ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

Submitted online via EPA's Central Data Exchange, State Plan Electronic Collection System (SPeCS)

April 7, 2021

Deborah Jordan, Acting Regional Administrator
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street, Mail Code ORA-1
San Francisco, CA 94105

Re: Submittal of State Implementation Plan Revision – Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request

Dear Ms. Jordan:

The Arizona Department of Environmental Quality (ADEQ) hereby adopts and submits to the U.S. Environmental Protection Agency (EPA) the State Implementation Plan (SIP) revision, *Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request*, pursuant to Arizona Revised Statutes (ARS) §§ 49-104, 49-106, 49-112, 49-402, 49-404, 49-406, 49-425, 49-471.04, and 49-479 and Code of Federal Regulations (CFR), Title 40, §§ 51.102 through 51.104.

In November 2009 EPA officially designated the Nogales area as a moderate $PM_{2.5}$ nonattainment area (NAA) for the 2006 $PM_{2.5}$ NAAQS.[1] The area was designated nonattainment for the 24-hour $PM_{2.5}$ standard and unclassifiable/attainment for the annual standard. The analyses and data provided in this SIP revision coupled with the previous submission in 2013 demonstrate that all nonattainment area, maintenance, and redesignation requirements have been met. The clean air quality record, enforceable control measures, and projections of future emissions all show that the area will continue to maintain the $PM_{2.5}$ air quality standards through 2032.

ADEQ requests that EPA approve this revision to the Arizona SIP and redesignate the Nogales $PM_{2.5}$ moderate nonattainment area to attainment for the 2006 24-hour $PM_{2.5}$ NAAQS. If you have any questions regarding this submission, please contact Joseph Martini, Section Manager at (602) 771-1089.

Sincerely,

Daniel Czecholinski
Director, Air Quality Division

Enclosures (1)

Cc: Elizabeth Adams, EPA
Scott Bohning, EPA
Jerry Wamsley, EPA
Charlotte Withey, EPA

[1] 74 FR 58688

ADEQ Arizona Department of Environmental Quality

Memorandum

Date: November 12, 2019
To: Daniel Czecholinski, Division Director, Air Quality Division
From: Misael Cabrera, Director
Subject: Ongoing Air Quality Delegation of Authority

Under A.R.S. §49-104(D) (2), I authorize you, Daniel Czecholinski, Division Director, Air Quality Division, Arizona Department of Environmental Quality, to perform any act, including execution of any pertinent documents, which I as Director of the Arizona Department of Environmental Quality am authorized or required to do by law with respect to A.R.S. Title 49, Chapters 1 and 3 and any other acts relating to air quality including personnel actions.

This delegation is effective immediately, shall remain in effect until it is revoked, or upon your separation from the Arizona Department of Environmental Quality. You may further delegate this authority in the best interest of the agency, however, those delegations must be in writing and you must forward a copy of any further delegations to me.

I ratify all acts performed by you as Division Director, Air Quality Division, concerning the duties and functions in this delegation letter.

Sincerely,

Misael Cabrera, P.E.
Director

FINAL SIP Revision:
Nogales $PM_{2.5}$ Maintenance Plan & Redesignation Request
(2006 Fine Particulate NAAQS)

Air Quality Division
March 2021

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(40 C.F.R. Part 51, Appendix V, § 2.0)

Appendix V § 2.1 - Administrative Materials

(a) A formal signed, stamped, and dated letter of submittal from the Governor or his designee, requesting EPA approval of the plan or revision thereof (hereafter "the plan"). If electing to submit a paper submission with a copy in electronic version, the submittal letter must verify that the electronic copy provided is an exact duplicate of the paper submission.

See the cover letter for this State Implementation Plan (SIP) submission and Appendix A for the delegation of authority from Misael Cabrera, Director of the Arizona Department of Environmental Quality (ADEQ), to Daniel Czecholinski, Director of the ADEQ Air Quality Division, authorizing Mr. Czecholinski to perform any act the ADEQ Director is authorized to perform under the state air quality statutes, including the submission of SIPs to the Environmental Protection Agency (EPA).

This SIP submittal was conducted electronically via the online eSIP system in EPA's Central Data Exchange. Therefore, no paper copies were submitted.

(b) Evidence that the State has adopted the plan in the State code or body of regulations; or issued the permit, order, consent agreement (hereafter "document") in final form. That evidence shall include the date of adoption or final issuance as well as the effective date of the plan, if different from the adoption/issuance date.

See the cover letter for this document wherein the state adopts and submits this SIP revision to EPA. This is the method of Arizona state adoption. ADEQ did not conduct a rulemaking as part of this SIP.

(c) Evidence that the State has the necessary legal authority under State law to adopt and implement the plan.

ADEQ has primary responsibility for air pollution control and abatement, and as such, is required to adopt and "*maintain a state implementation plan that provides for implementation, maintenance and enforcement of national ambient air quality standards and protection of visibility as required by the clean air act*." A.R.S. § 49-404(A). ADEQ also maintains authority to issue and administer rules, adopt county rules, and to submit such rules for approval into the SIP. For reference only, copies of Arizona Revised Statutes (A.R.S.), Sections 49-104, 49-106, 49-112, 49-402, 49-404, 49-406, 49-425, 49-471.04, and 49-479, are included in Appendix A.

(d) A copy of the actual regulation, or document submitted for approval and incorporation by reference into the plan, including indication of the changes made (such as redline/strikethrough) to the existing approved plan, where applicable. The submission shall include a copy of the official State regulation/document, signed, stamped, and dated by the appropriate State official indicating that it is fully enforceable by the State. The effective date of any regulation/document contained in the submission shall, whenever possible, be indicated in the regulation/document itself; otherwise the State should include a letter signed, stamped, and dated by the appropriate State official indicating the effective date. If the regulation/document provided by the State for approval and incorporation by reference into the plan is a copy of an existing publication, the State submission should, whenever possible, include a copy of the publication cover page and table of contents.

See this SIP revision, the document submitted for approval.

(e) Evidence that the State followed all of the procedural requirements of the State's laws and constitution in conducting and completing the adoption/issuance of the plan.

Evidence that ADEQ followed procedural requirements of Arizona state laws and constitution in adopting this plan is included in Appendix A.

(f) Evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice.

Evidence that ADEQ gave notice of the Nogales $PM_{2.5}$ SIP revision in accordance with A.R.S. § 49-444 is included in Appendix E.

ADEQ published a notice of this SIP revision in the Nogales International on December 29, 2020 and January 1, 2021 and on ADEQ's Website beginning December 29, 2020. Public notice was also sent to an email subscriber list of interested stakeholders on December 29, 2020.

(g) Certification that public hearing(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable and consistent with the public hearing requirements in 40 CFR 51.102.

ADEQ held a virtual public hearing for the Nogales $PM_{2.5}$ SIP revision on January 28, 2021. Certification and other documents related to the hearing are included in Appendix E.

(h) Compilation of public comments and the State's response thereto.

The public comment responsiveness summary for the Nogales $PM_{2.5}$ SIP revision is contained in Appendix E.

Appendix V § 2.1 - Technical Support

(a) Identification of all regulated pollutants affected by the plan.

This SIP revision applies to the 2006 $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS). The plan includes provisions for the regulation of $PM_{2.5}$ emissions.

(b) Identification of the locations of affected sources including the EPA attainment/nonattainment designation of the locations and the status of the attainment plan for the affected areas(s).

This SIP revision is applicable to sources within the Nogales $PM_{2.5}$ Moderate nonattainment area. See Chapters 1 and 3 for a description of the area and sources within the nonattainment area boundary.

(c) Quantification of the changes in plan allowable emissions from the affected sources; estimates of changes in current actual emissions from affected sources or, where appropriate, quantification of changes in actual emissions from affected sources through calculations of the differences between certain baseline levels and allowable emissions anticipated as a result of the revision.

See Sections 6.4 & 7.3 in the emissions inventory submitted with this SIP revision in Appendix B for information on emissions changes in the Nogales planning area.

(d) The State's demonstration that the national ambient air quality standards, prevention of significant deterioration increments, reasonable further progress demonstration, and visibility, as applicable, are protected if the plan is approved and implemented. For all requests to redesignate an area to attainment for a national primary ambient air quality standard, under section 107 of the Act, a revision must be submitted to provide for the maintenance of the national primary ambient air quality standards for at least 10 years as required by section 175A of the Act.

See Sections 7.3 & 6.4 of the Technical Support Document (TSD) in Appendix B for demonstrations that the 2006 $PM_{2.5}$ NAAQS will be maintained through 2032.

(e) Modeling information required to support the proposed revision, including input data, output data, models used, justification of model selections, ambient monitoring data used, meteorological data used, justification for use of offsite data (where used), modes of models used, assumptions, and other information relevant to the determination of adequacy of the modeling analysis.

See the TSD for a detailed description of methods used to demonstrate maintenance of the NAAQS and estimate emissions in the nonattainment area. Additionally, Appendix D of the TSD outlines the AERSCREEN modeling performed that demonstrations the 2006 $PM_{2.5}$ NAAQS will be maintained through 2032.

(f) Evidence, where necessary, that emission limitations are based on continuous emission reduction technology.

Emission reduction methods, or controls, are described in detail in Chapter 3 of the SIP, *Permanent and Enforceable Improvement in Air Quality*. Information on the demonstration of maintenance based on the described controls can be found in Chapter 5, *Maintenance Plan*, and the Technical Support Document in Appendix B.

(g) Evidence that the plan contains emission limitations, work practice standards and recordkeeping/reporting requirements, where necessary, to ensure emission levels.

The above requirement is not applicable to this SIP revision.

(h) Compliance/enforcement strategies, including how compliance will be determined in practice.

The above requirement is not applicable to this SIP revision.

(i) Special economic and technological justifications required by any applicable EPA policies, or an explanation of why such justifications are not necessary.

The emission inventories and maintenance demonstration contained in this SIP revision include emissions from the Valencia Power Plant (VPP) in Nogales, Arizona. To accurately assess the potential impact of VPP, ADEQ performed AERSCREEN point source modeling to estimate ambient air $PM_{2.5}$ concentrations. A detailed discussion of the analysis is located in the technical memo "*Nogales $PM_{2.5}$ Valencia AERSCREEN Modeling Overview*", which is attached to the Technical Support Document.

Justification for the approach utilized in the modeling screen is drawn from the EPA memo "*Use of Actual Emissions in Maintenance Demonstrations for Ozone and Carbon Monoxide (CO) Nonattainment Areas*". This memo applies only to ozone and CO, but the logic is also applicable to the $PM_{2.5}$ NAAQS (which were promulgated after the memo was written), given that Appendix W and EPA's modeling guidance allow use of "projected actuals" for modeling $PM_{2.5}$. The guidance also supports the use of projected actuals for VPP specifically, given the AERMOD modeling indicates VPP would not cause violations by itself.

1 INTRODUCTION

Chapter 1 describes the purpose of this State Implementation Plan (SIP) revision for the Nogales $PM_{2.5}$ nonattainment area, presents general regulatory requirements for $PM_{2.5}$ planning areas, and provides an overview and history of the nonattainment area. The area is designated nonattainment under the 2006 $PM_{2.5}$ 24-hour National Ambient Air Quality Standards.

1.1 Statement of Purpose

Pursuant to Section 107(d)(4)(B) of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) designated an area in south central Santa Cruz County as a moderate nonattainment area (NAA) for the 2006 24-hour $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) in 2009.[1] EPA based its designation on recorded violations of the standard from 2004 -2006 at an ambient monitoring site within the City of Nogales, Arizona.

Under the authority granted by the Governor and the State of Arizona, the Arizona Department of Environmental Quality (ADEQ) is responsible for the preparation and submittal of this SIP revision.[2]

This document summarizes the progress of the Nogales planning area in attaining the $PM_{2.5}$ NAAQS and demonstrates that all CAA requirements for redesignation to attainment have been satisfied. The clean air quality record, enforceable control measures, and projections of future emissions all show that the area will continue to maintain the 2012 24-hr $PM_{2.5}$ NAAQS through 2032. With this submittal ADEQ requests that EPA approve this maintenance plan and redesignation request and designate the Nogales nonattainment area to attainment for the 2006 24-hour $PM_{2.5}$ NAAQS.

1.2 National Ambient Air Quality Standards

Title I of the CAA requires the EPA to establish NAAQS for those pollutants considered harmful to both public health and the environment.[3] Accordingly, there are two types of NAAQS: primary and secondary. Primary standards are set to protect human health and secondary standards are designed to protect public welfare, such as decreased visibility and damage to animals, crops, vegetation, and buildings.

The EPA has promulgated standards for six air pollutants: ground-level ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.[4] The standards for each pollutant are set at a maximum concentration in either parts per million (ppm) by volume, parts per billion (ppb) by volume, or micrograms per cubic meter of air ($\mu g/m^3$). Each standard also has a distinct averaging time (e.g., annual, 8-hours, 24-hours, etc.) in order to provide the necessary level of protection.[5] These standards are periodically reviewed and are either retained or revised based on review of scientific literature and analyses.[6]

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[1] 74 FR 58688; November 13, 2009.
[2] Arizona Revised Statues (A.R.S.) §§ 49-401, 402, 404, and 406.
[3] U.S. Environmental Protection Agency (Accessed January 30, 2019). National Ambient Air Quality Standards. Retrieved from https://www.epa.gov/criteria-air-pollutants/naaqs-table
[4] U.S. Environmental Protection Agency (Accessed January 30, 2019). Criteria Air Pollutants. Retrieved from https://www.epa.gov/criteria-air-pollutants
[5] U.S. Environmental Protection Agency (Accessed January 30, 2019). National Ambient Air Quality Standards. Retrieved from https://www.epa.gov/criteria-air-pollutants/naaqs-table
[6] 42 U.S.C. 7409 (2015). Clean Air Act Section 109

1.3 Fine Particulate Matter NAAQS

Particulate matter (PM), or particle pollution, is a complex mixture of small solid particles and liquid droplets found in the air. Particles that are directly emitted by sources such as smokestacks, fires, unpaved roads, or construction sites are referred to as primary particles.[7] Other particles, known as secondary particles, are formed when gaseous pollutants from industrial and mobile sources undergo complex chemical reactions in the atmosphere.[8] For example, emissions of the precursor compounds sulfur oxides (SO_X), nitrogen oxides (NO_X), or ammonia (NH_3) can react to form particulate sulfates, nitrates, and ammonium (ammonium sulfate and nitrate) and volatile organic compound (VOC) precursors can become particulate organic carbon.

On July 1, 1987 EPA revised the NAAQS for PM, replacing Total Suspended Particulates (TSP) as the indicator for particulate matter with a new indicator, PM_{10}.[9] This new indicator included particles with an aerodynamic diameter less than or equal to 10 micrometers.

In 1997 EPA promulgated revisions to the PM NAAQS by adding a new standard for particles less than or equal to 2.5 micrometers in diameter, referred to as "fine" particles or $PM_{2.5}$.[10] To attain the 1997 primary annual $PM_{2.5}$ standard the annual arithmetic mean, averaged over three years, could not exceed 15.0 micrograms per cubic meter (µg/m^3). An area met the primary 24-hour standard when the annual 98th percentile of daily (24-hour) values, averaged over three years, was less than or equal to 65 µg/m^3. The annual and 24-hour secondary standards were set identical to the primary standards.

In 2006 EPA completed a review of the PM NAAQS and took several actions regarding the fine particle standards. The level of the primary 24-hour $PM_{2.5}$ standard was lowered from 65 to 35 µg/m^3 and the level of the annual primary standard was retained. Finally, EPA revised the secondary standards to be identical in all respects to the primary standards.[11]

The EPA again revised the fine particle NAAQS in 2012 by lowering the level of the primary annual standard from 15 µg/m^3 to 12 µg/m^3.[12] Table 2-1 provides a summary of the $PM_{2.5}$ NAAQS for each of EPA's review cycles from 1997 through 2012. This plan only addresses the 2006 24-hour $PM_{2.5}$ NAAQS.

Table 1-1 $PM_{2.5}$ NAAQS History[13]

Year	Final Rule Citation	Primary/Secondary	Ave. Time	Level (µg/m^3)	Form
1997	62 FR 38652 July 18, 1997	Primary & Secondary	24-Hour	65	98th percentile, averaged over 3 yrs
			Annual	15	Annual arithmetic mean, averaged over 3 years
2006	71 FR 61144, October 17, 2006	Primary & Secondary	24-Hour	35	98th percentile, averaged over 3 yrs

[7] U.S. Environmental Protection Agency. Retrieved from https://www.epa.gov/pm-pollution. Accessed January 30, 2019.
[8] Ibid.
[9] 52 FR 24634, July 1, 1987
[10] 62 FR 38652, July 18, 1997
[11] 71 FR 61144, October 17, 2006
[12] 78 FR 3086, January 15, 2013
[13] U.S. Environmental Protection Agency. Retrieved from https://www.epa.gov/pm-pollution/table-historical-particulate-matter-pm-national-ambient-air-quality-standards-naaqs. Accessed January 31, 2019.

Year	Final Rule Citation	Primary/Secondary	Ave. Time	Level ($\mu g/m^3$)	Form
			Annual	15	Annual arithmetic mean, averaged over 3 yrs
2012	78 FR 3086 January 15, 2013	Primary & Secondary	24-Hour	35	98th percentile, averaged over 3 yrs
		Primary	Annual	12	Annual arithmetic mean, averaged over 3 yrs
		Secondary	Annual	15	Annual arithmetic mean, averaged over 3 years

1.4 Regulatory Background of Nogales Planning Area

The EPA strengthened the primary and secondary 24-hour $PM_{2.5}$ NAAQS in December 2006. Under CAA section 107(d), states must make recommendations for areas that meet, cannot be classified, or do not meet new or revised NAAQS within one year following the promulgation of such standards. In December 2007 ADEQ submitted its initial designation recommendations to the EPA, recommending that all portions of the state be designated attainment except for the Nogales area in Santa Cruz County.

In November 2009 EPA officially designated the Nogales area as a moderate $PM_{2.5}$ nonattainment area (NAA) for the 2006 $PM_{2.5}$ NAAQS.[14] The area was designated nonattainment for the 24-hour $PM_{2.5}$ standard and unclassifiable/attainment for the annual standard.

On January 7, 2013 EPA made a final determination that the Nogales area had met the 24-hour $PM_{2.5}$ NAAQS based on monitoring data from 2009-2011.[15] This clean data determination suspended some CAA SIP requirements for as long as the area continues to attain the standard. These SIP elements include reasonable further progress (RFP), attainment demonstration, reasonably available control measures (RACM), and contingency measures.

To satisfy the CAA requirements for nonattainment areas that were not suspended by the clean data determination, ADEQ submitted the Arizona SIP Revision for the Nogales $PM_{2.5}$ NAA to EPA in September 2013. The submittal provided annual 2008 and 2010 emission estimates for $PM_{2.5}$ and $PM_{2.5}$ precursors (nitrogen oxides, volatile organic compounds, sulfur dioxide, and ammonia). The EPA approved the submittal on February 9, 2015, effective March 11, 2015.[16]

On May 10, 2017 EPA finalized the determination that the Nogales $PM_{2.5}$ NAA had attained the NAAQS by the statutory attainment date. Specifically, EPA determined that seven areas (including Nogales) attained the 2006 24-hour $PM_{2.5}$ NAAQS by December 31, 2015, which was based on monitoring data for 2013 to 2015.[17]

1.5 Nonattainment Area Description

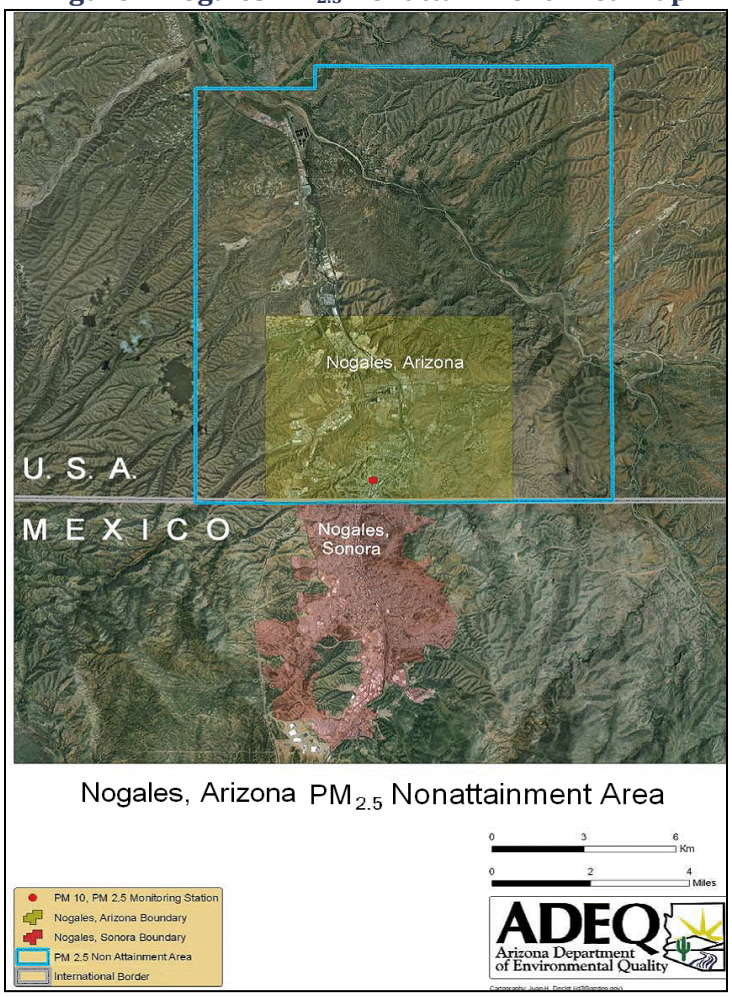
The Nogales $PM_{2.5}$ NAA is located within Santa Cruz County in southern Arizona on the international U.S./Mexico border adjacent to Nogales, Sonora. The Nogales Nonattainment Area is located in the

[14] 74 FR 58688
[15] 78 FR 887
[16] 80 FR 6907
[17] 82 FR 21711

southernmost portion of the county in a region of the Sonoran Desert characterized by north-south elongated valleys surrounded by mountain ranges.

The nonattainment area includes the City of Nogales, the community of Rio Rico, and unincorporated portions of Santa Cruz County (Figure 1). Nogales (AZ) is located approximately 70 miles south of Tucson and 179 miles south of Phoenix.

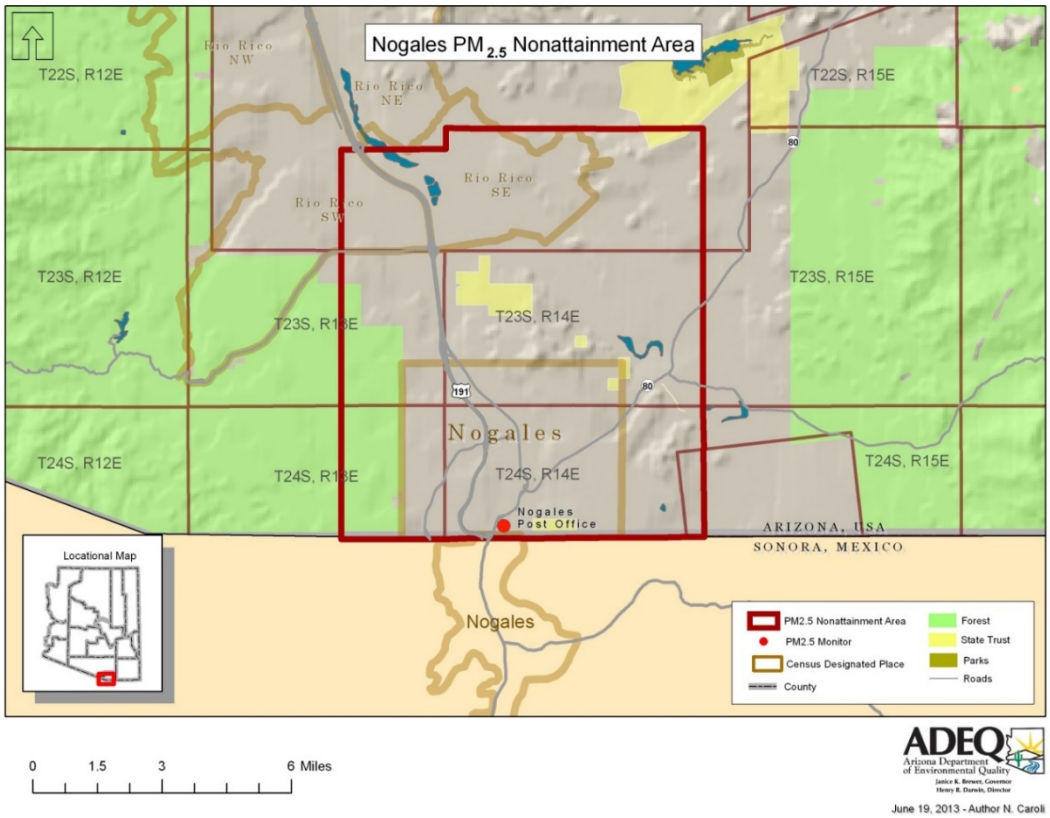
Figure 1 Nogales $PM_{2.5}$ Nonattainment Area Map



1.5.1 Nonattainment Area Boundary

The City of Nogales, Arizona is located entirely within the nonattainment area and is situated in a valley created by the Nogales Wash, a tributary of the nearby Santa Cruz River. The boundaries of the nonattainment area encompass the following townships and ranges: T23S, R13E; T23S, R14E; T24S, R13E; T24S, R14E (Figure 2). The boundary for the nonattainment area is codified at 40 CFR § 81.303.

Figure 2 Detail of Nogales $PM_{2.5}$ Nonattainment Area



1.5.2 Geography and Climate

1.5.2.1 Geography

The Nogales NAA is located within Santa Cruz County, the smallest county in Arizona in terms of size. The Nogales NAA is in the southernmost portion of the County alongside the U.S./Mexico border. This region of the Sonoran Desert is characterized by north-south elongated valleys surrounded by mountain ranges.

Nogales is located approximately 60 miles south of Tucson, Arizona with a mean elevation of 3,865 feet above sea level. Mountain ranges near Nogales include the Patagonia Mountains to the east and the Tumacacori, Atascosa, and Pajarito Mountains to the west. Approximately 25 miles to the north are the Santa Rita Mountains and Madera Canyon in the Coronado National Forest where Mount Wrightson rises to an elevation of 9,432 feet.

Nogales, Sonora, Mexico lies directly south of Nogales, Arizona across the international border. Nogales, Sonora is 140 miles north of Hermosillo, Sonora. The mean elevation in Nogales, Sonora is 4,265 feet above sea level. The highest elevation is 5,380 feet. The elevation drops approximately 709 feet from the southernmost edge of the Nogales, Sonora, Mexico urban boundary to the Nogales NAA northern boundary line.

Both Nogales, AZ and Nogales, Sonora (collectively referred to as Ambos Nogales) lie within the Sonoran Desert. The Sonoran Desert is in the Basin and Range topographic province, characterized by north-south elongated valleys surrounded by mountain ranges. Ambos Nogales is located in such a valley created by the Nogales Wash, a tributary of the Santa Cruz River.

The Nogales Wash runs south to north eventually meeting the Santa Cruz River. From the southern portion of Nogales, Sonora to the northern parts of Nogales, Arizona the wash drops in elevation by roughly 300 feet. The narrow valley topography of the Nogales Wash can trap air pollutants, especially during the evening hours when diurnal wind flow is out of the south from Nogales, Sonora, México.[18]

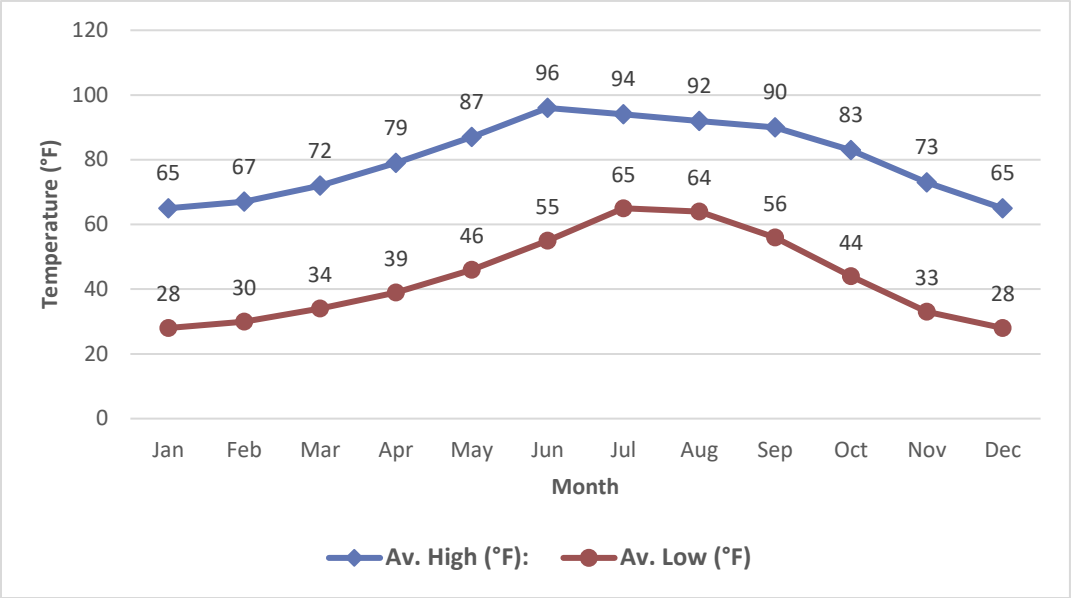
1.5.2.2 Climate

Based on the average of meteorological data from 1981 through 2010 the average daily maximum temperature in Nogales (AZ) is 80 degrees Fahrenheit (Table 1-2). The highest monthly daily maximum average temperature is around 96 degrees Fahrenheit occurring in June and the lowest monthly daily minimum average temperature is approximately 28 degrees Fahrenheit, which occurs in December and January (Figure 3).

Table 1-2 Average High and Low Temperatures in Nogales, Arizona

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. Annual Temp.
Av. High (°F)	65	67	72	79	87	96	94	92	90	83	73	65	80
Av. Low (°F)	28	30	34	39	46	55	65	64	56	44	33	28	44
										Avg. Temperature			62

Figure 3 Average High & Low Temperature in Nogales, Arizona



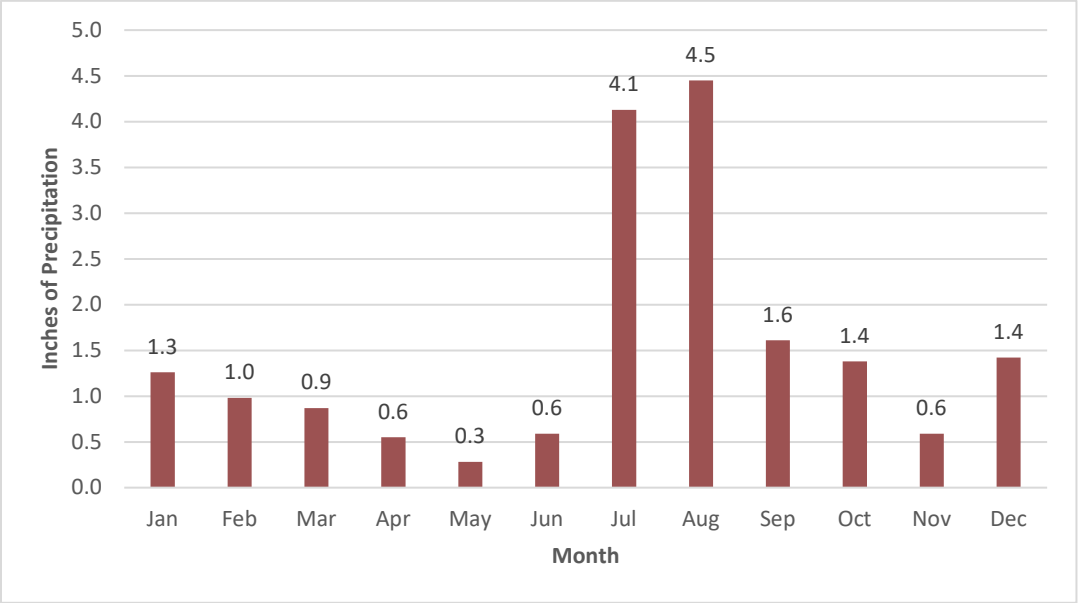
The yearly average total rainfall for the Nogales area is slightly over 18 inches (Table 1-3). Most of the precipitation falls in July and August, receiving approximately 18 inches on an annual basis. During this time period the area receives the most rainfall at about 8.5 inches. The driest month of the year is May, which receives a little over one quarter of an inch (Figure 4).

[18] Arizona Department of Environmental Quality. (2007). Technical Support Document for Recommendation that the Nogales, Arizona Area be Designated as a $PM_{2.5}$ Nonattainment Area.

Table 1-3 Average Precipitation in Nogales, Arizona

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg. Annual Precip.
Avg. Monthly Precip. (in)	1.26	0.98	0.87	0.55	0.28	0.59	4.13	4.45	1.61	1.38	0.59	1.42	18.11

Figure 4 Average Monthly Precipitation in Nogales, Arizona



1.5.3 Population

Population statistics provide information regarding the number of people impacted by changes in air quality and can also be used as a surrogate for estimating current and future emissions from certain source categories (see Appendix B, Section 3.3).

According to official census counts conducted by the U.S. Bureau of the Census, the population of Nogales, AZ increased each census from 1960 to 2000 when there were 20,878 recorded inhabitants. The highest rate of population increase (75.3 percent) occurred in 1980 when it nearly doubled from 8,946 in 1970 to 15,683 residents (in 1980). Even though the population of Nogales, AZ increased every 10 years according to census data, this increase did not occur in 2010. The 2010 census showed that the population of Nogales, AZ remained nearly the same as in 2010, only with a minor decrease (Table 1-4). While the population of Nogales, AZ remained steady from 2000 to 2010, the population of Santa Cruz County, where Nogales, AZ is located, increased during the same time period. Each census from 1960 to 2010 shows an increase in the population of Santa Cruz County. The census data are shown in Table 1-4.

Table 1-4 Decennial Census Population of Nogales (AZ) and Santa Cruz County 1960-2010

AREA/PERCENT CHANGE	April 1, 1960	April 1, 1970	April 1, 1980	April 1, 1990	April 1, 2000	April 1, 2010
Nogales, AZ	7,286	8,946	15,683	19,489	20,878	20,837
Decennial Change		22.8%	75.3%	24.3%	7.1%	-0.2%
Santa Cruz County	10,808	13,966	20,459	29,676	38,381	47,420

AREA/PERCENT CHANGE	April 1, 1960	April 1, 1970	April 1, 1980	April 1, 1990	April 1, 2000	April 1, 2010
Decennial Change		29.2%	46.5%	45.1%	29.3%	23.6%
Source: U.S. Bureau of the Census, census counts						

As seen in Table 1-5 the populations for Santa Cruz County, Nogales (AZ), and the nonattainment area are projected to increase by roughly 17 percent between 2017 and 2032. The population for Nogales, Sonora is projected to have a larger population increase, which is approximately 26 percent between 2017 and 2032. ADEQ utilized an internal ADEQ geographic information system (GIS) based methodology to determine the population projections.[19]

Table 1-5 Projected Population Growth 2011-2031

AREA	2017	2021	2026	2032
Nogales $PM_{2.5}$ Nonattainment Area*	32,714	34,181	36,330	38,235
Santa Cruz County*	51,507	53,817	57,200	60,200
Nogales, Sonora, Mexico†	252,615	268,062	314,933	345,308
*Source: Arizona Department of Administration, Office of Economic Opportunity; medium series projections for future years †Source: Mexico's National Institute of Geography and Statistics, and projection data came from the National Population Council				

1.6 GENERAL SIP APPROACH

1.6.1 Regulatory Background

As discussed in Section 1.4 the Nogales area was designated under the 2006 $PM_{2.5}$ NAAQS as nonattainment for the 24-hour standard and unclassifiable-attainment for the annual standard on November 13, 2009 (74 FR 58688). EPA's action established the attainment date for the Nogales nonattainment area as December 14, 2014 with an attainment SIP due on December 14, 2012.

EPA determined on January 7, 2013 that the Nogales nonattainment area had met the NAAQS (78 FR 887) for the purpose of making a clean data determination. The clean data determination suspended some SIP planning requirements including reasonable further progress (RFP) requirements, attainment demonstrations, reasonably available control measures (RACM), contingency measures, and other requirements related to attainment.

On June 2, 2015 following the decision of the U.S. Court of Appeals for the D.C. Circuit in *NRDC v. EPA*, 706 F.3d 428 (D.C. Cir. 2013), EPA classified Nogales as a Moderate $PM_{2.5}$ Nonattainment area with an attainment deadline of December 31, 2015.[20] On May 10, 2017 EPA finalized a determination that the Nogales $PM_{2.5}$ Nonattainment Area had attained the NAAQS by the statutory attainment date.[21]

[19] GIS method involves utilizing Arizona census block data, county and nonattainment area shapefiles, and Arizona Department of Administration population data to calculate past, current, and projected nonattainment area populations. See Section 1.2.2 in the TSD, Appendix B.
[20] 79 FR 31566
[21] 82 FR 21711

1.6.2 Clean Air Act (CAA) Requirements

Table 1-7 lists the CAA requirements for $PM_{2.5}$ nonattainment areas with clean data and specifies the remaining requirements ADEQ addresses in this document. The listed elements include the general requirements for nonattainment areas under CAA Title I, Part D, subpart 1 as well as the particulate matter specific provisions of Subpart 4. Although Subpart 4 contains specific planning and scheduling requirements for PM_{10} nonattainment areas, under a court decision, these same statutory requirements also apply for $PM_{2.5}$ nonattainment areas.[22]

Table 1-6 Clean Air Act Requirements for $PM_{2.5}$ Nonattainment Areas with Clean Data Determinations

Clean Air Act Citation	Description	Required for area with clean data
§ 172(a)(2) – Attainment Date	SIP must provide for attainment as expeditiously as practicable. No later than 5 years from designation.	Not required. Areas with clean data have met standard.
§ 172(c)(1) – Reasonably Available Control Measures/Reasonably Available Control Technology (RACM/RACT)	SIP must provide for implementation of RACM and RACT.	Not required. Suspended (72 FR 20665 section 51.1004(c)
§ 172(c)(2) – Reasonable Further Progress (RFP)	SIP must provide RFP or incremental reduction in emissions to ensure attainment by the applicable date.	Not required. Suspended (72 FR 20665 section 51.1004(c)
§ 172(c)(3) – Emissions Inventory	SIP must include a comprehensive and current inventory of emissions from all sources of relevant pollutants in the area.	Yes
§ 172 (c)(4) – Identification & Quantification	SIP must identify and quantify the emissions of pollutants that will be allowed (in accordance with section 173(a)(1)(B)), from construction and operation of major new or modified stationary sources in the area.	Yes
§ 172(c)(5) – New Source Review (NSR)	SIP must require permits for new or modified stationary sources.	Yes
§ 172(c)(9) – Contingency Provisions	SIP must provide for implementation of specific measures that would take effect without further action by the State and would be undertaken if the area fails to make RFP or attainment on time.	Not required. Suspended (72 FR 20665 section 51.1004(c)

[22] In *Natural Resources Defense Council v. EPA*, 706 F.3d 428 (D.C. Cir. 2013), petitioners challenged EPA's decision to promulgate the 1997 $PM_{2.5}$ NAAQS pursuant to the general implementation provisions of Subpart 1 of Part D of Title I of the Clean Air Act. The Court remanded to EPA to re-promulgate the rules pursuant to subpart 4. In response to this decision, on June 2, 2015, EPA classified Nogales as a Moderate $PM_{2.5}$ Nonattainment area (79 FR 31566, codified at 40 CFR 81.303) .Therefore, for purposes of this plan, ADEQ considers only the Subpart 4 provisions related to "moderate" nonattainment areas and not those for "serious" areas.

To satisfy the CAA requirements for nonattainment areas that were not suspended by the clean data determination, ADEQ submitted the Arizona SIP Revision for the Nogales $PM_{2.5}$ NAA to EPA in September 2013. The submittal provided annual 2008 and 2010 emission estimates for $PM_{2.5}$ and $PM_{2.5}$ precursors (nitrogen oxides, volatile organic compounds, sulfur dioxide, and ammonia). EPA approved the submittal on February 9, 2015, effective March 11, 2015 (80 FR 6907).

On May 10, 2017 EPA finalized the determination that the Nogales $PM_{2.5}$ NAA had attained the NAAQS by the statutory attainment date. Specifically, EPA determined that seven areas (including Nogales) attained the 2006 24-hour $PM_{2.5}$ NAAQS by December 31, 2015, which was based on monitoring data for 2013 to 2015 (82 FR 21711).

The EPA's final rule determining that the Nogales $PM_{2.5}$ NAA attained the standard by the applicable statutory date and approval of the NAA plan does not constitute a redesignation of the area to attainment. The nonattainment designation remains until EPA determines that the planning area meets additional CAA provisions required for redesignation under CAA §§ 107(d)(3)(E) and 175A. CAA § 175A(a) requires states to demonstrate maintenance of the NAAQS for at least ten years after redesignation to attainment. Table 1-8 below provides the requirements for this SIP revision to ensure continued attainment after redesignation, through 2031.

Table 1-7 Clean Air Act Requirements for $PM_{2.5}$ Nonattainment Areas with Data Meeting the NAAQS

CAA Citation	Requirement	Action to Meet Requirement	Location in Document
§ 175A(a) – Plan Revision	*Each state that submits a request to redesignate a nonattainment area to attainment shall also submit a revision to the applicable state implementation plan to provide for maintenance of the NAAQS for at least 10 years after the redesignation. The plan should contain additional measures, as may be necessary, to ensure such maintenance.*	This plan includes control measures necessary to demonstrate maintenance of the 2006 $PM_{2.5}$ NAAQS through 2032.	Section 3.2
§ 175A(b) – Subsequent Plan Revisions	*Eight years after redesignation as an attainment area the state shall submit to EPA an additional revision of the applicable SIP for maintaining the NAAQS for 10 years after the expiration of the first 10-year maintenance period.*	ADEQ commits to submit an additional SIP revision, eight years after redesignation of the nonattainment area to attainment in order to demonstrate maintenance of the 2006 $PM_{2.5}$ NAAQS for an additional 10-year period.	No additional location in document.
§ 175A(c) – Nonattainment Requirements Applicable Pending Plan Approval	*Until the maintenance plan is approved and the area is redesignated to attainment, the requirements of CAA title I, part D, Plan Requirements for Nonattainment Areas, shall continue in force and effect with respect to the area.*	ADEQ commits to continue to implement all required provisions as necessary.	No additional location in document.

CAA Citation	Requirement	Action to Meet Requirement	Location in Document
§ 175A(d) – Contingency Provisions	*Each plan revision shall contain contingency provisions to assure that the state will promptly correct any violation of the standard which occurs after the redesignation of the area as an attainment area. Such provisions shall include a requirement that the State will implement all measures which were contained in the state implementation plan for the area before redesignation of the area as an attainment area.*	A contingency plan is provided in this document.	Section 5.5

Table 1-9 lists CAA requirements for transportation and general conformity, programs applicable in both nonattainment and maintenance areas.

Table 1-8 CAA Requirements for Transportation and General Conformity

CAA Citation	Requirement	Action to Meet Requirement	Location in Document
§ 176(c) – Transportation Conformity	"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 are consistent with ("conform to") the air quality goals established by a state air quality implementation plan (SIP)."[23]	Evaluation of on-road mobile sources for regional emissions analyses purposes is included in Chapter 6.	Chapter 6
§ 176(c) – General Conformity	Similar to Transportation Conformity, which applies to highways and mass transit projects, General Conformity is applicable to all other federally supported activities to ensure that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national air quality standards.	General Conformity for the Nogales planning area must be addressed to ensure $PM_{2.5}$ emissions from any federal actions or plans do not exceed the rates outlined in 40 CFR 93.153(b).[24] Criteria for making determinations and provisions for general conformity are located in Arizona Administrative Code R18-2-1438. ADEQ commits to review and comment, as appropriate, on any federal agency draft general conformity determination it receives pursuant to 40 CFR 93.155 for activities planned in this air quality planning area.	Section 4.2.1.10

[23] U.S. EPA. (Accessed July 19, 2017.) *General Information for Transportation Conformity*. Retrieved from: https://www.epa.gov/state-and-local-transportation/general-information-transportation-and-conformity
[24] 58 FR 63253, November 30, 1993.

1.6.3 EPA Guidance

Guidance utilized in the preparation of this plan include the following documents.

- *Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992
- *Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency*, Potter, J. C., Adams, T. L., Blake, F. S., Memorandum, U.S. EPA, September 23, 1987
- *Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency*, Alushin, M. S., Eckert, A. W., Seitz, J. S., Memorandum, U.S. EPA, September 23, 1987
- *Adequacy Review and Conformity Checklist*, U.S. EPA Online SIP Processing Manual, June 1, 2016
- *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations*, U.S. EPA, Office of Air Quality Planning and Standards, Air Quality Assessment Division, May 2017 (Publication No. EPA-454/B-17-002)
- *Technical Support Document Regarding $PM_{2.5}$ Monitoring Data – Determinations of Attainment by the Attainment Date, Determinations of Failure to Attain by the Attainment Date and Reclassifications for Certain Nonattainment Areas for the 2006 24-Hour Fine Particulate Matter National Ambient Air Quality Standards*, Memorandum to Docket EPA-HQ-OAR-2016-0515, December 1, 2016
- *Use of Actual Emission in Maintenance Demonstrations for Ozone and Carbon Monoxide (CO) Nonattainment Areas*, Berry, K., Memorandum, U.S. EPA, November 30, 1993

2 ATTAINMENT OF THE STANDARD

"The State must show that the area is attaining the applicable NAAQS."[25]

2.1 Description of the Ambient $PM_{2.5}$ Monitoring Network in Nogales, Arizona

ADEQ operates an air quality monitor at the Nogales Post Office (Figure 5). The Nogales ambient air monitoring station is operated according to the requirements of 40 CFR Part 58. Collected data are quality assured and reported to EPA's Air Quality System (AQS) for comparison to the 2006 $PM_{2.5}$ 24-hour NAAQS and to fulfill the regulatory requirements for $PM_{2.5}$ monitoring.

Figure 5 Nogales $PM_{2.5}$ Monitor Location

The Nogales Post Office monitor represents the current ambient air-monitoring network in the Nogales planning area and is part of Arizona's State and Local Air Monitoring Station (SLAMS) network. The continuously operating monitor (Met One BAM 1020, Federal Equivalent Method (FEM)) was installed in April 2013. This monitor replaced a non-FEM continuously operating Beta Attenuation Monitor (BAM) that had been monitoring $PM_{2.5}$ at the Post Office site since February 2004. The continuous BAM monitor replaced a filter-based sampler (Thermo Partisol 2000i) as the mechanism to collect data for comparison to the NAAQS. Switching from a filter-based monitor to a continuously operating monitor affects the

[25] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

sampling frequency. Changes in this sampling frequency from year to year (what specific days are sampled) can impact how ambient air concentrations are portrayed.

2.2 Ambient $PM_{2.5}$ Data Trends

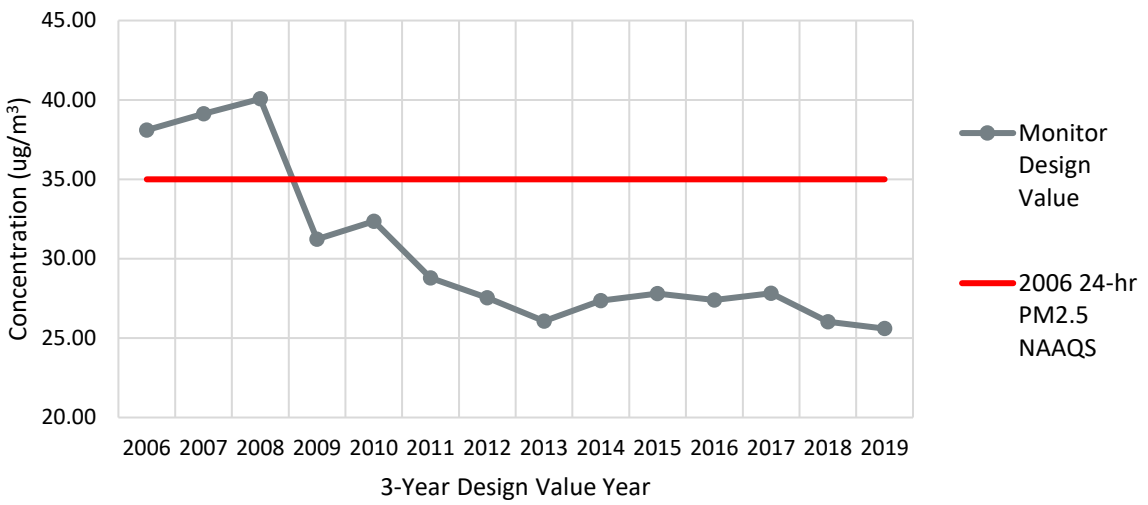
Under 40 CFR part 50, section 50.13 and in accordance with Appendix N, a nonattainment area meets the 2006 24-hour $PM_{2.5}$ NAAQS when the area's design value is less than or equal to 35 µg/m^3, based on the rounding convention in 40 CFR part 50, Appendix N, at each eligible monitoring site within the area. An area's highest design value for the 24-hour $PM_{2.5}$ NAAQS is the highest of the three-year average of annual 98th percentile 24-hour average $PM_{2.5}$ mass concentration values recorded at each eligible monitoring site.[26]

The determination of whether an area's air quality meets the 2006 24-hour $PM_{2.5}$ NAAQS is generally based upon three years of complete, quality-assured data gathered at established SLAMS in a nonattainment area and entered into EPA's AQS database. Ambient air quality data must meet data completeness or substitution requirements for each year under consideration. The completeness requirements are met when at least 75 percent of the scheduled sampling days for each quarter have valid data.[27] Data from ambient air monitors operated by state or local agencies in compliance with the EPA monitoring requirements must be submitted to AQS. Monitoring agencies certify annually that these data are accurate to the best of their knowledge. Accordingly, the EPA relies primarily on data in AQS when determining the attainment status of areas.

Figure 6 gives design values for the nonattainment area since the 2004 – 2006 design value (shown as 2006), which was the value used for the 2006 24-hr $PM_{2.5}$ NAAQS nonattainment designation. Each data point represents the three-year design value. Since the late-2000s, design values decreased and then stabilized around 27 µg/m^3 (since the 2010 – 2012 period). Several factors have influenced the decrease in concentrations such as, but not limited to, the switch from a filter-based monitor to a continuous monitor, improvements at the border points of entry, and improvements in fuel standards (in both the U.S. and Mexico).

[26] See definition of ''Design values'' in 40 CFR part 50, Appendix N, 1.0(c).
[27] See 40 CFR part 50, Appendix N, section 4.2(b)

Figure 6 Nogales $PM_{2.5}$ Monitor Historic Design Value Concentrations



Source: U.S. EPA Air Quality System, accessed June 24, 2019

2.2.1 Nature of Exceedances

Federal ambient air quality monitoring regulations define an exceedance as a discrete event, where a measured value at a monitor is higher than the level of the standard. All monitored exceedances must be included when calculating design values for comparison to the NAAQS unless the state or local agency can show that the exceedances are due to invalid data (e.g., monitor malfunction, etc.) or due to an exceptional event (e.g., regional high wind event). An exceedance may only be classified as an exceptional event if it fits criteria identified in EPA's Exceptional Events Policy and EPA concurs with the required demonstration developed by an air agency to prove that the event is exceptional in nature.

Table 2-1 shows exceedances of $PM_{2.5}$ at the Nogales Post Office monitor from 2005 to 2019. With one exception (one sample on 4/9/2013), all exceedances occurred during the months of December or January. Moreover, 15 out of the 23-exceedance days occur during a holiday, which were either Christmas Eve/Day or New Year's Eve/Day.

Table 2-1 NAAQS Exceedances of $PM_{2.5}$ at the Nogales Post Office Monitor (2005 – 2019)

Ambient Air Quality Exceedances at the Nogales Post Office Monitor	
Date	**$PM_{2.5}$ NAAQS Exceedance Conc. (µg/m³)**
12/24/2005	49.7
12/31/2006	103.2
12/25/2006	56.2
01/11/2006	48
01/01/2008	46.9
12/20/2008	36.8
01/01/2009	117.6

Ambient Air Quality Exceedances at the Nogales Post Office Monitor	
Date	$PM_{2.5}$ NAAQS Exceedance Conc. (µg/m³)
12/04/2010	40.7
04/09/2013	36
12/24/2013	38
12/25/2013	59.4
12/31/2013	55.2
01/01/2014	148.2
12/24/2014	67.8
12/06/2014	36.6
12/18/2015	39.2
12/30/2015	37.9
12/31/2015	49.4
01/01/2016	133.1
12/24/2017	86.2
12/25/2017	122.5
12/26/2017	35.5
12/31/2017	51.1
01/01/2018	117
12/15/2018	41.3
01/04/2019	43.4
12/22/2019	42.8

There were no exceedances in 2007, 2011, and 2012. The monitor sampling schedule is likely a factor in these years not experiencing exceedances. As previously mentioned, $PM_{2.5}$ samples collected before April 1, 2013 were on a once every six day schedule. During the three non-exceedance years (all pre-2013), no samples were taken on the four holidays previously mentioned. ADEQ theorizes these three clean years are a result of the sampling schedule not falling on the aforementioned holidays, and not of any particular reduction in local emissions. (Nogales TSD, Appendix B)

The Nogales planning area is currently meeting the 2006 24-hr $PM_{2.5}$ NAAQS based on data for the period 2017 - 2019. Table 2-2 presents the annual expected exceedance rates, maximum 24-hour concentrations, and 2019 design value.

Table 2-2 $PM_{2.5}$ Compliance Summary (2017 – 2019)

AQS ID	2017		2018		2019		Three-year Average of the 98th Percentile Design Value
	98th Percentile	Expected Exceed.	98th Percentile	Expected Exceed.	98th Percentile	Expected Exceed.	
04-023-0004	30	0	22	0	25	0	25

3 IMPROVEMENT IN AIR QUALITY DUE TO PERMANENT AND ENFORCEABLE EMISSIONS REDUCTIONS - CAA § 107(d)(3)(E)(iii)

"The State must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable. Attainment resulting from temporary reductions in emission rates (e.g., reduced production or shutdown due to temporary adverse economic-conditions) or unusually favorable meteorology would not qualify as an air quality improvement due to permanent and enforceable emission reductions." [28]

3.1 Sources of $PM_{2.5}$

Fine particulates, matter that is 2.5 microns or less in aerodynamic diameter, arise mostly from combustion sources and secondary aerosol generation processes. Typical sources of $PM_{2.5}$ include open burning (including wild fires), fugitive dust, and to a greater extent, fuel combustion sources and mobile source exhaust.

The technical analysis presented in this document considered both types of $PM_{2.5}$, primary and secondary particles. Various sources directly emit primary particles, such as smokestacks, fires, unpaved roads, or construction sites.[29] Secondary particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries and automobiles.[30] The precursors for these aerosols (i.e. the gases from which they originate) are included in the inventory. In the presence of ammonia, secondary aerosols often take the form of ammonium salts; i.e. ammonium sulfate and ammonium nitrate (both salts can be dry or in aqueous solution). In the absence of ammonia, secondary compounds take the acidic forms of sulfuric acid (liquid aerosol droplets) and nitric acid (atmospheric gas). In addition, organic matter (OM) can be a primary or secondary particulate. The oxidation of volatile organic compounds (VOCs) can cause this secondary particulate formation of OM.

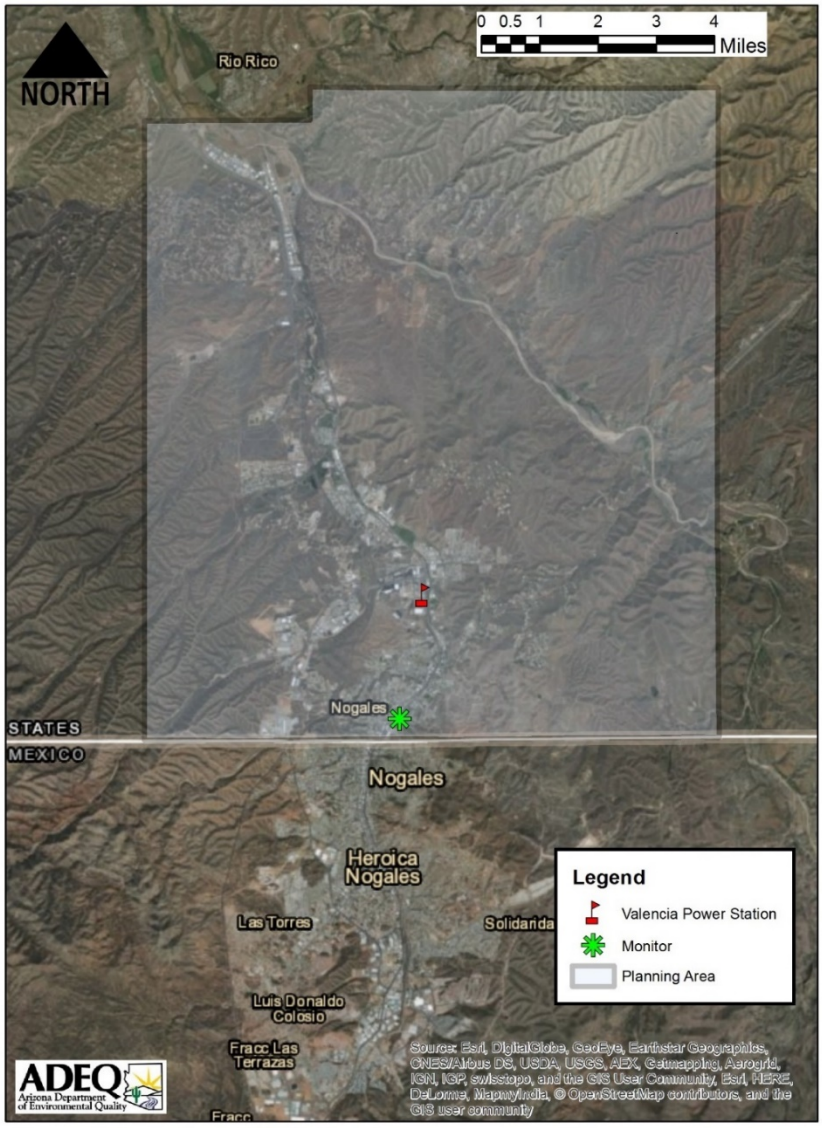
ADEQ accounted for all natural and anthropogenic sources of $PM_{2.5}$ (primary and secondary) within the Nogales Nonattainment Area. Some of these sources are permitted and report emissions and other data to EPA's Air Quality System (AQS). As a result of how sources are classified and emission inventories calculated, sources have been defined as either: point, nonpoint, or mobile (both on- and off-road).

3.1.1 Point Sources

The only source in the nonattainment area that qualifies as a point source is the Valencia Power Plant (VPP). The facility is located approximately two miles northeast of the monitoring station (Post Office Monitor) for the Nogales Planning Area. (Figure 7)

[28] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.
[29] U.S. Environmental Protection Agency, Particulate Matter Basics. Retrieved from https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM. Accessed on October 14, 2020.
[30] Ibid.

Figure 7 Location of Valencia Power Plant



The term point source is inclusive of all emission sources at VPP. The four emission units at the facility are operated as natural gas fired turbines. (Nogales TSD, Appendix B) VPP is a Title V permitted source therefore throughput and emissions data are available through ADEQ's State and Local Emissions Inventory System (SLEIS) database.

ADEQ reviewed VPP's past operational habits and emissions to determine the extent of its contribution to $PM_{2.5}$ emissions. Additionally, there were improvements made to transmission lines in the Nogales area between 2013 and 2014. As a result VPP experienced a reduction in operating hours and energy production after 2013. The reduction resulted in a roughly 95 percent decrease in $PM_{2.5}$ primary and precursor emissions between the 2013 and 2014 reporting years. (Nogales TSD, Appendix B)

3.1.2 Nonpoint Sources

Nonpoint, also called area, sources include aggregate point sources or facilities that are not inventoried individually but are estimated as a group and reported as a single source category. Examples of nonpoint or area sources include pesticides, consumer products, and residential fuel combustion.

ADEQ used the 2014 National Emissions Inventory (NEI) as the basis for the nonpoint emission estimates in this inventory and allocated the county level emissions estimates from the NEI down to the nonattainment area. The 2014 NEI emissions were projected to the 2017 base year. The sectors quantified include the following:

- stationary source fuel combustion;
- industrial processes;
- solvent use;
- petroleum products storage and handling;
- waste disposal, treatment, and recovery;
- prescribed fires;
- and wildfires.

The allocation methodologies and additional details are described in the Nogales TSD, Appendix B. Summaries of the emissions inventories (EI) are provided in Chapter 5 of this SIP revision.

3.1.3 Mobile Sources (on and off-road)

The mobile source category consists of both on-road and non-road mobile sources. On-road sources include passenger vehicles, buses, and trucks whereas non-road sources include off-road vehicles, boats, outdoor recreational vehicles, industrial and construction equipment, farm equipment, lawn and garden equipment, aircraft, and trains. For purposes of evaluating the mobile sources as part of this SIP revision, ADEQ has also included fugitive road dust in the mobile source category.

The allocation methodologies and additional details are described in the Nogales TSD, Appendix B. Summaries of the emissions inventories (EI) are provided in Chapter 5 of this SIP revision.

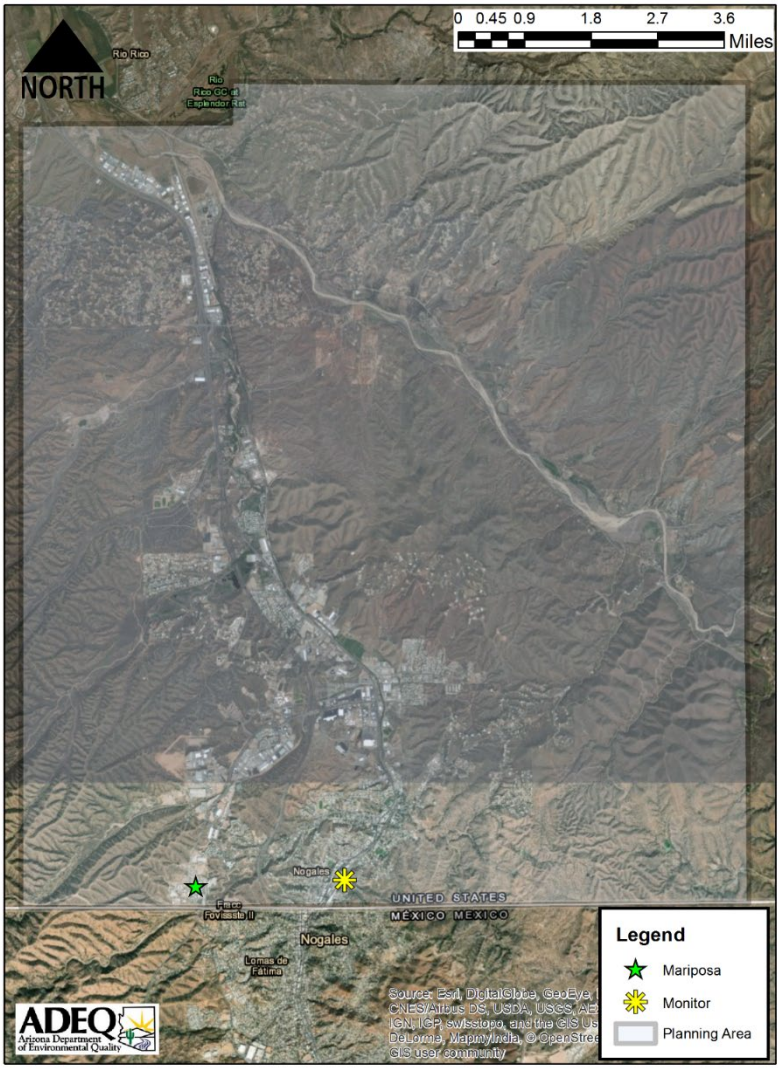
3.2 Emissions Control Measures and Enforceability

3.2.1 Federal Programs

3.2.1.1 Mariposa Land Port of Entry Improvements

The Mariposa Land Port of Entry is located on the U.S. side of Nogales, Arizona and Nogales, Sonora and experiences the largest portion of Arizona's northbound traffic. The Port of Entry (POE) is located roughly 1.7 miles west of the Nogales Post Office monitoring station. A portion of the Nogales, Arizona urban area and hilly landscape lays between the POE and monitor (see Figure 8).

Figure 8 Mariposa Land POE Location



The Mariposa POE was originally built in the 1970s to serve as a gateway for commercial trucks entering the US. Over time, traffic increased (private and commercial) and post-911 security procedures greatly increased wait times and idling for all vehicles. To accommodate more traffic and robust inspections the Mariposa POE underwent a renovation and expansion beginning in 2010 and now serves as the primary commercial inspection point, diverting trucks from the downtown Nogales facility (DeConcini POE).

Completed in August 2014 the renovation to the Mariposa POE expanded the facility to better accommodate the approximately 3 million vehicles and 3.2 million pedestrians that cross the site from Mexico annually. Commercial primary booths increased from four to eight; where there were 33 commercial secondary inspection dock spaces, there are now 56; primary and secondary POV inspection areas total 36 instead of eight. The project also introduced five outbound inspection booths for the first time in the port's history.

As the primary commercial processing facility the POE experiences a high volume of traffic. The high volume of traffic and the relationship between travel modes (stop-and-start, creeping, uncongested) and emissions, improvements related to traffic flow have an impact on emissions associated with this POE.

The Mariposa POE is one of the busiest cargo ports along the U.S./Mexico border and is a full-service facility responsible for providing customs inspections of commercial (trucks and buses) and privately owned vehicles. It is the main commercial processing location for Arizona and handles nearly half of all agricultural commodities entering the U.S. from Mexico.[31]

The U.S. Customs & Border Protection (CBP) agency is responsible for running the Mariposa POE. In addition to Mariposa, another inspection facility exists on the Mexican side of the border known as the Aduanas facility. This facility is operated by the Mexican Tax Administrative Service (SAT) and is located approximately 6.5 miles south of Mariposa.

In late 2001 the CBP implemented the Free and Secure Trade (FAST) program as a commercial clearance program for known low-risk shipments entering the US from Canada and Mexico. This innovative traveler/trusted shipper program allows expedited processing for commercial carriers who have completed background checks and fulfill certain eligibility requirements. FAST enrollment is open to truck drivers from the US, Canada, and Mexico.

In the summer of 2016 the CBP and SAT began the Unified Cargo Processing (UCP) program. The purpose of this program was to reduce wait times at the POEs by eliminating separate inspections at both facilities. Instead of two inspections, qualifying commercial vehicles undergo inspection at the CBP facility in Nogales, Arizona. This reduction in wait times corresponds to a change in travel mode and subsequently a change in the mobile emissions within the nonattainment area.

In March of 2019 the North American Research Partnership (NARP) published a report outlining the emission reductions associated with the UCP program. The emissions analysis included collecting data at the ports, and then using the data, along with MOVES2014a emission factors, to determine avoided emissions of carbon dioxide, PM_{10}, and $PM_{2.5}$. The NARP analysis includes the emission benefits from both the FAST and UCP programs.

The NARP analysis found that if the UCP program did not exist, the 75th percentile crossing time for all vehicles would increase from 0.8 hours to 2.2 hours. Additionally, if the UCP and FAST program did not exist, the 75th percentile crossing time for all vehicles would increase from 0.8 hours to 3.3 hours. Due to the reduction in wait times and the corresponding decrease in intense travel modes, the analysis found the initial FAST program was responsible for a 6.5 percent reduction in emissions of $PM_{2.5}$. However, with the implementation of both the FAST and UCP programs, $PM_{2.5}$ emissions were reduced by 85.9 percent. These two administrative programs resulted in reductions of $PM_{2.5}$ at the POEs from 45.6 pounds/day to 6.4 pounds/day.

In summary, the renovation and expansion of the Mariposa POE, which serves as the permanent inspection point for commercial traffic, has contributed to the improvement in ambient air. The changes to the administrative programs expedited the inspection process resulting in lower wait and vehicle idling. Decreased wait and idle time contributes to lower emissions, thus lowering concentrations of $PM_{2.5}$.

[31]Greater Nogales Santa Cruz County Port Authority, Retrieved from https://nogalesport.org, Accessed November 18, 2020.

ADEQ asserts that the emission reductions resulting from implementation of these changes are permanent and enforceable. The two pieces: (1) a new, expanded and relocated "permanent" facility and (2) administrative changes to reduce idling both contribute to emission reductions, which in turn assist attainment and continued maintenance of the NAAQS.

3.2.1.2 U.S. Vehicle Emission Standards

Since the early 1990s EPA has been adopting what are termed Tier vehicle emission standards. These standards originally applied to light duty vehicles with a gross vehicle weight rating (GVWR) of 8,500 pounds. The original Tier standard is referred to as Tier 1 and was phased in between vehicle model years 1994 to 1997. Since Tier 1, EPA adopted two additional Tier standards.

In 1999 EPA adopted Tier 2 which expanded the applicability to include medium duty passenger vehicles with a GVWR between 8,500 – 10,000 pounds. Model years 2004 and 2009 were expected to meet this new standard. The most current standard is Tier 3 and was adopted in 2014. The Tier 3 standard expanded applicability to include heavy-duty vehicles up to 14,000 pounds.

With each successive Tier standard, the allowable emission rates for applicable vehicles have decreased. Since Tier 2, there have been different averaging schemes and compliance options for manufacturers, but overall emission rates have dropped significantly. Tier 1 emission rates ranged from 0.08 to 0.1 grams per mile for particulate matter (PM)[32]. The current Tier 3 standard for PM is 0.003 grams per mile[33], which translates to a roughly 97 percent reduction in the PM emission rate between Tier 1 and 3.

These standards are significant in the context of the Nogales $PM_{2.5}$ Maintenance Plan. As the vehicle fleet turns over (older vehicles replaced with newer cleaner vehicles) the emission intensity of the overall fleet reduces. This fleet turnover is reflected in the on-road mobile inventory for the Nogales planning area. Specifically, ADEQ estimates the 2008 and 2017 NAA on-road mobile $PM_{2.5}$ emissions at 21.9[34] and 10.2[35] tons per year (does not include re-entrained road dust), respectively. This equates to a roughly 53 percent reduction in on-road mobile $PM_{2.5}$ emissions in the NAA.

For this SIP revision ADEQ quantified the light duty vehicle fleet turnover in Santa Cruz County (where Nogales is located). To accomplish this, Arizona Department of Transportation (ADOT) registration data was collected going back to 2006.

Since 2006 Santa Cruz County's light duty passenger car (LDPC) fleet has undergone substantial fleet turnover. In 2006, the majority of LDPCs were Tier 1. These vehicles made up 54 percent of the total LDPC population. In this year, Pre-Tier 1 and Tier 2 vehicles made up approximately 35 percent and 12 percent of the fleet, respectively. Over the course of the past 12 years, Pre-Tier 1 vehicles have almost disappeared from the fleet. In 2018 Pre-Tier 1 vehicles made up roughly 7 percent of the LDPC fleet. Moreover, Tier 1 vehicles, which made up the majority of vehicles in 2006, now make up approximately 31 percent of the LDPC fleet. Tier 2 vehicles currently make up the majority at approximately 56 percent of the fleet.

[32] See U.S. EPA, Office of Transportation and Air Quality, Light Duty Trucks, Tier 0, Tier 1, and Clean Fuel Vehicle (CFV) Exhaust Emission Standards (March 2016); Retrieved from https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100O9ZL.pdf
[33] 79 FR 23414; Effective June 27, 2014
[34] See Table 1-2 in Appendix B
[35] See Table 4-6 in Appendix B

The switch from higher emitting vehicles to Tier 2 and 3 vehicles has had a beneficial impact on on-road mobile emissions in the nonattainment area. This fleet turnover has been included in the MOVES2014b modeling done for this plan, which is reflected in the on-road mobile inventory included in this SIP revision.

Given the phase-in of these standards (Tiers 2 & 3), coupled with the fleet turnover, occurs within the 2006 – 2018 period, ADEQ asserts these programs helped lower the design values for the nonattainment area since the nonattainment designation. The emission reductions resulting from implementation of these program are permanent and federally enforceable.

3.2.1.3 U.S. Fuel Standards

Since the early 1990s EPA has adopted regulations relating to fuel parameters in gasoline and diesel fuels. A parameter of particular concern to EPA has been sulfur. Removing sulfur from fuels is important because this element tends to reduce the efficiency of pollution control devices. This tendency to foul these devices applies to both diesel and gasoline powered vehicles.

Two important fuel standards set within the 2006 – 2018 period have been the Tier 2 & 3 standards. These standards were previously mentioned in the "US Vehicle Emission Standards" section. Noting the link between fuel quality and vehicle emissions, EPA has rolled both types of standards into the same regulatory structure.

The Tier 2 standard, finalized in 2000, reduced sulfur content in gasoline to 120 ppm, on average. This reduction allowed for better emission control technology that helped meet the Tier 2 vehicle standards. The phase-in of this standard started in 2004. Around the same time EPA was also implementing new standards for sulfur in diesel fuels. This ultra-low sulfur diesel (ULSD) was needed to meet the 2007 – 2010 standards for heavy-duty engines, as well as the Tier 2 standards. This ULSD is mandated to have a sulfur content below 15 parts per million (ppm).

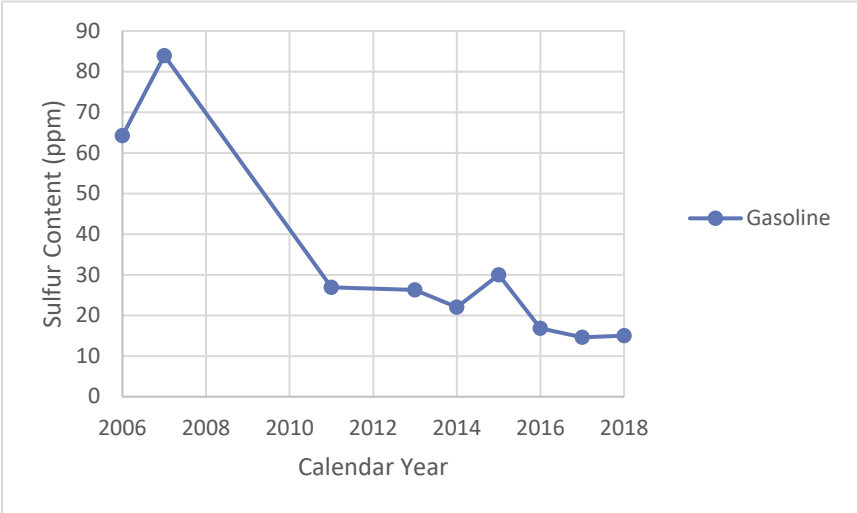
Much like Tier 2, EPA developed the Tier 3 sulfur standard keeping in mind the interplay between fuels and vehicle emissions. With the Tier 3 vehicle emission standard, EPA adopted a 10-ppm limit on sulfur in gasoline with a 2017 effective date. This lowering of the sulfur standard will have both an immediate and long-term impact on vehicle emissions.

The immediate impact is due to the improved efficiency of existing controls on current vehicles, given the reduced sulfur. In the long term, Tier 3 vehicles are able to achieve lower emission rates, which is facilitated by new technologies and the 10-ppm sulfur. However, the vehicle fleet in Nogales needs to undergo more vehicle turnover to realize the benefits of this new technology and lower sulfur. ADEQ is confident this turnover will occur. In Nogales between 2006 and 2016 Tier 2 vehicles went from 12 percent of the population to 53 percent. Within the next ten years, ADEQ expects similar vehicle turnover with Tier 3 vehicles.

To understand the immediate impact of the Tier 3 sulfur standard ADEQ requested Nogales retail fuel sampling data from the Arizona Department of Weights and Measures (Figure 9). ADEQ received data for all three-fuel grades and averaged the sulfur content of these fuels by year. There is a gap in the data between 2007 and 2011. However, 2006 and 2007 contained enough data to illustrate how sulfur content has dropped in the nonattainment area since designation. ADEQ believes this reduction in sulfur has had a positive impact on emissions in the area. Moreover, MOVES2014b builds this sulfur reduction into the model; therefore, this reduction is indirectly quantified in the on-road mobile inventory for the SIP

revision. The emission reductions resulting from implementation of these programs are permanent and federally enforceable.

Figure 9 Nogales Area Retail Sulfur Levels



The improvement in fuel standards can also be seen in vehicle emissions over time. ADEQ looked at the tailpipe emissions from gasoline passenger cars in the Nogales NAA (Table 3-1). The pre-base years of 2006, 2010, 2012, were selected to show the change in emissions relative to gasoline sulfur reductions. Table 3-1 also includes the 2017 base year. From 2006 to 2017 NO_X decreased by approximately 56 percent and total primary exhaust $PM_{2.5}$ decreased by almost 54 percent.

Table 3-1 Nonattainment Area On-Road Mobile Emissions Summary (2006 – 2017)

Year	Gasoline Sulfur Content (ppm)	Oxides of Nitrogen (NOx) (tons per year)	Primary Exhaust PM-2.5 (tons per year)
2006	65	164.8	2.6
2010	40	132.7	1.9
2012	27	112.9	1.6
2017	15	72.0	1.2

3.2.1.4 New Source Performance Standards for Wood Heaters

Residential wood smoke is both an air pollution problem and a human health issue. Residential wood smoke is a source of fine particulate matter ($PM_{2.5}$), carbon monoxide, volatile organic compounds, toxic air pollutants (e.g. benzene, formaldehyde), and other hazardous air pollutants. These pollutants have the potential to cause cancer, damage lung tissue that may lead to serious respiratory problems particularly to children, the elderly, and individuals with compromised respiratory systems as well as minority and low-income populations.

In March 2015 the U.S. Environmental Protection Agency (EPA) revised the New Source Performance Standard (NSPS) for new residential wood heaters. The end result included updated emission limits for new heaters that reflect the current best systems of emission reductions. It also eliminated some exemptions for residential wood combustion devices, strengthened test methods, and improved the

certification process for new devices. These revisions are expected to have a significant impact on the emissions that result from the use of new combustion devices that are subject to the revised NSPS.

The emissions inventory performed for this SIP revision has identified residential wood burning as one of the primary sources of direct $PM_{2.5}$ in the Nogales nonattainment area. One of the significant controls concerning this emission source has been EPA's NSPS for wood heaters. From February 1988 to December 31, 2009 the EPA certified over 900 wood stove model lines. Since December 31, 2009 the EPA has certified over 100 wood stove model lines that complied with the prior NSPS for wood heaters.

Since the 2015 NSPS for wood heaters was revised and implemented after the Nogales area attained the standard, the changes did not have an effect on the attainment status. However, since revised NSPS is more stringent that the prior standard, it is likely the revisions will help the area to maintain the standard as a result of the revisions constraining potential emissions growth from this source. These emission reductions are permanent and federally enforceable.

It is likely that wood-burning devices may only be used as a secondary heat source or for ambience in most circumstances. Therefore the NSPS for wood heaters may not have much impact regarding emissions of $PM_{2.5}$ from burning in Nogales. However, given its proximity to Nogales, ADEQ looked into the possible impact of burning in Nogales, Sonora on air quality in the region that comprises both cities (commonly referred to as Ambos Nogales).

A study in Nogales, Sonora conducted by the University of Arizona (U of A) looked at the reasons for small-scale burning and to develop mechanisms to reduce burning within Nogales, Sonora.[36] This study found that people in Nogales, Sonora generally burn for management of solid waste, cooking, and/or home heating.[37] Factors that influence burning include location of neighborhood, age of neighborhood, and the reliability and/or availability of garbage collection.[38] Study participants indicated that burning was conducted in order to address issues of lack of garbage collection and as an alternative or supplement to other sources of fuel used in cookstoves and heaters.[39] It was also found that household income levels affected the levels and frequency of burning, specifically wood, which was likely due to the financial impact of household resources to buy alternative fuels.[40]

The purpose of the U of A study was to develop educational mechanisms to help control small-scale burning in Nogales, Sonora and was not intended to gather concrete data regarding burning.[41] Therefore the commentary above is only intended to illustrate the potential for burning to affect air quality in Ambos Nogales. If there are exceedances of the 2006 $PM_{2.5}$ 24-hr NAAQS in the future that are attributable to transport from Mexican sources, ADEQ will work with EPA to determine the best course of action.

ADEQ does not have authority to impose regulations across the border; however, the agency regulates open burning in Arizona through R18-2-602, *Unlawful Open Burning*. In Nogales, Arizona, ADEQ is the delegated authority to administer the open burn program. See Section 3.2.2 for additional details regarding the rule.

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[36] Bureau of Applied Anthropology, University of Arizona. (2007)(Updated 2008). *Evaluation of Small Scale Burning of Waste and Wood in Nogales, Sonora – Final Report*.
[37] *Ibid*
[38] *Ibid*
[39] *Ibid*
[40] *Ibid*
[41] *Ibid*

As noted earlier in this Section, the NSPS may not have affected the attainment status as a result of any reductions in emissions of $PM_{2.5}$ from wood heaters. However, it will have an impact from this point and into the first maintenance period for the Nogales $PM_{2.5}$ NAA. Since the NSPS for wood heaters has been revised, any reduction in emissions of $PM_{2.5}$ from wood heaters will be incorporated into the emissions inventory through the maintenance period. If there are any exceedances of the 2006 $PM_{2.5}$ 24-hr NAAQS, ADEQ commits to investigating the source(s) that contributed to the exceedance. If the analysis finds that wood heaters or burning in general are significant sources of $PM_{2.5}$, ADEQ commits to working with the regulated community and implement any necessary additional controls. See Section 5.4, Verification of Continued Attainment and Section 5.5, Contingency Measures for additional details.

3.2.1.5 Additional Federal Programs

Non-road spark-ignition engines and recreational engines standards. In 2004 Tier 1 of this standard was implemented and Tier 2 started in 2007, which reduce particulate matter emissions. The emission reductions associated with this programs implementation are accounted for by using the EPA MOVES2014b non-road model, which ADEQ used to determine the non-road inventory. These emission reductions are permanent and federally enforceable.

Large non-road diesel engine standards. Promulgated in 2004, this rule was implemented between 2008 and 2014 in a phased manner. This rule reduces sulfur content in non-road diesel fuel and leads to reductions in NO_X and direct $PM_{2.5}$ emissions by over 90 percent. Again, the emission reductions associated with this programs implementation are accounted for by using the EPA MOVES2014b non-road model, which ADEQ used to determine the non-road inventory. These emission reductions are permanent and federally enforceable.

3.2.2 State Programs

In 2013 EPA made the determination that the Nogales NAA attained the 2006 24-hour $PM_{2.5}$ NAAQS based on monitored data from 2009 – 2011.[42] The action suspended CAA requirements for ADEQ to submit an attainment demonstration, reasonably available control measures (RACM), a reasonable further progress (RFP) plan, and contingency measures for failure to meet RFP. It also suspended attainment deadlines for so long as the area continues to attain the 2006 24-hour $PM_{2.5}$ NAAQS.

The action described above and the suspension of certain CAA requirements, specifically RACM, resulted in relatively few State and local control measures.

3.2.2.1 Open Burning Program

Arizona Administrative Code (A.A.C.) R18-2-602, Unlawful open burning, requires a permit for most types of open outdoor fire in counties without delegated authority to permit such fires (including Santa Cruz County). Any individual or organization must apply for and receive a permit prior to igniting an open burn. The open burning regulation reduces fine particulate matter emissions, as well as NO_X, VOCs and CO emissions. EPA approved A.A.C. R18-2-602 into the Arizona SIP on May 16, 2006.[43] Therefore, these controls are permanent and federally enforceable.

[42] 78 FR 887; Effective February 6, 2013.
[43] 71 FR 28270

3.2.2.2 Diesel Emissions Reduction Act

The Diesel Emissions Reduction Act (DERA) funding was originally authorized as part of the Energy Policy Act of 2005.[44] At that time, 70 percent of the DERA appropriation was used for national competitive grants and rebates to fund projects that use EPA or California Air Resources Board (CARB) verified or certified diesel emission reduction technologies. The remaining 30 percent of the DERA appropriation was allocated to states and territories to fund diesel emissions reduction projects.

Between 2005 and 2010, ADEQ conducted several projects retrofitting school buses at some schools or school districts in Santa Cruz County. This included schools located in Rio Rico, Nogales, and the Patagonia Region. In addition to schools in the area, ADEQ also assisted with two projects to retrofit long-haul trucks at the Nogales POE. This project identified potential haul trucks to be retrofitted and a diesel oxidation catalyst was installed to those vehicles, once approved by the trucking company.

Table 3-2 Retrofitted Vehicles in Santa Cruz County

Location of Vehicle	Number of Vehicles
Santa Cruz Valley Unified School District # 35 (Rio Rico)	31
Nogales Unified School District (Nogales)	5
Little Red Schoolhouse (Nogales)	3
Patagonia	8
Total Number of Retrofitted Buses	47
Retrofitted Long-Haul Trucks at the Nogales Port of Entry	71
TOTAL RETROFITTED VEHICLES	**118**

Using the total number of vehicles retrofitted ADEQ estimated the emission reductions resulting from the retrofit. Tables 3-3 and 3-4 provide the annual change in emissions and total mass reduction (annual basis) due to the retrofit.

Table 3-3 Annual Change in Emissions for the Retrofitted Fleet in Santa Cruz County

$PM_{2.5}$ Emissions (pounds)		
Pre Retrofit Bus Emissions	1432	lbs/yr
Post Retrofit Bus Emissions	928	lbs/yr
Pre Retrofit Truck Emissions	758	lbs/yr
Post Retrofit Truck Emissions	530	lbs/yr

[44] U.S. Environmental Protection Agency, Learn About Impacts of Diesel Exhaust and the Diesel Emissions Reduction Act (DERA), Retrieved from https://www.epa.gov/dera/learn-about-impacts-diesel-exhaust-and-diesel-emissions-reduction-act-dera#dera. Accessed December 3, 2020.

Table 3-4 Total Mass Reduction (Annual Basis) from Retrofit Vehicles in Santa Cruz County

$PM_{2.5}$ Mass Reduction (pounds)		
Bus Reduction	503	lbs/yr
Truck Reduction	227	lbs/yr
$PM_{2.5}$ Mass Reduction (tons)		
Bus Reduction	0.25	tons/yr
Truck Reduction	0.11	tons/yr

Even though the funding criteria and mechanisms have changed since it was originally authorized, DERA funding it still used to achieve significant reductions in diesel emissions that improve air quality and protect public health. The DERA funds are provided to states to retrofit, repower, or replace existing diesel engines from on-road and non-road mobile source vehicles and equipment. Even though these emission reductions are voluntary and not enforceable, they are still considered permanent reductions.

4 Section 110 and Part D Requirements – CAA § 107(d)(3)(E)(v)

"For the purposes of redesignation, a State must meet all requirements of section 110 and Part D that were applicable prior to submittal of the complete redesignation request." [45]

4.1 CAA Section 110 – Implementation Plans

Infrastructure SIP

Clean Air Act Section 110(a)(1) requires states to submit SIPs within three years following the promulgation of new or revised NAAQS to provide for implementation, maintenance, and enforcement of such standards. Each of these SIPs must address certain basic elements or the "infrastructure" of its air quality management programs under CAA Section 110(a)(2)(A) through (M). These elements include, but are not limited to, provisions for establishment and operation of ambient monitoring, public and local agency participation in air quality planning, and operation of permitting programs. The provisions of Section 110(a)(2) are primarily general program requirements applicable to all areas of the state.[46] The timing of SIP submittals for control measures, attainment demonstrations, and other air quality planning obligations specific to nonattainment areas are subject to the provisions of CAA, Title I, Part D – "Plan Requirements for Nonattainment Areas" (*see* Section 4.2 of this document).

According to EPA policy, only those Section 110 elements that are linked with a particular nonattainment area's designation and classification are applicable requirements for purposes of redesignation. As an example, CAA section 110(a)(2)(D) requires that SIPs contain certain measures to prevent sources in a state from significantly contributing to air quality problems in another state. However, the section 110(a)(2)(D) requirements for a state are not linked with a particular nonattainment area's designation and classification in that state.[47] As such, the interstate transport of emissions requirement is not a relevant measure to evaluate in a redesignation request.

Table 4-1 shows the status of Arizona's submittals regarding the infrastructure elements for the 2006 $PM_{2.5}$ NAAQS.

Table 4-1 Arizona: 110(a)(2) $PM_{2.5}$ (2006) Infrastructure Requirements

SIP Requirement	Deadline	Submittal Date	Latest Action	Date of Latest Action	FR Citation
Section 110(a)(2)(A) Emission limits and other control measures	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(B) Ambient air quality monitoring/data system	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(C) Program for enforcement of control measures and regulation of new and modified stationary sources.	09/21/2009	10/14/2009	Approval	05/04/2018	83 FR 19631

[45] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.
[46] The requirements of CAA 110(a)(2) apply to attainment, nonattainment, and unclassifiable areas.
[47] *See* 73 FR 22312, April 25, 2008.

SIP Requirement	Deadline	Submittal Date	Latest Action	Date of Latest Action	FR Citation
Section 110(a)(2)(D)(i) - I Prong 1: Interstate transport - significant contribution	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(D)(i) - I Prong 2: Interstate transport - interfere with maintenance	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(D)(i) - II Prong 3: Interstate transport - prevention of significant deterioration	09/21/2009	10/14/2009	Approval	5/04/2018	83 FR 19631
Section 110(a)(2)(D)(i) - II Prong 4: Interstate transport - protect visibility	09/21/2009	10/14/2009	Final FIP	10/03/2014	79 FR 52420
Section 110(a)(2)(D)(ii) Interstate and international pollution abatement	09/21/2009		Final FIP	9/04/2018	83 FR 19631
Section 110(a)(2)(E) Adequate resources, legal authority, conflict of interest, and State oversight of local or regional government agencies	09/21/2009	10/14/2009	Partial Approval, Partial Disapproval	12/05/2012	77 FR 66398
Section 110(a)(2)(F) Stationary source monitoring system	09/21/2009	10/14/2009	Partial Approval, Partial Disapproval	12/05/2012	77 FR 66398
Section 110(a)(2)(G) Emergency power	09/21/2009		Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(H) Future SIP revisions	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(J) Consultation with government officials; Public notification; PSD & visibility protection	09/21/2009	10/14/2009	Approval	05/04/2018	83 FR 19631
Section 110(a)(2)(K) Air quality modeling/data	09/21/2009	10/14/2009	Approval	09/20/2018	83 FR 42214
Section 110(a)(2)(L) Permitting fees	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398
Section 110(a)(2)(M) Consultation/participation by affected local entities	09/21/2009	10/14/2009	Approval	12/05/2012	77 FR 66398

Nonattainment New Source Review/Prevention of Significant Deterioration

Clean Air Act 110(a)(2)(C) requires provisions for the implementation of both Part C Prevention of Significant Deterioration (PSD) in attainment (and maintenance) areas and Part D nonattainment New Source Review (NNSR) in nonattainment areas.[48]

Arizona Revised Statutes Title 49, Chapter 3, Articles 1, 2, and 3 establish ADEQ and local agency authority for preconstruction review and permitting.[49] Under the air permits program, sources that emit regulated pollutants are required to obtain a permit before constructing, changing, replacing, or operating any equipment or process which may cause air pollution. This includes equipment designed to reduce air pollution. Permits are also required if an existing facility that causes air pollution transfers ownership, relocates, or otherwise changes operations.

Per the authority noted above, new sources and modifications to existing sources in Arizona are subject to state requirements for preconstruction review and permitting under Arizona Administrative Code (AAC), Title 18, Chapter 2, Articles 2, 3, 4, and 5 or relevant county rules. All new major sources and major modifications to existing major sources in Arizona are also subject to the nonattainment NSR provisions of these rules or PSD for attainment areas.

ADEQ submitted a revision to the SIP on October 29, 2012 to update its program to comply with all current federal NSR requirements, including NSR reform, with the exception of requirements pertaining to greenhouse gases (GHGs). ADEQ is currently administering the NSR requirements for GHGs under a delegation agreement with EPA. On November 2, 2015 EPA published a limited approval/limited disapproval (LA/LD) of the revised program.[50] To correct deficiencies identified by EPA in the LA/LD, ADEQ submitted revisions to its NSR program on April 28, 2017. On June 1, 2017 EPA proposed to approve the 2017 revisions to ADEQ's NSR program.[51] In the proposed action EPA found that the 2017 submittal corrects a substantial portion of the deficiencies identified by EPA in the November 2, 2015, LA/LD. Final approval of the 2017 SIP revision was published on May 4, 2018.[52] In its final action EPA clarified that ADEQ has an approved PSD program, except for GHGs, under sections 160 through 165 of the CAA. ADEQ is currently working to address remaining issues related to its nonattainment NSR program. [53]

According to EPA policy, the lack of a fully approved Part D nonattainment NSR program may not necessarily prevent an area from being redesignated to attainment. In its proposed action to redesignate the San Joaquin Valley Air Basin (SJVAB) PM_{10} nonattainment area to attainment, EPA states that "a NSR program does not have to be approved prior to redesignation, provided that the area demonstrates maintenance of the standard without part D NSR in effect."[54] Further, "the requirements of the PSD

[48] The term New Source Review or NSR is sometimes used to refer to both the nonattainment NSR and PSD permitting programs.
[49] The division of jurisdiction between ADEQ and county air pollution control agencies in Arizona is governed by A.R.S. § 49-402(A) and (B). For more information regarding ADEQ and PDEQ jurisdiction for the nonattainment NSR and PSD programs see ADEQ's *State Implementation Plan Revision, New Source Review, Supplemental Information, July 2014* (submitted to EPA on July 2, 2014).
[50] *See* 80 FR 67319, November 2, 2015.
[51] *See* 82 FR 25213, June 1, 2017.
[52] *See* 83 FR 19631, May 4, 2018.
[53] *See* 81 FR 40525, June 22, 2016, and 83 FR 1212, January 10, 2018.
[54] *See* 73 FR 22313, April 25, 2008. *See also* 61 FR 20469-20470, May 7, 1996, for additional discussion regarding redesignation in the absence of a fully approved Part D NSR program.

program will apply once the area has been redesignated." EPA goes on to explain that, "EPA is the PSD permitting authority in the SJVAB under a Federal implementation plan."[55] "However, the SJVAPCD [San Joaquin Valley Air Pollution Control District] can implement the Federal PSD program through a delegation agreement with EPA or, assuming that the SJVAPCD makes necessary modifications to its PSD rules, under an EPA approved rule."[56]

ADEQ implements an approved PSD program (and administers the federal GHG program). As such, state implementation of an approved or delegated PSD programs should not preclude redesignation of the Nogales $PM_{2.5}$ area to attainment.

4.2 CAA Part D – Plan Requirements for Nonattainment Areas

4.2.1 Subpart 1 – Nonattainment Areas in General

Sections 4.2.1.1 through 4.2.1.10 outline general CAA requirements for nonattainment areas and the State's demonstrations to meet those requirements.

4.2.1.1 § 172(c)(1) – In General

> *"Such plan provisions shall provide for the implementation of all reasonably available control measures [RACM] as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology [RACT]) and shall provide for attainment of the national primary ambient air quality standards."*

On January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS and suspended the requirements of this section (78 FR 887, January 7, 2006). Prior to and independently of the Clean Data Policy and specifically in the context of redesignations, EPA interpreted attainment-linked requirements as not applicable for purposes of redesignation (83 FR 21238; May 9, 2018). The Calcagni memo states that the requirements for reasonable further progress and other measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard. [57]

4.2.1.2 § 172(c)(2) – RFP [Reasonable Further Progress]

> *"Such plan provisions shall require reasonable further progress" defined in CAA section 171(1) as "… annual incremental reductions in emissions … for the purpose of ensuring attainment of the applicable national ambient air quality standards by the applicable date."*

On January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS and suspended the requirements of this section (78 FR 887, January 7, 2006). Prior to and independently of the Clean Data Policy and specifically in the context of redesignations, EPA interpreted attainment-linked requirements as not applicable for purposes of redesignation (83 FR 21238; May 9, 2018). The Calcagni memo states that the requirements for reasonable further progress and other

[55] *Ibid*.
[56] *Ibid*.
[57] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard. [58]

4.2.1.3 § 172(c)(3) – Inventory [Emissions]

> *"Such plan provisions shall include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in such area, including such periodic revisions as the Administrator may determine necessary to assure that the requirements of this part are met."*

In September 2013 ADEQ submitted to EPA 2008 and 2010 emissions inventories for the 2006 $PM_{2.5}$ NAAQS. On February 9, 2015 EPA approved these inventories. The current SIP revision contains an updated base year inventory for 2017. The maintenance plan also includes projected emissions for 2026 (interim maintenance year), and 2032 (end of first maintenance period).

4.2.1.4 § 172(c)(4) – Identification and Quantification

> *"Such plan provisions shall expressly identify and quantify the emissions, if any, of any such pollutant or pollutants which will be allowed, in accordance with Section 173(a)(1)(B), from the construction and operation of major new or modified stationary sources in each such area. The plan shall demonstrate to the satisfaction of the Administrator that the emissions quantified for this purpose will be consistent with the achievement of reasonable further progress and will not interfere with attainment of the applicable national ambient air quality standard by the applicable attainment date."*

The permit program requirements of CAA Section 173(a)(1)(B) are applicable to sources located in a "targeted economic development zone" as determined by the Administrator under consultation with the Secretary of Housing and Urban Development. No such zones are currently known to exist within the Nogales $PM_{2.5}$ planning area.

4.2.1.5 § 172(c)(5) – Permits for New and Modified Major Stationary Sources

> *"Such plan provisions shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area, in accordance with section 173."*

The ADEQ nonattainment NSR permitting program is described in Section 4.1.

