



AIR QUALITY AND TRANSPORTATION CONFORMITY

REGULATORY REQUIREMENTS

Transportation conformity is required by the Clean Air Act section 176(c) (42 U.S.C. 7506(c)) to ensure that federal funding and approval are given to highway and transit projects that conform to the air quality goals established by a state air quality implementation plan (SIP). Conformity, for the purpose of the SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS). Conformity applies to transportation plans, transportation improvement programs and highway and transit projects funded or approved by the FHWA and FTA in all nonattainment and maintenance areas. It applies to transportation-related criteria pollutants ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀) and particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}) for which the area is designated nonattainment or has a maintenance plan.

The major components of transportation conformity are interagency consultation/public involvement; latest planning assumptions and emissions model; implementation of transportation control measures; regional emissions analysis, and fiscal constraint. Fiscal constraint is addressed in Chapter 5: Financial Plan, and the remaining components are addressed in this chapter.

Within PAG's transportation planning area, the Rillito planning area is designated moderate nonattainment with the NAAQS for PM₁₀ and the Ajo planning area is under an approved maintenance plan for PM₁₀ (Figures 6-1 and 6-2). The U.S. Environmental Protection Agency (EPA) made an attainment determination for the Rillito moderate PM₁₀ nonattainment area, effective October 10, 2006 ([71 FR 44920](#)), as no exceedances of the 24-hour primary PM₁₀ standard had occurred from 1990-2005. ADEQ submitted the [Rillito Moderate PM₁₀ Limited Maintenance Plan and Request for Redesignation to Attainment Request](#) to the EPA on June 20, 2008, as a revision to the SIP. Subsequent exceedances of the 24-hour PM₁₀ standard in the Rillito area resulted in ADEQ withdrawing the submittal on August 14, 2019. ADEQ submitted a statewide [Exceptional Event Mitigation Plan for Phoenix, Rillito, West Pinal and Yuma PM₁₀ Nonattainment Areas](#), dated September 26, 2018. The SIP does not contain an approved motor vehicle emission budget (MVEB) for the Rillito PM₁₀ nonattainment area; therefore, the interim emissions test applies per 40 CFR [§93.109\(c\)\(3\)](#). ADEQ submitted a SIP Development Plan for the Rillito PM₁₀ nonattainment area to EPA in March 2023 to revise the SIP and develop an emissions inventory and MVEB. The EPA found that the Ajo PM₁₀ Maintenance Plan demonstrated that contributions from motor vehicle emissions to PM₁₀ in the Ajo planning area are insignificant ([85 FR 47032](#)), so regional emissions analysis for PM₁₀ is not required for the Ajo planning area per 40 CFR [§93.109\(f\)](#).

