



Janice K. Brewer
Governor

DEC 1 2011

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Henry R. Darwin
Director

Jared Blumenfeld
Regional Administrator
U.S. EPA Region 9
Mail Code: ORA-1
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Arizona's Revised 8-Hour Ozone Area Designation Recommendations

Dear Mr. Blumenfeld: *Jared*

Pursuant to Section 107(d)(1) of the Clean Air Act, Arizona hereby submits the following revised 8-hour ozone area designation recommendations for all areas of the State outside of Indian Country (term as defined in federal law, 18 USC 1151).

Arizona originally submitted State recommendations for the 2008 8-hour ozone standard on March 12, 2009. EPA action on designations was delayed, however, due to a reconsideration of the 2008 NAAQS. In September 2011 the reconsideration was withdrawn and EPA indicated it will move forward with designations for the standard promulgated in 2008.

Since the submittal of State recommendations in 2009, a number of changes have occurred in air quality and emissions information used in making those recommendations. Current examination of the data supports the need for revised designation recommendations.

Arizona's revised recommendation is that all parts of the State (except for Indian Country) be designated attainment/unclassifiable except for portions of Maricopa County and portions of Pinal County as defined in the enclosed Technical Support Document.

I look forward to working with you to finalize the designations. If you have any questions, please contact me at (602) 771-2204 or Eric Massey, Director, Air Quality Division, at (602) 771-2308.

Sincerely,

[Signature]
Henry R. Darwin
Director

Enclosures

Cc: Sheryl Bilbrey, Chief of Staff to the Regional Administrator
Deborah Jordan, Director, Air Division, U.S. EPA Region 9
Colleen McKaughan, Associate Director, Air Division, U.S. EPA Region 9

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Arizona Air Quality Designations

Revised Boundary Recommendations for the 2008 8-Hour Ozone National Ambient Air Quality Standards

INTRODUCTION

In March 2008 the U.S. Environmental Protection Agency (EPA) adopted revised National Ambient Air Quality Standards (NAAQS) for ozone (O₃). EPA lowered the health based primary 8-hour standard (adopted in 1997) from 0.08 parts per million (ppm) to 0.075 ppm (73 FR 16436; March 27, 2008). The secondary standard (for protection of the environment) was revised to a level identical to the primary standard.

Under Clean Air Act (CAA) Section 107(d), states must make recommendations for areas that meet (attainment), do not meet (nonattainment), or cannot be classified for new or revised National Ambient Air Quality Standards within one year following the promulgation of such standards. As required, Arizona submitted State recommendations for the 2008 8-hour ozone standard on March 12, 2009.¹ Arizona recommended that all parts of the State (except for Indian Country) be designated attainment/unclassifiable with the exception of portions of Maricopa and Pinal Counties (the greater Phoenix area).

The Clean Air Act defines a nonattainment area as any area that does not meet or contributes to ambient air quality in a nearby area that does not meet an air quality standard. To ensure appropriate nonattainment boundaries for the Phoenix planning area, Arizona performed an area-specific analysis that addressed the nine criteria or factors listed in EPA's December 4, 2008, guidance, *Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards*, as follows:²

- 1) Air quality data,
- 2) Emissions data (location of sources and contribution to ozone concentrations),
- 3) Population density and degree of urbanization (including commercial development),
- 4) Traffic and commuting patterns,
- 5) Growth rates and patterns,
- 6) Meteorology (weather and air movement patterns),
- 7) Geography/topography (mountain ranges or other air basin boundaries),
- 8) Jurisdictional boundaries (e.g., counties, air districts, existing nonattainment areas, Indian Reservations, metropolitan planning organizations),
- 9) Level of control of emission sources.

The recommended area encompassed the existing 8-hour ozone nonattainment area (1997 standard), additional areas to the west and southwest where new power plants are located and an area to the southeast of the urban core, in Pinal County, to incorporate a violating monitor ("Queen Valley"), areas with expected substantial residential growth, and a planned new power plant.

¹ See the March 12, 2009, Governor's Recommendation Letter and enclosed technical support document, *Arizona Air Quality Designations, Boundary Recommendations for the 2008 8-Hour Ozone National Ambient Air Quality Standard*.

² The "presumptive" boundary or starting point for a nonattainment area is the Metropolitan Statistical Area or county containing a violating monitor.

EPA action on boundary designations was delayed, however, due to a reconsideration of the 2008 NAAQS. In September 2011 the reconsideration was withdrawn and EPA indicated it will move forward with designations for the standard promulgated in 2008.

Since the submittal of boundary recommendations in 2009, a number of changes have occurred in several of the analyzed criteria. The addition of the area to the southeast in Pinal County was due primarily to analysis of three of the nine factors: air quality data, the location of emissions sources, and expected growth. Current examination of the data supports the need for revised boundary recommendations and the retention of the existing nonattainment area boundaries in Pinal County. The following sections outline the new information on these factors and provide revised boundary recommendations for the Phoenix 8-hour ozone planning area.