4.2.1.6 § 172(c)(6) – Other Measures

> *"Such plan provisions shall include enforceable emissions limitations, and such other control measures, means or techniques …, as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment of such standard in such area by the applicable attainment date specified in this part."*

Permanent and enforceable controls adopted and implemented in the Nogales $PM_{2.5}$ planning area are described in Chapter 3 of this document.

[58] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

4.2.1.7 § 172(c)(7) – Compliance with Section 110(a)(2)

"Such plan provisions shall also meet the applicable provisions of Section 110(a)(2)."

The requirements of CAA Section 110(a)(2) and the state's demonstration to meet those requirements are described in Section 4.1 of this plan.

4.2.1.8 § 172(c)(8) – Equivalent Techniques

"Upon application by any State, the Administrator may allow the use of equivalent modeling, emission inventory, and planning procedures, unless the Administrator determines that the proposed techniques are, in the aggregate, less effective than the methods specified by the Administrator."

Nonattainment plan requirements and demonstrations to meet those requirements are included in this SIP revision. ADEQ's intended emissions inventory methodologies (Inventory Preparation Plan) and technical approach (Technical Protocol) for this maintenance plan and redesignation request were submitted to and reviewed by EPA.

4.2.1.9 § 172(c)(9) – Contingency Measures

"Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator."

On January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS and suspended the requirements of this section (78 FR 887, January 7, 2006). Prior to and independently of the Clean Data Policy and specifically in the context of redesignations, EPA interpreted attainment-linked requirements as not applicable for purposes of redesignation (83 FR 21238; May 9, 2018). The Calcagni memo states that the requirements for reasonable further progress and other measures needed for attainment will not apply for redesignations because they only have meaning for areas not attaining the standard. [59]

ADEQ notes that for purposes of maintenance and redesignation a state must provide a contingency plan to address potential exceedances or violations. The contingency plan is discussed in Section 5.5 of this document.

4.2.1.10 § 176(c) – Transportation and General Conformity

Conformity requirements under CAA section 176(c) require states to establish criteria and procedures to ensure that federally supported projects "conform" to the air quality planning goals in the federally approved or applicable SIP. The requirement for a state "to determine conformity applies to transportation plans, programs and projects developed, funded or approved under Title 23 U.S.C. and the Federal Transit Act ("transportation conformity") as well as to other federally supported or funded

[59] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

projects ("general conformity")."[60] State conformity SIP revisions are required to be consistent with federal regulations regarding consultation, enforcement and enforceability.

According to EPA policy, conformity SIP requirements are not applicable for purposes of redesignation requests under CAA section 107(d) "because state conformity rules are still required after redesignation and federal conformity rules apply where state rules have not been approved."[61]

Arizona is currently revising its procedural and consultation requirements for transportation conformity under Arizona Administrative Code (A.A.C.), Title 18, Chapter 2, Article 14. Criteria for making determinations and other provisions for general conformity are located in the SIP approved rule A.A.C. R18-2-1438.[62]

4.2.2 Subpart 4 – Additional Provisions for Particulate Matter Nonattainment Areas

On January 4, 2013 the D.C. Circuit Court of Appeals found that EPA had incorrectly interpreted the CAA when determining how to implement the NAAQS for $PM_{2.5}$. The court ruling held that EPA should have implemented the $PM_{2.5}$ NAAQS based on *both* CAA Subpart 1 ("Nonattainment Areas in General" of "Part D – Plan Requirements for Nonattainment Areas") *and* Subpart 4 ("Additional Provisions for Particulate Matter Nonattainment Areas") of Part D, title 1. EPA had originally required states to develop their SIPs based only on Subpart 1. As of January 4, 2013 Subpart 4 also applied for SIPs and SIP revisions regarding $PM_{2.5}$.

4.2.2.1 Section 188. Classifications and Attainment Dates

> *"Every area designated nonattainment for PM–10 pursuant to section 107(d) shall be classified at the time of such designation, by operation of law, as a moderate PM–10 nonattainment area (also referred to in this subpart as a ''Moderate Area'') at the time of such designation."*
>
> *"For a Moderate Area, the attainment date shall be as expeditiously as practicable but no later than the end of the sixth calendar year after the area's designation as nonattainment, except that, for areas designated nonattainment for PM–10 under section 107(d)(4), the attainment date shall not extend beyond December 31, 1994."*

On January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS (78 FR 887, January 7, 2006). See Section 1.4, *Regulatory Background*, and Chapter 2, *Attainment of the Standard*, of this document for more information on the regulatory history of the Nogales $PM_{2.5}$ nonattainment area.

4.2.2.2 § 189(a)(1)(A) – Moderate Areas; Plan Provisions [Permit Program]

> *"For the purpose of meeting the requirements of section 172(c)(5), a permit program providing that permits meeting the requirements of section 173 are required for the construction and operation of new and modified major stationary sources of PM–10."*

The State permitting programs for nonattainment areas is described in Section 4.1 of this document.

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[60] *See* 73 FR 22313, April 25, 2008.
[61] *Ibid*.
[62] *See* 64 FR 19916, April 23, 1999 for EPA approval of A.A.C. R18-2-1438 into the Arizona SIP.

4.2.2.3 § 189(a)(1)(B) –Moderate Areas; Plan Provisions [Attainment Demonstration]

> *"Either: (i) a demonstration (including air quality modeling) that the plan will provide for attainment by the applicable attainment date; or (ii) a demonstration that attainment by such date is impracticable."*

EPA determined that the area has attained the 24-hour PM_{10} NAAQS and suspended the requirements of this section (71 FR 6352, February 8, 2006).

4.2.2.4 § 189(a)(1)(C) – Moderate Areas; Plan Provisions [RACM]

> *"Provisions to assure that reasonably available control measures for the control of PM–10 shall be implemented no later than December 10, 1993, or 4 years after designation in the case of an area classified as moderate after the date of the enactment of the Clean Air Act Amendments of 1990 [November 15, 1990]."*

In January 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS and suspended the requirements of this section (78 FR 887, January 7, 2006).

4.2.2.5 § 189(a)(2)(B) – Moderate Areas; Schedule for Plan Submissions

> "A State shall submit the plan required under subparagraph (1) no later than the following:"
>
> *"18 months after the designation as nonattainment, for those areas designated nonattainment after the designations prescribed under section 107(d)(4)."*

To satisfy the CAA requirements for nonattainment areas that were not suspended by the clean data determination, ADEQ submitted the Arizona SIP Revision for the Nogales $PM_{2.5}$ Nonattainment Area to EPA in September 2013. The submittal provided annual 2008 and 2010 emission estimates for $PM_{2.5}$ and $PM_{2.5}$ precursors (nitrogen oxides, volatile organic compounds, sulfur dioxide, and ammonia). EPA approved the submittal on February 9, 2015, effective March 11, 2015.[63]

4.2.2.6 § 189(c) – Milestones

> *"Plan revisions demonstrating attainment submitted to the Administrator for approval under this subpart shall contain quantitative milestones which are to be achieved every 3 years until the area is redesignated attainment and which demonstrate reasonable further progress, as defined in section 171(1), toward attainment by the applicable date."*

In January 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ NAAQS and suspended the requirements of this section (78 FR 887, January 7, 2006).

4.2.2.7 § 189(e) – PM-10 Precursors

> *"The control requirements applicable under plans in effect under this part for major stationary sources of PM–10 shall also apply to major stationary sources of PM–10 precursors, except where the Administrator determines that such sources do not contribute significantly to PM–10 levels which exceed the standard in the area. The Administrator shall issue guidelines regarding the application of the preceding sentence."*

[63] 80 FR 6907

EPA has interpreted this requirement to allow a state to develop an attainment plan and adopt RACM that target only those precursors that are necessary to control for the purpose of timely attainment. See 81 FR 58010, 58020. Accordingly, because the requirement of section 189(e) is primarily actionable in the context of addressing precursors in an attainment plan, a precursor exemption analysis under section 189(e) and the EPA's implementing regulations is not an applicable requirement that needs to be fully approved in the context of a redesignation under CAA section 107(d)(3)(e)(ii).[64] See 83 FR 21244.

[64] *See* 83 FR 21238, 21244; May 9, 2018

5 Maintenance Plan – CAA § 107(d)(3)(E)(iv)

Redesignation requirements in CAA section 107 require states to develop a maintenance plan under CAA 175A to assure continued attainment after redesignation. The September 4, 1992, EPA Memorandum, *Procedures for Processing Requests to Redesignate Areas to Attainment* (1992 Guidance), recommends several core provisions to consider when developing maintenance plans. Those elements and ADEQ's demonstrations to meet those provisions are outlined in Sections 5.1 through 5.5 below.

5.1 Attainment Emissions Inventory

> *"The State should develop an attainment emissions inventory to identify the level of emissions in the area which is sufficient to attain the NAAQS. This inventory,… should include the emissions during the time period associated with the monitoring data showing attainment." "Where the State has made an adequate demonstration that air quality has improved as a result of the SIP … the attainment inventory will generally be the actual inventory at the time the area attained the standard."*[65]

Base inventories for 2008 and 2010 were provided in the Nogales $PM_{2.5}$ Nonattainment SIP submitted in 2013. The current SIP revision includes comprehensive base-year inventories for primary emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors. The full discussion of the methodologies and creation of the inventories is included in the Nogales EI TSD located in Appendix B.

To best support the maintenance plan and its ten-year planning period, it was determined the base year should be 2017, an interim year of 2026, and a final maintenance year of 2032. Utilizing a base year inventory for 2017 aligns with the 2019 design value years (2017-2019), which shows attainment of the standard. In addition to the 10-year maintenance period, the interim and final maintenance years account for the submittal and subsequent EPA review of the SIP revision. Table 5-1 provides a summary of the 2017 base inventory for the first maintenance period.

Table 5-1 Nogales $PM_{2.5}$ Nonattainment Area 2017 Base Year Emission Inventory (tons per year)

Source Category	$PM_{2.5}$	NO_x	SO_x	VOC	NH_3
Point Source	0.17	7.84	0.054	0.066	-
Nonpoint Source	57.0	39.0	2.4	432.0	3.7
Mobile On-road	10.2	414.4	1.8	245.1	6.0
Mobile Non-road	9.12	117.3	0.431	76.6	0.187
Fugitive Road Dust	109.8	-	-	-	-
Base Year Total	**187.0**	**587.0**	**4.7**	**733.0**	**9.89**

The largest emissions category for primary $PM_{2.5}$ in the planning area is fugitive road dust. This category includes fugitives from paved (re-entrained road dust) and unpaved roads (unpaved road dust emissions). Within the fugitive road dust category, a larger portion of emissions are from unpaved roads. The Nogales EI TSD (Appendix B) provides a breakdown of each source category. The fugitive road dust inventory was generated as part of the mobile source category. The second largest source sector is the nonpoint sector.

[65] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

5.2 Maintenance Demonstration

"A State may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS." "In both instances, the demonstration should be for a period of 10 years following the redesignation."

"The projected inventory should consider future growth, including population and industry, should be consistent with the attainment inventory, and should document data inputs and assumptions." "Any assumptions concerning emission rates must reflect permanent, enforceable measures."[66]

5.2.1 Annual Emissions Inventory

This SIP revision demonstrates maintenance of the NAAQS by showing future emissions will be below the attainment period levels and thus below the standards. Projections of inventories for all point, nonpoint, and mobile sources in the nonattainment area are included in Table 5-2.

- 2017 represents the first year of the maintenance period
- 2026 represents an interim maintenance year
- 2032 is the end of the first maintenance period

Table 5-2 Emissions Estimates by Source Sector (tons per year)

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
Point Source (TPY)		**Point Source (TPY)**		**Point Source (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	0.169	$PM_{2.5}$	1.23	$PM_{2.5}$	1.23
NOx	7.84	NOx	25.7	NOx	25.7
SO_X	0.054	SO_X	5.16	SO_X	5.16
VOC	0.066	VOC	0.05	VOC	0.05
NH_3	-	NH_3	-	NH_3	-
Nonpoint (TPY)		**Nonpoint (TPY)**		**Nonpoint (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	57.0	$PM_{2.5}$	57.9	$PM_{2.5}$	57.6
NOx	39.0	NOx	43.7	NOx	44.8
SO_X	2.39	SO_X	2.66	SO_X	2.73
VOC	432.0	VOC	475.2	VOC	497.1
NH_3	3.7	NH_3	3.5	NH_3	3.3
On-road Mobile (TPY)		**On-road Mobile (TPY)**		**On-road Mobile (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	120.0	$PM_{2.5}$	114.9	$PM_{2.5}$	116.2
NOx	414.4	NOx	148.7	NOx	93.7
SO_X	1.8	SO_X	1.4	SO_X	1.3

[66] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
VOC	245.1	VOC	116.4	VOC	72.8
NH_3	6.0	NH_3	4.6	NH_3	4.4
Non-road Mobile (TPY)		**Non-road Mobile (TPY)**		**Non-road Mobile (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	9.3	$PM_{2.5}$	6.0	$PM_{2.5}$	5.2
NOx	123.2	NOx	89.2	NOx	86.4
SO_X	0.48	SO_X	0.53	SO_X	0.56
VOC	77.0	VOC	74.3	VOC	80.2
NH_3	0.18	NH_3	0.22	NH_3	0.25
Summary		**Summary**		**Summary**	
Pollutant	**2017 (TPY)**	**Pollutant**	**2026 (TPY)**	**Pollutant**	**2032 (TPY)**
$PM_{2.5}$	186.5	$PM_{2.5}$	179.9	$PM_{2.5}$	180.2
NOx	584.4	NOx	307.4	NOx	250.6
SO_X	4.7	SO_X	9.8	SO_X	9.8
VOC	754.3	VOC	665.8	VOC	650.0
NH_3	9.8	NH_3	8.3	NH_3	7.9

Table 5-3 shows that over the maintenance period, ADEQ anticipates overall $PM_{2.5}$ emissions to decrease by approximately 6.3 tons. The projections show that only slight growth in SO_X emissions from 2017 through the final year of the maintenance period is expected.

Table 5-3 Annual Net Emissions

Change in Emissions (tons)	
Pollutant	**2017 - 2032**
$PM_{2.5}$	-6.3
NOx	-333.8
SOx	+5.1
VOC	-104.3
NH3	-1.9

5.2.2 Winter Daily Inventory

In addition to the annual inventory seen in Table 5-2, ADEQ also constructed a winter daily inventory (WDI) to demonstrate maintenance of the NAAQS. The winter period, specifically the November to January timeframe, is of concern due to the increase in $PM_{2.5}$ concentrations observed at the monitor during this time. Table 5-4 below lists historic 24-hour $PM_{2.5}$ monitor values above the 35 µg/m^3 NAAQS level. As seem in the table, roughly 96% of exceedance days occur in the months of December or January.

Table 5-4 Historic Nogales Post Office Monitor $PM_{2.5}$ Exceedances

Date	$PM_{2.5}$ NAAQS Exceedances (µg/m^3)
12/24/2005	49.7
12/31/2006	103.2
12/25/2006	56.2

Date	$PM_{2.5}$ NAAQS Exceedances (µg/m^3)
01/11/2006	48
01/01/2008	46.9
12/20/2008	36.8
01/01/2009	117.6
12/04/2010	40.7
04/09/2013	36
12/24/2013	38
12/25/2013	59.4
12/31/2013	55.2
01/01/2014	148.2
12/24/2014	67.8
12/06/2014	36.6
12/18/2015	39.2
12/30/2015	37.9
12/31/2015	49.4
01/01/2016	133.1
12/24/2017	86.2
12/25/2017	122.5
12/26/2017	35.5
12/31/2017	51.1
01/01/2018	117
12/15/2018	41.3
01/04/2019	43.4
12/22/2019	42.8

Due to the $PM_{2.5}$ ambient air concentrations being highest during the winter months, it's important to understand the emissions profile, and to demonstrate maintenance, during these months. The WDI facilitates this demonstration. As a note, the inventory is on a 24-hour timescale in order to align with the form of the NAAQS.

The methodology used to create this WDI is covered in Section 7 of the *Emission Inventory Technical Support Document for the 2006 Nogales $PM_{2.5}$ Maintenance Area* (Appendix B). Table 5-5 below summarizes ADEQ's WDI for the Nogales planning area.

Following Table 5-5, ADEQ has provided the winter inventory net change in Table 5-6. From the base year to the final maintenance year the planning area is projected to experience an 85 lb/day reduction in $PM_{2.5}$. With the exception of SOx, all precursors are projected to decrease between the base and final maintenance year.

Table 5- 5 Winter Daily Inventory

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
Point Source (lb/day)					
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	13.8	$PM_{2.5}$	44.0	$PM_{2.5}$	44.0
NOx	396.2	NOx	1039.3	NOx	1039.3
SOx	8.9	SOx	46.2	SOx	46.2
VOC	7.1	VOC	20.4	VOC	20.4
NH3	-	NH3	-	NH3	-
Residential Fuel Combustion (lb/day)					
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	561.0	$PM_{2.5}$	500.0	$PM_{2.5}$	463.0
NOx	358.0	NOx	401.0	NOx	429.0
SOx	14.6	SOx	15.5	SOx	16.2
VOC	733.0	VOC	700.0	VOC	678.0
NH3	70.4	NH3	65.6	NH3	62.4
Nonpoint (lb/day)		**Nonpoint (lb/day)**		**Nonpoint (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	164.0	$PM_{2.5}$	181.9	$PM_{2.5}$	190.9
NOx	121.2	NOx	138.0	NOx	138.7
SOx	8.62	SOx	9.73	SOx	9.94
VOC	2,167.0	VOC	2,407.0	VOC	2,532.0
NH3	1.1	NH3	1.21	NH3	1.24
On-road Mobile (lb/day)		**On-road Mobile (lb/day)**		**On-road Mobile (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	658.0	$PM_{2.5}$	630.0	$PM_{2.5}$	637.0
NOx	2,271.0	NOx	815.0	NOx	513.0
SOx	9.9	SOx	7.7	SOx	7.1
VOC	1,343.0	VOC	638.0	VOC	399.0
NH3	32.9	NH3	25.2	NH3	24.1
Non-road Mobile (lb/day)		**Non-road Mobile (lb/day)**		**Non-road Mobile (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	51.2	$PM_{2.5}$	32.7	$PM_{2.5}$	28.5
NOx	675.0	NOx	489.0	NOx	473.3
SOx	2.6	SOx	2.9	SOx	3.1
VOC	421.6	VOC	407.3	VOC	439.3
NH3	1.03	NH3	1.22	NH3	1.34
2017 Summary (lb/day)		**2026 Summary (lb/day)**		**2032 Summary (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	1,448	$PM_{2.5}$	1,388	$PM_{2.5}$	1,363
NOx	3,821	NOx	2,882	NOx	2,594
SOx	45	SOx	82	SOx	83
VOC	4,672	VOC	4,172	VOC	4,069
NH3	105	NH3	93	NH3	89

Table 5-6 Winter Daily Inventory Net Emissions

$PM_{2.5}$ (lb/day)			
Sector	**2017 Emissions**	**2032 Emissions**	**Winter Inventory Net Change**
Point	14	44	30
Nonpoint	725	654	-71
On-road	658	637	-21
Non-road	51	28	-23
Total	**1,446**	**1,330**	**-85**
NOx (lb/day)			
Sector	**2017 Emissions**	**2032 Emissions**	**Winter Inventory Net Change**
Point	396	1039	643
Nonpoint	479	568	89
On-road	2,271	513	-1,757
Non-road	675	473	-202
Total	**3,821**	**2,594**	**-1,227**
SOx (lb/day)			
Sector	**2017 Emissions**	**2032 Emissions**	**Winter Inventory Net Change**
Point	9	46	37
Nonpoint	23	26	3
On-road	10	7	-3
Non-road	2.6	3.0	0.4
Total	**45**	**83**	**38**
VOC (lb/day)			
Sector	**2017 Emissions**	**2032 Emissions**	**Winter Inventory Net Change**
Point	7	20	13
Nonpoint	2900	3211	310
On-road	1343	399	-944
Non-road	422	439	18
Total	**4672**	**4069**	**-603**
NH3 (lb/day)			
Sector	**2017 Emissions**	**2032 Emissions**	**Winter Inventory Net Change**
Point	-	-	-
Nonpoint	72	64	-8
On-road	33	24	-9
Non-road	1.0	1.3	0.3
Total	**105**	**89**	**-16**

5.2.3 SO_X Emissions Increase

As seen in Table 5-6, SO_X emissions in the NAA are projected to increase by approximately 38 pounds per day during the winter period. The vast majority of these SO_X emissions originate from the point source category. The only point source in the NAA is the Valencia Power Plant. To ensure Valencia's 37 pounds per day SO_X increase doesn't threaten maintenance of the 24-hour $PM_{2.5}$ NAAQS, ADEQ investigated the composition of $PM_{2.5}$ and the meteorological conditions in the NAA.

To perform the $PM_{2.5}$ speciation analysis ADEQ acquired data from the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network. Fortunately, the Post Office monitor is an IMPROVE monitor with recent data readily available. The Aerosol Composition dataset is available for download on the Federal Land Manager Environmental (FLME) Database[67].

Table 5-7 gives the percent mass of carbonaceous aerosols, nitrate, sulfate, and crustal material at the Post Office monitor. These percent mass values represent days within the fourth quartile of 24-hour $PM_{2.5}$ concentrations within the IMPROVE dataset, which tend to fall within the winter period. As seen in the table, sulfate particulates make up 6.7 percent of $PM_{2.5}$ mass at the monitor. This small 6.7 percent SO_X contribution suggests Valencia's SO_X emissions are unlikely to impact monitored $PM_{2.5}$ concentrations.

Table 5-7 Fine Particulate Percent Mass Breakdown

Post Office Monitor Speciation	
Analyte	**Percent Mass**
Carbonaceous aerosols	48.5
Nitrate	6.3
Sulfate	6.7
Crustal material	38.6

Meteorology is another important consideration when assessing Valencia's impact on monitored values. Section 2.0 of Appendix B discusses the meteorological conditions observed at the Post Office monitor at length. Figure 2-1 in Appendix B is a wind rose that illustrates how winds at the monitor are primarily out of the south. Figure 7 in this document shows how Valencia is north of the Post Office monitor. Therefore, Valencia is located downwind of the monitor for most of the year, and is unlikely to contribute to monitored concentrations of $PM_{2.5}$.

Finally, the assumptions underlying Valencia's 2032 SO_X emissions are overly conservative by design. Specifically, ADEQ assumed the facility's maximum historic daily generation rate as the activity value in the 2032 projections. It is unlikely Valencia would operate at this peak historic generation rate for every day of the winter season. Particularly because the demand for electricity in the winter is low in the desert southwest, relative to summer. The conservative nature of Valencia's 2032 emissions projections, combined with the $PM_{2.5}$ composition and meteorological conditions, are evidence that projected SO_X increase is unlikely to hinder maintenance of the NAAQS.

[67] *See* Federal Land Manager Environmental Database, Retrieved from http://views.cira.colostate.edu/fed/SiteBrowser/Default.aspx?appkey=SBCF_PmHazeComp

5.2.4 Maintenance Demonstration

In order to show maintenance of the $PM_{2.5}$ NAAQS throughout the planning period, ADEQ has developed a methodology connecting ambient air $PM_{2.5}$ concentrations to the WDIs (inventories discussed in the section above). This methodology is termed the "inventory comparison method", and ties the 2017 NAAQS design value to the 2017 WDI. This 2017 design value, and the 2017 WDI, are then compared to the 2032 WDI.

This inventory comparison method assumes that if the 2017 design value is below the 35 µg/m^3 NAAQS level, and emissions in the 2032 WDI are equal to or lower than the 2017 WDI, then the 2032 design value must be lower or the same as the 2017 value.

Table 5- 8 Inventory Comparison Net Emissions

Pollutant	Winter Daily Inventory Net Change 2017 to 2032 (lbs./day)
$PM_{2.5}$	-85.0
NOx	-1,227.0
SOx	38.0
VOC	-603.0
NH_3	-16.0

Table 5-7 shows an 85 pound per day reduction in $PM_{2.5}$ during the winter period, which is again based on the WDIs seen in Section 5.2.2. With the exception of SOx, all precursors are expected to experience a reduction between the base and final maintenance year. The SOx increase seen in Table 5-7 is addressed in Section 5.2. Given the emission reductions between the base and final maintenance years, ADEQ asserts the Nogales $PM_{2.5}$ NAA will maintain the 24-hour $PM_{2.5}$ NAAQS throughout the planning period.

5.3 Ambient Air Quality Monitoring Network

> *"Once an area has been redesignated, the State should continue to operate an appropriate air quality monitoring network, in accordance with 40 CFR Part 58, to verify the attainment status of the area."*[68]

ADEQ commits to continue operating a $PM_{2.5}$ air quality monitoring network in the Nogales Planning Area, as appropriate. Any changes to the network will be made through the annual network review process, consistent with the federal regulations and in consultation with EPA.

5.4 Verification of Continued Attainment

> *"Each State should ensure that it has the legal authority to implement and enforce all measures necessary to attain and to maintain the NAAQS. Sections 110(a)(2)(B) and (F) of the Clean Air Act, as amended, and regulations promulgated at 40 CFR 51.110(k), suggest that one such measure is the acquisition of ambient and source emission data to demonstrate attainment and maintenance.*

[68] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.

Regardless of whether the maintenance demonstration is based on a showing that future emission inventories will not exceed the attainment inventory or on modeling, the state submittal should indicate how the state will track the progress of the maintenance plan. This is necessary due to the fact that the emission projections made for the maintenance demonstration depend on assumptions of point and area source growth."[69]

Progress of the maintenance plan will be tracked, in part, through updates to reported emissions inventories and permit applications received for sources of $PM_{2.5}$ and its precursors. ADEQ commits to performing a comprehensive review of the factors and assumptions that were used in developing the attainment and projected inventories to determine whether significant change has occurred. The review will be performed for the interim projection year 2026 and may include the following elements.

- Permit applications and source reports (point sources, prescribed burns, construction)
- Population data
- Changes in mobile sources
- Wildfire/prescribed burn data
- Vehicle miles traveled

Arizona Revised Statutes Title 49, "The Environment," divides responsibility for meeting the requirements of the CAA among the state, county agencies, and regional planning organizations. Currently the state operates an air quality control programs under direct or delegated authority. Refer to Section 4 regarding Arizona's infrastructure SIP for $PM_{2.5}$.

ADEQ has primary responsibility for air pollution control and abatement, and as such, is required to "maintain a state implementation plan that provides for implementation, maintenance and enforcement of National Ambient Air Quality Standards and protection of visibility as required by the Clean Air Act" for areas outside of tribal lands.[70] ADEQ is also responsible for coordinating, along with local officials, the development, adoption, and enforcement of control measures and permits where no local air quality control program exists. In addition, ADEQ has original jurisdiction for mobile and certain stationary sources including smelting of metal ores, coal-fired electrical generating stations, and portable sources but may delegate jurisdiction to a local agency as allowed under state law.[71] State law also provides direct county authority to adopt and enforce programs, rules, and ordinances for the prevention, control, and abatement of air pollution.[72]

ADEQ will maintain the necessary resources to actively enforce any violations of the provisions contained in this plan and will submit to EPA any changes to rules or emission limits applicable to planning area PM sources as a SIP revision.

5.5 Contingency Plan

"Section 175A of the Act also requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area." "For the purposes of section 175A, a State is not required to have fully adopted contingency measures that will take effect without further action by

[69] *Ibid.*
[70] A.R.S. § 49-401 and 404.
[71] A.R.S. § 49-107 and 402.
[72] A.R.S. Title 49, Chapter 3, Article 3.

> *the State in order for the maintenance plan to be approved. However, the contingency plan is considered to be an enforceable part of the SIP and should ensure that the contingency measures are adopted expediently once they are triggered. The plan should clearly identify the measures to be adopted, a schedule and procedure for adoption and implementation, and a specific time limit for action by the State. As a necessary part of the plan, the State should also identify specific indicators, or triggers, which will be used to determine when the contingency measures need to be implemented."*[73]

Section 175 of the CAA requires maintenance plans to include contingency provisions in order to promptly correct violations of the NAAQS if they occur after an area is redesignated. The contingency measures are not required to be fully adopted and take effect without further action[74]; however, as a permanent and enforceable element of an approved maintenance plan they must be implemented expediently once a violation occurs.

The Calcagni Memo indicates that air agencies should identify a trigger that will be used to determine when the contingency measure(s) need to be implemented. The specific trigger chosen for a particular area may be case dependent but should allow a state to take early action to address potential violations before they occur. This may eliminate the potential for EPA to take action and redesignate the area back to nonattainment.

Depending on the source of the exceedance ADEQ will consider several different control measures that will either lower emissions or overall concentrations of $PM_{2.5}$. The control measures that will be considered include revising stationary source permits, open burning restrictions, fugitive dust and opacity restrictions, and restrictions on residential wood burning devices.

5.5.1 Contingency Plan Timeline

The timing of contingency plan provisions for the first trigger are outlined below:

- An exceedance of the 24-hour design value for the 2006 $PM_{2.5}$ NAAQS is the contingency plan trigger level (the 3-year average expected rate of exceedance/violation of the NAAQS).
- Within 60 days of triggering the contingency plan; begin analysis of the cause or causes of the exceedance.
    - The analysis should include but is not limited to: review of the ambient monitoring network for instrument malfunction and validation of data, meteorological evaluation, exceptional event evaluation, and assessment of emissions sources contributing to elevated levels of $PM_{2.5}$.
- Within 12 months of triggering the contingency plan; begin adoption of new rules/measures (if it is determined that the violation of the NAAQS is due to emissions sources within the nonattainment area and new measures are necessary).
- Within 18 months of triggering the contingency plan; adoption of new measures.
- No later than 6 months after final adoption of new measures; compliance with new measures.

The second trigger will be direct emissions of $PM_{2.5}$ or emissions of $PM_{2.5}$ precursors from stationary sources. As noted in the Nogales EI TSD (Appendix B) the VPP is the primary source of anthropogenic $PM_{2.5}$ emissions. If the annual facility emissions reports show that direct $PM_{2.5}$ or its precursors are 20 percent

[73] *See Procedures for Processing Requests to Redesignate Areas to Attainment*, Calcagni, J., Memorandum, U.S. EPA, September 4, 1992.
[74] Clean Air Act Section 175A

of the PTE, ADEQ will initiate discussions with the facility to identify potential options for reducing emissions. If necessary ADEQ will work with the facility to develop and adopt the most cost effective and feasible control measure(s).

5.5.2 Evaluation of New Measures

If the contingency plan is triggered ADEQ will perform an analysis to determine the need for adoption and implementation of new measures. The evaluation may include the following steps.

- Determine which source/sources likely contributed to elevated concentrations of $PM_{2.5}$ at ambient monitoring sites.
    - This evaluation may include modeling, proportional analysis, or transport analysis.
- For each significant source sector, compile a list of existing control measures.
- Verify emissions sources are in compliance with existing measures.
- For exceedance days that do not qualify as an exceptional event; if necessary, develop new measures where no measures exist or existing measures should be strengthened. New measures should meet the following criterion:
    - Measure is permanent and enforceable (e.g., meets EPA enforceability criteria such as clearly defined standards[75])
- For exceedance days that likely qualify as an exceptional event; prepare and submit the necessary documentation for an exceptional event.[76]
    - An exceedance of the 24-hour design value for which the area meets the demonstration requirements for data exclusion under the exceptional events rule would not trigger the maintenance contingency plan.
    - If new measures are needed to satisfy requirements of the exceptional events rule, selected controls should meet the following criteria:
        - Measure is permanent and enforceable (e.g., meets EPA enforceability criteria such as clearly defined standards).
        - Measure meets the reasonable level of control per exceptional event rule.

[75] *See Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency*, Potter, J. C., et al., Memorandum, U.S. EPA, September 23, 1987, and *Review of State Implementation Plans and Revisions for Enforceability and Legal Sufficiency*, Alushin, M. S., et al., Memorandum, U.S. EPA, September 23, 1987.
[76] *See* the Exceptional Events definitions and rule at 40 CFR 50.1 and 50.14 and revisions to the rule, *Treatment of Data Influenced by Exceptional Events*, 81 FR 68216; October 3, 2016.

6 Motor Vehicle Emissions Budget for Transportation Conformity

6.1 Introduction

"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 are consistent with ("conform to") the air quality goals established by a state air quality implementation plan (SIP). Conformity, to 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."[77]

The conformity rules at 40 CFR 51.390 and 40 CFR 93 require SIPs to include maximum allowable emissions or a "budget" for on-road mobile sources determined to be significant under 40 CFR 93.109. Projected emissions from future transportation projects are compared to the approved budget to ensure they do not exceed levels demonstrated necessary to attain and maintain the NAAQS.

Motor vehicle emissions budgets (MVEBs) are needed only when there is a control strategy SIP for nonattainment areas or a maintenance demonstration. According to 40 CFR 93.101, a "*Control strategy implementation plan revision is the implementation plan which contains specific strategies for controlling the emissions of and reducing ambient levels of pollutants in order to satisfy CAA requirements for demonstrations of reasonable further progress and attainment …*" The rule defines motor vehicle emissions budget as "*… that portion of the total allowable [highway and transit] emissions defined in the submitted or approved control strategy implementation plan revision or maintenance plan … for the purpose of meeting reasonable further progress milestones or demonstrating attainment or maintenance of the NAAQS …*"

Requirements to develop additional control strategies and to demonstrate reasonable further progress and attainment were suspended for the Nogales $PM_{2.5}$ Nonattainment Area following EPA's clean data finding.[78] However, requests for redesignation to attainment require the state to demonstrate continued maintenance of the NAAQS. Therefore, on-road mobile sources are evaluated to determine significance and the need to develop a conformity budget for primary $PM_{2.5}$

6.2 Procedural Overview

The following steps outline general procedures for evaluating motor vehicle emissions in the Nogales $PM_{2.5}$ planning area for transportation conformity purposes.

1. Determine the overall contribution of motor vehicle $PM_{2.5}$ emissions in the Nogales $PM_{2.5}$ Nonattainment Area.
    a. If motor vehicle emissions constitute a significant proportion of total $PM_{2.5}$ emissions, develop a motor vehicle emission budget for the area.
    b. If motor vehicle emissions constitute an insignificant proportion of total $PM_{2.5}$ emissions, include an explicit statement that no regional emissions analyses for $PM_{2.5}$ or its precursors is necessary for attainment or maintenance and therefore is not necessary for conformity.

[77] Source: *General Information for Transportation Conformity*, (July 19, 2017).
[78] *See* 71 FR 6352, February 8, 2006.

c. Additionally, perform an analysis showing how future population growth affects the proportion of motor vehicle emissions in the $PM_{2.5}$ Nogales area. Determine whether future motor vehicle emissions will contribute significantly to the $PM_{2.5}$ issue in the area.

2. Verify through consultation with ADOT whether any major transportation projects are anticipated to occur in the $PM_{2.5}$ Nogales area within the maintenance timeframe of this plan.

   a. If any major transportation projects are anticipated, evaluate their potential impact on $PM_{2.5}$ emissions in the $PM_{2.5}$ Nogales area and their potential effect on maintenance of the NAAQS.

6.3 Evaluation of On-Road Mobile Sources

According to federal transportation conformity rules an area is not required to satisfy a regional emissions analysis, showing noninterference with attainment and maintenance of the NAAQS, if EPA finds that the SIP demonstrates regional motor vehicle emissions are an insignificant contributor to the air quality problem for that pollutant/precursor and NAAQS.[79] Under such a finding, the SIP would not be required to explicitly establish a budget to be used in conformity determinations. In an evaluation to determine the significance of motor vehicle emissions the state should consider the following factors.[80]

- the current state of air quality as determined by monitoring data for that NAAQS
- the absence of SIP motor vehicle control measures
- the amount (percentage) of motor vehicle emissions relative to the total SIP inventory
- historical trends and future projections in the growth of motor vehicle emissions

6.3.1 Current State of Air Quality

The Nogales Planning area is attaining the 2006 $PM_{2.5}$ NAAQS. Chapter 2 provides additional information on ambient monitoring data trends and current NAAQS compliance.

6.3.2 Absence of SIP Motor Vehicle Control Measures

The SIP does not rely on state rules for the control of on-road emissions to demonstrate attainment and maintenance of the 2006 $PM_{2.5}$ 24-hour NAAQS. Attainment and maintenance is demonstrated by implementation of the control strategy discussed in Chapter 5.

6.3.3 Motor Vehicle Emissions Inventory and Projections

For an insignificancy determination the motor vehicle inventory should include $PM_{2.5}$ estimates from vehicle exhaust, paved and unpaved road re-entrainment, and emissions from road construction. However, after consulting with EPA it was decided road construction $PM_{2.5}$ is de minimis in the area. This finding is based on both the emissions inventory for the area, and a lack of road construction forecasted in the area, according to ADOT. Moreover, this consultation process led to the exclusion of all precursors except NO_x.

[79] *See* 40 CFR 93.109(f), "*Areas with insignificant motor vehicle emissions*;" 40 CFR 118, "*Criteria and procedures: Motor vehicle emissions budget*;" and 40 CFR 93.119, "*Criteria and procedures: Interim emissions in areas without motor vehicle emissions budgets*."
[80] *See* 40 CFR 93.109(f).

On-road mobile emissions were estimated using the EPA model MOVES2014b. This motor vehicle emissions simulator utilized local inputs to determine the on-road mobile emissions given in Table 6-1. Re-entrained road dust emissions were determined using 2014 NEI estimates. ADEQ has attached the methodologies used to calculate re-entrained road dust in Appendices C and D. Appendix C contains EPA's paved road fugitive emissions calculations, and Appendix D describes the calculation for unpaved roads. For more information concerning on-road mobile and re-entrained dust emissions see Sections 3.2 and 5.3 in the Nogales EI TSD (Appendix B).

In general, significance applies on the basis of the entire nonattainment or maintenance area rather than a portion of the area. Tables 6-1 & 6-2 provide a summary of Nogales planning area mobile emissions.[81]

For Table 6-1 and 6-2 please note the following:

- On-Road Mobile – Includes emissions from vehicle exhaust, tire wear, and brake wear
- Re-entrained Road Dust – Includes re-entrained $PM_{2.5}$ from paved & unpaved roads

Table 6-1 $PM_{2.5}$ Winter Daily Inventory On-road Mobile & Road Dust

Emission Sector	$PM_{2.5}$ (lb/day)		
	2017	2026	2032
On-road Mobile	56.3	12.0	8.2
Unpaved Road Re-entrained Dust	527.2	541.5	551.0
Paved Road Re-entrained Dust	74.5	76.5	77.8
Total $PM_{2.5}$	**658.0**	**630.0**	**637.0**

Table 6-2 NO_x Winter Daily Inventory On-road Mobile

Emission Sector	NO_x (lb/day)		
	2017	2026	2032
On-road Mobile	2,271.0	815.0	513.0
Total NO_x	**2,271.0**	**815.0**	**513.0**

Due to the seasonality of $PM_{2.5}$ emissions in the Nogales area, ADEQ has created a winter daily emissions inventory. See Section 7.3 in Appendix B for an overview of the methodologies used to develop this winter daily inventory. When determining conformity, special care should be taken to consider the emissions impact during the winter season. Given this, ADEQ is providing the MVEB in pounds per winter day, in addition to tons per year.

Table 6-3 $PM_{2.5}$ Motor Vehicle Emissions Budget

Source	2032 (lbs/winter day)	2032 (tons/year)
On-road Mobile	8.2	1.4
Paved Road Dust	77.8	100.6
Unpaved Road Dust	551.0	14.2
Total	**637.0**	**116.2**

[81] *See* Appendix B, Section 4.3 and 6.3 for a tons per year summary of mobile source emissions.

Table 6-4 NO_x Motor Vehicle Emissions Budget

Source	2032 (lbs/winter day)	2032 (tons/year)
On-road Mobile	513.0	93.7
Total	**513.0**	**93.7**

6.4 Conclusion for Transportation Conformity

Based on the data and findings, motor vehicle emissions constitute a majority of total $PM_{2.5}$ emissions in the Nogales planning area. With no major road construction or road projects anticipated to occur, ADEQ does not expect that tailpipe emissions will become a significant source of $PM_{2.5}$ during the maintenance period. However, ADEQ has projected that re-entrained road dust will be relatively constant throughout the planning period.

Because conformity related motor vehicle emissions are significant, in terms of percent of the total inventory, the MVEBs seen in Tables 6-3 and 6-4 have been provided. ADEQ asserts maintaining these budgets will ensure protection and maintenance of the NAAQS.

7 Conclusion

In 2006 EPA took several actions regarding the fine particle standards. The level of the primary 24-hour $PM_{2.5}$ standard was lowered from 65 to 35 µg/m^3 and the level of the annual primary standard was retained. In addition EPA revised the secondary standards to be identical in all respects to the primary standards.[82] In November 2009 EPA designated the Nogales area as a moderate $PM_{2.5}$ nonattainment area for the 2006 $PM_{2.5}$ 24-Hour NAAQS.[83] The area was designated nonattainment for the 24-hour $PM_{2.5}$ standard and unclassifiable/attainment for the annual standard.

Since the time that the Nogales $PM_{2.5}$ area was designated as nonattainment for the 2006 $PM_{2.5}$ NAAQS, changes have occurred to several regulatory programs and controls that have enabled the area to attain the standard. Permanent improvements to the truck/commercial vehicle port of entry and administrative programs have contributed to reductions in concentrations of $PM_{2.5}$. Improved fuel standards have also added to reductions. In addition, changes to the ambient monitor have resulted in more accurate recording of ambient air quality. By complying with nonattainment and redesignation related regulatory requirements under the CAA and applicable guidance, this SIP revision provides for maintenance of the 2006 24-hr $PM_{2.5}$ NAAQS for the planning period.

The analyses and data provided in this plan coupled with the previous submission in 2013 demonstrate that all nonattainment area and redesignation requirements have been met. The clean air quality record, enforceable control measures, and projections of future emissions all show that the area will continue to maintain the $PM_{2.5}$ air quality standards through 2032.

ADEQ requests that EPA approve this revision to the Arizona SIP and redesignate the Nogales nonattainment area to attainment for the 2006 $PM_{2.5}$ 24-hour NAAQS.

[82] 71 FR 61144; October 17, 2006
[83] 74 FR 58688; November 13, 2009

Appendix A:

Authorizing Statutes

ARIZONA REVISED STATUTES

Title 49 - The Environment

Chapter 1 – GENERAL PROVISIONS

Article 1 – Department of Environmental Quality

49-104. Powers and duties of the department and director

A. The department shall:

1. Formulate policies, plans and programs to implement this title to protect the environment.

2. Stimulate and encourage all local, state, regional and federal governmental agencies and all private persons and enterprises that have similar and related objectives and purposes, cooperate with those agencies, persons and enterprises and correlate department plans, programs and operations with those of the agencies, persons and enterprises.

3. Conduct research on its own initiative or at the request of the governor, the legislature or state or local agencies pertaining to any department objectives.

4. Provide information and advice on request of any local, state or federal agencies and private persons and business enterprises on matters within the scope of the department.

5. Consult with and make recommendations to the governor and the legislature on all matters concerning department objectives.

6. Promote and coordinate the management of air resources to ensure their protection, enhancement and balanced utilization consistent with the environmental policy of this state.

7. Promote and coordinate the protection and enhancement of the quality of water resources consistent with the environmental policy of this state.

8. Encourage industrial, commercial, residential and community development that maximizes environmental benefits and minimizes the effects of less desirable environmental conditions.

9. Ensure the preservation and enhancement of natural beauty and man-made scenic qualities.

10. Provide for the prevention and abatement of all water and air pollution including that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids in accordance with article 3 of this chapter and chapters 2 and 3 of this title.

11. Promote and recommend methods for the recovery, recycling and reuse or, if recycling is not possible, the disposal of solid wastes consistent with sound health, scenic and environmental quality policies. The department shall report annually on its revenues and expenditures relating to the solid and hazardous waste programs overseen or administered by the department.

12. Prevent pollution through the regulation of the storage, handling and transportation of solids, liquids and gases that may cause or contribute to pollution.

13. Promote the restoration and reclamation of degraded or despoiled areas and natural resources.

14. Participate in the state civil defense program and develop the necessary organization and facilities to meet wartime or other disasters.

15. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

16. Unless specifically authorized by the legislature, ensure that state laws, rules, standards, permits, variances and orders are adopted and construed to be consistent with and no more stringent than the corresponding federal law that addresses the same subject matter. This paragraph does not adversely affect standards adopted by an Indian tribe under federal law.

17. Provide administrative and staff support for the oil and gas conservation commission.

B. The department, through the director, shall:

1. Contract for the services of outside advisers, consultants and aides reasonably necessary or desirable to enable the department to adequately perform its duties.

2. Contract and incur obligations reasonably necessary or desirable within the general scope of department activities and operations to enable the department to adequately perform its duties.

3. Utilize any medium of communication, publication and exhibition when disseminating information, advertising and publicity in any field of its purposes, objectives or duties.

4. Adopt procedural rules that are necessary to implement the authority granted under this title, but that are not inconsistent with other provisions of this title.

5. Contract with other agencies, including laboratories, in furthering any department program.

6. Use monies, facilities or services to provide matching contributions under federal or other programs that further the objectives and programs of the department.

7. Accept gifts, grants, matching monies or direct payments from public or private agencies or private persons and enterprises for department services and publications and to conduct programs that are consistent with the general purposes and objectives of this chapter. Monies received pursuant to this paragraph shall be deposited in the department fund corresponding to the service, publication or program provided.

8. Provide for the examination of any premises if the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed on the premises. The director shall give the owner or operator the opportunity for its representative to accompany the director on an

examination of those premises. Within forty-five days after the date of the examination, the department shall provide to the owner or operator a copy of any report produced as a result of any examination of the premises.

9. Supervise sanitary engineering facilities and projects in this state, authority for which is vested in the department, and own or lease land on which sanitary engineering facilities are located, and operate the facilities, if the director determines that owning, leasing or operating is necessary for the public health, safety or welfare.

10. Adopt and enforce rules relating to approving design documents for constructing, improving and operating sanitary engineering and other facilities for disposing of solid, liquid or gaseous deleterious matter.

11. Define and prescribe reasonably necessary rules regarding the water supply, sewage disposal and garbage collection and disposal for subdivisions. The rules shall:

(a) Provide for minimum sanitary facilities to be installed in the subdivision and may require that water systems plan for future needs and be of adequate size and capacity to deliver specified minimum quantities of drinking water and to treat all sewage.

(b) Provide that the design documents showing or describing the water supply, sewage disposal and garbage collection facilities be submitted with a fee to the department for review and that no lots in any subdivision be offered for sale before compliance with the standards and rules has been demonstrated by approval of the design documents by the department.

12. Prescribe reasonably necessary measures to prevent pollution of water used in public or semipublic swimming pools and bathing places and to prevent deleterious conditions at those places. The rules shall prescribe minimum standards for the design of and for sanitary conditions at any public or semipublic swimming pool or bathing place and provide for abatement as public nuisances of premises and facilities that do not comply with the minimum standards. The rules shall be developed in cooperation with the director of the department of health services and shall be consistent with the rules adopted by the director of the department of health services pursuant to section 36-136, subsection I, paragraph 10.

13. Prescribe reasonable rules regarding sewage collection, treatment, disposal and reclamation systems to prevent the transmission of sewage borne or insect borne diseases. The rules shall:

(a) Prescribe minimum standards for the design of sewage collection systems and treatment, disposal and reclamation systems and for operating the systems.

(b) Provide for inspecting the premises, systems and installations and for abating as a public nuisance any collection system, process, treatment plant, disposal system or reclamation system that does not comply with the minimum standards.

(c) Require that design documents for all sewage collection systems, sewage collection system extensions, treatment plants, processes, devices, equipment, disposal systems, on-site wastewater treatment facilities and reclamation systems be submitted with a fee for review to the department and may require that the design documents anticipate and provide for future sewage treatment needs.

(d) Require that construction, reconstruction, installation or initiation of any sewage collection system, sewage collection system extension, treatment plant, process, device, equipment, disposal system, on-site wastewater treatment facility or reclamation system conform with applicable requirements.

14. Prescribe reasonably necessary rules regarding excreta storage, handling, treatment, transportation and disposal. The rules may:

(a) Prescribe minimum standards for human excreta storage, handling, treatment, transportation and disposal and shall provide for inspection of premises, processes and vehicles and for abating as public nuisances any premises, processes or vehicles that do not comply with the minimum standards.

(b) Provide that vehicles transporting human excreta from privies, septic tanks, cesspools and other treatment processes shall be licensed by the department subject to compliance with the rules. The department may require payment of a fee as a condition of licensure. The department may establish by rule a fee as a condition of licensure, including a maximum fee. As part of the rulemaking process, there must be public notice and comment and a review of the rule by the joint legislative budget committee. The department shall not increase that fee by rule without specific statutory authority for the increase. The fees shall be deposited, pursuant to sections 35-146 and 35-147, in the solid waste fee fund established by section 49-881.

15. Perform the responsibilities of implementing and maintaining a data automation management system to support the reporting requirements of title III of the superfund amendments and reauthorization act of 1986 (P.L. 99-499) and article 2 of this chapter.

16. Approve remediation levels pursuant to article 4 of this chapter.

17. Establish or revise fees by rule pursuant to the authority granted under title 44, chapter 9, article 8 and chapters 4 and 5 of this title for the department to adequately perform its duties. All fees shall be fairly assessed and impose the least burden and cost to the parties subject to the fees. In establishing or revising fees, the department shall base the fees on:

(a) The direct and indirect costs of the department's relevant duties, including employee salaries and benefits, professional and outside services, equipment, in-state travel and other necessary operational expenses directly related to issuing licenses as defined in title 41, chapter 6 and enforcing the requirements of the applicable regulatory program.

(b) The availability of other funds for the duties performed.

(c) The impact of the fees on the parties subject to the fees.

(d) The fees charged for similar duties performed by the department, other agencies and the private sector.

18. Appoint a person with a background in oil and gas conservation to act on behalf of the oil and gas conservation commission and administer and enforce the applicable provisions of title 27, chapter 4 relating to the oil and gas conservation commission.

C. The department may:

1. Charge fees to cover the costs of all permits and inspections it performs to ensure compliance with rules adopted under section 49-203, except that state agencies are exempt from paying those fees that are not associated with the dredge and fill permit program established pursuant to chapter 2, article 3.2 of this title. For services provided under the dredge and fill permit program, a state agency shall pay either:

(a) The fees established by the department under the dredge and fill permit program.

(b) The reasonable cost of services provided by the department pursuant to an interagency service agreement.

2. Monies collected pursuant to this subsection shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund established by section 49-210.

3. Contract with private consultants for the purposes of assisting the department in reviewing applications for licenses, permits or other authorizations to determine whether an applicant meets the criteria for issuance of the license, permit or other authorization. If the department contracts with a consultant under this paragraph, an applicant may request that the department expedite the application review by requesting that the department use the services of the consultant and by agreeing to pay the department the costs of the consultant's services. Notwithstanding any other law, monies paid by applicants for expedited reviews pursuant to this paragraph are appropriated to the department for use in paying consultants for services.

D. The director may:

1. If the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed, inspect any person or property in transit through this state and any vehicle in which the person or property is being transported and detain or disinfect the person, property or vehicle as reasonably necessary to protect the environment if a violation exists.

2. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

49-106. <u>Statewide application of rules</u>

The rules adopted by the department apply and shall be observed throughout this state, or as provided by their terms, and the appropriate local officer, council or board shall enforce them. This section does not limit the authority of local governing bodies to adopt ordinances and rules within their respective jurisdictions if those ordinances and rules do not conflict with state law and are equal to or more restrictive than the rules of the department, but this section does not grant local governing bodies any authority not otherwise provided by separate state law.

49-112. <u>County regulation; standards</u>

A. When authorized by law, a county may adopt a rule, ordinance or regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all of the following requirements are met:

1. The rule, ordinance or regulation is necessary to address a peculiar local condition.

2. There is credible evidence that the rule, ordinance or regulation is either:

(a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible.

(b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or regulation is equivalent to federal statutes or regulations.

3. Any fee or tax adopted under the rule, ordinance or regulation does not exceed the reasonable costs of the county to issue and administer the permit or plan approval program.

B. When authorized by law, a county may adopt rules, ordinances or regulations in lieu of a state program that are as stringent as a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if the county demonstrates that the cost of obtaining permits or other approvals from the county will approximately equal or be less than the fee or cost of obtaining similar permits or approvals under this title or any rule adopted pursuant to this title. If the state has not adopted a fee or tax for similar permits or approvals, the county may adopt a fee when authorized by law in the rule, ordinance or regulation that does not exceed the reasonable costs of the county to issue and administer that permit or plan approval program.

C. A county that adopts rules, ordinances or regulations pursuant to subsection B of this section and that at any time cannot comply with subsection B of this section shall prepare and file a notice of noncompliance with the director. The county shall post a copy of the notice of noncompliance on the county's website with a date stamp of the date of posting. If the county does not comply with subsection B of this section within one year after posting of the notice on the county's website, the director shall provide written notice to and assert regulatory jurisdiction over those persons and entities subject to the affected county rules, ordinances or regulations.

D. Except as provided in chapter 3, article 3 of this title, before adopting or enforcing any rule, ordinance or regulation pursuant to subsection A or B of this section, the county shall comply with the following requirements:

1. Prepare a notice of proposed rulemaking to include the proposed rule, ordinance or regulation. This notice shall demonstrate evidence of compliance with subsection A or B of this section. The notice shall include the name, address and phone number of a person who can answer questions about the proposed rule, ordinance or regulation and accept any written requests for the county to conduct an oral Proceeding. The county shall post the notice on the county's website with a date stamp of the date of posting. The county shall publish the availability of the notice of the proposed rule, ordinance or regulation in a newspaper of general circulation in the county. If there is no newspaper of general circulation in the county, the county shall publish the notice in a newspaper of general circulation in an adjoining county. If requested by the public, the county shall make available a paper copy of the notice at a reasonable cost.

2. For at least thirty days after the posting of the notice of the proposed rule, ordinance or regulation, afford persons the opportunity to submit in writing comments, statements, arguments, data and views on the proposed rule, ordinance or regulation.

3. Respond in writing to the comments submitted pursuant to paragraph 2 of this subsection and post the county's response on the county's website. If requested by the public, the county shall make paper copies of its comments available at a reasonable cost.

4. Schedule a public hearing on the proposed rule, ordinance or regulation if a written request for an oral proceeding is submitted to the county during the thirty-day comment period. The county shall post the notice of oral proceeding on a proposed rule, ordinance or regulation on the county's website. The county shall post the notice of oral proceeding at least twenty days before the date of the oral proceeding. The county shall publish notice of any public hearing required pursuant to this paragraph in any newspaper as prescribed by this title or county ordinance. The county shall select a time and location for the public hearing that affords a reasonable opportunity for the public to participate.

E. A county is not required to comply with subsection D, paragraphs 2, 3 and 4 of this section before it adopts or enforces a rule, ordinance or regulation if the rule, ordinance or regulation only incorporates by reference an existing state or federal rule or law that provides greater regulatory flexibility for regulated parties and otherwise satisfies the requirements prescribed in subsection B of this section.

F. Until June 30, 1995, a person may file with the clerk of the board of supervisors for that county a petition challenging a county rule, ordinance or regulation adopted before July 15, 1994 for compliance with the criteria set forth in subsection A or B of this section. The petition shall contain the grounds for challenging the specific county rule, ordinance or regulation. Within one year after the petition is filed, the board of supervisors shall review the challenged rule, ordinance or regulation and make a written demonstration of compliance with the criteria set forth in subsection A or B of this section and challenged in the petition. Any rules, ordinances or regulations that have been challenged and for which the board of supervisors has not made the written demonstration within one year after the filing of the petition required by this section become unenforceable as of that date. If a county has already made a written demonstration under section 49-479, subsection C, for a rule, ordinance or regulation, the person filing the petition shall state the specific grounds in the petition why that demonstration does not meet the requirements of this section.

G. A rule, ordinance or regulation adopted pursuant to subsection A of this section may not be invalidated subsequent to its adoption on the grounds that the economic feasibility analysis is insufficient or inaccurate if a county makes a good faith effort to comply with the economic feasibility requirement of subsection A, paragraph 2, subdivision (a), of this section and has explained in the written statement, made public pursuant to subsection D of this section, the methodology used to satisfy the economic feasibility requirement.

H. This section shall not apply to any rule, ordinance or regulation adopted by a county pursuant to:

1. Title 36 for which the state has similar statutory or rule making authority in this title.

2. Section 49-391.

3. Chapter 3, article 8 of this title.

4. Chapter 4, article 3 of this title and section 49-765.

5. Nonsubstantive rules relating to the application process that have a de minimis economic effect on regulated parties.

Chapter 3 – AIR QUALITY

Article 1 – General Provisions

49-402. <u>State and county control</u>

A. The department shall have original jurisdiction over such sources, permits and violations that pertain to:

1. Major sources in any county that has not received approval from the administrator for new source review under the clean air act and prevention of significant deterioration under the clean air act.

2. Smelting of metal ore.

3. Petroleum refineries.

4. Coal fired electrical generating stations.

5. Portland cement plants.

6. Air pollution by portable sources.

7. Air pollution by mobile sources for the purpose of regulating those sources as prescribed by article 5 of this chapter and consistent with the clean air act.

8. Sources that are subject to title V of the clean air act and that are located in a county for which the administrator has disapproved that county's title V permit program if the department has a title V program that has been approved by the administrator. On approval of that county's title V permit program by the administrator, the county shall resume jurisdiction over those sources.

B. Except as specified in subsection A of this section, the review, issuance, administration and enforcement of permits issued pursuant to this chapter shall be by the county or multi-county air quality control region pursuant to the provisions of article 3 of this chapter. After the director has provided prior written notice to the control officer describing the reason for asserting jurisdiction and has provided an opportunity to confer, the county or multi-county air quality control region shall relinquish jurisdiction, control and enforcement over such permits as the director designates and at such times as the director asserts jurisdiction at the state level. The order of the director which asserts state jurisdiction shall specify the matters, geographical area, or sources over which the department shall exercise jurisdiction and control. Such state authority shall then be the sole and exclusive jurisdiction and control to the extent asserted, and the provisions of this chapter shall govern, except as provided in this chapter, until jurisdiction is surrendered by the department to such county or region.

C. Portable sources under jurisdiction of the department under subsection A, paragraph 6 of this section may be required to file notice with the director and the control officer who has jurisdiction over the geographic area that includes the new location before beginning operations at that new location.

D. Notwithstanding any other law, a permit issued to a state regulated source shall include the emission standard or standard of performance adopted pursuant to section 49-479, if such standards are more stringent than those adopted by the director and if such standards are specifically identified as applicable to the permitted source or a component of the permitted source. Such standards shall be applied to sources identified in subsection A, paragraph 2, 3, 4 or 5 of this section only if the standard is formally proposed for adoption as part of the state implementation plan.

E. The regional planning agency for each county which contains a vehicle emissions control area shall develop plan revisions containing transportation related air quality control measures designed to attain and maintain primary and secondary ambient air quality standards as prescribed by and within the time frames specified in the clean air act. In developing the plan revisions, the regional planning agency shall consider all of the following:

1. Mandatory employee parking fees.

2. Park and ride programs.

3. Removal of on-street parking.

4. Ride share programs.

5. Mass transit alternatives.

6. Expansion of public transportation systems.

7. Optimizing freeway ramp metering.

8. Coordinating traffic signal systems.

9. Reduction of traffic congestion at major intersections.

10. Site specific transportation control measures.

11. Reversible lanes.

12. Fixed lanes for buses and carpools.

13. Encouragement of pedestrian travel.

14. Encouragement of bicycle travel.

15. Development of bicycle travel facilities.

16. Employer incentives regarding ride share programs.

17. Modification of work schedules.

18. Strategies for controlling the generation of air pollution by nonresidents of nonattainment or maintenance areas.

19. Use of alternative fuels.

20. Use of emission control devices on public diesel powered vehicles.

21. Paving of roads.

22. Restricting off-road vehicle travel.

23. Construction site air pollution control.

24. Other air quality control measures.

F. Each regional planning agency shall consult with the department of transportation to coordinate the plans developed pursuant to subsection E of this section with transportation plans developed by the department of transportation pursuant to any other law.

49-404. <u>State implementation plan</u>

A. The director shall maintain a state implementation plan that provides for implementation, maintenance and enforcement of national ambient air quality standards and protection of visibility as required by the clean air act.

B. The director may adopt rules that describe procedures for adoption of revisions to the state implementation plan.

C. The state implementation plan and all revisions adopted before September 30, 1992 remain in effect according to their terms, except to the extent otherwise provided by the clean air act, inconsistent with any provision of the clean air act, or revised by the administrator. No control requirement in effect, or required to be adopted by an order, settlement agreement or plan in effect, before the enactment of the clean air act in any area which is a nonattainment or maintenance area for any air pollutant may be modified after enactment in any manner unless the modification insures equivalent or greater emission reductions of the air pollutant. The director shall evaluate and adopt revisions to the plan in conformity with federal regulations and guidelines promulgated by the administrator for those purposes until the rules required by subsection B are effective.

49-406. <u>Nonattainment area plan</u>

A. For any ozone, carbon monoxide or particulate nonattainment or maintenance area the governor shall certify the metropolitan planning organization designated to conduct the continuing, cooperative and

comprehensive transportation planning process for that area under 23 United States Code section 134 as the agency responsible for the development of a nonattainment or maintenance area plan for that area.

B. For any ozone, carbon monoxide or particulate nonattainment or maintenance area for which no metropolitan planning organization exists, the department shall be certified as the agency responsible for development of a nonattainment or maintenance area plan for that area.

C. For any ozone, carbon monoxide or particulate nonattainment or maintenance area, the department, the planning agency certified pursuant to subsection A of this section on behalf of elected officials of affected local government, the county air pollution control department or district, and the department of transportation shall, by November 15, 1992, and from time to time as necessary, jointly review and update planning procedures or develop new procedures.

D. In preparing the procedures described in subsection C of this section, the department, the planning agency certified pursuant to subsection A of this section on behalf of elected officials of affected local government, the county air pollution control department or district, and the department of transportation shall determine which elements of each revised implementation plan will be developed, adopted, and implemented, through means including enforcement, by the state and which by local governments or regional agencies, or any combination of local governments, regional agencies or the state.

E. The department, the planning agency certified pursuant to subsection A of this section on behalf of elected officials of affected local government, the county air pollution control department or district, and the department of transportation shall enter into a memorandum of agreement for the purpose of coordinating the implementation of the procedures described in subsection C and D of this section.

F. At a minimum, the memorandum of agreement shall contain:

1. The relevant responsibilities and authorities of each of the coordinating agencies.

2. As appropriate, procedures, schedules and responsibilities for development of nonattainment or maintenance area plans or plan revisions and for determining reasonable further progress.

3. Assurances for adequate plan implementation.

4. Procedures and responsibilities for tracking plan implementation.

5. Responsibilities for preparing demographic projections including land use, housing, and employment.

6. Coordination with transportation programs.

7. Procedures and responsibilities for adoption of control measures and emissions limitations.

8. Responsibilities for collecting air quality, transportation and emissions data.

9. Responsibility for conducting air quality modeling.

10. Responsibility for administering and enforcing stationary source controls.

11. Provisions for the timely and periodic sharing of all data and information among the signatories relating to:

(a) Demographics.

(b) Transportation.

(c) Emissions inventories.

(d) Assumptions used in developing the model.

(e) Results of modeling done in support of the plan.

(f) Monitoring data.

G. Each agency that commits to implement any emission limitation or other control measure, means or technique contained in the implementation plan shall describe that commitment in a resolution adopted by the appropriate governing body of the agency. The resolution shall specify the following:

1. Its authority for implementing the limitation or measure as provided in statute, ordinance or rule.

2. A program for the enforcement of the limitation or measure.

3. The level of personnel and funding allocated to the implementation of the measure.

H. The state, in accordance with the rules adopted pursuant to section 49-404, and the governing body of the metropolitan planning organization shall adopt each nonattainment or maintenance area plan developed by a certified metropolitan planning organization. The adopted nonattainment or maintenance area plan shall be transmitted to the department for inclusion in the state implementation plan provided for under section 49-404.

I. After adoption of a nonattainment or maintenance area plan, if on the basis of the reasonable further progress determination described in subsection F of this section or other information, the control officer determines that any person has failed to implement an emission limitation or other control measure, means or technique as described in the resolution adopted pursuant to subsection G of this section, the control officer shall issue a written finding to the person, and shall provide an opportunity to confer. If the control officer subsequently determines that the failure has not been corrected, the county attorney, at the request of the control officer, shall file an action in superior court for a preliminary injunction, a permanent injunction, or any other relief provided by law.

J. After adoption of a nonattainment or maintenance area plan, if, on the basis of the reasonable further progress determination described in subsection F of this section or other information, the director determines that any person has failed to implement an emission limitation or other control measure, means or technique as described in the resolution adopted pursuant to subsection G of this section, and that the control officer has failed to act pursuant to subsection I of this section, the director shall issue a written finding to the person and shall provide an opportunity to confer. If the director subsequently determines that the failure has not been corrected, the attorney general, at the request of the director, shall file an action in superior court for a preliminary injunction, a permanent injunction, or any other relief provided by law.

K. Notwithstanding subsections A and B of this section, in any metropolitan area with a metropolitan statistical area population of less than two hundred fifty thousand persons, the governor shall designate an agency that meets the criteria of section 174 of the clean air act and that is recommended by the city that causes the metropolitan area to exist and the affected county. That agency shall prepare and adopt the nonattainment or maintenance area plan. If the governor does not designate an agency, the department shall be certified as the agency responsible for the development of a nonattainment or maintenance area plan for that area.

Article 2 – State Air Pollution Control

49-425. Rules; hearing

A. The director shall adopt such rules as he determines are necessary and feasible to reduce the release into the atmosphere of air contaminants originating within the territorial limits of the state or any portion thereof and shall adopt, modify, and amend reasonable standards for the quality of, and emissions into, the ambient air of the state for the prevention, control and abatement of air pollution. Additional standards shall be established for particulate matter emissions, sulfur dioxide emissions, and other air contaminant emissions determined to be necessary and feasible for the prevention, control and abatement of air pollution. In fixing such ambient air quality standards, emission standards or standards of performance, the director shall give consideration but shall not be limited to the relevant factors prescribed by the clean air act.

B. No rule may be enacted or amended except after the director first holds a public hearing after twenty days' notice of such hearing. The proposed rule, or any proposed amendment of a rule, shall be made available to the public at the time of notice of such hearing.

C. The department shall enforce the rules adopted by the director.

D. All rules enacted pursuant to this section shall be made available to the public at a reasonable charge upon request.

Article 3 – County Air Pollution Control

49-471.04. Notice of proposed rule or ordinance making

A. Before a board of supervisors acts on a rule or ordinance that is subject to section 49-112, subsection A or a rule or ordinance that does not otherwise qualify under section 49-471.08, subsection A, a control officer shall:

1. Prepare a notice of a proposed rule or ordinance making. The notice shall include both:

(a) A preamble as prescribed in section 49-471.05.

(b) The full text of the rule or ordinance, including the intended actions to make new sections or amend, repeal or renumber the sections of the rule or ordinance.

2. Post the notice of the proposed rule or ordinance making on the county's website. On posting, the control officer shall notify by first class mail, fax or e-mail each person who has made a timely request to the county for notification of the proposed rule or ordinance making and to each person who has

requested notification of all proposed rule or ordinance makings. A county may provide the notification prescribed in this paragraph in a periodic newsletter. A control officer may purge the list of persons who requested notification of proposed rule or ordinance makings once each year by providing notice of the purge in the manner prescribed in this paragraph.

B. Before making, amending, repealing or renumbering a rule or ordinance pursuant to section 49-112, subsection B, a control officer and board of supervisors shall follow the procedure established in this section or in section 49-471.08.

C. The county may terminate a notice of proposed rule or ordinance making at any time during the rule or ordinance making process and shall publish the notice of termination on the county's website.

D. If the county determines that there is a substantial change between the proposed rule or ordinance making and a final rule or ordinance making, the county shall prepare a notice of supplemental proposed rule or ordinance making for public review pursuant to the requirements under subsection A, paragraphs 1 and 2 of this section.

49-479. <u>Rules; hearing</u>

A. The board of supervisors shall adopt such rules as it determines are necessary and feasible to control the release into the atmosphere of air contaminants originating within the territorial limits of the county or multi-county air quality control region in order to control air pollution, which rules, except as provided in subsection C shall contain standards at least equal to or more restrictive than those adopted by the director. In fixing such standards, the board or region shall give consideration but shall not be limited to:

1. The latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on health and welfare which may be expected from the presence of an air pollution agent, or combination of agents in the ambient air, in varying quantities.

2. Atmosphere conditions and the types of air pollution agent or agents which, when present in the atmosphere, may interact with another agent or agents to produce an adverse effect on public health and welfare.

3. Securing, to the greatest degree practicable, the enjoyment of the natural attractions of the state and the comfort and convenience of the inhabitants.

B. No rule may be enacted or amended except after the board of supervisors first holds a public hearing after twenty days' notice of such hearing. The proposed rule, or any proposed amendment of a rule, shall be made available to the public at the time of notice of such hearing.

C. A county may adopt or amend a rule, emission standard, or standard of performance that is as stringent or more stringent than a rule, emission standard or standard of performance for similar sources adopted by the director only if the county complies with the applicable provisions of section 49-112.

D. All rules enacted pursuant to this section shall be made available to the public at a reasonable charge upon request.

Note: The Arizona Revised Statutes have been updated to include the revised sections from the 53rd Legislature, 2nd Regular Session.

Appendix B:

Technical Support Document – Emission Inventory for the 2006 Nogales $PM_{2.5}$ Maintenance Area

ADEQ
Arizona Department of Environmental Quality

Emission Inventory Technical Support Document for the 2006 Nogales PM-2.5 Maintenance Area

Air Quality Division
January 2021

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1 Introduction

On May 10, 2017, the United States Environmental Protection Agency (EPA) determined the Nogales $PM_{2.5}$ Nonattainment Area (NA) attained the 2006 24-hour $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) by the statutory attainment date of December 31, 2015, based on monitoring data from 2013 – 2015 (82 FR 21711).

The Arizona Department of Environmental Quality (ADEQ) must prepare a State Implementation Plan (SIP) revision demonstrating maintenance of the 2006 24-hour $PM_{2.5}$ NAAQS. To do so, ADEQ has developed a comprehensive emission inventory (EI) of all $PM_{2.5}$ direct and precursor emissions within the Nogales $PM_{2.5}$ NA.

The Nogales $PM_{2.5}$ NA is within Santa Cruz County, and falls within the townships and ranges outlined in Table 1-1.

Table 1-1: Portions of Arizona Counties Designated Nonattainment[1]

County	Portions of County Designated Nonattainment
Santa Cruz	T23S, R13E; T23s, R14E; T24S, R13E; T24S, R14E

Figure 1-1 is a detailed map of the planning area defined by the townships and ranges listed in Table 1-1. Figure 1-1 also includes the location of the single ambient air monitor in the NA.

1.1 Purpose

The purpose of this Technical Support Document (TSD) is to provide a comprehensive, accurate, and current inventory of direct and precursor $PM_{2.5}$ emissions within the Nogales NA. This document also provides a detailed account of the methodology ADEQ used to develop these emissions estimates. ADEQ will use the EI and analyses in this TSD as a regulatory tool to maintain the attainment of the 24-hour $PM_{2.5}$ NAAQS.

[1] 40 CFR § 81.303

Planning Area Monitor Location

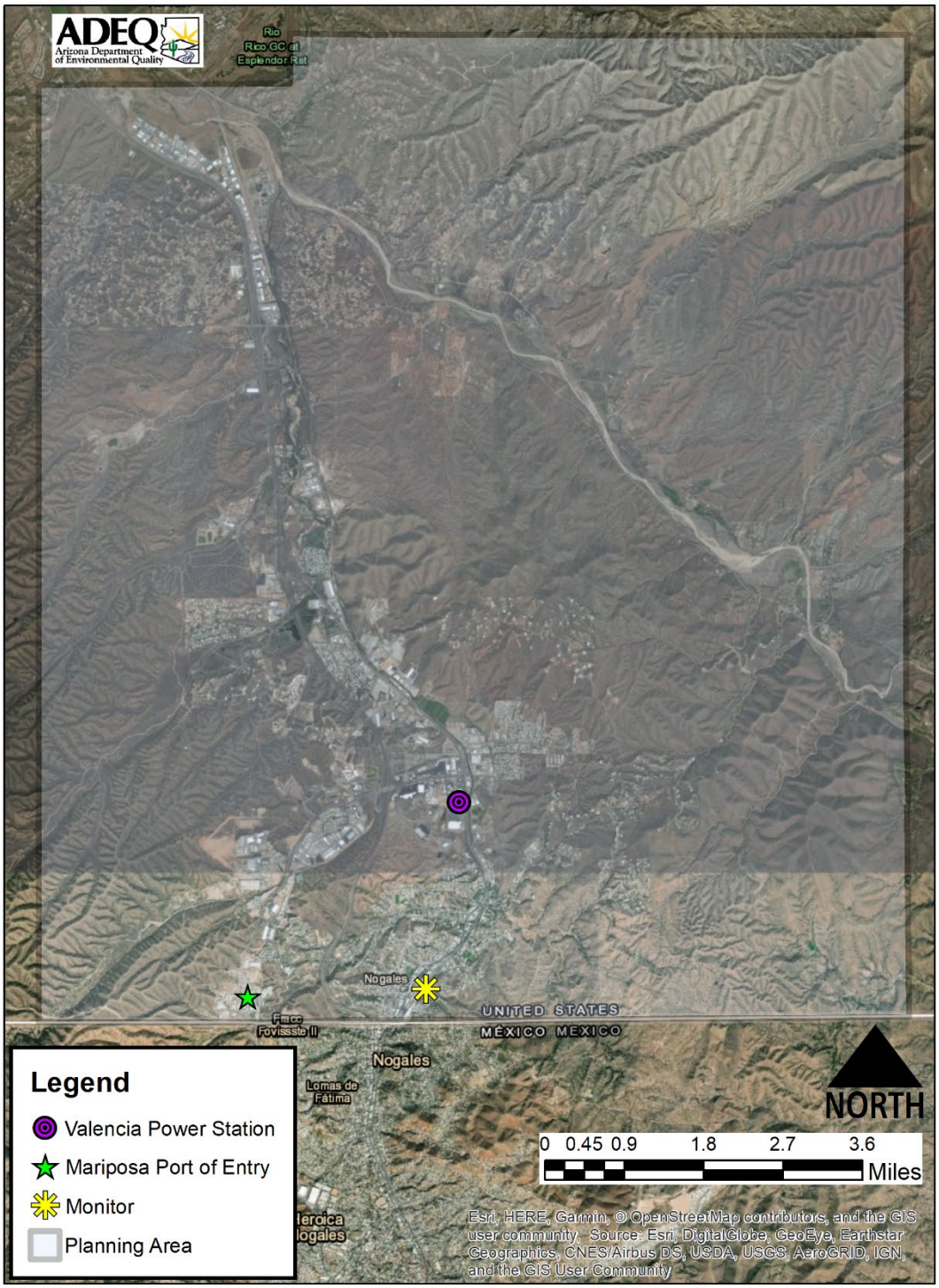

Figure 1-1: Nonattainment Area Monitor Location

1.2 The Nogales Planning Area

1.2.1 $PM_{2.5}$ Emissions

$PM_{2.5}$ refers to fine particulate matter of 2.5 microns or less in aerodynamic diameter. Fine particles originate mostly from combustion sources and secondary aerosol generation processes, while coarse particles (greater than 2.5 microns) usually originate from mechanical activities. Typical sources of $PM_{2.5}$ include fugitive dust, open burning (including wild fires), and to a greater extent, fuel combustion sources and mobile source exhaust.

There are two types of $PM_{2.5}$, namely primary and secondary particulates. This EI quantifies both the primary and secondary particles. Various sources directly emit primary particles. Secondary particles form during the oxidation of primary gases such as nitrogen and sulfur oxides into nitric acid and sulfuric acid. The precursors for these aerosols (i.e. the gases from which they originate) are included in the inventory. In the presence of ammonia, secondary aerosols often take the form of ammonium salts; i.e. ammonium sulfate and ammonium nitrate (both salts can be dry or in aqueous solution). In the absence of ammonia, secondary compounds take the acidic forms of sulfuric acid (liquid aerosol droplets) and nitric acid (atmospheric gas). In addition, organic matter (OM) can be a primary or secondary particulate. The oxidation of volatile organic compounds (VOCs) can cause this secondary particulate formation of OM.

1.2.2 Planning Area Population & Land Use

Santa Cruz County is one of four counties along Arizona's southern international border; surrounded by Pima County to the north and west, Cochise County to the east, and the Mexican state of Sonora to the south. The county seat of Santa Cruz is Nogales, which is roughly 195 miles southeast of Phoenix. ADOA estimated the 2017 population of Santa Cruz County at 51,507 persons[2]. ADOA medium series population projections show the county population growing to 57,200 persons by 2026 and 60,200 persons by 2032[3]. Using a GIS based method[4] ADEQ determined the 2017 NA population to be 32,714 persons. ADEQ expects this NA population to grow to 36,330 persons by 2026 and 38,235 persons by 2032.

The Nogales NA encompasses 78.6 square miles within the bounds of Santa Cruz County. Figure 1-2 shows the various land use types within the NA. The majority of land within the NA is private land. However, a large portion of the western edge of the NA belongs to the United States Forest Service. Within the NA exists a few areas of land belonging to the State of Arizona, Bureau of Land Management, and the Tumacacori National Historical Park (NPS).

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[2] https://population.az.gov/sites/default/files/documents/files/pop-estimates2017-04pla.pdf
[3] https://population.az.gov/population-projections
[4] GIS method involves utilizing Arizona census block data, county and nonattainment area shapefiles, and Arizona Department of Administration population data to calculate past, current, and projected nonattainment area populations.

Land Use Map

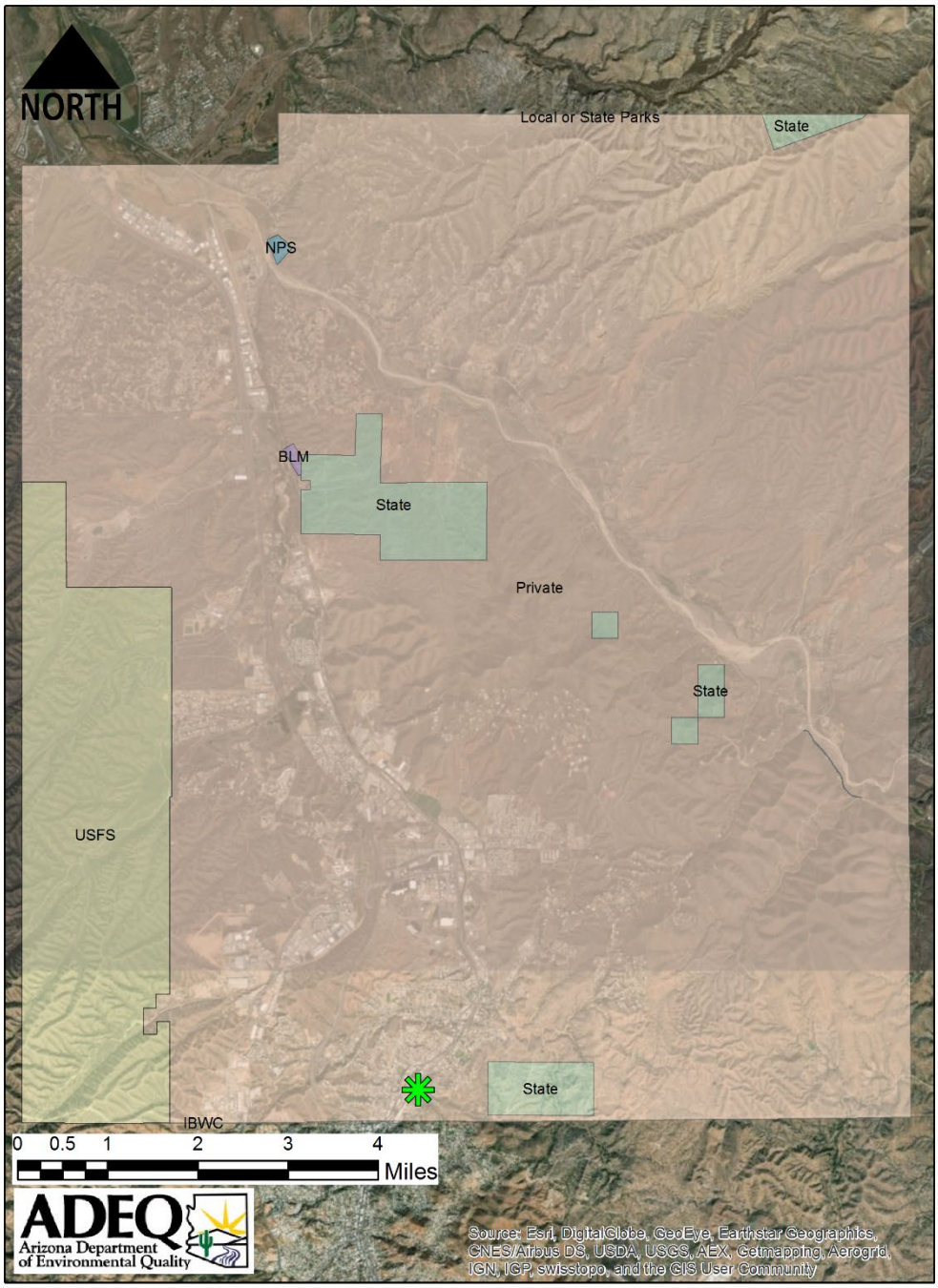

Figure 1-2: Nogales Nonattainment Area Land Use Map

1.3 Trends in $PM_{2.5}$ Ambient Air Concentrations

A monitor is attaining the 24-hour $PM_{2.5}$ NAAQS when its design value, or the three-year average of annual 98th percentile 24-hour concentrations, is below 35 µg/m^3. The figure below gives design values for the NA since the 2004 – 2006 design value, which was the value the nonattainment designation was based on. Since the late-2000s, design values have been steadily decreasing and have stabilized around 27 µg/m^3 (since the 2010 – 2012 period).

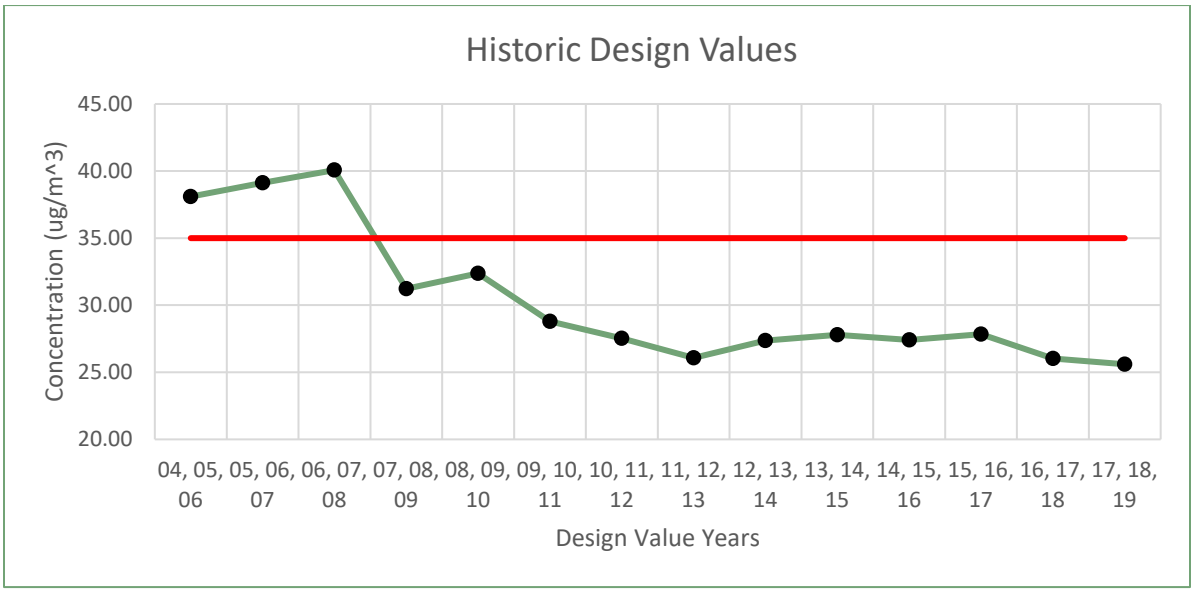

Figure 1-3: Nonattainment Area Historic Design Value Concentrations[5]

1.4 Trends in Nonattainment Area Emissions

When creating a maintenance plan, it is important to understand what emission controls or regulatory programs have helped bring the area into attainment. To better identify these controls and programs ADEQ has created pre-base year inventories. These inventories help highlight trends in emissions between different source sectors.

ADEQ followed the methodology described in Section 3 to create these inventories. Specifically, ADEQ employed the same methodology types found in Table 3-1. The years inventoried correspond to past National Emissions Inventory (NEI) years. However, ADEQ only used the NEI to develop the nonpoint inventories. ADEQ developed the point source inventory by pulling data from ADEQ's State and Local Emissions Inventory System (SLEIS) database, and mobile emissions were obtained by running MOVES2014b (herein referred to as MOVES).

The summary portion of Table 1-2 shows that across all pollutants emissions have decreased since 2008. Sulfur dioxide in particular has undergone a large reduction, partially due to EPA's Tier sulfur standards.

[5] EPA Air Quality System (AQS) 6/24/2019

Table 1-2: Pre-Base Year Inventories

Base Year (2008)		Interim Year (2011)		Final Year (2014)	
Point Source (TPY)		**Point Source (TPY)[a]**		**Point Source (TPY)[a]**	
Pollutant	**2008**	**Pollutant**	**2011**	**Pollutant**	**2014**
$PM_{2.5}$	0.61	$PM_{2.5}$	0.85	$PM_{2.5}$	0.033
NOx	9.7	NOx	12.4	NOx	0.875
SOx	0.208	SOx	0.250	SOx	0.015
VOC	0.191	VOC	0.289	VOC	0.023
NH3	-	NH3	-	NH3	-
Nonpoint (TPY)		**Nonpoint (TPY)**		**Nonpoint (TPY)**	
Pollutant	**2008**	**Pollutant**	**2011**	**Pollutant**	**2014**
$PM_{2.5}$	384.3	$PM_{2.5}$	260.2	$PM_{2.5}$	168.1
NOx	78.5	NOx	74.0	NOx	68.8
SOx	27.8	SOx	14.9	SOx	2.5
VOC	502.5	VOC	339.3	VOC	415.1
NH3	37.2	NH3	12.6	NH3	3.5
On-road Mobile (TPY)		**On-road Mobile (TPY)**		**On-road Mobile (TPY)**	
Pollutant	**2008**	**Pollutant**	**2011**	**Pollutant**	**2014**
$PM_{2.5}$	21.9	$PM_{2.5}$	17.4	$PM_{2.5}$	13.7
NOx	853.7	NOx	699.6	NOx	550.5
SOx	1.87	SOx	1.80	SOx	1.82
VOC	508.6	VOC	413.6	VOC	320.8
NH3	0.20	NH3	0.15	NH3	0.12

Base Year (2008)		Interim Year (2011)		Final Year (2014)	
Non-Road Mobile (TPY)		**Non-Road Mobile (TPY)**		**Non-Road Mobile (TPY)**	
Pollutant	**2008**	**Pollutant**	**2011**	**Pollutant**	**2014**
$PM_{2.5}$	10.5	$PM_{2.5}$	8.8	$PM_{2.5}$	7.0
NOx	132.7	NOx	107.3	NOx	81.6
SOx	2.8	SOx	0.27	SOx	0.14
VOC	96.8	VOC	77.1	VOC	60.1
NH3	0.15	NH3	0.13	NH3	0.12
Summary		**Summary**		**Summary**	
Pollutant	**2008 (TPY)**	**Pollutant**	**2011 (TPY)**	**Pollutant**	**2014 (TPY)**
$PM_{2.5}$	**417**	**$PM_{2.5}$**	**287**	**$PM_{2.5}$**	**189**
NOx	**1,075**	**NOx**	**893**	**NOx**	**702**
SOx	**33**	**SOx**	**17.2**	**SOx**	**5**
VOC	**1,108**	**VOC**	**830**	**VOC**	**796**
NH3	**38**	**NH3**	**13**	**NH3**	**4**

1.5 Emissions Inventory Overview

Within the 200 square mile NA, the following $PM_{2.5}$ source categories were inventoried: mobile on-road, mobile non-road, nonpoint (also referred to as area sources), and point sources. ADEQ used the MOVES model to quantify Mobile on-road and non-road sources. The specific non-road sectors modeled for this plan are in the table below.

Table 1-3: Modeled Non-Road Categories

Modeled Non-Road Source Categories
Airport Support
Commercial
Construction
Industrial
Lawn & Garden
Rail Road
Recreational

Point sources included in the inventory consist of one Title V facility. This single source is the Valencia Power Station, which is operated by UniSource Energy Services (UNSE). The Valencia Station runs four natural gas fired turbines. As a Title V source, throughput and emissions data was readily available through ADEQ's SLEIS database.

Nonpoint sources inventoried include the general source categories in Table 1-4 below.

Table 1-4: Inventoried Nonpoint Source Categories

Emission Sector
Stationary Source Fuel Combustion – Industrial
Stationary Source Fuel Combustion – Commercial
Stationary Source Fuel Combustion – Institutional
Stationary Source Fuel Combustion – Residential
Industrial Processes – Food and Kindred Products
Industrial Processes – Construction
Solvent Utilization – Surface Coating
Solvent Utilization – Degreasing
Solvent Utilization – Graphic Arts
Solvent Utilization – Miscellaneous Non-industrial
Petroleum Products Storage & Transport – Residential Portable Gas Cans
Petroleum Products Storage & Transport – Commercial Portable Gas Cans
Petroleum Products Storage & Transport – Bulk Terminals
Petroleum Products Storage & Transport – Bulk Plants
Petroleum Products Storage & Transport – Gasoline Service Stations
Petroleum Products Storage & Transport – Airports
Petroleum Products Storage & Transport – Truck
Petroleum Products Storage & Transport – Pipeline
Waste Disposal, Treatment, & Recovery – Wastewater Treatment
Waste Disposal, Treatment, & Recovery – Open Burning
Prescribed Fires
Wildfires

In addition, ADEQ created a winter daily inventory (WDI), see Section 7. This inventory allows for a better understanding of emissions during periods of elevated ambient air $PM_{2.5}$ concentrations.

1.6 Determination of Inventory Years

EPA's $PM_{2.5}$ guidance[6] suggests, "The attainment year inventory for the maintenance demonstration should reflect emissions during one of the three years for which monitoring data showed compliance with the standard". On May 10, 2017, the EPA determined the Nogales $PM_{2.5}$ NA attained the 2006 24-hour $PM_{2.5}$ NAAQS by the statutory attainment date of December 31, 2015, based on monitoring data for 2013, 2014, and 2015 (82 FR 21711).

However, to better support the maintenance plan and its ten-year planning period, it was determined the base year for the SIP revision should be for a more recent year. Therefore, the inventory consists of a base year of 2017, an interim year of 2026, and a final maintenance year of 2032. In addition to the 10-year maintenance

[6] https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf

period, the interim and final maintenance years also account for the submittal and subsequent EPA review of the SIP revision.

2 Nonattainment Area Meteorology and Monitored Ambient Concentrations

This section discusses the meteorological conditions and ambient air $PM_{2.5}$ concentrations pertinent to the SIP revision. Section 2.1 describes the NA meteorological monitoring network. Section 2.2 discusses wind and pollution roses for years 2014 through 2016, as well as the most recent year of data. Section 2.3 discusses all $PM_{2.5}$ exceedances occurring in the NA from 2004 to 2018. Section 2.4 looks at the relationship between hourly wind speeds and $PM_{2.5}$ concentrations at the monitor.

2.1 State & Local Air Monitoring Station & Surrounding Area

The current ambient air-monitoring network in the Nogales planning area consists of a single State and Local Air Monitoring Station (SLAMS). Figure 2-2 shows the location of this SLAMS monitor (herein termed Post Office monitor). Regarding sampling frequency, the monitor collected $PM_{2.5}$ data from 2004 to April 2013 on a 6-day sampling schedule. Starting on April 1, 2013 $PM_{2.5}$ data was collected on an hourly basis. An additional monitor near the planning area is the meteorological station at the Nogales International Airport (see Figure 2-2).

The area surrounding the SLAMS monitor, and Nogales in general, consists of hills and steep canyons. Both Nogales, AZ and Nogales, Sonora (collectively referred to as Ambros Nogales) are located within the Nogales wash. This wash runs south to north eventually meeting the Santa Cruz River. From the southern portion of Nogales, Sonora to the northern parts of Nogales, Arizona, the wash drops in elevation by roughly 300 feet. As illustrated further in the following sections, the prevailing winds in the area align with the topography of this wash.

2.2 Analysis of Hourly Winds & Hourly $PM_{2.5}$ Concentrations

ADEQ obtained hourly wind speed and direction data for the Post Office monitor for years 2014 through 2018. ADEQ picked these years because they correspond with complete hourly $PM_{2.5}$ data sets. These data sets were then used to create yearly wind (Figure A-1, Figure A-3, Figure A-4, and Figure A-7) and $PM_{2.5}$ pollution (Figure A-2, Figure A-4, Figure A-6, and Figure A-8) roses. As a note, the axis shown on the pollution roses ranges from 0 to 400. This axis gives the number of samples that correspond with a given wind direction.

As seen in the wind roses, the dominant wind direction seen at the monitor is out of the south, which is a result of drainage down the Nogales wash. Additionally, relatively strong winds were recorded by the monitor from the west-southwest direction for all years. This wind pattern is likely due to the break in structures caused by the rail line that runs adjacent to the Nogales Post Office.

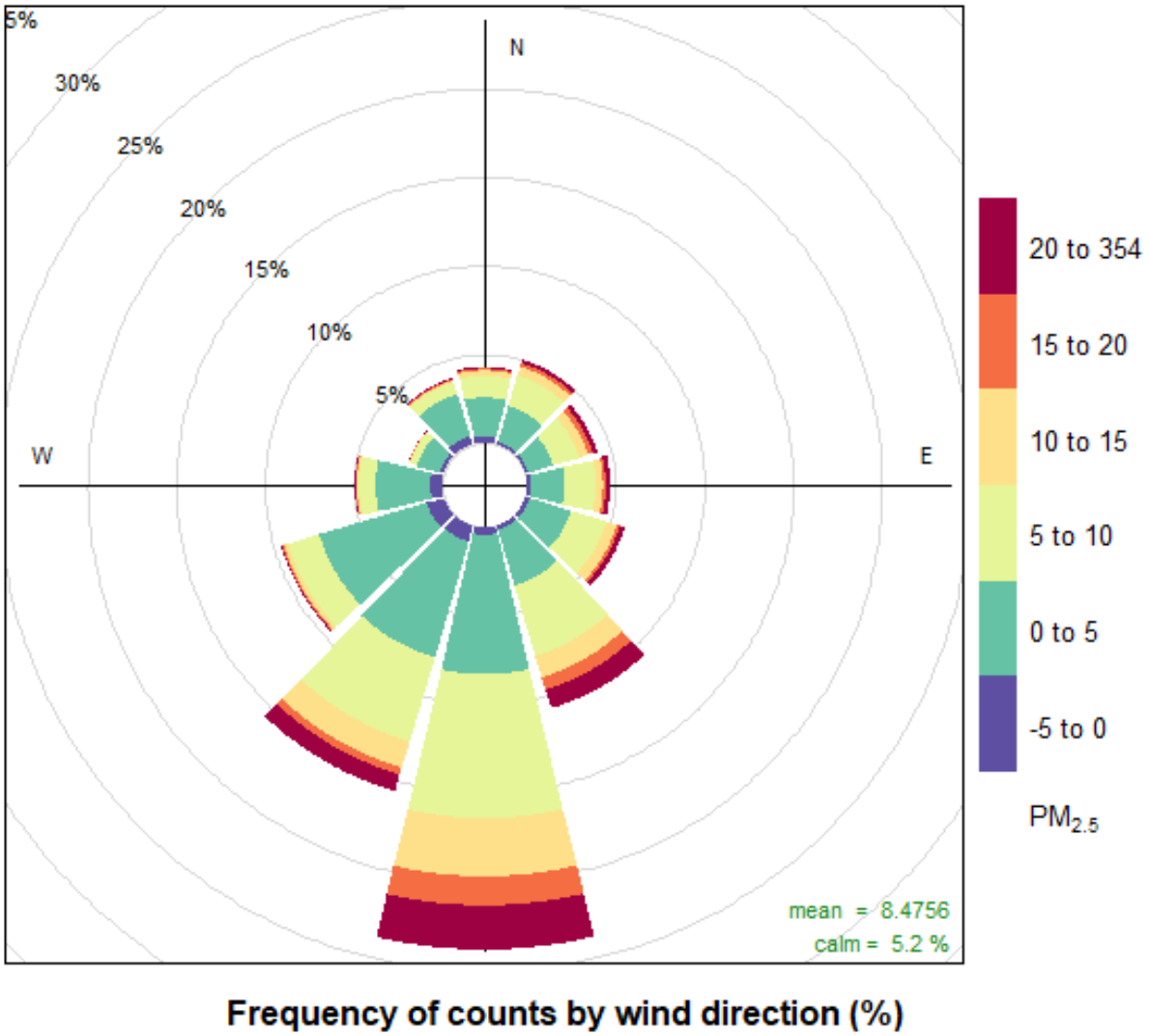

Figure 2-1: This pollution rose shows the frequency of $PM_{2.5}$ samples by wind direction. Additionally, the concentration associated with these samples is color-coded based on the scale on the right (µg/m³). This pollution rose shows the majority of particulates affecting the monitor come from Nogales, Sonora.

In Figure 2-1 the majority of hourly samples correspond with the southerly drainage from Nogales, Sonora. Figure 2-3 gives the sample frequency by 45-degree wind direction bins. As seen in the figure, during the three years of data reviewed, roughly 50 percent of samples fell within the 135 – 180 degree and 180 – 225 degree wind direction bins.