Figure 6-1 Rillito PM₁₀ Nonattainment Area

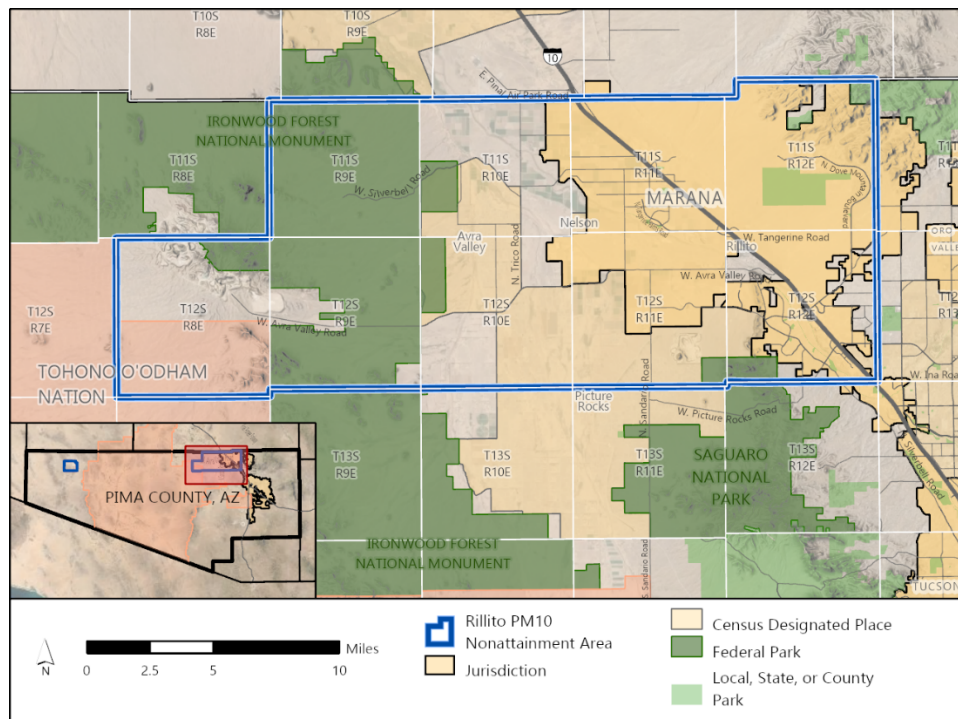
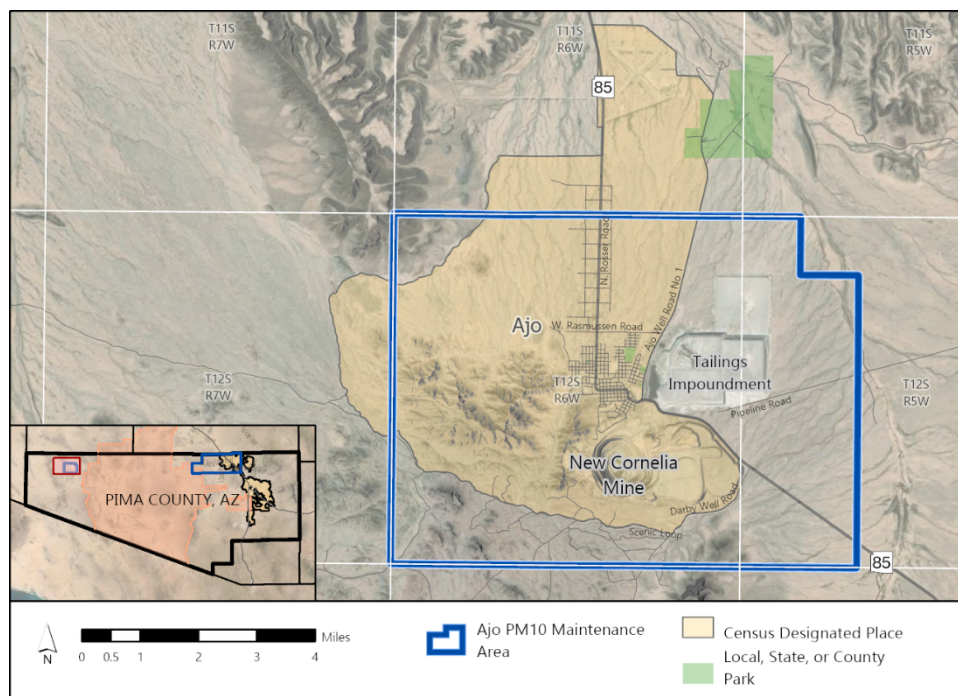


Figure 6-2 Ajo PM₁₀ Maintenance Area



The geographic boundary of the Rillito PM₁₀ nonattainment area is: T11S, R9E through R12E; and T12S, R8E through R12E. The geographic boundary of the Ajo PM₁₀ maintenance area is: T12S, R6W, and the following sections of T12S, R5W: S6-8, 17-20 and 29-32.

The second 10-year CO Limited Maintenance Plan for the Tucson Air Planning Area (TAPA) concluded July 10, 2020, ending 20 years of maintaining attainment of the CO NAAQS. With a maintenance plan no longer in effect, transportation conformity requirements no longer apply to the TAPA per 40 CFR [§93.102\(b\)](#).

