



Appendix D: **Air Quality Conformity Analysis**



D

There are many aspects of air quality that are important to the environment, health and quality of life of the region and its residents. Clean air is vital to the productivity of people, land and businesses in North Central Indiana. Poor air quality can cause a wide variety of health problems, contributing to premature death from cardiovascular and respiratory diseases such as asthma. These problems are often worse in poor urban communities. Air pollution comes from many different sources such as factories, power plants, dry cleaners, cars, buses, trucks, windblown dust, and even fires. It can harm plant life, causing negative impacts on natural areas, forests, and farms.

Within the context of air quality, it is most relevant to discuss the status of the Elkhart and St. Joseph Counties region with regard to attainment of the National Ambient Air Quality Standards. Air quality has improved in the region substantially over the past decade. Significant investment by industries in pollution reduction to comply with federal and state regulation of air emissions has contributed to this improvement. Other significant contributors to this progress include implementation of vapor recovery requirements on area gas stations and congestion mitigation awareness in transportation planning.

National Ambient Air Quality Standards

The federal government established the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants, all of which, in concentrations above certain levels, have adverse effects on human health. These criteria pollutants include: carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), ozone (O₃), particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).

NAAQS attainment status achievements are one of the strongest demonstrations of air quality improvement over time. Based on air quality monitoring data collected in Elkhart and St. Joseph Counties by the Indiana Department of Environmental Management (IDEM), the MACOG region is in attainment of the existing NAAQS for Ozone and Fine Particulate Matter. The MACOG area's air quality continues to improve with each passing year.

While celebrating the region's achievements, it is important that we continue to strive for continuing improvement in air quality. The United States Environmental Protection Agency (EPA) is mandated to periodically review and update the NAAQS as scientific evidence warrants. As new data and studies reveal new information about health risks from these pollutants, the standards are reviewed and if necessary modified to be more protective of public health. EPA currently has several air quality standards and monitoring requirements in various states of study, proposal, and promulgation. Some of these could result in the region falling back into nonattainment, based on new data or tighter standards.

Ozone has only recently been designated in attainment and Fine Particulate Matter is the second most hazardous pollutant in the region, this section focuses on them for purposes of understanding the current status of the region's ambient air quality.

Ozone

Ozone (O₃) is an odorless, colorless, highly reactive gas. Ground level ozone forms when its precursors (i.e., nitrogen oxides and volatile organic compounds) mix with high temperatures, bright sunlight and calm winds. This reaction forms smog and can lead to ozone action days, a period when certain pollutant-generating activities should be minimized. Cars, power plants, refineries, chemical plants, gasoline storage, and household paints and solvents emit nitrogen oxides and volatile organic compounds as a byproduct of their use. O₃ can irritate the eyes, nose, throat and respiratory system. It can be especially harmful to individuals with chronic heart or lung disease, as well as the very young and very old. Children, in particular, can be at risk during the summer months due to increased

outdoor activity. In addition to public health risks from O₃, long-term exposure during the growing season also damages sensitive vegetation. Cumulative O₃ exposure can lead to reduced tree growth; visibly injured leaves; and increased susceptibility to disease, damage from insects and harsh weather.

As of October 2015, an area does not meet the 8-hour O₃ NAAQS if the 3-year average of each year's fourth highest 8-hour average O₃ concentration is greater than 0.070 ppm. The design values for Elkhart and St. Joseph County's air emissions indicate that both of the counties are in attainment of the 2015 Ozone NAAQS.

Fine Particulate Matter

Fine particulate matter (PM_{2.5}) is produced by all forms of combustion from engines, wood-burning, open-burning and industrial processes. The annual PM_{2.5} NAAQS is met when the annual arithmetic mean concentration is less than or equal to 15.0 µg/m³ (parts per billion). The 24-hour PM_{2.5} NAAQS is met when the three-year average of the 98th percentile of 24-hour concentration is less than 35 µg/m³. The trend of compliance with the annual PM_{2.5} is a greater indicator of the impact of fine particulate matter on human health.

In January 2013, the EPA set the Annual PM_{2.5} standard to 12 µg/m³ (parts per billion). The design values for Elkhart and St. Joseph County's air emissions indicate that the MACOG region continues to remain in conformance with the revised health standards.

What is a design value?

A design value is a statistic that describes the air quality status of a given location relative to the level of the National Ambient Air Quality Standards (NAAQS).

South Coast Air Quality Mgmt. District v. EPA

On February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* ("South Coast II," 882 F.3d 1138) held that transportation conformity determinations must be made in areas that were either nonattainment or maintenance for the 1997 ozone national ambient air quality standard (NAAQS) and attainment for the 2008 Ozone NAAQS when the 1997 Ozone NAAQS was revoked. These conformity determinations are required in these areas after February 16, 2019. The South Bend-Elkhart area was a maintenance area at the time of the 1997 Ozone NAAQS revocation on April 6, 2015 and was also designated unclassifiable/attainment for the 2008 Ozone NAAQS on May 21, 2012. Therefore, per the South Coast II decision, a conformity determination is required for the 1997 Ozone NAAQS on the Transportation Plan.

Transportation Conformity Requirements

On November 29, 2018, the EPA issued Transportation Conformity Guidance for the South Coast II Court Decision (EPA-420-B-18-050, November 2018) that addresses how transportation conformity determinations can be made in areas that were nonattainment or maintenance for the 1997 Ozone NAAQS when the ruling for the 1997 Ozone NAAQS was revoked, and an area was designated attainment for the 2008 Ozone NAAQS in EPA's original designations for this NAAQS (May 21, 2012).

The transportation conformity regulation at 40 CFR 93.109 sets the criteria and procedures for determining conformity. The conformity criteria for Transportation Plans and Transportation Improvement Programs (TIPs) includes: the latest planning assumptions (93.110), the latest emissions model (93.111), consultation (93.112), transportation control measures (93.113(b) and (c)), and an emissions budget and/or interim emissions (93.118 and/or 93.119).

For the 1997 Ozone NAAQS areas, transportation conformity for Transportation Plans and TIPs for

the 1997 Ozone NAAQS can be demonstrated without a regional emissions analysis, per 40 CFR 93.109(c). This provision states that the regional emissions analysis requirement applies one year after the effective date of EPA's nonattainment designation for a NAAQS and until the effective date of revocation of such NAAQS for an area. The 1997 Ozone NAAQS revocation was effective on April 6, 2015, and the South Coast II court upheld the revocation. As no regional emission analysis is required for this conformity determination, there is no requirement to use the latest emissions model, or budget and interim emissions tests.

Therefore, transportation conformity for the 1997 Ozone NAAQS for MACOG's 2045 Transportation Plan, Michiana on the Move, can be demonstrated by showing the remaining requirements in Table 1 in 40 CFR 93.109 have been met. These requirements, which are laid out in Section 2.4 of EPA's guidance and addressed below, include:

- Latest planning assumptions (93.110)
- Consultation (93.112)
- Transportation Control Measures (93.113)
- Fiscal constraint (93.108)

The complete air quality conformity determination can be found in the *Transportation Conformity Determination Report for the 1997 Ozone NAAQS* on MACOG's website.