Planning Area Monitor Location

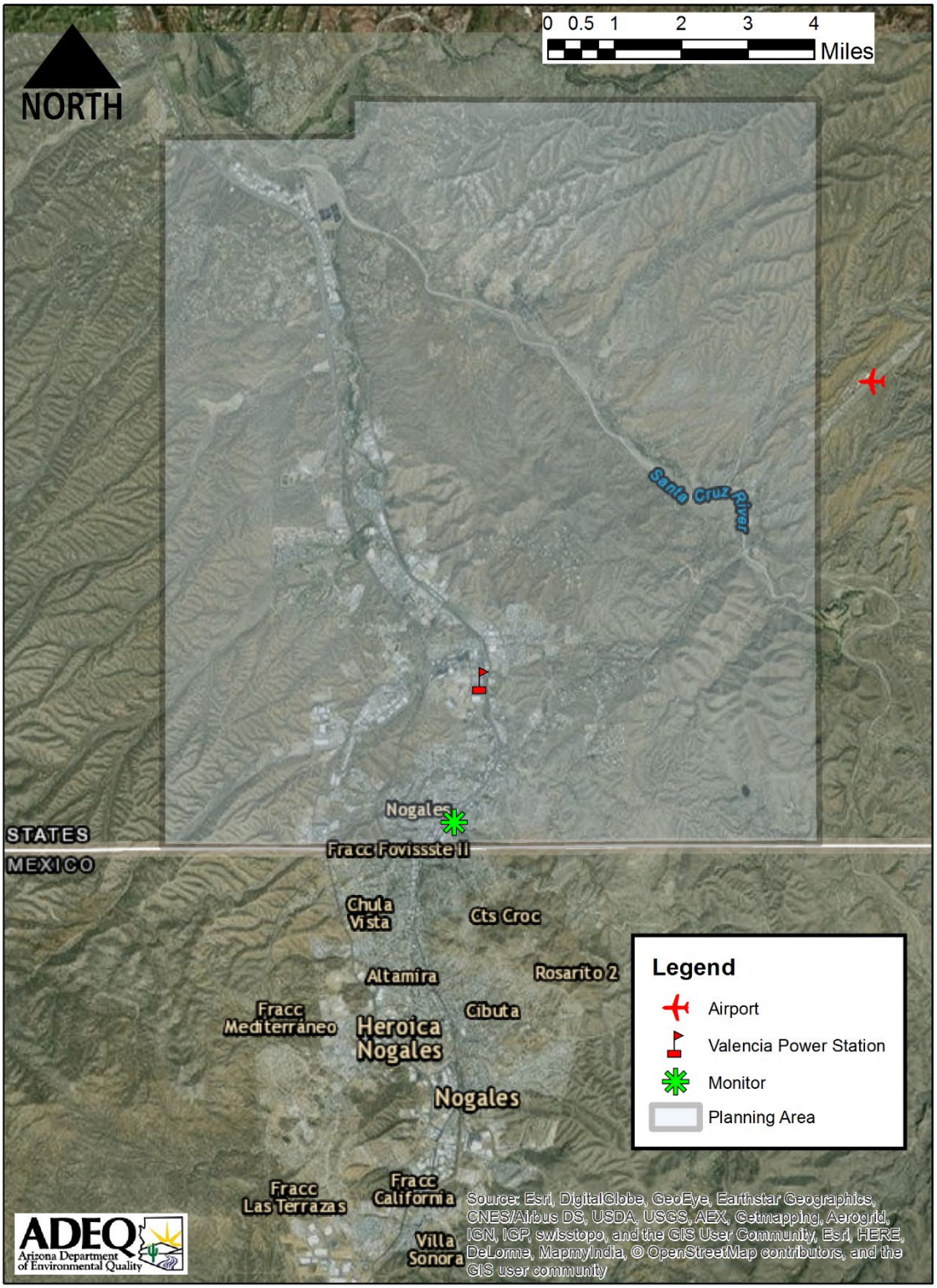

Figure 2-2: Planning Area Monitor Location

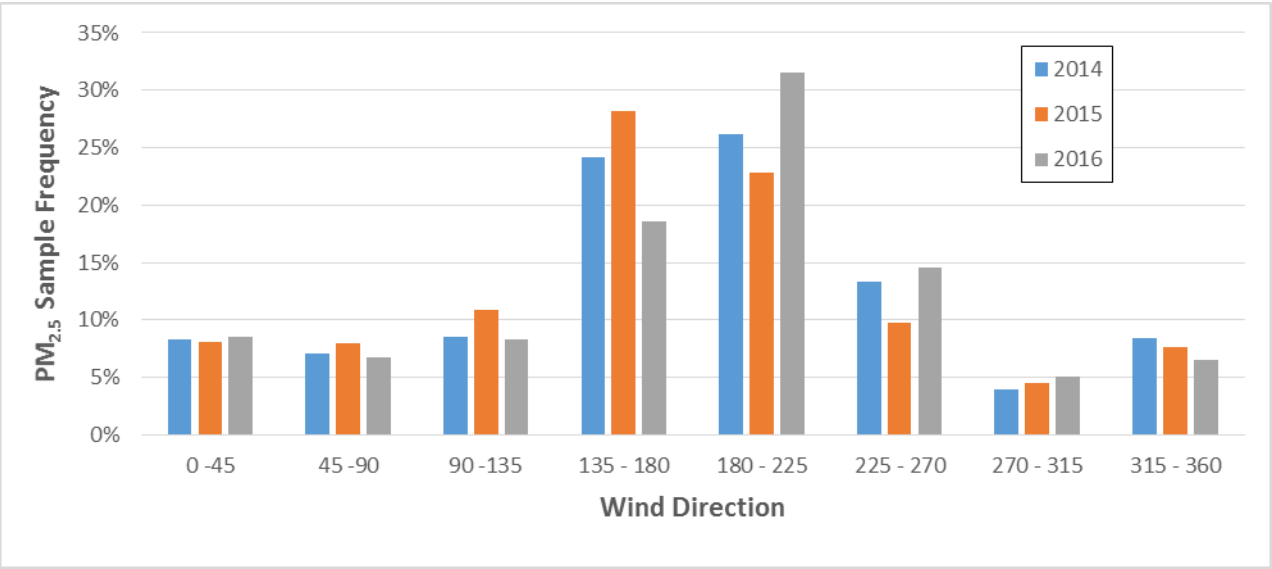

Figure 2-3: $PM_{2.5}$ Sample Wind Direction Distribution

2.3 Exceedances from 2004 through 2019

Table 2-1 shows exceedances at the Post Office monitor from 2004 to 2018. As seen in the table, with the exception of one sample, all exceedances occurred during the months of December or January. Moreover, 15 out of the 23-exceedance days occur during a holiday, which were either Christmas Eve/Day or New Year's Eve/Day.

There were no exceedances in 2004, 2007, 2011, and 2012. The monitor sampling schedule is likely a factor in these years not experiencing exceedances. As previously mentioned, $PM_{2.5}$ samples collected before April 1 2013 were on a once every six day schedule. During the four non-exceedance years (all pre 2013), no samples were taken on the four holidays previously mentioned. ADEQ theorizes these four clean years are a result of the sampling schedule not falling on the aforementioned holidays, and not of any particular reduction in local emissions.

The wind rose in Figure 2-4 is a compilation of hourly wind speed and direction data for the exceedance days in Table 2-1. As a note, the monitor did not collect MET data on April 9, 2013. The prevailing wind direction on these exceedance days is from the south. In addition, wind speeds on these days tend to be low with the average being 1.4 mph, and the max hourly speed approaching 5 mph.

ADEQ hypothesizes these stagnant winter meteorological conditions, and presumably, low mixing height, coupled with the activities associated with the seasonal holidays (residential fuel combustion and fireworks), are the primary drivers of exceedances seen in the planning area.

Table 2-1: Post Office Monitor $PM_{2.5}$ Exceedances 2004 through 2019

Date	$PM_{2.5}$ NAAQS Exceedances (µg/m^3)
12/24/2005	49.7
12/31/2006	103.2
12/25/2006	56.2
01/11/2006	48
01/01/2008	46.9
12/20/2008	36.8
01/01/2009	117.6
12/04/2010	40.7
04/09/2013	36
12/24/2013	38
12/25/2013	59.4
12/31/2013	55.2
01/01/2014	148.2
12/24/2014	67.8
12/06/2014	36.6
12/18/2015	39.2
12/30/2015	37.9
12/31/2015	49.4
01/01/2016	133.1
12/24/2017	86.2
12/25/2017	122.5
12/26/2017	35.5
12/31/2017	51.1
01/01/2018	117
12/15/2018	41.3
01/04/2019	43.4
12/22/2019	42.8

Exceedance Days Wind Rose

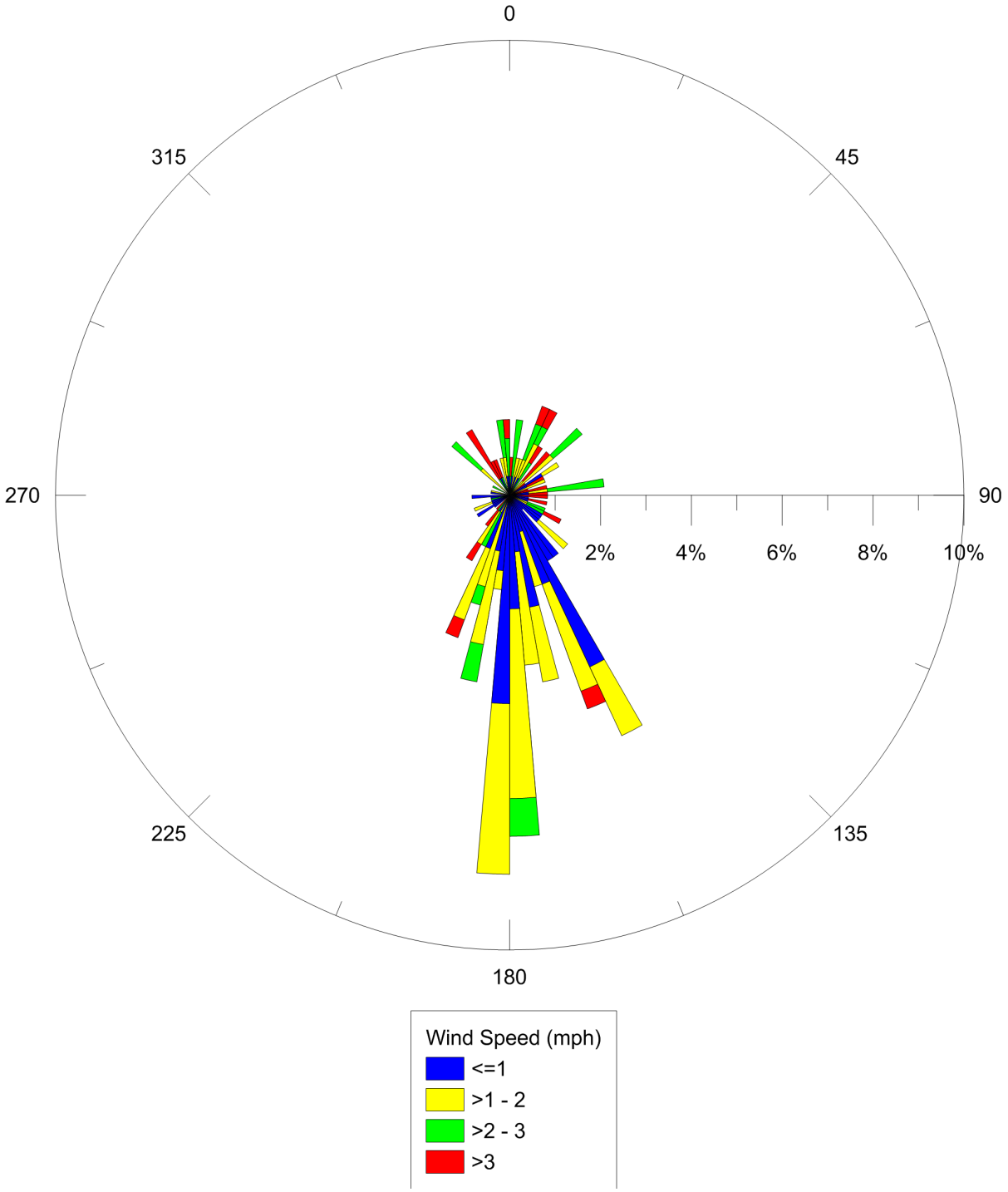

Figure 2-4: Post Office Monitor Exceedance Days Wind Rose (Table 2-1)

2.4 Wind Analysis

Finally, ADEQ performed a wind analysis for years 2014, 2015, and 2016. The purpose was to investigate the relationship between hourly wind speeds and the corresponding hourly $PM_{2.5}$ values. First, ADEQ separated the data into one mph bins, along with the corresponding hourly $PM_{2.5}$ value. Next, the mean $PM_{2.5}$ value was determined for each wind speed bin. Figure 2-5 shows a plot of this relationship.

The data shows a considerable reduction in $PM_{2.5}$ concentrations as wind speeds increase, followed by a leveling out of said concentrations. Although the figure shows concentrations increasing at wind speeds above 10 mph (years 2014 and 2016), these peaks are a result of a small portion of samples. Table 2-2 gives the distribution of samples for the three years in Figure 2-5. As seen in the table roughly one percent of the total sample population in a given year was collected at wind speeds over 10 mph.

This analysis suggests windblown dust is likely not a large contributor to elevated $PM_{2.5}$ concentrations. Rather, as mentioned in Section 2.3, stagnant meteorological conditions and activities related to the winter holiday season likely have the greatest impact on $PM_{2.5}$ concentrations.

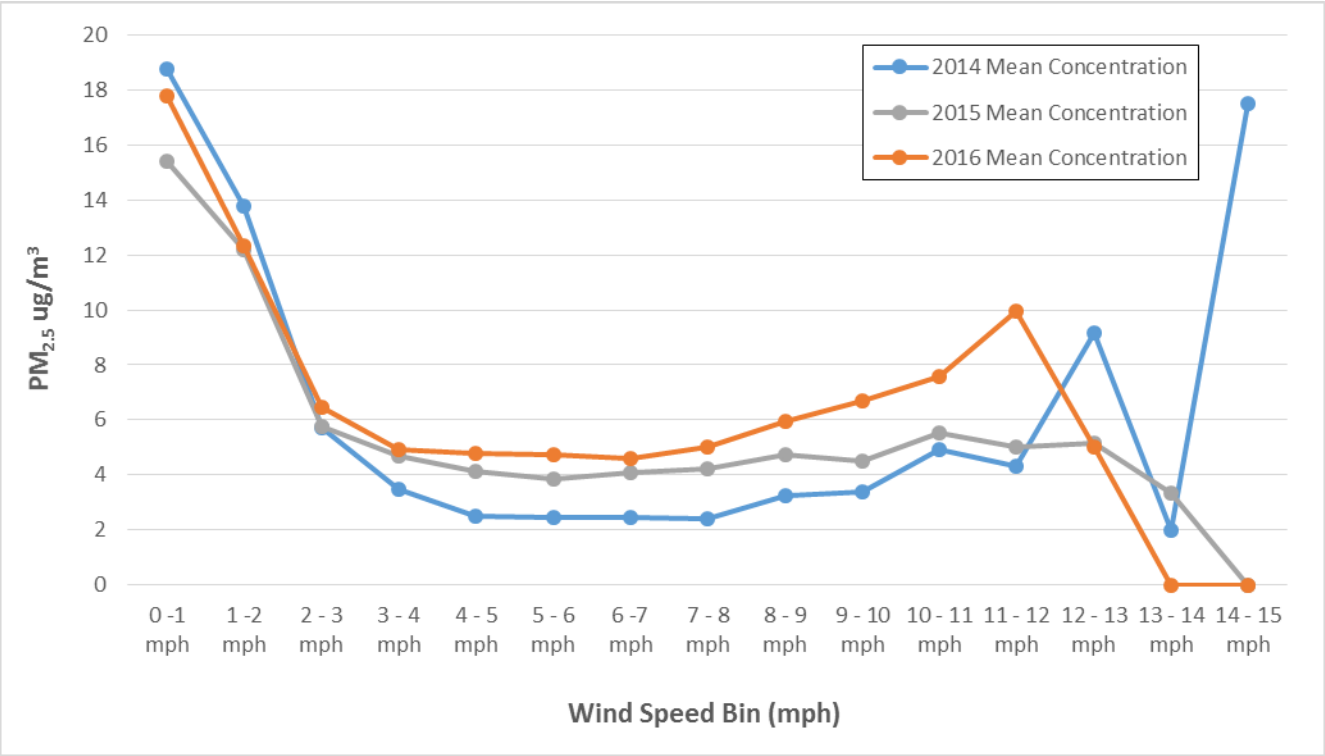

Figure 2-5: Post Office Measured Hourly $PM_{2.5}$ by Wind Speed

Table 2-2: Hourly Sample Frequency

Wind Speed Bin	Number of Hours Per Bin					
	2014 (samples)	2014 (%)	2015 (samples)	2015 (%)	2016 (samples)	2016 (%)
0 -1 mph	1898	25%	2092	25%	2074	25%
1 -2 mph	1534	20%	1613	19%	1459	18%
2 - 3 mph	1096	15%	1287	15%	1185	14%
3 - 4 mph	725	10%	831	10%	855	10%
4 - 5 mph	815	11%	935	11%	1023	12%
5 - 6 mph	503	6.7%	593	7.1%	622	7.6%
6 -7 mph	434	5.8%	467	5.6%	500	6.1%
7 - 8 mph	220	2.9%	217	2.6%	231	2.8%
8 - 9 mph	178	2.4%	194	2.3%	124	1.5%
9 - 10 mph	66	0.88%	75	0.90%	75	0.91%
10 - 11 mph	40	0.53%	41	0.49%	44	0.54%
11 - 12 mph	13	0.17%	13	0.16%	16	0.19%
12 - 13 mph	11	0.15%	6	0.07%	7	0.09%
13 - 14 mph	1	0.01%	3	0.04%	0	0%
14 - 15 mph	2	0.03%	0	0%	0	0%

3 Base Year Emission Estimation Methodology

ADEQ employed a multi-method approach when compiling the base year inventory. Table 3-1 is a summary of the approaches used to estimate $PM_{2.5}$ emissions in the NA. ADEQ has taken a bottom-up approach to determining point source emissions in the Nogales NA. ADEQ scaled the nonpoint portions of the inventory from county-level data obtained from EPA's 2014 NEI. ADEQ allocated these emissions to the NA based on methodologies explained throughout this section of the TSD. Once allocated, ADEQ projected nonpoint emissions to 2017. Finally, ADEQ determined mobile on-road and non-road emissions using the MOVES model.

In addition to the base year EI, ADEQ also created a winter daily inventory (WDI). ADEQ developed this WDI to investigate emissions during the period of highest $PM_{2.5}$ ambient air concentrations, the winter season. The methodology followed to create this inventory is available in Section 7.

Table 3-1: Emission Inventory Source Category, Approach and Data Source

Emission Inventory Source Category	Inventory Estimation Approach	Primary Data Sources
Point	Bottom-Up	State & Local Emissions Inventory System
Nonpoint	Top-Down	2014 NEI
Mobile On-road	Bottom-Up	MOVES2014b
Mobile Non-road	Top-Down	MOVES2014b

3.1 Point Source Emissions Estimation Methodology

The single point source identified in the NA is the Valencia Power Plant. Valencia produces peaking/backup power in addition to providing voltage stabilization for the UNSE Santa Cruz service area. The facility operates three Hitachi MS 5001 M-series gas turbines rated at 13.5 MW each, and one General Electric LM2500 gas turbine rated at 23 MW. Each turbine can run on natural gas, distillate oil, or a combination of the two.

This Title V facility is under ADEQ jurisdiction and therefore reports annual EIs to ADEQ's SLEIS database. This database has electronic EIs going back to 2010 for this facility. In addition, ADEQ obtained paper inventories going back to the year 2000. Valencia's inventory identifies six release points for emissions, these are plant wide fugitives, unit stack 1, unit stack 2, unit stack 3, unit stack 4, and diesel emergency generator stack.

3.2 Mobile Source Emissions Estimation Methodology

3.2.1 On-Road Mobile

ADEQ generated the on-road mobile inventory using the EPA MOVES2014b model. The MOVES model was ran with NA specific inputs for 2017, 2026, and 2032. The two significant inputs created for these model runs were vehicle population and vehicle miles traveled (VMT). ADEQ obtained vehicle population using the Arizona Department of Transportation (ADOT) registration data for Santa Cruz County. ADEQ allocated this county data to the NA based on population and then converted to MOVES source type categories using an ADOT developed tool.

To determine VMT, ADEQ leveraged ADOTs 2017 PM conformity analysis[7] for Arizona's 2017 – 2021 State Transportation Improvement Program. Appendix A of the final report gives 2014 traffic demand model VMT estimates for Santa Cruz County. In the same appendix, ADOT allocates this VMT to the NA. ADOT discusses this allocation methodology in the Annual Vehicle Miles Traveled portion (page 9) of their conformity analysis[7]. ADEQ projected this 2014 allocated VMT to the 2017, 2026, and 2032 inventory years. A discussion of ADEQ's projection methodology is available in Section 5.3.2.

3.2.2 Non-Road Mobile

Like the on-road inventory, ADEQ quantified non-road mobile emissions using the MOVES2014b model. The non-road portion of the inventory utilized a top-down methodology. This is due to the non-road portion of the MOVES model not allowing for area specific inputs. The model was run for Santa Cruz County for the following source categories.

Table 3-2: Modeled Non-Road Categories

Modeled Non-Road Source Categories
Airport Support
Commercial
Construction
Industrial
Lawn & Garden
Rail Road
Recreational

The above source categories were run for 2017, 2026, and 2032. After determining the county scale annual emissions, ADEQ developed an allocation ratio based on the NA and county population to determine NA emissions. This NA population allocation factor is shown in Equation 3-1 below.

[7] https://azdot.gov/sites/default/files/2019/07/h8045_nogales_finalairqualityconformityanalysis.pdf

3.2.3 Fugitive Road Dust

ADEQ has also included $PM_{2.5}$ fugitive road dust emissions (paved and un-paved) in the mobile source category. The source of these emissions estimates is the 2014 NEI. See SIP Appendices B and C for more information (silt loading, VMT, vehicle mass, etc.) regarding EPA's 2014 NEI calculation methodology for fugitive road dust emissions. Appendix B contains EPA's paved road fugitive emissions calculation, and Appendix C describes the calculation for unpaved roads. These NEI fugitive road dust emissions are at the county scale. ADEQ allocated these Santa Cruz County emissions to the NA area using the population allocation factor given in Equation 3-1. ADEQ projected these 2014 NA emissions to 2017, 2026, and 2032 based on ADOT VMT projections (see Section 5.3.3.)

3.3 Nonpoint Source Emissions Estimation Methodology

3.3.1 Nonpoint Emissions Source Data

ADEQ used the 2014 NEI as the basis for the nonpoint emission estimates in this inventory. Specifically, ADEQ allocated the county level emissions estimates from the NEI down to the NA based on the allocation methodologies described in the following sections. The sectors quantified, and their corresponding allocation method to the NA, are available in Table 3-3 below.

Table 3-3: Inventoried Nonpoint Source Categories

Emission Sector	Allocation Method
Stationary Source Fuel Combustion – Industrial	Population
Stationary Source Fuel Combustion – Commercial	Population
Stationary Source Fuel Combustion – Institutional	Population
Stationary Source Fuel Combustion – Residential	Population
Industrial Processes – Food and Kindred Products	Population
Industrial Processes – Construction	Population
Solvent Utilization – Surface Coating	Population
Solvent Utilization – Degreasing	Population
Solvent Utilization – Graphic Arts	Population
Solvent Utilization – Miscellaneous Non-industrial	Population
Petroleum Products Storage & Transport – Residential Portable Gas Cans	Population
Petroleum Products Storage & Transport – Commercial Portable Gas Cans	Population
Petroleum Products Storage & Transport – Bulk Terminals	Population
Petroleum Products Storage & Transport – Bulk Plants	Population
Petroleum Products Storage & Transport – Gasoline Service Stations	Population
Petroleum Products Storage & Transport – Airports	Population
Petroleum Products Storage & Transport – Truck	Population
Petroleum Products Storage & Transport – Pipeline	Population
Waste Disposal, Treatment, & Recovery – Wastewater Treatment	Population
Waste Disposal, Treatment, & Recovery – Open Burning	Population
Prescribed Fires	Area
Wildfires	Area

As seen in the table, the two forms of allocation were population and land area. To develop the population allocation factor ADEQ took the quotient of the NA population to the county population (Equation 3-1). ADEQ used 2014 Arizona Department of Administration (ADOA) county level data[8] for P_c. To determine P_{NA} ADEQ utilized an internal ADEQ geographic information system (GIS) based methodology.

Equation 3-1: Population Allocation Factor

$$\frac{P_{NA}}{P_c} = AF_p$$

Where:

- P_{NA} = ADEQ population estimate for NA
- P_c = ADOA population estimate of entire county
- AF_p = Population allocation factor.

Factor calculation:

$$\frac{32{,}714 \text{ persons}}{51{,}507 \text{ persons}} = 0.635$$

- AF_p = 0.635

ADEQ used a similar methodology for determining the land area allocation factor (Equation 3-2). Again ADEQ utilized GIS to determine the area of Santa Cruz County (A_c) and the total NA area (A_{NA}).

Equation 3-2: Land Allocation Factor

$$\frac{A_{NA}}{A_c} = AF_A$$

Where:

- A_{NA} = ADEQ estimate of portion of NA within Santa Cruz County
- A_c = ADEQ estimate of land area of Santa Cruz County
- AF_A = Land area allocation factor.

Factor calculation:

$$\frac{78.6 \text{ square miles}}{1{,}238 \text{ square miles}} = 0.063$$

- AF_A = 0.063

[8] https://population.az.gov/sites/default/files/documents/files/pop-estimates2014-04pla.pdf

3.3.2 Projecting to 2014 NEI to 2017

Analysts used several methodologies when projecting 2014 NEI emissions to the 2017 base year. These methods and the corresponding emission sector are available in Table 3-4.

Table 3-4: 2017 Base Year Projection Methdologies

Emission Sector	Projection Method
Stationary Source Fuel Combustion – Industrial	Annual Energy Outlook
Stationary Source Fuel Combustion – Commercial	Annual Energy Outlook
Stationary Source Fuel Combustion – Institutional	Annual Energy Outlook
Stationary Source Fuel Combustion – Residential	Per Capita Emission Factor
Industrial Processes – Food and Kindred Products	Population
Industrial Processes – Construction	Population
Solvent Utilization – Surface Coating	Population
Solvent Utilization – Degreasing	Population
Solvent Utilization – Graphic Arts	Population
Solvent Utilization – Miscellaneous Non-industrial	Population
Petroleum Products Storage & Transport – Residential Portable Gas Cans	Population
Petroleum Products Storage & Transport – Commercial Portable Gas Cans	Population
Petroleum Products Storage & Transport – Bulk Terminals	Population
Petroleum Products Storage & Transport – Bulk Plants	Population
Petroleum Products Storage & Transport – Gasoline Service Stations	Population
Petroleum Products Storage & Transport – Airports	Population
Petroleum Products Storage & Transport – Truck	Population
Petroleum Products Storage & Transport – Pipeline	Population
Waste Disposal, Treatment, & Recovery – Wastewater Treatment	Population
Waste Disposal, Treatment, & Recovery – Open Burning	Population
Prescribed Fires	Held Constant
Wildfires	Held Constant

3.3.2.1 Annual Energy Outlook Projection Factors

ADEQ used Annual Energy Outlook[9] (AEO) projections developed by the Energy Information Agency (EIA) to project stationary source fuel combustion (SSFC) emissions for industrial, commercial, and institutional sources. The AEO presents long-term projections of energy supply, demand, and prices. EIA uses their National Energy Modeling System to determine these various projections.

The AEO estimates energy consumption by sector and source to some future year, depending on the specific AEO. ADEQ used the 2014 AEO to project emissions to the 2017 base year. The growth factors shown in Table 3-5 are from Table A2 of the 2014 AEO[10]. Below is a sample calculation showing how ADEQ projected 2014 emissions to 2017.

Table 3-5: 2014 Annual Energy Outlook Annual Growth Factors

Fuel	Commercial/Institutional	Industrial
LPG	0.7%	0.9%
Kerosene	4.8%	-
Distillate	-0.3%	0.6%
Natural Gas	0.7%	0.7%
Coal	0%	-0.1%
Renewable Energy	0%	1.6%

SSFC-Commercial/Institutional-Distillate Oil-Boilers Sample Calculation:

Equation 3-3: 2014 NEI Projection Factor

- E_{2014} = 2014 NEI Emissions
- AEO_{GF} = Annual Energy Outlook Growth Factor
- Y_p = number of years being projected into the future
- E_{2017} = 2017 Projected Emissions

$$E_{2017} = E_{2014} + (E_{2014} * Y_p * AEO_{GF})$$

$$E_{2017} = .0002\ tons + (.0002\ tons * 3\ years * -0.003)$$

$$E_{2017} = .000198\ tons$$

ADEQ used 2017 AEO projections to project 2017 emissions to 2026 and 2032. Specifically, ADEQ used data found in Table A2 of the 2017 AEO[11]. Table A2 gives energy consumption by sector and source. To obtain the projection factor, ADEQ determined the percent change in consumption for relevant sectors and sources

[9] https://www.eia.gov/outlooks/aeo/archive.php
[10] https://www.eia.gov/outlooks/aeo/pdf/0383(2014).pdf
[11] https://www.eia.gov/outlooks/archive/aeo17/

between 2017 to 2026 and 2026 to 2032. Table 3-6 gives these 2026 and 2032 growth factors and Equation 3-4 gives a sample calculation showing how these factors were calculated.

As a note, no industrial source sectors with kerosene as a fuel type existed in the 2014 NEI for Santa Cruz. Additionally, the AEO classifies wood combustion under "renewable energy" along with landfill gas, municipal waste, and other biomass.

Table 3-6: 2014 Annual Energy Outlook Annual Growth Factors

Fuel	2017 to 2026		2026 to 2032	
	Commercial/Institutional	Industrial	Commercial/Institutional	Industrial
LPG	6.0%	30%	5.1%	3.2%
Kerosene	27.4%	-	17.7%	-
Distillate	-10.1%	16.5%	-4.1%	1.2%
Natural Gas	-2.5%	14.6%	1.8%	-0.2%
Coal	19.3%	4.3%	0.1%	-7.8%
Renewable Energy	No Change	11.6%	No Change	1.0%

Growth factor sample calculation:

Equation 3-4: Future Growth Factor – Commercial/Institutional Natural Gas

- C_{2017} = 2017 commercial natural gas energy consumption (quadrillion Btu)
- C_{2026} = 2026 commercial natural gas energy consumption (quadrillion Btu)
- $GFci_{NG}$ = Commercial/Institutional natural gas growth factor

$$GFci_{NG} = \left(\frac{C_{2026}}{C_{2017}} - 1\right) * 100$$

$$GFci_{NG} = \left(\frac{3.244}{3.326} - 1\right) * 100$$

$$GFci_{NG} = \text{-2.5\%}$$

3.3.2.2 Residential Fuel Combustion Emissions

Although EIA's AEOs do have energy consumption projections for the residential sector, ADEQ projected residential SSFC emissions using a methodology that accounts for both population growth and fuel switching. ADEQ took this approach due to the significance of this source and the need for a projection methodology based on more local data.

To start, ADEQ allocated residential SSFC emissions (for all pollutants) to the NA for the 2008, 2011, and 2014 NEIs. The NA population for these three years was also determined[12].

[12] https://population.az.gov/population-estimates

Table 3-7 – Historic $PM_{2.5}$ Residential Fuel Combustion Emissions & NA Population

Year	Nonattainment Area Population	Total Residential Fuel Combustion Emissions (ton)
2008	29,862	28.6
2011	30,542	27.0
2014	31,474	26.5

ADEQ calculated a per capita emission factor for all three years using these population and emission figures. Table 3-8 below gives these per capita emission factors for $PM_{2.5}$.

Table 3-8 – NEI Based $PM_{2.5}$ Per Capita Emission Factor

Year	Per Capita Emission Factor (ton/person/yr)
2008	0.00096
2011	0.00088
2014	0.00084

Next, the percent change in the per capita factor from 2008 to 2014 was determined. In the case of $PM_{2.5}$, the percent change is -12.3%. This percent change is annualized by dividing by the number of years between the factors (six years), giving a value of -2.05%. ADEQ used this annualized factor to project the per capita emission factors to the base and future inventory years (Table 3-9).

Table 3-9 - Projected $PM_{2.5}$ Per Capita Emission Factors

Year	Per Capita Emission Factor (ton/person/yr)
2017	0.00079
2026	0.00064
2032	0.00056

Finally, ADEQ multiplied the projected NA population values mentioned in Section 1.2.2 by the corresponding per capita factor shown in Table 3-9. An example of this calculation is available below.

Per capita emission factor sample calculation:

Equation 3-5: $PM_{2.5}$ Base Year Sample Calculation

$$2017\ PM_{2.5}\ Residential\ SSFC\ Emissions = 32{,}714\ persons * 0.00079\ \frac{tons}{person - year}$$

$$2017\ PM_{2.5}\ Residential\ SSFC\ Emissions = 25.8\ \frac{tons}{year}$$

4 2017 Base Year Emission Inventory for $PM_{2.5}$ & Precursors in the Nogales Nonattainment Area

ADEQ has accounted for all natural and anthropogenic sources of $PM_{2.5}$ within the Nogales NA. These sources have been defined as either: point (Section 4.1), nonpoint (Section 4.2), or mobile (Section 4.3). ADEQ used projected 2014 NEI emissions for the nonpoint inventory. At the time of this inventory's creation, the 2014 NEI was the most complete and accurate data set available. ADEQ used emissions data collected from annual EI reports for the point source category. Finally, ADEQ used the MOVES model to quantify mobile source emissions. For more information on these methodologies, see Section 3.

4.1 2017 Base Year Point Source Emission Inventory

The only source in the NA that qualifies as a point source is the Valencia Power Plant. In this context, the term "point source" is inclusive of all emissions at the Valencia facility, which includes plant wide fugitives, unit stack 1, unit stack 2, unit stack 3, unit stack 4, and the diesel emergency generator stack. The point source category in the base year (2017) EI accounts for roughly 0.09% of $PM_{2.5}$, 1.4% of NO_x, 1.2% of SO_x, and 0.0088% of VOC emissions in the NA.

Table 4-1: 2017 Valencia Plant Wide Fugitives

Point Source Inventory	
Plant Wide Fugitive Emissions	
Pollutant	2017 Total Emissions (tons)
PM Primary	0.00376
Nitrogen Oxides (NO_x)	0.0535
Sulfur Dioxide (SO_x)	0.0035
Volatile Organic Compounds	0.0131

Table 4-2: 2017 Valencia Plant Stack Emissions

Point Source Inventory				
Stack Emissions				
Pollutant	2017 Total Emissions (tons)			
	Unit 1 Stack	Unit 2 Stack	Unit 3 Stack	Unit 4 Stack
PM Primary	0.0741	0.0279	0.0522	0.0113
Nitrogen Oxides (NO_x)	3.66	1.38	2.57	0.172
Sulfur Dioxide (SO_x)	0.0225	0.00849	0.0159	0.00343
Volatile Organic Compounds	0.02357	0.00889	0.0166	0.00359

Table 4-3: 2017 Valencia Emergency Generator

Point Source Inventory	
Diesel Emergency Generator Stack	
Pollutant	2017 Total Emissions (tons)
PM Primary	0.000129
Nitrogen Oxides (NO_x)	0.00411
Sulfur Dioxide (SO_x)	0.00000388
Volatile Organic Compounds	0.00023

Table 4-4: 2017 Base Year Valencia Emissions Summary

Point Source Inventory	
2017 Facility Summary	
Pollutant	2017 Total Emissions (tons)
PM Primary	0.17
Nitrogen Oxides (NO_x)	7.84
Sulfur Dioxide (SO_x)	0.054
Volatile Organic Compounds	0.066

4.2 Base Year Nonpoint Source Emission Inventory

The nonpoint category of the base year EI makes up roughly 30.6% of $PM_{2.5}$, 6.7% of NO_x, 51.1% of SO_x, 57.3% of VOCs, and 37.1% of NH_3 emissions. ADEQ quantified the area source category using 2014 NEI data. The allocation methodology used to determine NA emissions is located in Section 3.3.

Table 4-5: 2017 Nonpoint Inventory Summary

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Residential-Distillate Oil-Total: All Combustor Types	0.00217	0.0196	0.0462	0.000696	0.001
Residential-Natural Gas-Total: All Combustor Types	0.0359	8.34	0.053	0.469	1.69
Residential-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.0142	4.98	0.0211	0.186	0.0164
Residential-Wood-Fireplace: general	5.49	0.644	0.0988	4.497	0.424
Residential-Wood-Woodstove: fireplace inserts; non-EPA certified	6.38	0.621	0.0884	11.3	0.359

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Residential-Wood-Woodstove: fireplace inserts; EPA certified; non-catalytic	1.29	0.160	0.028	0.81	0.0602
Residential-Wood-Woodstove: fireplace inserts; EPA certified; catalytic	0.449	0.0469	0.0093	0.338	0.02
Residential-Wood-Woodstove: freestanding, non-EPA certified	7.59	0.739	0.105	13.4	0.427
Residential-Wood-Woodstove: freestanding, EPA certified, non-catalytic	1.54	0.191	0.0334	0.966	0.0718
Residential-Wood-Woodstove: freestanding, EPA certified, catalytic	0.541	0.0564	0.0112	0.406	0.0242
Residential-Wood-Woodstove: pellet-fired, general (freestanding or FP insert)	0.326	0.431	0.0362	0.00443	0.0324
Residential-Wood-Furnace: Indoor, cordwood-fired, non-EPA certified	1.703	0.121	0.133	0.745	0.113
Residential-Wood-Hydronic heater: outdoor	0.0647	0.00198	0.0022	0.0696	0.00182
Residential-Wood-Outdoor wood burning device, NEC (fire-pits, chimeas, etc)	0.019	0.00218	0.000329	0.0155	0.00144
Residential-Firelog-Total: All Combustor Types	0.352	0.101	-	0.501	-
Residential Stationary Source Fuel Combustion – Subtotal	**25.8**	**16.5**	**0.666**	**33.7**	**3.24**
Commercial/Institutional-Distillate Oil-Boilers	0.000503	0.00472	0.0101	.0000803	0.000189
Commercial/Institutional-Distillate Oil-IC Engines	0.023	0.319	0.021	0.0222	0.000423
Commercial/Institutional-Natural Gas-Total: Boilers and IC Engines	0.036	8.38	0.0503	0.461	0.0411
Commercial/Institutional-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.00152	0.542	0.00229	0.0198	0.00191
Commercial/Institutional-Wood-Total: All Boiler Types	0.436	0.215	0.0244	0.0166	0.00488
Commercial/Institutional Stationary Source Fuel Combustion – Subtotal	**0.497**	**9.46**	**0.108**	**0.52**	**0.0485**
Industrial - Bituminous/Subbituminous Coal-Total: All Boiler Types	0.363	1.64	0.0447	0.00745	0.00447

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Industrial-Distillate Oil-All Boiler Types	0.0159	0.205	0.437	0.00205	0.0082
Industrial-Distillate Oil-All IC Engine Types	0.418	6.19	0.408	0.431	0.0082
Industrial-Natural Gas-Total: Boilers and IC Engines	0.00646	1.5	0.00901	0.0826	0.048
Industrial-Liquified Petroleum Gas (LPG)-Total: All Boiler Types	0.000379	0.135	0.000568	0.00492	0.00284
Industrial-Wood-Total: All Boiler Types	0.0488	0.024	0.00273	0.00186	0.000764
Industrial Stationary Source Fuel Combustion - Subtotal	**0.853**	**9.7**	**0.902**	**0.529**	**0.0725**
Surface Coating - Architectural Coatings - Total: All Solvent Types	-	-	-	29.7	-
Surface Coating - Auto Refinishing: SIC 7532 - Total: All Solvent Types	-	-	-	4.8	-
Surface Coating-Traffic Markings-Total: All Solvent Types	-	-	-	3.5	-
Surface Coating - Factory Finished Wood: SIC 2426 thru 242 -Total: All Solvent Types	-	-	-	0.1	-
Surface Coating - Aircraft: SIC 372 - Total: All Solvent Types	-	-	-	0.026	-
Surface Coating - Miscellaneous Manufacturing - Total: All Solvent Types	-	-	-	1.8	-
Surface Coating - Industrial Maintenance Coatings - Total: All Solvent Types	-	-	-	2.4	-
Surface Coating - Other Special Purpose Coatings - Total: All Solvent Types	-	-	-	0.1	-
Degreasing - All Processes/All Industries - Total: All Solvent Types	-	-	-	20.5	-
Graphic Arts - All Processes - Total: All Solvent Types	-	-	-	58.4	-
Miscellaneous Non-industrial: Consumer and Commercial - All Personal Care Products - Total: All Solvent Types	-	-	-	31.6	-
Miscellaneous Non-industrial: Consumer and Commercial - All Household Products - Total: All Solvent Types	-	-	-	34.7	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Miscellaneous Non-industrial: Consumer and Commercial - All Automotive Aftermarket Products - Total: All Solvent Types	-	-	-	21.5	-
Miscellaneous Non-industrial: Consumer and Commercial - All Coatings and Related Products - Total: All Solvent Types	-	-	-	15.0	-
Miscellaneous Non-industrial: Consumer and Commercial - All Adhesives and Sealants - Total: All Solvent Types	-	-	-	9.0	-
Miscellaneous Non-industrial: Consumer and Commercial - All FIFRA Related Products - Total: All Solvent Types	-	-	-	28.1	-
Miscellaneous Non-industrial: Consumer and Commercial - Miscellaneous Products (Not Otherwise Covered) - Total: All Solvent Types	-	-	-	1.1	-
Miscellaneous Non-industrial: Commercial-Cutback Asphalt-Total: All Solvent Types	-	-	-	18.5	-
Miscellaneous Non-industrial: Commercial-Emulsified Asphalt-Total: All Solvent Types	-	-	-	35.0	-
Miscellaneous Non-industrial: Commercial - Pesticide Application: Agricultural - All Processes	-	-	-	3.5	-
Solvent Utilization – Subtotal	**-**	**-**	**-**	**319.3**	**-**
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Conveyorized Charbroiling	0.9	-	-	0.23	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Under-fired Charbroiling	7.36	-	-	0.91	-
Food and Kindred Products: SIC 20- Commercial Cooking - Frying-Deep Fat Frying	-	-	-	0.12	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying -Flat Griddle Frying	1.53	-	-	0.12	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying - Clamshell Griddle Frying	0.09	-	-	0.0041	-
Construction: SIC 15 - 17-Residential-Total	0.37	-	-	-	-
Construction: SIC 15 - 17-Industrial/Commercial/Institutional -Total	1.52	-	-	-	-
Construction: SIC 15 - 17-Road Construction-Total	1.2	-	-	-	-
Industrial Processes - Subtotal	**13.0**	**-**	**-**	**1.38**	**-**
Residential Portable Gas Cans - Permeation	-	-	-	0.593	-
Residential Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.666	-
Residential Portable Gas Cans - Spillage During Transport	-	-	-	1.15	-
Residential Portable Gas Cans- Refilling at the Pump - Vapor Displacement	-	-	-	0.209	-
Residential Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.0337	-
Commercial Portable Gas Cans - Permeation	-	-	-	0.0259	-
Commercial Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.0213	-
Commercial Portable Gas Cans - Spillage During Transport	-	-	-	1.58	-
Commercial Portable Gas Cans - Refilling at the Pump - Vapor Displacement	-	-	-	0.603	-
Commercial Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.0648	-
Bulk Terminals: All Evaporative Losses - Gasoline	-	-	-	3.26	-
Bulk Plants: All Evaporative Losses - Gasoline	-	-	-	2.77	-
Gasoline Service Stations - Stage 1: Submerged Filling	-	-	-	41.7	-
Gasoline Service Stations - Underground Tank: Breathing and Emptying	-	-	-	6.94	-
Airports : Aviation Gasoline - Stage 1: Total	-	-	-	7.66	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Airports : Aviation Gasoline - Stage 2: Total	-	-	-	0.263	-
Petroleum and Petroleum Product Transport - Truck-Gasoline	-	-	-	0.454	-
Petroleum and Petroleum Product Transport – Pipeline - Gasoline	-	-	-	0.712	-
Storage and Transport-Petroleum and Petroleum Product – Subtotal	**-**	**-**	**-**	**68.7**	**-**
Open Burning - All Categories - Yard Waste - Leaf Species Unspecified	0.16	0.059	0.0072	0.27	-
Open Burning - All Categories - Yard Waste - Brush Species Unspecified	0.14	0.047	0.016	0.18	-
Open Burning - All Categories - Land Clearing Debris	1.02	0.39	0.13	0.90	-
Open Burning – Residential - Household Waste	14.3	2.5	0.41	3.5	-
Wastewater Treatment - Public Owned – Total Processed	-	-	-	0.42	0.08
Waste Disposal, Treatment, and Recovery – Subtotal	**15.6**	**3.0**	**0.56**	**5.3**	**0.08**
Flaming Fires – Prescribed Fires	0.86	0.06	0.12	0.43	0.03
Flaming Fires – Wildfires	0.025	0.0014	0.0015	2.1	0.14
Smoldering Fires – Prescribed Fires	0.14	0.29	0.0085	0.073	0.005
Smoldering Fires – Wildfires	0.19	0.0079	0.025	0.44	0.03
Fires - Wild & Prescribed - Subtotal	**1.22**	**0.36**	**0.16**	**3.0**	**0.21**
Total Nonpoint Emissions	**57.0**	**39.0**	**2.4**	**432.0**	**3.7**

4.3 Base Year Mobile Source Emission Inventory

The mobile source category consists of both on-road and non-road mobile sources. ADEQ has also included fugitive road dust in the mobile source category (Table 4-7). The on-road mobile portion of the base year EI (including fugitive road dust) makes up roughly 64.4% of $PM_{2.5}$, 71.6% of NO_x, 38.5% of SO_x, 32.5% of VOCs, and 61% of NH_3 emissions. The non-road portion of the base year EI makes up approximately 4.9% of $PM_{2.5}$, 20.3% of NO_x, 9.2% of SO_x, 10.2% of VOCs, and 1.9% of NH_3 emissions. ADEQ quantified mobile source category emissions using the methodology discussed in Section 3.2. Additionally, Table 3-2 gives the non-road mobile source categories quantified by the MOVES2014b model.

Table 4-6: 2017 On-road Annual Inventory Summary

Source Type	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOCs (ton)	NH_3 (ton)
Motorcycle	0.032	1.014	0.0092	5.20	0.057
Passenger Car	1.459	72.0	0.6248	85.14	2.663
Passenger Truck	1.315	100.4	0.6271	80.38	2.101
Light Commercial Truck	0.389	27.3	0.1550	20.66	0.523
Intercity Bus	0.068	1.5	0.00171	0.08	0.0027
Transit Bus	0.055	1.9	0.00251	0.13	0.0049
School Bus	0.213	4.2	0.0058	0.62	0.0127
Refuse Truck	0.150	3.8	0.0068	0.40	0.0102
Single Unit Short-haul Truck	1.752	54.1	0.1149	35.71	0.218
Single Unit Long-haul Truck	0.118	2.4	0.0045	0.87	0.0111
Motor Home	0.090	3.7	0.0081	6.83	0.0123
Combination Short-haul Truck	0.873	26.6	0.0553	1.47	0.086
Combination Long-haul Truck	3.640	115.5	0.1621	7.62	0.283
Total On-road Mobile Emissions	**10.2**	**414.4**	**1.8**	**245.1**	**6.0**

Table 4-7: 2017 Non-road Annual Inventory Summary

Pollutant	2017 Annual Emissions (ton)
$PM_{2.5}$	9.3
NO_x	123.2
SO_x	0.48
VOCs	77.0
NH_3	0.188

Table 4-8: 2017 Fugitive Road Dust Inventory

Fugitive Road Dust Emissions	
Source	2017 Annual $PM_{2.5}$ Emissions (tons)
Paved Roads- Total: Fugitives	13.6
Unpaved Roads- Total: Fugitives	96.2

4.4 Summary of 2017 Base Year Emission Inventories

Table 4-9 below summarizes the Nogales $PM_{2.5}$ base year NA emission inventory. The calculation methodology used to obtain these values is located in Section 3.

Table 4-9: Nogales $PM_{2.5}$ NA Base Year Emission Inventory

Source Category	$PM_{2.5}$	NO_x	SO_x	VOC	NH_3
Point Source	0.17	7.84	0.054	0.066	-
Nonpoint Source	57.0	39.0	2.4	432.0	3.7
Mobile On-road	10.2	414.4	1.8	245.1	6.0
Mobile Non-road	9.3	123.2	0.48	77.0	0.188
Fugitive Road Dust	109.8	-	-	-	-
Base Year Total	**187.0**	**584.4**	**4.7**	**754.2**	**9.9**

5 Emission Projection Methodologies

ADEQ developed a number of growth factors to project emissions to the 2017, 2026, and 2032 inventory years. These projected emissions will inform planning decisions ADEQ may need to make. The remainder of this section discusses the methodology used to project emissions to 2017 and future inventory years.

5.1 Point Source Emission Projection Methodology

ADEQ conducted a review of the Valencia Power Plant's past operational habits and emissions to help predict future emissions from this point source. Between 2013 and 2014, UNSE made transmission line improvements in the Santa Cruz service area. This resulted in UNSE bringing more outside power to the Santa Cruz/Nogales region. As a result, Valencia experienced a significant reduction in energy production after 2013. This reduction in operating hours resulted in a roughly 95% reduction in PM_{10} primary and precursor emissions between the 2013 and 2014 reporting years.

This 95% reduction was due to a substantial decrease in annual hours of operation. In 2016, UNSE proposed removing the continuous emissions monitoring (CEMs) obligations from the facility's permit. The permit renewal document mentions the improvement in the transmission line that brought outside power to the region, which resulted in a reduction in operating hours.

Moreover, UNSE claims a considerable length of the operating hours are spent because RATA tests are required to be performed for the NOx, CO, and diluent CEMS installed on the units. Table 5-1 below gives historic annual hours of operation by turbine. Additionally, the number of relative accuracy test audit (RATA) testing hours post transmission line improvement are available in Table 5-2. As a note, the 2014 and 2015 totals in Table 5-1 include the RATA testing hours.

Table 5-1: Valencia Annual Hours of Operation (hours/year)

Turbine	2011	2012	2013	2014	2015
T_1	200	148	107	20.1	5.76
T_2	47	12.4	208	11.4	8.85
T_3	69.7	38.5	170	12.5	10.6

Table 5-2: Historic Rata Testing Hours (hours/year)

Turbine	2014 RATA Test Hours	2015 RATA Test Hours
T_1	6.6	4
T_2	5.9	5.8
T_3	4	4

Table 5-3 provides the impact this reduction in throughput had on emissions. For comparison, ADEQ has provided the facility's PTE.

Table 5-3: Valencia Historic Annual Emissions (tons/year)

Pollutant	PTE[13]	2011	2012	2013	2014	2015	2016	2017	2018
$PM_{2.5}$	**45.52**	0.85	0.94	0.97	0.0325	0.0226	0.0355	0.17	0.13
NO_X	**240**	12.4	8.4	17.2	0.88	0.5	1.6	7.8	3.3
SO_2	**200**	0.2466	0.31	1.02	0.015	0.008	0.035	0.054	0.041
VOC	**8.6**	0.29	0.31	0.32	0.023	0.017	0.021	0.066	0.052

As shown in Table 5-3, even during a year with high $PM_{2.5}$ emissions, like 2013, emissions were at least an order of magnitude below the permitted PTE. ADEQ also compiled Valencia's annual emissions going back to the year 2000. Table 5-4 presents these historic emission totals.

Given the large discrepancy between PTE and historic emissions, ADEQ used Valencia's highest pre-transmission line improvement annual totals for the 2026 and 2032 EIs. Specifically, ADEQ used the facility's 2001 annual emissions. ADEQ feels this approach is still conservative, given the transmission lines are not temporary and annual emissions will likely not return to pre 2014 totals. Moreover, this allows for a more realistic comparison of emissions between source categories.

However, for this SIP revision ADEQ did revisit the facility's PTE. Specifically, ADEQ wanted to confirm Valencia's PTE is still protective of the NAAQS. ADEQ modeled the facility in AERSCREEN to confirm this. AERSCREEN, a screening-level air quality model based on AERMOD, is a steady state, single source, Gaussian dispersion model used to obtain pollutant concentration estimates.

A technical memorandum is included within this TSD in Appendix D. This memorandum outlines the modeling exercise's methodology, results, and conclusions. In short, the AERSCREEN model did not show that the facility operating at its PTE would result in a 24-hour ground level concentration greater than the NAAQS. The final 24-hour concentration, including background $PM_{2.5}$, was 30.2 $\mu g/m^3$. This is below the NAAQS $PM_{2.5}$ level of 35 $\mu g/m^3$.

[13]Supporting Document to Permit - https://legacy.azdeq.gov/environ/air/permits/title_v/EGP/UNSEINC/52663/deqsupport.pdf

Table 5-4 Historic Valencia Annual Emission Inventory Totals (tons/year)

Valencia Historic Emissions				
Year	PM	NOx	SO2	VOC
2018	0.13	3.3	0.04	0.05
2017	0.17	7.8	0.05	0.07
2016	0.04	1.6	0.04	0.02
2015	0.02	0.5	0.01	0.02
2014	0.03	0.9	0.02	0.02
2013	0.97	17.2	1.02	0.32
2012	0.94	8.4	0.31	0.31
2011	0.85	12.4	0.25	0.29
2010	0.91	15.0	0.28	0.29
2009	0.74	11.2	0.22	0.24
2008	0.61	9.7	0.21	0.19
2007	0.25	3.7	0.09	0.09
2006	0.09	1.7	0.02	0.02
2005	0.11	2.5	0.26	0.16
2004	0.14	2.2	0.46	0.17
2003	0.29	3.5	1.00	0.21
2002	0.22	4.6	0.95	0.02
2001	1.23	25.7	5.16	0.05
2000	0.15	4.9	0.31	0.05

5.2 Nonpoint Source Emission Projection Methodologies

ADEQ developed growth factors to project emissions to the 2026 interim year and the final maintenance year of 2032. Table 5-5 outlines the specific methods used to project a given sector. The majority of source sectors were projected based on population growth. However, ADEQ created more source specific projection methods for several sectors.

ADEQ employed EIA's AEO report to project industrial, commercial, and institutional SSFC emissions. Section 3.3.2.1 covers the methodology used to develop these growth factors. Section 3.3.2.2 outlines the methodology used to project residential SSFC emissions. For the remaining source sectors, ADEQ projected emissions based on population growth. As shown below in Equation 5-1 and Equation 5-2, these factors are determined using ADEQ's population projections for the NA.

Table 5-5 Future Year Emissions Projection Methodologies

Emission Sector	Projection Method
Stationary Source Fuel Combustion – Industrial	Annual Energy Outlook
Stationary Source Fuel Combustion – Commercial	Annual Energy Outlook
Stationary Source Fuel Combustion – Institutional	Annual Energy Outlook
Stationary Source Fuel Combustion – Residential	NEI Growth Factor
Industrial Processes – Food and Kindred Products	Population
Industrial Processes – Construction	Population
Solvent Utilization – Surface Coating	Population
Solvent Utilization – Degreasing	Population
Solvent Utilization – Graphic Arts	Population
Solvent Utilization – Miscellaneous Non-industrial	Population
Petroleum Products Storage & Transport – Residential Portable Gas Cans	Population
Petroleum Products Storage & Transport – Commercial Portable Gas Cans	Population
Petroleum Products Storage & Transport – Bulk Terminals	Population
Petroleum Products Storage & Transport – Bulk Plants	Population
Petroleum Products Storage & Transport – Gasoline Service Stations	Population
Petroleum Products Storage & Transport – Airports	Population
Petroleum Products Storage & Transport – Truck	Population
Petroleum Products Storage & Transport – Pipeline	Population
Waste Disposal, Treatment, & Recovery – Wastewater Treatment	Population
Waste Disposal, Treatment, & Recovery – Open Burning	Population
Prescribed Fires	Held Constant
Wildfires	Held Constant

Equation 5-1: Interim Year Population Growth Factor

$$GF_I = \frac{P_{2026}}{P_{2017}} = \frac{36{,}330}{32{,}714} \approx \mathbf{1.11}$$

where:

- GF_I = 2026 (interim year) NA Population Growth Factor
- P_{2026} = ADEQ 2026 Population Projection for the NA
- P_{2017} = ADEQ 2017 Population Estimate for the NA

Based on the calculation above, ADEQ applied the population growth factor of **1.11** to project nonpoint emissions tied to population in the 2026 interim year.

Equation 5-2: Final Year Population Growth Factor

$$GF_F = \frac{P_{2032}}{P_{2017}} = \frac{38{,}235}{32{,}714} \approx \mathbf{1.169}$$

where:

- GF_F = 2032 (final year) NA Population Growth Factor
- P_{2032} = ADEQ 2032 Population Projection for the NA
- P_{2017} = ADEQ 2017 Population Estimate for the NA

Based on the calculation above, ADEQ applied the population growth factor of **1.169** to project nonpoint emissions tied to population in the final maintenance year of 2032.

5.3 Mobile Source Emission Projection Methodology

As discussed in Section 3.2, ADEQ used the EPA model MOVES2014b to quantify mobile source emissions. The following section outlines the methodology ADEQ utilized to project this source sector.

5.3.1 Non-road Mobile Projection Methodology

The non-road portion of the mobile source inventory was projected by running MOVES2014b, in non-road mode, for the interim (2026) and final year (2032). These interim and final maintenance year runs were done at the county level, and then allocated to the NA based on a population allocation factor (see Equation 3-1). ADEQ took this approach because MOVES2014b's non-road portion does not allow for user provided inputs. ADEQ based the model runs on EPA maintained default databases.

5.3.2 On-road Mobile Projection Methodology

ADEQ projected the on-road share of the mobile source inventory by growing both vehicle population and VMT. To project the vehicle population ADEQ used NA specific population growth factors. Table 5-6 gives ADEQ's estimate of the NA population for the base, interim, and final maintenance years. ADEQ calculated the percent increase between these years to determine the growth factors for the on-road vehicle population (Table 5-7). Equation 5-3 walks through the calculation to obtain the 2017 to 2026 on-road mobile population growth factor.

Table 5-6: 2017 & Projected NA Population

Year	Nonattainment Area Population
2017	32,714
2026	36,330
2032	38,235

Table 5-7: NA Population Growth Factors

Years	On-road Mobile Population Growth Factors
2017 to 2026	11.1%
2026 to 2032	5.2%

Equation 5-3: Future Growth Factor

- P_{2017} = 2017 NA population
- P_{2026} = 2026 NA population
- GF_{OMP} = On-road mobile population growth factor

$$GF_{OMP} = \left(\frac{P_{2026}}{P_{2017}} - 1\right) * 100$$

$$GF_{OMP} = \left(\frac{36{,}330}{32{,}714} - 1\right) * 100$$

$$GF_{OMP} = 11.1\%$$

To project VMT to 2026 and 2032, ADEQ utilized ADOT's annual average daily traffic (AADT) projections that end in 2030. These AADT projections encompass roads ADOT conducts traffic counts for, which typically include rural and urban restricted roads (freeways/interstates). This method of projection is conservative given the restricted roads in Nogales are heavily trafficked due to international trade. VMT growth on these roads will most likely outpace VMT growth on unpaved and local paved roads in the area.

To develop this projection factor ADEQ identified road segments, that ADOT had projections for, within the NA and noted their length and AADT values. Table 5-8 gives the details of these segments. ADOTs projections give AADT values for both 2010 and 2030. Using the segment lengths and AADT, ADEQ calculated VMT for each road segment, which is determined by finding the product of road length and AADT.

Table 5-8: Nogales Area ADOT Projected AADT

Road Segment Start	Road Segment End	Length (mi)	AADT 2010	AADT 2030	2010 VMT (mi)	2030 VMT (mi)
SB 19 (1) - Nogales	Exit 1 Western Ave	1.18	10500	12000	12,390	14,160
Exit 1 Western Ave	Exit 4 SR 189 / Mariposa Rd	1.77	14500	16000	25,665	28,320
Exit 4 SR 189 / Mariposa Rd	Exit 8 SB 19 (1)	2.36	22500	25500	53,100	60,180
Exit 8 SB 19 (1)	Exit 12 SR 289 / Pena Blanca Rd	2.41	34000	36000	81,940	86,760
Exit 12 SR 289 / Pena Blanca Rd	Exit 17 Rio Rico Rd	3.16	27000	27500	85,320	86,900

Next, ADEQ calculated a VMT weighted average (based on length) using all segments for 2010 and 2030 (Table 5-9). ADEQ then performed a linear regression using these 2010 and 2030 VMT values. ADEQ then calculated VMT values for 2014, 2017, 2026, and 2032 (Table 5-10) using the equation from this linear regression. The percent change in VMT between all years was calculated (Table 5-11). ADEQ used the values in Table 5-11 as

growth factors to project on-road mobile VMT, as well as, to projected 2014 NEI paved and unpaved fugitive road dust emissions.

Table 5-9: Weighted Average VMT

Year	VMT (mi)
2010	59,968
2030	63,654

Table 5-10: Calculated VMT Values

Year	Calculated VMT (mi)
2014	60,705
2017	61,258
2026	62,917
2032	64,023

Table 5-11: Growth in Calculated VMT

Time Period	VMT Percent Change
2014 to 2017	0.9%
2017 to 2026	2.7%
2026 to 2032	1.8%

5.3.3 Fugitive Road Dust Projections

ADEQ projected 2014 NEI fugitive road dust emissions (paved and unpaved) using the growth factors in Table 5-11. For more information on these growth factors, please review Section 5.3.2.

5.3.4 Locomotive Emission Projections

ADEQ utilized the NA population growth factors found in Table 5-7 to project 2014 NEI locomotive emissions to future inventory years. The 2014 to 2017 population projection factor (3.9%) is not available in Table 5-7. ADEQ calculated this 3.9% factor using the same methodology seen in Equation 5-3. These projection factors were applied to both class I and class II/III operations. Total NA locomotive emissions are available in Table 5-12.

Table 5-12: NA Locomotive Emissions (TPY)

Pollutant	2017	2026	2032
$PM_{2.5}$	1.0	1.1	1.2
NO_x	32.3	35.8	37.7
SO_x	0.34	0.37	0.39
NH_3	0.0149	0.0164	0.0174
VOCs	1.7	1.8	1.9

6 Interim and Final Maintenance Period Projected Emission Inventories

The following series of tables contain ADEQ's projections of $PM_{2.5}$ and precursor emissions from all source categories within the Nogales $PM_{2.5}$ NA for the interim (2026) and final (2032) maintenance years. ADEQ made attainment year projections using the methodologies outlined in Section 5 of this document.

6.1 Point Source Interim & Final Maintenance Year Emissions

The point source category in the interim year EI accounts for roughly 0.69% of $PM_{2.5}$, 9.0% of NO_x, 53.3% of SO_x, and 0.0075% of VOC emissions in the NA. In the final maintenance year this source category makes up 0.69% of $PM_{2.5}$, 11.6% of NO_x, 53.5% of SO_x, and 0.0077% of VOC emissions in the NA. The method used to project point source emissions to these interim and final years is available in Section 5.1.

Table 6-1: Interim and Final Year Valencia Emissions Summary

Pollutant	2026 (ton)	2032 (ton)
$PM_{2.5}$	1.23	1.23
NO_x	25.7	25.7
SO_x	5.16	5.16
VOC	0.05	0.05
NH_3	-	-

6.2 Nonpoint Source Interim & Final Maintenance Year Emissions

The nonpoint source category in the interim year EI accounts for roughly 32.3% of $PM_{2.5}$, 15.3% of NO_x, 27.5% of SO_x, 71.4% of VOCs, and 42.1% of ammonia emissions in the NA. In the final maintenance year, this source category makes up 32.1% of $PM_{2.5}$, 20.2% of NO_x, 28.3% of SO_x, 76.6% of VOCs, and 41.5% of ammonia emissions in the NA. See Section 5.2 for the nonpoint projection methodologies.

Table 6-2: 2026 Nonpoint Inventory Summary

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Residential-Distillate Oil-Total: All Combustor Types	0.00196	0.0217	0.0507	0.000679	0.00095
Residential-Natural Gas-Total: All Combustor Types	0.0325	9.23	0.0582	0.457	1.6
Residential-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.0129	5.51	0.0231	0.182	0.0155
Residential-Wood-Fireplace: general	4.97	0.712	0.108	4.38	0.402
Residential-Wood-Woodstove: fireplace inserts; non-EPA certified	5.77	0.687	0.097	11.0	0.34

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Residential-Wood-Woodstove: fireplace inserts; EPA certified; non-catalytic	1.17	0.177	0.0307	0.79	0.057
Residential-Wood-Woodstove: fireplace inserts; EPA certified; catalytic	0.407	0.0518	0.0102	0.329	0.0189
Residential-Wood-Woodstove: freestanding, non-EPA certified	6.87	0.817	0.115	13.1	0.404
Residential-Wood-Woodstove: freestanding, EPA certified, non-catalytic	1.40	0.211	0.0366	0.942	0.0679
Residential-Wood-Woodstove: freestanding, EPA certified, catalytic	0.489	0.0623	0.0123	0.396	0.0229
Residential-Wood-Woodstove: pellet-fired, general (freestanding or FP insert)	0.295	0.476	0.0397	0.00432	0.0306
Residential-Wood-Furnace: Indoor, cordwood-fired, non-EPA certified	1.54	0.134	0.146	0.726	0.106
Residential-Wood-Hydronic heater: outdoor	0.0586	0.00219	0.00238	0.0678	0.00172
Residential-Wood-Outdoor wood burning device, NEC (fire-pits, chimeas, etc)	0.0172	0.00241	0.000361	0.0151	0.00137
Residential-Firelog-Total: All Combustor Types	0.319	0.112	-	0.489	-
Residential Stationary Source Fuel Combustion – Subtotal	**23.4**	**18.2**	**0.73**	**32.9**	**3.07**
Commercial/Institutional-Distillate Oil-Boilers	0.000452	0.00425	0.00905	0.0000722	0.00017
Commercial/Institutional-Distillate Oil-IC Engines	0.0207	0.287	0.0189	0.02	0.00038
Commercial/Institutional-Natural Gas-Total: Boilers and IC Engines	0.036	9.61	0.0503	0.461	0.0401
Commercial/Institutional-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.00152	0.705	0.00229	0.0198	0.00202
Commercial/Institutional-Wood-Total: All Boiler Types	0.436	0.215	0.0244	0.0166	0.00488
Commercial/Institutional Stationary Source Fuel Combustion – Subtotal	**0.495**	**10.8**	**0.105**	**0.517**	**0.0476**

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Industrial - Bituminous/Subbituminous Coal-Total: All Boiler Types	0.379	1.71	0.0467	0.00777	0.00466
Industrial-Distillate Oil-All Boiler Types	0.0185	0.239	0.509	0.00239	0.00956
Industrial-Distillate Oil-All IC Engine Types	0.487	7.21	0.475	0.502	0.00956
Industrial-Natural Gas-Total: Boilers and IC Engines	0.0074	1.72	0.0103	0.0946	0.0551
Industrial-Liquified Petroleum Gas (LPG)-Total: All Boiler Types	0.000492	0.175	0.000739	0.0064	0.00369
Industrial-Wood-Total: All Boiler Types	0.0544	0.0268	0.00304	0.00207	0.000852
Industrial Stationary Source Fuel Combustion - Subtotal	**0.947**	**11.09**	**1.05**	**0.615**	**0.0834**
Surface Coating - Architectural Coatings - Total: All Solvent Types	-	-	-	33.0	-
Surface Coating - Auto Refinishing: SIC 7532 - Total: All Solvent Types	-	-	-	5.4	-
Surface Coating-Traffic Markings-Total: All Solvent Types	-	-	-	3.9	-
Surface Coating - Factory Finished Wood: SIC 2426 thru 242 -Total: All Solvent Types	-	-	-	0.1	-
Surface Coating - Aircraft: SIC 372 - Total: All Solvent Types	-	-	-	0.029	-
Surface Coating - Miscellaneous Manufacturing - Total: All Solvent Types	-	-	-	1.9	-
Surface Coating - Industrial Maintenance Coatings - Total: All Solvent Types	-	-	-	2.6	-
Surface Coating - Other Special Purpose Coatings - Total: All Solvent Types	-	-	-	0.1	-
Degreasing - All Processes/All Industries - Total: All Solvent Types	-	-	-	22.7	-
Graphic Arts - All Processes - Total: All Solvent Types	-	-	-	64.9	-
Miscellaneous Non-industrial: Consumer and Commercial - All Personal Care Products - Total: All Solvent Types	-	-	-	35.1	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Miscellaneous Non-industrial: Consumer and Commercial - All Household Products - Total: All Solvent Types	-	-	-	38.6	-
Miscellaneous Non-industrial: Consumer and Commercial - All Automotive Aftermarket Products - Total: All Solvent Types	-	-	-	23.8	-
Miscellaneous Non-industrial: Consumer and Commercial - All Coatings and Related Products - Total: All Solvent Types	-	-	-	16.7	-
Miscellaneous Non-industrial: Consumer and Commercial - All Adhesives and Sealants - Total: All Solvent Types	-	-	-	10.0	-
Miscellaneous Non-industrial: Consumer and Commercial - All FIFRA Related Products - Total: All Solvent Types	-	-	-	31.2	-
Miscellaneous Non-industrial: Consumer and Commercial - Miscellaneous Products (Not Otherwise Covered) - Total: All Solvent Types	-	-	-	1.2	-
Miscellaneous Non-industrial: Commercial-Cutback Asphalt-Total: All Solvent Types	-	-	-	20.5	-
Miscellaneous Non-industrial: Commercial-Emulsified Asphalt-Total: All Solvent Types	-	-	-	38.8	-
Miscellaneous Non-industrial: Commercial - Pesticide Application: Agricultural - All Processes	-	-	-	3.9	-
Solvent Utilization – Subtotal	**-**	**-**	**-**	**354.4**	**-**
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Conveyorized Charbroiling	1.00	-	-	0.25	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Under-fired Charbroiling	8.17	-	-	1.01	-
Food and Kindred Products: SIC 20- Commercial Cooking - Frying-Deep Fat Fying	-	-	-	0.134	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying -Flat Griddle Frying	1.70	-	-	0.134	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying - Clamshell Griddle Frying	0.10	-	-	0.0045	-
Construction: SIC 15 - 17-Residential-Total	0.42	-	-	-	-
Construction: SIC 15 - 17-Industrial/Commercial/Institutional -Total	1.69	-	-	-	-
Construction: SIC 15 - 17-Road Construction-Total	1.34	-	-	-	-
Industrial Processes - Subtotal	**14.4**	**-**	**-**	**1.53**	**-**
Residential Portable Gas Cans – Permeation	-	-	-	0.659	-
Residential Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.739	-
Residential Portable Gas Cans - Spillage During Transport	-	-	-	1.28	-
Residential Portable Gas Cans- Refilling at the Pump - Vapor Displacement	-	-	-	0.233	-
Residential Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.0374	-
Commercial Portable Gas Cans - Permeation	-	-	-	0.0288	-
Commercial Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.0236	-
Commercial Portable Gas Cans - Spillage During Transport	-	-	-	1.75	-
Commercial Portable Gas Cans - Refilling at the Pump - Vapor Displacement	-	-	-	0.67	-
Commercial Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.072	-
Bulk Terminals: All Evaporative Losses – Gasoline	-	-	-	3.62	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Bulk Plants: All Evaporative Losses – Gasoline	-	-	-	3.07	-
Gasoline Service Stations - Stage 1: Submerged Filling	-	-	-	46.4	-
Gasoline Service Stations - Underground Tank: Breathing and Emptying	-	-	-	7.71	-
Airports : Aviation Gasoline - Stage 1: Total	-	-	-	8.51	-
Airports : Aviation Gasoline - Stage 2: Total	-	-	-	0.292	-
Petroleum and Petroleum Product Transport - Truck-Gasoline	-	-	-	0.504	-
Petroleum and Petroleum Product Transport – Pipeline - Gasoline	-	-	-	0.791	-
Storage and Transport-Petroleum and Petroleum Product – Subtotal	**-**	**-**	**-**	**76.4**	**-**
Open Burning - All Categories - Yard Waste - Leaf Species Unspecified	0.178	0.0652	0.008	0.295	-
Open Burning - All Categories - Yard Waste - Brush Species Unspecified	0.16	0.0526	0.0175	0.2	-
Open Burning - All Categories - Land Clearing Debris	1.13	0.433	0.144	1.003	-
Open Burning – Residential - Household Waste	15.9	2.74	0.456	3.9	-
Wastewater Treatment - Public Owned – Total Processed	-	-	-	0.469	0.0893
Waste Disposal, Treatment, and Recovery – Subtotal	**17.4**	**3.29**	**0.626**	**5.87**	**0.0893**
Flaming Fires – Prescribed Fires	0.865	0.0615	0.116	0.425	0.0307
Flaming Fires – Wildfires	0.0248	0.00136	0.00146	2.06	0.143
Smoldering Fires – Prescribed Fires	0.144	0.287	0.0085	0.0732	0.00509
Smoldering Fires – Wildfires	0.185	0.00787	0.0249	0.441	0.0296
Fires - Wild & Prescribed - Subtotal	**1.22**	**0.358**	**0.151**	**3.0**	**0.209**
Total Nonpoint Emissions	**57.9**	**43.7**	**2.7**	**475.2**	**3.5**

Table 6-3: 2032 Nonpoint Inventory Summary

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Residential-Distillate Oil-Total: All Combustor Types	0.00181	0.0227	0.0529	0.000656	0.000902
Residential-Natural Gas-Total: All Combustor Types	0.03	9.69	0.0607	0.442	1.52
Residential-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.0119	5.78	0.0242	0.176	0.0147
Residential-Wood-Fireplace: general	4.59	0.748	0.113	4.24	0.381
Residential-Wood-Woodstove: fireplace inserts; non-EPA certified	5.33	0.721	0.101	10.6	0.322
Residential-Wood-Woodstove: fireplace inserts; EPA certified; non-catalytic	1.08	0.186	0.0321	0.764	0.054
Residential-Wood-Woodstove: fireplace inserts; EPA certified; catalytic	0.375	0.0544	0.0107	0.318	0.018
Residential-Wood-Woodstove: freestanding, non-EPA certified	6.34	0.858	0.121	12.7	0.384
Residential-Wood-Woodstove: freestanding, EPA certified, non-catalytic	1.29	0.222	0.0382	0.91	0.0645
Residential-Wood-Woodstove: freestanding, EPA certified, catalytic	0.452	0.0654	0.0129	0.383	0.0217
Residential-Wood-Woodstove: pellet-fired, general (freestanding or FP insert)	0.272	0.5	0.0414	0.00418	0.0291
Residential-Wood-Furnace: Indoor, cordwood-fired, non-EPA certified	1.42	0.14	0.152	0.702	0.101
Residential-Wood-Hydronic heater: outdoor	0.054	0.0023	0.00248	0.0656	0.00163
Residential-Wood-Outdoor wood burning device, NEC (fire-pits, chimeas, etc)	0.0158	0.00253	0.000376	0.0146	0.0013
Residential-Firelog-Total: All Combustor Types	0.294	0.118	-	0.472	-
Residential Stationary Source Fuel Combustion – Subtotal	**21.6**	**19.1**	**0.763**	**31.8**	**2.91**
Commercial/Institutional-Distillate Oil-Boilers	0.000434	0.00407	0.00868	0.0000692	0.000163

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Commercial/Institutional-Distillate Oil-IC Engines	0.0198	0.276	0.0182	0.0192	0.000365
Commercial/Institutional-Natural Gas-Total: Boilers and IC Engines	0.036	9.59	0.0503	0.461	0.0408
Commercial/Institutional-Liquified Petroleum Gas (LPG)-Total: All Combustor Types	0.00152	0.728	0.00229	0.0198	0.00212
Commercial/Institutional-Wood-Total: All Boiler Types	0.436	0.215	0.0244	0.0166	0.00488
Commercial/Institutional Stationary Source Fuel Combustion – Subtotal	**0.494**	**10.8**	**0.104**	**0.517**	**0.0483**
Industrial - Bituminous/Subbituminous Coal-Total: All Boiler Types	0.35	1.58	0.043	0.00716	0.0043
Industrial-Distillate Oil-All Boiler Types	0.0187	0.242	0.515	0.00242	0.00967
Industrial-Distillate Oil-All IC Engine Types	0.493	7.3	0.481	0.508	0.00967
Industrial-Natural Gas-Total: Boilers and IC Engines	0.00738	1.72	0.0103	0.0944	0.0549
Industrial-Liquified Petroleum Gas (LPG)-Total: All Boiler Types	0.000508	0.181	0.000762	0.0066	0.00381
Industrial-Wood-Total: All Boiler Types	0.055	0.027	0.00307	0.00209	0.000861
Industrial Stationary Source Fuel Combustion - Subtotal	**0.924**	**11.04**	**1.05**	**0.62**	**0.0832**
Surface Coating - Architectural Coatings - Total: All Solvent Types	-	-	-	34.7	-
Surface Coating - Auto Refinishing: SIC 7532 - Total: All Solvent Types	-	-	-	5.6	-
Surface Coating-Traffic Markings-Total: All Solvent Types	-	-	-	4.1	-
Surface Coating - Factory Finished Wood: SIC 2426 thru 242 -Total: All Solvent Types	-	-	-	0.1	-
Surface Coating - Aircraft: SIC 372 - Total: All Solvent Types	-	-	-	0.030	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Surface Coating - Miscellaneous Manufacturing - Total: All Solvent Types	-	-	-	2.0	-
Surface Coating - Industrial Maintenance Coatings - Total: All Solvent Types	-	-	-	2.8	-
Surface Coating - Other Special Purpose Coatings - Total: All Solvent Types	-	-	-	0.1	-
Degreasing - All Processes/All Industries - Total: All Solvent Types	-	-	-	23.9	-
Graphic Arts - All Processes - Total: All Solvent Types	-	-	-	68.3	-
Miscellaneous Non-industrial: Consumer and Commercial - All Personal Care Products - Total: All Solvent Types	-	-	-	36.9	-
Miscellaneous Non-industrial: Consumer and Commercial - All Household Products - Total: All Solvent Types	-	-	-	40.6	-
Miscellaneous Non-industrial: Consumer and Commercial - All Automotive Aftermarket Products - Total: All Solvent Types	-	-	-	25.1	-
Miscellaneous Non-industrial: Consumer and Commercial - All Coatings and Related Products - Total: All Solvent Types	-	-	-	17.5	-
Miscellaneous Non-industrial: Consumer and Commercial - All Adhesives and Sealants - Total: All Solvent Types	-	-	-	10.5	-
Miscellaneous Non-industrial: Consumer and Commercial - All FIFRA Related Products - Total: All Solvent Types	-	-	-	32.8	-
Miscellaneous Non-industrial: Consumer and Commercial - Miscellaneous Products (Not Otherwise Covered) - Total: All Solvent Types	-	-	-	1.3	-
Miscellaneous Non-industrial: Commercial-Cutback Asphalt-Total: All Solvent Types	-	-	-	21.6	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Miscellaneous Non-industrial: Commercial-Emulsified Asphalt-Total: All Solvent Types	-	-	-	40.9	-
Miscellaneous Non-industrial: Commercial - Pesticide Application: Agricultural - All Processes	-	-	-	4.1	-
Solvent Utilization – Subtotal	**-**	**-**	**-**	**373.0**	**-**
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Conveyorized Charbroiling	1.06	-	-	0.26	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Charbroiling - Under-fired Charbroiling	8.60	-	-	1.06	-
Food and Kindred Products: SIC 20- Commercial Cooking - Frying-Deep Fat Fying	-	-	-	0.141	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying -Flat Griddle Frying	1.78	-	-	0.141	-
Food and Kindred Products: SIC 20 - Commercial Cooking – Frying - Clamshell Griddle Frying	0.11	-	-	0.0048	-
Construction: SIC 15 - 17-Residential-Total	0.44	-	-	-	-
Construction: SIC 15 - 17-Industrial/Commercial/Institutional -Total	1.78	-	-	-	-
Construction: SIC 15 - 17-Road Construction-Total	1.41	-	-	-	-
Industrial Processes - Subtotal	**15.2**	**-**	**-**	**1.61**	**-**
Residential Portable Gas Cans - Permeation	-	-	-	0.694	-
Residential Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.778	-
Residential Portable Gas Cans - Spillage During Transport	-	-	-	1.35	-
Residential Portable Gas Cans- Refilling at the Pump - Vapor Displacement	-	-	-	0.245	-
Residential Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.0394	-
Commercial Portable Gas Cans - Permeation	-	-	-	0.0303	-

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Commercial Portable Gas Cans - Evaporation (includes Diurnal losses)	-	-	-	0.0249	-
Commercial Portable Gas Cans - Spillage During Transport	-	-	-	1.84	-
Commercial Portable Gas Cans - Refilling at the Pump - Vapor Displacement	-	-	-	0.705	-
Commercial Portable Gas Cans - Refilling at the Pump - Spillage	-	-	-	0.0758	-
Bulk Terminals: All Evaporative Losses - Gasoline	-	-	-	3.81	-
Bulk Plants: All Evaporative Losses - Gasoline	-	-	-	3.23	-
Gasoline Service Stations - Stage 1: Submerged Filling	-	-	-	48.8	-
Gasoline Service Stations - Underground Tank: Breathing and Emptying	-	-	-	8.12	-
Airports : Aviation Gasoline - Stage 1: Total	-	-	-	8.95	-
Airports : Aviation Gasoline - Stage 2: Total	-	-	-	0.307	-
Petroleum and Petroleum Product Transport - Truck-Gasoline	-	-	-	0.531	-
Petroleum and Petroleum Product Transport – Pipeline - Gasoline	-	-	-	0.832	-
Storage and Transport-Petroleum and Petroleum Product – Subtotal	**-**	**-**	**-**	**80.4**	**-**
Open Burning - All Categories - Yard Waste - Leaf Species Unspecified	0.188	0.0686	0.00841	0.31	-
Open Burning - All Categories - Yard Waste - Brush Species Unspecified	0.168	0.0554	0.0184	0.21	-
Open Burning - All Categories - Land Clearing Debris	1.19	0.455	0.151	1.06	-
Open Burning – Residential - Household Waste	16.7	2.88	0.48	4.11	-
Wastewater Treatment - Public Owned – Total Processed	-	-	-	0.493	0.094
Waste Disposal, Treatment, and Recovery – Subtotal	**18.2**	**3.46**	**0.658**	**6.18**	**0.094**
Flaming Fires – Prescribed Fires	0.865	0.0615	0.116	0.425	0.0307
Flaming Fires – Wildfires	0.0248	0.00136	0.00146	2.06	0.143
Smoldering Fires – Prescribed Fires	0.144	0.287	0.0085	0.0732	0.00509
Smoldering Fires – Wildfires	0.185	0.00787	0.0249	0.441	0.0296

Source Category	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOC (ton)	NH_3 (ton)
Fires - Wild & Prescribed - Subtotal	**1.22**	**0.358**	**0.151**	**3.0**	**0.209**
Total Nonpoint Emissions	**57.6**	**44.8**	**2.7**	**497.1**	**3.3**

6.3 Mobile Source Interim & Final Year Emission Inventory

The mobile source category in the interim year EI accounts for roughly 64.1% of $PM_{2.5}$, 51.8% of NO_x, 14.5% of SO_x, and 17.5% of VOCs, and 55.3% of ammonia emissions in the NA. In the final maintenance year this source category makes up 64.8% of $PM_{2.5}$, 42.3% of NO_x, 13.5% of SO_x, and 11.2% of VOCs, and 55.4% of ammonia emissions in the NA. The methods used to project point source emissions to these interim and final years are available in Section 5.3. As with the base year inventory, ADEQ has included fugitive road dust emissions in the mobile source category. The method used to project these fugitive road dust emissions is available in Section 5.3.3. Additionally, Table 3-2 gives the non-road mobile source categories quantified by the MOVES2014b model.

Table 6-4: 2026 Mobile Source Annual Inventory Summary

Source Type	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOCs (ton)	NH_3 (ton)
Motorcycle	0.00706	1.026	0.0097	5.44	0.067
Passenger Car	0.443	24.0	0.4741	38.73	1.879
Passenger Truck	0.398	33.3	0.4682	35.66	1.552
Light Commercial Truck	0.111	9.2	0.1177	9.14	0.399
Intercity Bus	0.018	0.7	0.00167	0.04	0.0028
Transit Bus	0.011	0.8	0.00258	0.07	0.0054
School Bus	0.049	1.9	0.0054	0.28	0.0129
Refuse Truck	0.021	1.0	0.0061	0.15	0.0100
Single Unit Short-haul Truck	0.242	24.0	0.1139	18.57	0.233
Single Unit Long-haul Truck	0.015	0.9	0.0042	0.39	0.0117
Motor Home	0.016	1.7	0.0060	3.52	0.0092
Combination Short-haul Truck	0.140	8.5	0.0571	0.71	0.096
Combination Long-haul Truck	0.665	41.7	0.1472	3.73	0.275
Total On-road Mobile Emissions	**2.1**	**148.7**	**1.41**	**116.4**	**4.6**

Table 6-5: 2032 Mobile Source Annual Inventory Summary

Source Type	$PM_{2.5}$ (ton)	NO_x (ton)	SO_x (ton)	VOCs (ton)	NH_3 (ton)
Motorcycle	0.00713	1.034	0.0099	5.32	0.070
Passenger Car	0.403	14.1	0.4129	25.12	1.807
Passenger Truck	0.351	17.0	0.4146	19.33	1.466
Light Commercial Truck	0.093	4.8	0.1052	4.99	0.381
Intercity Bus	0.008	0.3	0.00163	0.02	0.0029
Transit Bus	0.006	0.5	0.00263	0.04	0.0056
School Bus	0.023	1.0	0.0053	0.17	0.0131
Refuse Truck	0.009	0.6	0.0062	0.10	0.0103
Single Unit Short-haul Truck	0.158	18.0	0.1155	12.32	0.238
Single Unit Long-haul Truck	0.009	0.6	0.0041	0.14	0.0118
Motor Home	0.009	0.9	0.0054	1.66	0.0084
Combination Short-haul Truck	0.065	5.9	0.0577	0.57	0.099
Combination Long-haul Truck	0.272	29.0	0.1450	2.99	0.276
Total On-road Mobile Emissions	**1.4**	**93.7**	**1.29**	**72.8**	**4.39**

Table 6-6: 2026 & 2032 Non-road Annual Inventory Summary

Pollutant	2026 Annual Emissions (ton)	2032 Annual Emissions (ton)
$PM_{2.5}$	5.97	5.2
NO_x	89.2	86.4
SO_x	0.53	0.56
VOCs	74.3	80.2
NH_3	0.22	0.25

Table 6-7: 2026 & 2032 Fugitive Road Dust Inventory

Fugitive Road Dust Emissions		
Source	2026 Annual $PM_{2.5}$ Emissions (tons)	2032 Annual $PM_{2.5}$ Emissions (tons)
Paved Roads- Total: Fugitives	13.95	14.2
Unpaved Roads- Total: Fugitives	98.8	100.6

6.4 Summary of Emissions Inventories

Table 6-8 below summaries all PM2.5 and precursor emissions in the NA for the base (2017), interim (2026), and final (2032) maintenance years. Table 6-9 on the following page presents the net change in annual NA emissions from the base year to the final maintenance year. This table shows over the maintenance period, ADEQ anticipates $PM_{2.5}$ emissions to decrease by approximately 7.0 tons. As a note, the column "% of total" refers to that values' share across all source categories for that pollutant.

Table 6-8: Nogales $PM_{2.5}$ NA Final Emission Inventory

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
Point Source (TPY)		**Point Source (TPY)[a]**		**Point Source (TPY)[a]**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	0.169	$PM_{2.5}$	1.23	$PM_{2.5}$	1.23
NOx	7.84	NOx	25.7	NOx	25.7
SOx	0.054	SOx	5.16	SOx	5.16
VOC	0.066	VOC	0.05	VOC	0.05
NH3	-	NH3	-	NH3	-
Nonpoint (TPY)		**Nonpoint (TPY)**		**Nonpoint (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	57.0	$PM_{2.5}$	57.9	$PM_{2.5}$	57.6
NOx	39.0	NOx	43.7	NOx	44.8
SOx	2.39	SOx	2.66	SOx	2.73
VOC	432.0	VOC	475.2	VOC	497.1
NH3	3.7	NH3	3.5	NH3	3.3
On-road Mobile (TPY)		**On-road Mobile (TPY)**		**On-road Mobile (TPY)**	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	120.0	$PM_{2.5}$	114.9	$PM_{2.5}$	116.2
NOx	414.4	NOx	148.7	NOx	93.7
SOx	1.8	SOx	1.4	SOx	1.3
VOC	245.1	VOC	116.4	VOC	72.8
NH3	6.0	NH3	4.6	NH3	4.4

Non-Road Mobile (TPY)		Non-Road Mobile (TPY)		Non-Road Mobile (TPY)	
Pollutant	**2017**	**Pollutant**	**2026**	**Pollutant**	**2032**
$PM_{2.5}$	9.3	$PM_{2.5}$	6.0	$PM_{2.5}$	5.2
NOx	123.2	NOx	89.2	NOx	86.4
SOx	0.48	SOx	0.53	SOx	0.56
VOC	77.0	VOC	74.3	VOC	80.2
NH3	0.18	NH3	0.22	NH3	0.25
Summary		**Summary**		**Summary**	
Pollutant	**2017 (TPY)**	**Pollutant**	**2026 (TPY)**	**Pollutant**	**2032 (TPY)**
$PM_{2.5}$	**186.5**	**$PM_{2.5}$**	**179.9**	**$PM_{2.5}$**	**180.2**
NOx	**584.4**	**NOx**	**307.4**	**NOx**	**250.6**
SOx	**4.7**	**SOx**	**9.8**	**SOx**	**9.8**
VOC	**754.3**	**VOC**	**665.8**	**VOC**	**650.0**
NH3	**9.8**	**NH3**	**8.3**	**NH3**	**7.9**

Table 6-9: Annual Net Emissions

Change in Emissions (tons)	
Pollutant	**2017 - 2032**
$PM_{2.5}$	-6.3
NOx	-333.8
SOx	+5.1
VOC	-104.3
NH3	-1.9

7 Winter Daily Inventory

As seen in Table 2-1, going back to 2005, roughly 96% of exceedance days have occurred in either January or December. Due to the frequency of exceedances during these winter months ADEQ developed this winter daily inventory (WDI). The inventory is on a 24-hour timescale in order to align with the form of the NAAQS.

7.1 Winter Season Determination

To create the WDI a duration for the winter season needed to be determined. ADEQ started its analysis by plotting the 24-hr $PM_{2.5}$ concentrations (by month) for all available datasets. Figure B-1 through Figure B-13 in Appendix B gives these plots for 2014 (year from clean data determination). Next, ADEQ plotted 24-hr concentrations against the daily low air temperature from the corresponding 24-hr period. These plots are located in Appendix C (Figure C-1 through Figure C-3).

The figures in Appendix B provide markers denoting 25%, 50%, and 75% of the NAAQS level of 35 µg/m^3, which correspond to 8.75 µg/m^3, 17.5 µg/m^3, and 26.5 µg/m^3 respectively. As seen in the figures, $PM_{2.5}$ concentrations tend to start increasing (above 50% of the NAAQS level) in November. As a note, a portion of the October 2014 data is missing. However, when looking at other years, October concentrations do not exceed the 50% level. This upward trend in concentrations continues into December, which tends to be the worst month, and then starts decreasing towards the end of January. By the end of February concentrations level out to approximately 25% of the NAAQS level.

The figures in Appendix C show that as the daily low air temperature decreases $PM_{2.5}$ concentrations increase. As seen in the figures, 24-hr concentrations start increasing above 75% of the NAAQS level when temperatures drop below 40°F. Due to this phenomenon, ADEQ looked at how many days per year have lows that reach 40°F or lower. For 2014, 2015, and 2016 the number of days were 89, 80, and 86 days respectively.

Based on the figures in Appendix B and C, ADEQ determined the winter season should be from November to January (92 days).

7.2 Methodology

For most source categories, the basis of the WDI is the annual inventories shown in Table 6-8. However, for the Valencia power plant, ADEQ used operations data to better estimate daily winter emissions from the facility.

7.2.1 Allocation Methodology

ADEQ allocated emissions to the 92-day period based on seasonality. Residential fuel combustion (RFC) emissions were the only source category considered seasonal. For the WDI, ADEQ did not consider Valencia emissions seasonal, in that, this source only emits during a specific season. However, ADEQ used seasonal operations data from Valencia to allocate the facility's emissions to the 92-day period. ADEQ assumed all other source categories were equal throughout the year.

Based on this assumption, ADEQ divided the on-road and non-road annual emissions by 365 to obtain the winter daily emissions. To allocate nonpoint emissions, ADEQ first removed RFC emissions from the nonpoint source

category total. ADEQ then divided the remaining nonpoint emissions by 365 to obtain their WDI contribution. Finally, the isolated RFC annual emissions total was divided by 92 to obtain its WDI contribution.

To determine the Valencia WDI, ADEQ first calculated a facility wide annual average tons per megawatt hour (MWh) emission rate for all inventoried pollutants. ADEQ obtained the facility's annual emissions from the agency's point source emissions database, SLEIS. In addition to emissions, ADEQ requested daily MWh totals from the facility. ADEQ used the sum of these daily totals to determine the annual MWh produced by the facility, and calculated a ton per MWh value for all pollutants for years 2013 through 2018. Table 7-1 below gives the generation, emissions, and annual emission rates for $PM_{2.5}$. Averaging the values in the emission rate column gives an annual average emission rate of 0.0000567 tons/MWh (0.113 lb/MWh).

Table 7-1 Facility Provided Dataset Summary

Year	Annual Generation (MWh)	Annual $PM_{2.5}$ Emissions (ton)	Emission Rate (ton/MWh)
2013	10,066.2	0.97	0.0000964
2014	515.2	0.0325	0.0000631
2015	451.6	0.0226	0.0000501
2016	792.7	0.0355	0.0000448
2017	3,423.9	0.169	0.0000495
2018	3,582.7	0.129	0.0000361

Next, ADEQ sorted Valencia's daily generation values (2013-2018) by season and isolated the values that fell within the November - January timeframe. Next the 90th percentile value was calculated using these November – January daily generation data points. ADEQ used the 90th percentile daily generation, along with the 0.113 lb/MWh value, to calculate the 2017 WDI value. Equation 7-1 provides the equation (including sample calculation) used to determine the Valencia 2017 WDI contribution of 13.8 lb/day.

Equation 7-1: Valencia 2017 Winter Daily Inventory Sample Calculation

- $ER_{PM2.5}$ = $PM_{2.5}$ annual average facility emission rate (lb/MWh)
- G_d = Winter season 90th percentile daily generation (MWh/day)
- WDI_{2017} = 2017 Winter Daily Inventory Value (lb/day)

$$WDI_{2017} = ER_{PM2.5} * G_d$$

$$WDI_{2017} = 0.113\ \frac{lbs}{MWh} * 122.2 \frac{MWh}{day}$$

$$WDI_{2017} = 13.8\ \frac{lbs}{day}$$

To maximize the conservative nature of its projections, ADEQ used the maximum values for both emission rate and activity from the facility's dataset. Specifically, ADEQ used the 2013 emission rate from Table 7-1 as the emission rate for these projected years, and a daily gross load of 228 MWh/day as the activity level. As a note, this 228 MWh/day gross load was the highest daily generation value in the dataset. Additionally, this level of generation occurred outside of the November - January timeframe. Given Valencia is a peaker plant, and electricity demand is low during the winter season, it's unlikely the facility will experience a level of activity this high during the winter period.

The highest gross load value recorded during the November - January timeframe was 147 MWh/day, which is approximately 65% of the activity level assumed in the projection calculations. Equation 7-2 provides the equation (including sample calculation) used to determine the Valencia 2026/2032 WDI contribution of 44.0 lb/day.

To gauge how conservative this approach is, ADEQ performed an emissions calculation using the historic maximum operating days. In 2013, Valencia operated for 83 days, which was the highest number of annual operating days in the dataset. Applying this level of activity to the 44 lb/day emission rate gives an annual total of 1.8 tons of PM. ADEQ has not observed this level of PM in any of the facility's annual inventories to date. The largest annual PM total submitted by the facility occurred in 2001 at 1.2 tons. Unfortunately, Tucson Electric Power did not own Valencia in 2001, and the facility was unable to provide gross load data to ADEQ for this year. However, given that the 44 lb/day emission rate, when paired with the historic peak operating days, exceeds all annual PM totals submitted by the facility, ADEQ feels the projection methodology is appropriately conservative.

Equation 7-2: Valencia 2017 Winter Daily Inventory Sample Calculation

- $ER_{PM2.5}$ = $PM_{2.5}$ annual average facility emission rate (lb/MWh)
- G_{dm} = Winter season maximum daily generation (MWh/day)
- WDI_{2017} = 2017 Winter Daily Inventory Value (lb/day)

$$WDI_{2017} = ER_{PM2.5} * G_d$$

$$WDI_{2017} = 0.1928\ \frac{lbs}{MWh} * 228.1\ \frac{MWh}{day}$$

$$WDI_{2017} = 44.0\ \frac{lbs}{day}$$

7.3 Winter Daily Inventory

7.3.1 Results & Conclusion

Applying the above methodology gives the emission totals seen in the Table 7-2 below. Finally, Table 7-3 gives the change in the WDI from the base year to the final maintenance year. As a note, Table 7-2 separates out residential fuel combustion emissions from the nonpoint category. However, Table 7-3 recombines these source categories by including residential fuel combustion emissions in the nonpoint category.