INTERAGENCY CONSULTATION/PUBLIC INVOLVEMENT

PAG is the designated air quality planning agency and the metropolitan planning organization (MPO) for the greater Tucson region. As such, PAG maintains cooperative relationships with the U.S. EPA, FHWA, FTA, ADEQ, ADOT and PDEQ. Coordination of regional transportation planning with air quality planning has been conducted for many years. In April 1993, the procedures, methods and responsibilities for air quality planning were incorporated in a Memorandum of Agreement (MOA) between PAG, ADEQ, ADOT and PDEQ. The MOA was last updated in August 2000.

Interagency consultation was conducted during the TIP development process. Proposed transportation conformity processes and a regionally significant project list were shared with agencies on February 9, 2024. The draft conformity analysis of the FY 2025–FY 2029 TIP was shared with agencies on March 27, 2024.

Public open houses were held on March 19, 20, and 21, 2024, with public input solicited for comments on the air quality conformity analysis conducted for the FY 2025–FY 2029 TIP. The March 21st open house was held within the Rillito PM₁₀ nonattainment area at the Wheeler Taft Abbett Sr. Library in Marana. The comments received and public involvement process are addressed in Chapter 8: Public Involvement.

EPA provided comments on May 1, 2024, instructing that VMT reductions resulting from existing transportation control measures are to be applied to both the “Baseline” and “Action” scenarios. FHWA provided comments on June 2, 2024, and August 8, 2024, conveying that 2045 RMAP regionally significant projects are to be included in the “Action” scenario and omitted from the “Baseline” scenario. PAG proposed use of the 1990 Baseline PM₁₀ value in the interim emissions test and received approval from FHWA/FTA and EPA. The 1990 value was derived from ADEQ’s 1994 Rillito SIP submittal using updated calculations from AP-42 13.2.1 *Paved Roads* for the emissions inventory of onroad mobile sources.

An additional public comment period was provided for review of the air quality conformity sections of the final TIP for revisions incorporated following EPA and FHWA comments.

LATEST PLANNING ASSUMPTIONS AND EMISSIONS MODEL

The latest planning assumptions are detailed in the 2045 RMAP Update Technical Addendum. Forecasted population and employment estimates, land use modeling and travel demand modeling continue to apply to the FY 2025–FY 2029 TIP. Congestion is addressed in Chapter 4: Regional Traffic Signals, Congestion Management Process, and Performance Measures. Transit operations and policies are addressed in Chapter 7: Transit. No road or bridge tolls are in the transportation planning area.

Under the Governor’s Executive Order 2011-04, official county population projections are updated three times a decade, typically in the second, fifth and eighth years. These official projections are used by all agencies for planning purposes. The Arizona Office of Economic Opportunity (AOEO, formerly ADOA), under the Arizona Commerce Authority, prepared a new set of Pima County projections based

on the U. S. Census Bureau's 2020 Census and the latest 2022 5-year American Community Survey (ACS) estimates. The subcounty projections in Pima County were developed by PAG staff upon AOEO's approval and in compliance with AOEO's county projections.

PAG develops employment projections for six business sectors including industrial, retail, wholesale, finance-insurance-real estate (FIRE), service and public service. The latest projections utilize PAG's 2023 employment data and the growth rate of the 2023 Q3 employment projections from the University of Arizona's Economic and Business Research Center (EBRC).

PAG's traffic count program collects short-term (48-hour) counts annually in the fall and spring to comply with FHWA HPMS data collection guidelines, plus year-round data from select regional intersections managed by jurisdictional partners.

VMT from TDM (2019) was validated with HPMS VMT based on the collected traffic count data. Speed outputs from TDM (2019) were reviewed with other sources of data, including StreetLight Data. TDM was utilized for VMT and speeds.

On September 12, 2023, the EPA announced the availability of the latest version of the Motor Vehicle Emission Simulator model (MOVES4) for SIPs and transportation conformity modeling in states other than California (88 FR 62567). MOVES4 is a state-of-the science model upgrade to the EPA's modeling tools for estimating emissions from cars, trucks, buses, and motorcycles based on the latest data and regulations. PAG utilized MOVES4 for emissions modeling for the FY 2025–FY 2029 TIP, replacing the previous version, MOVES3.

