MOBILITYPLAN 2050

Appendix K

Air Quality Conformity

Contents

AIR QUALITY CONFORMITY DETERMINATION REPORT

for the:

MOBILITYPLAN 2050

And Amendments to the:

Fiscal Year 2023-2026

TRANSPORTATION IMPROVEMENT PROGRAM

And the:

LAMTPO 2050 MTP

Adopted by the Knoxville Regional TPO Executive Board

April 30, 2025

Air Quality Conformity Determination Report for the Knoxville Regional TPO 2025 Update of the Metropolitan Transportation Plan, known as the "Mobility Plan 2050"

and

the accompanying Knoxville Regional TPO FY 2023-2026 Transportation Improvement Program

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Executive Summary

OVERVIEW AND PURPOSE

The Knoxville Regional Transportation Planning Organization (KRTPO) has conducted a regional emissions analysis to support an air quality conformity demonstration for the regular 4-year update to its Metropolitan (Long-Range) Transportation Plan (MTP) known as the Mobility Plan 2050 and for resulting amendments to its FY 2023-2026 Transportation Improvement Program (TIP) to ensure that the TIP is a direct subset of the MTP. The purpose of this report is to document that the updated MTP and TIP conform to federal regulations from the latest surface transportation act known as "Infrastructure Investment and Jobs Act" (IIJA), also known as the "Bipartisan Infrastructure Law" (BIL) and the Clean Air Act Amendments of 1990.

An Air Quality Conformity Determination for transportation plans and programs within the Knoxville Region is required since it is currently designated as a "Maintenance Area" for the 8-Hour Ozone Standard as well as the Particulate Matter 2.5 (PM2.5) Daily Standard. The United States Environmental Protection Agency (EPA) sets air quality standards through the Clean Air Act to protect human health and the environment from unsafe levels of pollution. The transportation conformity process is used to ensure that federal funds will not be spent on projects that cause or contribute to any new violations of the National Ambient Air Quality Standards (NAAQS); increase the frequency or severity of NAAQS violations; or delay timely attainment of the NAAQS or any required interim milestone.

The Knoxville Region is currently subject to transportation conformity requirements based on the designations under three separate NAAQS in the following specific geographic locations:

- Maintenance for **2008 8-hour Ozone Standard** – Blount, Knox, and part of Anderson counties
- Maintenance for **2006 Daily PM2.5 Standard** – Anderson, Blount, Knox, Loudon and part of Roane counties
- **1997 8-hour Ozone Standard** – Anderson, Blount, Jefferson, Knox, Loudon, Sevier and part of Cocke counties. This standard was revoked by EPA, but transportation conformity remains as an anti-backsliding measure and with fewer requirements that need to be met compared with the above two NAAQS.

Note, the above geographies extend beyond the base planning area boundary of the KRTPO and the intent of this conformity determination is to cover the entirety of the area subject to conformity in coordination with TDOT and the Lakeway Area MTPO.

EMISSIONS ANALYSIS SUMMARY

In order to be able to demonstrate conformity of the TPO's transportation plans with the applicable NAAQS, a regional emissions analysis is performed using outputs from a regional transportation model and a mobile source emissions model from EPA known as "MOVES" (Motor Vehicle Emission Simulator). An estimate of emissions is generated for various required analysis years between the present year and the final year of the LRTP and compared against allowable amounts that have been formally set as part of a State Implementation Plan known as "Motor Vehicle Emissions Budgets" (MVEB).

2006 Daily PM2.5 Standard

The PM2.5 air quality standard consists of two different measurement timeframes – an annual level and a daily level – based on the health effects that can occur for short-term versus long-term exposures. The designation as a nonattainment area under the Annual PM2.5 Standard became effective on April 5, 2005 and the designation as a nonattainment area for the Daily PM2.5 Standard became effective on December 14, 2009. The EPA approved a redesignation of the area to Attainment with a Maintenance Plan effective on August 28 and 29, 2017 for the daily and annual standards respectively. The Region met the 2012 Annual PM2.5 Standard of 12 $\mu g/m^3$ at its enactment and the 1997 Standard was revoked by EPA, thereby removing the requirement to demonstrate conformity for the Annual Standard. It should also be noted that the EPA recently established an updated Annual PM2.5 Standard that was promulgated on February 7, 2024 at a level of 9 $\mu g/m^3$ for which the official designation process is ongoing at the time of this report adoption.