Table 7-2: Winter Daily Inventory

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
Point Source (lb/day)		**Point Source (lb/day)**		**Point Source (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	13.8	$PM_{2.5}$	44.0	$PM_{2.5}$	44.0
NOx	396.2	NOx	1039.3	NOx	1039.3
SOx	8.9	SOx	46.2	SOx	46.2
VOC	7.1	VOC	20.4	VOC	20.4
NH3	-	NH3	-	NH3	-
Residential Fuel Combustion (lb/day)		**Residential Fuel Combustion (lb/day)**		**Residential Fuel Combustion (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	561.0	$PM_{2.5}$	500.0	$PM_{2.5}$	463.0
NOx	358.0	NOx	401.0	NOx	429.0
SOx	14.6	SOx	15.5	SOx	16.2
VOC	733.0	VOC	700.0	VOC	678.0
NH3	70.4	NH3	65.6	NH3	62.4 .

Table 7-2 Winter Daily Inventory Cont.

Base Year (2017)		Interim Year (2026)		Final Year (2032)	
Nonpoint (lb/day)		**Nonpoint (lb/day)**		**Nonpoint (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	164.0	$PM_{2.5}$	181.9	$PM_{2.5}$	190.9
NOx	121.2	NOx	138.0	NOx	138.7
SOx	8.62	SOx	9.73	SOx	9.94
VOC	2,167.0	VOC	2,407.0	VOC	2,532.0
NH3	1.1	NH3	1.21	NH3	1.24
On-road Mobile (lb/day)		**On-road Mobile (lb/day)**		**On-road Mobile (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	658.0	$PM_{2.5}$	630.0	$PM_{2.5}$	637.0
NOx	2,271.0	NOx	815.0	NOx	513.0
SOx	9.9	SOx	7.7	SOx	7.1
VOC	1,343.0	VOC	638.0	VOC	399.0
NH3	32.9	NH3	25.2	NH3	24.1
Non-road Mobile (lb/day)		**Non-road Mobile (lb/day)**		**Non-road Mobile (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	51.2	$PM_{2.5}$	32.7	$PM_{2.5}$	28.5
NOx	675.0	NOx	489.0	NOx	473.3
SOx	2.6	SOx	2.9	SOx	3.1
VOC	421.6	VOC	407.3	VOC	439.3
NH3	1.03	NH3	1.22	NH3	1.34
2017 Summary (lb/day)		**2026 Summary (lb/day)**		**2032 Summary (lb/day)**	
Pollutant	**Emissions**	**Pollutant**	**Emissions**	**Pollutant**	**Emissions**
$PM_{2.5}$	**1,448**	**$PM_{2.5}$**	**1,388**	**$PM_{2.5}$**	**1,363**
NOx	**3,821**	**NOx**	**2,882**	**NOx**	**2,594**
SOx	**45**	**SOx**	**82**	**SOx**	**83**
VOC	**4,672**	**VOC**	**4,172**	**VOC**	**4,069**
NH3	**105**	**NH3**	**93**	**NH3**	**89**

Table 7-3: Winter Daily Inventory Net Emissions

$PM_{2.5}$			
Sector	**2017 Emissions (lb/day)**	**2032 Emissions (lb/day)**	**Winter Inventory Net Change (lb/day)**
Point	14	44	30
Nonpoint	725	654	-71
On-road	658	637	-21
Non-road	51	28	-23
Total	**1,446**	**1,330**	**-85**
NOx			
Sector	**2017 Emissions (lb/day)**	**2032 Emissions (lb/day)**	**Winter Inventory Net Change (lb/day)**
Point	396	1039	643
Nonpoint	479	568	89
On-road	2,271	513	-1,757
Non-road	675	473	-202
Total	**3,821**	**2,594**	**-1,227**
SOx			
Sector	**2017 Emissions (lb/day)**	**2032 Emissions (lb/day)**	**Winter Inventory Net Change (lb/day)**
Point	9	46	37
Nonpoint	23	26	3
On-road	10	7	-3
Non-road	2.6	3.0	0.4
Total	**45**	**83**	**38**
VOC			
Sector	**2017 Emissions (lb/day)**	**2032 Emissions (lb/day)**	**Winter Inventory Net Change (lb/day)**
Point	7	20	13
Nonpoint	2900	3211	310
On-road	1343	399	-944
Non-road	422	439	18
Total	**4672**	**4069**	**-603**
NH3			
Sector	**2017 Emissions (lb/day)**	**2032 Emissions (lb/day)**	**Winter Inventory Net Change (lb/day)**
Point	-	-	-
Nonpoint	72	64	-8
On-road	33	24	-9
Non-road	1.0	1.3	0.3
Total	**105**	**89**	**-16**

The WDI for SO_2 increases by 5% from the base year to the final maintenance year. All other pollutants show an overall emissions reduction. Specifically, between 2017 and 2032, the WDI projects reductions of 8% for $PM_{2.5}$, 51% for NO_x, 15% for NH_3, and 13% for VOCs. On the following pages, Table 7-5, Table 7-6, and Table 7-7 provide a high-level overview of the WDI nonpoint source category.

In the base year, the source with the highest emissions of $PM_{2.5}$ in the WDI is residential fuel combustion. This source is responsible for roughly 561 lb/day of $PM_{2.5}$. The next largest source of $PM_{2.5}$ in the base year is unpaved fugitive road dust at 527.2 lb/day. These unpaved fugitive road dust emissions are included in the on-road mobile portion of Table 7-2. Table 7-4 below breaks down the on-road mobile portion of the WDI. The third largest source contributes significantly less $PM_{2.5}$, and is open burning at 85.5 lb/day.

In the final maintenance year, the largest source of $PM_{2.5}$ is unpaved fugitive road dust at 551.0 lb/day, and residential fuel combustion becomes the second largest contributor at 468.9 lb/day. Finally, open burning remains the third largest $PM_{2.5}$ source at 99.9 lb/day.

Table 7-4 – On-Road $PM_{2.5}$ Mobile Source Category Breakdown

Base Year (2017)	
Source	**$PM_{2.5}$ Emissions (lb/day)**
Vehicles	56.3
Fugitive Paved Road Dust	74.5
Fugitive Un-paved Road Dust	527.2
Interim Year (2026)	
Source	**$PM_{2.5}$ Emissions (lb/day)**
Vehicles	12.0
Fugitive Paved Road Dust	76.5
Fugitive Un-paved Road Dust	541.5
Final Maintenance Year (2032)	
Source	**$PM_{2.5}$ Emissions (lb/day)**
Vehicles	8.2
Fugitive Paved Road Dust	77.8
Fugitive Un-paved Road Dust	551.0

Table 7-5: 2017 Nonpoint Winter Daily Inventory Breakdown

Source	2017 (lb/day)				
	$PM_{2.5}$	NOx	SO2	VOC	NH3
Stationary Source Fuel Combustion-Industrial	4.68	53.13	4.94	2.90	0.40
Stationary Source Fuel Combustion-Commercial/Institutional	2.73	51.86	0.59	2.85	0.27
Stationary Source Fuel Combustion-Residential	561.09	357.83	14.57	733.26	70.43
Stationary Source Fuel Combustion – Sub Total	**568.5**	**462.8**	**20.1**	**739.0**	**71.1**
Industrial Processes-Food and Kindred Products	54.12	-	-	7.56	-
Industrial Processes-Residential Construction	2.05	-	-	-	-
Industrial Processes-Industrial/Commercial/Institutional Construction	8.34	-	-	-	-
Industrial Processes-Road Construction	6.59	-	-	-	-
Industrial Processes – Sub Total	**71.1**	-	-	**7.6**	-
Solvent Utilization – Sub Total	-	-	-	**1748.1**	-
Storage and Transport-Petroleum and Petroleum Product - Sub Total	-	-	-	**376.7**	-
Waste Disposal, Treatment, and Recovery-Open Burning	85.54	16.21	3.08	26.65	-
Waste Disposal, Treatment, and Recovery-Wastewater Treatment	-	-	-	2.31	0.44
Waste Disposal, Treatment, and Recovery - Sub Total	**85.54**	**16.21**	**3.08**	**29.0**	**0.44**
Grand Total (lb/day)	**725.14**	**479.03**	**23.18**	**2,900.4**	**71.54**

Table 7-6: 2026 Nonpoint Winter Daily Inventory Breakdown

Source	2026 (lb/day)				
	$PM_{2.5}$	NOx	SO2	VOC	NH3
Stationary Source Fuel Combustion-Industrial	5.19	60.74	5.73	3.37	0.46
Stationary Source Fuel Combustion-Commercial/Institutional	2.71	59.28	0.58	2.84	0.26
Stationary Source Fuel Combustion-Residential	508.04	395.87	15.87	714.78	66.74
Stationary Source Fuel Combustion	**515.9**	**515.9**	**22.2**	**721.0**	**67.5**
Industrial Processes-Food and Kindred Products	60.1	-	-	8.4	-
Industrial Processes-Residential Construction	2.28	-	-	-	-
Industrial Processes-Industrial/Commercial/Institutional Construction	9.27	-	-	-	-
Industrial Processes-Road Construction	7.32	-	-	-	-
Industrial Processes	**79.0**	-	-	**8.4**	-
Solvent Utilization	-	-	-	**1941.4**	-
Storage and Transport-Petroleum and Petroleum Product - Sub Total	-	-	-	**418.3**	-
Waste Disposal, Treatment, and Recovery-Open Burning	95.0	18.0	3.42	29.59	-
Waste Disposal, Treatment, and Recovery-Wastewater Treatment	-	-	-	2.57	0.49
Waste Disposal, Treatment, and Recovery - Sub Total	**95.0**	**18.0**	**3.42**	**32.2**	**0.49**
Grand Total (lb/day)	**689.91**	**533.9**	**25.6**	**3,121.2**	**67.95**

Table 7-7: 2032 Nonpoint Winter Daily Inventory Breakdown

Source	2032 (lb/day)				
	$PM_{2.5}$	NOx	SO2	VOC	NH3
Stationary Source Fuel Combustion-Industrial	5.06	60.50	5.77	3.40	0.46
Stationary Source Fuel Combustion-Commercial/Institutional	2.71	59.22	0.57	2.83	0.26
Stationary Source Fuel Combustion-Residential	468.91	415.43	16.52	691.09	63.26
Stationary Source Fuel Combustion	**476.7**	**535.2**	**22.9**	**697.3**	**64.0**
Industrial Processes-Food and Kindred Products	63.25	-	-	8.84	-
Industrial Processes-Residential Construction	2.4	-	-	-	-
Industrial Processes-Industrial/Commercial/Institutional Construction	9.75	-	-	-	-
Industrial Processes-Road Construction	7.71	-	-	-	-
Industrial Processes	**83.1**	-	-	**8.8**	-
Solvent Utilization	-	-	-	**2043.2**	-
Storage and Transport-Petroleum and Petroleum Product - Sub Total	-	-	-	**440.3**	-
Waste Disposal, Treatment, and Recovery-Open Burning	99.98	18.95	3.6	31.14	-
Waste Disposal, Treatment, and Recovery-Wastewater Treatment	-	-	-	2.70	0.51
Waste Disposal, Treatment, and Recovery - Sub Total	**99.98**	**18.95**	**3.6**	**33.8**	**0.51**
Grand Total (lb/day)	**659.8**	**554.1**	**26.5**	**3,223.4**	**64.5**

8 Closing Remarks

To recap, on May 10, 2017, The EPA determined the Nogales $PM_{2.5}$ NA attained the 2006 24-hour $PM_{2.5}$ NAAQS based on monitoring data from 2013 – 2015 (82 FR 21711). Given this, ADEQ has prepared a SIP revision demonstrating maintenance of the 2006 24-hour $PM_{2.5}$ NAAQS. ADEQ developed this TSD as a supplement to the SIP to inform stakeholders about the following:

- The local geography in the Nogales $PM_{2.5}$ NA
- The meteorological conditions in the Nogales $PM_{2.5}$ NA
- The ambient air quality issues in the Nogales $PM_{2.5}$ NA
- The effect meteorology has on ambient air quality
- The major sources of $PM_{2.5}$ and its precursors in the Nogales $PM_{2.5}$ NA
- ADEQ's projection of $PM_{2.5}$ and its precursors in the interim and the final year of the maintenance period.
- ADEQ's Winter Daily Inventory for the Nogales $PM_{2.5}$ NA

9 References

ADEQ staff referred to the following documents as guidance in the development of the Nogales $PM_{2.5}$ NA Emission Inventory and this TSD.

US EPA. (July 2017). *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations*. Office of Air Quality Planning and Standards. Research Triangle Park. NC.

Arizona Department of Transportation. (April 2017). *Arizona Department of Transportation Air Quality Regional Conformity Analysis*. Arizona Department of Transportation. Phoenix. AZ.

Appendix A: Wind & Pollution Roses

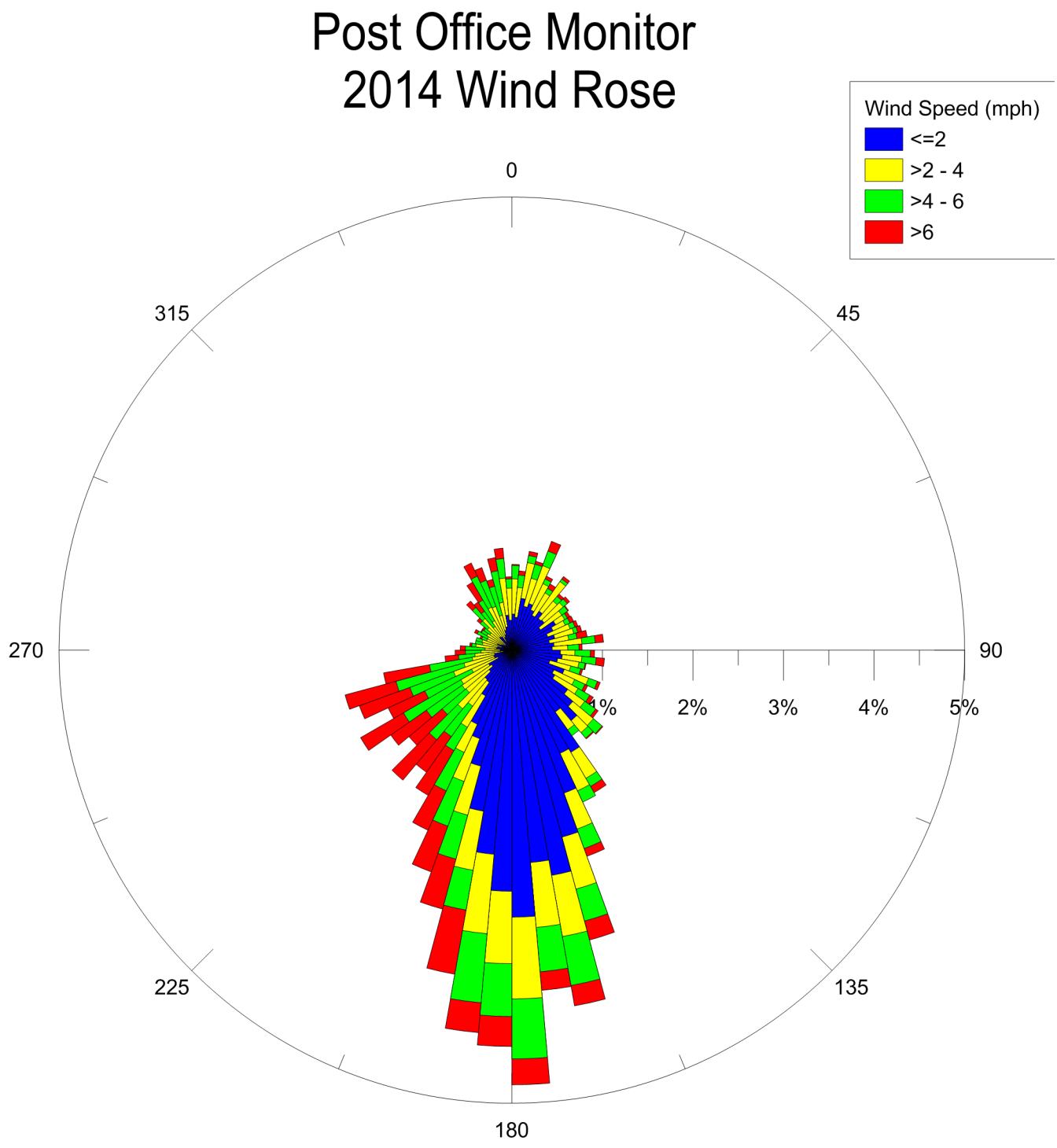

Figure A-1: 2014 Wind Rose

2014 Pollution Rose

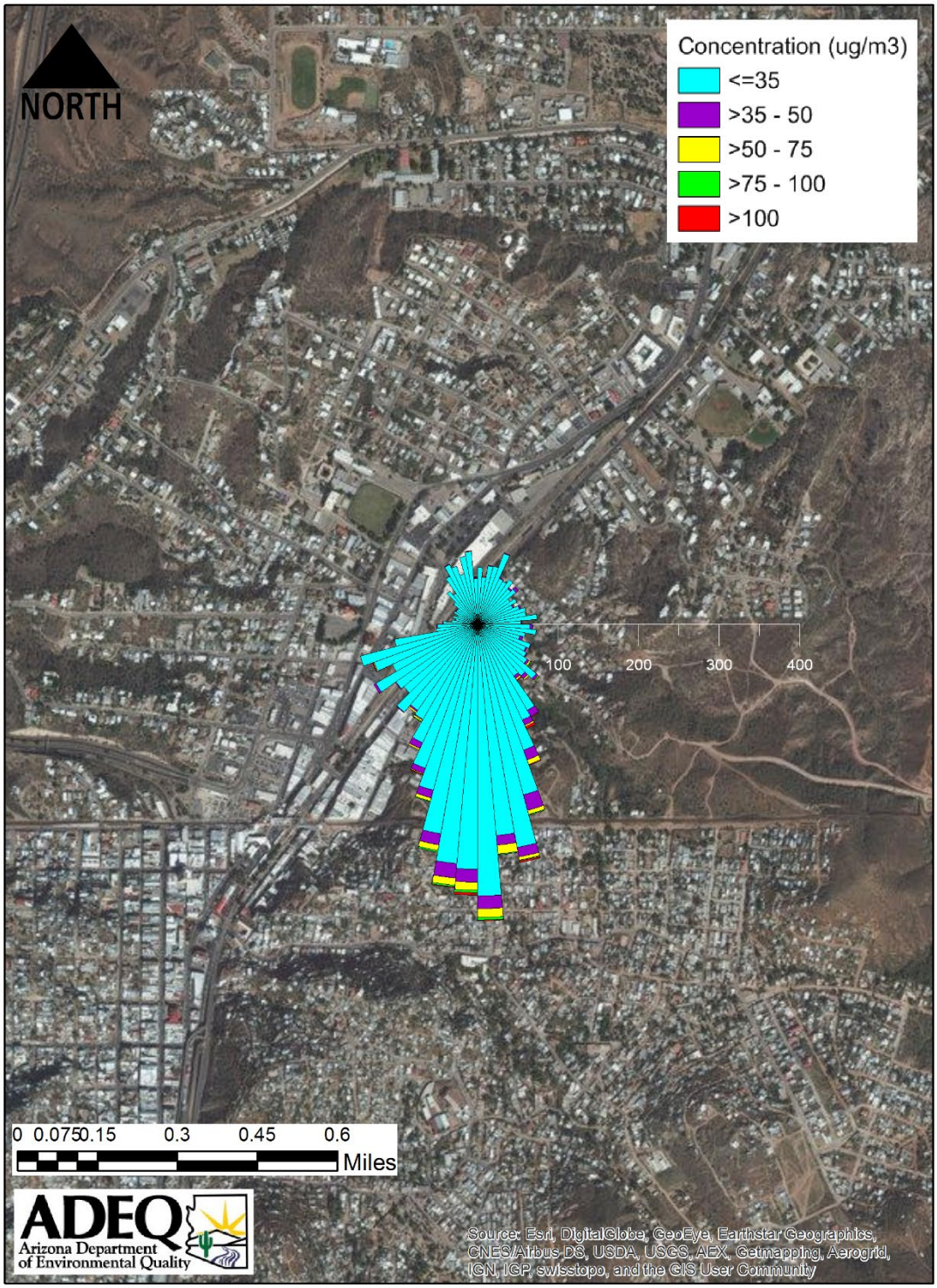

Figure A-2: 2014 Pollution Rose

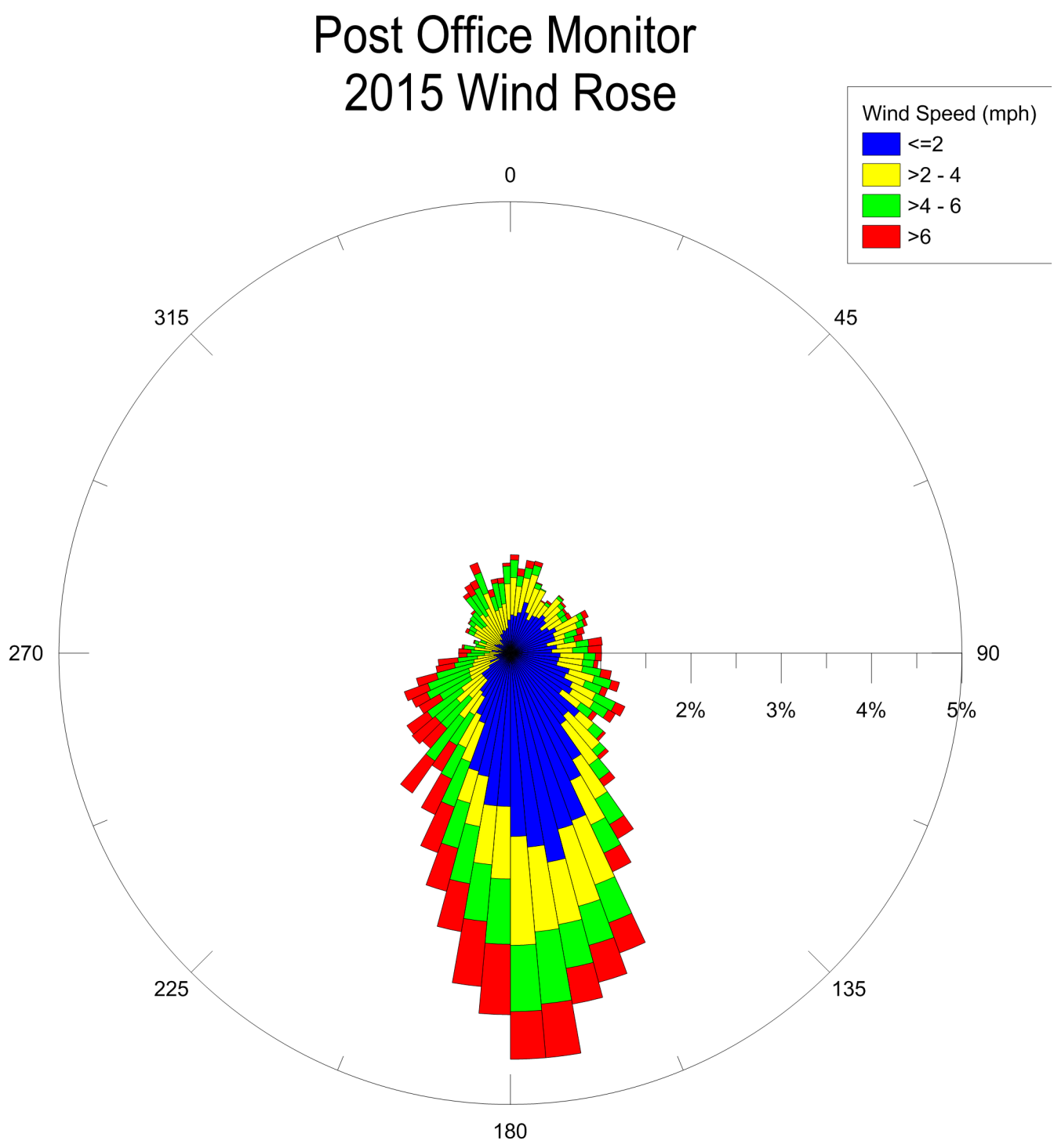

Figure A-3: 2015 Wind Rose

2015 Pollution Rose

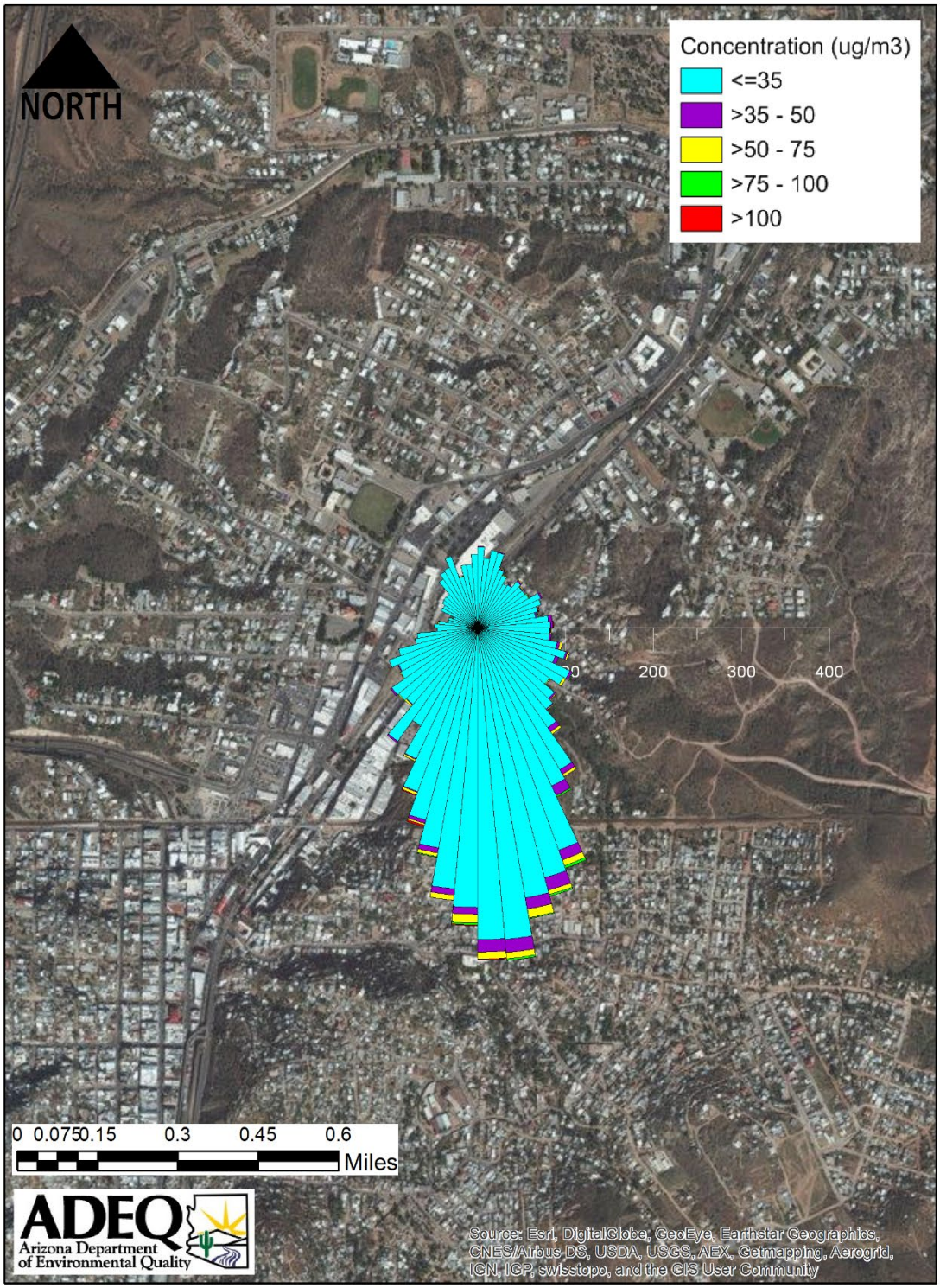

Figure A-4: 2015 Pollution Rose

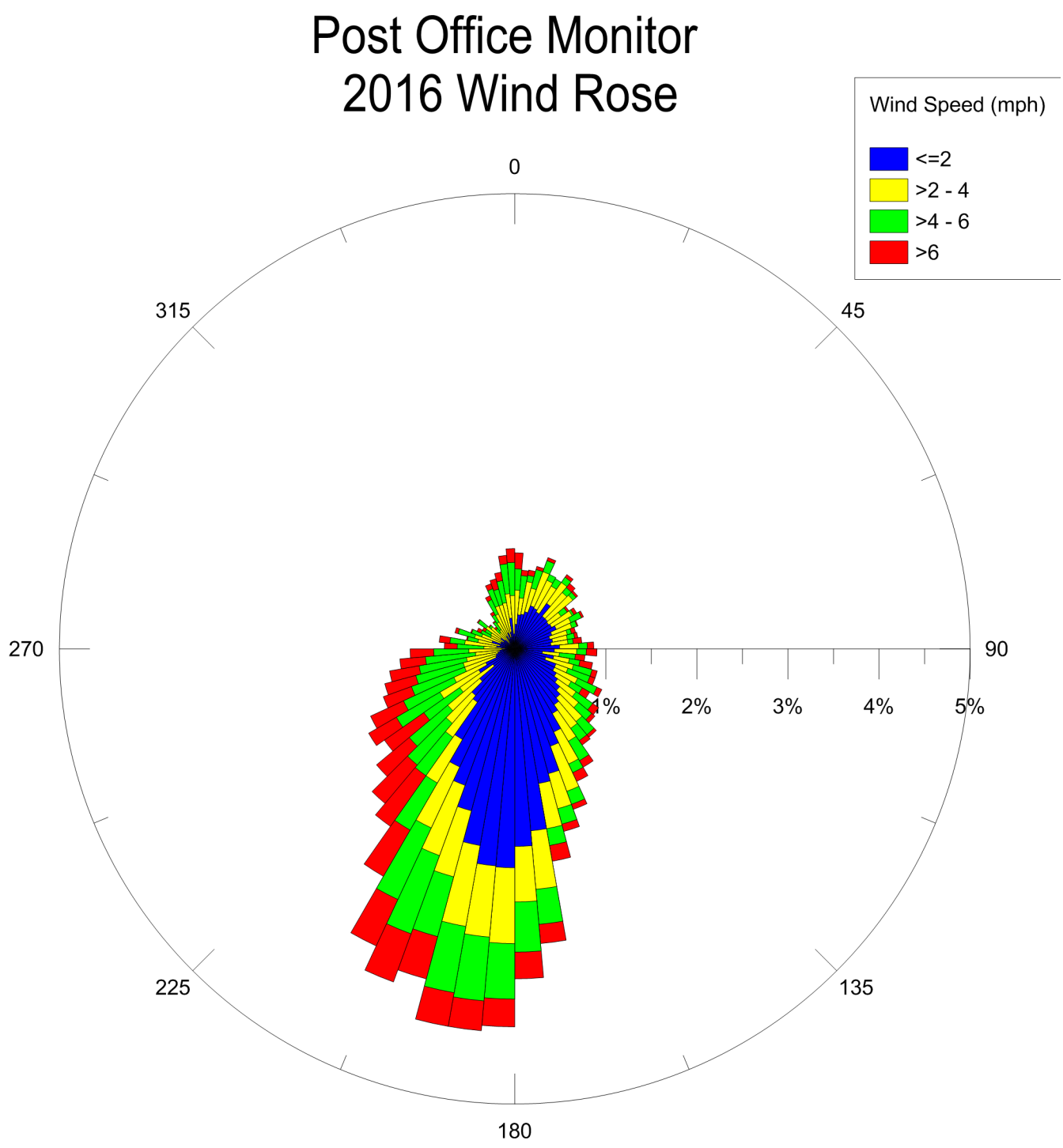

Figure A-5: 2016 Wind Rose

2016 Pollution Rose

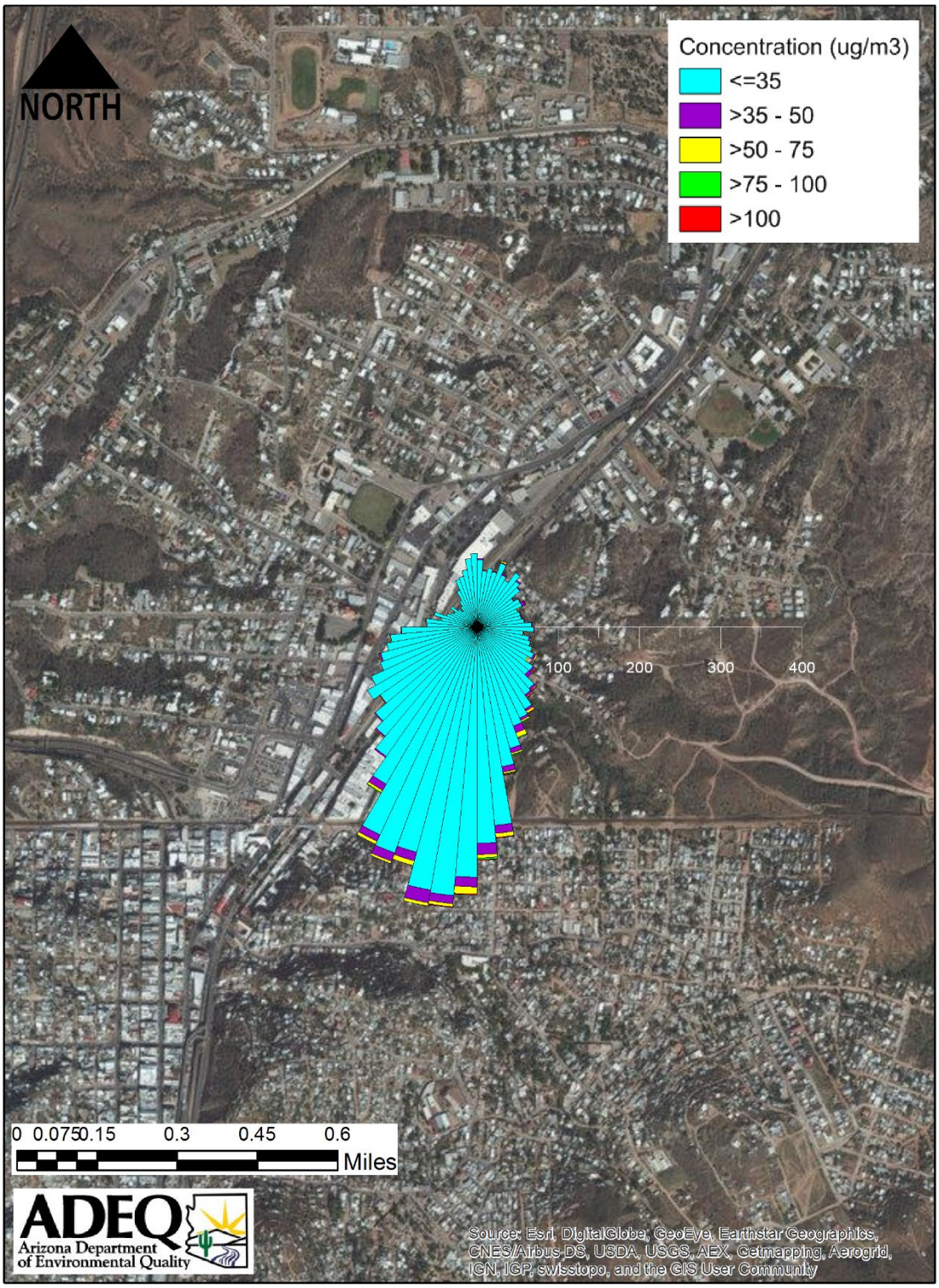

Figure A-6: 2016 Pollution Rose

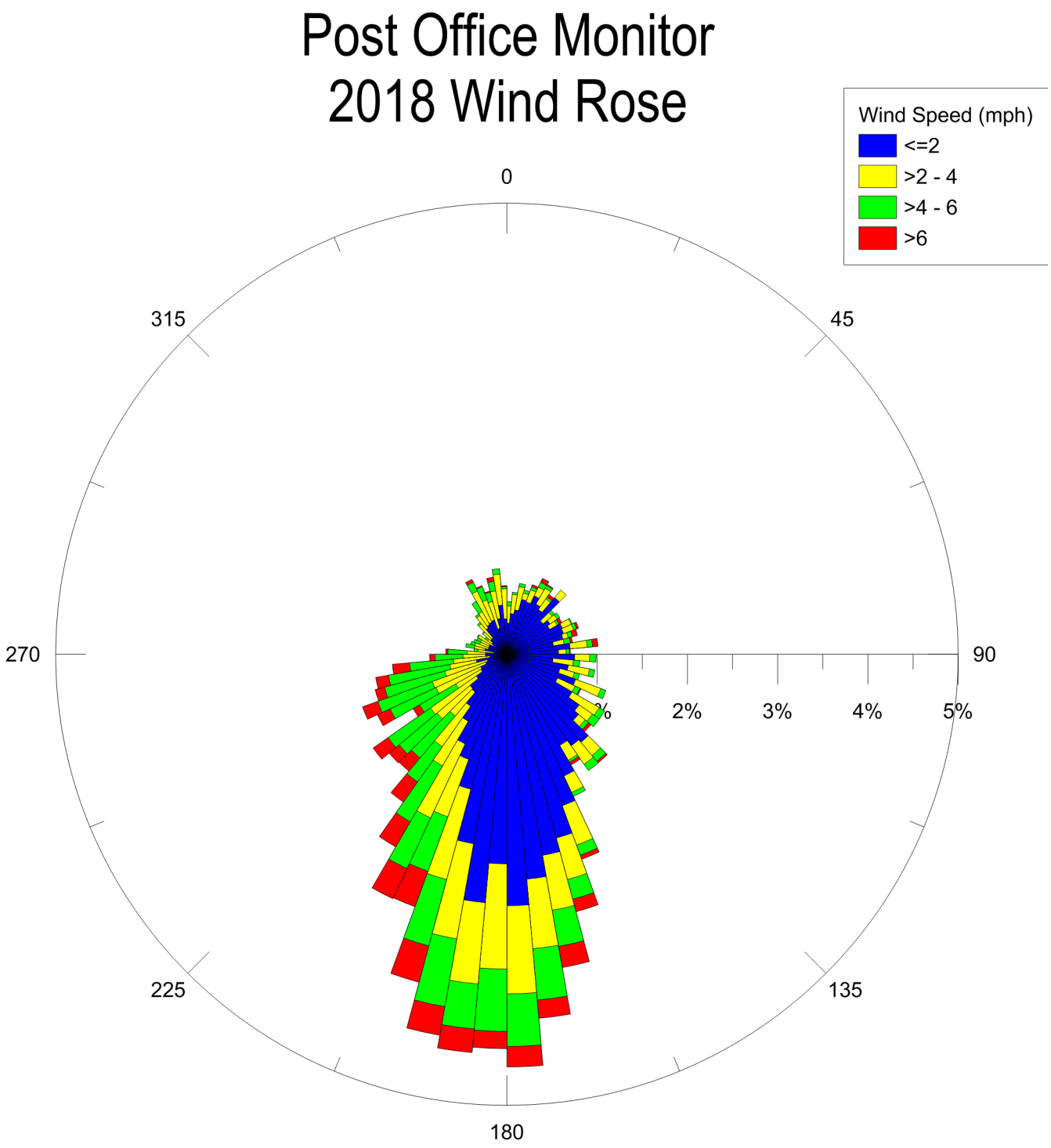

Figure A-7: 2018 Wind Rose

2018 Pollution Rose

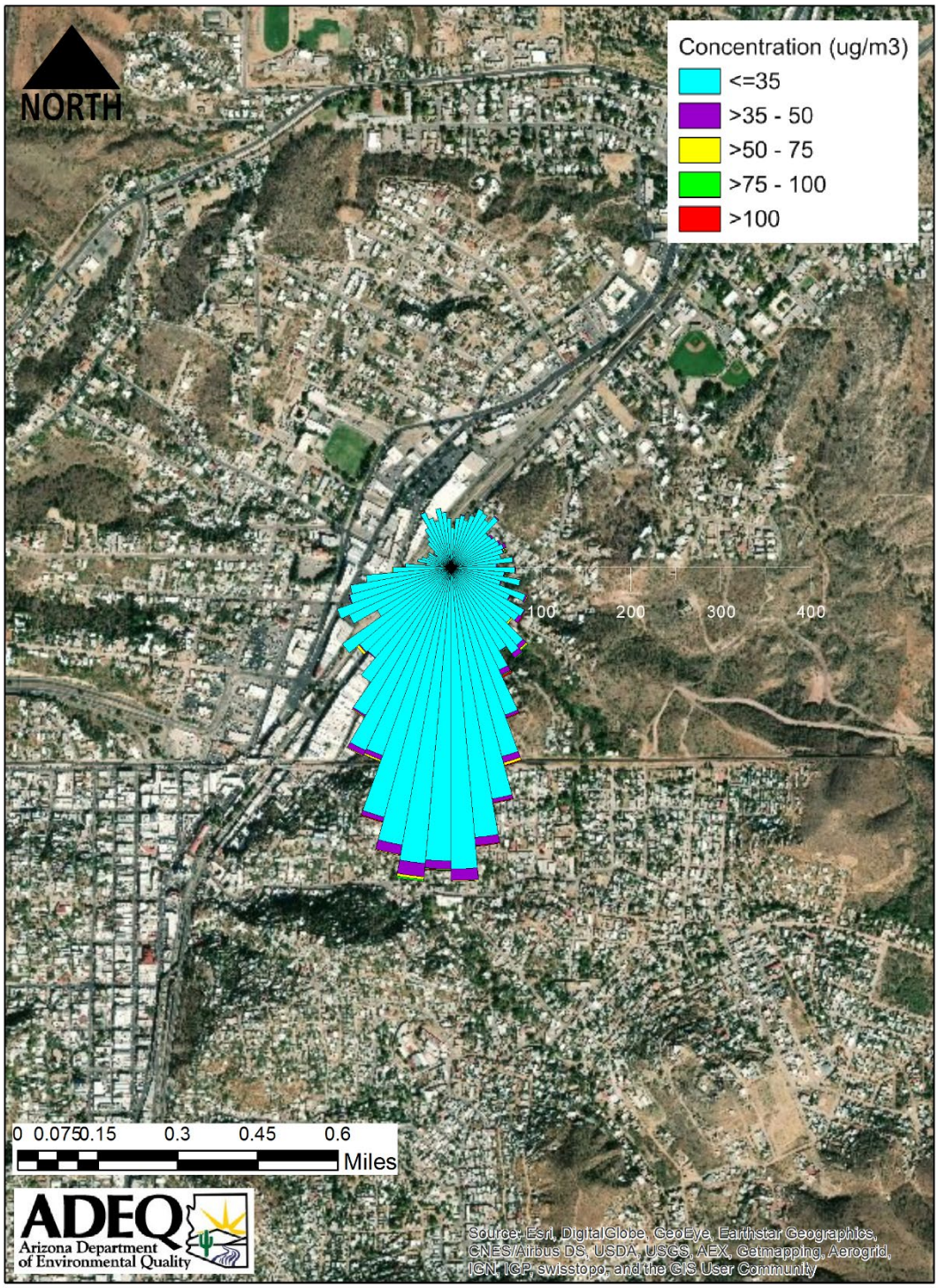

Figure A-8: 2018 Pollution Rose

Appendix B: Base Year 24-hr $PM_{2.5}$ Concentrations

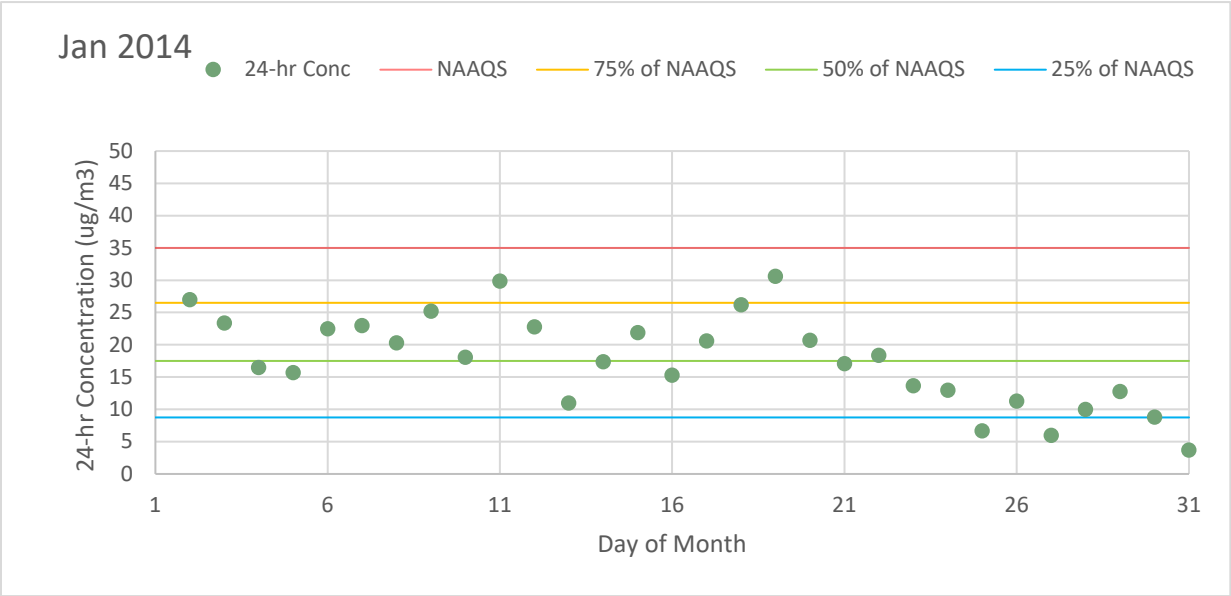

Figure B-1: January 2014 24-hr Concentrations

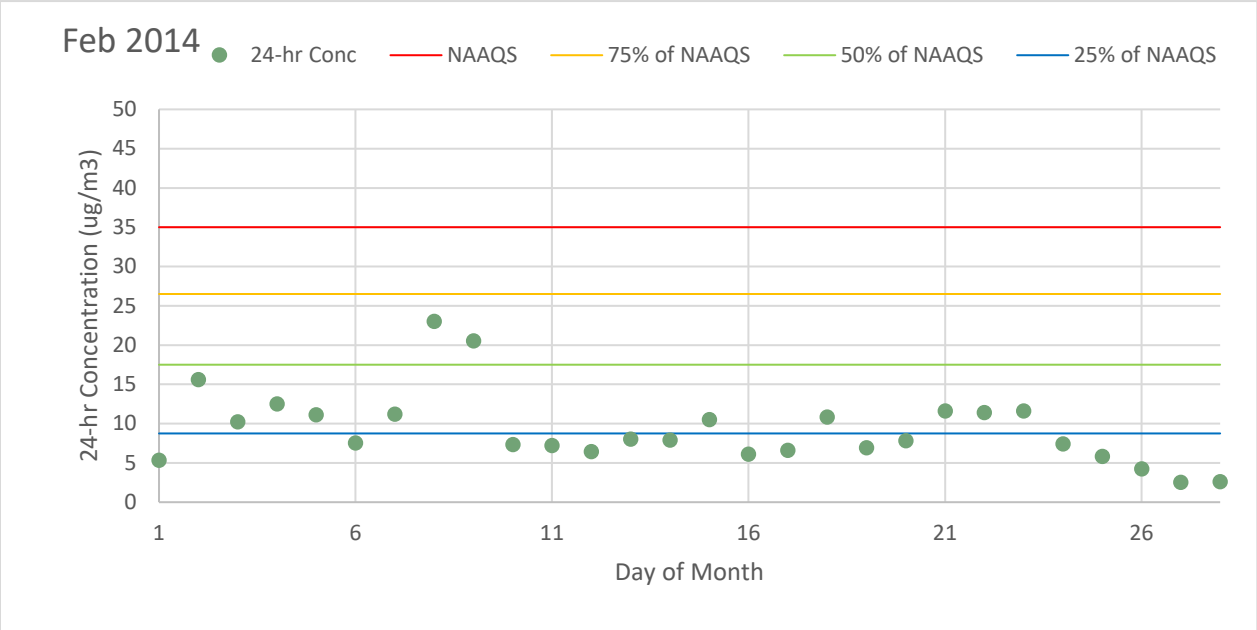

Figure B-2: February 2014 24-hr Concentrations

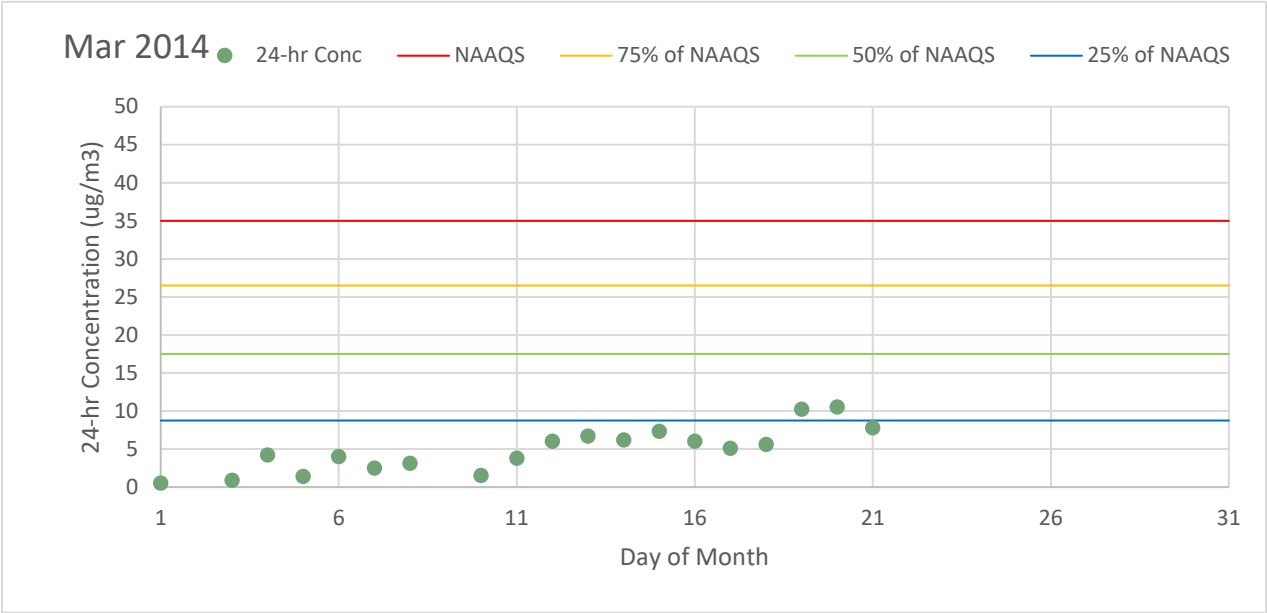

Figure B-3: March 2014 24-hr Concentrations

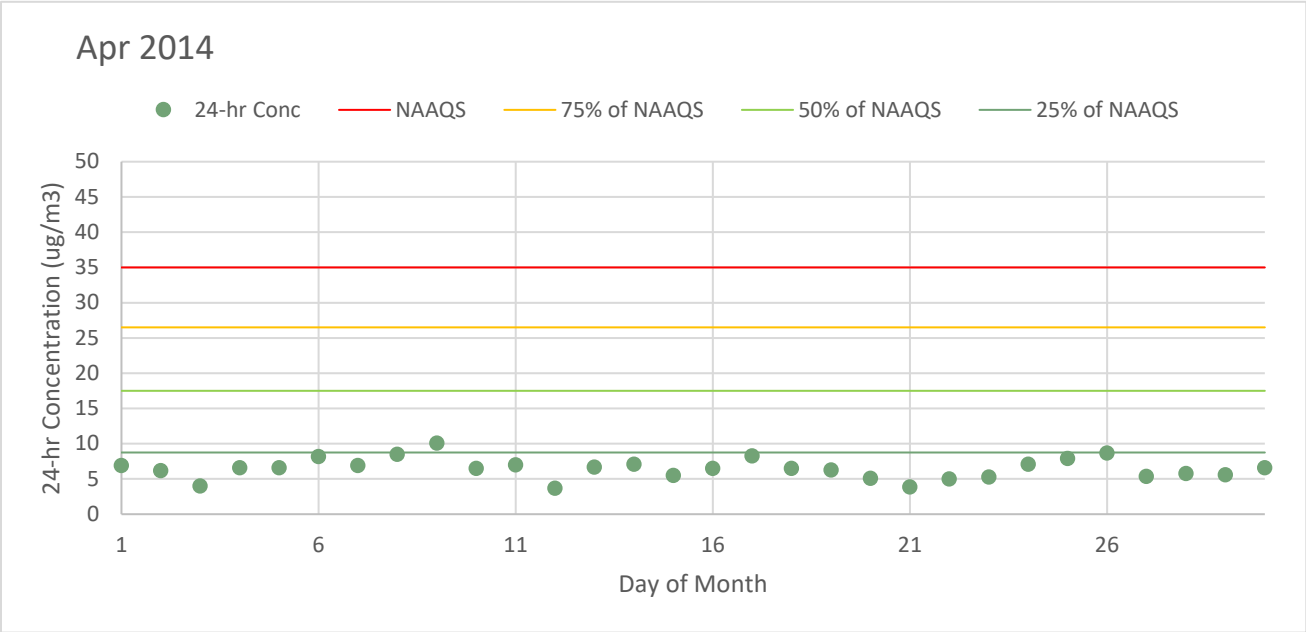

Figure B-4: April 2014 24-hr Concentrations

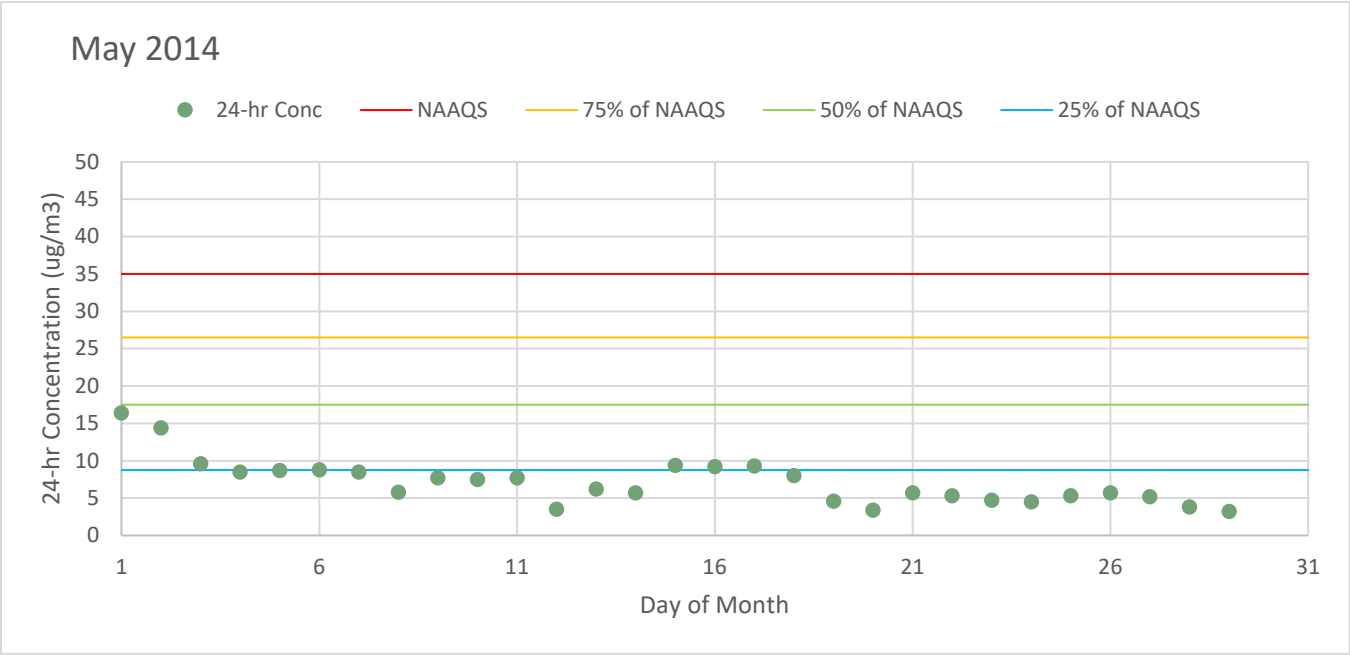

Figure B-5: May 2014 24-hr Concentrations

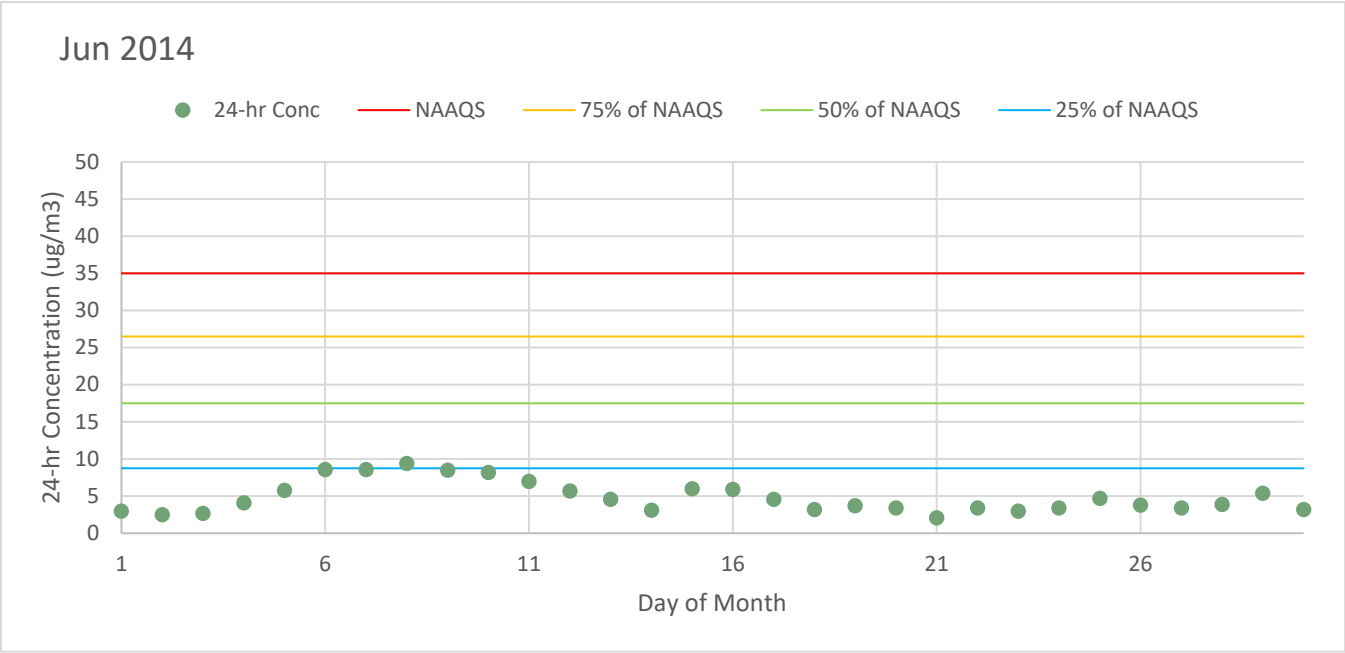

Figure B-6: June 2014 24-hr Concentrations

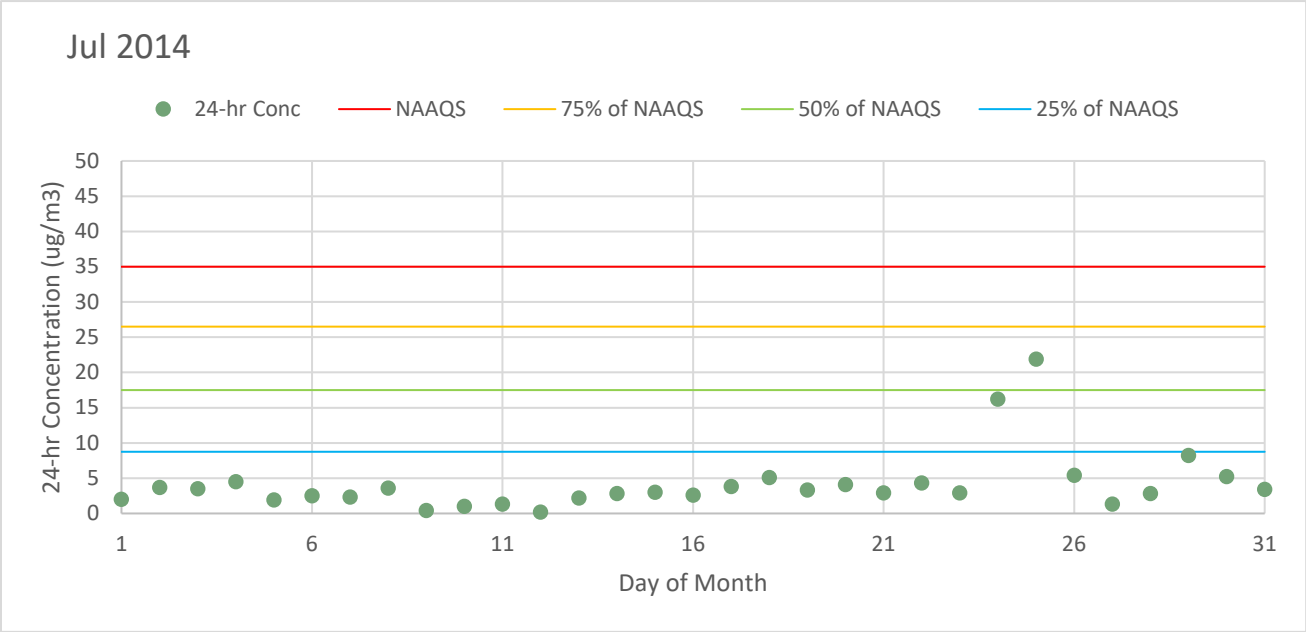

Figure B-7: July 2014 24-hr Concentrations

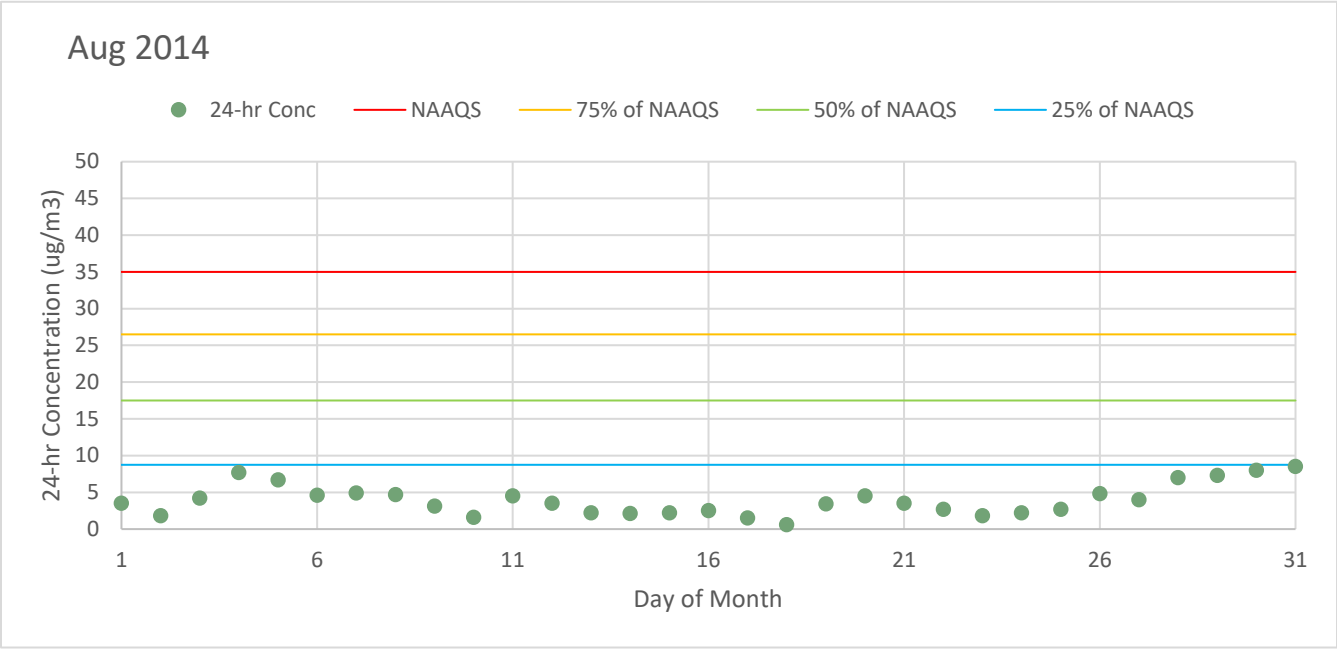

Figure B-8: August 2014 24-hr Concentrations

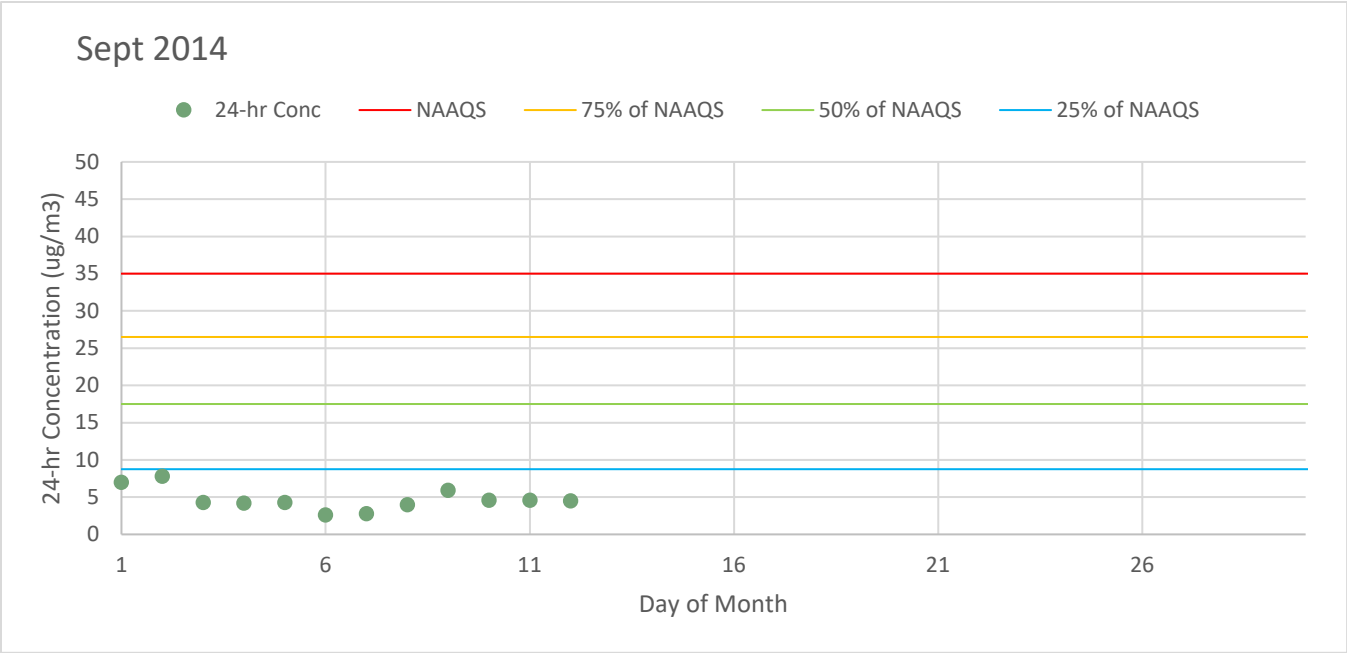

Figure B-9: September 2014 24-hr Concentrations

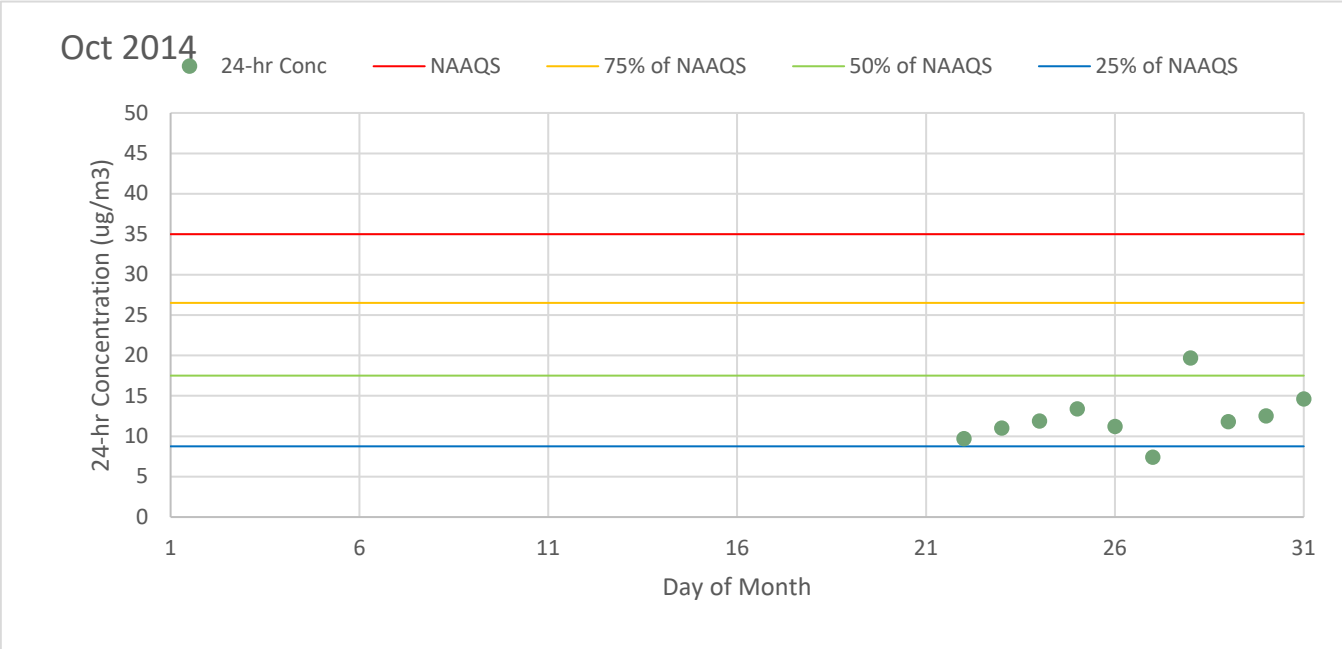

Figure B-10: October 2014 24-hr Concentrations

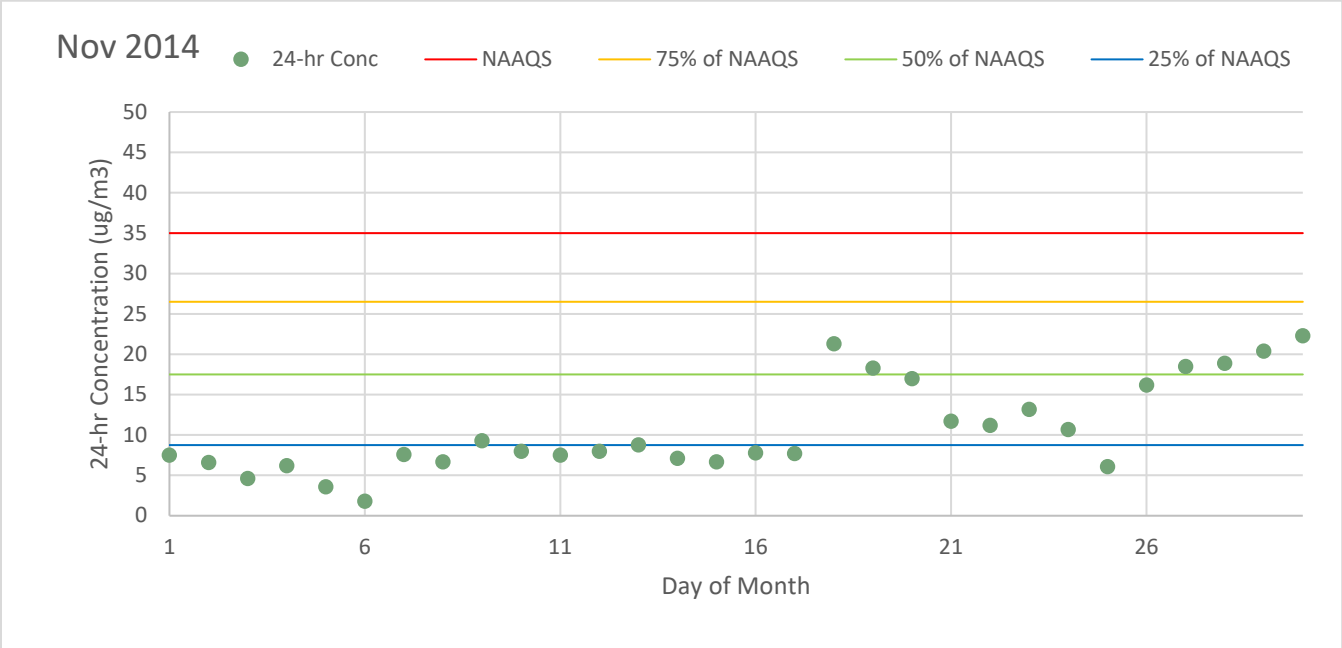

Figure B-11: November 2014 24-hr Concentrations

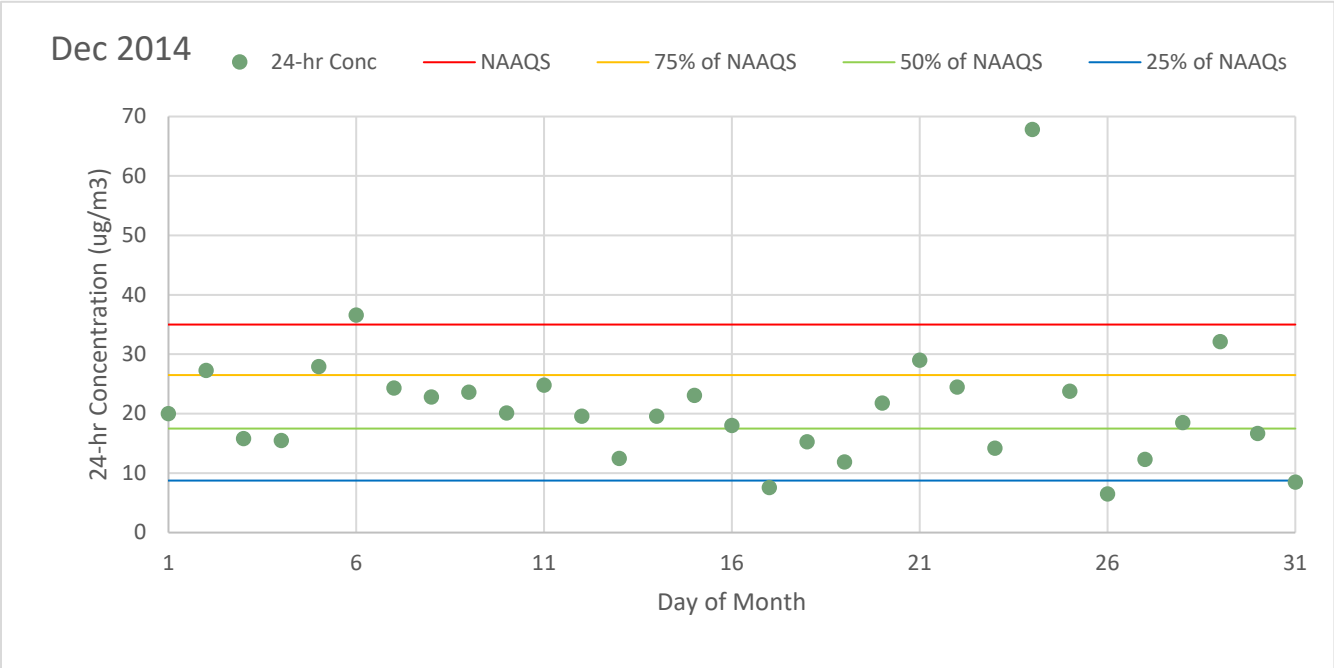

Figure B-12: December 2014 24-hr Concentrations

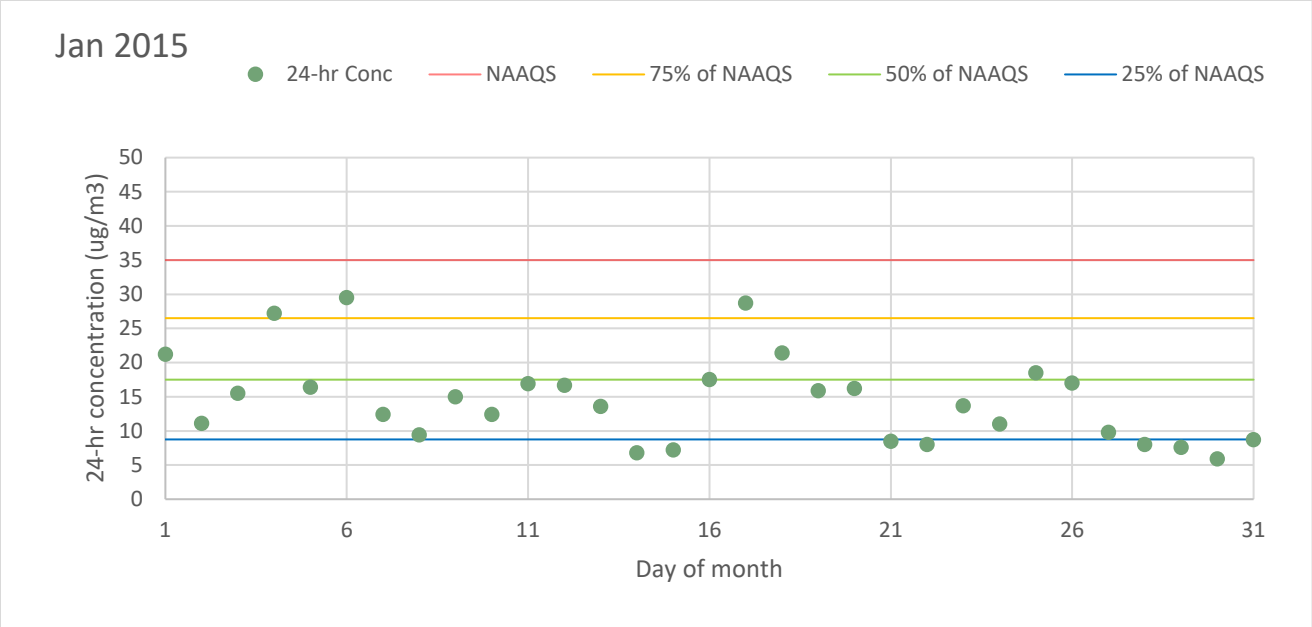

Figure B-13: January 2015 24-hr Concentrations

Appendix C: Daily Low Air Temperatures & 24-hr Concentrations

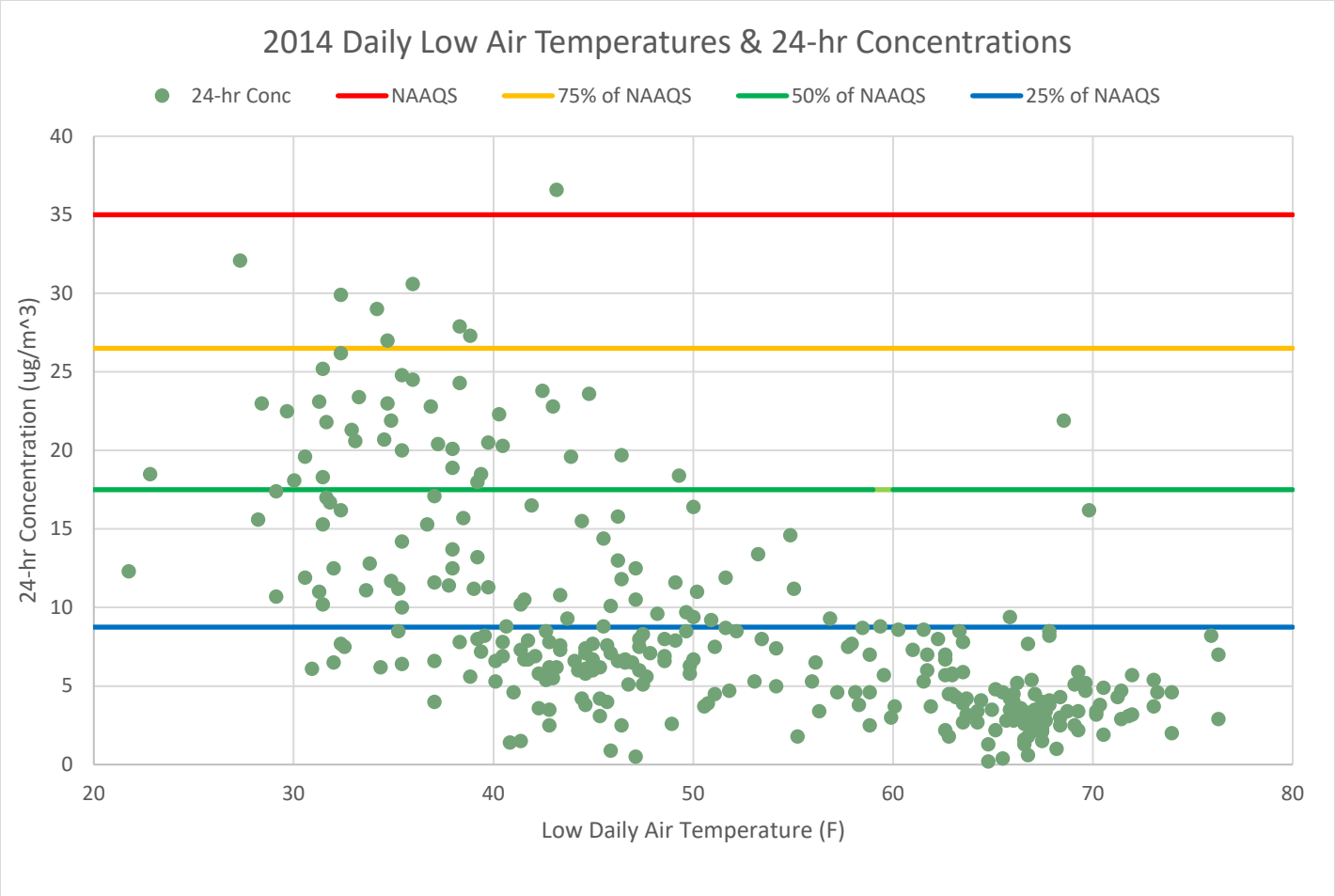

Figure C-1: 2014 $PM_{2.5}$ Concentration vs Temperature

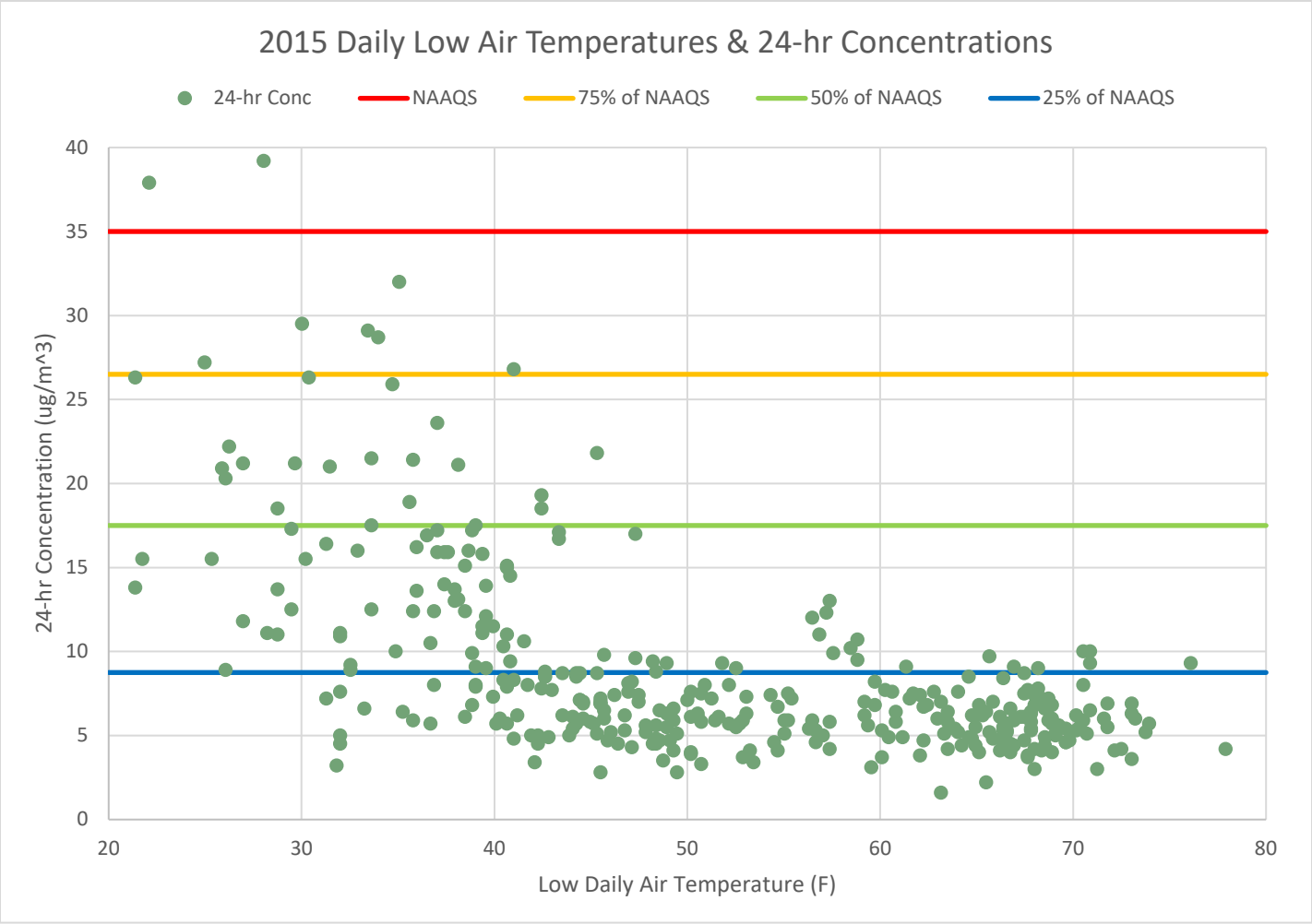

Figure C-2: 2015 $PM_{2.5}$ Concentration vs Temperature

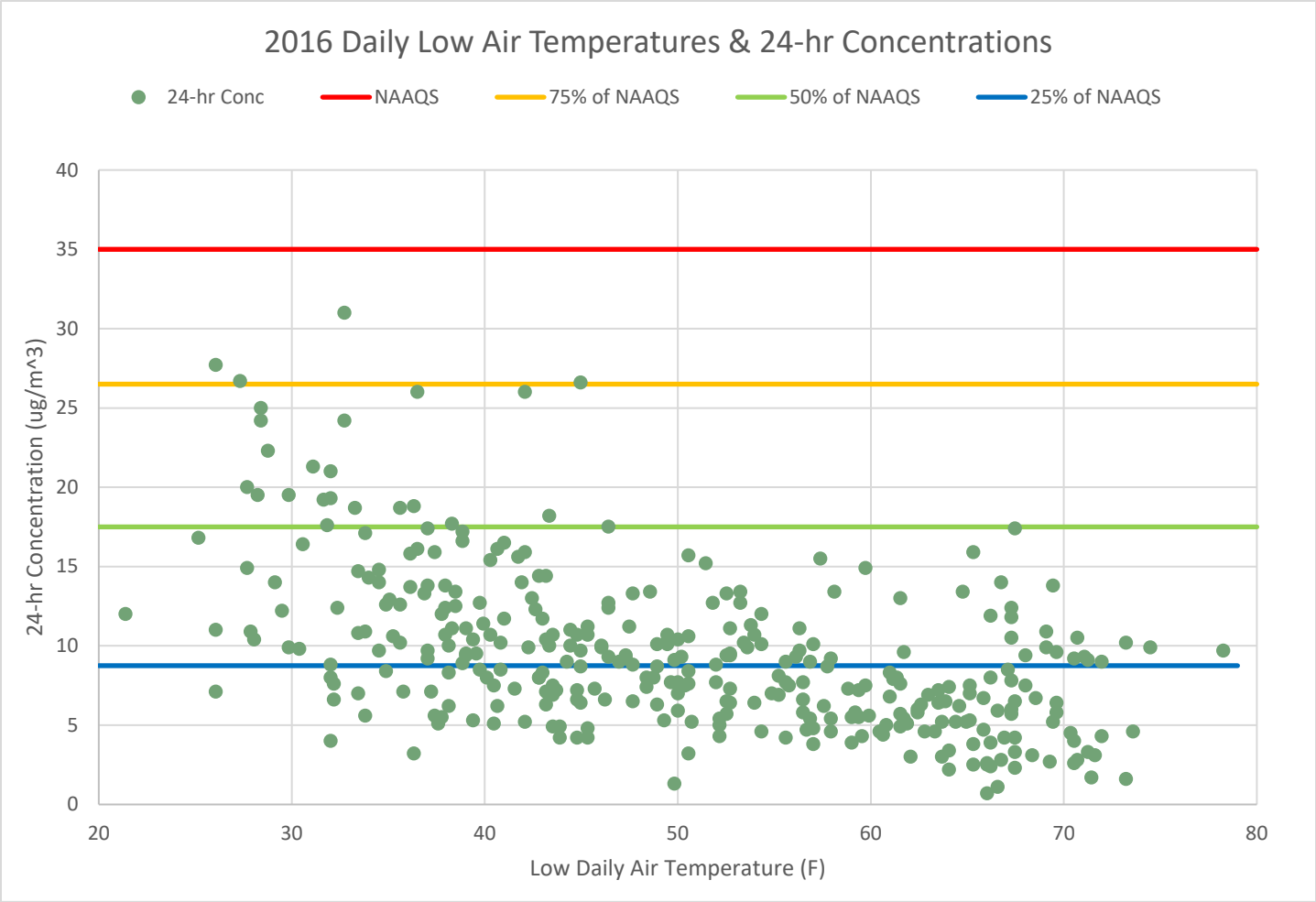

Figure C-3: 2016 $PM_{2.5}$ Concentration vs Temperature

Appendix D: Valencia AERSCREEN Modeling Overview Technical Memo

Date: December 19, 2018

To: Scott Bohning, Environmental Protection Agency, Region IX

From: Kamran Khan, Arizona Department of Environmental Quality

Subject: Nogales $PM_{2.5}$ Valencia AERSCREEN Modeling Overview

Introduction

This document outlines the AERSCREEN point source modeling the Arizona Department of Environmental Quality (ADEQ) has completed for the Nogales $PM_{2.5}$ Maintenance Plan. ADEQ conducted this modeling to understand the potential impact the Valencia Power Plant has on ambient air $PM_{2.5}$ concentrations.

Historically, Valencia produced peaking/backup power in addition to providing voltage stabilization for the Unisource Energy Services (UNSE) Santa Cruz service area. The facility operates three Hitachi MS 5001 M-series gas turbines rated at 13.5 MW each, and one General Electric LM2500 gas turbine rated at 23 MW. Each turbine runs on natural gas, distillate oil, or a combination of the two. Each turbine, including an emergency generator, has its emissions sent to its own stack.

The facility is located approximately two miles northeast of the sole state and local monitoring station (Post Office Monitor) in the Area. Figure 1 on the following page gives the monitor and facility location within the Area.

Between 2013 and 2014, UNSE made transmission line improvements in the area. This resulted in UNSE bringing more outside power to the Santa Cruz/Nogales region. As a result, Valencia experienced a significant reduction in energy production post 2013. This reduction in operations resulted in a roughly 95% reduction in PM_{10} primary and precursor emissions between the 2013 and 2014 reporting years. The impact this reduction in energy generation had on emissions is available in Table 1. For comparison, the facility's potential to emit (PTE) for the given pollutants are available in the table as well.

Table 1. Facility Annual Emissions (ton)							
Pollutant	**PTE**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
PM	**45.52**	0.85	0.94	0.97	0.0325	0.0226	0.0355
NO_X	**240**	12.4	8.4	17.2	0.88	0.5	1.6
SO_2	**200**	0.2466	0.31	1.02	0.015	0.008	0.035
VOC	**8.6**	0.29	0.31	0.32	0.023	0.017	0.021

Pre Transmission Line

Post Transmission Line

Planning Area Monitor Location

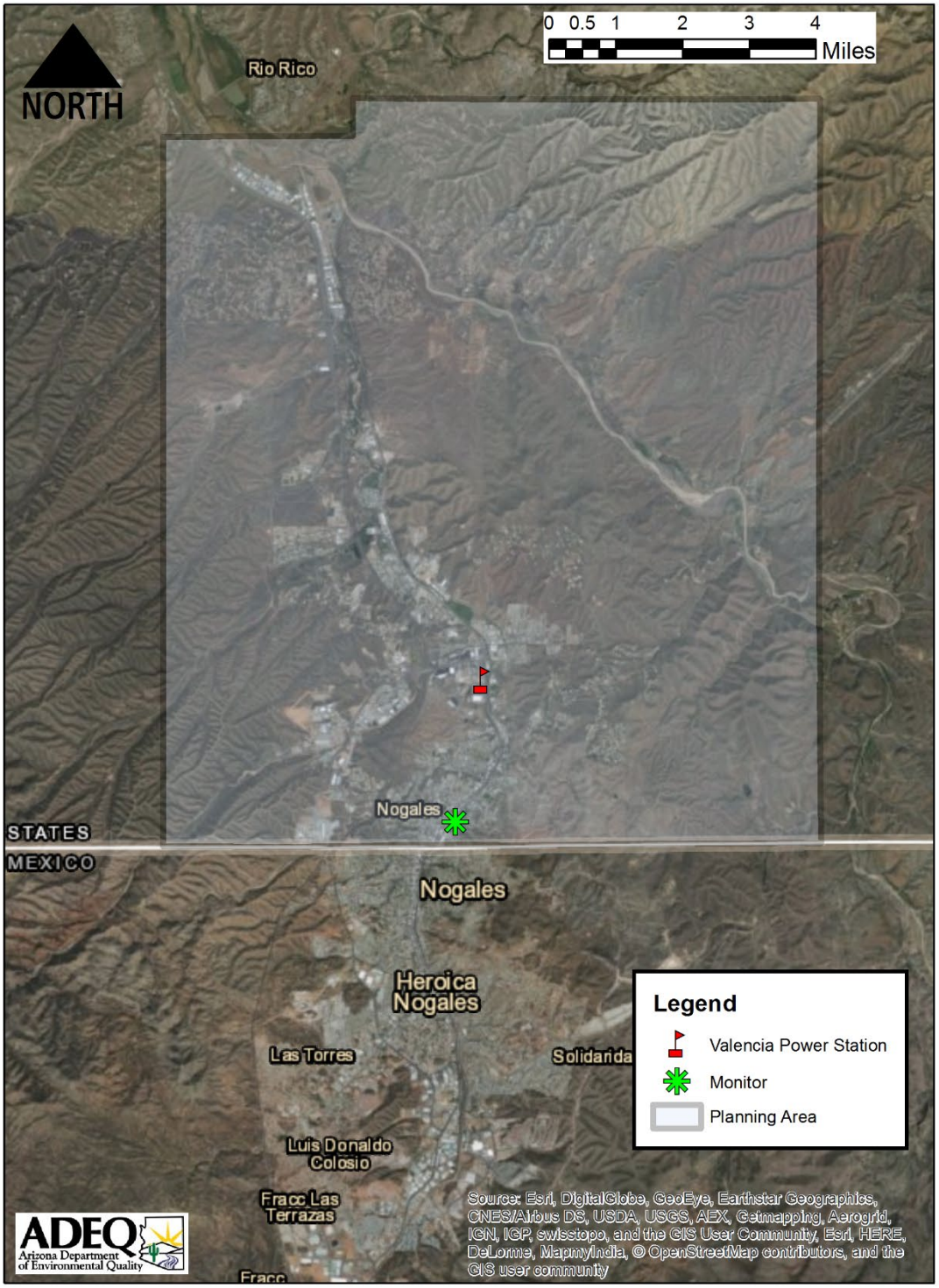

Figure 33 – Nogales $PM_{2.5}$ Mainenance Area

As shown in Table 1, even at peak annual emissions in 2013, emissions were at least an order of magnitude below the permitted PTE. Moreover, after the transmission line improvement, annual emissions dropped by another order of magnitude. This dramatic reduction in operations resulted in annual emissions being less than one percent of the facility's PTE.

However, Valencia is legally permitted to operate at its PTE. Given this, ADEQ has undergone a screening modeling analysis for Valencia. The purpose of this analysis is to determine if the $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) would be at risk should the facility operate at its PTE limit.

Methodology

For this modeling demonstration ADEQ employed the Environmental Protection Agency's (EPA) AERSCREEN computer model. AERSCREEN, a screening-level air quality model based on AERMOD, is a steady-state, single-source, Gaussian dispersion model to provide an easy-to-use method of obtaining pollutant concentration estimates (U.S. EPA, 2011b).

AERSCREEN estimates worst-case 1-hour ground level concentrations for a single source without the need for hourly meteorological data, and includes conversion factors to estimate "worst-case" 3-hour, 8-hour, 24-hour, and annual concentrations. ADEQ is interested in the "worst-case" 24-hour concentrations due to the $PM_{2.5}$ NAAQS being determined on a 24-hour basis.

In AERSCREEN, only one stack can be modeled in a run. This limitation provides a challenge for this modeling exercise because there are four stacks at the facility. The approach ADEQ took was to model the facility's PTE as if it was coming from one stack. This approach seemed reasonable given three of main stacks (Hitachi Turbines 1, 2, & 3) have the same stack parameters. ADEQ obtained these stack parameters from the facility's operating permit (Table 2).