PAG used MOVES4 for onroad motor vehicle emissions modeling for PM10 from vehicle exhaust, tire wear and brake wear in the Rillito PM10 Nonattainment Area for analysis years 2029, 2035 and 2045. Analysis was conducted using the Travel Demand Model (TDM) to estimate average daily Vehicle Miles Traveled (VMT), speeds and travel pattern characteristics for the various road types in the regional roadway network for the following "Action" scenarios: 2029, 2035 and 2045. MOVES model inputs included the most recent local data for meteorology (2023, Tucson International Airport), vehicle registration (June 2023, ADOT Motor Vehicle Division (MVD)), speeds, HPMS traffic counts, travel patterns, as well as default gasoline and diesel fuel properties. The vehicle inspection/maintenance program does not affect PM10 outputs in MOVES4. The MOVES4 model accounts for all current and future regulatory changes expected over the 2025-2045 period, which extends the full planning horizon of PAG's long-range transportation plan, the Regional Mobility and Accessibility Plan (2045 RMAP).

ADOT MVD vehicle populations are projected forward to 2029, 2035 and 2045 using Pima County resident population ratios. Estimated vehicle populations by the ADOT MVD vehicle types are then distributed to the MOVES source types using ratios developed from the MOVES4 default source type populations for Pima County. These projected vehicle populations, which are classified according to the ADOT MVD vehicle types, are then distributed to the MOVES source types. For motorcycles, passenger cars and motor homes, the MVD vehicle types are identical to the MOVES source types, and these projected vehicle populations are used directly as MOVES inputs. For all other MOVES source types, there is not a clear correspondence between the MVD vehicle types and the MOVES source types. Ratios were developed from the MOVES4 default source type populations for Pima County, and these ratios are applied to the projected vehicle populations (which are classified according the MVD vehicle types). The most significant MVD vehicle type for which this is done is trucks. For each of the MOVES source types that are trucks, a fraction was computed as the ratio of the MOVES4 default

population for Pima County for that source type to the sum of the MOVES4 default populations for Pima County for all truck source types. The fraction was then multiplied by the projected truck population (according to the MVD classification) to obtain the projected population for the MOVES source type.

EPA MOVES4 default age distribution input values for buses and long-haul, single unit, and commercial trucks for Pima County were used for 2029, 2035 and 2045 action scenarios, while the EPA Age Distribution Projection Tool for MOVES4 was used to project age distributions from the 2023 ADOT MVD data age distributions for motorcycles, passenger cars and motor homes. The Age Distribution Projection tool requires accurate current age distributions for each source type for which it is used. As conveyed regarding the source type population input, the classification used in the ADOT MVD data only aligns exactly with the MOVES source types of motorcycle, passenger car and motor home. For all other MOVES source types, it is not possible to compute accurate current age distributions because the MVD data is what must be used to compute age distributions and the MVD vehicle types (particularly trucks) include numerous MOVES source types. Therefore, the EPA MOVES4 default age distributions were used for these other MOVES source types (i.e., all source types except motorcycles, passenger cars and motor homes).

The regionally significant projects modeled within the Rillito PM10 nonattainment area in the proposed FY 2025–FY 2029 TIP were the same as the FY 2022-2026 TIP, and are currently under construction:

- 86.06, widening of Tangerine Road from I-10 to La Cañada Drive, going from 2 to 4 lanes (2029, 2035, 2045 analysis years)

All regionally significant projects from the currently conforming 2045 RMAP were also included in the “Action” scenario analysis years.