AIR QUALITY DATA

Arizona's 2009 recommendation was based on 2006-2008 design values. Review of ambient data from this period showed three counties with design values that violated the 2008 8-hour ozone NAAQS: Gila, Maricopa, and Pinal. In total, 13 monitors recorded violations of the standard in 2008. Of the 13 monitors, two are located outside the existing Maricopa/Pinal 8-hour ozone nonattainment area: "Tonto National Monument" in Gila County and "Queen Valley" in Pinal County (see Figure ES1 in *Arizona Air Quality Designations, Boundary Recommendations for the 2008 8-Hour Ozone National Ambient Air Quality Standard*, March 12, 2009).

For the periods 2007-2009 and 2008-2010 all monitors in Gila and Pinal Counties are attaining the standard and only one monitor, "North Phoenix," in Maricopa County, recorded a violation of the NAAQS (see Figure 3). Table 1 lists the maximum calculated ambient design values by county.

Table 1: 8-Hour Ozone Design Values (ppm) for Arizona Counties

County	2006-2008	2007-2009	2008-2010
Apache*	n/a	n/a	n/a
Cochise	0.069	0.066	0.068
Coconino	0.070	0.068	0.069
Gila	0.078	0.075	0.073
Graham*	n/a	n/a	n/a
Greenlee*	n/a	n/a	n/a
La Paz	0.073	0.072	0.072
Maricopa	0.081	0.076	0.077
Mohave*	n/a	n/a	n/a
Navajo	0.070	0.067	0.067
Pima	0.074	0.071	0.069
Pinal	0.080	0.075	0.074
Santa Cruz*	n/a	n/a	n/a
Yavapai**	n/a	n/a	n/a
Yuma***	0.074	n/a	0.073

* No ambient monitors are located in these counties.

** ADEQ established an ozone monitor in Prescott in 2008, the only monitor in Yavapai County. Design values are not available for 2008-2010.

*** Yuma Game and Fish monitoring site closed and Yuma Supersite opened in 2008.

Notwithstanding short term variations in ambient concentrations and despite increases in population and expansion of the urban area, peak ozone concentrations continue to decrease in the Phoenix area. Implementation of federal and local control measures to reduce emissions of ozone precursors, such as the Tier 2 vehicle and fuel standards and the Vehicle Emissions Inspection program, have helped the area attain the 1-hour standard since 1997 and the 1997 8-hour standard beginning in 2005.

Because of recently implemented and planned [federal] measures (e.g., Tier 3 vehicle and fuel standards) this trend is expected to continue. EPA's September 22, 2011, memorandum, *Implementation of the Ozone National Ambient Air Quality Standard*, states that 52 areas currently monitor air quality that exceeds the 0.075 ppm standard (2008-2010 data). The memorandum further notes that EPA modeling "indicates that approximately half of the 52 areas would attain the 0.075 ppm standard by 2015 (the expected attainment deadline for Marginal areas) as a result of the emission-reducing rules already in place."

EMISSIONS DATA

The 2009 boundary recommendation considered the general distribution of ozone precursor emissions, source categories, and specifically the location of electric generation facilities for Maricopa, Pinal, and Gila Counties. Fuel combustion at electric utilities can be a significant contributor to emissions of ozone precursors, particularly emissions of oxides of nitrogen (NO_x). Information was provided on the location, capacities, and allowable emissions of 14 existing and four planned power plants (see Section III.B.2 of the 2009 recommendation).

As noted in the introduction, the 2009 recommendation expanded the ozone planning area beyond the existing nonattainment area (1997 standard) in part to incorporate two existing and one planned electric generation facilities. Based on prevailing wind patterns, the Harquahala Generating Station and Gila River Power Station to the west and southwest of the existing nonattainment area are generally considered to be upwind sources and contribute to elevated ozone levels within the Phoenix nonattainment area. These facilities were included within the recommended nonattainment area boundary. A third planned power plant, "Abel Generating Station," to the southeast and immediately adjacent to the Phoenix urban core was also included in the recommended boundary. Had it been built, the facility may have had an impact on air quality in eastern Maricopa and northeast Pinal Counties.

Since submittal of the 2009 boundary recommendations one new generating facility has been permitted (Pinal Power) and one proposed facility (Coolidge) has been built. Recent economic events have significantly slowed population growth and future electricity demand remains unclear. Three facilities listed as planned in 2009 have not been permitted or built: Abel Generating Station, Electrical District No. 3 (permit application canceled), and Pinal Central.