Table 2. Facility Stack Parameters				
Parameter	**Hitachi Turbine Unit 1**	**Hitachi Turbine Unit 2**	**Hitachi Turbine Unit 3**	**GE Turbine Unit 4***
UTM Easting (m)	506503	506483	506483	506537
UTM Northing (m)	3469896	3469883	3469864	3469894
Base Elevation (m)	1143.52	1142.98	1143.49	1143.52
Stack Height (m)	9.1	9.1	9.1	13.7
Exit Temperature (F)	960.0	960.0	960.0	975.4
Exit Velocity (m/s)	22.18	22.18	22.18	25.90
Stack Diameter (m)	3.6	3.6	3.6	2.7

ADEQ considered including the fourth stack in its modeling analysis. However, allocating some of the facility's PTE to that stack would not be the most conservative approach. This is because the GE Turbine stack is taller and has a faster exit velocity. Given this, the PTE emissions allocated to this stack would experience better dispersion. The more conservative approach is assuming all $PM_{2.5}$ is emitted from the single composite stack.

In addition to defining sources like stacks, AERSCREEN also requires the creation of scenarios. These scenarios describe emission rates of sources, the terrain surrounding the facility, and the ambient air boundary, among other things.

The emission rate used in the model came from the facility's $PM_{2.5}$ PTE of 48.7 tons per year. ADEQ converted this annual emission rate to grams per second, which resulted in an emission rate of 1.4 g/s. This emission rate was assigned to the single composite stack mentioned earlier. Other scenario parameters are available in the table below.

Table 3. Scenario Parameters	
Input	**Value/Description**
Dispersion Options	Rural
Pollutant Name	PM2.5
Emission Rate	1.4 g/s
Building Downwash	Yes Downwash
Surface Characteristics: Land Use	Urban
Surface Characteristics: Moisture	Average Moisture
Terrain Effects	Included
Max Distance of Downwind Receptors	10 km (Default)
Apply Inversion Break-up Fumigation	No

Building downwash was included in the model due to the relatively low height of the modeled stack. The specific buildings created in the model, and the locations of Units 1 – 4, are available in Figure 2 on the following page.

One aspect of creating a scenario is defining the minimum distance to ambient air. This posed a challenge because of the location of the four stacks within the facility (skewed more to the eastern boundary). Ultimately, ADEQ chose the Unit 1 stack location due to it being the most centrally located stack.

From this location, the minimum distance to the ambient air is 60 meters to the south, which was the value used in the model. However, the ambient air boundaries to the north and east are roughly 70 meters away, and the western boundary is approximately 160 meters from the modeled stack. The challenge is due to the max concentration occurring 60 meters to the west of the stack, which is still inside the facility.

To remedy this, ADEQ performed post processing on the “Concentrations ” produced after running the model. This text file gives concentrations for all receptors included in a run. The first post-processing step used GIS to determine the distance to ambient air for a given sector. Next, the corresponding receptor distance outside of the facility was determined for that sector. Figure 3 shows where the sectors intersect with the ambient air boundary.

Figure 34: Building & Unit Locations

For example, the distance to ambient air for sector 10 is 65 meters. However, AERSCREEN does not give a concentration at 65 meters for that sector. Due to the 60 meters to ambient air used in the model, concentrations are given at 60 meters, 75 meters, 100 meters, 125 meters, and continuing on adding 25 meters each time. Therefore, for sector 10, ADEQ used the receptor distance of 75 meters for the sector 10 modeled concentration. Table 4 on the following page shows each sectors distance to ambient air and the corresponding receptor distance.

Table 4. Receptor Concentrations			
Sector	**Distance to Ambient Air (m)**	**Receptor Distance (m)**	**24-Hr Receptor Concentration (ug/m^3)**
10	65	75	17.9
20	68	75	17.8
30	73	75	17.6
40	83	100	19.6
50	96	100	11.7
60	86	100	21.6
70	81	100	20.2
80	78	100	11.7
90	78	100	11.8
100	80	100	11.9
110	85	100	21.7
120	94	100	12.7
130	92	100	13.6
140	77	100	14.7
150	69	75	20.9
160	64	75	20.9
170	61	75	20.8
180	60	75	20.8
190	61	75	20.7

Table 4. Receptor Concentrations Cont.			
Sector	**Distance to Ambient Air (m)**	**Receptor Distance (m)**	**24-Hr Receptor Concentration (ug/m^3)**
200	64	75	20.4
210	70	75	20.2
220	80	100	15.1
230	87	100	15.0
240	96	100	14.5
250	110	125	10.8
260	164	175	7.5
270	162	175	7.7
280	164	175	7.8
290	172	175	7.7
300	126	150	9.4
310	99	100	15.1
320	84	100	14.7
330	74	75	20.0
340	68	75	19.6
350	65	75	19.1
360	64	75	18.5

Facility Plan View

Figure 3: Maximum Concentration Location

Results & Conclusion

As seen in Table 4 and Figure 3, the maximum 24-hour concentration occurs at sector 60, with a concentration of 21.6 µg/m^3. However, this is not the final concentration. The final concentration needs to include the background $PM_{2.5}$ concentration. ADEQ's methodology for determining this concentration was straightforward.

The approach taken was to average every sample in each year for 2013 through 2016. ADEQ then averaged these four annual averages to get the final background concentration shown in the table below.

Table 5. Background Concentration	
All Seasons	**Hourly Average (µg/m^3)**
2016	9.8
2015	8.9
2014	9.5
2013	8.9
4 Year Average	9.3

Adding the background concentration of 9.3 µg/m^3 to the max 24-hour concentration of 21.6 µg/m^3 results in a final concentration of 30.9 µg/m^3. This is below the NAAQS $PM_{2.5}$ level of 35 µg/m^3. Given this, the $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) would not be at risk should the facility operate at its PTE limit.

Appendix C:

National Emission Inventory - Paved Roads

Paved Roads Emissions

Document Source			
Prepared by Abt Associates, Inc. (Abt) for U.S. Environmental Protection Agency			
Contract #	EP-W-11-003	**WA #**	4-98
EPA Work Assignment Manager	Rich Mason U.S. Environmental Protection Agency	**Abt Project Manager**	Jonathan Dorn Abt Associates, Inc. *(919) 294-7763* *Jonathan_Dorn@abtassoc.com*

Source Classification Code Description				
Source Classification Code	**SCC Level One**	**SCC Level Two**	**SCC Level Three**	**SCC Level Four**
2294000000	Mobile Sources	Paved Roads	All Paved Roads	Total: Fugitives

Instructions

Paved road dust emission factor = $k*(sL)^{0.91}*(W)^{1.02}$

k = particle size multiplier
sL = road surface silt loading
W = average weight of all vehicles traveling the road

The basic formula used is (VMT by road type) x (emission factor) = emissions

To calculate controlled emissions, (uncontrolled emissions) x (1 - control efficiency x rule penetration / 100) = controlled emissions

All tabs are used to support computation of emissions and are best left unchanged.

Document Summary	
Date	03/09/2016
Version	2.1
Description	Paved Roads Emissions
Worksheet List	
Overview	Provides summary information about this workbook.
Particle Size Multiplier	Constants for reentrained dust emission factor equation from AP-42.
Vehicle Source Mass	Assumed mass of each MOVES vehicle type (tons).
Road Length	Public road length by state and FHWA road type, in miles (2013).
Paved Unpaved Ratios	Ratio of paved to total VMT based on ratio from table HM-67 from 1996 and 2008 VMT from NMIM model.
VMT	Vehicle miles traveled by county and roadway type: data originally 2011, grown to 2014 with 2013 FHWA ratios.
ADTV	Average daily traffic volume (vehicles per day) by county and FHWA road type.
SL by ADTV	Silt loading baseline values based on road type average daily traffic volume.
Silt Loading	Silt loading (g/m^2) based on baseline values and average daily traffic volume, by county and FHWA road type.
VMT by Vehicle Type	County-level vehicle miles traveled by MOVES vehicle type and road type.
VMT Weight	VMT-weighted average vehicle weight by road type and county.
MOVES SCCs	MOVES vehicle type by source code classification.
Emission Factors	Emission factors by county and FHWA road type, based on particle size multiplier, silt loading and average weight.
Uncontrolled Emissions	Uncontrolled paved emissions based on VMT and emission factors, at the level of county and FHWA road type.
Controlled Areas	Counties either in PM-10 nonattainment (serious or moderate) or maintenance status as of 2014 based on EPA Green Book.
Control Penetration	Control efficiency and rule penetration values for serious and moderate controls, by FHWA road type.

Controlled Emissions	County- and road type-level emissions (g) accounting for controls in nonattainment/maintenance counties.
Total County Emissions	Total county-level emissions (g).
EmissionsStagingTableInput	Total county-level emissions (tons) in staging table input format.

Changes from 2011 Methodology
The VMT data used in 2014 was based on EPA's MOVES model, whereas 2011 VMT data was based on its precursor NMIM model. For this reason, the vehicle types (and as such vehicle weights) changed from 2011 to 2014, though a VMT-weighted average vehicle weight was calculated by county and road type in both years. Furthermore, the VMT data used in 2011 was at the state-level, while the 2014 version had been further broken down into counties. For this reason, subsequent worksheets (including ADTV and silt loading) which were calculated at the state level in 2011 could be immediately calculated at the county level without further manipulation in 2014. The paved roadway types in the 2014 VMT dataset included two additional types not found in the 2011 version. The category "Rural: Other Freeways and Expressways" was newly added, and "Urban: Collector" was further broken down into major and minor collector roads.

Document Change History		
Version	**Delivery Date**	**Changes**
1.0	10/27/2015	Initial draft of document.
2.0	12/17/2015	Updated paved/unpaved VMT ratio using ratio used in previous versions of NEI instead of ratio of paved and unpaved road miles in United States; Puerto Rico and the Virgin Islands added to the final emissions tab.
2.1	03/09/2015	Corrected negative paved road VMTs that were causing negative emissions. Updated final emissions tab with all necessary staging table fields.

Source: EPA AP-42 13.2.1 Paved Roads (http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf)

Pollutant	Particle Size Multiplier (g/VMT)
PM10	1
PM25	0.25

(unit of emissions factor depends on unit of k, particle size multiplier)

Source: EPA MOVES SourceUseTypePhysics Table, provided to Abt Associates by David Brzezinski, EPA OTAQ (9/08/15)

MOVES Vehicle Type	Source Type ID	Source Mass (tons)
Motorcycle	11	0.285
Passenger Car	21	1.4788
Passenger Truck	31	1.86686
Light Commercial Truck	32	2.05979
Intercity Bus	41	19.5937
Transit Bus	42	16.556
School Bus	43	9.06989
Refuse Truck	51	23.1135
Single Unit Short-haul Truck	52	8.53896
Single Unit Long-haul Truck	53	6.98448
Motor Home	54	7.52572
Combination Short-haul Truck	61	22.9745
Combination Long-haul Truck	62	24.601

Source: FWHA Highway Statistics 2013, Table HM-20 PUBLIC ROAD LENGTH - Miles By Functional System (https://www.fhwa.dot.gov/policyinformation/statistics/2013/) updated October 2014

State Abbreviation	State	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Rural Total	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local	Urban Total	Total
AL	Alabama	610	0	2,229	4,192	12,658	6,673	50,323	76,685	392	42	1,165	2,088	3,023	33	18,410	25,153	101,837
AK	Alaska	1,024	-	808	456	1,657	1,246	8,057	13,248	57	-	131	175	205	192	1,671	2,432	15,680
AZ	Arizona	921	18	1,174	1,173	4,179	1,794	30,870	40,129	248	208	1,491	1,957	1,927	173	20,308	26,311	66,441
AR	Arkansas	383	105	1,929	2,901	11,840	6,827	61,257	85,243	272	133	771	1,602	2,060	334	11,242	16,413	101,656
CA	California	1,207	60	3,408	6,627	12,363	7,994	49,141	80,801	1,244	1,472	7,042	11,393	11,844	22	61,172	94,187	174,989
CO	Colorado	684	39	2,615	3,424	5,498	8,958	47,654	68,873	268	313	1,022	1,845	1,789	-	14,455	19,692	88,565
CT	Connecticut	43	39	127	257	941	399	4,456	6,261	303	240	689	1,652	1,830	37	10,463	15,213	21,474
DE	Delaware	-	-	161	116	453	222	2,407	3,359	41	30	176	198	364	-	2,226	3,034	6,393
DC	District of Columbia	-	-	-	-	-	-	-	-	12	16	107	163	157	-	1,047	1,501	1,501
FL	Florida	748	181	2,733	2,355	4,159	3,296	26,969	40,441	747	571	3,608	4,142	7,106	-	65,473	81,647	122,088
GA	Georgia	536	-	2,313	4,695	11,695	6,846	51,147	77,233	712	149	2,309	4,863	3,877	618	38,859	51,387	128,620
HI	Hawaii	-	-	66	246	225	87	1,241	1,864	55	34	277	202	251	188	1,559	2,566	4,430
ID	Idaho	522	-	1,741	1,392	5,853	4,053	28,973	42,534	90	-	460	655	705	-	3,638	5,548	48,082
IL	Illinois	1,286	30	2,319	4,659	13,671	3,378	72,750	98,094	899	105	3,156	4,502	5,053	66	33,833	47,614	145,708
IN	Indiana	736	131	1,432	2,162	10,060	8,940	46,004	69,465	453	163	1,697	3,173	3,455	67	19,080	28,088	97,553
IA	Iowa	610	-	3,389	3,883	14,180	16,027	63,687	101,775	172	-	923	1,582	1,290	132	8,554	12,654	114,429
KS	Kansas	647	405	2,651	4,252	22,770	9,271	87,051	127,048	227	190	727	1,463	1,609	48	9,376	13,639	140,687
KY	Kentucky	597	536	1,335	2,444	5,958	9,496	46,589	66,955	204	68	529	1,257	1,108	-	9,477	12,643	79,598
LA	Louisiana	564	-	994	1,605	4,647	3,146	33,062	44,018	362	53	1,115	1,918	2,180	-	11,782	17,409	61,427
ME	Maine	299	-	788	1,019	3,213	2,166	12,387	19,873	68	18	135	239	535	0	2,013	3,009	22,882
MD	Maryland	142	0	335	726	1,328	1,650	9,269	13,452	338	304	1,193	1,551	1,959	122	13,503	18,970	32,422
MA	Massachusetts	64	10	105	315	870	617	4,184	6,165	511	335	1,967	4,035	3,063	-	20,293	30,205	36,370
MI	Michigan	564	344	2,131	4,838	16,335	4,260	55,783	84,255	680	361	2,369	4,965	3,861	2	25,648	37,886	122,141
MN	Minnesota	594	4	3,479	6,527	15,971	11,892	78,094	116,560	320	162	811	2,703	2,439	107	15,665	22,208	138,767
MS	Mississippi	473	-	1,864	3,728	11,919	2,356	42,799	63,138	228	77	973	1,099	1,617	-	7,986	11,978	75,116
MO	Missouri	841	923	2,039	3,996	16,441	6,241	77,051	107,532	538	457	1,042	2,031	2,403	24	17,874	24,367	131,900
MT	Montana	1,095	-	2,773	2,772	6,946	8,839	48,363	70,787	98	-	254	290	405	54	3,045	4,146	74,933
NE	Nebraska	417	351	2,362	4,153	11,499	8,786	59,717	87,284	64	92	406	781	488	-	4,655	6,486	93,770
NV	Nevada	462	-	1,511	757	2,064	2,525	24,523	31,842	134	55	336	813	2	1,021	5,936	8,297	40,139
NH	New Hampshire	142	9	324	626	1,039	1,067	7,859	11,065	83	75	222	491	536	-	3,626	5,032	16,098
NJ	New Jersey	45	35	157	290	772	334	4,253	5,887	386	453	1,803	3,652	2,925	405	23,781	33,406	39,293
NM	New Mexico	848	-	1,784	1,870	3,773	4,595	20,772	33,640	152	-	700	609	1	820	34,849	37,131	70,772
NY	New York	865	123	2,036	3,133	5,750	9,585	44,713	66,206	859	813	2,943	5,552	5,402	-	32,953	48,522	114,728
NC	North Carolina	581	17	1,806	2,653	8,028	6,541	49,101	68,727	674	449	1,843	3,250	2,781	0	28,478	37,475	106,202
ND	North Dakota	511	-	2,935	2,515	11,600	-	67,363	84,925	60	-	188	303	328	-	1,274	2,153	87,078
OH	Ohio	643	288	1,501	2,576	10,903	6,334	53,530	75,775	931	579	2,322	3,987	5,329	303	34,072	47,522	123,297
OK	Oklahoma	650	-	2,252	2,660	21,193	2,966	65,492	95,213	283	191	1,138	2,176	1,292	39	12,608	17,728	112,940
OR	Oregon	553	-	2,793	2,368	8,549	8,139	35,899	58,302	176	57	759	1,134	1,900	-	8,899	12,926	71,228
PA	Pennsylvania	1,118	336	1,595	4,523	7,242	7,255	51,800	73,870	738	521	2,813	3,973	5,349	1	32,670	46,066	119,936
RI	Rhode Island	18	-	72	91	197	125	859	1,364	52	77	349	324	565	-	3,376	4,742	6,106
SC	South Carolina	581	-	1,648	2,928	10,472	2,153	31,823	49,606	270	81	1,010	1,564	2,463	-	11,237	16,626	66,232
SD	South Dakota	599	-	2,891	2,966	12,409	6,278	54,170	79,312	80	14	128	430	318	-	2,276	3,246	82,558
TN	Tennessee	687	-	1,923	3,180	5,167	10,481	48,577	70,015	417	155	1,561	2,486	2,346	-	18,556	25,521	95,536
TX	Texas	2,080	-	7,708	10,096	34,889	17,432	140,714	212,918	1,335	1,414	5,779	8,284	12,834	-	70,665	100,310	313,228
UT	Utah	684	-	1,171	1,274	3,311	3,783	24,798	35,020	253	13	654	660	978	91	8,586	11,235	46,254
VT	Vermont	280	0	321	725	2,007	894	8,585	12,813	40	18	105	152	218	-	921	1,452	14,266
VA	Virginia	658	58	1,393	3,438	9,428	2,447	32,857	50,279	461	232	1,350	2,293	2,515	3	17,614	24,469	74,748
WA	Washington	425	609	1,297	1,960	8,151	6,253	38,211	56,906	339	417	1,418	2,712	2,711	177	17,768	25,542	82,448
WV	West Virginia	369	-	1,070	1,334	5,679	2,216	22,381	33,049	186	13	344	737	739	-	3,682	5,701	38,750
WI	Wisconsin	464	189	2,926	4,741	12,134	8,621	62,491	91,567	279	383	1,976	2,695	2,746	-	15,499	23,578	115,145
WY	Wyoming	810	-	1,990	1,226	2,731	7,004	12,343	26,104	104	3	226	227	510	33	1,817	2,920	29,024
	U.S. Total	**29,678**	**4,842**	**90,405**	**132,845**	**414,816**	**262,490**	**2,002,399**	**2,937,476**	**17,896**	**11,602**	**66,510**	**111,028**	**121,389**	**5,112**	**844,448**	**1,177,986**	**4,115,462**
PR	Puerto Rico (1)	42	-	42	231	244	245	2,300	3,104	240	52	400	1,009	1,245	-	10,641	13,587	16,691
	Grand Total	**29,720**	**4,842**	**90,447**	**133,076**	**415,060**	**262,735**	**2,004,699**	**2,940,580**	**18,136**	**11,654**	**66,910**	**112,037**	**122,634**	**5,112**	**855,089**	**1,191,573**	**4,132,153**

(1) 2010 data.

	A	B	C	D	E	F	G	H
1	Total 2008 VMT on this tab was derived from the total VMT per functional length from a 2008 NMIM run. It is the sum of VMT from all vehicle types and speeds, totaled on the road type (last three digits of the AMSSCC). Paved and unpaved were split based on estimates of unpaved VMT based on ADTV from Table HM-67. This data is no longer collected and the last year that Table HM-67 was published was for 1996. Because there is no newer data collected to help differentiate between paved and unpaved VMT by road type, the 1996 HM-67 is still used.							
2	**FIPS State and County Code**	**FIPS State Code**	**FIPS County Code**	**AMSSCC**	**Data Key 1**	**Road Type**	**2008 Total VMT (millions)**	**Paved to Total VMT Ratio**
3	04001	04	001	110	04001Rural Interstate	Rural Interstate	372	100%
4	04001	04	001	130	04001Rural Other Principal Arterial	Rural Other Principal Arterial	200	100%
5	04001	04	001	150	04001Rural Minor Arterial	Rural Minor Arterial	169	100%
6	04001	04	001	170	04001Rural Major Collector	Rural Major Collector	192	98%
7	04001	04	001	190	04001Rural Minor Collector	Rural Minor Collector	36	95%
8	04001	04	001	210	04001Rural Local	Rural Local	204	88%
9	04001	04	001	230	04001Urban Interstate	Urban Interstate	0	100%
10	04001	04	001	250	04001Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
11	04001	04	001	270	04001Urban Other Principal Arteria	Urban Other Principal Arterial	0	100%
12	04001	04	001	290	04001Urban Minor Arterial	Urban Minor Arterial	32	98%
13	04001	04	001	310	04001Urban Collector	Urban Collector	14	95%
14	04001	04	001	330	04001Urban Local	Urban Local	34	72%
15	04003	04	003	110	04003Rural Interstate	Rural Interstate	677	100%
16	04003	04	003	130	04003Rural Other Principal Arterial	Rural Other Principal Arterial	163	100%
17	04003	04	003	150	04003Rural Minor Arterial	Rural Minor Arterial	137	100%
18	04003	04	003	170	04003Rural Major Collector	Rural Major Collector	156	98%
19	04003	04	003	190	04003Rural Minor Collector	Rural Minor Collector	30	95%
20	04003	04	003	210	04003Rural Local	Rural Local	167	88%
21	04003	04	003	230	04003Urban Interstate	Urban Interstate	0	100%
22	04003	04	003	250	04003Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
23	04003	04	003	270	04003Urban Other Principal Arteria	Urban Other Principal Arterial	156	100%
24	04003	04	003	290	04003Urban Minor Arterial	Urban Minor Arterial	164	98%
25	04003	04	003	310	04003Urban Collector	Urban Collector	73	95%
26	04003	04	003	330	04003Urban Local	Urban Local	176	72%
27	04005	04	005	110	04005Rural Interstate	Rural Interstate	795	100%
28	04005	04	005	130	04005Rural Other Principal Arterial	Rural Other Principal Arterial	174	100%
29	04005	04	005	150	04005Rural Minor Arterial	Rural Minor Arterial	147	100%
30	04005	04	005	170	04005Rural Major Collector	Rural Major Collector	167	98%

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2	FIPS State and County Code	FIPS State Code	FIPS County Code	AMSSCC	Data Key 1	Road Type	2008 Total VMT (millions)	Paved to Total VMT Ratio
31	04005	04	005	190	04005Rural Minor Collector	Rural Minor Collector	32	95%
32	04005	04	005	210	04005Rural Local	Rural Local	178	88%
33	04005	04	005	230	04005Urban Interstate	Urban Interstate	210	100%
34	04005	04	005	250	04005Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
35	04005	04	005	270	04005Urban Other Principal Arteria	Urban Other Principal Arterial	149	100%
36	04005	04	005	290	04005Urban Minor Arterial	Urban Minor Arterial	133	98%
37	04005	04	005	310	04005Urban Collector	Urban Collector	117	95%
38	04005	04	005	330	04005Urban Local	Urban Local	100	72%
39	04007	04	007	110	04007Rural Interstate	Rural Interstate	0	100%
40	04007	04	007	130	04007Rural Other Principal Arterial	Rural Other Principal Arterial	89	100%
41	04007	04	007	150	04007Rural Minor Arterial	Rural Minor Arterial	75	100%
42	04007	04	007	170	04007Rural Major Collector	Rural Major Collector	85	98%
43	04007	04	007	190	04007Rural Minor Collector	Rural Minor Collector	16	95%
44	04007	04	007	210	04007Rural Local	Rural Local	91	88%
45	04007	04	007	230	04007Urban Interstate	Urban Interstate	0	100%
46	04007	04	007	250	04007Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
47	04007	04	007	270	04007Urban Other Principal Arteria	Urban Other Principal Arterial	53	100%
48	04007	04	007	290	04007Urban Minor Arterial	Urban Minor Arterial	55	98%
49	04007	04	007	310	04007Urban Collector	Urban Collector	25	95%
50	04007	04	007	330	04007Urban Local	Urban Local	60	72%
51	04009	04	009	110	04009Rural Interstate	Rural Interstate	0	100%
52	04009	04	009	130	04009Rural Other Principal Arterial	Rural Other Principal Arterial	76	100%
53	04009	04	009	150	04009Rural Minor Arterial	Rural Minor Arterial	64	100%
54	04009	04	009	170	04009Rural Major Collector	Rural Major Collector	73	98%
55	04009	04	009	190	04009Rural Minor Collector	Rural Minor Collector	14	95%
56	04009	04	009	210	04009Rural Local	Rural Local	78	88%
57	04009	04	009	230	04009Urban Interstate	Urban Interstate	0	100%
58	04009	04	009	250	04009Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
59	04009	04	009	270	04009Urban Other Principal Arteria	Urban Other Principal Arterial	29	100%
60	04009	04	009	290	04009Urban Minor Arterial	Urban Minor Arterial	31	98%
61	04009	04	009	310	04009Urban Collector	Urban Collector	14	95%
62	04009	04	009	330	04009Urban Local	Urban Local	33	72%
63	04011	04	011	110	04011Rural Interstate	Rural Interstate	0	100%

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2	FIPS State and County Code	FIPS State Code	FIPS County Code	AMSSCC	Data Key 1	Road Type	2008 Total VMT (millions)	Paved to Total VMT Ratio
64	04011	04	011	130	04011Rural Other Principal Arterial	Rural Other Principal Arterial	0	100%
65	04011	04	011	150	04011Rural Minor Arterial	Rural Minor Arterial	13	100%
66	04011	04	011	170	04011Rural Major Collector	Rural Major Collector	15	98%
67	04011	04	011	190	04011Rural Minor Collector	Rural Minor Collector	3	95%
68	04011	04	011	210	04011Rural Local	Rural Local	15	88%
69	04011	04	011	230	04011Urban Interstate	Urban Interstate	0	100%
70	04011	04	011	250	04011Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
71	04011	04	011	270	04011Urban Other Principal Arteria	Urban Other Principal Arterial	0	100%
72	04011	04	011	290	04011Urban Minor Arterial	Urban Minor Arterial	0	98%
73	04011	04	011	310	04011Urban Collector	Urban Collector	0	95%
74	04011	04	011	330	04011Urban Local	Urban Local	8	72%
75	04012	04	012	110	04012Rural Interstate	Rural Interstate	501	100%
76	04012	04	012	130	04012Rural Other Principal Arterial	Rural Other Principal Arterial	43	100%
77	04012	04	012	150	04012Rural Minor Arterial	Rural Minor Arterial	0	100%
78	04012	04	012	170	04012Rural Major Collector	Rural Major Collector	41	98%
79	04012	04	012	190	04012Rural Minor Collector	Rural Minor Collector	8	95%
80	04012	04	012	210	04012Rural Local	Rural Local	44	88%
81	04012	04	012	230	04012Urban Interstate	Urban Interstate	0	100%
82	04012	04	012	250	04012Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
83	04012	04	012	270	04012Urban Other Principal Arteria	Urban Other Principal Arterial	0	100%
84	04012	04	012	290	04012Urban Minor Arterial	Urban Minor Arterial	0	98%
85	04012	04	012	310	04012Urban Collector	Urban Collector	0	95%
86	04012	04	012	330	04012Urban Local	Urban Local	18	72%
87	04013	04	013	110	04013Rural Interstate	Rural Interstate	1158	100%
88	04013	04	013	130	04013Rural Other Principal Arterial	Rural Other Principal Arterial	441	100%
89	04013	04	013	150	04013Rural Minor Arterial	Rural Minor Arterial	184	100%
90	04013	04	013	170	04013Rural Major Collector	Rural Major Collector	541	98%
91	04013	04	013	190	04013Rural Minor Collector	Rural Minor Collector	77	95%
92	04013	04	013	210	04013Rural Local	Rural Local	559	88%
93	04013	04	013	230	04013Urban Interstate	Urban Interstate	4218	100%
94	04013	04	013	250	04013Urban Other Freeways and E	Urban Other Freeways and Expressways	7181	100%
95	04013	04	013	270	04013Urban Other Principal Arteria	Urban Other Principal Arterial	8307	100%
96	04013	04	013	290	04013Urban Minor Arterial	Urban Minor Arterial	5446	98%

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2	FIPS State and County Code	FIPS State Code	FIPS County Code	AMSSCC	Data Key 1	Road Type	2008 Total VMT (millions)	Paved to Total VMT Ratio
97	04013	04	013	310	04013Urban Collector	Urban Collector	1799	95%
98	04013	04	013	330	04013Urban Local	Urban Local	3482	72%
99	04015	04	015	110	04015Rural Interstate	Rural Interstate	821	100%
100	04015	04	015	130	04015Rural Other Principal Arterial	Rural Other Principal Arterial	183	100%
101	04015	04	015	150	04015Rural Minor Arterial	Rural Minor Arterial	154	100%
102	04015	04	015	170	04015Rural Major Collector	Rural Major Collector	175	98%
103	04015	04	015	190	04015Rural Minor Collector	Rural Minor Collector	33	95%
104	04015	04	015	210	04015Rural Local	Rural Local	186	88%
105	04015	04	015	230	04015Urban Interstate	Urban Interstate	244	100%
106	04015	04	015	250	04015Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
107	04015	04	015	270	04015Urban Other Principal Arteria	Urban Other Principal Arterial	270	100%
108	04015	04	015	290	04015Urban Minor Arterial	Urban Minor Arterial	282	98%
109	04015	04	015	310	04015Urban Collector	Urban Collector	126	95%
110	04015	04	015	330	04015Urban Local	Urban Local	305	72%
111	04017	04	017	110	04017Rural Interstate	Rural Interstate	360	100%
112	04017	04	017	130	04017Rural Other Principal Arterial	Rural Other Principal Arterial	249	100%
113	04017	04	017	150	04017Rural Minor Arterial	Rural Minor Arterial	210	100%
114	04017	04	017	170	04017Rural Major Collector	Rural Major Collector	239	98%
115	04017	04	017	190	04017Rural Minor Collector	Rural Minor Collector	45	95%
116	04017	04	017	210	04017Rural Local	Rural Local	255	88%
117	04017	04	017	230	04017Urban Interstate	Urban Interstate	77	100%
118	04017	04	017	250	04017Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
119	04017	04	017	270	04017Urban Other Principal Arteria	Urban Other Principal Arterial	85	100%
120	04017	04	017	290	04017Urban Minor Arterial	Urban Minor Arterial	89	98%
121	04017	04	017	310	04017Urban Collector	Urban Collector	40	95%
122	04017	04	017	330	04017Urban Local	Urban Local	96	72%
123	04019	04	019	110	04019Rural Interstate	Rural Interstate	328	100%
124	04019	04	019	130	04019Rural Other Principal Arterial	Rural Other Principal Arterial	322	100%
125	04019	04	019	150	04019Rural Minor Arterial	Rural Minor Arterial	271	100%
126	04019	04	019	170	04019Rural Major Collector	Rural Major Collector	309	98%
127	04019	04	019	190	04019Rural Minor Collector	Rural Minor Collector	58	95%
128	04019	04	019	210	04019Rural Local	Rural Local	329	88%
129	04019	04	019	230	04019Urban Interstate	Urban Interstate	1327	100%

	A	B	C	D	E	F	G	H
2	FIPS State and County Code	FIPS State Code	FIPS County Code	AMSSCC	Data Key 1	Road Type	2008 Total VMT (millions)	Paved to Total VMT Ratio
130	04019	04	019	250	04019Urban Other Freeways and E	Urban Other Freeways and Expressways	109	100%
131	04019	04	019	270	04019Urban Other Principal Arteria	Urban Other Principal Arterial	2831	100%
132	04019	04	019	290	04019Urban Minor Arterial	Urban Minor Arterial	1509	98%
133	04019	04	019	310	04019Urban Collector	Urban Collector	587	95%
134	04019	04	019	330	04019Urban Local	Urban Local	1046	72%
135	04021	04	021	110	04021Rural Interstate	Rural Interstate	655	100%
136	04021	04	021	130	04021Rural Other Principal Arterial	Rural Other Principal Arterial	440	100%
137	04021	04	021	150	04021Rural Minor Arterial	Rural Minor Arterial	370	100%
138	04021	04	021	170	04021Rural Major Collector	Rural Major Collector	422	98%
139	04021	04	021	190	04021Rural Minor Collector	Rural Minor Collector	80	95%
140	04021	04	021	210	04021Rural Local	Rural Local	449	88%
141	04021	04	021	230	04021Urban Interstate	Urban Interstate	278	100%
142	04021	04	021	250	04021Urban Other Freeways and E	Urban Other Freeways and Expressways	99	100%
143	04021	04	021	270	04021Urban Other Principal Arteria	Urban Other Principal Arterial	366	100%
144	04021	04	021	290	04021Urban Minor Arterial	Urban Minor Arterial	333	98%
145	04021	04	021	310	04021Urban Collector	Urban Collector	142	95%
146	04021	04	021	330	04021Urban Local	Urban Local	338	72%
147	04023	04	023	110	04023Rural Interstate	Rural Interstate	114	100%
148	04023	04	023	130	04023Rural Other Principal Arterial	Rural Other Principal Arterial	0	100%
149	04023	04	023	150	04023Rural Minor Arterial	Rural Minor Arterial	0	100%
150	04023	04	023	170	04023Rural Major Collector	Rural Major Collector	50	98%
151	04023	04	023	190	04023Rural Minor Collector	Rural Minor Collector	9	95%
152	04023	04	023	210	04023Rural Local	Rural Local	53	88%
153	04023	04	023	230	04023Urban Interstate	Urban Interstate	49	100%
154	04023	04	023	250	04023Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
155	04023	04	023	270	04023Urban Other Principal Arteria	Urban Other Principal Arterial	54	100%
156	04023	04	023	290	04023Urban Minor Arterial	Urban Minor Arterial	56	98%
157	04023	04	023	310	04023Urban Collector	Urban Collector	25	95%
158	04023	04	023	330	04023Urban Local	Urban Local	61	72%
159	04025	04	025	110	04025Rural Interstate	Rural Interstate	879	100%
160	04025	04	025	130	04025Rural Other Principal Arterial	Rural Other Principal Arterial	304	100%
161	04025	04	025	150	04025Rural Minor Arterial	Rural Minor Arterial	256	100%
162	04025	04	025	170	04025Rural Major Collector	Rural Major Collector	291	98%

	A	B	C	D	E	F	G	H
2	**FIPS State and County Code**	**FIPS State Code**	**FIPS County Code**	**AMSSCC**	**Data Key 1**	**Road Type**	**2008 Total VMT (millions)**	**Paved to Total VMT Ratio**
163	04025	04	025	190	04025Rural Minor Collector	Rural Minor Collector	55	95%
164	04025	04	025	210	04025Rural Local	Rural Local	310	88%
165	04025	04	025	230	04025Urban Interstate	Urban Interstate	0	100%
166	04025	04	025	250	04025Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
167	04025	04	025	270	04025Urban Other Principal Arteria	Urban Other Principal Arterial	101	100%
168	04025	04	025	290	04025Urban Minor Arterial	Urban Minor Arterial	106	98%
169	04025	04	025	310	04025Urban Collector	Urban Collector	47	95%
170	04025	04	025	330	04025Urban Local	Urban Local	114	72%
171	04027	04	027	110	04027Rural Interstate	Rural Interstate	460	100%
172	04027	04	027	130	04027Rural Other Principal Arterial	Rural Other Principal Arterial	96	100%
173	04027	04	027	150	04027Rural Minor Arterial	Rural Minor Arterial	81	100%
174	04027	04	027	170	04027Rural Major Collector	Rural Major Collector	92	98%
175	04027	04	027	190	04027Rural Minor Collector	Rural Minor Collector	17	95%
176	04027	04	027	210	04027Rural Local	Rural Local	98	88%
177	04027	04	027	230	04027Urban Interstate	Urban Interstate	164	100%
178	04027	04	027	250	04027Urban Other Freeways and E	Urban Other Freeways and Expressways	0	100%
179	04027	04	027	270	04027Urban Other Principal Arteria	Urban Other Principal Arterial	298	100%
180	04027	04	027	290	04027Urban Minor Arterial	Urban Minor Arterial	251	98%
181	04027	04	027	310	04027Urban Collector	Urban Collector	137	95%
182	04027	04	027	330	04027Urban Local	Urban Local	180	72%

Source: EPA 2011 VMT by vehicle type (ftp://ftp.epa.gov/EmisInventory/2011v6/v2platform/2011emissions/2011eh_v6_11g_inputs_onroad.zip)

FIPS State Code	FIPS State and County Code	County Name	Postal State Code	Data Key 1	Data Key 2	FHWA Road Type	Vehicle Miles Traveled (VMT)	Percent Paved Road Type	Paved VMT	Total State VMT by Road Type	Ratio County Road type to State Total Road Type	Unpaved VMT
04	04001	Apache	AZ	04001Rural Interstate	04Rural Interstate	Rural Interstate	307,635,671	100%	307,635,671	7,107,102,528	0.0433	0
04	04001	Apache	AZ	04001Rural Local	04Rural Local	Rural Local	105,780,943	78%	83,024,834	1,351,682,546	0.0614	22,756,109
04	04001	Apache	AZ	04001Rural Major Collector	04Rural Major Collector	Rural Major Collector	181,765,559	100%	181,707,362	2,802,765,763	0.0648	58,197
04	04001	Apache	AZ	04001Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	103,305,260	100%	103,305,260	1,593,340,240	0.0648	0
04	04001	Apache	AZ	04001Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	26,596,511	98%	26,079,657	403,858,293	0.0646	516,854
04	04001	Apache	AZ	04001Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	2,071,431	100%	2,071,431	47,854,893	0.0433	0
04	04001	Apache	AZ	04001Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	230,952,800	100%	230,952,800	3,562,126,360	0.0648	0
04	04001	Apache	AZ	04001Urban Local	04Urban Local	Urban Local	27,396,467	65%	17,772,518	5,790,247,265	0.0031	9,623,949
04	04001	Apache	AZ	04001Urban Major Collector	04Urban Major Collector	Urban Major Collector	15,667,338	99%	15,553,639	3,377,577,157	0.0046	113,699
04	04001	Apache	AZ	04001Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	36,083,279	100%	36,014,848	7,781,240,670	0.0046	68,431
04	04001	Apache	AZ	04001Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	413,683	73%	299,984	87,820,894	0.0034	113,699
04	04001	Apache	AZ	04001Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	55,838,892	100%	55,838,892	12,042,776,041	0.0046	0
04	04003	Cochise	AZ	04003Rural Interstate	04Rural Interstate	Rural Interstate	555,214,846	100%	555,214,846	7,107,102,528	0.0781	0
04	04003	Cochise	AZ	04003Rural Local	04Rural Local	Rural Local	105,109,198	81%	84,624,533	1,351,682,546	0.0626	20,484,665
04	04003	Cochise	AZ	04003Rural Major Collector	04Rural Major Collector	Rural Major Collector	180,611,286	100%	180,558,897	2,802,765,763	0.0644	52,388
04	04003	Cochise	AZ	04003Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	102,649,236	100%	102,649,236	1,593,340,240	0.0644	0
04	04003	Cochise	AZ	04003Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	26,427,614	98%	25,962,351	403,858,293	0.0643	465,263
04	04003	Cochise	AZ	04003Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	3,738,478	100%	3,738,478	47,854,893	0.0781	0
04	04003	Cochise	AZ	04003Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	229,486,171	100%	229,486,171	3,562,126,360	0.0644	0
04	04003	Cochise	AZ	04003Urban Local	04Urban Local	Urban Local	81,445,863	89%	72,782,547	5,790,247,265	0.0126	8,663,317
04	04003	Cochise	AZ	04003Urban Major Collector	04Urban Major Collector	Urban Major Collector	46,576,803	100%	46,474,454	3,377,577,157	0.0138	102,350
04	04003	Cochise	AZ	04003Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	107,270,540	100%	107,208,940	7,781,240,670	0.0138	61,600
04	04003	Cochise	AZ	04003Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	1,229,823	92%	1,127,473	87,820,894	0.0128	102,350
04	04003	Cochise	AZ	04003Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	166,001,214	100%	166,001,214	12,042,776,041	0.0138	0
04	04005	Coconino	AZ	04005Rural Interstate	04Rural Interstate	Rural Interstate	658,122,089	100%	658,122,089	7,107,102,528	0.0926	0
04	04005	Coconino	AZ	04005Rural Local	04Rural Local	Rural Local	141,975,280	87%	123,803,302	1,351,682,546	0.0916	18,171,978
04	04005	Coconino	AZ	04005Rural Major Collector	04Rural Major Collector	Rural Major Collector	243,959,028	100%	243,912,554	2,802,765,763	0.0870	46,474
04	04005	Coconino	AZ	04005Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	138,652,509	100%	138,652,509	1,593,340,240	0.0870	0
04	04005	Coconino	AZ	04005Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	35,696,856	99%	35,284,121	403,858,293	0.0874	412,736
04	04005	Coconino	AZ	04005Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	4,431,393	100%	4,431,393	47,854,893	0.0926	0
04	04005	Coconino	AZ	04005Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	309,976,329	100%	309,976,329	3,562,126,360	0.0870	0
04	04005	Coconino	AZ	04005Urban Interstate	04Urban Interstate	Urban Interstate	81,131,728	100%	81,131,728	6,540,037,277	0.0124	0
04	04005	Coconino	AZ	04005Urban Local	04Urban Local	Urban Local	96,289,341	92%	88,604,099	5,790,247,265	0.0153	7,685,241
04	04005	Coconino	AZ	04005Urban Major Collector	04Urban Major Collector	Urban Major Collector	55,065,408	100%	54,974,613	3,377,577,157	0.0163	90,795
04	04005	Coconino	AZ	04005Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	126,820,555	100%	126,765,909	7,781,240,670	0.0163	54,646
04	04005	Coconino	AZ	04005Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	1,453,957	94%	1,363,163	87,820,894	0.0155	90,795
04	04005	Coconino	AZ	04005Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	84,907,796	100%	84,907,796	6,844,426,579	0.0124	0
04	04005	Coconino	AZ	04005Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	196,254,871	100%	196,254,871	12,042,776,041	0.0163	0
04	04007	Gila	AZ	04007Rural Local	04Rural Local	Rural Local	67,811,461	86%	58,356,207	1,351,682,546	0.0432	9,455,254
04	04007	Gila	AZ	04007Rural Major Collector	04Rural Major Collector	Rural Major Collector	116,521,822	100%	116,497,640	2,802,765,763	0.0416	24,181
04	04007	Gila	AZ	04007Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	66,224,411	100%	66,224,411	1,593,340,240	0.0416	0
04	04007	Gila	AZ	04007Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	17,049,841	99%	16,835,086	403,858,293	0.0417	214,755
04	04007	Gila	AZ	04007Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	148,053,576	100%	148,053,576	3,562,126,360	0.0416	0
04	04007	Gila	AZ	04007Urban Local	04Urban Local	Urban Local	37,631,659	89%	33,632,870	5,790,247,265	0.0058	3,998,789
04	04007	Gila	AZ	04007Urban Major Collector	04Urban Major Collector	Urban Major Collector	21,520,582	100%	21,473,340	3,377,577,157	0.0064	47,242
04	04007	Gila	AZ	04007Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	49,563,823	100%	49,535,390	7,781,240,670	0.0064	28,433
04	04007	Gila	AZ	04007Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	568,233	92%	520,991	87,820,894	0.0059	47,242
04	04007	Gila	AZ	04007Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	76,700,041	100%	76,700,041	12,042,776,041	0.0064	0
04	04009	Graham	AZ	04009Rural Local	04Rural Local	Rural Local	29,549,145	75%	22,123,454	1,351,682,546	0.0164	7,425,691
04	04009	Graham	AZ	04009Rural Major Collector	04Rural Major Collector	Rural Major Collector	50,774,901	100%	50,755,910	2,802,765,763	0.0181	18,991
04	04009	Graham	AZ	04009Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	28,857,581	100%	28,857,581	1,593,340,240	0.0181	0
04	04009	Graham	AZ	04009Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	7,429,544	98%	7,260,886	403,858,293	0.0180	168,658
04	04009	Graham	AZ	04009Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	64,515,003	100%	64,515,003	3,562,126,360	0.0181	0
04	04009	Graham	AZ	04009Urban Local	04Urban Local	Urban Local	22,005,499	86%	18,865,047	5,790,247,265	0.0033	3,140,452
04	04009	Graham	AZ	04009Urban Major Collector	04Urban Major Collector	Urban Major Collector	12,584,381	100%	12,547,279	3,377,577,157	0.0037	37,102
04	04009	Graham	AZ	04009Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	28,982,955	100%	28,960,624	7,781,240,670	0.0037	22,330
04	04009	Graham	AZ	04009Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	332,280	89%	295,179	87,820,894	0.0034	37,102
04	04009	Graham	AZ	04009Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	44,851,136	100%	44,851,136	12,042,776,041	0.0037	0
04	04011	Greenlee	AZ	04011Rural Local	04Rural Local	Rural Local	6,836,203	75%	5,148,195	1,351,682,546	0.0038	1,688,009

FIPS State Code	FIPS State and County Code	County Name	Postal State Code	Data Key 1	Data Key 2	FHWA Road Type	Vehicle Miles Traveled (VMT)	Percent Paved Road Type	Paved VMT	Total State VMT by Road Type	Ratio County Road type to State Total Road Type	Unpaved VMT
04	04011	Greenlee	AZ	04011Rural Major Collector	04Rural Major Collector	Rural Major Collector	11,746,788	100%	11,742,471	2,802,765,763	0.0042	4,317
04	04011	Greenlee	AZ	04011Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	6,676,210	100%	6,676,210	1,593,340,240	0.0042	0
04	04011	Greenlee	AZ	04011Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	1,718,827	98%	1,680,488	403,858,293	0.0042	38,339
04	04011	Greenlee	AZ	04011Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	14,925,564	100%	14,925,564	3,562,126,360	0.0042	0
04	04011	Greenlee	AZ	04011Urban Local	04Urban Local	Urban Local	3,367,022	79%	2,653,134	5,790,247,265	0.0005	713,888
04	04011	Greenlee	AZ	04011Urban Major Collector	04Urban Major Collector	Urban Major Collector	1,925,514	100%	1,917,080	3,377,577,157	0.0006	8,434
04	04011	Greenlee	AZ	04011Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	4,434,630	100%	4,429,554	7,781,240,670	0.0006	5,076
04	04011	Greenlee	AZ	04011Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	50,842	83%	42,408	87,820,894	0.0005	8,434
04	04011	Greenlee	AZ	04011Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	6,862,592	100%	6,862,592	12,042,776,041	0.0006	0
04	04012	La Paz	AZ	04012Rural Interstate	04Rural Interstate	Rural Interstate	534,482,660	100%	534,482,660	7,107,102,528	0.0752	0
04	04012	La Paz	AZ	04012Rural Local	04Rural Local	Rural Local	32,977,435	85%	28,019,098	1,351,682,546	0.0207	4,958,337
04	04012	La Paz	AZ	04012Rural Major Collector	04Rural Major Collector	Rural Major Collector	56,665,802	100%	56,653,121	2,802,765,763	0.0202	12,681
04	04012	La Paz	AZ	04012Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	32,205,636	100%	32,205,636	1,593,340,240	0.0202	0
04	04012	La Paz	AZ	04012Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	8,291,519	99%	8,178,902	403,858,293	0.0203	112,618
04	04012	La Paz	AZ	04012Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	3,598,880	100%	3,598,880	47,854,893	0.0752	0
04	04012	La Paz	AZ	04012Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	72,000,029	100%	72,000,029	3,562,126,360	0.0202	0
04	04012	La Paz	AZ	04012Urban Local	04Urban Local	Urban Local	7,428,030	72%	5,331,064	5,790,247,265	0.0009	2,096,966
04	04012	La Paz	AZ	04012Urban Major Collector	04Urban Major Collector	Urban Major Collector	4,247,900	99%	4,223,126	3,377,577,157	0.0013	24,774
04	04012	La Paz	AZ	04012Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	9,783,293	100%	9,768,382	7,781,240,670	0.0013	14,910
04	04012	La Paz	AZ	04012Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	112,162	78%	87,388	87,820,894	0.0010	24,774
04	04012	La Paz	AZ	04012Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	15,139,651	100%	15,139,651	12,042,776,041	0.0013	0
04	04013	Maricopa	AZ	04013Rural Interstate	04Rural Interstate	Rural Interstate	1,177,405,819	100%	1,177,405,819	7,107,102,528	0.1657	0
04	04013	Maricopa	AZ	04013Rural Local	04Rural Local	Rural Local	215,259,734	82%	176,494,824	1,351,682,546	0.1306	38,764,909
04	04013	Maricopa	AZ	04013Rural Major Collector	04Rural Major Collector	Rural Major Collector	369,885,205	100%	369,786,066	2,802,765,763	0.1319	99,139
04	04013	Maricopa	AZ	04013Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	210,221,824	100%	210,221,824	1,593,340,240	0.1319	0
04	04013	Maricopa	AZ	04013Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	54,122,773	98%	53,242,315	403,858,293	0.1318	880,458
04	04013	Maricopa	AZ	04013Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	7,927,933	100%	7,927,933	47,854,893	0.1657	0
04	04013	Maricopa	AZ	04013Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	469,979,155	100%	469,979,155	3,562,126,360	0.1319	0
04	04013	Maricopa	AZ	04013Urban Interstate	04Urban Interstate	Urban Interstate	5,516,661,372	100%	5,516,661,372	6,540,037,277	0.8435	0
04	04013	Maricopa	AZ	04013Urban Local	04Urban Local	Urban Local	3,773,203,318	100%	3,756,808,973	5,790,247,265	0.6488	16,394,346
04	04013	Maricopa	AZ	04013Urban Major Collector	04Urban Major Collector	Urban Major Collector	2,157,798,341	100%	2,157,604,656	3,377,577,157	0.6388	193,685
04	04013	Maricopa	AZ	04013Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	4,969,602,397	100%	4,969,485,825	7,781,240,670	0.6386	116,572
04	04013	Maricopa	AZ	04013Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	56,974,912	100%	56,781,226	87,820,894	0.6466	193,685
04	04013	Maricopa	AZ	04013Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	5,773,420,261	100%	5,773,420,261	6,844,426,579	0.8435	0
04	04013	Maricopa	AZ	04013Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	7,690,462,163	100%	7,690,462,163	12,042,776,041	0.6386	0
04	04015	Mohave	AZ	04015Rural Interstate	04Rural Interstate	Rural Interstate	689,528,418	100%	689,528,418	7,107,102,528	0.0970	0
04	04015	Mohave	AZ	04015Rural Local	04Rural Local	Rural Local	187,137,694	89%	167,387,692	1,351,682,546	0.1238	19,750,001
04	04015	Mohave	AZ	04015Rural Major Collector	04Rural Major Collector	Rural Major Collector	321,562,529	100%	321,512,019	2,802,765,763	0.1147	50,509
04	04015	Mohave	AZ	04015Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	182,757,948	100%	182,757,948	1,593,340,240	0.1147	0
04	04015	Mohave	AZ	04015Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	47,052,046	99%	46,603,469	403,858,293	0.1154	448,577
04	04015	Mohave	AZ	04015Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	4,642,864	100%	4,642,864	47,854,893	0.0970	0
04	04015	Mohave	AZ	04015Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	408,579,969	100%	408,579,969	3,562,126,360	0.1147	0
04	04015	Mohave	AZ	04015Urban Interstate	04Urban Interstate	Urban Interstate	30,400,930	100%	30,400,930	6,540,037,277	0.0046	0
04	04015	Mohave	AZ	04015Urban Local	04Urban Local	Urban Local	138,338,440	94%	129,985,825	5,790,247,265	0.0224	8,352,615
04	04015	Mohave	AZ	04015Urban Major Collector	04Urban Major Collector	Urban Major Collector	79,112,211	100%	79,013,531	3,377,577,157	0.0234	98,679
04	04015	Mohave	AZ	04015Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	182,202,490	100%	182,143,099	7,781,240,670	0.0234	59,391
04	04015	Mohave	AZ	04015Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	2,088,894	95%	1,990,214	87,820,894	0.0227	98,679
04	04015	Mohave	AZ	04015Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	31,815,864	100%	31,815,864	6,844,426,579	0.0046	0
04	04015	Mohave	AZ	04015Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	281,958,444	100%	281,958,444	12,042,776,041	0.0234	0
04	04017	Navajo	AZ	04017Rural Interstate	04Rural Interstate	Rural Interstate	321,376,107	100%	321,376,107	7,107,102,528	0.0452	0
04	04017	Navajo	AZ	04017Rural Local	04Rural Local	Rural Local	146,161,550	83%	121,169,657	1,351,682,546	0.0896	24,991,893
04	04017	Navajo	AZ	04017Rural Major Collector	04Rural Major Collector	Rural Major Collector	251,152,383	100%	251,088,468	2,802,765,763	0.0896	63,915
04	04017	Navajo	AZ	04017Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	142,740,805	100%	142,740,805	1,593,340,240	0.0896	0
04	04017	Navajo	AZ	04017Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	36,749,411	98%	36,181,776	403,858,293	0.0896	567,635
04	04017	Navajo	AZ	04017Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	2,163,951	100%	2,163,951	47,854,893	0.0452	0
04	04017	Navajo	AZ	04017Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	319,116,264	100%	319,116,264	3,562,126,360	0.0896	0
04	04017	Navajo	AZ	04017Urban Interstate	04Urban Interstate	Urban Interstate	16,333,871	100%	16,333,871	6,540,037,277	0.0025	0
04	04017	Navajo	AZ	04017Urban Local	04Urban Local	Urban Local	57,637,101	82%	47,067,600	5,790,247,265	0.0081	10,569,501
04	04017	Navajo	AZ	04017Urban Major Collector	04Urban Major Collector	Urban Major Collector	32,961,182	100%	32,836,312	3,377,577,157	0.0097	124,870
04	04017	Navajo	AZ	04017Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	75,912,547	100%	75,837,393	7,781,240,670	0.0097	75,154
04	04017	Navajo	AZ	04017Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	870,313	86%	745,443	87,820,894	0.0085	124,870

FIPS State Code	FIPS State and County Code	County Name	Postal State Code	Data Key 1	Data Key 2	FHWA Road Type	Vehicle Miles Traveled (VMT)	Percent Paved Road Type	Paved VMT	Total State VMT by Road Type	Ratio County Road type to State Total Road Type	Unpaved VMT
04	04017	Navajo	AZ	04017Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	17,094,089	100%	17,094,089	6,844,426,579	0.0025	0
04	04017	Navajo	AZ	04017Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	117,474,705	100%	117,474,705	12,042,776,041	0.0098	0
04	04019	Pima	AZ	04019Rural Interstate	04Rural Interstate	Rural Interstate	570,853,944	100%	570,853,944	7,107,102,528	0.0803	0
04	04019	Pima	AZ	04019Rural Local	04Rural Local	Rural Local	139,697,145	77%	108,012,077	1,351,682,546	0.0799	31,685,069
04	04019	Pima	AZ	04019Rural Major Collector	04Rural Major Collector	Rural Major Collector	240,044,464	100%	239,963,431	2,802,765,763	0.0856	81,033
04	04019	Pima	AZ	04019Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	136,427,692	100%	136,427,692	1,593,340,240	0.0856	0
04	04019	Pima	AZ	04019Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	35,124,065	98%	34,404,410	403,858,293	0.0852	719,655
04	04019	Pima	AZ	04019Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	3,843,782	100%	3,843,782	47,854,893	0.0803	0
04	04019	Pima	AZ	04019Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	305,002,451	100%	305,002,451	3,562,126,360	0.0856	0
04	04019	Pima	AZ	04019Urban Interstate	04Urban Interstate	Urban Interstate	719,179,083	100%	719,179,083	6,540,037,277	0.1100	0
04	04019	Pima	AZ	04019Urban Local	04Urban Local	Urban Local	1,137,286,603	99%	1,123,886,444	5,790,247,265	0.1941	13,400,160
04	04019	Pima	AZ	04019Urban Major Collector	04Urban Major Collector	Urban Major Collector	650,385,081	100%	650,226,769	3,377,577,157	0.1925	158,312
04	04019	Pima	AZ	04019Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	1,497,894,959	100%	1,497,799,677	7,781,240,670	0.1925	95,282
04	04019	Pima	AZ	04019Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	17,172,890	99%	17,014,578	87,820,894	0.1937	158,312
04	04019	Pima	AZ	04019Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	752,651,433	100%	752,651,433	6,844,426,579	0.1100	0
04	04019	Pima	AZ	04019Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	2,317,993,189	100%	2,317,993,189	12,042,776,041	0.1925	0
04	04021	Pinal	AZ	04021Rural Interstate	04Rural Interstate	Rural Interstate	1,058,903,552	100%	1,058,903,552	7,107,102,528	0.1490	0
04	04021	Pinal	AZ	04021Rural Local	04Rural Local	Rural Local	195,294,975	82%	159,931,860	1,351,682,546	0.1183	35,363,114
04	04021	Pinal	AZ	04021Rural Major Collector	04Rural Major Collector	Rural Major Collector	335,579,351	100%	335,488,912	2,802,765,763	0.1197	90,439
04	04021	Pinal	AZ	04021Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	190,724,317	100%	190,724,317	1,593,340,240	0.1197	0
04	04021	Pinal	AZ	04021Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	49,103,032	98%	48,299,838	403,858,293	0.1196	803,194
04	04021	Pinal	AZ	04021Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	7,130,011	100%	7,130,011	47,854,893	0.1490	0
04	04021	Pinal	AZ	04021Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	426,389,858	100%	426,389,858	3,562,126,360	0.1197	0
04	04021	Pinal	AZ	04021Urban Interstate	04Urban Interstate	Urban Interstate	47,042,034	100%	47,042,034	6,540,037,277	0.0072	0
04	04021	Pinal	AZ	04021Urban Local	04Urban Local	Urban Local	201,198,267	93%	186,242,598	5,790,247,265	0.0322	14,955,668
04	04021	Pinal	AZ	04021Urban Major Collector	04Urban Major Collector	Urban Major Collector	115,060,136	100%	114,883,447	3,377,577,157	0.0340	176,689
04	04021	Pinal	AZ	04021Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	264,993,774	100%	264,887,432	7,781,240,670	0.0340	106,342
04	04021	Pinal	AZ	04021Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	3,038,069	94%	2,861,381	87,820,894	0.0326	176,689
04	04021	Pinal	AZ	04021Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	49,231,485	100%	49,231,485	6,844,426,579	0.0072	0
04	04021	Pinal	AZ	04021Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	410,077,996	100%	410,077,996	12,042,776,041	0.0341	0
04	04023	Santa Cruz	AZ	04023Rural Interstate	04Rural Interstate	Rural Interstate	92,090,978	100%	92,090,978	7,107,102,528	0.0130	0
04	04023	Santa Cruz	AZ	04023Rural Local	04Rural Local	Rural Local	16,299,432	66%	10,822,534	1,351,682,546	0.0080	5,476,898
04	04023	Santa Cruz	AZ	04023Rural Major Collector	04Rural Major Collector	Rural Major Collector	28,007,648	100%	27,993,642	2,802,765,763	0.0100	14,007
04	04023	Santa Cruz	AZ	04023Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	15,917,963	100%	15,917,963	1,593,340,240	0.0100	0
04	04023	Santa Cruz	AZ	04023Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	4,098,168	97%	3,973,772	403,858,293	0.0098	124,395
04	04023	Santa Cruz	AZ	04023Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	620,084	100%	620,084	47,854,893	0.0130	0
04	04023	Santa Cruz	AZ	04023Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	35,586,746	100%	35,586,746	3,562,126,360	0.0100	0
04	04023	Santa Cruz	AZ	04023Urban Interstate	04Urban Interstate	Urban Interstate	54,988,034	100%	54,988,034	6,540,037,277	0.0084	0
04	04023	Santa Cruz	AZ	04023Urban Local	04Urban Local	Urban Local	32,041,951	93%	29,725,677	5,790,247,265	0.0051	2,316,274
04	04023	Santa Cruz	AZ	04023Urban Major Collector	04Urban Major Collector	Urban Major Collector	18,323,971	100%	18,296,606	3,377,577,157	0.0054	27,365
04	04023	Santa Cruz	AZ	04023Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	42,201,743	100%	42,185,273	7,781,240,670	0.0054	16,470
04	04023	Santa Cruz	AZ	04023Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	483,830	94%	456,465	87,820,894	0.0052	27,365
04	04023	Santa Cruz	AZ	04023Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	57,547,312	100%	57,547,312	6,844,426,579	0.0084	0
04	04023	Santa Cruz	AZ	04023Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	65,307,218	100%	65,307,218	12,042,776,041	0.0054	0
04	04025	Yavapai	AZ	04025Rural Interstate	04Rural Interstate	Rural Interstate	870,313,696	100%	870,313,696	7,107,102,528	0.1225	0
04	04025	Yavapai	AZ	04025Rural Local	04Rural Local	Rural Local	188,355,442	84%	158,256,990	1,351,682,546	0.1171	30,098,452
04	04025	Yavapai	AZ	04025Rural Major Collector	04Rural Major Collector	Rural Major Collector	323,655,010	100%	323,578,035	2,802,765,763	0.1154	76,975
04	04025	Yavapai	AZ	04025Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	183,947,196	100%	183,947,196	1,593,340,240	0.1154	0
04	04025	Yavapai	AZ	04025Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	47,358,225	99%	46,674,606	403,858,293	0.1156	683,619
04	04025	Yavapai	AZ	04025Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	5,860,162	100%	5,860,162	47,854,893	0.1225	0
04	04025	Yavapai	AZ	04025Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	411,238,693	100%	411,238,693	3,562,126,360	0.1154	0
04	04025	Yavapai	AZ	04025Urban Interstate	04Urban Interstate	Urban Interstate	7,695,384	100%	7,695,384	6,540,037,277	0.0012	0
04	04025	Yavapai	AZ	04025Urban Local	04Urban Local	Urban Local	148,141,994	91%	135,412,842	5,790,247,265	0.0234	12,729,152
04	04025	Yavapai	AZ	04025Urban Major Collector	04Urban Major Collector	Urban Major Collector	84,718,612	100%	84,568,228	3,377,577,157	0.0250	150,384
04	04025	Yavapai	AZ	04025Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	195,114,535	100%	195,024,024	7,781,240,670	0.0251	90,511
04	04025	Yavapai	AZ	04025Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	2,236,926	93%	2,086,542	87,820,894	0.0238	150,384
04	04025	Yavapai	AZ	04025Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	8,053,546	100%	8,053,546	6,844,426,579	0.0012	0
04	04025	Yavapai	AZ	04025Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	301,939,839	100%	301,939,839	12,042,776,041	0.0251	0
04	04027	Yuma	AZ	04027Rural Interstate	04Rural Interstate	Rural Interstate	271,174,746	100%	271,174,746	7,107,102,528	0.0382	0
04	04027	Yuma	AZ	04027Rural Local	04Rural Local	Rural Local	53,278,575	84%	44,507,289	1,351,682,546	0.0329	8,771,286
04	04027	Yuma	AZ	04027Rural Major Collector	04Rural Major Collector	Rural Major Collector	91,549,666	100%	91,527,234	2,802,765,763	0.0327	22,432

FIPS State Code	FIPS State and County Code	County Name	Postal State Code	Data Key 1	Data Key 2	FHWA Road Type	Vehicle Miles Traveled (VMT)	Percent Paved Road Type	Paved VMT	Total State VMT by Road Type	Ratio County Road type to State Total Road Type	Unpaved VMT
04	04027	Yuma	AZ	04027Rural Minor Arterial	04Rural Minor Arterial	Rural Minor Arterial	52,031,651	100%	52,031,651	1,593,340,240	0.0327	0
04	04027	Yuma	AZ	04027Rural Minor Collector	04Rural Minor Collector	Rural Minor Collector	13,395,837	99%	13,196,617	403,858,293	0.0327	199,220
04	04027	Yuma	AZ	04027Rural Other Freeways and Expressways	04Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	1,825,925	100%	1,825,925	47,854,893	0.0382	0
04	04027	Yuma	AZ	04027Rural Other Principal Arterial	04Rural Other Principal Arterial	Rural Other Principal Arterial	116,323,752	100%	116,323,752	3,562,126,360	0.0327	0
04	04027	Yuma	AZ	04027Urban Interstate	04Urban Interstate	Urban Interstate	66,604,841	100%	66,604,841	6,540,037,277	0.0102	0
04	04027	Yuma	AZ	04027Urban Local	04Urban Local	Urban Local	145,185,556	97%	141,476,029	5,790,247,265	0.0244	3,709,528
04	04027	Yuma	AZ	04027Urban Major Collector	04Urban Major Collector	Urban Major Collector	83,027,901	100%	82,984,076	3,377,577,157	0.0246	43,825
04	04027	Yuma	AZ	04027Urban Minor Arterial	04Urban Minor Arterial	Urban Minor Arterial	191,220,676	100%	191,194,299	7,781,240,670	0.0246	26,377
04	04027	Yuma	AZ	04027Urban Minor Collector	04Urban Minor Collector	Urban Minor Collector	2,192,284	98%	2,148,459	87,820,894	0.0245	43,825
04	04027	Yuma	AZ	04027Urban Other Freeways and Expressways	04Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	69,704,793	100%	69,704,793	6,844,426,579	0.0102	0
04	04027	Yuma	AZ	04027Urban Other Principal Arterial	04Urban Other Principal Arterial	Urban Other Principal Arterial	295,914,090	100%	295,914,090	12,042,776,041	0.0246	0

				Average Daily Traffic Volume													
State and County FIPS Code	FIPS State Code	County Name	Postal State Code	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local
04001	04	Apache	AZ	21,143	7,449	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04003	04	Cochise	AZ	21,143	7,449	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04005	04	Coconino	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04007	04	Gila	AZ	0	0	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04009	04	Graham	AZ	0	0	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04011	04	Greenlee	AZ	0	0	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04012	04	La Paz	AZ	21,143	7,449	8,313	3,720	1,838	617	120	0	0	22,127	10,892	4,802	1,394	781
04013	04	Maricopa	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04015	04	Mohave	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04017	04	Navajo	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04019	04	Pima	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04021	04	Pinal	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04023	04	Santa Cruz	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04025	04	Yavapai	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781
04027	04	Yuma	AZ	21,143	7,449	8,313	3,720	1,838	617	120	72,389	90,184	22,127	10,892	4,802	1,394	781

Source: AP-42 Section 13.2.1 Table 13.2.1-2 Ubiquitous Silt Loading Default Values with Hot Spot Contributions from Anti-Skid Abrasives (g/m^2)

	Mass of Silt Sized Material (≤75 µm in Diameter) per area (g/m^2)													
Minimum ADTV	**Rural Interstate**	**Rural Other Freeways and Expressways**	**Rural Other Principal Arterial**	**Rural Minor Arterial**	**Rural Major Collector**	**Rural Minor Collector**	**Rural Local**	**Urban Interstate**	**Urban Other Freeways and Expressways**	**Urban Other Principal Arterial**	**Urban Minor Arterial**	**Urban Major Collector**	**Urban Minor Collector**	**Urban Local**
0	0.015	0.015	0.6	0.6	0.6	0.6	0.6	0.015	0.015	0.6	0.6	0.6	0.6	0.6
500	0.015	0.015	0.2	0.2	0.2	0.2	0.2	0.015	0.015	0.2	0.2	0.2	0.2	0.2
5000	0.015	0.015	0.06	0.06	0.06	0.06	0.06	0.015	0.015	0.06	0.06	0.06	0.06	0.06
10000	0.015	0.015	0.03	0.03	0.03	0.03	0.03	0.015	0.015	0.03	0.03	0.03	0.03	0.03

State and County FIPS Code	FIPS State Code	County Name	Postal State Code	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local
04001	04	Apache	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04003	04	Cochise	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04005	04	Coconino	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04007	04	Gila	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04009	04	Graham	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04011	04	Greenlee	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04012	04	La Paz	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04013	04	Maricopa	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04015	04	Mohave	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04017	04	Navajo	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04019	04	Pima	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04021	04	Pinal	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04023	04	Santa Cruz	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04025	04	Yavapai	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2
04027	04	Yuma	AZ	0.015	0.015	0.06	0.2	0.2	0.2	0.6	0.015	0.015	0.03	0.03	0.2	0.2	0.2

Source: EPA 2011 VMT by vehicle type (ftp://ftp.epa.gov/EmisInventory/2011v6/v2platform/2011emissions/2011eh_v6_11g_inputs_onroad.zip)

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2201110200	04	04001	1,538,476	Motorcycle	04001Rural Restricted Access	Rural Restricted Access	0.2850	305,750,335	0.0050	0.0014	6.8115
2201110300	04	04001	4,674,382	Motorcycle	04001Rural Unrestricted Access	Rural Unrestricted Access	0.2850	642,778,084	0.0073	0.0021	3.9444
2201110500	04	04001	890,631	Motorcycle	04001Urban Unrestricted Access	Urban Unrestricted Access	0.2850	134,566,575	0.0066	0.0019	2.9675
2201210200	04	04001	74,174,827	Passenger Car	04001Rural Restricted Access	Rural Restricted Access	1.4788	305,750,335	0.2426	0.3588	6.8115
2201210300	04	04001	166,200,791	Passenger Car	04001Rural Unrestricted Access	Rural Unrestricted Access	1.4788	642,778,084	0.2586	0.3824	3.9444
2201210500	04	04001	42,416,876	Passenger Car	04001Urban Unrestricted Access	Urban Unrestricted Access	1.4788	134,566,575	0.3152	0.4661	2.9675
2201310200	04	04001	103,147,236	Passenger Truck	04001Rural Restricted Access	Rural Restricted Access	1.8669	305,750,335	0.3374	0.6298	6.8115
2201310300	04	04001	267,638,420	Passenger Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	1.8669	642,778,084	0.4164	0.7773	3.9444
2201310500	04	04001	55,204,502	Passenger Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	1.8669	134,566,575	0.4102	0.7659	2.9675
2201320200	04	04001	33,473,510	Light Commercial Truck	04001Rural Restricted Access	Rural Restricted Access	2.0598	305,750,335	0.1095	0.2255	6.8115
2201320300	04	04001	86,195,703	Light Commercial Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	2.0598	642,778,084	0.1341	0.2762	3.9444
2201320500	04	04001	17,718,543	Light Commercial Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	2.0598	134,566,575	0.1317	0.2712	2.9675
2201420200	04	04001	4,373	Transit Bus	04001Rural Restricted Access	Rural Restricted Access	16.5560	305,750,335	0.0000	0.0002	6.8115
2201420300	04	04001	7,196	Transit Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	16.5560	642,778,084	0.0000	0.0002	3.9444
2201420500	04	04001	1,245	Transit Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	16.5560	134,566,575	0.0000	0.0002	2.9675
2201430200	04	04001	47,922	School Bus	04001Rural Restricted Access	Rural Restricted Access	9.0699	305,750,335	0.0002	0.0014	6.8115
2201430300	04	04001	78,891	School Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	9.0699	642,778,084	0.0001	0.0011	3.9444
2201430500	04	04001	13,651	School Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	9.0699	134,566,575	0.0001	0.0009	2.9675
2201510200	04	04001	24,132	Refuse Truck	04001Rural Restricted Access	Rural Restricted Access	23.1135	305,750,335	0.0001	0.0018	6.8115
2201510300	04	04001	22,163	Refuse Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	23.1135	642,778,084	0.0000	0.0008	3.9444
2201510500	04	04001	2,599	Refuse Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	23.1135	134,566,575	0.0000	0.0004	2.9675
2201540200	04	04001	222,459	Motor Home	04001Rural Restricted Access	Rural Restricted Access	7.5257	305,750,335	0.0007	0.0055	6.8115
2201540300	04	04001	420,143	Motor Home	04001Rural Unrestricted Access	Rural Unrestricted Access	7.5257	642,778,084	0.0007	0.0049	3.9444
2201540500	04	04001	71,667	Motor Home	04001Urban Unrestricted Access	Urban Unrestricted Access	7.5257	134,566,575	0.0005	0.0040	2.9675
2201610200	04	04001	3,638	Combination Short-haul Truck	04001Rural Restricted Access	Rural Restricted Access	22.9745	305,750,335	0.0000	0.0003	6.8115
2201610300	04	04001	3,416	Combination Short-haul Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	22.9745	642,778,084	0.0000	0.0001	3.9444
2201610500	04	04001	399	Combination Short-haul Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	22.9745	134,566,575	0.0000	0.0001	2.9675
2202210200	04	04001	365,915	Passenger Car	04001Rural Restricted Access	Rural Restricted Access	1.4788	305,750,335	0.0012	0.0018	6.8115
2202210300	04	04001	819,893	Passenger Car	04001Rural Unrestricted Access	Rural Unrestricted Access	1.4788	642,778,084	0.0013	0.0019	3.9444
2202210500	04	04001	209,249	Passenger Car	04001Urban Unrestricted Access	Urban Unrestricted Access	1.4788	134,566,575	0.0016	0.0023	2.9675
2202310200	04	04001	1,867,249	Passenger Truck	04001Rural Restricted Access	Rural Restricted Access	1.8669	305,750,335	0.0061	0.0114	6.8115
2202310300	04	04001	4,844,993	Passenger Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	1.8669	642,778,084	0.0075	0.0141	3.9444
2202310500	04	04001	999,354	Passenger Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	1.8669	134,566,575	0.0074	0.0139	2.9675
2202320200	04	04001	2,035,406	Light Commercial Truck	04001Rural Restricted Access	Rural Restricted Access	2.0598	305,750,335	0.0067	0.0137	6.8115
2202320300	04	04001	5,241,256	Light Commercial Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	2.0598	642,778,084	0.0082	0.0168	3.9444
2202320500	04	04001	1,077,402	Light Commercial Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	2.0598	134,566,575	0.0080	0.0165	2.9675
2202410200	04	04001	161,374	Intercity Bus	04001Rural Restricted Access	Rural Restricted Access	19.5937	305,750,335	0.0005	0.0103	6.8115
2202410300	04	04001	260,770	Intercity Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	19.5937	642,778,084	0.0004	0.0079	3.9444
2202410500	04	04001	44,839	Intercity Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	19.5937	134,566,575	0.0003	0.0065	2.9675
2202420200	04	04001	286,734	Transit Bus	04001Rural Restricted Access	Rural Restricted Access	16.5560	305,750,335	0.0009	0.0155	6.8115
2202420300	04	04001	471,850	Transit Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	16.5560	642,778,084	0.0007	0.0122	3.9444
2202420500	04	04001	81,634	Transit Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	16.5560	134,566,575	0.0006	0.0100	2.9675
2202430200	04	04001	835,149	School Bus	04001Rural Restricted Access	Rural Restricted Access	9.0699	305,750,335	0.0027	0.0248	6.8115
2202430300	04	04001	1,374,860	School Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	9.0699	642,778,084	0.0021	0.0194	3.9444
2202430500	04	04001	237,894	School Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	9.0699	134,566,575	0.0018	0.0160	2.9675
2202510200	04	04001	583,153	Refuse Truck	04001Rural Restricted Access	Rural Restricted Access	23.1135	305,750,335	0.0019	0.0441	6.8115
2202510300	04	04001	535,567	Refuse Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	23.1135	642,778,084	0.0008	0.0193	3.9444
2202510500	04	04001	62,804	Refuse Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	23.1135	134,566,575	0.0005	0.0108	2.9675
2202520200	04	04001	6,040,640	Single Unit Short-haul Truck	04001Rural Restricted Access	Rural Restricted Access	8.5390	305,750,335	0.0198	0.1687	6.8115

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2202520300	04	04001	13,125,912	Single Unit Short-haul Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	8.5390	642,778,084	0.0204	0.1744	3.9444
2202520500	04	04001	1,992,064	Single Unit Short-haul Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	8.5390	134,566,575	0.0148	0.1264	2.9675
2202530200	04	04001	3,752,023	Single Unit Long-haul Truck	04001Rural Restricted Access	Rural Restricted Access	6.9845	305,750,335	0.0123	0.0857	6.8115
2202530300	04	04001	788,754	Single Unit Long-haul Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	6.9845	642,778,084	0.0012	0.0086	3.9444
2202530500	04	04001	69,253	Single Unit Long-haul Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	6.9845	134,566,575	0.0005	0.0036	2.9675
2202540200	04	04001	128,795	Motor Home	04001Rural Restricted Access	Rural Restricted Access	7.5257	305,750,335	0.0004	0.0032	6.8115
2202540300	04	04001	243,246	Motor Home	04001Rural Unrestricted Access	Rural Unrestricted Access	7.5257	642,778,084	0.0004	0.0028	3.9444
2202540500	04	04001	41,492	Motor Home	04001Urban Unrestricted Access	Urban Unrestricted Access	7.5257	134,566,575	0.0003	0.0023	2.9675
2202610200	04	04001	10,582,420	Combination Short-haul Truck	04001Rural Restricted Access	Rural Restricted Access	22.9745	305,750,335	0.0346	0.7952	6.8115
2202610300	04	04001	35,549,305	Combination Short-haul Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	22.9745	642,778,084	0.0553	1.2706	3.9444
2202610500	04	04001	4,789,132	Combination Short-haul Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	22.9745	134,566,575	0.0356	0.8176	2.9675
2202620200	04	04001	53,872,965	Combination Long-haul Truck	04001Rural Restricted Access	Rural Restricted Access	24.6010	305,750,335	0.1762	4.3347	6.8115
2202620300	04	04001	22,427,044	Combination Long-haul Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	24.6010	642,778,084	0.0349	0.8583	3.9444
2202620500	04	04001	1,842,801	Combination Long-haul Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	24.6010	134,566,575	0.0137	0.3369	2.9675
2203420200	04	04001	40,105	Transit Bus	04001Rural Restricted Access	Rural Restricted Access	16.5560	305,750,335	0.0001	0.0022	6.8115
2203420300	04	04001	65,997	Transit Bus	04001Rural Unrestricted Access	Rural Unrestricted Access	16.5560	642,778,084	0.0001	0.0017	3.9444
2203420500	04	04001	11,418	Transit Bus	04001Urban Unrestricted Access	Urban Unrestricted Access	16.5560	134,566,575	0.0001	0.0014	2.9675
2205210200	04	04001	2,141,987	Passenger Car	04001Rural Restricted Access	Rural Restricted Access	1.4788	305,750,335	0.0070	0.0104	6.8115
2205210300	04	04001	4,799,472	Passenger Car	04001Rural Unrestricted Access	Rural Unrestricted Access	1.4788	642,778,084	0.0075	0.0110	3.9444
2205210500	04	04001	1,224,895	Passenger Car	04001Urban Unrestricted Access	Urban Unrestricted Access	1.4788	134,566,575	0.0091	0.0135	2.9675
2205310200	04	04001	7,953,195	Passenger Truck	04001Rural Restricted Access	Rural Restricted Access	1.8669	305,750,335	0.0260	0.0486	6.8115
2205310300	04	04001	20,636,331	Passenger Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	1.8669	642,778,084	0.0321	0.0599	3.9444
2205310500	04	04001	4,256,558	Passenger Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	1.8669	134,566,575	0.0316	0.0591	2.9675
2205320200	04	04001	2,466,651	Light Commercial Truck	04001Rural Restricted Access	Rural Restricted Access	2.0598	305,750,335	0.0081	0.0166	6.8115
2205320300	04	04001	6,351,729	Light Commercial Truck	04001Rural Unrestricted Access	Rural Unrestricted Access	2.0598	642,778,084	0.0099	0.0204	3.9444
2205320500	04	04001	1,305,673	Light Commercial Truck	04001Urban Unrestricted Access	Urban Unrestricted Access	2.0598	134,566,575	0.0097	0.0200	2.9675
2201110200	04	04003	2,721,443	Motorcycle	04003Rural Restricted Access	Rural Restricted Access	0.2850	552,320,633	0.0049	0.0014	6.7840
2201110300	04	04003	4,586,300	Motorcycle	04003Rural Unrestricted Access	Rural Unrestricted Access	0.2850	639,055,379	0.0072	0.0020	3.9287
2201110500	04	04003	2,578,810	Motorcycle	04003Urban Unrestricted Access	Urban Unrestricted Access	0.2850	400,238,375	0.0064	0.0018	2.9260
2201210200	04	04003	162,459,598	Passenger Car	04003Rural Restricted Access	Rural Restricted Access	1.4788	552,320,633	0.2941	0.4350	6.7840
2201210300	04	04003	201,907,072	Passenger Car	04003Rural Unrestricted Access	Rural Unrestricted Access	1.4788	639,055,379	0.3159	0.4672	3.9287
2201210500	04	04003	152,068,900	Passenger Car	04003Urban Unrestricted Access	Urban Unrestricted Access	1.4788	400,238,375	0.3799	0.5619	2.9260
2201310200	04	04003	168,919,155	Passenger Truck	04003Rural Restricted Access	Rural Restricted Access	1.8669	552,320,633	0.3058	0.5710	6.7840
2201310300	04	04003	243,108,071	Passenger Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	1.8669	639,055,379	0.3804	0.7102	3.9287
2201310500	04	04003	147,981,931	Passenger Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	1.8669	400,238,375	0.3697	0.6902	2.9260
2201320200	04	04003	54,763,104	Light Commercial Truck	04003Rural Restricted Access	Rural Restricted Access	2.0598	552,320,633	0.0992	0.2042	6.7840
2201320300	04	04003	78,217,157	Light Commercial Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	2.0598	639,055,379	0.1224	0.2521	3.9287
2201320500	04	04003	47,449,067	Light Commercial Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	2.0598	400,238,375	0.1186	0.2442	2.9260
2201420200	04	04003	7,612	Transit Bus	04003Rural Restricted Access	Rural Restricted Access	16.5560	552,320,633	0.0000	0.0002	6.7840
2201420300	04	04003	6,947	Transit Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	16.5560	639,055,379	0.0000	0.0002	3.9287
2201420500	04	04003	3,547	Transit Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	16.5560	400,238,375	0.0000	0.0001	2.9260
2201430200	04	04003	83,415	School Bus	04003Rural Restricted Access	Rural Restricted Access	9.0699	552,320,633	0.0002	0.0014	6.7840
2201430300	04	04003	76,167	School Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	9.0699	639,055,379	0.0001	0.0011	3.9287
2201430500	04	04003	38,893	School Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	9.0699	400,238,375	0.0001	0.0009	2.9260
2201510200	04	04003	39,406	Refuse Truck	04003Rural Restricted Access	Rural Restricted Access	23.1135	552,320,633	0.0001	0.0016	6.7840
2201510300	04	04003	20,073	Refuse Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	23.1135	639,055,379	0.0000	0.0007	3.9287
2201510500	04	04003	6,947	Refuse Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	23.1135	400,238,375	0.0000	0.0004	2.9260
2201540200	04	04003	376,869	Motor Home	04003Rural Restricted Access	Rural Restricted Access	7.5257	552,320,633	0.0007	0.0051	6.7840
2201540300	04	04003	394,790	Motor Home	04003Rural Unrestricted Access	Rural Unrestricted Access	7.5257	639,055,379	0.0006	0.0046	3.9287
2201540500	04	04003	198,733	Motor Home	04003Urban Unrestricted Access	Urban Unrestricted Access	7.5257	400,238,375	0.0005	0.0037	2.9260
2201610200	04	04003	6,615	Combination Short-haul Truck	04003Rural Restricted Access	Rural Restricted Access	22.9745	552,320,633	0.0000	0.0003	6.7840

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2201610300	04	04003	3,446	Combination Short-haul Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	22.9745	639,055,379	0.0000	0.0001	3.9287
2201610500	04	04003	1,186	Combination Short-haul Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	22.9745	400,238,375	0.0000	0.0001	2.9260
2202210200	04	04003	850,644	Passenger Car	04003Rural Restricted Access	Rural Restricted Access	1.4788	552,320,633	0.0015	0.0023	6.7840
2202210300	04	04003	1,057,192	Passenger Car	04003Rural Unrestricted Access	Rural Unrestricted Access	1.4788	639,055,379	0.0017	0.0024	3.9287
2202210500	04	04003	796,238	Passenger Car	04003Urban Unrestricted Access	Urban Unrestricted Access	1.4788	400,238,375	0.0020	0.0029	2.9260
2202310200	04	04003	2,926,536	Passenger Truck	04003Rural Restricted Access	Rural Restricted Access	1.8669	552,320,633	0.0053	0.0099	6.7840
2202310300	04	04003	4,211,864	Passenger Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	1.8669	639,055,379	0.0066	0.0123	3.9287
2202310500	04	04003	2,563,797	Passenger Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	1.8669	400,238,375	0.0064	0.0120	2.9260
2202320200	04	04003	3,309,687	Light Commercial Truck	04003Rural Restricted Access	Rural Restricted Access	2.0598	552,320,633	0.0060	0.0123	6.7840
2202320300	04	04003	4,727,166	Light Commercial Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	2.0598	639,055,379	0.0074	0.0152	3.9287
2202320500	04	04003	2,867,652	Light Commercial Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	2.0598	400,238,375	0.0072	0.0148	2.9260
2202410200	04	04003	280,654	Intercity Bus	04003Rural Restricted Access	Rural Restricted Access	19.5937	552,320,633	0.0005	0.0100	6.7840
2202410300	04	04003	251,550	Intercity Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	19.5937	639,055,379	0.0004	0.0077	3.9287
2202410500	04	04003	127,646	Intercity Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	19.5937	400,238,375	0.0003	0.0062	2.9260
2202420200	04	04003	499,094	Transit Bus	04003Rural Restricted Access	Rural Restricted Access	16.5560	552,320,633	0.0009	0.0150	6.7840
2202420300	04	04003	455,551	Transit Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	16.5560	639,055,379	0.0007	0.0118	3.9287
2202420500	04	04003	232,589	Transit Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	16.5560	400,238,375	0.0006	0.0096	2.9260
2202430200	04	04003	1,453,700	School Bus	04003Rural Restricted Access	Rural Restricted Access	9.0699	552,320,633	0.0026	0.0239	6.7840
2202430300	04	04003	1,327,392	School Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	9.0699	639,055,379	0.0021	0.0188	3.9287
2202430500	04	04003	677,810	School Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	9.0699	400,238,375	0.0017	0.0154	2.9260
2202510200	04	04003	952,249	Refuse Truck	04003Rural Restricted Access	Rural Restricted Access	23.1135	552,320,633	0.0017	0.0398	6.7840
2202510300	04	04003	485,079	Refuse Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	23.1135	639,055,379	0.0008	0.0175	3.9287
2202510500	04	04003	167,868	Refuse Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	23.1135	400,238,375	0.0004	0.0097	2.9260
2202520200	04	04003	10,125,848	Single Unit Short-haul Truck	04003Rural Restricted Access	Rural Restricted Access	8.5390	552,320,633	0.0183	0.1565	6.7840
2202520300	04	04003	12,204,149	Single Unit Short-haul Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	8.5390	639,055,379	0.0191	0.1631	3.9287
2202520500	04	04003	5,465,937	Single Unit Short-haul Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	8.5390	400,238,375	0.0137	0.1166	2.9260
2202530200	04	04003	6,289,468	Single Unit Long-haul Truck	04003Rural Restricted Access	Rural Restricted Access	6.9845	552,320,633	0.0114	0.0795	6.7840
2202530300	04	04003	733,364	Single Unit Long-haul Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	6.9845	639,055,379	0.0011	0.0080	3.9287
2202530500	04	04003	190,021	Single Unit Long-haul Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	6.9845	400,238,375	0.0005	0.0033	2.9260
2202540200	04	04003	218,192	Motor Home	04003Rural Restricted Access	Rural Restricted Access	7.5257	552,320,633	0.0004	0.0030	6.7840
2202540300	04	04003	228,568	Motor Home	04003Rural Unrestricted Access	Rural Unrestricted Access	7.5257	639,055,379	0.0004	0.0027	3.9287
2202540500	04	04003	115,058	Motor Home	04003Urban Unrestricted Access	Urban Unrestricted Access	7.5257	400,238,375	0.0003	0.0022	2.9260
2202610200	04	04003	19,178,463	Combination Short-haul Truck	04003Rural Restricted Access	Rural Restricted Access	22.9745	552,320,633	0.0347	0.7978	6.7840
2202610300	04	04003	35,736,585	Combination Short-haul Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	22.9745	639,055,379	0.0559	1.2848	3.9287
2202610500	04	04003	14,208,007	Combination Short-haul Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	22.9745	400,238,375	0.0355	0.8156	2.9260
2202620200	04	04003	97,633,689	Combination Long-haul Truck	04003Rural Restricted Access	Rural Restricted Access	24.6010	552,320,633	0.1768	4.3487	6.7840
2202620300	04	04003	22,545,194	Combination Long-haul Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	24.6010	639,055,379	0.0353	0.8679	3.9287
2202620500	04	04003	5,467,072	Combination Long-haul Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	24.6010	400,238,375	0.0137	0.3360	2.9260
2203420200	04	04003	69,808	Transit Bus	04003Rural Restricted Access	Rural Restricted Access	16.5560	552,320,633	0.0001	0.0021	6.7840
2203420300	04	04003	63,718	Transit Bus	04003Rural Unrestricted Access	Rural Unrestricted Access	16.5560	639,055,379	0.0001	0.0017	3.9287
2203420500	04	04003	32,532	Transit Bus	04003Urban Unrestricted Access	Urban Unrestricted Access	16.5560	400,238,375	0.0001	0.0013	2.9260
2205210200	04	04003	4,184,535	Passenger Car	04003Rural Restricted Access	Rural Restricted Access	1.4788	552,320,633	0.0076	0.0112	6.7840
2205210300	04	04003	5,200,599	Passenger Car	04003Rural Unrestricted Access	Rural Unrestricted Access	1.4788	639,055,379	0.0081	0.0120	3.9287
2205210500	04	04003	3,916,898	Passenger Car	04003Urban Unrestricted Access	Urban Unrestricted Access	1.4788	400,238,375	0.0098	0.0145	2.9260
2205310200	04	04003	11,432,140	Passenger Truck	04003Rural Restricted Access	Rural Restricted Access	1.8669	552,320,633	0.0207	0.0386	6.7840
2205310300	04	04003	16,453,110	Passenger Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	1.8669	639,055,379	0.0257	0.0481	3.9287
2205310500	04	04003	10,015,146	Passenger Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	1.8669	400,238,375	0.0250	0.0467	2.9260
2205320200	04	04003	3,538,711	Light Commercial Truck	04003Rural Restricted Access	Rural Restricted Access	2.0598	552,320,633	0.0064	0.0132	6.7840
2205320300	04	04003	5,054,277	Light Commercial Truck	04003Rural Unrestricted Access	Rural Unrestricted Access	2.0598	639,055,379	0.0079	0.0163	3.9287
2205320500	04	04003	3,066,089	Light Commercial Truck	04003Urban Unrestricted Access	Urban Unrestricted Access	2.0598	400,238,375	0.0077	0.0158	2.9260
2201110200	04	04005	3,178,017	Motorcycle	04005Rural Restricted Access	Rural Restricted Access	0.2850	648,658,852	0.0049	0.0014	6.2579

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2201110300	04	04005	6,013,958	Motorcycle	04005Rural Unrestricted Access	Rural Unrestricted Access	0.2850	857,961,725	0.0070	0.0020	3.7504
2201110400	04	04005	843,049	Motorcycle	04005Urban Restricted Access	Urban Restricted Access	0.2850	163,815,147	0.0051	0.0015	3.8757
2201110500	04	04005	2,993,043	Motorcycle	04005Urban Unrestricted Access	Urban Unrestricted Access	0.2850	471,124,810	0.0064	0.0018	2.8803
2201210200	04	04005	164,775,507	Passenger Car	04005Rural Restricted Access	Rural Restricted Access	1.4788	648,658,852	0.2540	0.3757	6.2579
2201210300	04	04005	229,953,347	Passenger Car	04005Rural Unrestricted Access	Rural Unrestricted Access	1.4788	857,961,725	0.2680	0.3964	3.7504
2201210400	04	04005	51,514,296	Passenger Car	04005Urban Restricted Access	Urban Restricted Access	1.4788	163,815,147	0.3145	0.4650	3.8757
2201210500	04	04005	153,293,680	Passenger Car	04005Urban Unrestricted Access	Urban Unrestricted Access	1.4788	471,124,810	0.3254	0.4812	2.8803
2201310200	04	04005	217,561,271	Passenger Truck	04005Rural Restricted Access	Rural Restricted Access	1.8669	648,658,852	0.3354	0.6261	6.2579
2201310300	04	04005	351,595,238	Passenger Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	1.8669	857,961,725	0.4098	0.7650	3.7504
2201310400	04	04005	61,529,753	Passenger Truck	04005Urban Restricted Access	Urban Restricted Access	1.8669	163,815,147	0.3756	0.7012	3.8757
2201310500	04	04005	189,429,643	Passenger Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	1.8669	471,124,810	0.4021	0.7506	2.8803
2201320200	04	04005	70,574,879	Light Commercial Truck	04005Rural Restricted Access	Rural Restricted Access	2.0598	648,658,852	0.1088	0.2241	6.2579
2201320300	04	04005	113,189,212	Light Commercial Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	2.0598	857,961,725	0.1319	0.2717	3.7504
2201320400	04	04005	19,812,209	Light Commercial Truck	04005Urban Restricted Access	Urban Restricted Access	2.0598	163,815,147	0.1209	0.2491	3.8757
2201320500	04	04005	60,775,191	Light Commercial Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	2.0598	471,124,810	0.1290	0.2657	2.8803
2201420200	04	04005	16,838	Transit Bus	04005Rural Restricted Access	Rural Restricted Access	16.5560	648,658,852	0.0000	0.0004	6.2579
2201420300	04	04005	17,258	Transit Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	16.5560	857,961,725	0.0000	0.0003	3.7504
2201420400	04	04005	2,980	Transit Bus	04005Urban Restricted Access	Urban Restricted Access	16.5560	163,815,147	0.0000	0.0003	3.8757
2201420500	04	04005	7,799	Transit Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	16.5560	471,124,810	0.0000	0.0003	2.8803
2201430200	04	04005	184,528	School Bus	04005Rural Restricted Access	Rural Restricted Access	9.0699	648,658,852	0.0003	0.0026	6.2579
2201430300	04	04005	189,203	School Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	9.0699	857,961,725	0.0002	0.0020	3.7504
2201430400	04	04005	32,672	School Bus	04005Urban Restricted Access	Urban Restricted Access	9.0699	163,815,147	0.0002	0.0018	3.8757
2201430500	04	04005	85,513	School Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	9.0699	471,124,810	0.0002	0.0016	2.8803
2201510200	04	04005	83,539	Refuse Truck	04005Rural Restricted Access	Rural Restricted Access	23.1135	648,658,852	0.0001	0.0030	6.2579
2201510300	04	04005	47,785	Refuse Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	23.1135	857,961,725	0.0001	0.0013	3.7504
2201510400	04	04005	9,820	Refuse Truck	04005Urban Restricted Access	Urban Restricted Access	23.1135	163,815,147	0.0001	0.0014	3.8757
2201510500	04	04005	14,637	Refuse Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	23.1135	471,124,810	0.0000	0.0007	2.8803
2201540200	04	04005	783,540	Motor Home	04005Rural Restricted Access	Rural Restricted Access	7.5257	648,658,852	0.0012	0.0091	6.2579
2201540300	04	04005	921,675	Motor Home	04005Rural Unrestricted Access	Rural Unrestricted Access	7.5257	857,961,725	0.0011	0.0081	3.7504
2201540400	04	04005	159,878	Motor Home	04005Urban Restricted Access	Urban Restricted Access	7.5257	163,815,147	0.0010	0.0073	3.8757
2201540500	04	04005	410,655	Motor Home	04005Urban Unrestricted Access	Urban Unrestricted Access	7.5257	471,124,810	0.0009	0.0066	2.8803
2201610200	04	04005	6,519	Combination Short-haul Truck	04005Rural Restricted Access	Rural Restricted Access	22.9745	648,658,852	0.0000	0.0002	6.2579
2201610300	04	04005	3,812	Combination Short-haul Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	22.9745	857,961,725	0.0000	0.0001	3.7504
2201610400	04	04005	773	Combination Short-haul Truck	04005Urban Restricted Access	Urban Restricted Access	22.9745	163,815,147	0.0000	0.0001	3.8757
2201610500	04	04005	1,162	Combination Short-haul Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	22.9745	471,124,810	0.0000	0.0001	2.8803
2202210200	04	04005	842,446	Passenger Car	04005Rural Restricted Access	Rural Restricted Access	1.4788	648,658,852	0.0013	0.0019	6.2579
2202210300	04	04005	1,175,680	Passenger Car	04005Rural Unrestricted Access	Rural Unrestricted Access	1.4788	857,961,725	0.0014	0.0020	3.7504
2202210400	04	04005	263,376	Passenger Car	04005Urban Restricted Access	Urban Restricted Access	1.4788	163,815,147	0.0016	0.0024	3.8757
2202210500	04	04005	783,743	Passenger Car	04005Urban Unrestricted Access	Urban Unrestricted Access	1.4788	471,124,810	0.0017	0.0025	2.8803
2202310200	04	04005	3,877,482	Passenger Truck	04005Rural Restricted Access	Rural Restricted Access	1.8669	648,658,852	0.0060	0.0112	6.2579
2202310300	04	04005	6,266,300	Passenger Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	1.8669	857,961,725	0.0073	0.0136	3.7504
2202310400	04	04005	1,096,613	Passenger Truck	04005Urban Restricted Access	Urban Restricted Access	1.8669	163,815,147	0.0067	0.0125	3.8757
2202310500	04	04005	3,376,107	Passenger Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	1.8669	471,124,810	0.0072	0.0134	2.8803
2202320200	04	04005	4,294,376	Light Commercial Truck	04005Rural Restricted Access	Rural Restricted Access	2.0598	648,658,852	0.0066	0.0136	6.2579
2202320300	04	04005	6,887,394	Light Commercial Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	2.0598	857,961,725	0.0080	0.0165	3.7504
2202320400	04	04005	1,205,543	Light Commercial Truck	04005Urban Restricted Access	Urban Restricted Access	2.0598	163,815,147	0.0074	0.0152	3.8757
2202320500	04	04005	3,698,079	Light Commercial Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	2.0598	471,124,810	0.0078	0.0162	2.8803
2202410200	04	04005	621,279	Intercity Bus	04005Rural Restricted Access	Rural Restricted Access	19.5937	648,658,852	0.0010	0.0188	6.2579
2202410300	04	04005	625,288	Intercity Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	19.5937	857,961,725	0.0007	0.0143	3.7504
2202410400	04	04005	108,018	Intercity Bus	04005Urban Restricted Access	Urban Restricted Access	19.5937	163,815,147	0.0007	0.0129	3.8757
2202410500	04	04005	280,841	Intercity Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	19.5937	471,124,810	0.0006	0.0117	2.8803

