle source NO_x emissions accounting for the emission reductions from on-road motor vehicle source control measures identified in Chapter 5, including Transportation Control Measures and other vehicle technology, fuel, or maintenance-based measures included in the SIP, minus the reductions required for the contingency plan discussed in Chapter 10. The reduction amount provided to satisfy the contingency plan is 657 tons/year NO_x.

MVEBs for 2010 Contingency:

NO_x = 51,395.9 tons/year

7.3 Transportation Control Measures (TCMs) and TERMS

Each time the Constrained Long-Range Plan (CLRP) or the 6-year Transportation Improvement Plan (TIP) is amended and a conformity determination is required, the TPB will estimate the emissions from the regional transportation network and compare the expected emissions against the on-road motor vehicle emissions budget set in this SIP. This determination will take into account the projects included in the region's transportation plans and the TCMs shown in Table A, which amount to 1.55 tons/year PM_{2.5} Direct and 67.1 tons/year NO_x in 2009. In addition, selected vehicle technology, fuel, or maintenance-based measures are also credited in the on-road motor vehicle emissions budget. Vehicle technology, fuel, or maintenance-based measures account for 1.0 tons/year PM_{2.5} Direct and 81.9 tons/year NO_x in 2009. Further information on TCMs and vehicle technology, fuel, or maintenance-based measures can be found in Section 5.4 and in Appendix F.

TERMS, or Transportation Emissions Reduction Measures, are used to mitigate on-road motor vehicle emissions if the conformity analysis demonstrates that on-road motor vehicle emissions will exceed the on-road motor vehicle emissions budget established in the SIP. In anticipation of possible on-road motor vehicle emissions mitigation needs associated with TPB plans and programs, the TPB Technical Committee Travel Management Subcommittee has analyzed a wide range of TERMS. The TERMS are used as needed in the event of a TIP and CLRP that exceed the on-road motor vehicle emissions limits set by the air quality plan. TERMS are used for conformity; TCMs are SIP measures and, as such, are permanent.

7.4 Trends in On-Road Motor Vehicle Emissions

The On-Road Motor Vehicle Emission Budgets for 2009 for PM_{2.5} Direct and NO_x reflect a continuation of a downward trend in on-road motor vehicle emissions over time. The PM_{2.5} Direct and NO_x emission levels for on-road motor vehicle sources provided in Section 7.2 reflect declines of 35 and 45 percent of PM_{2.5} Direct and NO_x, respectively, from 2002 to 2009. The steady reductions in on-road motor vehicle emissions are attributable largely to a series of increasingly stringent federal regulations requiring cleaner vehicles and fuels, including the federal Tier 2 regulations for motor vehicles. The decline in on-road motor vehicle source emissions is also attributable in part to transportation policies that have resulted in large and continuing investments in mass transit facilities and services. Related efforts to promote transit-oriented development are helping to encourage use of transit rather than private vehicles. The Rosslyn-Ballston corridor in Arlington County, Virginia, is a nationally recognized model of long-range planning that has resulted in the location of high-density commercial and residential development within close proximity of Metrorail stations and accompanying high levels of transit use. Similar success stories can be found in the District of Columbia and suburban Maryland.

In addition to continuing investments in major transit facilities, ongoing programs to encourage alternatives to the private automobile have helped keep levels of ridesharing and transit use in the Washington region among the highest in the country. The rapidly increasing use of the Washington Metro's SmarTrip cards is permitting the direct provision of MetroChek subsidies

for many transit riders at farecard machines, and the expansion of this technology to commuter rail and buses will provide for seamless transfers for transit riders within the next few years.

The region's Transportation Improvement Program (TIP) includes substantial ongoing funding commitments to promoting ridesharing, telecommuting, and transit use as well as vehicle replacement and retrofit measures and bicycle and pedestrian programs. These commitments provide additional reductions in emissions, which are being reflected in conformity determinations. While not included in the SIP, these on-going commitments are reducing emissions from on-road motor vehicle sources and are an important part of the contribution of the transportation sector to cleaner air.

Trends toward reduced on-road motor vehicle emissions are occurring despite a steady increase in population, employment, and vehicle miles traveled (VMT) within the Washington region. Between 2002 and 2009, regional household population is expected to show a 12 percent increase, while daily VMT estimates show a 10 percent increase. The emission increases from this additional travel have been further exacerbated by a shift toward the use of higher-emitting, less fuel-efficient light-duty trucks, such as SUVs, instead of passenger vehicles.

Trends toward increasing population, employment, and VMT are expected to remain strong well beyond 2009. The regional cooperative forecasting process predicts that, from 2005 to 2020, regional population will grow by 22 percent and employment will grow by 26 percent. Regional VMT is predicted to increase by 22 percent over this time. However, these trends will not reverse the expected decline in regional on-road motor vehicle emissions resulting from cleaner fuels and improved vehicle technology. The recent Tier 2 passenger vehicle standards and regulations on emissions from heavy-duty diesel vehicles and fuels are expected to produce further dramatic reductions in PM_{2.5} Direct and NO_x emissions as vehicles are replaced and retrofitted over the next 20 years. Projections contained in the National Capital Region Transportation Planning Board (TPB)'s Constrained Long-Range Plan (CLRP)⁴ indicate that on-road motor vehicle emission reductions in excess of 75 percent for NO_x will occur during this period.

⁴ Draft Air Quality Conformity Determination of the 2006 Constrained Long-Range Plan (CLRP) and FY 2007-2012 Transportation Improvement Program (TIP) for the Metropolitan Washington Region. Metropolitan Washington Council of Governments, National Capital Region Transportation Planning Board, Washington, DC.