- 571.08, Adonis Rd #2, construct 4-lane roadway (2035, 2045 analysis years)
- 169.00, Ina Rd, widen to 3-lane roadway (2035, 2045 analysis years)
- 68.98, Ina Rd #3, widen to 6-lane roadway (2035, 2045 analysis years)
- 86.14, Linda Vista Bl, widen to 4-lane roadway (2035, 2045 analysis years)
- 201.00, Lockett Rd/Moore Rd, widen to 4-lane roadway (2045 analysis year)
- 199.00, Marana Rd, widen to 4-lane roadway (2035, 2045 analysis years)
- 20.14, Sandario Rd #3, widen to 3-lane roadway (2035, 2045 analysis years)
- 257.98, Silverbell Rd, widen to 4-lane roadway (2035, 2045 analysis years)
- 204.00, Tangerine Rd, widen to 4-lane divided highway (2035, 2045 analysis years)

EPA Compilation of Air Pollutant Emission Factors, AP-42, emission factors were used to calculate PM₁₀ emissions from re-entrained dust produced by vehicles traveling on paved (section 13.2.1.3) and unpaved (section 13.2.2) roads in the Rillito PM₁₀ Nonattainment Area for analysis years 2029, 2035 and 2045.

TRANSPORTATION CONTROL MEASURES

Transportation control measures (TCMs) required by the SIP for the TAPA, such as PAG’s Travel Reduction Program (TRP) and the Pima County Department of Environmental Quality’s (PDEQ) Voluntary No-Drive Days/Clean Air Program, remain in effect per Arizona Revised Statute [§49-404](#) and Clean Air Act 110(l) and result in PM₁₀ emission reductions from onroad motor vehicles in the Rillito

PM₁₀ nonattainment area. The Rillito PM₁₀ nonattainment area is within the TAPA. The TRP and PDEQ Voluntary No-Drive Days/Clean Air Program are funded by ADEQ through the state Air Quality Fee Fund ([ARS §49-551](#)).

PAG operates Sun Rideshare, a regional transportation assistance program, under the Travel Reduction Program (TRP), an employer assistance program for commuters, with an emphasis on reducing congestion and improving air quality. These programs promote the use of alternative transportation for daily trips to reduce energy consumption, pollution and traffic congestion in the region.

As a component of the TRP, the Sun Rideshare program provides outreach services to employers to encourage employees to find carpool and vanpool partners. When more people choose to carpool or vanpool, fewer vehicles are on the road. This helps reduce both traffic congestion and air pollution. Anyone in the greater Tucson region can register in the Sun Rideshare database if they are interested in seeking carpool or vanpool partners to save money or contribute to a healthy environment. A qualifying vanpool may be eligible to receive a travel subsidy from PAG. Employers may offer subsidies as well. Vanpools are viable options for employees who have an extended commute greater than 20 miles and participants can share the cost of a rideshare option.

The Travel Reduction Ordinances (TROs) are in place for Pima County, the cities of Tucson and South Tucson and the towns of Oro Valley, Marana and Sahuarita. The TROs specify that employers with 100 or more full-time equivalent employees at a single or contiguous worksite must participate in the TRP. Employers with fewer than 100 employees can participate voluntarily. Travel reduction services support employer-designated transportation coordinators to provide employees with information about carpooling, vanpooling, using transit or other modes of transportation that help reduce overall traffic congestion. The goal of the program is to reduce traffic congestion, reduce VMT and fuel consumption and improve air quality.

In 2022, the TRP reduced regional vehicle miles traveled by 98,402,259 miles and resulted in reductions of 4.3 tons of PM₁₀, 27.6 tons of NO_x, 35.4 tons of VOC, 419.0 tons of CO and 40,793.7 tons of carbon dioxide equivalents. Full remote work and hybrid work (a combination of in-office and remote or telework) have persevered and remain important contributors to cleaner air in the post-pandemic era. In 2023, there were 141 employers and 134,505 employees participating in TRP, of which 8,017 employees, or 5.9% telework.

The PDEQ Voluntary No-Drive Days/Clean Air Program was adopted as an ordinance in Pima County ([PCC §17.44.020](#)) and mandated by state statute ([ARS §49-506](#)). The principal goals of the program are to reduce vehicle emissions that contribute to air pollution by encouraging no-drive days and the use of alternative modes of transportation; increasing public awareness of air quality issues; and supporting other pollution-reducing activities.