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2202420200	04	04005	1,104,101	Transit Bus	04005Rural Restricted Access	Rural Restricted Access	16.5560	648,658,852	0.0017	0.0282	6.2579
2202420300	04	04005	1,131,628	Transit Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	16.5560	857,961,725	0.0013	0.0218	3.7504
2202420400	04	04005	195,416	Transit Bus	04005Urban Restricted Access	Urban Restricted Access	16.5560	163,815,147	0.0012	0.0197	3.8757
2202420500	04	04005	511,389	Transit Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	16.5560	471,124,810	0.0011	0.0180	2.8803
2202430200	04	04005	3,215,842	School Bus	04005Rural Restricted Access	Rural Restricted Access	9.0699	648,658,852	0.0050	0.0450	6.2579
2202430300	04	04005	3,297,311	School Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	9.0699	857,961,725	0.0038	0.0349	3.7504
2202430400	04	04005	569,394	School Bus	04005Urban Restricted Access	Urban Restricted Access	9.0699	163,815,147	0.0035	0.0315	3.8757
2202430500	04	04005	1,490,267	School Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	9.0699	471,124,810	0.0032	0.0287	2.8803
2202510200	04	04005	2,018,742	Refuse Truck	04005Rural Restricted Access	Rural Restricted Access	23.1135	648,658,852	0.0031	0.0719	6.2579
2202510300	04	04005	1,154,737	Refuse Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	23.1135	857,961,725	0.0013	0.0311	3.7504
2202510400	04	04005	237,305	Refuse Truck	04005Urban Restricted Access	Urban Restricted Access	23.1135	163,815,147	0.0014	0.0335	3.8757
2202510500	04	04005	353,700	Refuse Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	23.1135	471,124,810	0.0008	0.0174	2.8803
2202520200	04	04005	21,212,421	Single Unit Short-haul Truck	04005Rural Restricted Access	Rural Restricted Access	8.5390	648,658,852	0.0327	0.2792	6.2579
2202520300	04	04005	28,708,286	Single Unit Short-haul Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	8.5390	857,961,725	0.0335	0.2857	3.7504
2202520400	04	04005	4,841,804	Single Unit Short-haul Truck	04005Urban Restricted Access	Urban Restricted Access	8.5390	163,815,147	0.0296	0.2524	3.8757
2202520500	04	04005	11,380,466	Single Unit Short-haul Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	8.5390	471,124,810	0.0242	0.2063	2.8803
2202530200	04	04005	13,175,671	Single Unit Long-haul Truck	04005Rural Restricted Access	Rural Restricted Access	6.9845	648,658,852	0.0203	0.1419	6.2579
2202530300	04	04005	1,725,121	Single Unit Long-haul Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	6.9845	857,961,725	0.0020	0.0140	3.7504
2202530400	04	04005	662,697	Single Unit Long-haul Truck	04005Urban Restricted Access	Urban Restricted Access	6.9845	163,815,147	0.0040	0.0283	3.8757
2202530500	04	04005	395,637	Single Unit Long-haul Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	6.9845	471,124,810	0.0008	0.0059	2.8803
2202540200	04	04005	453,638	Motor Home	04005Rural Restricted Access	Rural Restricted Access	7.5257	648,658,852	0.0007	0.0053	6.2579
2202540300	04	04005	533,613	Motor Home	04005Rural Unrestricted Access	Rural Unrestricted Access	7.5257	857,961,725	0.0006	0.0047	3.7504
2202540400	04	04005	92,563	Motor Home	04005Urban Restricted Access	Urban Restricted Access	7.5257	163,815,147	0.0006	0.0043	3.8757
2202540500	04	04005	237,753	Motor Home	04005Urban Unrestricted Access	Urban Unrestricted Access	7.5257	471,124,810	0.0005	0.0038	2.8803
2202610200	04	04005	18,919,365	Combination Short-haul Truck	04005Rural Restricted Access	Rural Restricted Access	22.9745	648,658,852	0.0292	0.6701	6.2579
2202610300	04	04005	39,585,737	Combination Short-haul Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	22.9745	857,961,725	0.0461	1.0600	3.7504
2202610400	04	04005	5,109,045	Combination Short-haul Truck	04005Urban Restricted Access	Urban Restricted Access	22.9745	163,815,147	0.0312	0.7165	3.8757
2202610500	04	04005	13,929,987	Combination Short-haul Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	22.9745	471,124,810	0.0296	0.6793	2.8803
2202620200	04	04005	96,314,674	Combination Long-haul Truck	04005Rural Restricted Access	Rural Restricted Access	24.6010	648,658,852	0.1485	3.6528	6.2579
2202620300	04	04005	24,973,515	Combination Long-haul Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	24.6010	857,961,725	0.0291	0.7161	3.7504
2202620400	04	04005	8,222,950	Combination Long-haul Truck	04005Urban Restricted Access	Urban Restricted Access	24.6010	163,815,147	0.0502	1.2349	3.8757
2202620500	04	04005	5,360,093	Combination Long-haul Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	24.6010	471,124,810	0.0114	0.2799	2.8803
2203420200	04	04005	154,430	Transit Bus	04005Rural Restricted Access	Rural Restricted Access	16.5560	648,658,852	0.0002	0.0039	6.2579
2203420300	04	04005	158,280	Transit Bus	04005Rural Unrestricted Access	Rural Unrestricted Access	16.5560	857,961,725	0.0002	0.0031	3.7504
2203420400	04	04005	27,333	Transit Bus	04005Urban Restricted Access	Urban Restricted Access	16.5560	163,815,147	0.0002	0.0028	3.8757
2203420500	04	04005	71,528	Transit Bus	04005Urban Unrestricted Access	Urban Unrestricted Access	16.5560	471,124,810	0.0002	0.0025	2.8803
2205210200	04	04005	4,546,689	Passenger Car	04005Rural Restricted Access	Rural Restricted Access	1.4788	648,658,852	0.0070	0.0104	6.2579
2205210300	04	04005	6,345,156	Passenger Car	04005Rural Unrestricted Access	Rural Unrestricted Access	1.4788	857,961,725	0.0074	0.0109	3.7504
2205210400	04	04005	1,421,446	Passenger Car	04005Urban Restricted Access	Urban Restricted Access	1.4788	163,815,147	0.0087	0.0128	3.8757
2205210500	04	04005	4,229,868	Passenger Car	04005Urban Unrestricted Access	Urban Unrestricted Access	1.4788	471,124,810	0.0090	0.0133	2.8803
2205310200	04	04005	15,836,514	Passenger Truck	04005Rural Restricted Access	Rural Restricted Access	1.8669	648,658,852	0.0244	0.0456	6.2579
2205310300	04	04005	25,592,987	Passenger Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	1.8669	857,961,725	0.0298	0.0557	3.7504
2205310400	04	04005	4,478,815	Passenger Truck	04005Urban Restricted Access	Urban Restricted Access	1.8669	163,815,147	0.0273	0.0510	3.8757
2205310500	04	04005	13,788,783	Passenger Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	1.8669	471,124,810	0.0293	0.0546	2.8803
2205320200	04	04005	4,906,547	Light Commercial Truck	04005Rural Restricted Access	Rural Restricted Access	2.0598	648,658,852	0.0076	0.0156	6.2579
2205320300	04	04005	7,869,205	Light Commercial Truck	04005Rural Unrestricted Access	Rural Unrestricted Access	2.0598	857,961,725	0.0092	0.0189	3.7504
2205320400	04	04005	1,377,396	Light Commercial Truck	04005Urban Restricted Access	Urban Restricted Access	2.0598	163,815,147	0.0084	0.0173	3.8757
2205320500	04	04005	4,225,247	Light Commercial Truck	04005Urban Unrestricted Access	Urban Unrestricted Access	2.0598	471,124,810	0.0090	0.0185	2.8803
2201110300	04	04007	3,114,570	Motorcycle	04007Rural Unrestricted Access	Rural Unrestricted Access	0.2850	412,034,631	0.0076	0.0022	2.6178
2201110500	04	04007	1,233,798	Motorcycle	04007Urban Unrestricted Access	Urban Unrestricted Access	0.2850	184,867,272	0.0067	0.0019	2.2311
2201210300	04	04007	114,063,562	Passenger Car	04007Rural Unrestricted Access	Rural Unrestricted Access	1.4788	412,034,631	0.2768	0.4094	2.6178

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2201210500	04	04007	60,523,612	Passenger Car	04007Urban Unrestricted Access	Urban Unrestricted Access	1.4788	184,867,272	0.3274	0.4841	2.2311
2201310300	04	04007	185,209,607	Passenger Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	1.8669	412,034,631	0.4495	0.8392	2.6178
2201310500	04	04007	79,425,849	Passenger Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	1.8669	184,867,272	0.4296	0.8021	2.2311
2201320300	04	04007	59,742,492	Light Commercial Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	2.0598	412,034,631	0.1450	0.2987	2.6178
2201320500	04	04007	25,532,776	Light Commercial Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	2.0598	184,867,272	0.1381	0.2845	2.2311
2201420300	04	04007	3,616	Transit Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	16.5560	412,034,631	0.0000	0.0001	2.6178
2201420500	04	04007	1,301	Transit Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	16.5560	184,867,272	0.0000	0.0001	2.2311
2201430300	04	04007	39,635	School Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	9.0699	412,034,631	0.0001	0.0009	2.6178
2201430500	04	04007	14,259	School Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	9.0699	184,867,272	0.0001	0.0007	2.2311
2201510300	04	04007	17,907	Refuse Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	23.1135	412,034,631	0.0000	0.0010	2.6178
2201510500	04	04007	4,366	Refuse Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	23.1135	184,867,272	0.0000	0.0005	2.2311
2201540300	04	04007	240,199	Motor Home	04007Rural Unrestricted Access	Rural Unrestricted Access	7.5257	412,034,631	0.0006	0.0044	2.6178
2201540500	04	04007	85,185	Motor Home	04007Urban Unrestricted Access	Urban Unrestricted Access	7.5257	184,867,272	0.0005	0.0035	2.2311
2201610300	04	04007	700	Combination Short-haul Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	22.9745	412,034,631	0.0000	0.0000	2.6178
2201610500	04	04007	170	Combination Short-haul Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	22.9745	184,867,272	0.0000	0.0000	2.2311
2202210300	04	04007	586,670	Passenger Car	04007Rural Unrestricted Access	Rural Unrestricted Access	1.4788	412,034,631	0.0014	0.0021	2.6178
2202210500	04	04007	311,295	Passenger Car	04007Urban Unrestricted Access	Urban Unrestricted Access	1.4788	184,867,272	0.0017	0.0025	2.2311
2202310300	04	04007	3,244,406	Passenger Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	1.8669	412,034,631	0.0079	0.0147	2.6178
2202310500	04	04007	1,391,341	Passenger Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	1.8669	184,867,272	0.0075	0.0141	2.2311
2202320300	04	04007	3,614,698	Light Commercial Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	2.0598	412,034,631	0.0088	0.0181	2.6178
2202320500	04	04007	1,544,851	Light Commercial Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	2.0598	184,867,272	0.0084	0.0172	2.2311
2202410300	04	04007	131,989	Intercity Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	19.5937	412,034,631	0.0003	0.0063	2.6178
2202410500	04	04007	47,186	Intercity Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	19.5937	184,867,272	0.0003	0.0050	2.2311
2202420300	04	04007	237,097	Transit Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	16.5560	412,034,631	0.0006	0.0095	2.6178
2202420500	04	04007	85,284	Transit Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	16.5560	184,867,272	0.0005	0.0076	2.2311
2202430300	04	04007	690,736	School Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	9.0699	412,034,631	0.0017	0.0152	2.6178
2202430500	04	04007	248,491	School Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	9.0699	184,867,272	0.0013	0.0122	2.2311
2202510300	04	04007	432,737	Refuse Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	23.1135	412,034,631	0.0011	0.0243	2.6178
2202510500	04	04007	105,504	Refuse Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	23.1135	184,867,272	0.0006	0.0132	2.2311
2202520300	04	04007	8,465,958	Single Unit Short-haul Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	8.5390	412,034,631	0.0205	0.1754	2.6178
2202520500	04	04007	2,671,297	Single Unit Short-haul Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	8.5390	184,867,272	0.0144	0.1234	2.2311
2202530300	04	04007	508,731	Single Unit Long-haul Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	6.9845	412,034,631	0.0012	0.0086	2.6178
2202530500	04	04007	92,866	Single Unit Long-haul Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	6.9845	184,867,272	0.0005	0.0035	2.2311
2202540300	04	04007	139,065	Motor Home	04007Rural Unrestricted Access	Rural Unrestricted Access	7.5257	412,034,631	0.0003	0.0025	2.6178
2202540500	04	04007	49,319	Motor Home	04007Urban Unrestricted Access	Urban Unrestricted Access	7.5257	184,867,272	0.0003	0.0020	2.2311
2202610300	04	04007	7,463,329	Combination Short-haul Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	22.9745	412,034,631	0.0181	0.4161	2.6178
2202610500	04	04007	2,090,019	Combination Short-haul Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	22.9745	184,867,272	0.0113	0.2597	2.2311
2202620300	04	04007	4,708,402	Combination Long-haul Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	24.6010	412,034,631	0.0114	0.2811	2.6178
2202620500	04	04007	804,214	Combination Long-haul Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	24.6010	184,867,272	0.0044	0.1070	2.2311
2203420300	04	04007	33,163	Transit Bus	04007Rural Unrestricted Access	Rural Unrestricted Access	16.5560	412,034,631	0.0001	0.0013	2.6178
2203420500	04	04007	11,929	Transit Bus	04007Urban Unrestricted Access	Urban Unrestricted Access	16.5560	184,867,272	0.0001	0.0011	2.2311
2205210300	04	04007	2,966,261	Passenger Car	04007Rural Unrestricted Access	Rural Unrestricted Access	1.4788	412,034,631	0.0072	0.0106	2.6178
2205210500	04	04007	1,573,937	Passenger Car	04007Urban Unrestricted Access	Urban Unrestricted Access	1.4788	184,867,272	0.0085	0.0126	2.2311
2205310300	04	04007	12,524,014	Passenger Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	1.8669	412,034,631	0.0304	0.0567	2.6178
2205310500	04	04007	5,370,836	Passenger Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	1.8669	184,867,272	0.0291	0.0542	2.2311
2205320300	04	04007	3,855,085	Light Commercial Truck	04007Rural Unrestricted Access	Rural Unrestricted Access	2.0598	412,034,631	0.0094	0.0193	2.6178
2205320500	04	04007	1,647,588	Light Commercial Truck	04007Urban Unrestricted Access	Urban Unrestricted Access	2.0598	184,867,272	0.0089	0.0184	2.2311
2201110300	04	04009	1,365,126	Motorcycle	04009Rural Unrestricted Access	Rural Unrestricted Access	0.2850	179,636,517	0.0076	0.0022	2.7706
2201110500	04	04009	721,983	Motorcycle	04009Urban Unrestricted Access	Urban Unrestricted Access	0.2850	108,143,635	0.0067	0.0019	2.2973
2201210300	04	04009	55,962,234	Passenger Car	04009Rural Unrestricted Access	Rural Unrestricted Access	1.4788	179,636,517	0.3115	0.4607	2.7706
2201210500	04	04009	39,644,333	Passenger Car	04009Urban Unrestricted Access	Urban Unrestricted Access	1.4788	108,143,635	0.3666	0.5421	2.2973

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2201310300	04	04009	75,224,841	Passenger Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	1.8669	179,636,517	0.4188	0.7818	2.7706
2201310500	04	04009	43,069,297	Passenger Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	1.8669	108,143,635	0.3983	0.7435	2.2973
2201320300	04	04009	24,276,304	Light Commercial Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	2.0598	179,636,517	0.1351	0.2784	2.7706
2201320500	04	04009	13,851,775	Light Commercial Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	2.0598	108,143,635	0.1281	0.2638	2.2973
2201420300	04	04009	1,487	Transit Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	16.5560	179,636,517	0.0000	0.0001	2.7706
2201420500	04	04009	714	Transit Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	16.5560	108,143,635	0.0000	0.0001	2.2973
2201430300	04	04009	16,299	School Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	9.0699	179,636,517	0.0001	0.0008	2.7706
2201430500	04	04009	7,828	School Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	9.0699	108,143,635	0.0001	0.0007	2.2973
2201510300	04	04009	7,447	Refuse Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	23.1135	179,636,517	0.0000	0.0010	2.7706
2201510500	04	04009	2,424	Refuse Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	23.1135	108,143,635	0.0000	0.0005	2.2973
2201540300	04	04009	97,867	Motor Home	04009Rural Unrestricted Access	Rural Unrestricted Access	7.5257	179,636,517	0.0005	0.0041	2.7706
2201540500	04	04009	46,338	Motor Home	04009Urban Unrestricted Access	Urban Unrestricted Access	7.5257	108,143,635	0.0004	0.0032	2.2973
2201610300	04	04009	390	Combination Short-haul Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	22.9745	179,636,517	0.0000	0.0000	2.7706
2201610500	04	04009	126	Combination Short-haul Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	22.9745	108,143,635	0.0000	0.0000	2.2973
2202210300	04	04009	280,411	Passenger Car	04009Rural Unrestricted Access	Rural Unrestricted Access	1.4788	179,636,517	0.0016	0.0023	2.7706
2202210500	04	04009	198,646	Passenger Car	04009Urban Unrestricted Access	Urban Unrestricted Access	1.4788	108,143,635	0.0018	0.0027	2.2973
2202310300	04	04009	1,346,858	Passenger Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	1.8669	179,636,517	0.0075	0.0140	2.7706
2202310500	04	04009	771,131	Passenger Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	1.8669	108,143,635	0.0071	0.0133	2.2973
2202320300	04	04009	1,478,168	Light Commercial Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	2.0598	179,636,517	0.0082	0.0169	2.7706
2202320500	04	04009	843,426	Light Commercial Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	2.0598	108,143,635	0.0078	0.0161	2.2973
2202410300	04	04009	54,298	Intercity Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	19.5937	179,636,517	0.0003	0.0059	2.7706
2202410500	04	04009	25,916	Intercity Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	19.5937	108,143,635	0.0002	0.0047	2.2973
2202420300	04	04009	97,502	Transit Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	16.5560	179,636,517	0.0005	0.0090	2.7706
2202420500	04	04009	46,823	Transit Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	16.5560	108,143,635	0.0004	0.0072	2.2973
2202430300	04	04009	284,051	School Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	9.0699	179,636,517	0.0016	0.0143	2.7706
2202430500	04	04009	136,428	School Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	9.0699	108,143,635	0.0013	0.0114	2.2973
2202510300	04	04009	179,963	Refuse Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	23.1135	179,636,517	0.0010	0.0232	2.7706
2202510500	04	04009	58,578	Refuse Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	23.1135	108,143,635	0.0005	0.0125	2.2973
2202520300	04	04009	3,477,602	Single Unit Short-haul Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	8.5390	179,636,517	0.0194	0.1653	2.7706
2202520500	04	04009	1,464,988	Single Unit Short-haul Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	8.5390	108,143,635	0.0135	0.1157	2.2973
2202530300	04	04009	208,974	Single Unit Long-haul Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	6.9845	179,636,517	0.0012	0.0081	2.7706
2202530500	04	04009	50,930	Single Unit Long-haul Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	6.9845	108,143,635	0.0005	0.0033	2.2973
2202540300	04	04009	56,661	Motor Home	04009Rural Unrestricted Access	Rural Unrestricted Access	7.5257	179,636,517	0.0003	0.0024	2.7706
2202540500	04	04009	26,828	Motor Home	04009Urban Unrestricted Access	Urban Unrestricted Access	7.5257	108,143,635	0.0002	0.0019	2.2973
2202610300	04	04009	4,166,158	Combination Short-haul Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	22.9745	179,636,517	0.0232	0.5328	2.7706
2202610500	04	04009	1,557,608	Combination Short-haul Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	22.9745	108,143,635	0.0144	0.3309	2.2973
2202620300	04	04009	2,628,310	Combination Long-haul Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	24.6010	179,636,517	0.0146	0.3599	2.7706
2202620500	04	04009	599,349	Combination Long-haul Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	24.6010	108,143,635	0.0055	0.1363	2.2973
2203420300	04	04009	13,638	Transit Bus	04009Rural Unrestricted Access	Rural Unrestricted Access	16.5560	179,636,517	0.0001	0.0013	2.7706
2203420500	04	04009	6,549	Transit Bus	04009Urban Unrestricted Access	Urban Unrestricted Access	16.5560	108,143,635	0.0001	0.0010	2.2973
2205210300	04	04009	1,461,954	Passenger Car	04009Rural Unrestricted Access	Rural Unrestricted Access	1.4788	179,636,517	0.0081	0.0120	2.7706
2205210500	04	04009	1,035,666	Passenger Car	04009Urban Unrestricted Access	Urban Unrestricted Access	1.4788	108,143,635	0.0096	0.0142	2.2973
2205310300	04	04009	5,313,813	Passenger Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	1.8669	179,636,517	0.0296	0.0552	2.7706
2205310500	04	04009	3,042,375	Passenger Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	1.8669	108,143,635	0.0281	0.0525	2.2973
2205320300	04	04009	1,636,162	Light Commercial Truck	04009Rural Unrestricted Access	Rural Unrestricted Access	2.0598	179,636,517	0.0091	0.0188	2.7706
2205320500	04	04009	933,575	Light Commercial Truck	04009Urban Unrestricted Access	Urban Unrestricted Access	2.0598	108,143,635	0.0086	0.0178	2.2973
2201110300	04	04011	317,532	Motorcycle	04011Rural Unrestricted Access	Rural Unrestricted Access	0.2850	41,558,131	0.0076	0.0022	2.7867
2201110500	04	04011	112,143	Motorcycle	04011Urban Unrestricted Access	Urban Unrestricted Access	0.2850	16,545,728	0.0068	0.0019	2.3219
2201210300	04	04011	11,204,458	Passenger Car	04011Rural Unrestricted Access	Rural Unrestricted Access	1.4788	41,558,131	0.2696	0.3987	2.7867
2201210500	04	04011	5,300,416	Passenger Car	04011Urban Unrestricted Access	Urban Unrestricted Access	1.4788	16,545,728	0.3203	0.4737	2.3219
2201310300	04	04011	18,523,640	Passenger Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	1.8669	41,558,131	0.4457	0.8321	2.7867

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2201310500	04	04011	7,082,162	Passenger Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	1.8669	16,545,728	0.4280	0.7991	2.3219
2201320300	04	04011	5,980,988	Light Commercial Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	2.0598	41,558,131	0.1439	0.2964	2.7867
2201320500	04	04011	2,278,919	Light Commercial Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	2.0598	16,545,728	0.1377	0.2837	2.3219
2201420300	04	04011	345	Transit Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	16.5560	41,558,131	0.0000	0.0001	2.7867
2201420500	04	04011	111	Transit Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	16.5560	16,545,728	0.0000	0.0001	2.3219
2201430300	04	04011	3,781	School Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	9.0699	41,558,131	0.0001	0.0008	2.7867
2201430500	04	04011	1,213	School Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	9.0699	16,545,728	0.0001	0.0007	2.3219
2201510300	04	04011	1,698	Refuse Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	23.1135	41,558,131	0.0000	0.0009	2.7867
2201510500	04	04011	369	Refuse Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	23.1135	16,545,728	0.0000	0.0005	2.3219
2201540300	04	04011	22,949	Motor Home	04011Rural Unrestricted Access	Rural Unrestricted Access	7.5257	41,558,131	0.0006	0.0042	2.7867
2201540500	04	04011	7,256	Motor Home	04011Urban Unrestricted Access	Urban Unrestricted Access	7.5257	16,545,728	0.0004	0.0033	2.3219
2201610300	04	04011	90	Combination Short-haul Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	22.9745	41,558,131	0.0000	0.0000	2.7867
2201610500	04	04011	19	Combination Short-haul Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	22.9745	16,545,728	0.0000	0.0000	2.3219
2202210300	04	04011	60,072	Passenger Car	04011Rural Unrestricted Access	Rural Unrestricted Access	1.4788	41,558,131	0.0014	0.0021	2.7867
2202210500	04	04011	28,418	Passenger Car	04011Urban Unrestricted Access	Urban Unrestricted Access	1.4788	16,545,728	0.0017	0.0025	2.3219
2202310300	04	04011	345,411	Passenger Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	1.8669	41,558,131	0.0083	0.0155	2.7867
2202310500	04	04011	132,061	Passenger Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	1.8669	16,545,728	0.0080	0.0149	2.3219
2202320300	04	04011	365,818	Light Commercial Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	2.0598	41,558,131	0.0088	0.0181	2.7867
2202320500	04	04011	139,387	Light Commercial Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	2.0598	16,545,728	0.0084	0.0174	2.3219
2202410300	04	04011	12,590	Intercity Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	19.5937	41,558,131	0.0003	0.0059	2.7867
2202410500	04	04011	4,013	Intercity Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	19.5937	16,545,728	0.0002	0.0048	2.3219
2202420300	04	04011	22,619	Transit Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	16.5560	41,558,131	0.0005	0.0090	2.7867
2202420500	04	04011	7,254	Transit Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	16.5560	16,545,728	0.0004	0.0073	2.3219
2202430300	04	04011	65,897	School Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	9.0699	41,558,131	0.0016	0.0144	2.7867
2202430500	04	04011	21,135	School Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	9.0699	16,545,728	0.0013	0.0116	2.3219
2202510300	04	04011	41,043	Refuse Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	23.1135	41,558,131	0.0010	0.0228	2.7867
2202510500	04	04011	8,921	Refuse Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	23.1135	16,545,728	0.0005	0.0125	2.3219
2202520300	04	04011	806,472	Single Unit Short-haul Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	8.5390	41,558,131	0.0194	0.1657	2.7867
2202520500	04	04011	226,870	Single Unit Short-haul Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	8.5390	16,545,728	0.0137	0.1171	2.3219
2202530300	04	04011	48,462	Single Unit Long-haul Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	6.9845	41,558,131	0.0012	0.0081	2.7867
2202530500	04	04011	7,887	Single Unit Long-haul Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	6.9845	16,545,728	0.0005	0.0033	2.3219
2202540300	04	04011	13,286	Motor Home	04011Rural Unrestricted Access	Rural Unrestricted Access	7.5257	41,558,131	0.0003	0.0024	2.7867
2202540500	04	04011	4,201	Motor Home	04011Urban Unrestricted Access	Urban Unrestricted Access	7.5257	16,545,728	0.0003	0.0019	2.3219
2202610300	04	04011	960,717	Combination Short-haul Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	22.9745	41,558,131	0.0231	0.5311	2.7867
2202610500	04	04011	239,859	Combination Short-haul Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	22.9745	16,545,728	0.0145	0.3331	2.3219
2202620300	04	04011	606,089	Combination Long-haul Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	24.6010	41,558,131	0.0146	0.3588	2.7867
2202620500	04	04011	92,295	Combination Long-haul Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	24.6010	16,545,728	0.0056	0.1372	2.3219
2203420300	04	04011	3,164	Transit Bus	04011Rural Unrestricted Access	Rural Unrestricted Access	16.5560	41,558,131	0.0001	0.0013	2.7867
2203420500	04	04011	1,015	Transit Bus	04011Urban Unrestricted Access	Urban Unrestricted Access	16.5560	16,545,728	0.0001	0.0010	2.3219
2205210300	04	04011	308,307	Passenger Car	04011Rural Unrestricted Access	Rural Unrestricted Access	1.4788	41,558,131	0.0074	0.0110	2.7867
2205210500	04	04011	145,849	Passenger Car	04011Urban Unrestricted Access	Urban Unrestricted Access	1.4788	16,545,728	0.0088	0.0130	2.3219
2205310300	04	04011	1,408,662	Passenger Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	1.8669	41,558,131	0.0339	0.0633	2.7867
2205310500	04	04011	538,575	Passenger Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	1.8669	16,545,728	0.0326	0.0608	2.3219
2205320300	04	04011	434,042	Light Commercial Truck	04011Rural Unrestricted Access	Rural Unrestricted Access	2.0598	41,558,131	0.0104	0.0215	2.7867
2205320500	04	04011	165,382	Light Commercial Truck	04011Urban Unrestricted Access	Urban Unrestricted Access	2.0598	16,545,728	0.0100	0.0206	2.3219
2201110200	04	04012	2,479,818	Motorcycle	04012Rural Restricted Access	Rural Restricted Access	0.2850	531,733,675	0.0047	0.0013	7.7969
2201110300	04	04012	1,394,281	Motorcycle	04012Rural Unrestricted Access	Rural Unrestricted Access	0.2850	200,471,056	0.0070	0.0020	4.4334
2201110500	04	04012	233,975	Motorcycle	04012Urban Unrestricted Access	Urban Unrestricted Access	0.2850	36,493,205	0.0064	0.0018	3.2539
2201210200	04	04012	119,329,621	Passenger Car	04012Rural Restricted Access	Rural Restricted Access	1.4788	531,733,675	0.2244	0.3319	7.7969
2201210300	04	04012	49,479,081	Passenger Car	04012Rural Unrestricted Access	Rural Unrestricted Access	1.4788	200,471,056	0.2468	0.3650	4.4334
2201210500	04	04012	11,121,751	Passenger Car	04012Urban Unrestricted Access	Urban Unrestricted Access	1.4788	36,493,205	0.3048	0.4507	3.2539

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2201310200	04	04012	174,825,376	Passenger Truck	04012Rural Restricted Access	Rural Restricted Access	1.8669	531,733,675	0.3288	0.6138	7.7969
2201310300	04	04012	83,944,482	Passenger Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	1.8669	200,471,056	0.4187	0.7817	4.4334
2201310500	04	04012	15,249,799	Passenger Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	1.8669	36,493,205	0.4179	0.7801	3.2539
2201320200	04	04012	56,502,942	Light Commercial Truck	04012Rural Restricted Access	Rural Restricted Access	2.0598	531,733,675	0.1063	0.2189	7.7969
2201320300	04	04012	26,924,785	Light Commercial Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	2.0598	200,471,056	0.1343	0.2766	4.4334
2201320500	04	04012	4,874,618	Light Commercial Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	2.0598	36,493,205	0.1336	0.2751	3.2539
2201420200	04	04012	8,182	Transit Bus	04012Rural Restricted Access	Rural Restricted Access	16.5560	531,733,675	0.0000	0.0003	7.7969
2201420300	04	04012	2,492	Transit Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	16.5560	200,471,056	0.0000	0.0002	4.4334
2201420500	04	04012	380	Transit Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	16.5560	36,493,205	0.0000	0.0002	3.2539
2201430200	04	04012	89,680	School Bus	04012Rural Restricted Access	Rural Restricted Access	9.0699	531,733,675	0.0002	0.0015	7.7969
2201430300	04	04012	27,320	School Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	9.0699	200,471,056	0.0001	0.0012	4.4334
2201430500	04	04012	4,163	School Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	9.0699	36,493,205	0.0001	0.0010	3.2539
2201510200	04	04012	32,562	Refuse Truck	04012Rural Restricted Access	Rural Restricted Access	23.1135	531,733,675	0.0001	0.0014	7.7969
2201510300	04	04012	5,534	Refuse Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	23.1135	200,471,056	0.0000	0.0006	4.4334
2201510500	04	04012	572	Refuse Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	23.1135	36,493,205	0.0000	0.0004	3.2539
2201540200	04	04012	402,912	Motor Home	04012Rural Restricted Access	Rural Restricted Access	7.5257	531,733,675	0.0008	0.0057	7.7969
2201540300	04	04012	140,816	Motor Home	04012Rural Unrestricted Access	Rural Unrestricted Access	7.5257	200,471,056	0.0007	0.0053	4.4334
2201540500	04	04012	21,155	Motor Home	04012Urban Unrestricted Access	Urban Unrestricted Access	7.5257	36,493,205	0.0006	0.0044	3.2539
2201610200	04	04012	7,783	Combination Short-haul Truck	04012Rural Restricted Access	Rural Restricted Access	22.9745	531,733,675	0.0000	0.0003	7.7969
2201610300	04	04012	1,353	Combination Short-haul Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	22.9745	200,471,056	0.0000	0.0002	4.4334
2201610500	04	04012	139	Combination Short-haul Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	22.9745	36,493,205	0.0000	0.0001	3.2539
2202210200	04	04012	613,610	Passenger Car	04012Rural Restricted Access	Rural Restricted Access	1.4788	531,733,675	0.0012	0.0017	7.7969
2202210300	04	04012	254,429	Passenger Car	04012Rural Unrestricted Access	Rural Unrestricted Access	1.4788	200,471,056	0.0013	0.0019	4.4334
2202210500	04	04012	57,190	Passenger Car	04012Urban Unrestricted Access	Urban Unrestricted Access	1.4788	36,493,205	0.0016	0.0023	3.2539
2202310200	04	04012	2,941,071	Passenger Truck	04012Rural Restricted Access	Rural Restricted Access	1.8669	531,733,675	0.0055	0.0103	7.7969
2202310300	04	04012	1,412,190	Passenger Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	1.8669	200,471,056	0.0070	0.0132	4.4334
2202310500	04	04012	256,546	Passenger Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	1.8669	36,493,205	0.0070	0.0131	3.2539
2202320200	04	04012	3,337,060	Light Commercial Truck	04012Rural Restricted Access	Rural Restricted Access	2.0598	531,733,675	0.0063	0.0129	7.7969
2202320300	04	04012	1,590,176	Light Commercial Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	2.0598	200,471,056	0.0079	0.0163	4.4334
2202320500	04	04012	287,895	Light Commercial Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	2.0598	36,493,205	0.0079	0.0162	3.2539
2202410200	04	04012	299,646	Intercity Bus	04012Rural Restricted Access	Rural Restricted Access	19.5937	531,733,675	0.0006	0.0110	7.7969
2202410300	04	04012	89,604	Intercity Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	19.5937	200,471,056	0.0004	0.0088	4.4334
2202410500	04	04012	13,570	Intercity Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	19.5937	36,493,205	0.0004	0.0073	3.2539
2202420200	04	04012	536,500	Transit Bus	04012Rural Restricted Access	Rural Restricted Access	16.5560	531,733,675	0.0010	0.0167	7.7969
2202420300	04	04012	163,377	Transit Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	16.5560	200,471,056	0.0008	0.0135	4.4334
2202420500	04	04012	24,895	Transit Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	16.5560	36,493,205	0.0007	0.0113	3.2539
2202430200	04	04012	1,562,881	School Bus	04012Rural Restricted Access	Rural Restricted Access	9.0699	531,733,675	0.0029	0.0267	7.7969
2202430300	04	04012	476,121	School Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	9.0699	200,471,056	0.0024	0.0215	4.4334
2202430500	04	04012	72,559	School Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	9.0699	36,493,205	0.0020	0.0180	3.2539
2202510200	04	04012	786,873	Refuse Truck	04012Rural Restricted Access	Rural Restricted Access	23.1135	531,733,675	0.0015	0.0342	7.7969
2202510300	04	04012	133,731	Refuse Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	23.1135	200,471,056	0.0007	0.0154	4.4334
2202510500	04	04012	13,812	Refuse Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	23.1135	36,493,205	0.0004	0.0087	3.2539
2202520200	04	04012	9,690,496	Single Unit Short-haul Truck	04012Rural Restricted Access	Rural Restricted Access	8.5390	531,733,675	0.0182	0.1556	7.7969
2202520300	04	04012	3,896,632	Single Unit Short-haul Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	8.5390	200,471,056	0.0194	0.1660	4.4334
2202520500	04	04012	520,846	Single Unit Short-haul Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	8.5390	36,493,205	0.0143	0.1219	3.2539
2202530200	04	04012	6,019,057	Single Unit Long-haul Truck	04012Rural Restricted Access	Rural Restricted Access	6.9845	531,733,675	0.0113	0.0791	7.7969
2202530300	04	04012	234,154	Single Unit Long-haul Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	6.9845	200,471,056	0.0012	0.0082	4.4334
2202530500	04	04012	18,107	Single Unit Long-haul Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	6.9845	36,493,205	0.0005	0.0035	3.2539
2202540200	04	04012	233,270	Motor Home	04012Rural Restricted Access	Rural Restricted Access	7.5257	531,733,675	0.0004	0.0033	7.7969
2202540300	04	04012	81,527	Motor Home	04012Rural Unrestricted Access	Rural Unrestricted Access	7.5257	200,471,056	0.0004	0.0031	4.4334
2202540500	04	04012	12,248	Motor Home	04012Urban Unrestricted Access	Urban Unrestricted Access	7.5257	36,493,205	0.0003	0.0025	3.2539

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2202610200	04	04012	22,285,832	Combination Short-haul Truck	04012Rural Restricted Access	Rural Restricted Access	22.9745	531,733,675	0.0419	0.9629	7.7969
2202610300	04	04012	13,857,461	Combination Short-haul Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	22.9745	200,471,056	0.0691	1.5881	4.4334
2202610500	04	04012	1,644,403	Combination Short-haul Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	22.9745	36,493,205	0.0451	1.0352	3.2539
2202620200	04	04012	113,452,676	Combination Long-haul Truck	04012Rural Restricted Access	Rural Restricted Access	24.6010	531,733,675	0.2134	5.2490	7.7969
2202620300	04	04012	8,742,278	Combination Long-haul Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	24.6010	200,471,056	0.0436	1.0728	4.4334
2202620500	04	04012	632,747	Combination Long-haul Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	24.6010	36,493,205	0.0173	0.4266	3.2539
2203420200	04	04012	75,040	Transit Bus	04012Rural Restricted Access	Rural Restricted Access	16.5560	531,733,675	0.0001	0.0023	7.7969
2203420300	04	04012	22,851	Transit Bus	04012Rural Unrestricted Access	Rural Unrestricted Access	16.5560	200,471,056	0.0001	0.0019	4.4334
2203420500	04	04012	3,482	Transit Bus	04012Urban Unrestricted Access	Urban Unrestricted Access	16.5560	36,493,205	0.0001	0.0016	3.2539
2205210200	04	04012	2,757,510	Passenger Car	04012Rural Restricted Access	Rural Restricted Access	1.4788	531,733,675	0.0052	0.0077	7.7969
2205210300	04	04012	1,143,380	Passenger Car	04012Rural Unrestricted Access	Rural Unrestricted Access	1.4788	200,471,056	0.0057	0.0084	4.4334
2205210500	04	04012	257,005	Passenger Car	04012Urban Unrestricted Access	Urban Unrestricted Access	1.4788	36,493,205	0.0070	0.0104	3.2539
2205310200	04	04012	10,291,405	Passenger Truck	04012Rural Restricted Access	Rural Restricted Access	1.8669	531,733,675	0.0194	0.0361	7.7969
2205310300	04	04012	4,941,540	Passenger Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	1.8669	200,471,056	0.0246	0.0460	4.4334
2205310500	04	04012	897,706	Passenger Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	1.8669	36,493,205	0.0246	0.0459	3.2539
2205320200	04	04012	3,171,872	Light Commercial Truck	04012Rural Restricted Access	Rural Restricted Access	2.0598	531,733,675	0.0060	0.0123	7.7969
2205320300	04	04012	1,511,461	Light Commercial Truck	04012Rural Unrestricted Access	Rural Unrestricted Access	2.0598	200,471,056	0.0075	0.0155	4.4334
2205320500	04	04012	273,643	Light Commercial Truck	04012Urban Unrestricted Access	Urban Unrestricted Access	2.0598	36,493,205	0.0075	0.0154	3.2539
2201110200	04	04015	3,505,262	Motorcycle	04015Rural Restricted Access	Rural Restricted Access	0.2850	686,740,875	0.0051	0.0015	6.0278
2201110300	04	04015	8,218,988	Motorcycle	04015Rural Unrestricted Access	Rural Unrestricted Access	0.2850	1,138,941,199	0.0072	0.0021	3.5576
2201110400	04	04015	325,215	Motorcycle	04015Urban Restricted Access	Urban Restricted Access	0.2850	61,800,761	0.0053	0.0015	3.6785
2201110500	04	04015	4,392,887	Motorcycle	04015Urban Unrestricted Access	Urban Unrestricted Access	0.2850	680,313,725	0.0065	0.0018	2.7260
2201210200	04	04015	195,238,581	Passenger Car	04015Rural Restricted Access	Rural Restricted Access	1.4788	686,740,875	0.2843	0.4204	6.0278
2201210300	04	04015	337,603,142	Passenger Car	04015Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,138,941,199	0.2964	0.4383	3.5576
2201210400	04	04015	21,347,874	Passenger Car	04015Urban Restricted Access	Urban Restricted Access	1.4788	61,800,761	0.3454	0.5108	3.6785
2201210500	04	04015	241,696,354	Passenger Car	04015Urban Unrestricted Access	Urban Unrestricted Access	1.4788	680,313,725	0.3553	0.5254	2.7260
2201310200	04	04015	231,838,208	Passenger Truck	04015Rural Restricted Access	Rural Restricted Access	1.8669	686,740,875	0.3376	0.6302	6.0278
2201310300	04	04015	464,237,444	Passenger Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,138,941,199	0.4076	0.7609	3.5576
2201310400	04	04015	22,932,029	Passenger Truck	04015Urban Restricted Access	Urban Restricted Access	1.8669	61,800,761	0.3711	0.6927	3.6785
2201310500	04	04015	268,611,267	Passenger Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	1.8669	680,313,725	0.3948	0.7371	2.7260
2201320200	04	04015	75,241,285	Light Commercial Truck	04015Rural Restricted Access	Rural Restricted Access	2.0598	686,740,875	0.1096	0.2257	6.0278
2201320300	04	04015	149,521,916	Light Commercial Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,138,941,199	0.1313	0.2704	3.5576
2201320400	04	04015	7,387,421	Light Commercial Truck	04015Urban Restricted Access	Urban Restricted Access	2.0598	61,800,761	0.1195	0.2462	3.6785
2201320500	04	04015	86,219,451	Light Commercial Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	2.0598	680,313,725	0.1267	0.2610	2.7260
2201420200	04	04015	8,167	Transit Bus	04015Rural Restricted Access	Rural Restricted Access	16.5560	686,740,875	0.0000	0.0002	6.0278
2201420300	04	04015	10,372	Transit Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,138,941,199	0.0000	0.0002	3.5576
2201420400	04	04015	506	Transit Bus	04015Urban Restricted Access	Urban Restricted Access	16.5560	61,800,761	0.0000	0.0001	3.6785
2201420500	04	04015	5,034	Transit Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	16.5560	680,313,725	0.0000	0.0001	2.7260
2201430200	04	04015	89,502	School Bus	04015Rural Restricted Access	Rural Restricted Access	9.0699	686,740,875	0.0001	0.0012	6.0278
2201430300	04	04015	113,709	School Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,138,941,199	0.0001	0.0009	3.5576
2201430400	04	04015	5,543	School Bus	04015Urban Restricted Access	Urban Restricted Access	9.0699	61,800,761	0.0001	0.0008	3.6785
2201430500	04	04015	55,192	School Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	9.0699	680,313,725	0.0001	0.0007	2.7260
2201510200	04	04015	45,894	Refuse Truck	04015Rural Restricted Access	Rural Restricted Access	23.1135	686,740,875	0.0001	0.0015	6.0278
2201510300	04	04015	32,528	Refuse Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,138,941,199	0.0000	0.0007	3.5576
2201510400	04	04015	1,887	Refuse Truck	04015Urban Restricted Access	Urban Restricted Access	23.1135	61,800,761	0.0000	0.0007	3.6785
2201510500	04	04015	10,700	Refuse Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	23.1135	680,313,725	0.0000	0.0004	2.7260
2201540200	04	04015	412,090	Motor Home	04015Rural Restricted Access	Rural Restricted Access	7.5257	686,740,875	0.0006	0.0045	6.0278
2201540300	04	04015	600,624	Motor Home	04015Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,138,941,199	0.0005	0.0040	3.5576
2201540400	04	04015	29,409	Motor Home	04015Urban Restricted Access	Urban Restricted Access	7.5257	61,800,761	0.0005	0.0036	3.6785
2201540500	04	04015	287,396	Motor Home	04015Urban Unrestricted Access	Urban Unrestricted Access	7.5257	680,313,725	0.0004	0.0032	2.7260
2201610200	04	04015	6,927	Combination Short-haul Truck	04015Rural Restricted Access	Rural Restricted Access	22.9745	686,740,875	0.0000	0.0002	6.0278

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2201610300	04	04015	5,020	Combination Short-haul Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,138,941,199	0.0000	0.0001	3.5576
2201610400	04	04015	287	Combination Short-haul Truck	04015Urban Restricted Access	Urban Restricted Access	22.9745	61,800,761	0.0000	0.0001	3.6785
2201610500	04	04015	1,643	Combination Short-haul Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	22.9745	680,313,725	0.0000	0.0001	2.7260
2202210200	04	04015	1,012,083	Passenger Car	04015Rural Restricted Access	Rural Restricted Access	1.4788	686,740,875	0.0015	0.0022	6.0278
2202210300	04	04015	1,750,075	Passenger Car	04015Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,138,941,199	0.0015	0.0023	3.5576
2202210400	04	04015	110,664	Passenger Car	04015Urban Restricted Access	Urban Restricted Access	1.4788	61,800,761	0.0018	0.0026	3.6785
2202210500	04	04015	1,252,911	Passenger Car	04015Urban Unrestricted Access	Urban Unrestricted Access	1.4788	680,313,725	0.0018	0.0027	2.7260
2202310200	04	04015	4,095,669	Passenger Truck	04015Rural Restricted Access	Rural Restricted Access	1.8669	686,740,875	0.0060	0.0111	6.0278
2202310300	04	04015	8,201,249	Passenger Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,138,941,199	0.0072	0.0134	3.5576
2202310400	04	04015	405,119	Passenger Truck	04015Urban Restricted Access	Urban Restricted Access	1.8669	61,800,761	0.0066	0.0122	3.6785
2202310500	04	04015	4,745,304	Passenger Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	1.8669	680,313,725	0.0070	0.0130	2.7260
2202320200	04	04015	4,531,252	Light Commercial Truck	04015Rural Restricted Access	Rural Restricted Access	2.0598	686,740,875	0.0066	0.0136	6.0278
2202320300	04	04015	9,004,650	Light Commercial Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,138,941,199	0.0079	0.0163	3.5576
2202320400	04	04015	444,892	Light Commercial Truck	04015Urban Restricted Access	Urban Restricted Access	2.0598	61,800,761	0.0072	0.0148	3.6785
2202320500	04	04015	5,192,389	Light Commercial Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	2.0598	680,313,725	0.0076	0.0157	2.7260
2202410200	04	04015	301,615	Intercity Bus	04015Rural Restricted Access	Rural Restricted Access	19.5937	686,740,875	0.0004	0.0086	6.0278
2202410300	04	04015	376,132	Intercity Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	19.5937	1,138,941,199	0.0003	0.0065	3.5576
2202410400	04	04015	18,341	Intercity Bus	04015Urban Restricted Access	Urban Restricted Access	19.5937	61,800,761	0.0003	0.0058	3.6785
2202410500	04	04015	181,426	Intercity Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	19.5937	680,313,725	0.0003	0.0052	2.7260
2202420200	04	04015	535,537	Transit Bus	04015Rural Restricted Access	Rural Restricted Access	16.5560	686,740,875	0.0008	0.0129	6.0278
2202420300	04	04015	680,108	Transit Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,138,941,199	0.0006	0.0099	3.5576
2202420400	04	04015	33,151	Transit Bus	04015Urban Restricted Access	Urban Restricted Access	16.5560	61,800,761	0.0005	0.0089	3.6785
2202420500	04	04015	330,069	Transit Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	16.5560	680,313,725	0.0005	0.0080	2.7260
2202430200	04	04015	1,559,793	School Bus	04015Rural Restricted Access	Rural Restricted Access	9.0699	686,740,875	0.0023	0.0206	6.0278
2202430300	04	04015	1,981,645	School Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,138,941,199	0.0017	0.0158	3.5576
2202430400	04	04015	96,592	School Bus	04015Urban Restricted Access	Urban Restricted Access	9.0699	61,800,761	0.0016	0.0142	3.6785
2202430500	04	04015	961,854	School Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	9.0699	680,313,725	0.0014	0.0128	2.7260
2202510200	04	04015	1,109,048	Refuse Truck	04015Rural Restricted Access	Rural Restricted Access	23.1135	686,740,875	0.0016	0.0373	6.0278
2202510300	04	04015	786,043	Refuse Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,138,941,199	0.0007	0.0160	3.5576
2202510400	04	04015	45,596	Refuse Truck	04015Urban Restricted Access	Urban Restricted Access	23.1135	61,800,761	0.0007	0.0171	3.6785
2202510500	04	04015	258,569	Refuse Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	23.1135	680,313,725	0.0004	0.0088	2.7260
2202520200	04	04015	11,343,823	Single Unit Short-haul Truck	04015Rural Restricted Access	Rural Restricted Access	8.5390	686,740,875	0.0165	0.1410	6.0278
2202520300	04	04015	19,022,615	Single Unit Short-haul Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	8.5390	1,138,941,199	0.0167	0.1426	3.5576
2202520400	04	04015	905,587	Single Unit Short-haul Truck	04015Urban Restricted Access	Urban Restricted Access	8.5390	61,800,761	0.0147	0.1251	3.6785
2202520500	04	04015	8,098,453	Single Unit Short-haul Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	8.5390	680,313,725	0.0119	0.1016	2.7260
2202530200	04	04015	7,045,989	Single Unit Long-haul Truck	04015Rural Restricted Access	Rural Restricted Access	6.9845	686,740,875	0.0103	0.0717	6.0278
2202530300	04	04015	1,143,095	Single Unit Long-haul Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	6.9845	1,138,941,199	0.0010	0.0070	3.5576
2202530400	04	04015	123,948	Single Unit Long-haul Truck	04015Urban Restricted Access	Urban Restricted Access	6.9845	61,800,761	0.0020	0.0140	3.6785
2202530500	04	04015	281,539	Single Unit Long-haul Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	6.9845	680,313,725	0.0004	0.0029	2.7260
2202540200	04	04015	238,584	Motor Home	04015Rural Restricted Access	Rural Restricted Access	7.5257	686,740,875	0.0003	0.0026	6.0278
2202540300	04	04015	347,738	Motor Home	04015Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,138,941,199	0.0003	0.0023	3.5576
2202540400	04	04015	17,026	Motor Home	04015Urban Restricted Access	Urban Restricted Access	7.5257	61,800,761	0.0003	0.0021	3.6785
2202540500	04	04015	166,391	Motor Home	04015Urban Unrestricted Access	Urban Unrestricted Access	7.5257	680,313,725	0.0002	0.0018	2.7260
2202610200	04	04015	20,158,239	Combination Short-haul Truck	04015Rural Restricted Access	Rural Restricted Access	22.9745	686,740,875	0.0294	0.6744	6.0278
2202610300	04	04015	52,258,888	Combination Short-haul Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,138,941,199	0.0459	1.0542	3.5576
2202610400	04	04015	1,903,834	Combination Short-haul Truck	04015Urban Restricted Access	Urban Restricted Access	22.9745	61,800,761	0.0308	0.7078	3.6785
2202610500	04	04015	19,748,884	Combination Short-haul Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	22.9745	680,313,725	0.0290	0.6669	2.7260
2202620200	04	04015	102,621,530	Combination Long-haul Truck	04015Rural Restricted Access	Rural Restricted Access	24.6010	686,740,875	0.1494	3.6762	6.0278
2202620300	04	04015	32,968,645	Combination Long-haul Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	24.6010	1,138,941,199	0.0289	0.7121	3.5576
2202620400	04	04015	3,064,199	Combination Long-haul Truck	04015Urban Restricted Access	Urban Restricted Access	24.6010	61,800,761	0.0496	1.2198	3.6785
2202620500	04	04015	7,599,136	Combination Long-haul Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	24.6010	680,313,725	0.0112	0.2748	2.7260

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2203420200	04	04015	74,905	Transit Bus	04015Rural Restricted Access	Rural Restricted Access	16.5560	686,740,875	0.0001	0.0018	6.0278
2203420300	04	04015	95,126	Transit Bus	04015Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,138,941,199	0.0001	0.0014	3.5576
2203420400	04	04015	4,637	Transit Bus	04015Urban Restricted Access	Urban Restricted Access	16.5560	61,800,761	0.0001	0.0012	3.6785
2203420500	04	04015	46,167	Transit Bus	04015Urban Unrestricted Access	Urban Unrestricted Access	16.5560	680,313,725	0.0001	0.0011	2.7260
2205210200	04	04015	5,348,627	Passenger Car	04015Rural Restricted Access	Rural Restricted Access	1.4788	686,740,875	0.0078	0.0115	6.0278
2205210300	04	04015	9,248,752	Passenger Car	04015Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,138,941,199	0.0081	0.0120	3.5576
2205210400	04	04015	584,832	Passenger Car	04015Urban Restricted Access	Urban Restricted Access	1.4788	61,800,761	0.0095	0.0140	3.6785
2205210500	04	04015	6,621,353	Passenger Car	04015Urban Unrestricted Access	Urban Unrestricted Access	1.4788	680,313,725	0.0097	0.0144	2.7260
2205310200	04	04015	15,561,596	Passenger Truck	04015Rural Restricted Access	Rural Restricted Access	1.8669	686,740,875	0.0227	0.0423	6.0278
2205310300	04	04015	31,160,850	Passenger Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,138,941,199	0.0274	0.0511	3.5576
2205310400	04	04015	1,539,259	Passenger Truck	04015Urban Restricted Access	Urban Restricted Access	1.8669	61,800,761	0.0249	0.0465	3.6785
2205310500	04	04015	18,029,902	Passenger Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	1.8669	680,313,725	0.0265	0.0495	2.7260
2205320200	04	04015	4,816,670	Light Commercial Truck	04015Rural Restricted Access	Rural Restricted Access	2.0598	686,740,875	0.0070	0.0144	6.0278
2205320300	04	04015	9,571,842	Light Commercial Truck	04015Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,138,941,199	0.0084	0.0173	3.5576
2205320400	04	04015	472,915	Light Commercial Truck	04015Urban Restricted Access	Urban Restricted Access	2.0598	61,800,761	0.0077	0.0158	3.6785
2205320500	04	04015	5,519,452	Light Commercial Truck	04015Urban Unrestricted Access	Urban Unrestricted Access	2.0598	680,313,725	0.0081	0.0167	2.7260
2201110200	04	04017	1,603,898	Motorcycle	04017Rural Restricted Access	Rural Restricted Access	0.2850	319,390,491	0.0050	0.0014	6.6140
2201110300	04	04017	6,405,114	Motorcycle	04017Rural Unrestricted Access	Rural Unrestricted Access	0.2850	888,169,621	0.0072	0.0021	3.8486
2201110400	04	04017	175,644	Motorcycle	04017Urban Restricted Access	Urban Restricted Access	0.2850	33,153,723	0.0053	0.0015	4.0077
2201110500	04	04017	1,853,657	Motorcycle	04017Urban Unrestricted Access	Urban Unrestricted Access	0.2850	283,111,647	0.0065	0.0019	2.9119
2201210200	04	04017	78,709,121	Passenger Car	04017Rural Restricted Access	Rural Restricted Access	1.4788	319,390,491	0.2464	0.3644	6.6140
2201210300	04	04017	231,802,490	Passenger Car	04017Rural Unrestricted Access	Rural Unrestricted Access	1.4788	888,169,621	0.2610	0.3860	3.8486
2201210400	04	04017	10,158,307	Passenger Car	04017Urban Restricted Access	Urban Restricted Access	1.4788	33,153,723	0.3064	0.4531	4.0077
2201210500	04	04017	89,857,132	Passenger Car	04017Urban Unrestricted Access	Urban Unrestricted Access	1.4788	283,111,647	0.3174	0.4694	2.9119
2201310200	04	04017	109,559,723	Passenger Truck	04017Rural Restricted Access	Rural Restricted Access	1.8669	319,390,491	0.3430	0.6404	6.6140
2201310300	04	04017	373,644,227	Passenger Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	1.8669	888,169,621	0.4207	0.7854	3.8486
2201310400	04	04017	12,791,329	Passenger Truck	04017Urban Restricted Access	Urban Restricted Access	1.8669	33,153,723	0.3858	0.7203	4.0077
2201310500	04	04017	117,061,254	Passenger Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	1.8669	283,111,647	0.4135	0.7719	2.9119
2201320200	04	04017	35,553,894	Light Commercial Truck	04017Rural Restricted Access	Rural Restricted Access	2.0598	319,390,491	0.1113	0.2293	6.6140
2201320300	04	04017	120,333,906	Light Commercial Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	2.0598	888,169,621	0.1355	0.2791	3.8486
2201320400	04	04017	4,120,321	Light Commercial Truck	04017Urban Restricted Access	Urban Restricted Access	2.0598	33,153,723	0.1243	0.2560	4.0077
2201320500	04	04017	37,571,562	Light Commercial Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	2.0598	283,111,647	0.1327	0.2734	2.9119
2201420200	04	04017	4,357	Transit Bus	04017Rural Restricted Access	Rural Restricted Access	16.5560	319,390,491	0.0000	0.0002	6.6140
2201420300	04	04017	9,424	Transit Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	16.5560	888,169,621	0.0000	0.0002	3.8486
2201420400	04	04017	318	Transit Bus	04017Urban Restricted Access	Urban Restricted Access	16.5560	33,153,723	0.0000	0.0002	4.0077
2201420500	04	04017	2,476	Transit Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	16.5560	283,111,647	0.0000	0.0001	2.9119
2201430200	04	04017	47,747	School Bus	04017Rural Restricted Access	Rural Restricted Access	9.0699	319,390,491	0.0001	0.0014	6.6140
2201430300	04	04017	103,313	School Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	9.0699	888,169,621	0.0001	0.0011	3.8486
2201430400	04	04017	3,490	School Bus	04017Urban Restricted Access	Urban Restricted Access	9.0699	33,153,723	0.0001	0.0010	4.0077
2201430500	04	04017	27,153	School Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	9.0699	283,111,647	0.0001	0.0009	2.9119
2201510200	04	04017	26,453	Refuse Truck	04017Rural Restricted Access	Rural Restricted Access	23.1135	319,390,491	0.0001	0.0019	6.6140
2201510300	04	04017	31,931	Refuse Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	23.1135	888,169,621	0.0000	0.0008	3.8486
2201510400	04	04017	1,284	Refuse Truck	04017Urban Restricted Access	Urban Restricted Access	23.1135	33,153,723	0.0000	0.0009	4.0077
2201510500	04	04017	5,687	Refuse Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	23.1135	283,111,647	0.0000	0.0005	2.9119
2201540200	04	04017	226,798	Motor Home	04017Rural Restricted Access	Rural Restricted Access	7.5257	319,390,491	0.0007	0.0053	6.6140
2201540300	04	04017	562,992	Motor Home	04017Rural Unrestricted Access	Rural Unrestricted Access	7.5257	888,169,621	0.0006	0.0048	3.8486
2201540400	04	04017	19,104	Motor Home	04017Urban Restricted Access	Urban Restricted Access	7.5257	33,153,723	0.0006	0.0043	4.0077
2201540500	04	04017	145,865	Motor Home	04017Urban Unrestricted Access	Urban Unrestricted Access	7.5257	283,111,647	0.0005	0.0039	2.9119
2201610200	04	04017	3,627	Combination Short-haul Truck	04017Rural Restricted Access	Rural Restricted Access	22.9745	319,390,491	0.0000	0.0003	6.6140
2201610300	04	04017	4,477	Combination Short-haul Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	22.9745	888,169,621	0.0000	0.0001	3.8486
2201610400	04	04017	178	Combination Short-haul Truck	04017Urban Restricted Access	Urban Restricted Access	22.9745	33,153,723	0.0000	0.0001	4.0077

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2201610500	04	04017	793	Combination Short-haul Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	22.9745	283,111,647	0.0000	0.0001	2.9119
2202210200	04	04017	400,833	Passenger Car	04017Rural Restricted Access	Rural Restricted Access	1.4788	319,390,491	0.0013	0.0019	6.6140
2202210300	04	04017	1,180,473	Passenger Car	04017Rural Unrestricted Access	Rural Unrestricted Access	1.4788	888,169,621	0.0013	0.0020	3.8486
2202210400	04	04017	51,732	Passenger Car	04017Urban Restricted Access	Urban Restricted Access	1.4788	33,153,723	0.0016	0.0023	4.0077
2202210500	04	04017	457,605	Passenger Car	04017Urban Unrestricted Access	Urban Unrestricted Access	1.4788	283,111,647	0.0016	0.0024	2.9119
2202310200	04	04017	1,948,814	Passenger Truck	04017Rural Restricted Access	Rural Restricted Access	1.8669	319,390,491	0.0061	0.0114	6.6140
2202310300	04	04017	6,646,265	Passenger Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	1.8669	888,169,621	0.0075	0.0140	3.8486
2202310400	04	04017	227,528	Passenger Truck	04017Urban Restricted Access	Urban Restricted Access	1.8669	33,153,723	0.0069	0.0128	4.0077
2202310500	04	04017	2,082,249	Passenger Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	1.8669	283,111,647	0.0074	0.0137	2.9119
2202320200	04	04017	2,161,826	Light Commercial Truck	04017Rural Restricted Access	Rural Restricted Access	2.0598	319,390,491	0.0068	0.0139	6.6140
2202320300	04	04017	7,316,806	Light Commercial Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	2.0598	888,169,621	0.0082	0.0170	3.8486
2202320400	04	04017	250,533	Light Commercial Truck	04017Urban Restricted Access	Urban Restricted Access	2.0598	33,153,723	0.0076	0.0156	4.0077
2202320500	04	04017	2,284,509	Light Commercial Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	2.0598	283,111,647	0.0081	0.0166	2.9119
2202410200	04	04017	161,072	Intercity Bus	04017Rural Restricted Access	Rural Restricted Access	19.5937	319,390,491	0.0005	0.0099	6.6140
2202410300	04	04017	342,106	Intercity Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	19.5937	888,169,621	0.0004	0.0075	3.8486
2202410400	04	04017	11,561	Intercity Bus	04017Urban Restricted Access	Urban Restricted Access	19.5937	33,153,723	0.0003	0.0068	4.0077
2202410500	04	04017	89,349	Intercity Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	19.5937	283,111,647	0.0003	0.0062	2.9119
2202420200	04	04017	285,699	Transit Bus	04017Rural Restricted Access	Rural Restricted Access	16.5560	319,390,491	0.0009	0.0148	6.6140
2202420300	04	04017	617,944	Transit Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	16.5560	888,169,621	0.0007	0.0115	3.8486
2202420400	04	04017	20,875	Transit Bus	04017Urban Restricted Access	Urban Restricted Access	16.5560	33,153,723	0.0006	0.0104	4.0077
2202420500	04	04017	162,385	Transit Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	16.5560	283,111,647	0.0006	0.0095	2.9119
2202430200	04	04017	832,102	School Bus	04017Rural Restricted Access	Rural Restricted Access	9.0699	319,390,491	0.0026	0.0236	6.6140
2202430300	04	04017	1,800,478	School Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	9.0699	888,169,621	0.0020	0.0184	3.8486
2202430400	04	04017	60,821	School Bus	04017Urban Restricted Access	Urban Restricted Access	9.0699	33,153,723	0.0018	0.0166	4.0077
2202430500	04	04017	473,197	School Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	9.0699	283,111,647	0.0017	0.0152	2.9119
2202510200	04	04017	639,241	Refuse Truck	04017Rural Restricted Access	Rural Restricted Access	23.1135	319,390,491	0.0020	0.0463	6.6140
2202510300	04	04017	771,636	Refuse Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	23.1135	888,169,621	0.0009	0.0201	3.8486
2202510400	04	04017	31,021	Refuse Truck	04017Urban Restricted Access	Urban Restricted Access	23.1135	33,153,723	0.0009	0.0216	4.0077
2202510500	04	04017	137,440	Refuse Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	23.1135	283,111,647	0.0005	0.0112	2.9119
2202520200	04	04017	6,335,078	Single Unit Short-haul Truck	04017Rural Restricted Access	Rural Restricted Access	8.5390	319,390,491	0.0198	0.1694	6.6140
2202520300	04	04017	18,093,180	Single Unit Short-haul Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	8.5390	888,169,621	0.0204	0.1739	3.8486
2202520400	04	04017	596,939	Single Unit Short-haul Truck	04017Urban Restricted Access	Urban Restricted Access	8.5390	33,153,723	0.0180	0.1537	4.0077
2202520500	04	04017	4,170,783	Single Unit Short-haul Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	8.5390	283,111,647	0.0147	0.1258	2.9119
2202530200	04	04017	3,934,907	Single Unit Long-haul Truck	04017Rural Restricted Access	Rural Restricted Access	6.9845	319,390,491	0.0123	0.0860	6.6140
2202530300	04	04017	1,087,244	Single Unit Long-haul Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	6.9845	888,169,621	0.0012	0.0085	3.8486
2202530400	04	04017	81,703	Single Unit Long-haul Truck	04017Urban Restricted Access	Urban Restricted Access	6.9845	33,153,723	0.0025	0.0172	4.0077
2202530500	04	04017	144,995	Single Unit Long-haul Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	6.9845	283,111,647	0.0005	0.0036	2.9119
2202540200	04	04017	131,307	Motor Home	04017Rural Restricted Access	Rural Restricted Access	7.5257	319,390,491	0.0004	0.0031	6.6140
2202540300	04	04017	325,950	Motor Home	04017Rural Unrestricted Access	Rural Unrestricted Access	7.5257	888,169,621	0.0004	0.0028	3.8486
2202540400	04	04017	11,061	Motor Home	04017Urban Restricted Access	Urban Restricted Access	7.5257	33,153,723	0.0003	0.0025	4.0077
2202540500	04	04017	84,450	Motor Home	04017Urban Unrestricted Access	Urban Unrestricted Access	7.5257	283,111,647	0.0003	0.0022	2.9119
2202610200	04	04017	10,594,901	Combination Short-haul Truck	04017Rural Restricted Access	Rural Restricted Access	22.9745	319,390,491	0.0332	0.7621	6.6140
2202610300	04	04017	46,776,776	Combination Short-haul Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	22.9745	888,169,621	0.0527	1.2100	3.8486
2202610400	04	04017	1,181,042	Combination Short-haul Truck	04017Urban Restricted Access	Urban Restricted Access	22.9745	33,153,723	0.0356	0.8184	4.0077
2202610500	04	04017	9,571,303	Combination Short-haul Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	22.9745	283,111,647	0.0338	0.7767	2.9119
2202620200	04	04017	53,936,506	Combination Long-haul Truck	04017Rural Restricted Access	Rural Restricted Access	24.6010	319,390,491	0.1689	4.1545	6.6140
2202620300	04	04017	29,510,136	Combination Long-haul Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	24.6010	888,169,621	0.0332	0.8174	3.8486
2202620400	04	04017	1,900,873	Combination Long-haul Truck	04017Urban Restricted Access	Urban Restricted Access	24.6010	33,153,723	0.0573	1.4105	4.0077
2202620500	04	04017	3,682,923	Combination Long-haul Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	24.6010	283,111,647	0.0130	0.3200	2.9119
2203420200	04	04017	39,961	Transit Bus	04017Rural Restricted Access	Rural Restricted Access	16.5560	319,390,491	0.0001	0.0021	6.6140
2203420300	04	04017	86,432	Transit Bus	04017Rural Unrestricted Access	Rural Unrestricted Access	16.5560	888,169,621	0.0001	0.0016	3.8486

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2203420400	04	04017	2,920	Transit Bus	04017Urban Restricted Access	Urban Restricted Access	16.5560	33,153,723	0.0001	0.0015	4.0077
2203420500	04	04017	22,713	Transit Bus	04017Urban Unrestricted Access	Urban Unrestricted Access	16.5560	283,111,647	0.0001	0.0013	2.9119
2205210200	04	04017	2,167,187	Passenger Car	04017Rural Restricted Access	Rural Restricted Access	1.4788	319,390,491	0.0068	0.0100	6.6140
2205210300	04	04017	6,382,479	Passenger Car	04017Rural Unrestricted Access	Rural Unrestricted Access	1.4788	888,169,621	0.0072	0.0106	3.8486
2205210400	04	04017	279,700	Passenger Car	04017Urban Restricted Access	Urban Restricted Access	1.4788	33,153,723	0.0084	0.0125	4.0077
2205210500	04	04017	2,474,138	Passenger Car	04017Urban Unrestricted Access	Urban Unrestricted Access	1.4788	283,111,647	0.0087	0.0129	2.9119
2205310200	04	04017	7,699,854	Passenger Truck	04017Rural Restricted Access	Rural Restricted Access	1.8669	319,390,491	0.0241	0.0450	6.6140
2205310300	04	04017	26,259,706	Passenger Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	1.8669	888,169,621	0.0296	0.0552	3.8486
2205310400	04	04017	898,974	Passenger Truck	04017Urban Restricted Access	Urban Restricted Access	1.8669	33,153,723	0.0271	0.0506	4.0077
2205310500	04	04017	8,227,062	Passenger Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	1.8669	283,111,647	0.0291	0.0542	2.9119
2205320200	04	04017	2,385,586	Light Commercial Truck	04017Rural Restricted Access	Rural Restricted Access	2.0598	319,390,491	0.0075	0.0154	6.6140
2205320300	04	04017	8,074,133	Light Commercial Truck	04017Rural Unrestricted Access	Rural Unrestricted Access	2.0598	888,169,621	0.0091	0.0187	3.8486
2205320400	04	04017	276,464	Light Commercial Truck	04017Urban Restricted Access	Urban Restricted Access	2.0598	33,153,723	0.0083	0.0172	4.0077
2205320500	04	04017	2,520,967	Light Commercial Truck	04017Urban Unrestricted Access	Urban Unrestricted Access	2.0598	283,111,647	0.0089	0.0183	2.9119
2201110200	04	04019	3,106,790	Motorcycle	04019Rural Restricted Access	Rural Restricted Access	0.2850	569,479,053	0.0055	0.0016	4.0342
2201110300	04	04019	6,224,849	Motorcycle	04019Rural Unrestricted Access	Rural Unrestricted Access	0.2850	851,405,125	0.0073	0.0021	2.6705
2201110400	04	04019	7,705,141	Motorcycle	04019Urban Restricted Access	Urban Restricted Access	0.2850	1,464,019,744	0.0053	0.0015	2.7023
2201110500	04	04019	35,394,188	Motorcycle	04019Urban Unrestricted Access	Urban Unrestricted Access	0.2850	5,599,109,442	0.0063	0.0018	2.2142
2201210200	04	04019	212,810,832	Passenger Car	04019Rural Restricted Access	Rural Restricted Access	1.4788	569,479,053	0.3737	0.5526	4.0342
2201210300	04	04019	314,451,525	Passenger Car	04019Rural Unrestricted Access	Rural Unrestricted Access	1.4788	851,405,125	0.3693	0.5462	2.6705
2201210400	04	04019	622,015,392	Passenger Car	04019Urban Restricted Access	Urban Restricted Access	1.4788	1,464,019,744	0.4249	0.6283	2.7023
2201210500	04	04019	2,394,907,492	Passenger Car	04019Urban Unrestricted Access	Urban Unrestricted Access	1.4788	5,599,109,442	0.4277	0.6325	2.2142
2201310200	04	04019	189,432,960	Passenger Truck	04019Rural Restricted Access	Rural Restricted Access	1.8669	569,479,053	0.3326	0.6210	4.0342
2201310300	04	04019	324,137,918	Passenger Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	1.8669	851,405,125	0.3807	0.7107	2.6705
2201310400	04	04019	500,877,375	Passenger Truck	04019Urban Restricted Access	Urban Restricted Access	1.8669	1,464,019,744	0.3421	0.6387	2.7023
2201310500	04	04019	1,995,194,861	Passenger Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	1.8669	5,599,109,442	0.3563	0.6652	2.2142
2201320200	04	04019	61,632,215	Light Commercial Truck	04019Rural Restricted Access	Rural Restricted Access	2.0598	569,479,053	0.1082	0.2229	4.0342
2201320300	04	04019	104,658,756	Light Commercial Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	2.0598	851,405,125	0.1229	0.2532	2.6705
2201320400	04	04019	161,756,903	Light Commercial Truck	04019Urban Restricted Access	Urban Restricted Access	2.0598	1,464,019,744	0.1105	0.2276	2.7023
2201320500	04	04019	642,018,273	Light Commercial Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	2.0598	5,599,109,442	0.1147	0.2362	2.2142
2201420200	04	04019	5,067	Transit Bus	04019Rural Restricted Access	Rural Restricted Access	16.5560	569,479,053	0.0000	0.0001	4.0342
2201420300	04	04019	5,498	Transit Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	16.5560	851,405,125	0.0000	0.0001	2.6705
2201420400	04	04019	8,384	Transit Bus	04019Urban Restricted Access	Urban Restricted Access	16.5560	1,464,019,744	0.0000	0.0001	2.7023
2201420500	04	04019	28,388	Transit Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	16.5560	5,599,109,442	0.0000	0.0001	2.2142
2201430200	04	04019	55,517	School Bus	04019Rural Restricted Access	Rural Restricted Access	9.0699	569,479,053	0.0001	0.0009	4.0342
2201430300	04	04019	60,271	School Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	9.0699	851,405,125	0.0001	0.0006	2.6705
2201430400	04	04019	91,901	School Bus	04019Urban Restricted Access	Urban Restricted Access	9.0699	1,464,019,744	0.0001	0.0006	2.7023
2201430500	04	04019	311,216	School Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	9.0699	5,599,109,442	0.0001	0.0005	2.2142
2201510200	04	04019	38,489	Refuse Truck	04019Rural Restricted Access	Rural Restricted Access	23.1135	569,479,053	0.0001	0.0016	4.0342
2201510300	04	04019	23,311	Refuse Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	23.1135	851,405,125	0.0000	0.0006	2.6705
2201510400	04	04019	42,300	Refuse Truck	04019Urban Restricted Access	Urban Restricted Access	23.1135	1,464,019,744	0.0000	0.0007	2.7023
2201510500	04	04019	81,575	Refuse Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	23.1135	5,599,109,442	0.0000	0.0003	2.2142
2201540200	04	04019	258,504	Motor Home	04019Rural Restricted Access	Rural Restricted Access	7.5257	569,479,053	0.0005	0.0034	4.0342
2201540300	04	04019	321,957	Motor Home	04019Rural Unrestricted Access	Rural Unrestricted Access	7.5257	851,405,125	0.0004	0.0028	2.6705
2201540400	04	04019	493,137	Motor Home	04019Urban Restricted Access	Urban Restricted Access	7.5257	1,464,019,744	0.0003	0.0025	2.7023
2201540500	04	04019	1,638,881	Motor Home	04019Urban Unrestricted Access	Urban Unrestricted Access	7.5257	5,599,109,442	0.0003	0.0022	2.2142
2201610200	04	04019	2,950	Combination Short-haul Truck	04019Rural Restricted Access	Rural Restricted Access	22.9745	569,479,053	0.0000	0.0001	4.0342
2201610300	04	04019	1,827	Combination Short-haul Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	22.9745	851,405,125	0.0000	0.0000	2.6705
2201610400	04	04019	3,273	Combination Short-haul Truck	04019Urban Restricted Access	Urban Restricted Access	22.9745	1,464,019,744	0.0000	0.0001	2.7023
2201610500	04	04019	6,361	Combination Short-haul Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	22.9745	5,599,109,442	0.0000	0.0000	2.2142
2202210200	04	04019	1,078,800	Passenger Car	04019Rural Restricted Access	Rural Restricted Access	1.4788	569,479,053	0.0019	0.0028	4.0342

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2202210300	04	04019	1,594,046	Passenger Car	04019Rural Unrestricted Access	Rural Unrestricted Access	1.4788	851,405,125	0.0019	0.0028	2.6705
2202210400	04	04019	3,153,177	Passenger Car	04019Urban Restricted Access	Urban Restricted Access	1.4788	1,464,019,744	0.0022	0.0032	2.7023
2202210500	04	04019	12,140,481	Passenger Car	04019Urban Unrestricted Access	Urban Unrestricted Access	1.4788	5,599,109,442	0.0022	0.0032	2.2142
2202310200	04	04019	3,435,532	Passenger Truck	04019Rural Restricted Access	Rural Restricted Access	1.8669	569,479,053	0.0060	0.0113	4.0342
2202310300	04	04019	5,878,523	Passenger Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	1.8669	851,405,125	0.0069	0.0129	2.6705
2202310400	04	04019	9,083,847	Passenger Truck	04019Urban Restricted Access	Urban Restricted Access	1.8669	1,464,019,744	0.0062	0.0116	2.7023
2202310500	04	04019	36,184,595	Passenger Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	1.8669	5,599,109,442	0.0065	0.0121	2.2142
2202320200	04	04019	3,792,857	Light Commercial Truck	04019Rural Restricted Access	Rural Restricted Access	2.0598	569,479,053	0.0067	0.0137	4.0342
2202320300	04	04019	6,440,717	Light Commercial Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	2.0598	851,405,125	0.0076	0.0156	2.6705
2202320400	04	04019	9,954,547	Light Commercial Truck	04019Urban Restricted Access	Urban Restricted Access	2.0598	1,464,019,744	0.0068	0.0140	2.7023
2202320500	04	04019	39,509,913	Light Commercial Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	2.0598	5,599,109,442	0.0071	0.0145	2.2142
2202410200	04	04019	188,351	Intercity Bus	04019Rural Restricted Access	Rural Restricted Access	19.5937	569,479,053	0.0003	0.0065	4.0342
2202410300	04	04019	200,713	Intercity Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	19.5937	851,405,125	0.0002	0.0046	2.6705
2202410400	04	04019	306,163	Intercity Bus	04019Urban Restricted Access	Urban Restricted Access	19.5937	1,464,019,744	0.0002	0.0041	2.7023
2202410500	04	04019	1,029,926	Intercity Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	19.5937	5,599,109,442	0.0002	0.0036	2.2142
2202420200	04	04019	332,234	Transit Bus	04019Rural Restricted Access	Rural Restricted Access	16.5560	569,479,053	0.0006	0.0097	4.0342
2202420300	04	04019	360,539	Transit Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	16.5560	851,405,125	0.0004	0.0070	2.6705
2202420400	04	04019	549,754	Transit Bus	04019Urban Restricted Access	Urban Restricted Access	16.5560	1,464,019,744	0.0004	0.0062	2.7023
2202420500	04	04019	1,861,446	Transit Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	16.5560	5,599,109,442	0.0003	0.0055	2.2142
2202430200	04	04019	967,523	School Bus	04019Rural Restricted Access	Rural Restricted Access	9.0699	569,479,053	0.0017	0.0154	4.0342
2202430300	04	04019	1,050,362	School Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	9.0699	851,405,125	0.0012	0.0112	2.6705
2202430400	04	04019	1,601,591	School Bus	04019Urban Restricted Access	Urban Restricted Access	9.0699	1,464,019,744	0.0011	0.0099	2.7023
2202430500	04	04019	5,423,680	School Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	9.0699	5,599,109,442	0.0010	0.0088	2.2142
2202510200	04	04019	930,110	Refuse Truck	04019Rural Restricted Access	Rural Restricted Access	23.1135	569,479,053	0.0016	0.0378	4.0342
2202510300	04	04019	563,313	Refuse Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	23.1135	851,405,125	0.0007	0.0153	2.6705
2202510400	04	04019	1,022,193	Refuse Truck	04019Urban Restricted Access	Urban Restricted Access	23.1135	1,464,019,744	0.0007	0.0161	2.7023
2202510500	04	04019	1,971,296	Refuse Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	23.1135	5,599,109,442	0.0004	0.0081	2.2142
2202520200	04	04019	7,967,808	Single Unit Short-haul Truck	04019Rural Restricted Access	Rural Restricted Access	8.5390	569,479,053	0.0140	0.1195	4.0342
2202520300	04	04019	11,417,439	Single Unit Short-haul Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	8.5390	851,405,125	0.0134	0.1145	2.6705
2202520400	04	04019	17,003,097	Single Unit Short-haul Truck	04019Urban Restricted Access	Urban Restricted Access	8.5390	1,464,019,744	0.0116	0.0992	2.7023
2202520500	04	04019	51,709,687	Single Unit Short-haul Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	8.5390	5,599,109,442	0.0092	0.0789	2.2142
2202530200	04	04019	4,949,044	Single Unit Long-haul Truck	04019Rural Restricted Access	Rural Restricted Access	6.9845	569,479,053	0.0087	0.0607	4.0342
2202530300	04	04019	686,090	Single Unit Long-haul Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	6.9845	851,405,125	0.0008	0.0056	2.6705
2202530400	04	04019	2,327,213	Single Unit Long-haul Truck	04019Urban Restricted Access	Urban Restricted Access	6.9845	1,464,019,744	0.0016	0.0111	2.7023
2202530500	04	04019	1,797,664	Single Unit Long-haul Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	6.9845	5,599,109,442	0.0003	0.0022	2.2142
2202540200	04	04019	149,664	Motor Home	04019Rural Restricted Access	Rural Restricted Access	7.5257	569,479,053	0.0003	0.0020	4.0342
2202540300	04	04019	186,400	Motor Home	04019Rural Unrestricted Access	Rural Unrestricted Access	7.5257	851,405,125	0.0002	0.0016	2.6705
2202540400	04	04019	285,506	Motor Home	04019Urban Restricted Access	Urban Restricted Access	7.5257	1,464,019,744	0.0002	0.0015	2.7023
2202540500	04	04019	948,847	Motor Home	04019Urban Unrestricted Access	Urban Unrestricted Access	7.5257	5,599,109,442	0.0002	0.0013	2.2142
2202610200	04	04019	8,720,155	Combination Short-haul Truck	04019Rural Restricted Access	Rural Restricted Access	22.9745	569,479,053	0.0153	0.3518	4.0342
2202610300	04	04019	19,312,665	Combination Short-haul Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	22.9745	851,405,125	0.0227	0.5211	2.6705
2202610400	04	04019	22,011,817	Combination Short-haul Truck	04019Urban Restricted Access	Urban Restricted Access	22.9745	1,464,019,744	0.0150	0.3454	2.7023
2202610500	04	04019	77,632,687	Combination Short-haul Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	22.9745	5,599,109,442	0.0139	0.3185	2.2142
2202620200	04	04019	44,392,551	Combination Long-haul Truck	04019Rural Restricted Access	Rural Restricted Access	24.6010	569,479,053	0.0780	1.9177	4.0342
2202620300	04	04019	12,183,810	Combination Long-haul Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	24.6010	851,405,125	0.0143	0.3520	2.6705
2202620400	04	04019	35,427,770	Combination Long-haul Truck	04019Urban Restricted Access	Urban Restricted Access	24.6010	1,464,019,744	0.0242	0.5953	2.7023
2202620500	04	04019	29,872,134	Combination Long-haul Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	24.6010	5,599,109,442	0.0053	0.1313	2.2142
2203420200	04	04019	46,469	Transit Bus	04019Rural Restricted Access	Rural Restricted Access	16.5560	569,479,053	0.0001	0.0014	4.0342
2203420300	04	04019	50,428	Transit Bus	04019Rural Unrestricted Access	Rural Unrestricted Access	16.5560	851,405,125	0.0001	0.0010	2.6705
2203420400	04	04019	76,894	Transit Bus	04019Urban Restricted Access	Urban Restricted Access	16.5560	1,464,019,744	0.0001	0.0009	2.7023
2203420500	04	04019	260,359	Transit Bus	04019Urban Unrestricted Access	Urban Unrestricted Access	16.5560	5,599,109,442	0.0000	0.0008	2.2142

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2205210200	04	04019	6,170,196	Passenger Car	04019Rural Restricted Access	Rural Restricted Access	1.4788	569,479,053	0.0108	0.0160	4.0342
2205210300	04	04019	9,117,147	Passenger Car	04019Rural Unrestricted Access	Rural Unrestricted Access	1.4788	851,405,125	0.0107	0.0158	2.6705
2205210400	04	04019	18,034,594	Passenger Car	04019Urban Restricted Access	Urban Restricted Access	1.4788	1,464,019,744	0.0123	0.0182	2.7023
2205210500	04	04019	69,437,484	Passenger Car	04019Urban Unrestricted Access	Urban Unrestricted Access	1.4788	5,599,109,442	0.0124	0.0183	2.2142
2205310200	04	04019	14,507,087	Passenger Truck	04019Rural Restricted Access	Rural Restricted Access	1.8669	569,479,053	0.0255	0.0476	4.0342
2205310300	04	04019	24,823,014	Passenger Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	1.8669	851,405,125	0.0292	0.0544	2.6705
2205310400	04	04019	38,358,011	Passenger Truck	04019Urban Restricted Access	Urban Restricted Access	1.8669	1,464,019,744	0.0262	0.0489	2.7023
2205310500	04	04019	152,795,297	Passenger Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	1.8669	5,599,109,442	0.0273	0.0509	2.2142
2205320200	04	04019	4,507,348	Light Commercial Truck	04019Rural Restricted Access	Rural Restricted Access	2.0598	569,479,053	0.0079	0.0163	4.0342
2205320300	04	04019	7,654,007	Light Commercial Truck	04019Rural Unrestricted Access	Rural Unrestricted Access	2.0598	851,405,125	0.0090	0.0185	2.6705
2205320400	04	04019	11,829,764	Light Commercial Truck	04019Urban Restricted Access	Urban Restricted Access	2.0598	1,464,019,744	0.0081	0.0166	2.7023
2205320500	04	04019	46,952,709	Light Commercial Truck	04019Urban Unrestricted Access	Urban Unrestricted Access	2.0598	5,599,109,442	0.0084	0.0173	2.2142
2201110200	04	04021	5,812,103	Motorcycle	04021Rural Restricted Access	Rural Restricted Access	0.2850	1,054,831,565	0.0055	0.0016	4.5867
2201110300	04	04021	8,926,180	Motorcycle	04021Rural Unrestricted Access	Rural Unrestricted Access	0.2850	1,189,044,775	0.0075	0.0021	2.9141
2201110400	04	04021	517,846	Motorcycle	04021Urban Restricted Access	Urban Restricted Access	0.2850	95,671,199	0.0054	0.0015	2.9629
2201110500	04	04021	6,475,103	Motorcycle	04021Urban Unrestricted Access	Urban Unrestricted Access	0.2850	989,829,347	0.0065	0.0019	2.3514
2201210200	04	04021	374,267,661	Passenger Car	04021Rural Restricted Access	Rural Restricted Access	1.4788	1,054,831,565	0.3548	0.5247	4.5867
2201210300	04	04021	423,894,295	Passenger Car	04021Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,189,044,775	0.3565	0.5272	2.9141
2201210400	04	04021	39,299,618	Passenger Car	04021Urban Restricted Access	Urban Restricted Access	1.4788	95,671,199	0.4108	0.6075	2.9629
2201210500	04	04021	411,879,846	Passenger Car	04021Urban Unrestricted Access	Urban Unrestricted Access	1.4788	989,829,347	0.4161	0.6153	2.3514
2201310200	04	04021	345,096,675	Passenger Truck	04021Rural Restricted Access	Rural Restricted Access	1.8669	1,054,831,565	0.3272	0.6108	4.5867
2201310300	04	04021	452,616,478	Passenger Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,189,044,775	0.3807	0.7106	2.9141
2201310400	04	04021	32,780,477	Passenger Truck	04021Urban Restricted Access	Urban Restricted Access	1.8669	95,671,199	0.3426	0.6397	2.9629
2201310500	04	04021	355,437,932	Passenger Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	1.8669	989,829,347	0.3591	0.6704	2.3514
2201320200	04	04021	111,969,491	Light Commercial Truck	04021Rural Restricted Access	Rural Restricted Access	2.0598	1,054,831,565	0.1061	0.2186	4.5867
2201320300	04	04021	145,741,350	Light Commercial Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,189,044,775	0.1226	0.2525	2.9141
2201320400	04	04021	10,557,312	Light Commercial Truck	04021Urban Restricted Access	Urban Restricted Access	2.0598	95,671,199	0.1103	0.2273	2.9629
2201320500	04	04021	114,059,783	Light Commercial Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	2.0598	989,829,347	0.1152	0.2374	2.3514
2201420200	04	04021	12,337	Transit Bus	04021Rural Restricted Access	Rural Restricted Access	16.5560	1,054,831,565	0.0000	0.0002	4.5867
2201420300	04	04021	10,262	Transit Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,189,044,775	0.0000	0.0001	2.9141
2201420400	04	04021	733	Transit Bus	04021Urban Restricted Access	Urban Restricted Access	16.5560	95,671,199	0.0000	0.0001	2.9629
2201420500	04	04021	6,759	Transit Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	16.5560	989,829,347	0.0000	0.0001	2.3514
2201430200	04	04021	135,197	School Bus	04021Rural Restricted Access	Rural Restricted Access	9.0699	1,054,831,565	0.0001	0.0012	4.5867
2201430300	04	04021	112,502	School Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,189,044,775	0.0001	0.0009	2.9141
2201430400	04	04021	8,040	School Bus	04021Urban Restricted Access	Urban Restricted Access	9.0699	95,671,199	0.0001	0.0008	2.9629
2201430500	04	04021	74,113	School Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	9.0699	989,829,347	0.0001	0.0007	2.3514
2201510200	04	04021	66,934	Refuse Truck	04021Rural Restricted Access	Rural Restricted Access	23.1135	1,054,831,565	0.0001	0.0015	4.5867
2201510300	04	04021	31,073	Refuse Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,189,044,775	0.0000	0.0006	2.9141
2201510400	04	04021	2,643	Refuse Truck	04021Urban Restricted Access	Urban Restricted Access	23.1135	95,671,199	0.0000	0.0006	2.9629
2201510500	04	04021	13,873	Refuse Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	23.1135	989,829,347	0.0000	0.0003	2.3514
2201540200	04	04021	632,966	Motor Home	04021Rural Restricted Access	Rural Restricted Access	7.5257	1,054,831,565	0.0006	0.0045	4.5867
2201540300	04	04021	604,262	Motor Home	04021Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,189,044,775	0.0005	0.0038	2.9141
2201540400	04	04021	43,379	Motor Home	04021Urban Restricted Access	Urban Restricted Access	7.5257	95,671,199	0.0005	0.0034	2.9629
2201540500	04	04021	392,422	Motor Home	04021Urban Unrestricted Access	Urban Unrestricted Access	7.5257	989,829,347	0.0004	0.0030	2.3514
2201610200	04	04021	6,940	Combination Short-haul Truck	04021Rural Restricted Access	Rural Restricted Access	22.9745	1,054,831,565	0.0000	0.0002	4.5867
2201610300	04	04021	3,294	Combination Short-haul Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,189,044,775	0.0000	0.0001	2.9141
2201610400	04	04021	277	Combination Short-haul Truck	04021Urban Restricted Access	Urban Restricted Access	22.9745	95,671,199	0.0000	0.0001	2.9629
2201610500	04	04021	1,463	Combination Short-haul Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	22.9745	989,829,347	0.0000	0.0000	2.3514
2202210200	04	04021	1,891,148	Passenger Car	04021Rural Restricted Access	Rural Restricted Access	1.4788	1,054,831,565	0.0018	0.0027	4.5867
2202210300	04	04021	2,141,908	Passenger Car	04021Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,189,044,775	0.0018	0.0027	2.9141
2202210400	04	04021	198,578	Passenger Car	04021Urban Restricted Access	Urban Restricted Access	1.4788	95,671,199	0.0021	0.0031	2.9629

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2202210500	04	04021	2,081,199	Passenger Car	04021Urban Unrestricted Access	Urban Unrestricted Access	1.4788	989,829,347	0.0021	0.0031	2.3514
2202310200	04	04021	6,327,180	Passenger Truck	04021Rural Restricted Access	Rural Restricted Access	1.8669	1,054,831,565	0.0060	0.0112	4.5867
2202310300	04	04021	8,298,504	Passenger Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,189,044,775	0.0070	0.0130	2.9141
2202310400	04	04021	601,014	Passenger Truck	04021Urban Restricted Access	Urban Restricted Access	1.8669	95,671,199	0.0063	0.0117	2.9629
2202310500	04	04021	6,516,782	Passenger Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	1.8669	989,829,347	0.0066	0.0123	2.3514
2202320200	04	04021	6,886,214	Light Commercial Truck	04021Rural Restricted Access	Rural Restricted Access	2.0598	1,054,831,565	0.0065	0.0134	4.5867
2202320300	04	04021	8,963,210	Light Commercial Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,189,044,775	0.0075	0.0155	2.9141
2202320400	04	04021	649,283	Light Commercial Truck	04021Urban Restricted Access	Urban Restricted Access	2.0598	95,671,199	0.0068	0.0140	2.9629
2202320500	04	04021	7,014,768	Light Commercial Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	2.0598	989,829,347	0.0071	0.0146	2.3514
2202410200	04	04021	455,044	Intercity Bus	04021Rural Restricted Access	Rural Restricted Access	19.5937	1,054,831,565	0.0004	0.0085	4.5867
2202410300	04	04021	371,686	Intercity Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	19.5937	1,189,044,775	0.0003	0.0061	2.9141
2202410400	04	04021	26,573	Intercity Bus	04021Urban Restricted Access	Urban Restricted Access	19.5937	95,671,199	0.0003	0.0054	2.9629
2202410500	04	04021	243,323	Intercity Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	19.5937	989,829,347	0.0002	0.0048	2.3514
2202420200	04	04021	808,929	Transit Bus	04021Rural Restricted Access	Rural Restricted Access	16.5560	1,054,831,565	0.0008	0.0127	4.5867
2202420300	04	04021	672,873	Transit Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,189,044,775	0.0006	0.0094	2.9141
2202420400	04	04021	48,088	Transit Bus	04021Urban Restricted Access	Urban Restricted Access	16.5560	95,671,199	0.0005	0.0083	2.9629
2202420500	04	04021	443,210	Transit Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	16.5560	989,829,347	0.0004	0.0074	2.3514
2202430200	04	04021	2,356,129	School Bus	04021Rural Restricted Access	Rural Restricted Access	9.0699	1,054,831,565	0.0022	0.0203	4.5867
2202430300	04	04021	1,960,615	School Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,189,044,775	0.0016	0.0150	2.9141
2202430400	04	04021	140,116	School Bus	04021Urban Restricted Access	Urban Restricted Access	9.0699	95,671,199	0.0015	0.0133	2.9629
2202430500	04	04021	1,291,592	School Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	9.0699	989,829,347	0.0013	0.0118	2.3514
2202510200	04	04021	1,617,496	Refuse Truck	04021Rural Restricted Access	Rural Restricted Access	23.1135	1,054,831,565	0.0015	0.0354	4.5867
2202510300	04	04021	750,885	Refuse Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,189,044,775	0.0006	0.0146	2.9141
2202510400	04	04021	63,862	Refuse Truck	04021Urban Restricted Access	Urban Restricted Access	23.1135	95,671,199	0.0007	0.0154	2.9629
2202510500	04	04021	335,238	Refuse Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	23.1135	989,829,347	0.0003	0.0078	2.3514
2202520200	04	04021	17,101,679	Single Unit Short-haul Truck	04021Rural Restricted Access	Rural Restricted Access	8.5390	1,054,831,565	0.0162	0.1384	4.5867
2202520300	04	04021	18,783,822	Single Unit Short-haul Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	8.5390	1,189,044,775	0.0158	0.1349	2.9141
2202520400	04	04021	1,311,072	Single Unit Short-haul Truck	04021Urban Restricted Access	Urban Restricted Access	8.5390	95,671,199	0.0137	0.1170	2.9629
2202520500	04	04021	10,853,384	Single Unit Short-haul Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	8.5390	989,829,347	0.0110	0.0936	2.3514
2202530200	04	04021	10,622,365	Single Unit Long-haul Truck	04021Rural Restricted Access	Rural Restricted Access	6.9845	1,054,831,565	0.0101	0.0703	4.5867
2202530300	04	04021	1,128,746	Single Unit Long-haul Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	6.9845	1,189,044,775	0.0009	0.0066	2.9141
2202530400	04	04021	179,446	Single Unit Long-haul Truck	04021Urban Restricted Access	Urban Restricted Access	6.9845	95,671,199	0.0019	0.0131	2.9629
2202530500	04	04021	377,313	Single Unit Long-haul Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	6.9845	989,829,347	0.0004	0.0027	2.3514
2202540200	04	04021	366,462	Motor Home	04021Rural Restricted Access	Rural Restricted Access	7.5257	1,054,831,565	0.0003	0.0026	4.5867
2202540300	04	04021	349,844	Motor Home	04021Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,189,044,775	0.0003	0.0022	2.9141
2202540400	04	04021	25,115	Motor Home	04021Urban Restricted Access	Urban Restricted Access	7.5257	95,671,199	0.0003	0.0020	2.9629
2202540500	04	04021	227,197	Motor Home	04021Urban Unrestricted Access	Urban Unrestricted Access	7.5257	989,829,347	0.0002	0.0017	2.3514
2202610200	04	04021	20,126,458	Combination Short-haul Truck	04021Rural Restricted Access	Rural Restricted Access	22.9745	1,054,831,565	0.0191	0.4384	4.5867
2202610300	04	04021	34,176,981	Combination Short-haul Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,189,044,775	0.0287	0.6604	2.9141
2202610400	04	04021	1,825,471	Combination Short-haul Truck	04021Urban Restricted Access	Urban Restricted Access	22.9745	95,671,199	0.0191	0.4384	2.9629
2202610500	04	04021	17,529,800	Combination Short-haul Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	22.9745	989,829,347	0.0177	0.4069	2.3514
2202620200	04	04021	102,459,738	Combination Long-haul Truck	04021Rural Restricted Access	Rural Restricted Access	24.6010	1,054,831,565	0.0971	2.3896	4.5867
2202620300	04	04021	21,561,284	Combination Long-haul Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	24.6010	1,189,044,775	0.0181	0.4461	2.9141
2202620400	04	04021	2,938,075	Combination Long-haul Truck	04021Urban Restricted Access	Urban Restricted Access	24.6010	95,671,199	0.0307	0.7555	2.9629
2202620500	04	04021	6,745,258	Combination Long-haul Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	24.6010	989,829,347	0.0068	0.1676	2.3514
2203420200	04	04021	113,144	Transit Bus	04021Rural Restricted Access	Rural Restricted Access	16.5560	1,054,831,565	0.0001	0.0018	4.5867
2203420300	04	04021	94,114	Transit Bus	04021Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,189,044,775	0.0001	0.0013	2.9141
2203420400	04	04021	6,726	Transit Bus	04021Urban Restricted Access	Urban Restricted Access	16.5560	95,671,199	0.0001	0.0012	2.9629
2203420500	04	04021	61,992	Transit Bus	04021Urban Unrestricted Access	Urban Unrestricted Access	16.5560	989,829,347	0.0001	0.0010	2.3514
2205210200	04	04021	11,207,475	Passenger Car	04021Rural Restricted Access	Rural Restricted Access	1.4788	1,054,831,565	0.0106	0.0157	4.5867
2205210300	04	04021	12,693,549	Passenger Car	04021Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,189,044,775	0.0107	0.0158	2.9141

