

8.0 MOBILE SOURCE CONFORMITY

In order to balance growth in metropolitan nonattainment regions and their expanding transportation systems with improving air quality, the Clean Air Act requires that transportation modifications in a nonattainment area must not impair progress made in air quality improvements.¹ EPA issued rules for transportation conformity in its Transportation Conformity rule on November 24, 1993 in the Federal Register.² The Transportation Conformity rule has been amended several times, in recent years to incorporate changes resulting from transportation legislation passed in 2005, and EPA guidance for implementing the 8-hour ozone and PM_{2.5} national air quality standards. The rule provides guidance for performing a conformity determination, to assure that transportation modifications "conform" to air quality planning goals established in air quality SIP documents.

In general, to be found in "conformity" with air quality plans before the attainment plan is approved by EPA, the VOC, NO_x, and carbon monoxide, and fine particle emissions generated by mobile sources when a transportation plan is implemented must meet certain emission tests:

- When a mobile source emissions budget SIP has been submitted and found adequate, mobile source emissions must not exceed the mobile emissions budgets established in the SIP;
- In 8-hour ozone areas that have approved 1-hour ozone SIPs, prior to adequate or approved 8-hour SIP budgets, the 1-hour budgets must be used for 8-hour conformity.³

In 2005 Federal transportation legislation, SAFETEA-LU³, established new transportation conformity requirements. Conformity for plans and 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 year the mobile budgets are established, for the final year of the transportation plan, and for the first ten year period. Transportation Control Measures (TCMs) can be substituted in approved SIPs with the concurrence of the MPO, the air agencies and EPA. A conformity lapse will not occur until 12 months after an applicable deadline.

The 2005 legislation requires MPOs to consult with agencies responsible for land use management, natural resources, environmental protection, and conservation and historic preservation. 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 MPO's in nonattainment areas that do not demonstrate conformity. SAFETEA-LU requires MPO's to perform a conformity determination at least

¹ CAA §176©, 42 USC §§7401-7671(q)

² 40 CFR Parts 51 and 93

³ SAFETEA-LU, Public Law 109-56, August 10, 2005. Safe, Accountable, Flexible and Efficient Transportation Equity Act—A Legacy for Users.

every four years. A conformity lapse occurs when the time period is longer and the previous conformity determination expires. During a lapse, only Transportation Control Measures (TCMs), exempt projects and non-federal regionally significant projects may advance.

Highway sanctions may result if the SIP is not submitted, if EPA finds the SIP complete or disapproves the control strategy. In the event of a SIP disapproval without a protective finding for the mobile budgets, a conformity freeze occurs immediately upon notification of the disapproval. In a conformity freeze no new projects may proceed. As for a conformity lapse, a conformity freeze has some exceptions and they are listed in the Transportation Conformity Rule and amendments.

8.1 Mobile Emissions Budget 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 and revised and approved on an annual basis. The TIP includes transportation modifications and improvements on a six-year program cycle. Mobile source emissions in the CLRP and six-year TIP cannot exceed the mobile emissions budgets established in the SIP for the short-term TIP years, as well as for the 20-year forecast period of the long-range plan. The regional emissions analysis of the transportation plan must include all projects to be initiated in the Transportation Improvement Program's timeframe.

Modifications to the existing regional transportation network are advanced through the Transportation Planning Board (TPB) by state, regional and local transportation agencies. Pursuant to the conformity regulations, the CLRP and TIP must contain analyses of the motor vehicle emissions estimates for the region resulting from the transportation improvements. These analyses must show that the transportation improvements in the TIP and the plan do not result in a deterioration of air quality goals established in the SIP. The conformity rule requires interagency consultation between the environmental body preparing the air quality plan and the MPO.

8.2 Budget Level for On-Road Mobile Source Emissions

In developing the SIP, MWAQC consults with the Transportation Planning Board (TPB), to establish mobile source emissions budgets. These budgets will be the benchmark used to determine if the region's constrained long range transportation plan (CLRP) and six year transportation improvements program (TIP) conform with the Clean Air Act Amendments of 1990. For the 8-hour ozone standard, the projected mobile source emissions for 2008 (Reasonable Further Progress) and 2009 (attainment) less Transportation Control Measures become the mobile emissions budgets for the region unless MWAQC takes actions to set other budget levels.