The EPA published a notice announcing a finding that the 2014 and 2028 Motor Vehicle Emissions Budgets (MVEB) for Direct PM2.5 and Oxides of Nitrogen (a PM2.5 precursor pollutant) included in the Maintenance SIP are adequate for the purposes of transportation conformity in the Federal Register / Vol. 82, No. 46, page 13347 on March 10, 2017. A regional emissions analysis was conducted using inputs consistent with both the SIP and other latest planning assumptions. The computed emissions from on-road mobile sources compared against the MVEB in the 2006 Daily PM2.5 Maintenance Area for the analysis years of 2026, 2028 (interpolated), 2035, 2040 and 2050 are shown in Table 1.

Table 1: MVEB Test for 2006 Daily PM2.5 Standard

	Analysis Year				
Direct Particulate Matter 2.5:	**2026**	**2028**	**2035**	**2040**	**2050**
Motor Vehicle Emissions Budget (MVEB)	1.22	0.67	0.67	0.67	0.67
Projected Emissions	0.42 ✓	0.39 ✓	0.30 ✓	0.28 ✓	0.29 ✓
Oxides of Nitrogen (NOx):	**2026**	**2028**	**2035**	**2040**	**2050**
Motor Vehicle Emissions Budget (MVEB)	42.73	19.65	19.65	19.65	19.65
Projected Emissions	12.35 ✓	10.70 ✓	4.92 ✓	3.99 ✓	3.67 ✓

Emissions in tons per day

2008 Ozone Standard

The nonattainment designation for the 2008 8-hour Ozone Standard became effective on July 20, 2012. A redesignation request to Attainment with a Maintenance Plan was submitted to EPA by the Tennessee Department of Environment and Conservation (TDEC) in November 2014 and approved by EPA on July 13, 2015 with an effective date of August 12, 2015. Therefore, as of August 12, 2015 the Knoxville Region is considered a "Maintenance Area" for the 2008 Ozone Standard.

The EPA published a notice announcing a finding that the 2011 and 2026 Motor Vehicle Emissions Budgets (MVEB) for NOx and VOC included in the Maintenance SIP are adequate for the purposes of transportation conformity in the Federal Register / Vol. 80, No. 133, page 39970 on July 13, 2015.

A regional emissions analysis was conducted using inputs consistent with both the SIP and other latest planning assumptions, which are documented in Chapter 3 of this report. The computed emissions from on-road mobile sources compared against the MVEB in the 2008 Ozone Maintenance Area for the analysis years of 2026, 2035, 2040 and 2050 are shown in Table 2.

Table 2: MVEB Test for 2008 Ozone Standard

	Analysis Year			
Volatile Organic Compounds (VOC):	**2026**	**2035**	**2040**	**2050**
Motor Vehicle Emissions Budget (MVEB)	10.49	10.49	10.49	10.49
Projected Emissions	5.31 ✓	3.78 ✓	3.30 ✓	2.84 ✓
Oxides of Nitrogen (NOx):	**2026**	**2035**	**2040**	**2050**
Motor Vehicle Emissions Budget (MVEB)	17.69	17.69	17.69	17.69
Projected Emissions	9.85 ✓	3.89 ✓	3.05 ✓	2.80 ✓

Emissions in tons per day

1997 Ozone Standard

The 1997 8-Hour Ozone conformity analysis consists of an abbreviated process since a regional emissions analysis is not required per EPA guidance for this revoked NAAQS. A full description of the requirements to demonstrate conformity for this standard is provided in the main report which essentially boil down to meeting interagency consultation requirements and fiscal constraint of the applicable Plans.

Summary Conformity Statement

In summary, the emissions analysis performed by the KRTPO demonstrates that the projected emissions from the proposed transportation system are less than the allowable amount for each of the required analysis years and thus conformity for the 2008 8-Hour Ozone, 1997 8-hour Ozone, and Daily PM2.5 standards has been demonstrated for the affected current transportation plans and the project amendments thereto.

The conformity determination was coordinated with stakeholder and regulatory agencies through an Interagency Consultation process and a 30-day public review and comment period was held. A summary of comments that were received and responses is included in the report.