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2205210400	04	04021	1,176,830	Passenger Car	04021Urban Restricted Access	Urban Restricted Access	1.4788	95,671,199	0.0123	0.0182	2.9629
2205210500	04	04021	12,333,775	Passenger Car	04021Urban Unrestricted Access	Urban Unrestricted Access	1.4788	989,829,347	0.0125	0.0184	2.3514
2205310200	04	04021	26,333,644	Passenger Truck	04021Rural Restricted Access	Rural Restricted Access	1.8669	1,054,831,565	0.0250	0.0466	4.5867
2205310300	04	04021	34,538,267	Passenger Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,189,044,775	0.0290	0.0542	2.9141
2205310400	04	04021	2,501,413	Passenger Truck	04021Urban Restricted Access	Urban Restricted Access	1.8669	95,671,199	0.0261	0.0488	2.9629
2205310500	04	04021	27,122,765	Passenger Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	1.8669	989,829,347	0.0274	0.0512	2.3514
2205320200	04	04021	8,158,156	Light Commercial Truck	04021Rural Restricted Access	Rural Restricted Access	2.0598	1,054,831,565	0.0077	0.0159	4.5867
2205320300	04	04021	10,618,792	Light Commercial Truck	04021Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,189,044,775	0.0089	0.0184	2.9141
2205320400	04	04021	769,211	Light Commercial Truck	04021Urban Restricted Access	Urban Restricted Access	2.0598	95,671,199	0.0080	0.0166	2.9629
2205320500	04	04021	8,310,456	Light Commercial Truck	04021Urban Unrestricted Access	Urban Unrestricted Access	2.0598	989,829,347	0.0084	0.0173	2.3514
2201110200	04	04023	515,145	Motorcycle	04023Rural Restricted Access	Rural Restricted Access	0.2850	91,759,552	0.0056	0.0016	3.6327
2201110300	04	04023	732,202	Motorcycle	04023Rural Unrestricted Access	Rural Unrestricted Access	0.2850	99,277,387	0.0074	0.0021	2.5244
2201110400	04	04023	602,618	Motorcycle	04023Urban Restricted Access	Urban Restricted Access	0.2850	111,863,620	0.0054	0.0015	2.5527
2201110500	04	04023	1,014,183	Motorcycle	04023Urban Unrestricted Access	Urban Unrestricted Access	0.2850	157,677,407	0.0064	0.0018	2.1588
2201210200	04	04023	30,423,808	Passenger Car	04023Rural Restricted Access	Rural Restricted Access	1.4788	91,759,552	0.3316	0.4903	3.6327
2201210300	04	04023	31,890,291	Passenger Car	04023Rural Unrestricted Access	Rural Unrestricted Access	1.4788	99,277,387	0.3212	0.4750	2.5244
2201210400	04	04023	41,943,552	Passenger Car	04023Urban Restricted Access	Urban Restricted Access	1.4788	111,863,620	0.3750	0.5545	2.5527
2201210500	04	04023	59,166,468	Passenger Car	04023Urban Unrestricted Access	Urban Unrestricted Access	1.4788	157,677,407	0.3752	0.5549	2.1588
2201310200	04	04023	35,034,888	Passenger Truck	04023Rural Restricted Access	Rural Restricted Access	1.8669	91,759,552	0.3818	0.7128	3.6327
2201310300	04	04023	42,526,531	Passenger Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	1.8669	99,277,387	0.4284	0.7997	2.5244
2201310400	04	04023	43,693,902	Passenger Truck	04023Urban Restricted Access	Urban Restricted Access	1.8669	111,863,620	0.3906	0.7292	2.5527
2201310500	04	04023	63,767,231	Passenger Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	1.8669	157,677,407	0.4044	0.7550	2.1588
2201320200	04	04023	11,357,894	Light Commercial Truck	04023Rural Restricted Access	Rural Restricted Access	2.0598	91,759,552	0.1238	0.2550	3.6327
2201320300	04	04023	13,682,030	Light Commercial Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	2.0598	99,277,387	0.1378	0.2839	2.5244
2201320400	04	04023	14,060,381	Light Commercial Truck	04023Urban Restricted Access	Urban Restricted Access	2.0598	111,863,620	0.1257	0.2589	2.5527
2201320500	04	04023	20,445,818	Light Commercial Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	2.0598	157,677,407	0.1297	0.2671	2.1588
2201420200	04	04023	1,020	Transit Bus	04023Rural Restricted Access	Rural Restricted Access	16.5560	91,759,552	0.0000	0.0002	3.6327
2201420300	04	04023	785	Transit Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	16.5560	99,277,387	0.0000	0.0001	2.5244
2201420400	04	04023	796	Transit Bus	04023Urban Restricted Access	Urban Restricted Access	16.5560	111,863,620	0.0000	0.0001	2.5527
2201420500	04	04023	988	Transit Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	16.5560	157,677,407	0.0000	0.0001	2.1588
2201430200	04	04023	11,181	School Bus	04023Rural Restricted Access	Rural Restricted Access	9.0699	91,759,552	0.0001	0.0011	3.6327
2201430300	04	04023	8,611	School Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	9.0699	99,277,387	0.0001	0.0008	2.5244
2201430400	04	04023	8,730	School Bus	04023Urban Restricted Access	Urban Restricted Access	9.0699	111,863,620	0.0001	0.0007	2.5527
2201430500	04	04023	10,831	School Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	9.0699	157,677,407	0.0001	0.0006	2.1588
2201510200	04	04023	5,959	Refuse Truck	04023Rural Restricted Access	Rural Restricted Access	23.1135	91,759,552	0.0001	0.0015	3.6327
2201510300	04	04023	2,560	Refuse Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	23.1135	99,277,387	0.0000	0.0006	2.5244
2201510400	04	04023	3,089	Refuse Truck	04023Urban Restricted Access	Urban Restricted Access	23.1135	111,863,620	0.0000	0.0006	2.5527
2201510500	04	04023	2,183	Refuse Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	23.1135	157,677,407	0.0000	0.0003	2.1588
2201540200	04	04023	51,940	Motor Home	04023Rural Restricted Access	Rural Restricted Access	7.5257	91,759,552	0.0006	0.0043	3.6327
2201540300	04	04023	45,890	Motor Home	04023Rural Unrestricted Access	Rural Unrestricted Access	7.5257	99,277,387	0.0005	0.0035	2.5244
2201540400	04	04023	46,736	Motor Home	04023Urban Restricted Access	Urban Restricted Access	7.5257	111,863,620	0.0004	0.0031	2.5527
2201540500	04	04023	56,905	Motor Home	04023Urban Unrestricted Access	Urban Unrestricted Access	7.5257	157,677,407	0.0004	0.0027	2.1588
2201610200	04	04023	380	Combination Short-haul Truck	04023Rural Restricted Access	Rural Restricted Access	22.9745	91,759,552	0.0000	0.0001	3.6327
2201610300	04	04023	167	Combination Short-haul Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	22.9745	99,277,387	0.0000	0.0000	2.5244
2201610400	04	04023	199	Combination Short-haul Truck	04023Urban Restricted Access	Urban Restricted Access	22.9745	111,863,620	0.0000	0.0000	2.5527
2201610500	04	04023	141	Combination Short-haul Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	22.9745	157,677,407	0.0000	0.0000	2.1588
2202210200	04	04023	140,709	Passenger Car	04023Rural Restricted Access	Rural Restricted Access	1.4788	91,759,552	0.0015	0.0023	3.6327
2202210300	04	04023	147,492	Passenger Car	04023Rural Unrestricted Access	Rural Unrestricted Access	1.4788	99,277,387	0.0015	0.0022	2.5244
2202210400	04	04023	193,988	Passenger Car	04023Urban Restricted Access	Urban Restricted Access	1.4788	111,863,620	0.0017	0.0026	2.5527
2202210500	04	04023	273,643	Passenger Car	04023Urban Unrestricted Access	Urban Unrestricted Access	1.4788	157,677,407	0.0017	0.0026	2.1588
2202310200	04	04023	576,222	Passenger Truck	04023Rural Restricted Access	Rural Restricted Access	1.8669	91,759,552	0.0063	0.0117	3.6327

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2202310300	04	04023	699,438	Passenger Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	1.8669	99,277,387	0.0070	0.0132	2.5244
2202310400	04	04023	718,638	Passenger Truck	04023Urban Restricted Access	Urban Restricted Access	1.8669	111,863,620	0.0064	0.0120	2.5527
2202310500	04	04023	1,048,785	Passenger Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	1.8669	157,677,407	0.0067	0.0124	2.1588
2202320200	04	04023	682,947	Light Commercial Truck	04023Rural Restricted Access	Rural Restricted Access	2.0598	91,759,552	0.0074	0.0153	3.6327
2202320300	04	04023	822,697	Light Commercial Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	2.0598	99,277,387	0.0083	0.0171	2.5244
2202320400	04	04023	845,447	Light Commercial Truck	04023Urban Restricted Access	Urban Restricted Access	2.0598	111,863,620	0.0076	0.0156	2.5527
2202320500	04	04023	1,229,402	Light Commercial Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	2.0598	157,677,407	0.0078	0.0161	2.1588
2202410200	04	04023	37,729	Intercity Bus	04023Rural Restricted Access	Rural Restricted Access	19.5937	91,759,552	0.0004	0.0081	3.6327
2202410300	04	04023	28,521	Intercity Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	19.5937	99,277,387	0.0003	0.0056	2.5244
2202410400	04	04023	28,927	Intercity Bus	04023Urban Restricted Access	Urban Restricted Access	19.5937	111,863,620	0.0003	0.0051	2.5527
2202410500	04	04023	35,652	Intercity Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	19.5937	157,677,407	0.0002	0.0044	2.1588
2202420200	04	04023	66,901	Transit Bus	04023Rural Restricted Access	Rural Restricted Access	16.5560	91,759,552	0.0007	0.0121	3.6327
2202420300	04	04023	51,503	Transit Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	16.5560	99,277,387	0.0005	0.0086	2.5244
2202420400	04	04023	52,216	Transit Bus	04023Urban Restricted Access	Urban Restricted Access	16.5560	111,863,620	0.0005	0.0077	2.5527
2202420500	04	04023	64,775	Transit Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	16.5560	157,677,407	0.0004	0.0068	2.1588
2202430200	04	04023	194,850	School Bus	04023Rural Restricted Access	Rural Restricted Access	9.0699	91,759,552	0.0021	0.0193	3.6327
2202430300	04	04023	150,060	School Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	9.0699	99,277,387	0.0015	0.0137	2.5244
2202430400	04	04023	152,137	School Bus	04023Urban Restricted Access	Urban Restricted Access	9.0699	111,863,620	0.0014	0.0123	2.5527
2202430500	04	04023	188,756	School Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	9.0699	157,677,407	0.0012	0.0109	2.1588
2202510200	04	04023	144,006	Refuse Truck	04023Rural Restricted Access	Rural Restricted Access	23.1135	91,759,552	0.0016	0.0363	3.6327
2202510300	04	04023	61,870	Refuse Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	23.1135	99,277,387	0.0006	0.0144	2.5244
2202510400	04	04023	74,649	Refuse Truck	04023Urban Restricted Access	Urban Restricted Access	23.1135	111,863,620	0.0007	0.0154	2.5527
2202510500	04	04023	52,743	Refuse Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	23.1135	157,677,407	0.0003	0.0077	2.1588
2202520200	04	04023	1,452,668	Single Unit Short-haul Truck	04023Rural Restricted Access	Rural Restricted Access	8.5390	91,759,552	0.0158	0.1352	3.6327
2202520300	04	04023	1,476,662	Single Unit Short-haul Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	8.5390	99,277,387	0.0149	0.1270	2.5244
2202520400	04	04023	1,462,176	Single Unit Short-haul Truck	04023Urban Restricted Access	Urban Restricted Access	8.5390	111,863,620	0.0131	0.1116	2.5527
2202520500	04	04023	1,629,170	Single Unit Short-haul Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	8.5390	157,677,407	0.0103	0.0882	2.1588
2202530200	04	04023	902,295	Single Unit Long-haul Truck	04023Rural Restricted Access	Rural Restricted Access	6.9845	91,759,552	0.0098	0.0687	3.6327
2202530300	04	04023	88,735	Single Unit Long-haul Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	6.9845	99,277,387	0.0009	0.0062	2.5244
2202530400	04	04023	200,128	Single Unit Long-haul Truck	04023Urban Restricted Access	Urban Restricted Access	6.9845	111,863,620	0.0018	0.0125	2.5527
2202530500	04	04023	56,637	Single Unit Long-haul Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	6.9845	157,677,407	0.0004	0.0025	2.1588
2202540200	04	04023	30,071	Motor Home	04023Rural Restricted Access	Rural Restricted Access	7.5257	91,759,552	0.0003	0.0025	3.6327
2202540300	04	04023	26,569	Motor Home	04023Rural Unrestricted Access	Rural Unrestricted Access	7.5257	99,277,387	0.0003	0.0020	2.5244
2202540400	04	04023	27,058	Motor Home	04023Urban Restricted Access	Urban Restricted Access	7.5257	111,863,620	0.0002	0.0018	2.5527
2202540500	04	04023	32,946	Motor Home	04023Urban Unrestricted Access	Urban Unrestricted Access	7.5257	157,677,407	0.0002	0.0016	2.1588
2202610200	04	04023	1,105,360	Combination Short-haul Truck	04023Rural Restricted Access	Rural Restricted Access	22.9745	91,759,552	0.0120	0.2768	3.6327
2202610300	04	04023	1,737,055	Combination Short-haul Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	22.9745	99,277,387	0.0175	0.4020	2.5244
2202610400	04	04023	1,316,260	Combination Short-haul Truck	04023Urban Restricted Access	Urban Restricted Access	22.9745	111,863,620	0.0118	0.2703	2.5527
2202610500	04	04023	1,701,173	Combination Short-haul Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	22.9745	157,677,407	0.0108	0.2479	2.1588
2202620200	04	04023	5,627,164	Combination Long-haul Truck	04023Rural Restricted Access	Rural Restricted Access	24.6010	91,759,552	0.0613	1.5087	3.6327
2202620300	04	04023	1,095,858	Combination Long-haul Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	24.6010	99,277,387	0.0110	0.2716	2.5244
2202620400	04	04023	2,118,505	Combination Long-haul Truck	04023Urban Restricted Access	Urban Restricted Access	24.6010	111,863,620	0.0189	0.4659	2.5527
2202620500	04	04023	654,591	Combination Long-haul Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	24.6010	157,677,407	0.0042	0.1021	2.1588
2203420200	04	04023	9,357	Transit Bus	04023Rural Restricted Access	Rural Restricted Access	16.5560	91,759,552	0.0001	0.0017	3.6327
2203420300	04	04023	7,204	Transit Bus	04023Rural Unrestricted Access	Rural Unrestricted Access	16.5560	99,277,387	0.0001	0.0012	2.5244
2203420400	04	04023	7,303	Transit Bus	04023Urban Restricted Access	Urban Restricted Access	16.5560	111,863,620	0.0001	0.0011	2.5527
2203420500	04	04023	9,060	Transit Bus	04023Urban Unrestricted Access	Urban Unrestricted Access	16.5560	157,677,407	0.0001	0.0010	2.1588
2205210200	04	04023	668,670	Passenger Car	04023Rural Restricted Access	Rural Restricted Access	1.4788	91,759,552	0.0073	0.0108	3.6327
2205210300	04	04023	700,901	Passenger Car	04023Rural Unrestricted Access	Rural Unrestricted Access	1.4788	99,277,387	0.0071	0.0104	2.5244
2205210400	04	04023	921,856	Passenger Car	04023Urban Restricted Access	Urban Restricted Access	1.4788	111,863,620	0.0082	0.0122	2.5527
2205210500	04	04023	1,300,390	Passenger Car	04023Urban Unrestricted Access	Urban Unrestricted Access	1.4788	157,677,407	0.0082	0.0122	2.1588

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2205310200	04	04023	2,076,290	Passenger Truck	04023Rural Restricted Access	Rural Restricted Access	1.8669	91,759,552	0.0226	0.0422	3.6327
2205310300	04	04023	2,520,271	Passenger Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	1.8669	99,277,387	0.0254	0.0474	2.5244
2205310400	04	04023	2,589,453	Passenger Truck	04023Urban Restricted Access	Urban Restricted Access	1.8669	111,863,620	0.0231	0.0432	2.5527
2205310500	04	04023	3,779,069	Passenger Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	1.8669	157,677,407	0.0240	0.0447	2.1588
2205320200	04	04023	642,096	Light Commercial Truck	04023Rural Restricted Access	Rural Restricted Access	2.0598	91,759,552	0.0070	0.0144	3.6327
2205320300	04	04023	773,487	Light Commercial Truck	04023Rural Unrestricted Access	Rural Unrestricted Access	2.0598	99,277,387	0.0078	0.0160	2.5244
2205320400	04	04023	794,876	Light Commercial Truck	04023Urban Restricted Access	Urban Restricted Access	2.0598	111,863,620	0.0071	0.0146	2.5527
2205320500	04	04023	1,155,864	Light Commercial Truck	04023Urban Unrestricted Access	Urban Unrestricted Access	2.0598	157,677,407	0.0073	0.0151	2.1588
2201110200	04	04025	4,847,789	Motorcycle	04025Rural Restricted Access	Rural Restricted Access	0.2850	866,934,005	0.0056	0.0016	4.4952
2201110300	04	04025	8,634,428	Motorcycle	04025Rural Unrestricted Access	Rural Unrestricted Access	0.2850	1,146,857,094	0.0075	0.0021	2.8811
2201110400	04	04025	86,202	Motorcycle	04025Urban Restricted Access	Urban Restricted Access	0.2850	15,649,777	0.0055	0.0016	2.9440
2201110500	04	04025	4,836,453	Motorcycle	04025Urban Unrestricted Access	Urban Unrestricted Access	0.2850	728,799,246	0.0066	0.0019	2.3549
2201210200	04	04025	264,976,472	Passenger Car	04025Rural Restricted Access	Rural Restricted Access	1.4788	866,934,005	0.3056	0.4520	4.4952
2201210300	04	04025	348,048,803	Passenger Car	04025Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,146,857,094	0.3035	0.4488	2.8811
2201210400	04	04025	5,552,905	Passenger Car	04025Urban Restricted Access	Urban Restricted Access	1.4788	15,649,777	0.3548	0.5247	2.9440
2201210500	04	04025	261,135,225	Passenger Car	04025Urban Unrestricted Access	Urban Unrestricted Access	1.4788	728,799,246	0.3583	0.5299	2.3549
2201310200	04	04025	319,666,542	Passenger Truck	04025Rural Restricted Access	Rural Restricted Access	1.8669	866,934,005	0.3687	0.6884	4.4952
2201310300	04	04025	486,232,889	Passenger Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,146,857,094	0.4240	0.7915	2.8811
2201310400	04	04025	6,060,084	Passenger Truck	04025Urban Restricted Access	Urban Restricted Access	1.8669	15,649,777	0.3872	0.7229	2.9440
2201310500	04	04025	294,842,501	Passenger Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	1.8669	728,799,246	0.4046	0.7553	2.3549
2201320200	04	04025	103,653,454	Light Commercial Truck	04025Rural Restricted Access	Rural Restricted Access	2.0598	866,934,005	0.1196	0.2463	4.4952
2201320300	04	04025	156,467,600	Light Commercial Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,146,857,094	0.1364	0.2810	2.8811
2201320400	04	04025	1,950,493	Light Commercial Truck	04025Urban Restricted Access	Urban Restricted Access	2.0598	15,649,777	0.1246	0.2567	2.9440
2201320500	04	04025	94,555,440	Light Commercial Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	2.0598	728,799,246	0.1297	0.2672	2.3549
2201420200	04	04025	10,365	Transit Bus	04025Rural Restricted Access	Rural Restricted Access	16.5560	866,934,005	0.0000	0.0002	4.4952
2201420300	04	04025	9,998	Transit Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,146,857,094	0.0000	0.0001	2.8811
2201420400	04	04025	123	Transit Bus	04025Urban Restricted Access	Urban Restricted Access	16.5560	15,649,777	0.0000	0.0001	2.9440
2201420500	04	04025	5,085	Transit Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	16.5560	728,799,246	0.0000	0.0001	2.3549
2201430200	04	04025	113,585	School Bus	04025Rural Restricted Access	Rural Restricted Access	9.0699	866,934,005	0.0001	0.0012	4.4952
2201430300	04	04025	109,615	School Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,146,857,094	0.0001	0.0009	2.8811
2201430400	04	04025	1,348	School Bus	04025Urban Restricted Access	Urban Restricted Access	9.0699	15,649,777	0.0001	0.0008	2.9440
2201430500	04	04025	55,759	School Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	9.0699	728,799,246	0.0001	0.0007	2.3549
2201510200	04	04025	55,280	Refuse Truck	04025Rural Restricted Access	Rural Restricted Access	23.1135	866,934,005	0.0001	0.0015	4.4952
2201510300	04	04025	29,761	Refuse Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,146,857,094	0.0000	0.0006	2.8811
2201510400	04	04025	436	Refuse Truck	04025Urban Restricted Access	Urban Restricted Access	23.1135	15,649,777	0.0000	0.0006	2.9440
2201510500	04	04025	10,260	Refuse Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	23.1135	728,799,246	0.0000	0.0003	2.3549
2201540200	04	04025	522,641	Motor Home	04025Rural Restricted Access	Rural Restricted Access	7.5257	866,934,005	0.0006	0.0045	4.4952
2201540300	04	04025	578,637	Motor Home	04025Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,146,857,094	0.0005	0.0038	2.8811
2201540400	04	04025	7,148	Motor Home	04025Urban Restricted Access	Urban Restricted Access	7.5257	15,649,777	0.0005	0.0034	2.9440
2201540500	04	04025	290,166	Motor Home	04025Urban Unrestricted Access	Urban Unrestricted Access	7.5257	728,799,246	0.0004	0.0030	2.3549
2201610200	04	04025	5,449	Combination Short-haul Truck	04025Rural Restricted Access	Rural Restricted Access	22.9745	866,934,005	0.0000	0.0001	4.4952
2201610300	04	04025	3,000	Combination Short-haul Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,146,857,094	0.0000	0.0001	2.8811
2201610400	04	04025	43	Combination Short-haul Truck	04025Urban Restricted Access	Urban Restricted Access	22.9745	15,649,777	0.0000	0.0001	2.9440
2201610500	04	04025	1,029	Combination Short-haul Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	22.9745	728,799,246	0.0000	0.0000	2.3549
2202210200	04	04025	1,355,076	Passenger Car	04025Rural Restricted Access	Rural Restricted Access	1.4788	866,934,005	0.0016	0.0023	4.4952
2202210300	04	04025	1,779,904	Passenger Car	04025Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,146,857,094	0.0016	0.0023	2.8811
2202210400	04	04025	28,397	Passenger Car	04025Urban Restricted Access	Urban Restricted Access	1.4788	15,649,777	0.0018	0.0027	2.9440
2202210500	04	04025	1,335,432	Passenger Car	04025Urban Unrestricted Access	Urban Unrestricted Access	1.4788	728,799,246	0.0018	0.0027	2.3549
2202310200	04	04025	5,656,041	Passenger Truck	04025Rural Restricted Access	Rural Restricted Access	1.8669	866,934,005	0.0065	0.0122	4.4952
2202310300	04	04025	8,603,194	Passenger Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,146,857,094	0.0075	0.0140	2.8811
2202310400	04	04025	107,224	Passenger Truck	04025Urban Restricted Access	Urban Restricted Access	1.8669	15,649,777	0.0069	0.0128	2.9440

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2202310500	04	04025	5,216,815	Passenger Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	1.8669	728,799,246	0.0072	0.0134	2.3549
2202320200	04	04025	6,308,801	Light Commercial Truck	04025Rural Restricted Access	Rural Restricted Access	2.0598	866,934,005	0.0073	0.0150	4.4952
2202320300	04	04025	9,523,300	Light Commercial Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,146,857,094	0.0083	0.0171	2.8811
2202320400	04	04025	118,716	Light Commercial Truck	04025Urban Restricted Access	Urban Restricted Access	2.0598	15,649,777	0.0076	0.0156	2.9440
2202320500	04	04025	5,755,056	Light Commercial Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	2.0598	728,799,246	0.0079	0.0163	2.3549
2202410200	04	04025	382,276	Intercity Bus	04025Rural Restricted Access	Rural Restricted Access	19.5937	866,934,005	0.0004	0.0086	4.4952
2202410300	04	04025	362,124	Intercity Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	19.5937	1,146,857,094	0.0003	0.0062	2.8811
2202410400	04	04025	4,455	Intercity Bus	04025Urban Restricted Access	Urban Restricted Access	19.5937	15,649,777	0.0003	0.0056	2.9440
2202410500	04	04025	183,053	Intercity Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	19.5937	728,799,246	0.0003	0.0049	2.3549
2202420200	04	04025	679,613	Transit Bus	04025Rural Restricted Access	Rural Restricted Access	16.5560	866,934,005	0.0008	0.0130	4.4952
2202420300	04	04025	655,605	Transit Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,146,857,094	0.0006	0.0095	2.8811
2202420400	04	04025	8,063	Transit Bus	04025Urban Restricted Access	Urban Restricted Access	16.5560	15,649,777	0.0005	0.0085	2.9440
2202420500	04	04025	333,450	Transit Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	16.5560	728,799,246	0.0005	0.0076	2.3549
2202430200	04	04025	1,979,481	School Bus	04025Rural Restricted Access	Rural Restricted Access	9.0699	866,934,005	0.0023	0.0207	4.4952
2202430300	04	04025	1,910,303	School Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	9.0699	1,146,857,094	0.0017	0.0151	2.8811
2202430400	04	04025	23,493	School Bus	04025Urban Restricted Access	Urban Restricted Access	9.0699	15,649,777	0.0015	0.0136	2.9440
2202430500	04	04025	971,734	School Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	9.0699	728,799,246	0.0013	0.0121	2.3549
2202510200	04	04025	1,335,856	Refuse Truck	04025Rural Restricted Access	Rural Restricted Access	23.1135	866,934,005	0.0015	0.0356	4.4952
2202510300	04	04025	719,196	Refuse Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	23.1135	1,146,857,094	0.0006	0.0145	2.8811
2202510400	04	04025	10,526	Refuse Truck	04025Urban Restricted Access	Urban Restricted Access	23.1135	15,649,777	0.0007	0.0155	2.9440
2202510500	04	04025	247,936	Refuse Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	23.1135	728,799,246	0.0003	0.0079	2.3549
2202520200	04	04025	14,106,122	Single Unit Short-haul Truck	04025Rural Restricted Access	Rural Restricted Access	8.5390	866,934,005	0.0163	0.1389	4.4952
2202520300	04	04025	17,968,442	Single Unit Short-haul Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	8.5390	1,146,857,094	0.0157	0.1338	2.8811
2202520400	04	04025	215,825	Single Unit Short-haul Truck	04025Urban Restricted Access	Urban Restricted Access	8.5390	15,649,777	0.0138	0.1178	2.9440
2202520500	04	04025	8,016,854	Single Unit Short-haul Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	8.5390	728,799,246	0.0110	0.0939	2.3549
2202530200	04	04025	8,761,735	Single Unit Long-haul Truck	04025Rural Restricted Access	Rural Restricted Access	6.9845	866,934,005	0.0101	0.0706	4.4952
2202530300	04	04025	1,079,749	Single Unit Long-haul Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	6.9845	1,146,857,094	0.0009	0.0066	2.8811
2202530400	04	04025	29,540	Single Unit Long-haul Truck	04025Urban Restricted Access	Urban Restricted Access	6.9845	15,649,777	0.0019	0.0132	2.9440
2202530500	04	04025	278,702	Single Unit Long-haul Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	6.9845	728,799,246	0.0004	0.0027	2.3549
2202540200	04	04025	302,588	Motor Home	04025Rural Restricted Access	Rural Restricted Access	7.5257	866,934,005	0.0003	0.0026	4.4952
2202540300	04	04025	335,008	Motor Home	04025Rural Unrestricted Access	Rural Unrestricted Access	7.5257	1,146,857,094	0.0003	0.0022	2.8811
2202540400	04	04025	4,139	Motor Home	04025Urban Restricted Access	Urban Restricted Access	7.5257	15,649,777	0.0003	0.0020	2.9440
2202540500	04	04025	167,994	Motor Home	04025Urban Unrestricted Access	Urban Unrestricted Access	7.5257	728,799,246	0.0002	0.0017	2.3549
2202610200	04	04025	15,807,756	Combination Short-haul Truck	04025Rural Restricted Access	Rural Restricted Access	22.9745	866,934,005	0.0182	0.4189	4.4952
2202610300	04	04025	31,130,889	Combination Short-haul Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	22.9745	1,146,857,094	0.0271	0.6236	2.8811
2202610400	04	04025	286,143	Combination Short-haul Truck	04025Urban Restricted Access	Urban Restricted Access	22.9745	15,649,777	0.0183	0.4201	2.9440
2202610500	04	04025	12,329,512	Combination Short-haul Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	22.9745	728,799,246	0.0169	0.3887	2.3549
2202620200	04	04025	80,474,098	Combination Long-haul Truck	04025Rural Restricted Access	Rural Restricted Access	24.6010	866,934,005	0.0928	2.2836	4.4952
2202620300	04	04025	19,639,592	Combination Long-haul Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	24.6010	1,146,857,094	0.0171	0.4213	2.8811
2202620400	04	04025	460,544	Combination Long-haul Truck	04025Urban Restricted Access	Urban Restricted Access	24.6010	15,649,777	0.0294	0.7240	2.9440
2202620500	04	04025	4,744,250	Combination Long-haul Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	24.6010	728,799,246	0.0065	0.1601	2.3549
2203420200	04	04025	95,057	Transit Bus	04025Rural Restricted Access	Rural Restricted Access	16.5560	866,934,005	0.0001	0.0018	4.4952
2203420300	04	04025	91,699	Transit Bus	04025Rural Unrestricted Access	Rural Unrestricted Access	16.5560	1,146,857,094	0.0001	0.0013	2.8811
2203420400	04	04025	1,128	Transit Bus	04025Urban Restricted Access	Urban Restricted Access	16.5560	15,649,777	0.0001	0.0012	2.9440
2203420500	04	04025	46,639	Transit Bus	04025Urban Unrestricted Access	Urban Unrestricted Access	16.5560	728,799,246	0.0001	0.0011	2.3549
2205210200	04	04025	7,180,183	Passenger Car	04025Rural Restricted Access	Rural Restricted Access	1.4788	866,934,005	0.0083	0.0122	4.4952
2205210300	04	04025	9,431,230	Passenger Car	04025Rural Unrestricted Access	Rural Unrestricted Access	1.4788	1,146,857,094	0.0082	0.0122	2.8811
2205210400	04	04025	150,469	Passenger Car	04025Urban Restricted Access	Urban Restricted Access	1.4788	15,649,777	0.0096	0.0142	2.9440
2205210500	04	04025	7,076,095	Passenger Car	04025Urban Unrestricted Access	Urban Unrestricted Access	1.4788	728,799,246	0.0097	0.0144	2.3549
2205310200	04	04025	21,887,790	Passenger Truck	04025Rural Restricted Access	Rural Restricted Access	1.8669	866,934,005	0.0252	0.0471	4.4952
2205310300	04	04025	33,292,703	Passenger Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	1.8669	1,146,857,094	0.0290	0.0542	2.8811

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2205310400	04	04025	414,938	Passenger Truck	04025Urban Restricted Access	Urban Restricted Access	1.8669	15,649,777	0.0265	0.0495	2.9440
2205310500	04	04025	20,188,071	Passenger Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	1.8669	728,799,246	0.0277	0.0517	2.3549
2205320200	04	04025	6,769,956	Light Commercial Truck	04025Rural Restricted Access	Rural Restricted Access	2.0598	866,934,005	0.0078	0.0161	4.4952
2205320300	04	04025	10,219,426	Light Commercial Truck	04025Rural Unrestricted Access	Rural Unrestricted Access	2.0598	1,146,857,094	0.0089	0.0184	2.8811
2205320400	04	04025	127,393	Light Commercial Truck	04025Urban Restricted Access	Urban Restricted Access	2.0598	15,649,777	0.0081	0.0168	2.9440
2205320500	04	04025	6,175,734	Light Commercial Truck	04025Urban Unrestricted Access	Urban Unrestricted Access	2.0598	728,799,246	0.0085	0.0175	2.3549
2201110200	04	04027	1,439,435	Motorcycle	04027Rural Restricted Access	Rural Restricted Access	0.2850	269,480,043	0.0053	0.0015	4.5971
2201110300	04	04027	2,351,851	Motorcycle	04027Rural Unrestricted Access	Rural Unrestricted Access	0.2850	323,888,993	0.0073	0.0021	2.9372
2201110400	04	04027	713,181	Motorcycle	04027Urban Restricted Access	Urban Restricted Access	0.2850	135,256,963	0.0053	0.0015	2.9910
2201110500	04	04027	4,546,437	Motorcycle	04027Urban Unrestricted Access	Urban Unrestricted Access	0.2850	713,496,234	0.0064	0.0018	2.3803
2201210200	04	04027	88,930,230	Passenger Car	04027Rural Restricted Access	Rural Restricted Access	1.4788	269,480,043	0.3300	0.4880	4.5971
2201210300	04	04027	107,154,416	Passenger Car	04027Rural Unrestricted Access	Rural Unrestricted Access	1.4788	323,888,993	0.3308	0.4892	2.9372
2201210400	04	04027	51,927,278	Passenger Car	04027Urban Restricted Access	Urban Restricted Access	1.4788	135,256,963	0.3839	0.5677	2.9910
2201210500	04	04027	277,461,872	Passenger Car	04027Urban Unrestricted Access	Urban Unrestricted Access	1.4788	713,496,234	0.3889	0.5751	2.3803
2201310200	04	04027	93,185,868	Passenger Truck	04027Rural Restricted Access	Rural Restricted Access	1.8669	269,480,043	0.3458	0.6456	4.5971
2201310300	04	04027	130,024,452	Passenger Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	1.8669	323,888,993	0.4014	0.7494	2.9372
2201310400	04	04027	49,222,613	Passenger Truck	04027Urban Restricted Access	Urban Restricted Access	1.8669	135,256,963	0.3639	0.6794	2.9910
2201310500	04	04027	272,106,372	Passenger Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	1.8669	713,496,234	0.3814	0.7120	2.3803
2201320200	04	04027	30,255,290	Light Commercial Truck	04027Rural Restricted Access	Rural Restricted Access	2.0598	269,480,043	0.1123	0.2313	4.5971
2201320300	04	04027	41,895,733	Light Commercial Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	2.0598	323,888,993	0.1294	0.2664	2.9372
2201320400	04	04027	15,863,357	Light Commercial Truck	04027Urban Restricted Access	Urban Restricted Access	2.0598	135,256,963	0.1173	0.2416	2.9910
2201320500	04	04027	87,377,541	Light Commercial Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	2.0598	713,496,234	0.1225	0.2522	2.3803
2201420200	04	04027	3,708	Transit Bus	04027Rural Restricted Access	Rural Restricted Access	16.5560	269,480,043	0.0000	0.0002	4.5971
2201420300	04	04027	3,281	Transit Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	16.5560	323,888,993	0.0000	0.0002	2.9372
2201420400	04	04027	1,226	Transit Bus	04027Urban Restricted Access	Urban Restricted Access	16.5560	135,256,963	0.0000	0.0002	2.9910
2201420500	04	04027	5,759	Transit Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	16.5560	713,496,234	0.0000	0.0001	2.3803
2201430200	04	04027	40,628	School Bus	04027Rural Restricted Access	Rural Restricted Access	9.0699	269,480,043	0.0002	0.0014	4.5971
2201430300	04	04027	35,967	School Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	9.0699	323,888,993	0.0001	0.0010	2.9372
2201430400	04	04027	13,436	School Bus	04027Urban Restricted Access	Urban Restricted Access	9.0699	135,256,963	0.0001	0.0009	2.9910
2201430500	04	04027	63,142	School Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	9.0699	713,496,234	0.0001	0.0008	2.3803
2201510200	04	04027	23,075	Refuse Truck	04027Rural Restricted Access	Rural Restricted Access	23.1135	269,480,043	0.0001	0.0020	4.5971
2201510300	04	04027	11,396	Refuse Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	23.1135	323,888,993	0.0000	0.0008	2.9372
2201510400	04	04027	5,066	Refuse Truck	04027Urban Restricted Access	Urban Restricted Access	23.1135	135,256,963	0.0000	0.0009	2.9910
2201510500	04	04027	13,559	Refuse Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	23.1135	713,496,234	0.0000	0.0004	2.3803
2201540200	04	04027	186,712	Motor Home	04027Rural Restricted Access	Rural Restricted Access	7.5257	269,480,043	0.0007	0.0052	4.5971
2201540300	04	04027	189,628	Motor Home	04027Rural Unrestricted Access	Rural Unrestricted Access	7.5257	323,888,993	0.0006	0.0044	2.9372
2201540400	04	04027	71,156	Motor Home	04027Urban Restricted Access	Urban Restricted Access	7.5257	135,256,963	0.0005	0.0040	2.9910
2201540500	04	04027	328,179	Motor Home	04027Urban Unrestricted Access	Urban Unrestricted Access	7.5257	713,496,234	0.0005	0.0035	2.3803
2201610200	04	04027	1,720	Combination Short-haul Truck	04027Rural Restricted Access	Rural Restricted Access	22.9745	269,480,043	0.0000	0.0001	4.5971
2201610300	04	04027	869	Combination Short-haul Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	22.9745	323,888,993	0.0000	0.0001	2.9372
2201610400	04	04027	381	Combination Short-haul Truck	04027Urban Restricted Access	Urban Restricted Access	22.9745	135,256,963	0.0000	0.0001	2.9910
2201610500	04	04027	1,028	Combination Short-haul Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	22.9745	713,496,234	0.0000	0.0000	2.3803
2202210200	04	04027	428,823	Passenger Car	04027Rural Restricted Access	Rural Restricted Access	1.4788	269,480,043	0.0016	0.0024	4.5971
2202210300	04	04027	516,700	Passenger Car	04027Rural Unrestricted Access	Rural Unrestricted Access	1.4788	323,888,993	0.0016	0.0024	2.9372
2202210400	04	04027	250,394	Passenger Car	04027Urban Restricted Access	Urban Restricted Access	1.4788	135,256,963	0.0019	0.0027	2.9910
2202210500	04	04027	1,337,926	Passenger Car	04027Urban Unrestricted Access	Urban Unrestricted Access	1.4788	713,496,234	0.0019	0.0028	2.3803
2202310200	04	04027	1,606,840	Passenger Truck	04027Rural Restricted Access	Rural Restricted Access	1.8669	269,480,043	0.0060	0.0111	4.5971
2202310300	04	04027	2,242,063	Passenger Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	1.8669	323,888,993	0.0069	0.0129	2.9372
2202310400	04	04027	848,765	Passenger Truck	04027Urban Restricted Access	Urban Restricted Access	1.8669	135,256,963	0.0063	0.0117	2.9910
2202310500	04	04027	4,692,037	Passenger Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	1.8669	713,496,234	0.0066	0.0123	2.3803
2202320200	04	04027	1,834,759	Light Commercial Truck	04027Rural Restricted Access	Rural Restricted Access	2.0598	269,480,043	0.0068	0.0140	4.5971

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2202320300	04	04027	2,540,666	Light Commercial Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	2.0598	323,888,993	0.0078	0.0162	2.9372
2202320400	04	04027	961,995	Light Commercial Truck	04027Urban Restricted Access	Urban Restricted Access	2.0598	135,256,963	0.0071	0.0146	2.9910
2202320500	04	04027	5,298,801	Light Commercial Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	2.0598	713,496,234	0.0074	0.0153	2.3803
2202410200	04	04027	137,273	Intercity Bus	04027Rural Restricted Access	Rural Restricted Access	19.5937	269,480,043	0.0005	0.0100	4.5971
2202410300	04	04027	119,287	Intercity Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	19.5937	323,888,993	0.0004	0.0072	2.9372
2202410400	04	04027	44,577	Intercity Bus	04027Urban Restricted Access	Urban Restricted Access	19.5937	135,256,963	0.0003	0.0065	2.9910
2202410500	04	04027	208,104	Intercity Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	19.5937	713,496,234	0.0003	0.0057	2.3803
2202420200	04	04027	243,112	Transit Bus	04027Rural Restricted Access	Rural Restricted Access	16.5560	269,480,043	0.0009	0.0149	4.5971
2202420300	04	04027	215,137	Transit Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	16.5560	323,888,993	0.0007	0.0110	2.9372
2202420400	04	04027	80,365	Transit Bus	04027Urban Restricted Access	Urban Restricted Access	16.5560	135,256,963	0.0006	0.0098	2.9910
2202420500	04	04027	377,635	Transit Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	16.5560	713,496,234	0.0005	0.0088	2.3803
2202430200	04	04027	708,045	School Bus	04027Rural Restricted Access	Rural Restricted Access	9.0699	269,480,043	0.0026	0.0238	4.5971
2202430300	04	04027	626,815	School Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	9.0699	323,888,993	0.0019	0.0176	2.9372
2202430400	04	04027	234,148	School Bus	04027Urban Restricted Access	Urban Restricted Access	9.0699	135,256,963	0.0017	0.0157	2.9910
2202430500	04	04027	1,100,405	School Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	9.0699	713,496,234	0.0015	0.0140	2.3803
2202510200	04	04027	557,624	Refuse Truck	04027Rural Restricted Access	Rural Restricted Access	23.1135	269,480,043	0.0021	0.0478	4.5971
2202510300	04	04027	275,396	Refuse Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	23.1135	323,888,993	0.0009	0.0197	2.9372
2202510400	04	04027	122,427	Refuse Truck	04027Urban Restricted Access	Urban Restricted Access	23.1135	135,256,963	0.0009	0.0209	2.9910
2202510500	04	04027	327,656	Refuse Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	23.1135	713,496,234	0.0005	0.0106	2.3803
2202520200	04	04027	5,375,018	Single Unit Short-haul Truck	04027Rural Restricted Access	Rural Restricted Access	8.5390	269,480,043	0.0199	0.1703	4.5971
2202520300	04	04027	6,280,735	Single Unit Short-haul Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	8.5390	323,888,993	0.0194	0.1656	2.9372
2202520400	04	04027	2,291,437	Single Unit Short-haul Truck	04027Urban Restricted Access	Urban Restricted Access	8.5390	135,256,963	0.0169	0.1447	2.9910
2202520500	04	04027	9,671,012	Single Unit Short-haul Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	8.5390	713,496,234	0.0136	0.1157	2.3803
2202530200	04	04027	3,338,585	Single Unit Long-haul Truck	04027Rural Restricted Access	Rural Restricted Access	6.9845	269,480,043	0.0124	0.0865	4.5971
2202530300	04	04027	377,418	Single Unit Long-haul Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	6.9845	323,888,993	0.0012	0.0081	2.9372
2202530400	04	04027	313,629	Single Unit Long-haul Truck	04027Urban Restricted Access	Urban Restricted Access	6.9845	135,256,963	0.0023	0.0162	2.9910
2202530500	04	04027	336,208	Single Unit Long-haul Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	6.9845	713,496,234	0.0005	0.0033	2.3803
2202540200	04	04027	108,099	Motor Home	04027Rural Restricted Access	Rural Restricted Access	7.5257	269,480,043	0.0004	0.0030	4.5971
2202540300	04	04027	109,787	Motor Home	04027Rural Unrestricted Access	Rural Unrestricted Access	7.5257	323,888,993	0.0003	0.0026	2.9372
2202540400	04	04027	41,196	Motor Home	04027Urban Restricted Access	Urban Restricted Access	7.5257	135,256,963	0.0003	0.0023	2.9910
2202540500	04	04027	190,003	Motor Home	04027Urban Unrestricted Access	Urban Unrestricted Access	7.5257	713,496,234	0.0003	0.0020	2.3803
2202610200	04	04027	5,028,329	Combination Short-haul Truck	04027Rural Restricted Access	Rural Restricted Access	22.9745	269,480,043	0.0187	0.4287	4.5971
2202610300	04	04027	9,082,814	Combination Short-haul Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	22.9745	323,888,993	0.0280	0.6443	2.9372
2202610400	04	04027	2,535,943	Combination Short-haul Truck	04027Urban Restricted Access	Urban Restricted Access	22.9745	135,256,963	0.0187	0.4308	2.9910
2202610500	04	04027	12,414,178	Combination Short-haul Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	22.9745	713,496,234	0.0174	0.3997	2.3803
2202620200	04	04027	25,598,209	Combination Long-haul Truck	04027Rural Restricted Access	Rural Restricted Access	24.6010	269,480,043	0.0950	2.3369	4.5971
2202620300	04	04027	5,730,089	Combination Long-haul Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	24.6010	323,888,993	0.0177	0.4352	2.9372
2202620400	04	04027	4,081,571	Combination Long-haul Truck	04027Urban Restricted Access	Urban Restricted Access	24.6010	135,256,963	0.0302	0.7424	2.9910
2202620500	04	04027	4,776,828	Combination Long-haul Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	24.6010	713,496,234	0.0067	0.1647	2.3803
2203420200	04	04027	34,004	Transit Bus	04027Rural Restricted Access	Rural Restricted Access	16.5560	269,480,043	0.0001	0.0021	4.5971
2203420300	04	04027	30,091	Transit Bus	04027Rural Unrestricted Access	Rural Unrestricted Access	16.5560	323,888,993	0.0001	0.0015	2.9372
2203420400	04	04027	11,241	Transit Bus	04027Urban Restricted Access	Urban Restricted Access	16.5560	135,256,963	0.0001	0.0014	2.9910
2203420500	04	04027	52,820	Transit Bus	04027Urban Unrestricted Access	Urban Unrestricted Access	16.5560	713,496,234	0.0001	0.0012	2.3803
2205210200	04	04027	2,295,703	Passenger Car	04027Rural Restricted Access	Rural Restricted Access	1.4788	269,480,043	0.0085	0.0126	4.5971
2205210300	04	04027	2,766,154	Passenger Car	04027Rural Unrestricted Access	Rural Unrestricted Access	1.4788	323,888,993	0.0085	0.0126	2.9372
2205210400	04	04027	1,340,485	Passenger Car	04027Urban Restricted Access	Urban Restricted Access	1.4788	135,256,963	0.0099	0.0147	2.9910
2205210500	04	04027	7,162,581	Passenger Car	04027Urban Unrestricted Access	Urban Unrestricted Access	1.4788	713,496,234	0.0100	0.0148	2.3803
2205310200	04	04027	6,198,645	Passenger Truck	04027Rural Restricted Access	Rural Restricted Access	1.8669	269,480,043	0.0230	0.0429	4.5971
2205310300	04	04027	8,649,116	Passenger Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	1.8669	323,888,993	0.0267	0.0499	2.9372
2205310400	04	04027	3,274,246	Passenger Truck	04027Urban Restricted Access	Urban Restricted Access	1.8669	135,256,963	0.0242	0.0452	2.9910
2205310500	04	04027	18,100,284	Passenger Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	1.8669	713,496,234	0.0254	0.0474	2.3803

SCC Code	FIPS State Code	FIPS State and County Code	Annual VMT	Vehicle Type	Data Key 2	MOVES Road Type	Vehicle Source Mass (Tons)	Total County VMT by MOVES Road Type	Ratio to County VMT by Vehicle and Road Type	Proportion Vehicle Type and Mass	VMT-Weighted Average Vehicle Weight (tons)
2205320200	04	04027	1,920,308	Light Commercial Truck	04027Rural Restricted Access	Rural Restricted Access	2.0598	269,480,043	0.0071	0.0147	4.5971
2205320300	04	04027	2,659,129	Light Commercial Truck	04027Rural Unrestricted Access	Rural Unrestricted Access	2.0598	323,888,993	0.0082	0.0169	2.9372
2205320400	04	04027	1,006,850	Light Commercial Truck	04027Urban Restricted Access	Urban Restricted Access	2.0598	135,256,963	0.0074	0.0153	2.9910
2205320500	04	04027	5,545,866	Light Commercial Truck	04027Urban Unrestricted Access	Urban Unrestricted Access	2.0598	713,496,234	0.0078	0.0160	2.3803

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Data Key 3	FHWA Road Type	MOVES Road Type	VMT Weighted-Average Vehicle Weight (tons)
04001	04	Apache	AZ	04001Rural Interstate	Rural Interstate	Rural Restricted Access	6.81
04001	04	Apache	AZ	04001Rural Local	Rural Local	Rural Unrestricted Access	3.94
04001	04	Apache	AZ	04001Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	3.94
04001	04	Apache	AZ	04001Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	3.94
04001	04	Apache	AZ	04001Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	3.94
04001	04	Apache	AZ	04001Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	6.81
04001	04	Apache	AZ	04001Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	3.94
04001	04	Apache	AZ	04001Urban Local	Urban Local	Urban Unrestricted Access	2.97
04001	04	Apache	AZ	04001Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.97
04001	04	Apache	AZ	04001Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.97
04001	04	Apache	AZ	04001Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.97
04001	04	Apache	AZ	04001Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.97
04003	04	Cochise	AZ	04003Rural Interstate	Rural Interstate	Rural Restricted Access	6.78
04003	04	Cochise	AZ	04003Rural Local	Rural Local	Rural Unrestricted Access	3.93
04003	04	Cochise	AZ	04003Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	3.93
04003	04	Cochise	AZ	04003Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	3.93
04003	04	Cochise	AZ	04003Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	3.93
04003	04	Cochise	AZ	04003Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	6.78
04003	04	Cochise	AZ	04003Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	3.93
04003	04	Cochise	AZ	04003Urban Local	Urban Local	Urban Unrestricted Access	2.93
04003	04	Cochise	AZ	04003Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.93
04003	04	Cochise	AZ	04003Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.93
04003	04	Cochise	AZ	04003Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.93
04003	04	Cochise	AZ	04003Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.93
04005	04	Coconino	AZ	04005Rural Interstate	Rural Interstate	Rural Restricted Access	6.26
04005	04	Coconino	AZ	04005Rural Local	Rural Local	Rural Unrestricted Access	3.75
04005	04	Coconino	AZ	04005Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	3.75
04005	04	Coconino	AZ	04005Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	3.75
04005	04	Coconino	AZ	04005Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	3.75
04005	04	Coconino	AZ	04005Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	6.26
04005	04	Coconino	AZ	04005Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	3.75
04005	04	Coconino	AZ	04005Urban Interstate	Urban Interstate	Urban Restricted Access	3.88
04005	04	Coconino	AZ	04005Urban Local	Urban Local	Urban Unrestricted Access	2.88
04005	04	Coconino	AZ	04005Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.88
04005	04	Coconino	AZ	04005Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.88
04005	04	Coconino	AZ	04005Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.88
04005	04	Coconino	AZ	04005Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	3.88
04005	04	Coconino	AZ	04005Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.88
04007	04	Gila	AZ	04007Rural Local	Rural Local	Rural Unrestricted Access	2.62
04007	04	Gila	AZ	04007Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.62
04007	04	Gila	AZ	04007Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.62
04007	04	Gila	AZ	04007Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.62
04007	04	Gila	AZ	04007Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.62
04007	04	Gila	AZ	04007Urban Local	Urban Local	Urban Unrestricted Access	2.23

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Data Key 3	FHWA Road Type	MOVES Road Type	VMT Weighted-Average Vehicle Weight (tons)
04007	04	Gila	AZ	04007Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.23
04007	04	Gila	AZ	04007Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.23
04007	04	Gila	AZ	04007Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.23
04007	04	Gila	AZ	04007Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.23
04009	04	Graham	AZ	04009Rural Local	Rural Local	Rural Unrestricted Access	2.77
04009	04	Graham	AZ	04009Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.77
04009	04	Graham	AZ	04009Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.77
04009	04	Graham	AZ	04009Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.77
04009	04	Graham	AZ	04009Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.77
04009	04	Graham	AZ	04009Urban Local	Urban Local	Urban Unrestricted Access	2.30
04009	04	Graham	AZ	04009Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.30
04009	04	Graham	AZ	04009Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.30
04009	04	Graham	AZ	04009Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.30
04009	04	Graham	AZ	04009Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.30
04011	04	Greenlee	AZ	04011Rural Local	Rural Local	Rural Unrestricted Access	2.79
04011	04	Greenlee	AZ	04011Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.79
04011	04	Greenlee	AZ	04011Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.79
04011	04	Greenlee	AZ	04011Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.79
04011	04	Greenlee	AZ	04011Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.79
04011	04	Greenlee	AZ	04011Urban Local	Urban Local	Urban Unrestricted Access	2.32
04011	04	Greenlee	AZ	04011Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.32
04011	04	Greenlee	AZ	04011Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.32
04011	04	Greenlee	AZ	04011Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.32
04011	04	Greenlee	AZ	04011Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.32
04012	04	La Paz	AZ	04012Rural Interstate	Rural Interstate	Rural Restricted Access	7.80
04012	04	La Paz	AZ	04012Rural Local	Rural Local	Rural Unrestricted Access	4.43
04012	04	La Paz	AZ	04012Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	4.43
04012	04	La Paz	AZ	04012Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	4.43
04012	04	La Paz	AZ	04012Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	4.43
04012	04	La Paz	AZ	04012Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	7.80
04012	04	La Paz	AZ	04012Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	4.43
04012	04	La Paz	AZ	04012Urban Local	Urban Local	Urban Unrestricted Access	3.25
04012	04	La Paz	AZ	04012Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	3.25
04012	04	La Paz	AZ	04012Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	3.25
04012	04	La Paz	AZ	04012Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	3.25
04012	04	La Paz	AZ	04012Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	3.25
04013	04	Maricopa	AZ	04013Rural Interstate	Rural Interstate	Rural Restricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Local	Rural Local	Rural Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	#N/A
04013	04	Maricopa	AZ	04013Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Interstate	Urban Interstate	Urban Restricted Access	#N/A

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Data Key 3	FHWA Road Type	MOVES Road Type	VMT Weighted-Average Vehicle Weight (tons)
04013	04	Maricopa	AZ	04013Urban Local	Urban Local	Urban Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	#N/A
04013	04	Maricopa	AZ	04013Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	#N/A
04015	04	Mohave	AZ	04015Rural Interstate	Rural Interstate	Rural Restricted Access	6.03
04015	04	Mohave	AZ	04015Rural Local	Rural Local	Rural Unrestricted Access	3.56
04015	04	Mohave	AZ	04015Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	3.56
04015	04	Mohave	AZ	04015Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	3.56
04015	04	Mohave	AZ	04015Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	3.56
04015	04	Mohave	AZ	04015Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	6.03
04015	04	Mohave	AZ	04015Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	3.56
04015	04	Mohave	AZ	04015Urban Interstate	Urban Interstate	Urban Restricted Access	3.68
04015	04	Mohave	AZ	04015Urban Local	Urban Local	Urban Unrestricted Access	2.73
04015	04	Mohave	AZ	04015Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.73
04015	04	Mohave	AZ	04015Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.73
04015	04	Mohave	AZ	04015Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.73
04015	04	Mohave	AZ	04015Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	3.68
04015	04	Mohave	AZ	04015Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.73
04017	04	Navajo	AZ	04017Rural Interstate	Rural Interstate	Rural Restricted Access	6.61
04017	04	Navajo	AZ	04017Rural Local	Rural Local	Rural Unrestricted Access	3.85
04017	04	Navajo	AZ	04017Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	3.85
04017	04	Navajo	AZ	04017Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	3.85
04017	04	Navajo	AZ	04017Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	3.85
04017	04	Navajo	AZ	04017Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	6.61
04017	04	Navajo	AZ	04017Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	3.85
04017	04	Navajo	AZ	04017Urban Interstate	Urban Interstate	Urban Restricted Access	4.01
04017	04	Navajo	AZ	04017Urban Local	Urban Local	Urban Unrestricted Access	2.91
04017	04	Navajo	AZ	04017Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.91
04017	04	Navajo	AZ	04017Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.91
04017	04	Navajo	AZ	04017Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.91
04017	04	Navajo	AZ	04017Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	4.01
04017	04	Navajo	AZ	04017Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.91
04019	04	Pima	AZ	04019Rural Interstate	Rural Interstate	Rural Restricted Access	4.03
04019	04	Pima	AZ	04019Rural Local	Rural Local	Rural Unrestricted Access	2.67
04019	04	Pima	AZ	04019Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.67
04019	04	Pima	AZ	04019Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.67
04019	04	Pima	AZ	04019Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.67
04019	04	Pima	AZ	04019Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	4.03
04019	04	Pima	AZ	04019Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.67
04019	04	Pima	AZ	04019Urban Interstate	Urban Interstate	Urban Restricted Access	2.70
04019	04	Pima	AZ	04019Urban Local	Urban Local	Urban Unrestricted Access	2.21
04019	04	Pima	AZ	04019Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.21

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Data Key 3	FHWA Road Type	MOVES Road Type	VMT Weighted-Average Vehicle Weight (tons)
04019	04	Pima	AZ	04019Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.21
04019	04	Pima	AZ	04019Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.21
04019	04	Pima	AZ	04019Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	2.70
04019	04	Pima	AZ	04019Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.21
04021	04	Pinal	AZ	04021Rural Interstate	Rural Interstate	Rural Restricted Access	4.59
04021	04	Pinal	AZ	04021Rural Local	Rural Local	Rural Unrestricted Access	2.91
04021	04	Pinal	AZ	04021Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.91
04021	04	Pinal	AZ	04021Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.91
04021	04	Pinal	AZ	04021Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.91
04021	04	Pinal	AZ	04021Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	4.59
04021	04	Pinal	AZ	04021Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.91
04021	04	Pinal	AZ	04021Urban Interstate	Urban Interstate	Urban Restricted Access	2.96
04021	04	Pinal	AZ	04021Urban Local	Urban Local	Urban Unrestricted Access	2.35
04021	04	Pinal	AZ	04021Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.35
04021	04	Pinal	AZ	04021Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.35
04021	04	Pinal	AZ	04021Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.35
04021	04	Pinal	AZ	04021Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	2.96
04021	04	Pinal	AZ	04021Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.35
04023	04	Santa Cruz	AZ	04023Rural Interstate	Rural Interstate	Rural Restricted Access	3.63
04023	04	Santa Cruz	AZ	04023Rural Local	Rural Local	Rural Unrestricted Access	2.52
04023	04	Santa Cruz	AZ	04023Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.52
04023	04	Santa Cruz	AZ	04023Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.52
04023	04	Santa Cruz	AZ	04023Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.52
04023	04	Santa Cruz	AZ	04023Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	3.63
04023	04	Santa Cruz	AZ	04023Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.52
04023	04	Santa Cruz	AZ	04023Urban Interstate	Urban Interstate	Urban Restricted Access	2.55
04023	04	Santa Cruz	AZ	04023Urban Local	Urban Local	Urban Unrestricted Access	2.16
04023	04	Santa Cruz	AZ	04023Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.16
04023	04	Santa Cruz	AZ	04023Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.16
04023	04	Santa Cruz	AZ	04023Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.16
04023	04	Santa Cruz	AZ	04023Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	2.55
04023	04	Santa Cruz	AZ	04023Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.16
04025	04	Yavapai	AZ	04025Rural Interstate	Rural Interstate	Rural Restricted Access	4.50
04025	04	Yavapai	AZ	04025Rural Local	Rural Local	Rural Unrestricted Access	2.88
04025	04	Yavapai	AZ	04025Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.88
04025	04	Yavapai	AZ	04025Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.88
04025	04	Yavapai	AZ	04025Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.88
04025	04	Yavapai	AZ	04025Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	4.50
04025	04	Yavapai	AZ	04025Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.88
04025	04	Yavapai	AZ	04025Urban Interstate	Urban Interstate	Urban Restricted Access	2.94
04025	04	Yavapai	AZ	04025Urban Local	Urban Local	Urban Unrestricted Access	2.35
04025	04	Yavapai	AZ	04025Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.35
04025	04	Yavapai	AZ	04025Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.35
04025	04	Yavapai	AZ	04025Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.35

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Data Key 3	FHWA Road Type	MOVES Road Type	VMT Weighted-Average Vehicle Weight (tons)
04025	04	Yavapai	AZ	04025Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	2.94
04025	04	Yavapai	AZ	04025Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.35
04027	04	Yuma	AZ	04027Rural Interstate	Rural Interstate	Rural Restricted Access	4.60
04027	04	Yuma	AZ	04027Rural Local	Rural Local	Rural Unrestricted Access	2.94
04027	04	Yuma	AZ	04027Rural Major Collector	Rural Major Collector	Rural Unrestricted Access	2.94
04027	04	Yuma	AZ	04027Rural Minor Arterial	Rural Minor Arterial	Rural Unrestricted Access	2.94
04027	04	Yuma	AZ	04027Rural Minor Collector	Rural Minor Collector	Rural Unrestricted Access	2.94
04027	04	Yuma	AZ	04027Rural Other Freeways and Expressways	Rural Other Freeways and Expressways	Rural Restricted Access	4.60
04027	04	Yuma	AZ	04027Rural Other Principal Arterial	Rural Other Principal Arterial	Rural Unrestricted Access	2.94
04027	04	Yuma	AZ	04027Urban Interstate	Urban Interstate	Urban Restricted Access	2.99
04027	04	Yuma	AZ	04027Urban Local	Urban Local	Urban Unrestricted Access	2.38
04027	04	Yuma	AZ	04027Urban Major Collector	Urban Major Collector	Urban Unrestricted Access	2.38
04027	04	Yuma	AZ	04027Urban Minor Arterial	Urban Minor Arterial	Urban Unrestricted Access	2.38
04027	04	Yuma	AZ	04027Urban Minor Collector	Urban Minor Collector	Urban Unrestricted Access	2.38
04027	04	Yuma	AZ	04027Urban Other Freeways and Expressways	Urban Other Freeways and Expressways	Urban Restricted Access	2.99
04027	04	Yuma	AZ	04027Urban Other Principal Arterial	Urban Other Principal Arterial	Urban Unrestricted Access	2.38

Source: EPA Draft Presentation "Proposed Updates to Highway Mobile Source Classification Codes (SCC), July 2013. (http://www3.epa.gov/otaq/models/moves/documents/faca-meeting-jul2013/07a-scc-proposal-2013-07-09.pdf)

SCCs	AA	FF	VV	RR	PP	AA Description	FF Description	VV Description	RR Description	PP Description
2201110200	22	01	11	02	00	Mobile	Gasoline	Motorcycle	Rural Restricted Access	All Processes
2201110300	22	01	11	03	00	Mobile	Gasoline	Motorcycle	Rural Unrestricted Access	All Processes
2201110400	22	01	11	04	00	Mobile	Gasoline	Motorcycle	Urban Restricted Access	All Processes
2201110500	22	01	11	05	00	Mobile	Gasoline	Motorcycle	Urban Unrestricted Access	All Processes
2201210200	22	01	21	02	00	Mobile	Gasoline	Passenger Car	Rural Restricted Access	All Processes
2201210300	22	01	21	03	00	Mobile	Gasoline	Passenger Car	Rural Unrestricted Access	All Processes
2201210400	22	01	21	04	00	Mobile	Gasoline	Passenger Car	Urban Restricted Access	All Processes
2201210500	22	01	21	05	00	Mobile	Gasoline	Passenger Car	Urban Unrestricted Access	All Processes
2201310200	22	01	31	02	00	Mobile	Gasoline	Passenger Truck	Rural Restricted Access	All Processes
2201310300	22	01	31	03	00	Mobile	Gasoline	Passenger Truck	Rural Unrestricted Access	All Processes
2201310400	22	01	31	04	00	Mobile	Gasoline	Passenger Truck	Urban Restricted Access	All Processes
2201310500	22	01	31	05	00	Mobile	Gasoline	Passenger Truck	Urban Unrestricted Access	All Processes
2201320200	22	01	32	02	00	Mobile	Gasoline	Light Commercial Truck	Rural Restricted Access	All Processes
2201320300	22	01	32	03	00	Mobile	Gasoline	Light Commercial Truck	Rural Unrestricted Access	All Processes
2201320400	22	01	32	04	00	Mobile	Gasoline	Light Commercial Truck	Urban Restricted Access	All Processes
2201320500	22	01	32	05	00	Mobile	Gasoline	Light Commercial Truck	Urban Unrestricted Access	All Processes
2201420200	22	01	42	02	00	Mobile	Gasoline	Transit Bus	Rural Restricted Access	All Processes
2201420300	22	01	42	03	00	Mobile	Gasoline	Transit Bus	Rural Unrestricted Access	All Processes
2201420400	22	01	42	04	00	Mobile	Gasoline	Transit Bus	Urban Restricted Access	All Processes
2201420500	22	01	42	05	00	Mobile	Gasoline	Transit Bus	Urban Unrestricted Access	All Processes
2201430200	22	01	43	02	00	Mobile	Gasoline	School Bus	Rural Restricted Access	All Processes
2201430300	22	01	43	03	00	Mobile	Gasoline	School Bus	Rural Unrestricted Access	All Processes
2201430400	22	01	43	04	00	Mobile	Gasoline	School Bus	Urban Restricted Access	All Processes
2201430500	22	01	43	05	00	Mobile	Gasoline	School Bus	Urban Unrestricted Access	All Processes
2201510200	22	01	51	02	00	Mobile	Gasoline	Refuse Truck	Rural Restricted Access	All Processes
2201510300	22	01	51	03	00	Mobile	Gasoline	Refuse Truck	Rural Unrestricted Access	All Processes
2201510400	22	01	51	04	00	Mobile	Gasoline	Refuse Truck	Urban Restricted Access	All Processes
2201510500	22	01	51	05	00	Mobile	Gasoline	Refuse Truck	Urban Unrestricted Access	All Processes
2201540200	22	01	54	02	00	Mobile	Gasoline	Motor Home	Rural Restricted Access	All Processes
2201540300	22	01	54	03	00	Mobile	Gasoline	Motor Home	Rural Unrestricted Access	All Processes
2201540400	22	01	54	04	00	Mobile	Gasoline	Motor Home	Urban Restricted Access	All Processes
2201540500	22	01	54	05	00	Mobile	Gasoline	Motor Home	Urban Unrestricted Access	All Processes
2201610200	22	01	61	02	00	Mobile	Gasoline	Combination Short-haul Truck	Rural Restricted Access	All Processes
2201610300	22	01	61	03	00	Mobile	Gasoline	Combination Short-haul Truck	Rural Unrestricted Access	All Processes
2201610400	22	01	61	04	00	Mobile	Gasoline	Combination Short-haul Truck	Urban Restricted Access	All Processes
2201610500	22	01	61	05	00	Mobile	Gasoline	Combination Short-haul Truck	Urban Unrestricted Access	All Processes
2202210200	22	02	21	02	00	Mobile	Diesel	Passenger Car	Rural Restricted Access	All Processes
2202210300	22	02	21	03	00	Mobile	Diesel	Passenger Car	Rural Unrestricted Access	All Processes
2202210400	22	02	21	04	00	Mobile	Diesel	Passenger Car	Urban Restricted Access	All Processes
2202210500	22	02	21	05	00	Mobile	Diesel	Passenger Car	Urban Unrestricted Access	All Processes
2202310200	22	02	31	02	00	Mobile	Diesel	Passenger Truck	Rural Restricted Access	All Processes
2202310300	22	02	31	03	00	Mobile	Diesel	Passenger Truck	Rural Unrestricted Access	All Processes
2202310400	22	02	31	04	00	Mobile	Diesel	Passenger Truck	Urban Restricted Access	All Processes
2202310500	22	02	31	05	00	Mobile	Diesel	Passenger Truck	Urban Unrestricted Access	All Processes
2202320200	22	02	32	02	00	Mobile	Diesel	Light Commercial Truck	Rural Restricted Access	All Processes

SCCs	AA	FF	VV	RR	PP	AA Description	FF Description	VV Description	RR Description	PP Description
2202320300	22	02	32	03	00	Mobile	Diesel	Light Commercial Truck	Rural Unrestricted Access	All Processes
2202320400	22	02	32	04	00	Mobile	Diesel	Light Commercial Truck	Urban Restricted Access	All Processes
2202320500	22	02	32	05	00	Mobile	Diesel	Light Commercial Truck	Urban Unrestricted Access	All Processes
2202410200	22	02	41	02	00	Mobile	Diesel	Intercity Bus	Rural Restricted Access	All Processes
2202410300	22	02	41	03	00	Mobile	Diesel	Intercity Bus	Rural Unrestricted Access	All Processes
2202410400	22	02	41	04	00	Mobile	Diesel	Intercity Bus	Urban Restricted Access	All Processes
2202410500	22	02	41	05	00	Mobile	Diesel	Intercity Bus	Urban Unrestricted Access	All Processes
2202420200	22	02	42	02	00	Mobile	Diesel	Transit Bus	Rural Restricted Access	All Processes
2202420300	22	02	42	03	00	Mobile	Diesel	Transit Bus	Rural Unrestricted Access	All Processes
2202420400	22	02	42	04	00	Mobile	Diesel	Transit Bus	Urban Restricted Access	All Processes
2202420500	22	02	42	05	00	Mobile	Diesel	Transit Bus	Urban Unrestricted Access	All Processes
2202430200	22	02	43	02	00	Mobile	Diesel	School Bus	Rural Restricted Access	All Processes
2202430300	22	02	43	03	00	Mobile	Diesel	School Bus	Rural Unrestricted Access	All Processes
2202430400	22	02	43	04	00	Mobile	Diesel	School Bus	Urban Restricted Access	All Processes
2202430500	22	02	43	05	00	Mobile	Diesel	School Bus	Urban Unrestricted Access	All Processes
2202510200	22	02	51	02	00	Mobile	Diesel	Refuse Truck	Rural Restricted Access	All Processes
2202510300	22	02	51	03	00	Mobile	Diesel	Refuse Truck	Rural Unrestricted Access	All Processes
2202510400	22	02	51	04	00	Mobile	Diesel	Refuse Truck	Urban Restricted Access	All Processes
2202510500	22	02	51	05	00	Mobile	Diesel	Refuse Truck	Urban Unrestricted Access	All Processes
2202520200	22	02	52	02	00	Mobile	Diesel	Single Unit Short-haul Truck	Rural Restricted Access	All Processes
2202520300	22	02	52	03	00	Mobile	Diesel	Single Unit Short-haul Truck	Rural Unrestricted Access	All Processes
2202520400	22	02	52	04	00	Mobile	Diesel	Single Unit Short-haul Truck	Urban Restricted Access	All Processes
2202520500	22	02	52	05	00	Mobile	Diesel	Single Unit Short-haul Truck	Urban Unrestricted Access	All Processes
2202530200	22	02	53	02	00	Mobile	Diesel	Single Unit Long-haul Truck	Rural Restricted Access	All Processes
2202530300	22	02	53	03	00	Mobile	Diesel	Single Unit Long-haul Truck	Rural Unrestricted Access	All Processes
2202530400	22	02	53	04	00	Mobile	Diesel	Single Unit Long-haul Truck	Urban Restricted Access	All Processes
2202530500	22	02	53	05	00	Mobile	Diesel	Single Unit Long-haul Truck	Urban Unrestricted Access	All Processes
2202540200	22	02	54	02	00	Mobile	Diesel	Motor Home	Rural Restricted Access	All Processes
2202540300	22	02	54	03	00	Mobile	Diesel	Motor Home	Rural Unrestricted Access	All Processes
2202540400	22	02	54	04	00	Mobile	Diesel	Motor Home	Urban Restricted Access	All Processes
2202540500	22	02	54	05	00	Mobile	Diesel	Motor Home	Urban Unrestricted Access	All Processes
2202610200	22	02	61	02	00	Mobile	Diesel	Combination Short-haul Truck	Rural Restricted Access	All Processes
2202610300	22	02	61	03	00	Mobile	Diesel	Combination Short-haul Truck	Rural Unrestricted Access	All Processes
2202610400	22	02	61	04	00	Mobile	Diesel	Combination Short-haul Truck	Urban Restricted Access	All Processes
2202610500	22	02	61	05	00	Mobile	Diesel	Combination Short-haul Truck	Urban Unrestricted Access	All Processes
2202620200	22	02	62	02	00	Mobile	Diesel	Combination Long-haul Truck	Rural Restricted Access	All Processes
2202620300	22	02	62	03	00	Mobile	Diesel	Combination Long-haul Truck	Rural Unrestricted Access	All Processes
2202620400	22	02	62	04	00	Mobile	Diesel	Combination Long-haul Truck	Urban Restricted Access	All Processes
2202620500	22	02	62	05	00	Mobile	Diesel	Combination Long-haul Truck	Urban Unrestricted Access	All Processes
2203420200	22	03	42	02	00	Mobile	CNG	Transit Bus	Rural Restricted Access	All Processes
2203420300	22	03	42	03	00	Mobile	CNG	Transit Bus	Rural Unrestricted Access	All Processes
2203420400	22	03	42	04	00	Mobile	CNG	Transit Bus	Urban Restricted Access	All Processes
2203420500	22	03	42	05	00	Mobile	CNG	Transit Bus	Urban Unrestricted Access	All Processes
2205210200	22	05	21	02	00	Mobile	E85	Passenger Car	Rural Restricted Access	All Processes
2205210300	22	05	21	03	00	Mobile	E85	Passenger Car	Rural Unrestricted Access	All Processes
2205210400	22	05	21	04	00	Mobile	E85	Passenger Car	Urban Restricted Access	All Processes
2205210500	22	05	21	05	00	Mobile	E85	Passenger Car	Urban Unrestricted Access	All Processes
2205310200	22	05	31	02	00	Mobile	E85	Passenger Truck	Rural Restricted Access	All Processes
2205310300	22	05	31	03	00	Mobile	E85	Passenger Truck	Rural Unrestricted Access	All Processes

SCCs	AA	FF	VV	RR	PP	AA Description	FF Description	VV Description	RR Description	PP Description
2205310400	22	05	31	04	00	Mobile	E85	Passenger Truck	Urban Restricted Access	All Processes
2205310500	22	05	31	05	00	Mobile	E85	Passenger Truck	Urban Unrestricted Access	All Processes
2205320200	22	05	32	02	00	Mobile	E85	Light Commercial Truck	Rural Restricted Access	All Processes
2205320300	22	05	32	03	00	Mobile	E85	Light Commercial Truck	Rural Unrestricted Access	All Processes
2205320400	22	05	32	04	00	Mobile	E85	Light Commercial Truck	Urban Restricted Access	All Processes
2205320500	22	05	32	05	00	Mobile	E85	Light Commercial Truck	Urban Unrestricted Access	All Processes
2201520200	22	01	52	02	00	Mobile	Gasoline	Single Unit Short-haul Truck	Rural Restricted Access	All Processes
2201520300	22	01	52	03	00	Mobile	Gasoline	Single Unit Short-haul Truck	Rural Unrestricted Access	All Processes
2201520400	22	01	52	04	00	Mobile	Gasoline	Single Unit Short-haul Truck	Urban Restricted Access	All Processes
2201520500	22	01	52	05	00	Mobile	Gasoline	Single Unit Short-haul Truck	Urban Unrestricted Access	All Processes
2201530200	22	01	53	02	00	Mobile	Gasoline	Single Unit Long-haul Truck	Rural Restricted Access	All Processes
2201530300	22	01	53	03	00	Mobile	Gasoline	Single Unit Long-haul Truck	Rural Unrestricted Access	All Processes
2201530400	22	01	53	04	00	Mobile	Gasoline	Single Unit Long-haul Truck	Urban Restricted Access	All Processes
2201530500	22	01	53	05	00	Mobile	Gasoline	Single Unit Long-haul Truck	Urban Unrestricted Access	All Processes

				Emission Factors (g/VMT) PM 2.5												
FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector
04001	04	Apache	AZ	--	0.0387	0.0783	0.2343	0.2343	0.2343	0.6367	--	--	0.0312	0.0312	0.1753	0.1753
04003	04	Cochise	AZ	--	0.0386	0.0780	0.2334	0.2334	0.2334	0.6341	--	--	0.0307	0.0307	0.1728	0.1728
04005	04	Coconino	AZ	--	0.0355	0.0744	0.2226	0.2226	0.2226	0.6048	0.0218	0.0218	0.0303	0.0303	0.1700	0.1700
04007	04	Gila	AZ	--	--	0.0516	0.1542	0.1542	0.1542	0.4191	--	--	0.0233	0.0233	0.1310	0.1310
04009	04	Graham	AZ	--	--	0.0546	0.1634	0.1634	0.1634	0.4441	--	--	0.0240	0.0240	0.1350	0.1350
04011	04	Greenlee	AZ	--	--	0.0550	0.1644	0.1644	0.1644	0.4467	--	--	0.0243	0.0243	0.1365	0.1365
04012	04	La Paz	AZ	--	0.0445	0.0883	0.2640	0.2640	0.2640	0.7173	--	--	0.0343	0.0343	0.1925	0.1925
04013	04	Maricopa	AZ	--	--	--	--	--	--	--	--	--	--	--	--	--
04015	04	Mohave	AZ	--	0.0342	0.0705	0.2109	0.2109	0.2109	0.5731	0.0207	0.0207	0.0286	0.0286	0.1607	0.1607
04017	04	Navajo	AZ	--	0.0376	0.0764	0.2285	0.2285	0.2285	0.6210	0.0225	0.0225	0.0306	0.0306	0.1719	0.1719
04019	04	Pima	AZ	--	0.0227	0.0526	0.1574	0.1574	0.1574	0.4277	0.0151	0.0151	0.0231	0.0231	0.1300	0.1300
04021	04	Pinal	AZ	--	0.0259	0.0575	0.1721	0.1721	0.1721	0.4676	0.0166	0.0166	0.0246	0.0246	0.1382	0.1382
04023	04	Santa Cruz	AZ	--	0.0204	0.0497	0.1486	0.1486	0.1486	0.4039	0.0142	0.0142	0.0225	0.0225	0.1267	0.1267
04025	04	Yavapai	AZ	--	0.0254	0.0569	0.1701	0.1701	0.1701	0.4622	0.0165	0.0165	0.0246	0.0246	0.1385	0.1385
04027	04	Yuma	AZ	--	0.0259	0.0580	0.1734	0.1734	0.1734	0.4714	0.0167	0.0167	0.0249	0.0249	0.1400	0.1400

	Emission Factors (g/VMT) PM 10													
Urban Local	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local
0.1753	0.1549	0.1549	0.3133	0.9372	0.9372	0.9372	2.5469	--	--	0.1247	0.1247	0.7011	0.7011	0.7011
0.1728	0.1543	0.1543	0.3121	0.9334	0.9334	0.9334	2.5366	--	--	0.1230	0.1230	0.6911	0.6911	0.6911
0.1700	0.1421	0.1421	0.2976	0.8902	0.8902	0.8902	2.4192	0.0872	0.0872	0.1210	0.1210	0.6801	0.6801	0.6801
0.1310	--	--	0.2063	0.6169	0.6169	0.6169	1.6765	--	--	0.0933	0.0933	0.5241	0.5241	0.5241
0.1350	--	--	0.2185	0.6537	0.6537	0.6537	1.7764	--	--	0.0961	0.0961	0.5400	0.5400	0.5400
0.1365	--	--	0.2198	0.6575	0.6575	0.6575	1.7869	--	--	0.0971	0.0971	0.5459	0.5459	0.5459
0.1925	0.1778	0.1778	0.3530	1.0559	1.0559	1.0559	2.8694	--	--	0.1370	0.1370	0.7702	0.7702	0.7702
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0.1607	0.1368	0.1368	0.2820	0.8436	0.8436	0.8436	2.2924	0.0826	0.0826	0.1144	0.1144	0.6429	0.6429	0.6429
0.1719	0.1504	0.1504	0.3056	0.9140	0.9140	0.9140	2.4839	0.0902	0.0902	0.1224	0.1224	0.6877	0.6877	0.6877
0.1300	0.0908	0.0908	0.2105	0.6296	0.6296	0.6296	1.7110	0.0603	0.0603	0.0925	0.0925	0.5201	0.5201	0.5201
0.1382	0.1035	0.1035	0.2301	0.6882	0.6882	0.6882	1.8703	0.0663	0.0663	0.0984	0.0984	0.5530	0.5530	0.5530
0.1267	0.0816	0.0816	0.1988	0.5945	0.5945	0.5945	1.6155	0.0569	0.0569	0.0902	0.0902	0.5068	0.5068	0.5068
0.1385	0.1014	0.1014	0.2274	0.6803	0.6803	0.6803	1.8487	0.0659	0.0659	0.0985	0.0985	0.5538	0.5538	0.5538
0.1400	0.1037	0.1037	0.2320	0.6938	0.6938	0.6938	1.8854	0.0669	0.0669	0.0996	0.0996	0.5599	0.5599	0.5599

				Emissions (g) PM 2.5										
FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial	Urban Minor Arterial
04001	04	Apache	AZ	0	80,234	18,091,860	24,204,833	42,574,756	6,110,567	52,864,972	0	0	1,741,392	1,123,159
04003	04	Cochise	AZ	0	144,210	17,903,806	23,953,237	42,133,485	6,058,324	53,664,256	0	0	5,103,005	3,295,685
04005	04	Coconino	AZ	0	157,428	23,064,291	30,857,374	54,283,193	7,852,547	74,876,201	1,768,049	1,850,339	5,936,995	3,834,853
04007	04	Gila	AZ	0	0	7,634,403	10,213,955	17,967,720	2,596,517	24,459,256	0	0	1,788,191	1,154,872
04009	04	Graham	AZ	0	0	3,524,837	4,715,828	8,294,394	1,186,554	9,824,971	0	0	1,077,318	695,630
04011	04	Greenlee	AZ	0	0	820,303	1,097,471	1,930,290	276,247	2,299,843	0	0	166,639	107,559
04012	04	La Paz	AZ	0	159,997	6,354,239	8,501,243	14,954,586	2,158,965	20,099,490	0	0	518,661	334,650
04013	04	Maricopa	AZ	0	0	0	0	0	0	0	0	0	0	0
04015	04	Mohave	AZ	0	158,756	28,808,191	38,542,053	67,804,073	9,828,264	95,931,765	628,130	657,365	8,063,713	5,209,100
04017	04	Navajo	AZ	0	81,340	24,379,142	32,616,494	57,374,102	8,267,592	75,242,524	368,318	385,460	3,593,571	2,319,879
04019	04	Pima	AZ	0	87,260	16,050,640	21,473,914	37,770,587	5,415,303	46,202,059	10,848,852	11,353,784	53,624,442	34,650,090
04021	04	Pinal	AZ	0	184,502	24,527,863	32,815,466	57,723,237	8,310,328	74,780,409	779,508	815,788	10,086,535	6,515,337
04023	04	Santa Cruz	AZ	0	12,649	1,768,235	2,365,696	4,160,359	590,574	4,370,999	782,698	819,127	1,472,210	950,976
04025	04	Yavapai	AZ	0	148,557	23,382,876	31,283,604	55,030,396	7,937,875	73,142,003	126,685	132,582	7,438,087	4,804,287
04027	04	Yuma	AZ	0	47,359	6,745,606	9,024,847	15,875,323	2,288,942	20,978,948	1,114,346	1,166,210	7,369,749	4,761,700

												Emissions (g) PM 10	
Urban Major Collector	Urban Minor Collector	Urban Local	Total PM 2.5 Emissions	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways
2,726,144	52,579	3,115,055	152,685,553	47,663,532	320,937	72,367,441	96,819,330	170,299,025	24,442,269	211,459,888	0	0
8,029,453	194,795	12,574,737	173,054,993	85,668,568	576,840	71,615,222	95,812,949	168,533,941	24,233,297	214,657,026	0	0
9,346,852	231,767	15,064,579	229,124,466	93,520,996	629,713	92,257,162	123,429,496	217,132,771	31,410,187	299,504,802	7,072,198	7,401,355
2,813,681	68,266	4,406,961	73,103,823	0	0	30,537,612	40,855,821	71,870,880	10,386,069	97,837,024	0	0
1,693,858	39,849	2,546,744	33,599,984	0	0	14,099,349	18,863,312	33,177,575	4,746,218	39,299,886	0	0
261,628	5,787	362,079	7,327,846	0	0	3,281,210	4,389,883	7,721,158	1,104,990	9,199,374	0	0
813,128	16,826	1,026,452	54,938,236	95,047,161	639,990	25,416,957	34,004,972	59,818,343	8,635,859	80,397,960	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
12,700,136	319,895	20,893,101	289,544,542	94,309,563	635,023	115,232,763	154,168,212	271,216,293	39,313,056	383,727,060	2,512,522	2,629,461
5,645,380	128,160	8,092,093	218,494,055	48,320,219	325,359	97,516,568	130,465,977	229,496,409	33,070,367	300,970,098	1,473,270	1,541,840
84,541,983	2,212,222	146,126,848	470,357,984	51,837,109	349,039	64,202,559	85,895,656	151,082,349	21,661,213	184,808,237	43,395,409	45,415,137
15,881,443	395,556	25,746,104	258,562,078	109,604,062	738,007	98,111,453	131,261,864	230,892,949	33,241,313	299,121,637	3,118,032	3,263,152
2,318,121	57,833	3,766,147	23,435,622	7,514,298	50,597	7,072,940	9,462,782	16,641,434	2,362,296	17,483,995	3,130,793	3,276,508
11,708,602	288,885	18,748,117	234,172,557	88,251,035	594,229	93,531,502	125,134,416	220,121,586	31,751,501	292,568,012	506,741	530,326
11,615,523	300,726	19,802,813	101,092,092	28,133,716	189,435	26,982,424	36,099,387	63,501,292	9,155,769	83,915,794	4,457,383	4,664,841

Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local	Total PM 10 Emissions
6,965,570	4,492,638	10,904,577	210,318	12,460,221	658,405,745
20,412,019	13,182,740	32,117,811	779,180	50,298,948	777,888,541
23,747,979	15,339,411	37,387,408	927,066	60,258,316	1,010,018,861
7,152,764	4,619,488	11,254,724	273,065	17,627,843	292,415,291
4,309,273	2,782,521	6,775,433	159,394	10,186,978	134,399,937
666,554	430,237	1,046,513	23,150	1,448,317	29,311,385
2,074,644	1,338,598	3,252,510	67,304	4,105,807	314,800,105
0	0	0	0	0	0
32,254,852	20,836,399	50,800,545	1,279,578	83,572,404	1,252,487,731
14,374,283	9,279,514	22,581,520	512,641	32,368,372	922,296,437
214,497,767	138,600,358	338,167,930	8,848,889	584,507,391	1,933,269,045
40,346,141	26,061,349	63,525,772	1,582,225	102,984,417	1,143,852,373
5,888,840	3,803,903	9,272,483	231,330	15,064,588	101,256,786
29,752,350	19,217,149	46,834,408	1,155,540	74,992,470	1,024,941,265
29,478,997	19,046,799	46,462,093	1,202,904	79,211,251	432,502,084

Source: EPA Green Book Nonattainment Areas NAYRO table (http://www.epa.gov/airquality/greenbook/data_download.html)

FIPS State and County Code	State	Postal State Code	County Name	Nonattainment (or Maintenance) Status
04003	ARIZONA	AZ	Cochise Co	Moderate
04007	ARIZONA	AZ	Gila Co	Moderate
04013	ARIZONA	AZ	Maricopa Co	Serious
04015	ARIZONA	AZ	Mohave Co	Moderate
04019	ARIZONA	AZ	Pima Co	Moderate
04021	ARIZONA	AZ	Pinal Co	Serious
04023	ARIZONA	AZ	Santa Cruz Co	Moderate
04027	ARIZONA	AZ	Yuma Co	Moderate

Source: EPA "2011 National Emissions Inventory, version 2 Technical Support Document," 2015, http://www.epa.gov/ttn/chief/net/2011nei/nei2011v2_tsd_14aug2015.pdf

PM10 Nonattainment Status	Roadway Class	Vacuum Sweeping Penetration Rate	Control Efficiency
Moderate	Urban Freeway & Expressway	0.67	79%
Moderate	Urban Minor Arterial	0.67	79%
Moderate	Urban Collector	0.64	79%
Moderate	Urban Local	0.88	79%
Serious	Rural Minor Arterial	0.71	79%
Serious	Rural Major Collector	0.83	79%
Serious	Rural Minor Collector	0.59	79%
Serious	Rural Local	0.35	79%
Serious	Urban Freeway & Expressway	0.67	79%
Serious	Urban Minor Arterial	0.67	79%
Serious	Urban Collector	0.64	79%
Serious	Urban Local	0.88	79%

					Emissions (g) PM 2.5									
FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Non-attainment (or Maintenance) Status	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways	Urban Other Principal Arterial
04001	04	Apache	AZ		0	80,234	18,091,860	24,204,833	42,574,756	6,110,567	52,864,972	0	0	1,741,392
04003	04	Cochise	AZ	Moderate	0	144,210	17,903,806	23,953,237	42,133,485	6,058,324	53,664,256	0	0	5,103,005
04005	04	Coconino	AZ		0	157,428	23,064,291	30,857,374	54,283,193	7,852,547	74,876,201	1,768,049	1,850,339	5,936,995
04007	04	Gila	AZ	Moderate	0	0	7,634,403	10,213,955	17,967,720	2,596,517	24,459,256	0	0	1,788,191
04009	04	Graham	AZ		0	0	3,524,837	4,715,828	8,294,394	1,186,554	9,824,971	0	0	1,077,318
04011	04	Greenlee	AZ		0	0	820,303	1,097,471	1,930,290	276,247	2,299,843	0	0	166,639
04012	04	La Paz	AZ		0	159,997	6,354,239	8,501,243	14,954,586	2,158,965	20,099,490	0	0	518,661
04013	04	Maricopa	AZ	Serious	0	0	0	0	0	0	0	0	0	0
04015	04	Mohave	AZ	Moderate	0	158,756	28,808,191	38,542,053	67,804,073	9,828,264	95,931,765	628,130	309,422	8,063,713
04017	04	Navajo	AZ		0	81,340	24,379,142	32,616,494	57,374,102	8,267,592	75,242,524	368,318	385,460	3,593,571
04019	04	Pima	AZ	Moderate	0	87,260	16,050,640	21,473,914	37,770,587	5,415,303	46,202,059	10,848,852	5,344,226	53,624,442
04021	04	Pinal	AZ	Serious	0	184,502	24,527,863	14,409,271	19,874,111	4,436,884	54,103,626	779,508	815,788	10,086,535
04023	04	Santa Cruz	AZ	Moderate	0	12,649	1,768,235	2,365,696	4,160,359	590,574	4,370,999	782,698	385,563	1,472,210
04025	04	Yavapai	AZ		0	148,557	23,382,876	31,283,604	55,030,396	7,937,875	73,142,003	126,685	132,582	7,438,087
04027	04	Yuma	AZ	Moderate	0	47,359	6,745,606	9,024,847	15,875,323	2,288,942	20,978,948	1,114,346	548,935	7,369,749

					Controlled Emissions (g) PM 10								
Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local	Total PM 2.5 Emissions	Rural Interstate	Rural Other Freeways and Expressways	Rural Other Principal Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Interstate	Urban Other Freeways and Expressways
1,123,159	2,726,144	52,579	3,115,055	152,685,553	47,663,532	320,937	72,367,441	96,819,330	170,299,025	24,442,269	211,459,888	0	0
1,551,279	3,969,762	96,307	3,832,780	158,410,450	85,668,568	576,840	71,615,222	95,812,949	168,533,941	24,233,297	214,657,026	0	0
3,834,853	9,346,852	231,767	15,064,579	229,124,466	93,520,996	629,713	92,257,162	123,429,496	217,132,771	31,410,187	299,504,802	7,072,198	7,401,355
543,598	1,391,084	33,751	1,343,242	67,971,717	0	0	30,537,612	40,855,821	71,870,880	10,386,069	97,837,024	0	0
695,630	1,693,858	39,849	2,546,744	33,599,984	0	0	14,099,349	18,863,312	33,177,575	4,746,218	39,299,886	0	0
107,559	261,628	5,787	362,079	7,327,846	0	0	3,281,210	4,389,883	7,721,158	1,104,990	9,199,374	0	0
334,650	813,128	16,826	1,026,452	54,938,236	95,047,161	639,990	25,416,957	34,004,972	59,818,343	8,635,859	80,397,960	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
2,451,923	6,278,947	158,156	6,368,217	265,331,611	94,309,563	635,023	115,232,763	154,168,212	271,216,293	39,313,056	383,727,060	2,512,522	1,237,687
2,319,879	5,645,380	128,160	8,092,093	218,494,055	48,320,219	325,359	97,516,568	130,465,977	229,496,409	33,070,367	300,970,098	1,473,270	1,541,840
16,309,797	41,797,556	1,093,723	44,539,463	300,557,823	51,837,109	349,039	64,202,559	85,895,656	151,082,349	21,661,213	184,808,237	43,395,409	21,376,905
6,515,337	15,881,443	395,556	25,746,104	177,756,529	109,604,062	738,007	98,111,453	57,637,085	79,496,442	17,747,537	216,414,505	3,118,032	3,245,881
447,624	1,146,079	28,592	1,147,922	18,679,199	7,514,298	50,597	7,072,940	9,462,782	16,641,434	2,362,296	17,483,995	3,130,793	1,542,252
4,804,287	11,708,602	288,885	18,748,117	234,172,557	88,251,035	594,229	93,531,502	125,134,416	220,121,586	31,751,501	292,568,012	506,741	530,326
2,241,332	5,742,715	148,679	6,035,897	78,162,678	28,133,716	189,435	26,982,424	36,099,387	63,501,292	9,155,769	83,915,794	4,457,383	2,195,740

Urban Other Principal Arterial	Urban Minor Arterial	Urban Major Collector	Urban Minor Collector	Urban Local	Total PM 10 Emissions
6,965,570	4,492,638	10,904,577	210,318	12,460,221	658,405,745
20,412,019	6,205,116	15,879,046	385,227	15,331,119	719,310,370
23,747,979	15,339,411	37,387,408	927,066	60,258,316	1,010,018,861
7,152,764	2,174,393	5,564,336	135,003	5,372,967	271,886,869
4,309,273	2,782,521	6,775,433	159,394	10,186,978	134,399,937
666,554	430,237	1,046,513	23,150	1,448,317	29,311,385
2,074,644	1,338,598	3,252,510	67,304	4,105,807	314,800,105
0	0	0	0	0	0
32,254,852	9,807,693	25,115,790	632,623	25,472,869	1,155,636,006
14,374,283	9,279,514	22,581,520	512,641	32,368,372	922,296,437
214,497,767	65,239,189	167,190,225	4,374,891	178,157,853	1,254,068,401
40,346,141	25,923,406	63,204,586	1,574,225	102,268,469	819,429,830
5,888,840	1,790,497	4,584,316	114,370	4,591,686	82,231,096
29,752,350	19,217,149	46,834,408	1,155,540	74,992,470	1,024,941,265
29,478,997	8,965,328	22,970,859	594,716	24,143,589	340,784,429

FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Controlled? (Y/N)	Total PM 2.5 Emissions (g)	Total PM 10 Emissions (g)
04001	04	Apache	AZ	N	152,685,553	658,405,745
04003	04	Cochise	AZ	Y	158,410,450	719,310,370
04005	04	Coconino	AZ	N	229,124,466	1,010,018,861
04007	04	Gila	AZ	Y	67,971,717	271,886,869
04009	04	Graham	AZ	N	33,599,984	134,399,937
04011	04	Greenlee	AZ	N	7,327,846	29,311,385
04012	04	La Paz	AZ	N	54,938,236	314,800,105
04013	04	Maricopa	AZ	Y	0	0
04015	04	Mohave	AZ	Y	265,331,611	1,155,636,006
04017	04	Navajo	AZ	N	218,494,055	922,296,437
04019	04	Pima	AZ	Y	300,557,823	1,254,068,401
04021	04	Pinal	AZ	Y	177,756,529	819,429,830
04023	04	Santa Cruz	AZ	Y	18,679,199	82,231,096
04025	04	Yavapai	AZ	N	234,172,557	1,024,941,265
04027	04	Yuma	AZ	Y	78,162,678	340,784,429

State & County FIPS Code	State FIPS	Postal State Code	County FIPS	County Name	County Type	Source Classification Code	Source Classification Code Description	Reporting Period Type Code	Controlled? (Y/N)	Calculation Data Source	Calculation Data Year
04001	04	AZ	001	Apache	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04003	04	AZ	003	Cochise	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04005	04	AZ	005	Coconino	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04007	04	AZ	007	Gila	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04009	04	AZ	009	Graham	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04011	04	AZ	011	Greenlee	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04012	04	AZ	012	La Paz	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04013	04	AZ	013	Maricopa	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04015	04	AZ	015	Mohave	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04017	04	AZ	017	Navajo	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04019	04	AZ	019	Pima	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04021	04	AZ	021	Pinal	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04023	04	AZ	023	Santa Cruz	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011
04025	04	AZ	025	Yavapai	County	2294000000	Paved Road Dust	A	N	EPA MOVES 2011	2011
04027	04	AZ	027	Yuma	County	2294000000	Paved Road Dust	A	Y	EPA MOVES 2011	2011

Calculation Material Code	Calculation Parameter Type Code	Calculation Parameter Value	Calculation Parameter Unit of Measure	Emission Factor	Emission Factor Numerator Unit of Measure Code	Emission Factor Denominator Unit of Measure Code	Emission Factor Text
368	I	1,060,257	E3MILE	0.000158742	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	1,575,829	E3MILE	0.00011081	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	2,148,184	E3MILE	0.000117572	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	587,830	E3MILE	0.000127462	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	279,032	E3MILE	0.000132736	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	56,078	E3MILE	0.000144042	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	769,688	E3MILE	7.868E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	32,386,282	E3MILE	0	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	2,558,320	E3MILE	0.000114324	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	1,501,226	E3MILE	0.000160434	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	8,477,259	E3MILE	3.9082E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	3,302,095	E3MILE	5.9339E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	455,512	E3MILE	4.52025E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	2,734,650	E3MILE	9.43927E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.
368	I	1,440,614	E3MILE	5.98076E-05	TON	E3MILE	Based on particle size multiplier, silt loading and average weight.