EMISSIONS ANALYSIS

PM₁₀ mobile source emissions in the “Action” scenario analysis years were estimated using EPA’s MOVES4 model. MOVES4 calculates direct PM₁₀ emissions from onroad motor vehicle exhaust, tire wear and brake wear. Modeling analyses included local data for temperature and humidity, vehicle registrations, traffic counts and travel patterns, and default fuel properties. Current socioeconomic information, transportation and traffic data were used to generate VMT, vehicle hours traveled (VHT) and congestion levels.

On January 13, 2011, the EPA released a new method for estimating re-entrained road dust emissions from cars, trucks, buses and motorcycles on paved roads. On February 4, 2011, the EPA published the official release of the January 2011 AP-42 Method for Estimating Re-Entrained Road Dust from Paved Roads approving the January 2011 method for use in regional emissions analysis. The AP-42 equation that calculates PM₁₀ emission factors for paved roads requires as input:

- road surface silt loading
- the average weight of vehicles traveling on the roads
- the number of wet days (with at least 0.01 inch of precipitation)

The equation that calculates PM₁₀ emission factors for unpaved road fugitive dust requires as input:

- the road surface material silt content
- road surface moisture content
- average vehicle speeds
- the annual number of wet days (with at least 0.01 inch of precipitation)

Data inputs, emission factors and calculations for re-entrained PM₁₀ are in Appendix 9. Values for TCM VMT reductions were derived from five-year program averages for 2019-2023 and adjusted for the Rillito PM₁₀ nonattainment area population.

The SIP does not identify construction-related fugitive PM₁₀ as a contributor to the Rillito PM₁₀ nonattainment area; therefore, the fugitive PM₁₀ emissions associated with highway and transit project construction are not required to be considered in the regional emissions analysis per 40 CFR [§93.122\(e\)](#).

1990 baseline data was derived from ADEQ's 1994 Rillito SIP submittal. The SIP submittal included an emissions inventory of onroad mobile sources. The inventory used 1990 VMT data and emission factors sourced by EPA to project both 1995 and 1988 emissions. PAG applied linear interpolation to calculate 1990 exhaust, tire wear and brake wear emissions, as well as re-entrained unpaved road dust emissions. Re-entrained paved road dust emissions were calculated using the updated 2011 revision of AP-42 13.2.1 *Paved Roads*.

Table 6-1 details the results of PM₁₀ emissions calculated for the Rillito PM₁₀ nonattainment area.

Table 6-1: Conformity Interim Emissions ("Action" Scenario / Baseline Year) Test Results

Analysis Year	Rillito PM10 Nonattainment Area PM10 (tons/yr)
1990 Baseline	921.90
2029 "Action" Scenario	209.31
1990 Baseline	921.90
2035 "Action" Scenario	219.08
1990 Baseline	921.90
2045 "Action" Scenario	242.33

CONFORMITY DETERMINATION

As demonstrated by the PM₁₀ emission modeling results in Table 6-1, completing the TIP projects as stipulated in the FY 2025–FY 2029 TIP satisfies the requirements of the interim emissions test prescribed by 40 CFR §93.119. Total regional onroad motor vehicle emissions of PM₁₀ in the Rillito PM₁₀ nonattainment area associated with implementation of the FY 2025–FY 2029 TIP for all years tested are predicted to be less under the “Action” scenario analysis years than the 1990 Baseline year. Additionally, the emissions are reasonably expected to be less during the periods between analysis years.

The PAG Regional Council and U.S. DOT made a conformity determination for the 2045 RMAP Update on September 24, 2020, and January 20, 2021, respectively. Approval of this document by PAG’s Regional Council on May 30, 2024, finds that the TIP and all projects contained within are in conformity with the applicable SIP and transportation conformity requirements per consideration and resolution of FHWA and EPA comments.

The final determination of conformity for the FY 2025–FY 2029 TIP is the responsibility of the Federal Highway Administration and the Federal Transit Administration.