The 2008 and 2009 mobile emissions inventories reflect the most recent models available, EPA's MOBILE6.2.03 and the Travel Demand Model Version 2.1d#50, used by COG's Transportation Planning Department, and the most recent data available, namely 2005 vehicle registration data.

The methodology used to project the 2009 attainment year mobile inventory and to recalculate mobile inventories for milestone years is discussed in [Section 3.2.3](#) and [Section 4.1.4](#). See the appendices for detailed input parameters used in modeling the inventories.

The mobile emissions budgets for 2008 Reasonable Further Progress and 2009 attainment are based on the projected 2008 and 2009 mobile source emissions accounting for all the mobile control measures, including Transportation Control Measures, Vehicle Technology Based Measures, and projected regional growth.

8.2.1 Reasonable Further Progress Mobile Budgets

The mobile emissions budgets for the 2008 Reasonable Further Progress are based on the projected 2008 mobile source emissions accounting for all the mobile control measures, including Transportation Control Measures. The mobile emissions budgets for the 2008 Reasonable Further Progress are 70.79 tons/day VOC and 159.8 tons/day NO_x.

The Mobile Emissions Budget for 2008 Reasonable Further Progress, based upon the projected 2008 mobile source emissions accounting for all the mobile control measures, including the Transportation Control Measures:

VOC = 70.8 tons/day NO_x = 159.8 tons/day

8.2.2 Attainment Year Mobile Budgets

The mobile emissions budgets for the 2009 attainment year are based on the projected 2009 mobile source emissions accounting for all the mobile control measures, including Transportation Control Measures. The mobile emissions budgets for the 2009 Attainment Year are 66.5 tons/day VOC and 146.1 tons/day NO_x.

The Mobile Emissions Budget for 2009 attainment year, based upon the projected 2009 mobile source emissions accounting for all the mobile control measures, including the Transportation Control Measures:

VOC = 66.5 tons/day NO_x = 146.1 tons/day

8.3 Transportation Control Measures (TCMs) and TERMS

Each time the Constrained Long Range Transportation Plan (CLRP) or the six-year Transportation Improvement Plan (TIP) is amended, the TPB will estimate the emissions from the regional transportation network and compare the expected emissions against the mobile 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 0.11 tpd VOC and 0.25 tpd NO_x in 2008 and 0.10 tpd VOC and 0.22 tpd NO_x in 2009. In addition,

Vehicle Technology Based Measures are also credited in the mobile budgets. Vehicle Technology Based Measures account for 0.08 tpd VOC and 0.24 tpd NO_x in 2008 and 0.08 tpd VOC and 0.23 tpd NO_x in 2009. Further information on TCMs and Vehicle Technology Based Measures can be found in Section 6.4 and in Appendix F.

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

8.4 Trends in Mobile Emissions

The mobile emissions budgets for 2008 and 2009 for Volatile Organic Compounds (VOCs) and Nitrogen Oxides (NO_x) reflect a continuation of a downward trend in mobile emissions over time. The VOC and NO_x emission levels for mobile sources provided in Section 8.2 reflect declines of 39.3% and 40% for VOC and NO_x, respectively, over the period from 2002 to 2008; and declines of 43% and 45% of VOC and NO_x respectively from 2002 to 2009.

The steady reductions in mobile emissions are attributable largely to a series of increasingly stringent federal regulations requiring cleaner vehicles and fuels, including the federal Tier II regulations for motor vehicles. The decline in mobile 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 which 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 ongoing commitments are reducing emissions from mobile sources and are an important part of the contribution of the transportation

sector to cleaner air.

Trends toward reduced mobile 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 will increase an estimated 12%, while daily VMT will increase by an estimated 9%. 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 2002 to 2020, regional population will grow by 31% and employment will grow by 31%. Regional VMT is predicted to increase by 31% over this time. However, these trends will not reverse the expected decline in regional mobile emissions resulting from cleaner fuels and improved vehicle technology. The recent Tier II passenger vehicle standards and regulations on emissions from heavy-duty diesel vehicles and fuels are expected to produce further dramatic reductions in VOC and NOx emissions as vehicles are replaced and retrofitted over the next 20 years. Projections contained in the National Capital Region Transportation Planning Board (TPB)'s 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 indicate that for both pollutants, mobile emission reductions in excess of 50% will occur during this period.