Figure 3 depicts the location of existing and permitted power plants located in Maricopa and Pinal Counties. Table 2 lists the capacities and allowable NO_x and volatile organic compound (VOC) emissions for each facility in tons per year (tpy).

Table 2: Existing and Permitted Power Plants

Name	Capacity (MW)	Allowable Emissions	
		NOx (tpy)	VOC (tpy)
Maricopa County			
APS Ocotillo Power Plant	330		
APS West Phoenix Power Plant	1,000	405	56
APS Redhawk Power Station	1,108	700	121
Palo Verde Nuclear Generating Station	4,000		
SRP Agua Fria Generating Station	626	160	35
SRP Kyrene Generating Station	521	158	26
SRP Santan Generating Station	1,225	1,269	94
Harquahala Generating Station	1,000	324	102
Mesquite Generating Station	1,200	408	295
Dynergy Energy Arlington Valley	570	242	123
Gila River Power Station	2,300	710	148
Pinal County			
SRP Desert Basin Generating Station	580	214	104
APS Sundance Generating Station	450	351	165
APS Saguaro Power Plant	410	9,442	80
TransCanada Coolidge Generating Station	576	245	245
Pinal Power (permit issued, not built)	30	240	240

Source: Arizona Department of Environmental Quality, Maricopa County Air Quality Department, and Pinal County Air Quality Control District.

GROWTH RATES AND PATTERNS

For this criterion, estimated changes in population and employment from 2005 through 2030 were compared for the greater Phoenix area (see Section III.B.5 of the 2009 recommendation). These data and information provide an indicator of the levels of activity that may contribute to emissions of ozone precursors as well as population exposed to elevated ozone concentrations. Inclusion of growth areas ensures that appropriate measures will apply to reduce emissions contributing to violations of the air quality standards.

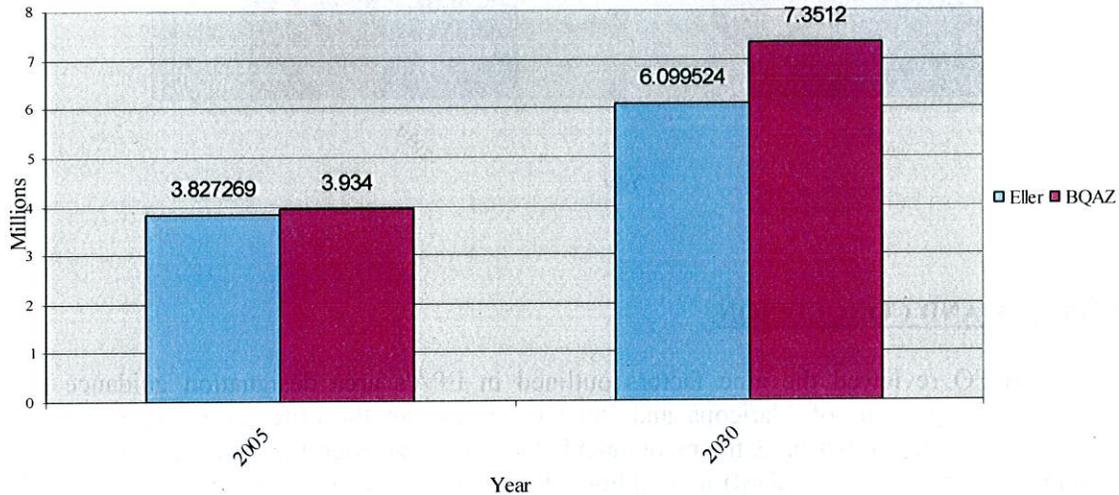
The 2009 recommendation included "Building a Quality Arizona" (BQAZ) growth estimates completed in 2007. The Phoenix-Mesa-Scottsdale Metropolitan Statistical Area (MSA) was projected to increase by 3,417,200 persons through the year 2030. Employment was expected to increase by 2,186,600 over the same period.³ The recent economic downturn, however, has slowed statewide population growth in Arizona to near zero. Even highest growth areas that once had been recording annual growth rates exceeding 40 percent have slowed. For example, the Town of Queen Creek which straddles the southeast Maricopa/north-central Pinal County border grew by approximately 50 percent between 2003 and 2004. By 2010 growth had slowed to less than 2 percent. Researchers at the University of Arizona report that "Arizona already lost a decade of growth, or more, in many industries (as measured by employment). And we are in the

³ The Phoenix-Mesa-Scottsdale Metropolitan statistical Area includes Maricopa and Pinal Counties. Population and employment estimates were obtained from *Statewide Transportation Planning Framework, Statewide Travel Demand Model Population and Employment Projections*, Building a Quality Arizona, Arizona Department of Transportation, September 5, 2008.

midst of losing an entire decade, or more, of population growth, due to low mobility rates."⁴ The most current available projections for Arizona have been developed by the Eller College of Management, Economic and Business Research Center.⁵ The Center predicts that recovery from the financial crisis may take a decade, and recent long term population and employment growth forecasts are substantially lower than mid-decade estimates.