Pollutant Code	Pollutant Description	Emission Calculation Method Code	Total Emissions	Emissions Unit of Measure Code	Emissions Comment
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	168	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	175	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	253	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	75	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	37	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	8	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	61	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	0	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	292	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	241	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	331	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	196	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	21	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	258	TON	
PM25-PRI	PM2.5 Primary (Filt + Cond)	8	86	TON	

Appendix D:

National Emission Inventory - Unpaved Roads

Unpaved Roads Emissions

Document Source			
Prepared by Abt Associates, Inc. (Abt) for U.S. Environmental Protection Agency			
Contract #	EP-W-11-003	**WA #**	4-98
EPA Work Assignment Manager	Rich Mason U.S. Environmental Protection Agency	**Abt Project Manager**	Jonathan Dorn Abt Associates, Inc. *(919) 294-7763* *Jonathan_Dorn@abtassoc.com*

Source Classification Code Description				
Source Classification Code	**SCC Level One**	**SCC Level Two**	**SCC Level Three**	**SCC Level Four**
2296000000	Mobile Sources	Unpaved Roads	All Unpaved Roads	Total: Fugitives

Instructions
State/Local/ or Tribal Agencies wishing to update emissions estimates:
The basic formula used is (VMT) x (emission factor) = uncontrolled emissions
To calculate controlled emissions, (uncontrolled emissions) x (1 - control efficiency x rule penetration / 100) = controlled emissions
All tabs are used to support computation of emissions and are best left unchanged.

Document Summary	
Date	12/17/2015
Version	2.0
Description	Unpaved Roads Emissions
Worksheet List	
Overview	Provides summary information about this workbook.
Physical Constants by Pollutant	Constants for reentrained dust emission factor equation from AP-42. Particle size multiplier and emission factor for 1980s vehicle fleet exhaust, brake wear and tire wear (to avoid double counting with MOBILE 6.2).
Surface Material Silt Content	Silt Load percentages for unpaved roads by state. Developed as part of the 1985 NAPAP Inventory - obtained from the Illinois State Water Survey.
Speed by Road Type	Speeds by roadway type determined based on the average speeds modeled for onroad emission calculations and weighted to a single average speed by roadway class.
Emission Factor Calculations	County/Road Type emission factors calculated using particle size, silt content, mean vehicle speed and vehicle fleet exhaust, emission factor for 1980s vehicle fleet exhaust, brake wear, and tire wear.
Emission Factors by Road Type	Emission factors displayed by roadway type and pollutant at the county level.

Paved Unpaved Ratios	Ratio of unpaved to total VMT based on ratio from table HM-67 from 1996 and 2008 VMT from NMIM model.
VMT by Road Type	Total and unpaved vehicle miles at the county/road type level for 2014.
Total Uncontrolled Emissions	Emissions at the county/road type level, totaled and for each pollutant.
Control Penetration	County/Road Type Paving, Chemical Stabilization, and Combination control efficiency and rule penetration rates.
Controlled Areas	Counties in either serious or moderate nonattainment, or maintenance, status as of 2015.
Controlled Emissions	Emissions after implementation of controls, at the urban/rural and county levels.
Total Controlled Emissions	Total controlled emissions for each county and by pollutant.

Changes from 2011 Methodology
The 2014 methodology contains several adjustments from the methodology used to compose the 2011 version. This is due in part to differences in data sources used to compile the inventory. In 2014, the factors used to adjust for precipitation were removed from the 2011 emission factor equation, and precipitation was not accounted for in the final inventory. The VMT data used in 2014 was based on EPA's MOVES model, whereas 2011 VMT data was based on its precursor NMIM model. In 2011 state-level VMT data was broken down by month and corrected for temporal variation, while in 2014 VMT data was at the county level and no temporal adjustments were made. Because VMT was only broken down by state in 2011, calculating ADTV required using state-level volume categories for urban and rural roads that included an assumed ADTV for a given range of vehicles per day per mile. In 2014, ADTV was not calculated for unpaved roads as it wasn't needed for the activity data or emission factor equation.

Document Change History

Version	Delivery Date	Changes
1.0	10/27/2015	Initial draft of document.
2.0	12/17/2015	Updated paved/unpaved VMT ratio using ratio used in previous versions of NEI instead of ratio of paved and unpaved road miles in United States; Puerto Rico and the Virgin Islands added to the final emissions tab; DC silt content value updated to default value.

Source: EPA AP-42 13.2.2 Unpaved Roads (http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf)

Pollutant	Particle Size Multiplier (lb/VMT)	1980's vehicle fleet exhaust, brake wear, and tire wear (lb/VMT)
PM25	0.18	0.00036
PM10	1.8	0.00047

Source: Illinois State Water Survey, “Evaluation of Potential Improvements in the Estimation of Unpaved Road Fugitive Emission Inventories,” 198

State FIPS	State	Surface Material Silt Content (%)	Derivation Method
04	Arizona	3	SAMPLES

37.

Source: EPA "2011 National Emissions Inventory, version 2 Technical Support Document," 2015, (http://www.epa.gov/ttn/chief/net/2011inventory.html#inventorydoc)

Unpaved Roadway Type	Speed (mph)
Rural Minor Arterial	39
Rural Major Collector	34
Rural Minor Collector	30
Rural Local	30
Urban Other Principal Arteri	20
Urban Minor Arterial	20
Urban Major Collector	20
Urban Minor Collector	20
Urban Local	20

FIPS State Code	Data Key 1	State and County FIPS Code	Postal State Code	County Name	FHWA Road Type	Pollutant	Particle Size Multiplier (lb/VMT)	vehicle fleet exhaust, brake wear, and tire wear (lb/VMT)	Surface Material Silt Content (%)	Mean Vehicle Speed (mph)	Surface Material Moisture Content	Emission Factor (lb/VMT)
04	04001Rural LocalPM10	04001	AZ	Apache	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04001Rural Major CollectorPM10	04001	AZ	Apache	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04001Rural Minor ArterialPM10	04001	AZ	Apache	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04001Rural Minor CollectorPM10	04001	AZ	Apache	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04001Urban LocalPM10	04001	AZ	Apache	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04001Urban Major CollectorPM10	04001	AZ	Apache	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04001Urban Minor ArterialPM10	04001	AZ	Apache	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04001Urban Minor CollectorPM10	04001	AZ	Apache	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04001Urban Other Principal ArterialI	04001	AZ	Apache	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04003Rural LocalPM10	04003	AZ	Cochise	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04003Rural Major CollectorPM10	04003	AZ	Cochise	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04003Rural Minor ArterialPM10	04003	AZ	Cochise	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04003Rural Minor CollectorPM10	04003	AZ	Cochise	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04003Urban LocalPM10	04003	AZ	Cochise	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04003Urban Major CollectorPM10	04003	AZ	Cochise	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04003Urban Minor ArterialPM10	04003	AZ	Cochise	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04003Urban Minor CollectorPM10	04003	AZ	Cochise	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04003Urban Other Principal ArterialI	04003	AZ	Cochise	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04005Rural LocalPM10	04005	AZ	Coconino	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04005Rural Major CollectorPM10	04005	AZ	Coconino	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04005Rural Minor ArterialPM10	04005	AZ	Coconino	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04005Rural Minor CollectorPM10	04005	AZ	Coconino	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04005Urban LocalPM10	04005	AZ	Coconino	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04005Urban Major CollectorPM10	04005	AZ	Coconino	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04005Urban Minor ArterialPM10	04005	AZ	Coconino	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04005Urban Minor CollectorPM10	04005	AZ	Coconino	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04005Urban Other Principal ArterialI	04005	AZ	Coconino	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04007Rural LocalPM10	04007	AZ	Gila	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04007Rural Major CollectorPM10	04007	AZ	Gila	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04007Rural Minor ArterialPM10	04007	AZ	Gila	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04007Rural Minor CollectorPM10	04007	AZ	Gila	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04007Urban LocalPM10	04007	AZ	Gila	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04007Urban Major CollectorPM10	04007	AZ	Gila	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04007Urban Minor ArterialPM10	04007	AZ	Gila	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04007Urban Minor CollectorPM10	04007	AZ	Gila	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04007Urban Other Principal ArterialI	04007	AZ	Gila	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04009Rural LocalPM10	04009	AZ	Graham	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04009Rural Major CollectorPM10	04009	AZ	Graham	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04009Rural Minor ArterialPM10	04009	AZ	Graham	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04009Rural Minor CollectorPM10	04009	AZ	Graham	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04009Urban LocalPM10	04009	AZ	Graham	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37

FIPS State Code	Data Key 1	State and County FIPS Code	Postal State Code	County Name	FHWA Road Type	Pollutant	Particle Size Multiplier (lb/VMT)	vehicle fleet exhaust, brake wear, and tire wear (lb/VMT)	Surface Material Silt Content (%)	Mean Vehicle Speed (mph)	Surface Material Moisture Content	Emission Factor (lb/VMT)
04	04009Urban Major CollectorPM10	04009	AZ	Graham	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04009Urban Minor ArterialPM10	04009	AZ	Graham	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04009Urban Minor CollectorPM10	04009	AZ	Graham	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04009Urban Other Principal ArterialI	04009	AZ	Graham	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04011Rural LocalPM10	04011	AZ	Greenlee	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04011Rural Major CollectorPM10	04011	AZ	Greenlee	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04011Rural Minor ArterialPM10	04011	AZ	Greenlee	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04011Rural Minor CollectorPM10	04011	AZ	Greenlee	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04011Urban LocalPM10	04011	AZ	Greenlee	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04011Urban Major CollectorPM10	04011	AZ	Greenlee	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04011Urban Minor ArterialPM10	04011	AZ	Greenlee	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04011Urban Minor CollectorPM10	04011	AZ	Greenlee	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04011Urban Other Principal ArterialI	04011	AZ	Greenlee	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04012Rural LocalPM10	04012	AZ	La Paz	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04012Rural Major CollectorPM10	04012	AZ	La Paz	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04012Rural Minor ArterialPM10	04012	AZ	La Paz	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04012Rural Minor CollectorPM10	04012	AZ	La Paz	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04012Urban LocalPM10	04012	AZ	La Paz	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04012Urban Major CollectorPM10	04012	AZ	La Paz	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04012Urban Minor ArterialPM10	04012	AZ	La Paz	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04012Urban Minor CollectorPM10	04012	AZ	La Paz	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04012Urban Other Principal ArterialI	04012	AZ	La Paz	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04013Rural LocalPM10	04013	AZ	Maricopa	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04013Rural Major CollectorPM10	04013	AZ	Maricopa	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04013Rural Minor ArterialPM10	04013	AZ	Maricopa	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04013Rural Minor CollectorPM10	04013	AZ	Maricopa	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04013Urban LocalPM10	04013	AZ	Maricopa	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04013Urban Major CollectorPM10	04013	AZ	Maricopa	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04013Urban Minor ArterialPM10	04013	AZ	Maricopa	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04013Urban Minor CollectorPM10	04013	AZ	Maricopa	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04013Urban Other Principal ArterialI	04013	AZ	Maricopa	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04015Rural LocalPM10	04015	AZ	Mohave	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04015Rural Major CollectorPM10	04015	AZ	Mohave	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04015Rural Minor ArterialPM10	04015	AZ	Mohave	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04015Rural Minor CollectorPM10	04015	AZ	Mohave	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04015Urban LocalPM10	04015	AZ	Mohave	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04015Urban Major CollectorPM10	04015	AZ	Mohave	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04015Urban Minor ArterialPM10	04015	AZ	Mohave	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04015Urban Minor CollectorPM10	04015	AZ	Mohave	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04015Urban Other Principal ArterialI	04015	AZ	Mohave	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04017Rural LocalPM10	04017	AZ	Navajo	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45

FIPS State Code	Data Key 1	State and County FIPS Code	Postal State Code	County Name	FHWA Road Type	Pollutant	Particle Size Multiplier (lb/VMT)	vehicle fleet exhaust, brake wear, and tire wear (lb/VMT)	Surface Material Silt Content (%)	Mean Vehicle Speed (mph)	Surface Material Moisture Content	Emission Factor (lb/VMT)
04	04017Rural Major CollectorPM10	04017	AZ	Navajo	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04017Rural Minor ArterialPM10	04017	AZ	Navajo	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04017Rural Minor CollectorPM10	04017	AZ	Navajo	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04017Urban LocalPM10	04017	AZ	Navajo	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04017Urban Major CollectorPM10	04017	AZ	Navajo	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04017Urban Minor ArterialPM10	04017	AZ	Navajo	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04017Urban Minor CollectorPM10	04017	AZ	Navajo	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04017Urban Other Principal ArterialI	04017	AZ	Navajo	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04019Rural LocalPM10	04019	AZ	Pima	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04019Rural Major CollectorPM10	04019	AZ	Pima	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04019Rural Minor ArterialPM10	04019	AZ	Pima	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04019Rural Minor CollectorPM10	04019	AZ	Pima	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04019Urban LocalPM10	04019	AZ	Pima	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04019Urban Major CollectorPM10	04019	AZ	Pima	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04019Urban Minor ArterialPM10	04019	AZ	Pima	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04019Urban Minor CollectorPM10	04019	AZ	Pima	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04019Urban Other Principal ArterialI	04019	AZ	Pima	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04021Rural LocalPM10	04021	AZ	Pinal	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04021Rural Major CollectorPM10	04021	AZ	Pinal	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04021Rural Minor ArterialPM10	04021	AZ	Pinal	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04021Rural Minor CollectorPM10	04021	AZ	Pinal	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04021Urban LocalPM10	04021	AZ	Pinal	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04021Urban Major CollectorPM10	04021	AZ	Pinal	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04021Urban Minor ArterialPM10	04021	AZ	Pinal	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04021Urban Minor CollectorPM10	04021	AZ	Pinal	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04021Urban Other Principal ArterialI	04021	AZ	Pinal	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04023Rural LocalPM10	04023	AZ	Santa Cruz	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04023Rural Major CollectorPM10	04023	AZ	Santa Cruz	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04023Rural Minor ArterialPM10	04023	AZ	Santa Cruz	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04023Rural Minor CollectorPM10	04023	AZ	Santa Cruz	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04023Urban LocalPM10	04023	AZ	Santa Cruz	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04023Urban Major CollectorPM10	04023	AZ	Santa Cruz	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04023Urban Minor ArterialPM10	04023	AZ	Santa Cruz	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04023Urban Minor CollectorPM10	04023	AZ	Santa Cruz	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04023Urban Other Principal ArterialI	04023	AZ	Santa Cruz	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04025Rural LocalPM10	04025	AZ	Yavapai	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04025Rural Major CollectorPM10	04025	AZ	Yavapai	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04025Rural Minor ArterialPM10	04025	AZ	Yavapai	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04025Rural Minor CollectorPM10	04025	AZ	Yavapai	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04025Urban LocalPM10	04025	AZ	Yavapai	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04025Urban Major CollectorPM10	04025	AZ	Yavapai	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37

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04	04025Urban Minor ArterialPM10	04025	AZ	Yavapai	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04025Urban Minor CollectorPM10	04025	AZ	Yavapai	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04025Urban Other Principal ArterialI	04025	AZ	Yavapai	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04027Rural LocalPM10	04027	AZ	Yuma	Rural Local	PM10	1.8	0.00047	3	30	0.5	0.45
04	04027Rural Major CollectorPM10	04027	AZ	Yuma	Rural Major Collector	PM10	1.8	0.00047	3	34	0.5	0.48
04	04027Rural Minor ArterialPM10	04027	AZ	Yuma	Rural Minor Arterial	PM10	1.8	0.00047	3	39	0.5	0.51
04	04027Rural Minor CollectorPM10	04027	AZ	Yuma	Rural Minor Collector	PM10	1.8	0.00047	3	30	0.5	0.45
04	04027Urban LocalPM10	04027	AZ	Yuma	Urban Local	PM10	1.8	0.00047	3	20	0.5	0.37
04	04027Urban Major CollectorPM10	04027	AZ	Yuma	Urban Major Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04027Urban Minor ArterialPM10	04027	AZ	Yuma	Urban Minor Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04027Urban Minor CollectorPM10	04027	AZ	Yuma	Urban Minor Collector	PM10	1.8	0.00047	3	20	0.5	0.37
04	04027Urban Other Principal ArterialI	04027	AZ	Yuma	Urban Other Principal Arterial	PM10	1.8	0.00047	3	20	0.5	0.37
04	04001Rural LocalPM25	04001	AZ	Apache	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04001Rural Major CollectorPM25	04001	AZ	Apache	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04001Rural Minor ArterialPM25	04001	AZ	Apache	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04001Rural Minor CollectorPM25	04001	AZ	Apache	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04001Urban LocalPM25	04001	AZ	Apache	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04001Urban Major CollectorPM25	04001	AZ	Apache	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04001Urban Minor ArterialPM25	04001	AZ	Apache	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04001Urban Minor CollectorPM25	04001	AZ	Apache	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04001Urban Other Principal ArterialI	04001	AZ	Apache	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04003Rural LocalPM25	04003	AZ	Cochise	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04003Rural Major CollectorPM25	04003	AZ	Cochise	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04003Rural Minor ArterialPM25	04003	AZ	Cochise	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04003Rural Minor CollectorPM25	04003	AZ	Cochise	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04003Urban LocalPM25	04003	AZ	Cochise	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04003Urban Major CollectorPM25	04003	AZ	Cochise	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04003Urban Minor ArterialPM25	04003	AZ	Cochise	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04003Urban Minor CollectorPM25	04003	AZ	Cochise	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04003Urban Other Principal ArterialI	04003	AZ	Cochise	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04005Rural LocalPM25	04005	AZ	Coconino	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04005Rural Major CollectorPM25	04005	AZ	Coconino	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04005Rural Minor ArterialPM25	04005	AZ	Coconino	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04005Rural Minor CollectorPM25	04005	AZ	Coconino	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04005Urban LocalPM25	04005	AZ	Coconino	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04005Urban Major CollectorPM25	04005	AZ	Coconino	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04005Urban Minor ArterialPM25	04005	AZ	Coconino	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04005Urban Minor CollectorPM25	04005	AZ	Coconino	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04005Urban Other Principal ArterialI	04005	AZ	Coconino	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04007Rural LocalPM25	04007	AZ	Gila	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04007Rural Major CollectorPM25	04007	AZ	Gila	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05

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04	04007Rural Minor ArterialPM25	04007	AZ	Gila	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04007Rural Minor CollectorPM25	04007	AZ	Gila	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04007Urban LocalPM25	04007	AZ	Gila	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04007Urban Major CollectorPM25	04007	AZ	Gila	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04007Urban Minor ArterialPM25	04007	AZ	Gila	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04007Urban Minor CollectorPM25	04007	AZ	Gila	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04007Urban Other Principal ArterialI	04007	AZ	Gila	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04009Rural LocalPM25	04009	AZ	Graham	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04009Rural Major CollectorPM25	04009	AZ	Graham	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04009Rural Minor ArterialPM25	04009	AZ	Graham	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04009Rural Minor CollectorPM25	04009	AZ	Graham	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04009Urban LocalPM25	04009	AZ	Graham	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04009Urban Major CollectorPM25	04009	AZ	Graham	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04009Urban Minor ArterialPM25	04009	AZ	Graham	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04009Urban Minor CollectorPM25	04009	AZ	Graham	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04009Urban Other Principal ArterialI	04009	AZ	Graham	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04011Rural LocalPM25	04011	AZ	Greenlee	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04011Rural Major CollectorPM25	04011	AZ	Greenlee	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04011Rural Minor ArterialPM25	04011	AZ	Greenlee	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04011Rural Minor CollectorPM25	04011	AZ	Greenlee	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04011Urban LocalPM25	04011	AZ	Greenlee	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04011Urban Major CollectorPM25	04011	AZ	Greenlee	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04011Urban Minor ArterialPM25	04011	AZ	Greenlee	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04011Urban Minor CollectorPM25	04011	AZ	Greenlee	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04011Urban Other Principal ArterialI	04011	AZ	Greenlee	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04012Rural LocalPM25	04012	AZ	La Paz	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04012Rural Major CollectorPM25	04012	AZ	La Paz	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04012Rural Minor ArterialPM25	04012	AZ	La Paz	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04012Rural Minor CollectorPM25	04012	AZ	La Paz	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04012Urban LocalPM25	04012	AZ	La Paz	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04012Urban Major CollectorPM25	04012	AZ	La Paz	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04012Urban Minor ArterialPM25	04012	AZ	La Paz	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04012Urban Minor CollectorPM25	04012	AZ	La Paz	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04012Urban Other Principal ArterialI	04012	AZ	La Paz	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04013Rural LocalPM25	04013	AZ	Maricopa	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04013Rural Major CollectorPM25	04013	AZ	Maricopa	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04013Rural Minor ArterialPM25	04013	AZ	Maricopa	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04013Rural Minor CollectorPM25	04013	AZ	Maricopa	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04013Urban LocalPM25	04013	AZ	Maricopa	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04013Urban Major CollectorPM25	04013	AZ	Maricopa	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04013Urban Minor ArterialPM25	04013	AZ	Maricopa	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04

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04	04013Urban Minor CollectorPM25	04013	AZ	Maricopa	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04013Urban Other Principal ArterialI	04013	AZ	Maricopa	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04015Rural LocalPM25	04015	AZ	Mohave	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04015Rural Major CollectorPM25	04015	AZ	Mohave	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04015Rural Minor ArterialPM25	04015	AZ	Mohave	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04015Rural Minor CollectorPM25	04015	AZ	Mohave	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04015Urban LocalPM25	04015	AZ	Mohave	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04015Urban Major CollectorPM25	04015	AZ	Mohave	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04015Urban Minor ArterialPM25	04015	AZ	Mohave	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04015Urban Minor CollectorPM25	04015	AZ	Mohave	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04015Urban Other Principal ArterialI	04015	AZ	Mohave	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04017Rural LocalPM25	04017	AZ	Navajo	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04017Rural Major CollectorPM25	04017	AZ	Navajo	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04017Rural Minor ArterialPM25	04017	AZ	Navajo	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04017Rural Minor CollectorPM25	04017	AZ	Navajo	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04017Urban LocalPM25	04017	AZ	Navajo	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04017Urban Major CollectorPM25	04017	AZ	Navajo	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04017Urban Minor ArterialPM25	04017	AZ	Navajo	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04017Urban Minor CollectorPM25	04017	AZ	Navajo	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04017Urban Other Principal ArterialI	04017	AZ	Navajo	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04019Rural LocalPM25	04019	AZ	Pima	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04019Rural Major CollectorPM25	04019	AZ	Pima	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04019Rural Minor ArterialPM25	04019	AZ	Pima	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04019Rural Minor CollectorPM25	04019	AZ	Pima	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04019Urban LocalPM25	04019	AZ	Pima	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04019Urban Major CollectorPM25	04019	AZ	Pima	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04019Urban Minor ArterialPM25	04019	AZ	Pima	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04019Urban Minor CollectorPM25	04019	AZ	Pima	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04019Urban Other Principal ArterialI	04019	AZ	Pima	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04021Rural LocalPM25	04021	AZ	Pinal	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04021Rural Major CollectorPM25	04021	AZ	Pinal	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04021Rural Minor ArterialPM25	04021	AZ	Pinal	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04021Rural Minor CollectorPM25	04021	AZ	Pinal	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04021Urban LocalPM25	04021	AZ	Pinal	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04021Urban Major CollectorPM25	04021	AZ	Pinal	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04021Urban Minor ArterialPM25	04021	AZ	Pinal	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04021Urban Minor CollectorPM25	04021	AZ	Pinal	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04021Urban Other Principal ArterialI	04021	AZ	Pinal	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04023Rural LocalPM25	04023	AZ	Santa Cruz	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04023Rural Major CollectorPM25	04023	AZ	Santa Cruz	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04023Rural Minor ArterialPM25	04023	AZ	Santa Cruz	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05

FIPS State Code	Data Key 1	State and County FIPS Code	Postal State Code	County Name	FHWA Road Type	Pollutant	Particle Size Multiplier (lb/VMT)	vehicle fleet exhaust, brake wear, and tire wear (lb/VMT)	Surface Material Silt Content (%)	Mean Vehicle Speed (mph)	Surface Material Moisture Content	Emission Factor (lb/VMT)
04	04023Rural Minor CollectorPM25	04023	AZ	Santa Cruz	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04023Urban LocalPM25	04023	AZ	Santa Cruz	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04023Urban Major CollectorPM25	04023	AZ	Santa Cruz	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04023Urban Minor ArterialPM25	04023	AZ	Santa Cruz	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04023Urban Minor CollectorPM25	04023	AZ	Santa Cruz	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04023Urban Other Principal ArterialI	04023	AZ	Santa Cruz	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04025Rural LocalPM25	04025	AZ	Yavapai	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04025Rural Major CollectorPM25	04025	AZ	Yavapai	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04025Rural Minor ArterialPM25	04025	AZ	Yavapai	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04025Rural Minor CollectorPM25	04025	AZ	Yavapai	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04025Urban LocalPM25	04025	AZ	Yavapai	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04025Urban Major CollectorPM25	04025	AZ	Yavapai	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04025Urban Minor ArterialPM25	04025	AZ	Yavapai	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04025Urban Minor CollectorPM25	04025	AZ	Yavapai	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04025Urban Other Principal ArterialI	04025	AZ	Yavapai	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04027Rural LocalPM25	04027	AZ	Yuma	Rural Local	PM25	0.18	0.00036	3	30	0.5	0.04
04	04027Rural Major CollectorPM25	04027	AZ	Yuma	Rural Major Collector	PM25	0.18	0.00036	3	34	0.5	0.05
04	04027Rural Minor ArterialPM25	04027	AZ	Yuma	Rural Minor Arterial	PM25	0.18	0.00036	3	39	0.5	0.05
04	04027Rural Minor CollectorPM25	04027	AZ	Yuma	Rural Minor Collector	PM25	0.18	0.00036	3	30	0.5	0.04
04	04027Urban LocalPM25	04027	AZ	Yuma	Urban Local	PM25	0.18	0.00036	3	20	0.5	0.04
04	04027Urban Major CollectorPM25	04027	AZ	Yuma	Urban Major Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04027Urban Minor ArterialPM25	04027	AZ	Yuma	Urban Minor Arterial	PM25	0.18	0.00036	3	20	0.5	0.04
04	04027Urban Minor CollectorPM25	04027	AZ	Yuma	Urban Minor Collector	PM25	0.18	0.00036	3	20	0.5	0.04
04	04027Urban Other Principal ArterialI	04027	AZ	Yuma	Urban Other Principal Arterial	PM25	0.18	0.00036	3	20	0.5	0.04

Total 2008 VMT on this tab was derived from the total VMT per functional length from a 2008 NMIM run. It is the sum of VMT from all vehicle types and speeds, totaled on the road type (last three digits of the AMSSCC). Paved and unpaved were split based on estimates of unpaved VMT based on ADTV from Table HM-67. This data is no longer collected and the last year that Table HM-67 was published was for 1996. Because there is no newer data collected to help differentiate between paved and unpaved VMT by road type, the 1996 HM-67 is still used. This data was grown to 2010 using the total VMT from the VM-2 tables as a surrogate.

FIPS State and County Code	FIPS State Code	FIPS County Code	AMSSCC	Data Key 1	Road Type	2008 Total VMT (millions)	Paved to Total VMT Ratio	Unpaved to Total VMT Ratio
04001	04	001	330	04001Urban Local	Urban Local	34	72%	28%
04003	04	003	330	04003Urban Local	Urban Local	176	72%	28%
04005	04	005	330	04005Urban Local	Urban Local	100	72%	28%
04007	04	007	330	04007Urban Local	Urban Local	60	72%	28%
04009	04	009	330	04009Urban Local	Urban Local	33	72%	28%
04011	04	011	330	04011Urban Local	Urban Local	8	72%	28%
04012	04	012	330	04012Urban Local	Urban Local	18	72%	28%
04013	04	013	330	04013Urban Local	Urban Local	3482	72%	28%
04015	04	015	330	04015Urban Local	Urban Local	305	72%	28%
04017	04	017	330	04017Urban Local	Urban Local	96	72%	28%
04019	04	019	330	04019Urban Local	Urban Local	1046	72%	28%
04021	04	021	330	04021Urban Local	Urban Local	338	72%	28%
04023	04	023	330	04023Urban Local	Urban Local	61	72%	28%
04025	04	025	330	04025Urban Local	Urban Local	114	72%	28%
04027	04	027	330	04027Urban Local	Urban Local	180	72%	28%

Data Key	State	FIPSST	Road Type_v2	2008 Paved VMT	2008 Total Unpaved VMT	Ratio
04Rural Local	Arizona	04	Rural Local	2663	279.8416669	0.09508506
04Rural Major Collector	Arizona	04	Rural Major Collector	2793	0.715679046	0.00025617
04Rural Minor Collector	Arizona	04	Rural Minor Collector	484	6.355976928	0.01295665
04Urban Local	Arizona	04	Urban Local	4376	118.3498462	0.02633337
04Urban Major Collector	Arizona	04	Urban Major Collector	2991	1.398204336	0.0004673
04Urban Minor Arterial	Arizona	04	Urban Minor Arterial	8317	0.84152592	0.00010117
04Urban Minor Collector	Arizona	04	Urban Minor Collector	2991	1.398204336	0.0004673

FIPS State Code	State and County FIPS Code	County Name	Postal State Code	FHWA Road Type	Data Key 2	Vehicle Miles Traveled (VMT)	Percent Unpaved Road Type	Unpaved VMT	Data Key 3
04	04001	Apache	AZ	Rural Interstate	04001Rural Interstate	307,635,671	0%	0	04Rural Interstate
04	04001	Apache	AZ	Rural Local	04001Rural Local	105,780,943	10%	22,756,109	04Rural Local
04	04001	Apache	AZ	Rural Major Collector	04001Rural Major Collector	181,765,559	0%	58,197	04Rural Major Collector
04	04001	Apache	AZ	Rural Minor Arterial	04001Rural Minor Arterial	103,305,260	0%	0	04Rural Minor Arterial
04	04001	Apache	AZ	Rural Minor Collector	04001Rural Minor Collector	26,596,511	1%	516,854	04Rural Minor Collector
04	04001	Apache	AZ	Rural Other Freeways and Expressways	04001Rural Other Freeways and Expressways	2,071,431	0%	0	04Rural Other Freeways and Expressways
04	04001	Apache	AZ	Rural Other Principal Arterial	04001Rural Other Principal Arterial	230,952,800	0%	0	04Rural Other Principal Arterial
04	04001	Apache	AZ	Urban Local	04001Urban Local	27,396,467	3%	9,623,949	04Urban Local
04	04001	Apache	AZ	Urban Major Collector	04001Urban Major Collector	15,667,338	0%	113,699	04Urban Major Collector
04	04001	Apache	AZ	Urban Minor Arterial	04001Urban Minor Arterial	36,083,279	0%	68,431	04Urban Minor Arterial
04	04001	Apache	AZ	Urban Minor Collector	04001Urban Minor Collector	413,683	0%	113,699	04Urban Minor Collector
04	04001	Apache	AZ	Urban Other Principal Arterial	04001Urban Other Principal Arterial	55,838,892	0%	0	04Urban Other Principal Arterial
04	04003	Cochise	AZ	Rural Interstate	04003Rural Interstate	555,214,846	0%	0	04Rural Interstate
04	04003	Cochise	AZ	Rural Local	04003Rural Local	105,109,198	10%	20,484,665	04Rural Local
04	04003	Cochise	AZ	Rural Major Collector	04003Rural Major Collector	180,611,286	0%	52,388	04Rural Major Collector
04	04003	Cochise	AZ	Rural Minor Arterial	04003Rural Minor Arterial	102,649,236	0%	0	04Rural Minor Arterial
04	04003	Cochise	AZ	Rural Minor Collector	04003Rural Minor Collector	26,427,614	1%	465,263	04Rural Minor Collector
04	04003	Cochise	AZ	Rural Other Freeways and Expressways	04003Rural Other Freeways and Expressways	3,738,478	0%	0	04Rural Other Freeways and Expressways
04	04003	Cochise	AZ	Rural Other Principal Arterial	04003Rural Other Principal Arterial	229,486,171	0%	0	04Rural Other Principal Arterial
04	04003	Cochise	AZ	Urban Local	04003Urban Local	81,445,863	3%	8,663,317	04Urban Local
04	04003	Cochise	AZ	Urban Major Collector	04003Urban Major Collector	46,576,803	0%	102,350	04Urban Major Collector
04	04003	Cochise	AZ	Urban Minor Arterial	04003Urban Minor Arterial	107,270,540	0%	61,600	04Urban Minor Arterial
04	04003	Cochise	AZ	Urban Minor Collector	04003Urban Minor Collector	1,229,823	0%	102,350	04Urban Minor Collector
04	04003	Cochise	AZ	Urban Other Principal Arterial	04003Urban Other Principal Arterial	166,001,214	0%	0	04Urban Other Principal Arterial
04	04005	Coconino	AZ	Rural Interstate	04005Rural Interstate	658,122,089	0%	0	04Rural Interstate
04	04005	Coconino	AZ	Rural Local	04005Rural Local	141,975,280	10%	18,171,978	04Rural Local
04	04005	Coconino	AZ	Rural Major Collector	04005Rural Major Collector	243,959,028	0%	46,474	04Rural Major Collector
04	04005	Coconino	AZ	Rural Minor Arterial	04005Rural Minor Arterial	138,652,509	0%	0	04Rural Minor Arterial
04	04005	Coconino	AZ	Rural Minor Collector	04005Rural Minor Collector	35,696,856	1%	412,736	04Rural Minor Collector
04	04005	Coconino	AZ	Rural Other Freeways and Expressways	04005Rural Other Freeways and Expressways	4,431,393	0%	0	04Rural Other Freeways and Expressways
04	04005	Coconino	AZ	Rural Other Principal Arterial	04005Rural Other Principal Arterial	309,976,329	0%	0	04Rural Other Principal Arterial
04	04005	Coconino	AZ	Urban Interstate	04005Urban Interstate	81,131,728	0%	0	04Urban Interstate
04	04005	Coconino	AZ	Urban Local	04005Urban Local	96,289,341	3%	7,685,241	04Urban Local
04	04005	Coconino	AZ	Urban Major Collector	04005Urban Major Collector	55,065,408	0%	90,795	04Urban Major Collector
04	04005	Coconino	AZ	Urban Minor Arterial	04005Urban Minor Arterial	126,820,555	0%	54,646	04Urban Minor Arterial
04	04005	Coconino	AZ	Urban Minor Collector	04005Urban Minor Collector	1,453,957	0%	90,795	04Urban Minor Collector
04	04005	Coconino	AZ	Urban Other Freeways and Expressways	04005Urban Other Freeways and Expressway	84,907,796	0%	0	04Urban Other Freeways and Expressways
04	04005	Coconino	AZ	Urban Other Principal Arterial	04005Urban Other Principal Arterial	196,254,871	0%	0	04Urban Other Principal Arterial
04	04007	Gila	AZ	Rural Local	04007Rural Local	67,811,461	10%	9,455,254	04Rural Local
04	04007	Gila	AZ	Rural Major Collector	04007Rural Major Collector	116,521,822	0%	24,181	04Rural Major Collector
04	04007	Gila	AZ	Rural Minor Arterial	04007Rural Minor Arterial	66,224,411	0%	0	04Rural Minor Arterial
04	04007	Gila	AZ	Rural Minor Collector	04007Rural Minor Collector	17,049,841	1%	214,755	04Rural Minor Collector
04	04007	Gila	AZ	Rural Other Principal Arterial	04007Rural Other Principal Arterial	148,053,576	0%	0	04Rural Other Principal Arterial
04	04007	Gila	AZ	Urban Local	04007Urban Local	37,631,659	3%	3,998,789	04Urban Local
04	04007	Gila	AZ	Urban Major Collector	04007Urban Major Collector	21,520,582	0%	47,242	04Urban Major Collector
04	04007	Gila	AZ	Urban Minor Arterial	04007Urban Minor Arterial	49,563,823	0%	28,433	04Urban Minor Arterial
04	04007	Gila	AZ	Urban Minor Collector	04007Urban Minor Collector	568,233	0%	47,242	04Urban Minor Collector
04	04007	Gila	AZ	Urban Other Principal Arterial	04007Urban Other Principal Arterial	76,700,041	0%	0	04Urban Other Principal Arterial
04	04009	Graham	AZ	Rural Local	04009Rural Local	29,549,145	10%	7,425,691	04Rural Local
04	04009	Graham	AZ	Rural Major Collector	04009Rural Major Collector	50,774,901	0%	18,991	04Rural Major Collector
04	04009	Graham	AZ	Rural Minor Arterial	04009Rural Minor Arterial	28,857,581	0%	0	04Rural Minor Arterial
04	04009	Graham	AZ	Rural Minor Collector	04009Rural Minor Collector	7,429,544	1%	168,658	04Rural Minor Collector
04	04009	Graham	AZ	Rural Other Principal Arterial	04009Rural Other Principal Arterial	64,515,003	0%	0	04Rural Other Principal Arterial
04	04009	Graham	AZ	Urban Local	04009Urban Local	22,005,499	3%	3,140,452	04Urban Local
04	04009	Graham	AZ	Urban Major Collector	04009Urban Major Collector	12,584,381	0%	37,102	04Urban Major Collector
04	04009	Graham	AZ	Urban Minor Arterial	04009Urban Minor Arterial	28,982,955	0%	22,330	04Urban Minor Arterial

FIPS State Code	State and County FIPS Code	County Name	Postal State Code	FHWA Road Type	Data Key 2	Vehicle Miles Traveled (VMT)	Percent Unpaved Road Type	Unpaved VMT	Data Key 3
04	04009	Graham	AZ	Urban Minor Collector	04009Urban Minor Collector	332,280	0%	37,102	04Urban Minor Collector
04	04009	Graham	AZ	Urban Other Principal Arterial	04009Urban Other Principal Arterial	44,851,136	0%	0	04Urban Other Principal Arterial
04	04011	Greenlee	AZ	Rural Local	04011Rural Local	6,836,203	10%	1,688,009	04Rural Local
04	04011	Greenlee	AZ	Rural Major Collector	04011Rural Major Collector	11,746,788	0%	4,317	04Rural Major Collector
04	04011	Greenlee	AZ	Rural Minor Arterial	04011Rural Minor Arterial	6,676,210	0%	0	04Rural Minor Arterial
04	04011	Greenlee	AZ	Rural Minor Collector	04011Rural Minor Collector	1,718,827	1%	38,339	04Rural Minor Collector
04	04011	Greenlee	AZ	Rural Other Principal Arterial	04011Rural Other Principal Arterial	14,925,564	0%	0	04Rural Other Principal Arterial
04	04011	Greenlee	AZ	Urban Local	04011Urban Local	3,367,022	3%	713,888	04Urban Local
04	04011	Greenlee	AZ	Urban Major Collector	04011Urban Major Collector	1,925,514	0%	8,434	04Urban Major Collector
04	04011	Greenlee	AZ	Urban Minor Arterial	04011Urban Minor Arterial	4,434,630	0%	5,076	04Urban Minor Arterial
04	04011	Greenlee	AZ	Urban Minor Collector	04011Urban Minor Collector	50,842	0%	8,434	04Urban Minor Collector
04	04011	Greenlee	AZ	Urban Other Principal Arterial	04011Urban Other Principal Arterial	6,862,592	0%	0	04Urban Other Principal Arterial
04	04012	La Paz	AZ	Rural Interstate	04012Rural Interstate	534,482,660	0%	0	04Rural Interstate
04	04012	La Paz	AZ	Rural Local	04012Rural Local	32,977,435	10%	4,958,337	04Rural Local
04	04012	La Paz	AZ	Rural Major Collector	04012Rural Major Collector	56,665,802	0%	12,681	04Rural Major Collector
04	04012	La Paz	AZ	Rural Minor Arterial	04012Rural Minor Arterial	32,205,636	0%	0	04Rural Minor Arterial
04	04012	La Paz	AZ	Rural Minor Collector	04012Rural Minor Collector	8,291,519	1%	112,618	04Rural Minor Collector
04	04012	La Paz	AZ	Rural Other Freeways and Expressways	04012Rural Other Freeways and Expressways	3,598,880	0%	0	04Rural Other Freeways and Expressways
04	04012	La Paz	AZ	Rural Other Principal Arterial	04012Rural Other Principal Arterial	72,000,029	0%	0	04Rural Other Principal Arterial
04	04012	La Paz	AZ	Urban Local	04012Urban Local	7,428,030	3%	2,096,966	04Urban Local
04	04012	La Paz	AZ	Urban Major Collector	04012Urban Major Collector	4,247,900	0%	24,774	04Urban Major Collector
04	04012	La Paz	AZ	Urban Minor Arterial	04012Urban Minor Arterial	9,783,293	0%	14,910	04Urban Minor Arterial
04	04012	La Paz	AZ	Urban Minor Collector	04012Urban Minor Collector	112,162	0%	24,774	04Urban Minor Collector
04	04012	La Paz	AZ	Urban Other Principal Arterial	04012Urban Other Principal Arterial	15,139,651	0%	0	04Urban Other Principal Arterial
04	04013	Maricopa	AZ	Rural Interstate	04013Rural Interstate	1,177,405,819	0%	0	04Rural Interstate
04	04013	Maricopa	AZ	Rural Local	04013Rural Local	215,259,734	10%	38,764,909	04Rural Local
04	04013	Maricopa	AZ	Rural Major Collector	04013Rural Major Collector	369,885,205	0%	99,139	04Rural Major Collector
04	04013	Maricopa	AZ	Rural Minor Arterial	04013Rural Minor Arterial	210,221,824	0%	0	04Rural Minor Arterial
04	04013	Maricopa	AZ	Rural Minor Collector	04013Rural Minor Collector	54,122,773	1%	880,458	04Rural Minor Collector
04	04013	Maricopa	AZ	Rural Other Freeways and Expressways	04013Rural Other Freeways and Expressways	7,927,933	0%	0	04Rural Other Freeways and Expressways
04	04013	Maricopa	AZ	Rural Other Principal Arterial	04013Rural Other Principal Arterial	469,979,155	0%	0	04Rural Other Principal Arterial
04	04013	Maricopa	AZ	Urban Interstate	04013Urban Interstate	5,516,661,372	0%	0	04Urban Interstate
04	04013	Maricopa	AZ	Urban Local	04013Urban Local	3,773,203,318	3%	16,394,346	04Urban Local
04	04013	Maricopa	AZ	Urban Major Collector	04013Urban Major Collector	2,157,798,341	0%	193,685	04Urban Major Collector
04	04013	Maricopa	AZ	Urban Minor Arterial	04013Urban Minor Arterial	4,969,602,397	0%	116,572	04Urban Minor Arterial
04	04013	Maricopa	AZ	Urban Minor Collector	04013Urban Minor Collector	56,974,912	0%	193,685	04Urban Minor Collector
04	04013	Maricopa	AZ	Urban Other Freeways and Expressways	04013Urban Other Freeways and Expressway	5,773,420,261	0%	0	04Urban Other Freeways and Expressways
04	04013	Maricopa	AZ	Urban Other Principal Arterial	04013Urban Other Principal Arterial	7,690,462,163	0%	0	04Urban Other Principal Arterial
04	04015	Mohave	AZ	Rural Interstate	04015Rural Interstate	689,528,418	0%	0	04Rural Interstate
04	04015	Mohave	AZ	Rural Local	04015Rural Local	187,137,694	10%	19,750,001	04Rural Local
04	04015	Mohave	AZ	Rural Major Collector	04015Rural Major Collector	321,562,529	0%	50,509	04Rural Major Collector
04	04015	Mohave	AZ	Rural Minor Arterial	04015Rural Minor Arterial	182,757,948	0%	0	04Rural Minor Arterial
04	04015	Mohave	AZ	Rural Minor Collector	04015Rural Minor Collector	47,052,046	1%	448,577	04Rural Minor Collector
04	04015	Mohave	AZ	Rural Other Freeways and Expressways	04015Rural Other Freeways and Expressways	4,642,864	0%	0	04Rural Other Freeways and Expressways
04	04015	Mohave	AZ	Rural Other Principal Arterial	04015Rural Other Principal Arterial	408,579,969	0%	0	04Rural Other Principal Arterial
04	04015	Mohave	AZ	Urban Interstate	04015Urban Interstate	30,400,930	0%	0	04Urban Interstate
04	04015	Mohave	AZ	Urban Local	04015Urban Local	138,338,440	3%	8,352,615	04Urban Local
04	04015	Mohave	AZ	Urban Major Collector	04015Urban Major Collector	79,112,211	0%	98,679	04Urban Major Collector
04	04015	Mohave	AZ	Urban Minor Arterial	04015Urban Minor Arterial	182,202,490	0%	59,391	04Urban Minor Arterial
04	04015	Mohave	AZ	Urban Minor Collector	04015Urban Minor Collector	2,088,894	0%	98,679	04Urban Minor Collector
04	04015	Mohave	AZ	Urban Other Freeways and Expressways	04015Urban Other Freeways and Expressway	31,815,864	0%	0	04Urban Other Freeways and Expressways
04	04015	Mohave	AZ	Urban Other Principal Arterial	04015Urban Other Principal Arterial	281,958,444	0%	0	04Urban Other Principal Arterial
04	04017	Navajo	AZ	Rural Interstate	04017Rural Interstate	321,376,107	0%	0	04Rural Interstate
04	04017	Navajo	AZ	Rural Local	04017Rural Local	146,161,550	10%	24,991,893	04Rural Local
04	04017	Navajo	AZ	Rural Major Collector	04017Rural Major Collector	251,152,383	0%	63,915	04Rural Major Collector
04	04017	Navajo	AZ	Rural Minor Arterial	04017Rural Minor Arterial	142,740,805	0%	0	04Rural Minor Arterial

FIPS State Code	State and County FIPS Code	County Name	Postal State Code	FHWA Road Type	Data Key 2	Vehicle Miles Traveled (VMT)	Percent Unpaved Road Type	Unpaved VMT	Data Key 3
04	04017	Navajo	AZ	Rural Minor Collector	04017Rural Minor Collector	36,749,411	1%	567,635	04Rural Minor Collector
04	04017	Navajo	AZ	Rural Other Freeways and Expressways	04017Rural Other Freeways and Expressways	2,163,951	0%	0	04Rural Other Freeways and Expressways
04	04017	Navajo	AZ	Rural Other Principal Arterial	04017Rural Other Principal Arterial	319,116,264	0%	0	04Rural Other Principal Arterial
04	04017	Navajo	AZ	Urban Interstate	04017Urban Interstate	16,333,871	0%	0	04Urban Interstate
04	04017	Navajo	AZ	Urban Local	04017Urban Local	57,637,101	3%	10,569,501	04Urban Local
04	04017	Navajo	AZ	Urban Major Collector	04017Urban Major Collector	32,961,182	0%	124,870	04Urban Major Collector
04	04017	Navajo	AZ	Urban Minor Arterial	04017Urban Minor Arterial	75,912,547	0%	75,154	04Urban Minor Arterial
04	04017	Navajo	AZ	Urban Minor Collector	04017Urban Minor Collector	870,313	0%	124,870	04Urban Minor Collector
04	04017	Navajo	AZ	Urban Other Freeways and Expressways	04017Urban Other Freeways and Expressway	17,094,089	0%	0	04Urban Other Freeways and Expressways
04	04017	Navajo	AZ	Urban Other Principal Arterial	04017Urban Other Principal Arterial	117,474,705	0%	0	04Urban Other Principal Arterial
04	04019	Pima	AZ	Rural Interstate	04019Rural Interstate	570,853,944	0%	0	04Rural Interstate
04	04019	Pima	AZ	Rural Local	04019Rural Local	139,697,145	10%	31,685,069	04Rural Local
04	04019	Pima	AZ	Rural Major Collector	04019Rural Major Collector	240,044,464	0%	81,033	04Rural Major Collector
04	04019	Pima	AZ	Rural Minor Arterial	04019Rural Minor Arterial	136,427,692	0%	0	04Rural Minor Arterial
04	04019	Pima	AZ	Rural Minor Collector	04019Rural Minor Collector	35,124,065	1%	719,655	04Rural Minor Collector
04	04019	Pima	AZ	Rural Other Freeways and Expressways	04019Rural Other Freeways and Expressways	3,843,782	0%	0	04Rural Other Freeways and Expressways
04	04019	Pima	AZ	Rural Other Principal Arterial	04019Rural Other Principal Arterial	305,002,451	0%	0	04Rural Other Principal Arterial
04	04019	Pima	AZ	Urban Interstate	04019Urban Interstate	719,179,083	0%	0	04Urban Interstate
04	04019	Pima	AZ	Urban Local	04019Urban Local	1,137,286,603	3%	13,400,160	04Urban Local
04	04019	Pima	AZ	Urban Major Collector	04019Urban Major Collector	650,385,081	0%	158,312	04Urban Major Collector
04	04019	Pima	AZ	Urban Minor Arterial	04019Urban Minor Arterial	1,497,894,959	0%	95,282	04Urban Minor Arterial
04	04019	Pima	AZ	Urban Minor Collector	04019Urban Minor Collector	17,172,890	0%	158,312	04Urban Minor Collector
04	04019	Pima	AZ	Urban Other Freeways and Expressways	04019Urban Other Freeways and Expressway	752,651,433	0%	0	04Urban Other Freeways and Expressways
04	04019	Pima	AZ	Urban Other Principal Arterial	04019Urban Other Principal Arterial	2,317,993,189	0%	0	04Urban Other Principal Arterial
04	04021	Pinal	AZ	Rural Interstate	04021Rural Interstate	1,058,903,552	0%	0	04Rural Interstate
04	04021	Pinal	AZ	Rural Local	04021Rural Local	195,294,975	10%	35,363,114	04Rural Local
04	04021	Pinal	AZ	Rural Major Collector	04021Rural Major Collector	335,579,351	0%	90,439	04Rural Major Collector
04	04021	Pinal	AZ	Rural Minor Arterial	04021Rural Minor Arterial	190,724,317	0%	0	04Rural Minor Arterial
04	04021	Pinal	AZ	Rural Minor Collector	04021Rural Minor Collector	49,103,032	1%	803,194	04Rural Minor Collector
04	04021	Pinal	AZ	Rural Other Freeways and Expressways	04021Rural Other Freeways and Expressways	7,130,011	0%	0	04Rural Other Freeways and Expressways
04	04021	Pinal	AZ	Rural Other Principal Arterial	04021Rural Other Principal Arterial	426,389,858	0%	0	04Rural Other Principal Arterial
04	04021	Pinal	AZ	Urban Interstate	04021Urban Interstate	47,042,034	0%	0	04Urban Interstate
04	04021	Pinal	AZ	Urban Local	04021Urban Local	201,198,267	3%	14,955,668	04Urban Local
04	04021	Pinal	AZ	Urban Major Collector	04021Urban Major Collector	115,060,136	0%	176,689	04Urban Major Collector
04	04021	Pinal	AZ	Urban Minor Arterial	04021Urban Minor Arterial	264,993,774	0%	106,342	04Urban Minor Arterial
04	04021	Pinal	AZ	Urban Minor Collector	04021Urban Minor Collector	3,038,069	0%	176,689	04Urban Minor Collector
04	04021	Pinal	AZ	Urban Other Freeways and Expressways	04021Urban Other Freeways and Expressway	49,231,485	0%	0	04Urban Other Freeways and Expressways
04	04021	Pinal	AZ	Urban Other Principal Arterial	04021Urban Other Principal Arterial	410,077,996	0%	0	04Urban Other Principal Arterial
04	04023	Santa Cruz	AZ	Rural Interstate	04023Rural Interstate	92,090,978	0%	0	04Rural Interstate
04	04023	Santa Cruz	AZ	Rural Local	04023Rural Local	16,299,432	10%	5,476,898	04Rural Local
04	04023	Santa Cruz	AZ	Rural Major Collector	04023Rural Major Collector	28,007,648	0%	14,007	04Rural Major Collector
04	04023	Santa Cruz	AZ	Rural Minor Arterial	04023Rural Minor Arterial	15,917,963	0%	0	04Rural Minor Arterial
04	04023	Santa Cruz	AZ	Rural Minor Collector	04023Rural Minor Collector	4,098,168	1%	124,395	04Rural Minor Collector
04	04023	Santa Cruz	AZ	Rural Other Freeways and Expressways	04023Rural Other Freeways and Expressways	620,084	0%	0	04Rural Other Freeways and Expressways
04	04023	Santa Cruz	AZ	Rural Other Principal Arterial	04023Rural Other Principal Arterial	35,586,746	0%	0	04Rural Other Principal Arterial
04	04023	Santa Cruz	AZ	Urban Interstate	04023Urban Interstate	54,988,034	0%	0	04Urban Interstate
04	04023	Santa Cruz	AZ	Urban Local	04023Urban Local	32,041,951	3%	2,316,274	04Urban Local
04	04023	Santa Cruz	AZ	Urban Major Collector	04023Urban Major Collector	18,323,971	0%	27,365	04Urban Major Collector
04	04023	Santa Cruz	AZ	Urban Minor Arterial	04023Urban Minor Arterial	42,201,743	0%	16,470	04Urban Minor Arterial
04	04023	Santa Cruz	AZ	Urban Minor Collector	04023Urban Minor Collector	483,830	0%	27,365	04Urban Minor Collector
04	04023	Santa Cruz	AZ	Urban Other Freeways and Expressways	04023Urban Other Freeways and Expressway	57,547,312	0%	0	04Urban Other Freeways and Expressways
04	04023	Santa Cruz	AZ	Urban Other Principal Arterial	04023Urban Other Principal Arterial	65,307,218	0%	0	04Urban Other Principal Arterial
04	04025	Yavapai	AZ	Rural Interstate	04025Rural Interstate	870,313,696	0%	0	04Rural Interstate
04	04025	Yavapai	AZ	Rural Local	04025Rural Local	188,355,442	10%	30,098,452	04Rural Local
04	04025	Yavapai	AZ	Rural Major Collector	04025Rural Major Collector	323,655,010	0%	76,975	04Rural Major Collector
04	04025	Yavapai	AZ	Rural Minor Arterial	04025Rural Minor Arterial	183,947,196	0%	0	04Rural Minor Arterial

FIPS State Code	State and County FIPS Code	County Name	Postal State Code	FHWA Road Type	Data Key 2	Vehicle Miles Traveled (VMT)	Percent Unpaved Road Type	Unpaved VMT	Data Key 3
04	04025	Yavapai	AZ	Rural Minor Collector	04025Rural Minor Collector	47,358,225	1%	683,619	04Rural Minor Collector
04	04025	Yavapai	AZ	Rural Other Freeways and Expressways	04025Rural Other Freeways and Expressways	5,860,162	0%	0	04Rural Other Freeways and Expressways
04	04025	Yavapai	AZ	Rural Other Principal Arterial	04025Rural Other Principal Arterial	411,238,693	0%	0	04Rural Other Principal Arterial
04	04025	Yavapai	AZ	Urban Interstate	04025Urban Interstate	7,695,384	0%	0	04Urban Interstate
04	04025	Yavapai	AZ	Urban Local	04025Urban Local	148,141,994	3%	12,729,152	04Urban Local
04	04025	Yavapai	AZ	Urban Major Collector	04025Urban Major Collector	84,718,612	0%	150,384	04Urban Major Collector
04	04025	Yavapai	AZ	Urban Minor Arterial	04025Urban Minor Arterial	195,114,535	0%	90,511	04Urban Minor Arterial
04	04025	Yavapai	AZ	Urban Minor Collector	04025Urban Minor Collector	2,236,926	0%	150,384	04Urban Minor Collector
04	04025	Yavapai	AZ	Urban Other Freeways and Expressways	04025Urban Other Freeways and Expressway	8,053,546	0%	0	04Urban Other Freeways and Expressways
04	04025	Yavapai	AZ	Urban Other Principal Arterial	04025Urban Other Principal Arterial	301,939,839	0%	0	04Urban Other Principal Arterial
04	04027	Yuma	AZ	Rural Interstate	04027Rural Interstate	271,174,746	0%	0	04Rural Interstate
04	04027	Yuma	AZ	Rural Local	04027Rural Local	53,278,575	10%	8,771,286	04Rural Local
04	04027	Yuma	AZ	Rural Major Collector	04027Rural Major Collector	91,549,666	0%	22,432	04Rural Major Collector
04	04027	Yuma	AZ	Rural Minor Arterial	04027Rural Minor Arterial	52,031,651	0%	0	04Rural Minor Arterial
04	04027	Yuma	AZ	Rural Minor Collector	04027Rural Minor Collector	13,395,837	1%	199,220	04Rural Minor Collector
04	04027	Yuma	AZ	Rural Other Freeways and Expressways	04027Rural Other Freeways and Expressways	1,825,925	0%	0	04Rural Other Freeways and Expressways
04	04027	Yuma	AZ	Rural Other Principal Arterial	04027Rural Other Principal Arterial	116,323,752	0%	0	04Rural Other Principal Arterial
04	04027	Yuma	AZ	Urban Interstate	04027Urban Interstate	66,604,841	0%	0	04Urban Interstate
04	04027	Yuma	AZ	Urban Local	04027Urban Local	145,185,556	3%	3,709,528	04Urban Local
04	04027	Yuma	AZ	Urban Major Collector	04027Urban Major Collector	83,027,901	0%	43,825	04Urban Major Collector
04	04027	Yuma	AZ	Urban Minor Arterial	04027Urban Minor Arterial	191,220,676	0%	26,377	04Urban Minor Arterial
04	04027	Yuma	AZ	Urban Minor Collector	04027Urban Minor Collector	2,192,284	0%	43,825	04Urban Minor Collector
04	04027	Yuma	AZ	Urban Other Freeways and Expressways	04027Urban Other Freeways and Expressway	69,704,793	0%	0	04Urban Other Freeways and Expressways
04	04027	Yuma	AZ	Urban Other Principal Arterial	04027Urban Other Principal Arterial	295,914,090	0%	0	04Urban Other Principal Arterial

				PM10										
FIPS State and County Code	FIPS State Code	County Name	Postal State Code	Rural Local	Rural Major Collector	Rural Minor Arterial	Rural Minor Collector	Urban Local	Urban Major Collector	Urban Minor Arterial	Urban Minor Collector	Urban Other Principal Arterial	Rural Local	Rural Major Collector
04001	04	Apache	AZ	10,229,554	27,853	0	232,341	3,531,541	41,722	25,111	41,722	0	1,015,833	2,767
04003	04	Cochise	AZ	9,208,472	25,073	0	209,150	3,179,034	37,558	22,605	37,558	0	914,435	2,491
04005	04	Coconino	AZ	8,168,849	22,242	0	185,537	2,820,126	33,317	20,052	33,317	0	811,197	2,210
04007	04	Gila	AZ	4,250,420	11,573	0	96,539	1,467,370	17,336	10,434	17,336	0	422,083	1,150
04009	04	Graham	AZ	3,338,071	9,089	0	75,817	1,152,400	13,615	8,194	13,615	0	331,483	903
04011	04	Greenlee	AZ	758,811	2,066	0	17,235	261,964	3,095	1,863	3,095	0	75,353	205
04012	04	La Paz	AZ	2,228,921	6,069	0	50,625	769,489	9,091	5,471	9,091	0	221,340	603
04013	04	Maricopa	AZ	17,425,990	47,447	0	395,792	6,015,962	71,074	42,776	71,074	0	1,730,466	4,714
04015	04	Mohave	AZ	8,878,218	24,173	0	201,649	3,065,021	36,211	21,794	36,211	0	881,640	2,402
04017	04	Navajo	AZ	11,234,606	30,589	0	255,169	3,878,515	45,821	27,578	45,821	0	1,115,638	3,039
04019	04	Pima	AZ	14,243,389	38,782	0	323,507	4,917,235	58,093	34,964	58,093	0	1,414,421	3,853
04021	04	Pinal	AZ	15,896,781	43,283	0	361,060	5,488,034	64,837	39,023	64,837	0	1,578,609	4,300
04023	04	Santa Cruz	AZ	2,462,030	6,704	0	55,920	849,965	10,042	6,044	10,042	0	244,489	666
04025	04	Yavapai	AZ	13,530,157	36,840	0	307,307	4,671,006	55,184	33,213	55,184	0	1,343,595	3,660
04027	04	Yuma	AZ	3,942,956	10,736	0	89,555	1,361,224	16,082	9,679	16,082	0	391,550	1,067
Total Emissions by Road Type:				125,797,225	342,518	0	2,857,202	43,428,886	513,076	308,801	513,076	0	12,492,132	34,028

PM25													
Rural Minor Arterial	Rural Minor Collector	Urban Local	Urban Major Collector	Urban Minor Arterial	Urban Minor Collector	Urban Other Principal Arterial	PM10 Rural Emissions	PM10 Urban Emissions	Total PM10 Emissions	PM25 Rural Emissions	PM25 Urban Emissions	Total PM25 Emissions	Unit
0	23,072	350,142	4,137	2,490	4,137	0	10,489,748	3,640,097	14,129,845	1,041,672	360,905	1,402,577	LB
0	20,769	315,192	3,724	2,241	3,724	0	9,442,694	3,276,754	12,719,448	937,696	324,880	1,262,576	LB
0	18,425	279,607	3,303	1,988	3,303	0	8,376,628	2,906,813	11,283,441	831,831	288,202	1,120,033	LB
0	9,587	145,485	1,719	1,034	1,719	0	4,358,532	1,512,475	5,871,007	432,819	149,957	582,776	LB
0	7,529	114,257	1,350	812	1,350	0	3,422,977	1,187,823	4,610,800	339,915	117,769	457,684	LB
0	1,711	25,973	307	185	307	0	778,111	270,016	1,048,127	77,269	26,771	104,041	LB
0	5,027	76,293	901	542	901	0	2,285,615	793,142	3,078,757	226,970	78,638	305,608	LB
0	39,304	596,465	7,047	4,241	7,047	0	17,869,229	6,200,885	24,070,115	1,774,483	614,799	2,389,282	LB
0	20,024	303,888	3,590	2,161	3,590	0	9,104,040	3,159,236	12,263,276	904,066	313,229	1,217,295	LB
0	25,339	384,543	4,543	2,734	4,543	0	11,520,364	3,997,736	15,518,100	1,144,016	396,364	1,540,380	LB
0	32,125	487,529	5,760	3,467	5,760	0	14,605,677	5,068,385	19,674,062	1,450,400	502,515	1,952,915	LB
0	35,855	544,122	6,428	3,869	6,428	0	16,301,124	5,656,730	21,957,854	1,618,764	560,848	2,179,612	LB
0	5,553	84,271	996	599	996	0	2,524,653	876,092	3,400,745	250,708	86,862	337,570	LB
0	30,517	463,116	5,471	3,293	5,471	0	13,874,304	4,814,588	18,688,892	1,377,772	477,352	1,855,124	LB
0	8,893	134,961	1,594	960	1,594	0	4,043,248	1,403,066	5,446,314	401,510	139,110	540,620	LB
0	283,731	4,305,845	50,870	30,617	50,870	0	128,996,945	44,763,838	173,760,783	12,809,891	4,438,202	17,248,092	LB

Source: EPA AP-42 13.2.2 Paved Roads (http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0202.pdf)

Nonattainment Status	Urban/Rural	DataKey	Control Name	Control Efficiency	Rule Penetration
Moderate	Urban	UrbanModerate	Paving	96%	50
Serious	Rural	RuralSerious	Chemical Stabilization	75%	50
Serious	Urban	UrbanSerious	Paving and Chemical Stabilization	90%	50

Controlled Emissions = Uncontrolled Emissions x (1 - Control Efficiency x Rule Penetration / 100)

Source: EPA Green Book Nonattainment Areas NAYRO table (http://www.epa.gov/airquality/greenbook/data_download.html), accessed September 2015

FIPS State and County Code	State	Postal State Code	County Name	Nonattainment (or Maintenance) Status
04003	ARIZONA	AZ	Cochise Co	Moderate
04007	ARIZONA	AZ	Gila Co	Moderate
04013	ARIZONA	AZ	Maricopa Co	Serious
04015	ARIZONA	AZ	Mohave Co	Moderate
04019	ARIZONA	AZ	Pima Co	Moderate
04021	ARIZONA	AZ	Pinal Co	Serious
04023	ARIZONA	AZ	Santa Cruz Co	Moderate
04027	ARIZONA	AZ	Yuma Co	Moderate

State and County FIPS Code	State	County	Urban/Rural Roadways	Nonattainment (or Maintenance) Status	Control Efficiency	Rule Penetration	Uncontrolled PM10 Emissions (lbs)	Uncontrolled PM25 Emissions (lbs)	Controlled PM10 Emissions (lbs)	Controlled PM25 Emissions (lbs)
04001	Arizona	Apache	Rural		0	0	10,489,748	1,041,672	10,489,748	1,041,672
04003	Arizona	Cochise	Rural	Moderate	0	0	9,442,694	937,696	9,442,694	937,696
04005	Arizona	Coconino	Rural		0	0	8,376,628	831,831	8,376,628	831,831
04007	Arizona	Gila	Rural	Moderate	0	0	4,358,532	432,819	4,358,532	432,819
04009	Arizona	Graham	Rural		0	0	3,422,977	339,915	3,422,977	339,915
04011	Arizona	Greenlee	Rural		0	0	778,111	77,269	778,111	77,269
04012	Arizona	La Paz	Rural		0	0	2,285,615	226,970	2,285,615	226,970
04013	Arizona	Maricopa	Rural	Serious	0.75	50	17,869,229	1,774,483	11,168,268	1,109,052
04015	Arizona	Mohave	Rural	Moderate	0	0	9,104,040	904,066	9,104,040	904,066
04017	Arizona	Navajo	Rural		0	0	11,520,364	1,144,016	11,520,364	1,144,016
04019	Arizona	Pima	Rural	Moderate	0	0	14,605,677	1,450,400	14,605,677	1,450,400
04021	Arizona	Pinal	Rural	Serious	0.75	50	16,301,124	1,618,764	10,188,202	1,011,728
04023	Arizona	Santa Cruz	Rural	Moderate	0	0	2,524,653	250,708	2,524,653	250,708
04025	Arizona	Yavapai	Rural		0	0	13,874,304	1,377,772	13,874,304	1,377,772
04027	Arizona	Yuma	Rural	Moderate	0	0	4,043,248	401,510	4,043,248	401,510
04001	Arizona	Apache	Urban		0	0	3,640,097	360,905	3,640,097	360,905
04003	Arizona	Cochise	Urban	Moderate	0.96	50	3,276,754	324,880	1,703,912	168,938
04005	Arizona	Coconino	Urban		0	0	2,906,813	288,202	2,906,813	288,202
04007	Arizona	Gila	Urban	Moderate	0.96	50	1,512,475	149,957	786,487	77,978
04009	Arizona	Graham	Urban		0	0	1,187,823	117,769	1,187,823	117,769
04011	Arizona	Greenlee	Urban		0	0	270,016	26,771	270,016	26,771
04012	Arizona	La Paz	Urban		0	0	793,142	78,638	793,142	78,638
04013	Arizona	Maricopa	Urban	Serious	0.9	50	6,200,885	614,799	3,410,487	338,140
04015	Arizona	Mohave	Urban	Moderate	0.96	50	3,159,236	313,229	1,642,803	162,879
04017	Arizona	Navajo	Urban		0	0	3,997,736	396,364	3,997,736	396,364
04019	Arizona	Pima	Urban	Moderate	0.96	50	5,068,385	502,515	2,635,560	261,308
04021	Arizona	Pinal	Urban	Serious	0.9	50	5,656,730	560,848	3,111,201	308,466
04023	Arizona	Santa Cruz	Urban	Moderate	0.96	50	876,092	86,862	455,568	45,168
04025	Arizona	Yavapai	Urban		0	0	4,814,588	477,352	4,814,588	477,352
04027	Arizona	Yuma	Urban	Moderate	0.96	50	1,403,066	139,110	729,595	72,337

State and County FIPS Code	State	County	Pollutant Code	Controlled Emissions	Units
04001	Arizona	Apache	PM10-FIL	7,065	TON
04003	Arizona	Cochise	PM10-FIL	5,573	TON
04005	Arizona	Coconino	PM10-FIL	5,642	TON
04007	Arizona	Gila	PM10-FIL	2,573	TON
04009	Arizona	Graham	PM10-FIL	2,305	TON
04011	Arizona	Greenlee	PM10-FIL	524	TON
04012	Arizona	La Paz	PM10-FIL	1,539	TON
04013	Arizona	Maricopa	PM10-FIL	7,289	TON
04015	Arizona	Mohave	PM10-FIL	5,373	TON
04017	Arizona	Navajo	PM10-FIL	7,759	TON
04019	Arizona	Pima	PM10-FIL	8,621	TON
04021	Arizona	Pinal	PM10-FIL	6,650	TON
04023	Arizona	Santa Cruz	PM10-FIL	1,490	TON
04025	Arizona	Yavapai	PM10-FIL	9,344	TON
04027	Arizona	Yuma	PM10-FIL	2,386	TON
04001	Arizona	Apache	PM10-PRI	7,065	TON
04003	Arizona	Cochise	PM10-PRI	5,573	TON
04005	Arizona	Coconino	PM10-PRI	5,642	TON
04007	Arizona	Gila	PM10-PRI	2,573	TON
04009	Arizona	Graham	PM10-PRI	2,305	TON
04011	Arizona	Greenlee	PM10-PRI	524	TON
04012	Arizona	La Paz	PM10-PRI	1,539	TON
04013	Arizona	Maricopa	PM10-PRI	7,289	TON
04015	Arizona	Mohave	PM10-PRI	5,373	TON
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04021	Arizona	Pinal	PM10-PRI	6,650	TON
04023	Arizona	Santa Cruz	PM10-PRI	1,490	TON
04025	Arizona	Yavapai	PM10-PRI	9,344	TON
04027	Arizona	Yuma	PM10-PRI	2,386	TON
04001	Arizona	Apache	PM25-FIL	701	TON

State and County FIPS Code	State	County	Pollutant Code	Controlled Emissions	Units
04003	Arizona	Cochise	PM25-FIL	553	TON
04005	Arizona	Coconino	PM25-FIL	560	TON
04007	Arizona	Gila	PM25-FIL	255	TON
04009	Arizona	Graham	PM25-FIL	229	TON
04011	Arizona	Greenlee	PM25-FIL	52	TON
04012	Arizona	La Paz	PM25-FIL	153	TON
04013	Arizona	Maricopa	PM25-FIL	724	TON
04015	Arizona	Mohave	PM25-FIL	533	TON
04017	Arizona	Navajo	PM25-FIL	770	TON
04019	Arizona	Pima	PM25-FIL	856	TON
04021	Arizona	Pinal	PM25-FIL	660	TON
04023	Arizona	Santa Cruz	PM25-FIL	148	TON
04025	Arizona	Yavapai	PM25-FIL	928	TON
04027	Arizona	Yuma	PM25-FIL	237	TON
04001	Arizona	Apache	PM25-PRI	701	TON
04003	Arizona	Cochise	PM25-PRI	553	TON
04005	Arizona	Coconino	PM25-PRI	560	TON
04007	Arizona	Gila	PM25-PRI	255	TON
04009	Arizona	Graham	PM25-PRI	229	TON
04011	Arizona	Greenlee	PM25-PRI	52	TON
04012	Arizona	La Paz	PM25-PRI	153	TON
04013	Arizona	Maricopa	PM25-PRI	724	TON
04015	Arizona	Mohave	PM25-PRI	533	TON
04017	Arizona	Navajo	PM25-PRI	770	TON
04019	Arizona	Pima	PM25-PRI	856	TON
04021	Arizona	Pinal	PM25-PRI	660	TON
04023	Arizona	Santa Cruz	PM25-PRI	148	TON
04025	Arizona	Yavapai	PM25-PRI	928	TON
04027	Arizona	Yuma	PM25-PRI	237	TON

Appendix E:

Public Process Documentation

ADEQ Arizona Department of Environmental Quality

PUBLIC NOTICE

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY PUBLIC COMMENT PERIOD AND HEARING

The Arizona Department of Environmental Quality (ADEQ) is holding a comment period and public hearing for the proposed Moderate PM-2.5 state implementation plan (SIP) revision for the Nogales Nonattainment Area (Area) in order to comply with Clean Air Act (CAA) section 110 and 40 CFR 51.102 public notice requirements.

The purpose of the proposed SIP revision is to bring the Area into compliance with federal requirements for moderate nonattainment areas as required under CAA Title I, Part D for the 2006 PM-2.5 24-hour primary National Ambient Air Quality Standards (NAAQS). ADEQ is requesting the U.S. Environmental Protection Agency (EPA) approve this SIP revision into the Arizona SIP.

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Information to Access the Virtual Public Hearing
https://meet.google.com/zsn-tyri-hhv?hs=122&authuser=0
Public Hearing Phone Number: 1-315-795-1328
Public Hearing PIN 458 456 332#

Review the proposed SIP revision online at: https://azdeq.gov/notices or at the ADEQ Records Center, 1110 W. Washington St., Phoenix, AZ 85007. For Records Center hours or appointment scheduling, call (602) 771-4380 or (800) 234-5677 ext. 602-771-4380. A copy of the proposed SIP revision can also be viewed at the Nogales City Hall, 777 N. Grand Ave. Nogales, AZ 85621. For hours, call (520) 287-6571.

Requests for language interpretation services or disability accommodations for the hearing date must be made at least 48 hours in advance by contacting 7-1-1 for TDD; (602) 771-2215 for disability accessibility, or Ian Bingham, Title VI Nondiscrimination Coordinator at (602) 771-4300 or idb@azdeq.gov.

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NOGALES INTERNATIONAL
268 W VIEW POINT DR
NOGALES AZ 85621

(520) 375-5760

Advertising Memo Bill

1 Memo Bill Period	2 Advertiser/Client Name
01/2021	ADEQ ARIZONA DEPARTMENT OF

23 Total Amount Due	*Unapplied Amount	3 Terms of Payment
372.30		

21 Current Net Amount Due	22 30 Days	60 Days	Over 90 Days
.00	.00	.00	.00

4 Page Number	5 Memo Bill Date	6 Billed Account Number	7 Advertiser/Client Number
1	01/06/21	466378 LEGAL.	**466378**

8 Billed Account Name and Address

ADEQ ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY
1110 WEST WASHINGTON STREET
PHOENIX AZ 85007

Amount Paid:

Comments:

Ad #: 354590

Please Return Upper Portion With Payment

10 Date	11 Newspaper Reference	12 13 14 Description-Other Comments/Charges	15 16 SAU Size Billed Units	17 18 Times Run Rate	19 Gross Amount	20 Net Amount
12/29/20	354590	ARIZONA DEPARTMENT OF	3.0X 8.00	2		
	LEGDP	12/29,01/01	24.00	7.50	365.00	365.00
		NINI				
	AFFEE	AFFIDAVIT FEE		5.00		
	TAX	Sales Tax		7.30		

PAID
12/21/20

Statement of Account - Aging of Past Due Amounts

21 Current Net Amount Due	22 30 Days	60 Days	Over 90 Days	*Unapplied Amount	23 Total Amount Due
0.00	0.00	0.00	0.00		372.30

NOGALES INTERNATIONAL
(520) 375-5760

*** UNAPPLIED AMOUNTS ARE INCLUDED IN TOTAL AMOUNT DUE**

24 Invoice	25 Advertiser Information			
	1 Billing Period	6 Billed Account Number	7 Advertiser/Client Number	2 Advertiser/Client Name
354590	01/2021	466378	466378	ADEQ ARIZONA DEPARTMENT

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
:SS.
COUNTY OF SANTA CRUZ)

Carmen G Sbarra

being first duly sworn, deposes and says: that (he) (she) is the Agent to the Publisher of the NOGALES INTERNATIONAL newspaper printed and published two days a week in the City of Nogales, County of Santa Cruz, State of Arizona. That the notice, a copy of which is hereto attached, described as follows:

ARIZONA DEPARTMENT OF ENV

was printed and published in the regular and entire issue of said NOGALES INTERNATIONAL for 2 issues; that the first was made on the 29th day of December, 2020 and the last publication thereof was made on the 1st day of January, 2021; that said publication was made on each of the following dates, to wit:

12/29/2020 01/01/2021

Request of ADEQ ARIZONA DEPARTMENT OF

NOGALES INTERNATIONAL

268 W VIEW POINT, NOGALES, AZ 85621 (520) 375-5760

By: Reyna L Armenta

Subscribed and sworn to before me this 1st day of January 2021

Notary Public in and for the County of Santa Cruz, State of Arizona
My Commission Expires:

REYNA L. ARMENTA
Notary Public - Arizona
Santa Cruz County
My Commission Expires
February 9, 2024
Commission # 577689

AFFIDAVIT OF PUBLICATION

STATE OF ARIZONA)
:SS.
COUNTY OF SANTA CRUZ)

Carmen Ep Sbm

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Request of ADEQ ARIZONA DEPARTMENT OF

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268 W VIEW POINT, NOGALES, AZ 85621 (520) 375-5760

By: Reyna L Armenta

Subscribed and sworn to before me this 1st day of January 2021

Notary Public in and for the County of Santa Cruz, State of Arizona
My Commission Expires:

REYNA L. ARMENTA
Notary Public - Arizona
Santa Cruz County
My Commission Expires
February 9, 2024
Commission # 577689

NOGALES INTERNATIONAL
268 W VIEW POINT DR
NOGALES AZ 85621
(520)375-5760

ORDER CONFIRMATION

Salesperson: LEGALS ACCOUNTS Printed at 01/06/21 12:01 by cibar-wc

---

Acct #: 466378 Ad #: 354590 Status: Expired

ADEQ ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY
1110 WEST WASHINGTON STREET
PHOENIX AZ 85007

Start: 12/29/2020 Stop: 01/01/2021
Times Ord: 2 Times Run: 2
Size: 3.00 X 8.00
Total Size: 24.00
Class: A Not Applicable
Rate: LEGDP Cost: 372.30
Affidavits: 1

Contact:
Phone: (602)771-4848
Fax#: (520)628-6745
Email:
Agency:

Ad Descrpt: ARIZONA DEPARTMENT OF ENV
Given by: *
P.O. #:
Created: cibar 12/21/20 11:05
Last Changed: cibar 12/21/20 13:37

Source: _____
Camera Ready: N
Misc: ARIZONA DEPARTMENT OF ENVIR
Proof: __ _____
Delivery Instr: _____
Changes: None __ Copy __ _____ Art __ Size __ Copy Chg Every Run __
Coupon: __
Ad Copy Method: _____
Special Instr: _____

Section: _____ Page: __
Group: _____ AdType: _____
Color: _____
Pickup Date: _____ Ad#: _____
Pickup Src: _____
Gang Ad #: _____

PUB	ZONE	EDT	TP	RUN DATES
NINI	A	1	S	12/29 01/01

PAYMENTS:
-- 12/21/2020 372.30 VI **********9092 097936[62748137456]

AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

_____ _____
Name (print or type) Name (signature)

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
PUBLIC COMMENT PERIOD AND HEARING

The Arizona Department of Environmental Quality (ADEQ) is holding a comment period and public hearing for the proposed Moderate PM-2.5 state implementation plan (SIP) revision for the Nogales Nonattainment Area (Area) in order to comply with Clean Air Act (CAA) section 110 and 40 CFR 51.102 public notice requirements.

The purpose of the proposed SIP revision is to bring the Area into compliance with federal requirements for moderate nonattainment areas as required under CAA Title I, Part D for the 2006 PM-2.5 24-hour primary National Ambient Air Quality Standards (NAAQS). ADEQ is requesting the U.S. Environmental Protection Agency (EPA) approve this SIP revision into the Arizona SIP.

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ADEQ Arizona Department of Environmental Quality

MEETING AGENDA

AIR QUALITY DIVISION PUBLIC HEARING

Proposed
Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request
Under the 2006 $PM_{2.5}$ 24-hr Primary National Ambient Air Quality Standard

Information to Access the Virtual Public Hearing
https://meet.google.com/zsn-tyri-hhv?hs=122&authuser=0
Public Hearing Phone Number: 1-315-795-1328
Public Hearing PIN 458 456 332#
2:00 p.m.
January 28, 2021

Pursuant to 40 CFR 51.102 notice is hereby given that the above referenced meeting is open to the public.

1. Welcome and Introductions
2. Purpose of the Oral Proceedings
3. Procedure for Making Public Comment
4. Brief Overview of the Proposal
5. Oral Comment Period
6. Adjournment of Oral Proceeding

Review the proposed SIP revision online at: https://azdeq.gov/notices or at the ADEQ Records Center, 1110 W. Washington St., Phoenix, AZ 85007. For Records Center hours or appointment scheduling, call (602) 771-4380 or (800) 234-5677 ext. 602-771-4380. A copy of the proposed SIP revision can also be viewed at the Nogales City Hall, 777 N. Grand Ave. Nogales, AZ 85621. For hours, call (520) 287-6571.

Written comments may be mailed to Lisa Tomczak, Air Quality Division, Air Quality Improvement Planning Section, Arizona Department of Environmental Quality, 1110 W. Washington St., Phoenix, AZ 85007. Comments may also be emailed to tomczak.lisa@azdeq.gov. All comments must state the name and mailing address of the person; be signed by the person, their agent, or attorney; and clearly set forth reasons why the proposed revisions should or should not be finalized. The public comment period closes January 28, 2021, at 5:00 pm. Mailed comments must be postmarked by January 28, 2021. For additional information regarding the hearing please contact Lisa Tomczak, ADEQ Air Quality Division, at 602-771-4450.

Requests for language interpretation services or disability accommodations for the hearing date must be made at least 48 hours in advance by contacting 7-1-1 for TDD; (602) 771-2215 for disability accessibility, or Ian Bingham, Title VI Nondiscrimination Coordinator at (602) 771-4300 or idb@azdeq.gov.

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PROPOSED SIP REVISION

Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request

Under the 2006 Fine Particle 24-hr National Ambient Air Quality Standard

Oral Proceeding

Transcript

January 28, 2021

Zachary Dorn: Thank you for coming. I now open this hearing on the proposed State Implementation Plan (SIP) revision for the Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request.

This proceeding is being recorded and will be preserved for the record.

Today is January 28, 2021 and the time is 2:10 p.m. This proceeding is being carried out via conference call due to the COVID-19 pandemic. My name is Zachary Dorn and I have been appointed by the Director of the Arizona Department of Environmental Quality (ADEQ) to preside at this proceeding.

At this time I will take a quick roll call of those participating in this hearing.

Seeing that there are no members of the public in attendance, the time is now 2:11 p.m., and I close this oral proceeding.

ADEQ
Arizona Department of Environmental Quality

Air Quality Division

Public Hearing Presiding Officer Certification

I, Zachary Dorn, the designated Presiding Officer, do hereby certify that a virtual public hearing for the proposed Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request was held by the Arizona Department of Environmental Quality on January 28, 2021. The public hearing was conducted in accordance with public notice requirements by publication in the *Nogales International* on December 29, 2020 and January 1, 2021. Furthermore, I do hereby certify that the public hearing was recorded from the opening of the public record through concluding remarks and adjournment, and the transcript provided contains a full, true, and correct record of the above-referenced public hearing.

Dated this 17 day of February, 2021.

Signature of Hearing Officer

State of Texas)
) ss.
County of Dallas)

Subscribed and sworn to before me on this 17 day of February, 2021 .

NOTARY PUBLIC STATE OF TEXAS
Jennifer Frazier
Notary Public, State of Texas
Comm. Expires 03-16-2022
Notary ID 131492357

Notarized Online with NotaryLive.com

Notary Public

My commission expires: Mar 16, 2022

This document is signed by

	Signatory	CN=Jennifer Frazier, OU=A01410D000001713777A2C90001A9AF, O=Unaffiliated, C=US
	Date/Time	Wed Feb 17 22:45:55 UTC 2021
	Issuer-Certificate	CN=IGC CA 1, OU=IdenTrust Global Common, O=IdenTrust, C=US
	Serial-No.	8507808033395289946571182804759635812 6
	Method	urn:adobe.com:Adobe.PPKLite:adbe.pkcs7.sha1 (Adobe Signature)

Gmail

Lisa Tomczak <tomczak.lisa@azdeq.gov>

EPA comments on Nogales PM2.5 Maintenance Plan and Redesignation Request, public review draft, dated 12/23/20

1 message

Wamsley, Jerry <Wamsley.Jerry@epa.gov> Thu, Feb 25, 2021 at 6:13 PM
To: Lisa Tomczak <tomczak.lisa@azdeq.gov>, Kamran Khan <khan.kamran@azdeq.gov>
Cc: "Bohning, Scott" <Bohning.Scott@epa.gov>, "Withey, Charlotte" <Withey.Charlotte@epa.gov>, "Lee, Anita" <Lee.Anita@epa.gov>, Joseph Martini <martini.joseph@azdeq.gov>, "Wamsley, Jerry" <Wamsley.Jerry@epa.gov>

Hello Lisa and Kamran,

Thank you for the opportunity to comment on draft "Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request" (referred to in our comments below as RRMP), dated December 23, 2020, released for public comment. Also, thank you for allowing us the additional time we requested to provide these comments.

In general, our comments suggest adding information to clarify or to improve the draft RRMP and concern four general subjects: (1) permanent and enforceable control measures supporting the maintenance plan; (2) the applicable requirements for purposes of redesignation; (3) the maintenance demonstration and the predicted small increase in 2032 SO_x emissions and precursor analyses generally; and, (4) the supplemental estimate of a 2032 $PM_{2.5}$ concentration. Our specific comments are discussed below.

As a point of organization, we refer to the individual section of the draft RRMP instead of a page number. The draft RRMP we reviewed did not appear to have page numbering inserted. Assuming the lack of pagination was not some error on our part, please check your document formatting. Because our proposed actions often cite to the submitted State documents, page numbering is essential for easy reference and citation.

If you have any questions, let's arrange a time to talk next week.

Sincerely,

Jerry Wamsley

Permanent & Enforceable Control Measures Discussion

In general, we understand that the Nogales $PM_{2.5}$ nonattainment area is relying primarily on federal motor vehicle programs and border crossing improvements to show that the improvement in $PM_{2.5}$ air quality is due to permanent and enforceable control measures. We have several suggestions for additional information or discussion to these areas of the draft document.

Section 3.2.1.1. You describe the Mariposa Port of Entry as receiving "renovation and expansion" in the first paragraph, but do not provide any dates of construction or description of the expanded facilities. It would enhance your narrative to include such information to complement the vehicle throughput programs you already describe.

Section 3.2.1.2. In this section you state the following:

> "This fleet turnover is reflected in the on-road mobile inventory for the Nogales planning area, which shows a 38 percent reduction in $PM_{2.5}$ between 2008 and 2014."

This statement and the paragraph below it refer to data without the data in evidence. At a minimum, you should provide a citation to the subject data and include the data within your appendices, if possible. Also, since the attainment years are 2017-2019, it would enhance your narrative to show reductions in $PM_{2.5}$ through 2017, at the least.

Section 3.2.1.3. Here you discuss federal fuel standards resulting in NO_X and SO_x emission reductions for the Nogales area. Table 3-1 does not show $PM_{2.5}$ and NO_X emissions information beyond 2012. Again, given the 2017 attainment year and existing emissions inventories that you developed, we suggest updating the table with these emissions estimates.

Applicable Nonattainment Requirements for Purposes of Redesignation

In section 4.2, you list the applicable requirements for $PM_{2.5}$ nonattainment areas under Clean Air Act (CAA) part D, subparts 1 and 4 and provide the State's demonstrations to meet those requirements. For many of these requirements, you note that "[a]n January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) and suspended the requirements of this section (78 FR 887, January 7, 2006)." We would like to clarify that, independent of this 2006 clean data determination, the EPA interprets attainment-linked requirements as not applicable for purposes of redesignation. See, e.g., 83 Federal Register (FR) 21238, 21243 (May 9, 2018).

In addition, regarding the precursor requirement in CAA section 189(e), we note that the EPA has interpreted this provision to allow a state to develop an attainment plan and adopt RACM that target only those precursors that are necessary to control for the purpose of timely attainment. See 81 FR 58010, 58020. Accordingly, because the requirement of section 189(e) is primarily actionable in the context of addressing precursors in an attainment plan, a precursor exemption analysis under section 189(e) and the EPA's implementing regulations is not an applicable requirement that needs to be fully approved in the context of a redesignation under CAA section 107(d)(3)(e)(ii). See 83 FR 21244. Therefore, we suggest that you revise the discussion in Section 4.2.2.7 to state that this requirement is not applicable requirement for purposes of redesignation, rather than suggesting that the analyses provided in the RRMP are sufficient to meet CAA section 189(e) requirements.

Maintenance Demo and Increase in 2032 SO_x Emissions

In lieu of a photochemical modeling application, your chosen methodology for the maintenance demonstration is a declining emissions inventories method. In this method, the 2032 maintenance year emissions inventories must be less than or equal to the 2017 attainment year emissions inventories to demonstrate maintenance of the $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). Tables 5-6 and 5-7 show 2017 SO_x emissions to be increasing 38 pounds per day in the 2032 Winter Daily Inventories used for the maintenance demonstration.

In the past (April 19, 2018 Technical Memo), you provided speciated data showing the SO_x contribution to be 6.7 percent and the NO_x contribution to be 6.3 percent at the downtown Nogales monitor. Consequently, we think it would be helpful to add speciated $PM_{2.5}$ ambient data to the draft document along with additional discussion in Section 5.2.

The RRMP emissions data shows that the increase in predicted 2032 SO_x emissions from the actual 2017 SO_x emissions is due mostly to the conservative assumptions used in the 2032 emissions estimate for the Valencia Power Plant (VPP). Given the VPP's location is well to the north of the Nogales $PM_{2.5}$ monitor, the area winds that move $PM_{2.5}$ emissions south to north generally, and the small 6.7 percent SO_x contribution to monitored $PM_{2.5}$ concentrations, we think this speciated data would provide further evidence that VPP is unlikely to affect monitored $PM_{2.5}$ concentrations due to its SO_x (and NO_X) emissions.

Supplemental Estimated 2032 $PM_{2.5}$ Concentration

In Section 5.2.3, as a supplement to the declining emissions inventories maintenance demonstration, you provided an estimated ambient $PM_{2.5}$ concentration for 2032 showing a concentration of 23.5 $\mu g/m^3$. Since the maintenance demonstration is based on the declining emissions inventories method rather than on photochemical modeling, this 2032 estimate of ambient $PM_{2.5}$ concentrations is not needed. In general, any estimate of ambient $PM_{2.5}$ concentrations are likely to be influenced, to some degree, by secondary particulate formation; consequently, a simple scaling method will not capture any nonlinear photochemistry that would be captured by a more complex modeling exercise. As a side note, we cannot mathematically confirm the 8 percent scaling factor you cite against the $PM_{2.5}$ estimates in Table 5-6.

We suggest that you delink the 2017 and 2032 declining emissions inventories maintenance demonstration from the 2032 ambient concentration estimate discussion. If you wish to retain the 2032 ambient concentration estimate and discussion, then please include a discussion of the caveats to a methodology estimating a 2032 $PM_{2.5}$ concentration via linear scaling of only $PM_{2.5}$ emissions and how this concentration estimate may not reflect secondary particulate formation. Alternatively, since it is not needed given the declining emissions inventories maintenance demonstration method that you have chosen, we suggest deleting the 2032 ambient concentration discussion entirely if that provides an expeditious way forward.

Responsiveness Summary

Response to Comments Received on the
Nogales $PM_{2.5}$ Maintenance Plan and Redesignation Request
State Implementation Plan Revision

The oral proceeding on the proposed State Implementation Plan revision was held virtually on Thursday, January 28, 2021 at 2:00 p.m. The public comment period began on December 29, 2020 and closed on January 28, 2021 at 5:00 p.m. The Arizona Department of Environmental Quality (ADEQ) received no verbal comments during the virtual public hearing on the proposed revision. The only comments received by ADEQ were submitted by the U.S. Environmental Protection Agency (EPA) and are summarized below.

No substantive changes were made in response to comments received. During its review of EPA's comments, ADEQ made changes to clarify and strengthen the narratives. Changes were also made to correct grammatical and formatting errors.

Comments on Permanent & Enforceable Control Measures

1) Comment: EPA understands that the Nogales $PM_{2.5}$ nonattainment area primarily relies on federal motor vehicle programs and border crossing improvements to show that the improvement in $PM_{2.5}$ air quality is due to permanent and enforceable control measures. We have some suggestions for additional information or discussion to these sections in the SIP revision.

   Response: ADEQ appreciates the suggestions and will incorporate them as appropriate.

2) Comment: In Section 3.2.1.1 the Mariposa Port of Entry is described as receiving "*renovation and expansion*" in the first paragraph but ADEQ did not provide any dates of construction or description of the expanded facilities. It would enhance the narrative to include such information to complement the vehicle throughput programs already described. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.

3) Comment: In Section 3.2.1.2 ADEQ states the following:

   "This fleet turnover is reflected in the on-road mobile inventory for the Nogales planning area, which shows a 38 percent reduction in $PM_{2.5}$ between 2008 and 2014."

   This statement and the following paragraph refer to data without the data in evidence. ADEQ should provide a citation to the subject data and include the data within the appendices, if possible. Also, since the attainment years are 2017-2019, it would enhance the narrative to show reductions in $PM_{2.5}$ through 2017. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.

4) Comment: In Section 3.2.1.3, ADEQ discusses federal fuel standards resulting in NO_X and SO_X emission reductions for the Nogales area. Table 3-1 does not show $PM_{2.5}$ and NO_X emissions information beyond 2012. Given the 2017 attainment year and existing emissions inventories that ADEQ developed, we suggest updating the table with these emissions estimates. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.

Comments Regarding Applicable Nonattainment Requirements for Purposes of Redesignation

5) Comment: In section 4.2, ADEQ lists the applicable requirements for $PM_{2.5}$ nonattainment areas under Clean Air Act (CAA) part D, subparts 1 and 4 and provide the State's demonstrations to meet those requirements. For many of these requirements, ADEQ notes that "[a]n January 7, 2013 EPA determined that the Nogales $PM_{2.5}$ nonattainment area attained the 24-hour 2006 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) and suspended the requirements of this section (78 FR 887, January 7, 2006)." EPA would like to clarify that, independent of this 2006 clean data determination, EPA interprets attainment-linked requirements as not applicable for purposes of redesignation. See, e.g., 83 Federal Register (FR) 21238, 21243 (May 9, 2018).

   In addition, regarding the precursor requirement in CAA section 189(e), EPA has interpreted this provision to allow a state to develop an attainment plan and adopt RACM that target only those precursors that are necessary to control for the purpose of timely attainment. (See 81 FR 58010, 58020.) Accordingly, because the requirement of section 189(e) is primarily actionable in the context of addressing precursors in an attainment plan, a precursor exemption analysis under section 189(e) and EPA's implementing regulations is not an applicable requirement that needs to be fully approved in the context of a redesignation under CAA section 107(d)(3)(e)(ii). (See 83 FR 21244)

   EPA suggests that ADEQ revise the discussion in Section 4.2.2.7 to state that this requirement is not applicable requirement for purposes of redesignation, rather than suggesting that the analyses provided in the SIP revision are sufficient to meet CAA section 189(e) requirements. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.

Comments Regarding the Maintenance Demonstration and Increase in 2032 SO_X Emissions

6) Comment: In lieu of a photochemical modeling application, ADEQ's chosen methodology for the maintenance demonstration is a declining emissions inventories method. In this method, the 2032 maintenance year emissions inventories must be less than or equal to the 2017 attainment year emissions inventories to demonstrate maintenance of the 2006 $PM_{2.5}$ NAAQS. Tables 5-6 and 5-7 show 2017 SO_X emissions to be increasing 38 pounds per day in the 2032 Winter Daily Inventories used for the maintenance demonstration.

In a technical memo dated April 19, 2018 ADEQ provided speciated data showing the SO_X contribution to be 6.7 percent and the NO_X contribution to be 6.3 percent at the downtown Nogales monitor. EPA thinks it would be helpful to add speciated $PM_{2.5}$ ambient data to the SIP revision along with additional discussion in Section 5.2. *(Submitted by EPA Region IX)*

Response: ADEQ agrees with the comment and has revised the information as necessary.

7) Comment: The SIP revision emissions data shows that the increase in predicted 2032 SO_X emissions from the actual 2017 SO_X emissions is due mostly to the conservative assumptions used in the 2032 emissions estimate for the Valencia Power Plant (VPP). Given that VPP's location is well to the north of the Nogales $PM_{2.5}$ monitor, that area winds typically move $PM_{2.5}$ emissions south to north, and the small 6.7 percent SO_X contribution to monitored $PM_{2.5}$ concentrations, EPA thinks this speciated data would provide further evidence that VPP is unlikely to affect monitored $PM_{2.5}$ concentrations due to its SO_X (and NO_X) emissions. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.

Comments on Supplemental Estimated 2032 $PM_{2.5}$ Concentration

8) Comment: In Section 5.2.3, as a supplement to the declining emissions inventories maintenance demonstration, ADEQ provides an estimated ambient $PM_{2.5}$ concentration for 2032 showing a concentration of 23.5 $\mu g/m^3$. Since the maintenance demonstration is based on the declining emissions inventories method rather than on photochemical modeling, this 2032 estimate of ambient $PM_{2.5}$ concentrations is not needed. In general, any estimate of ambient $PM_{2.5}$ concentrations are likely to be influenced, to some degree, by secondary particulate formation; consequently, a simple scaling method will not capture any nonlinear photochemistry that would be captured by a more complex modeling exercise. Also, EPA cannot mathematically confirm the 8 percent scaling factor ADEQ cites against the $PM_{2.5}$ estimates in Table 5-6.

   EPA suggests delinking the 2017 and 2032 declining emissions inventories maintenance demonstration from the 2032 ambient concentration estimate discussion. If ADEQ wishes to retain the 2032 ambient concentration estimate and discussion, please include a discussion of the caveats to a methodology estimating a 2032 $PM_{2.5}$ concentration via linear scaling of only $PM_{2.5}$ emissions and how this concentration estimate may not reflect secondary particulate formation. Alternatively, since it is not needed given the declining emissions inventories maintenance demonstration method that ADEQ has chosen, we suggest deleting the 2032 ambient concentration discussion entirely if that provides an expeditious way forward. *(Submitted by EPA Region IX)*

   Response: ADEQ agrees with the comment and has revised the information as necessary.