Figures 1 and 2 compare the previous (BQAZ) and current (Eller) forecasts of population and employment growth for the Phoenix MSA.⁶

Figure 1: Population Projections for Phoenix MSA

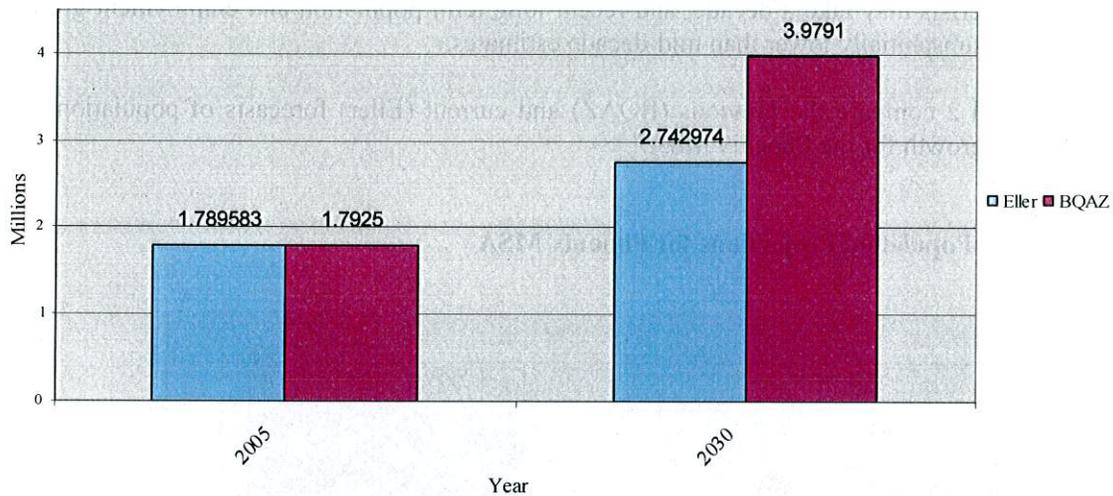


⁴ See *Expectations Lowered for the Longer Term*, Marshall J. Vest, Forecasting Project Director, Arizona's Economy, September 2011/Fall Issue, Eller College of Management, Economic and Business Research Center, University of Arizona.

⁵ Current State projections were made in 2006 by the Population Statistics Units at the Department of Economic Security. Updated population projections from the Arizona Department of Administration are expected by the end of 2012.

⁶ Figures include Building a Quality Arizona (BQAZ) 2007 employment estimates for "Industrial, Service, and Retail" sectors (which "broadly includes:" construction, mining, other resource extraction jobs, manufacturing, financial, insurance, real estate, transportation, health, legal, government, other services, and retail and wholesale trade) and Eller College of Management (Eller) 2011 third quarter baseline "Total Private and Government Nonfarm Employment."

Figure 2: Employment Projections for Phoenix MSA



SUMMARY AND CONCLUSION

In 2009 ADEQ reviewed the nine factors outlined in EPA's area designation guidance and determined that portions of Maricopa and Pinal Counties met the criteria for inclusion in a nonattainment area. At that time, the recommended area encompassed the existing 8-hour ozone nonattainment area (1997 standard) and additional areas to the west and southwest where new power plants are located. A new area to the southeast of the urban core, in Pinal County, was also recommended to incorporate a violating monitor, areas projected to experience substantial residential growth, and a planned new power plant.

The current *revised* recommended area is larger than the existing nonattainment area boundary and contains areas of highest emissions densities and sources that may contribute to elevated ozone concentrations. As previously submitted, Arizona continues to recommend the expansion of the nonattainment area to the west and southwest to include the existing power plants. Attainment of the standard and lack of expected growth in Pinal County, however, supports retaining the existing nonattainment area boundaries in Pinal County. Factors supporting the exclusion of additional areas are:

- **All monitors in Pinal County are attaining the 0.075 ppm standard for the 2007-2009 and 2008-2010 averaging periods.** Only one monitor in the Phoenix urban core, in Maricopa County, has recorded a violation of the NAAQS.
- **The expected rate of population growth has not occurred.** Because of slowed population growth the types and levels of activities that may contribute to emissions of ozone precursors are also projected to decrease.
- **A planned electrical generating facility has not been built.** A planned electrical generating facility in Pinal County was included within the recommended nonattainment area in 2009. This facility and two others in the

County have not been permitted or built. A slowing population growth rate and reduced projections make future electricity generating needs unclear.

REVISED AREA DESIGNATION RECOMMENDATIONS

Attainment/Unclassifiable Areas

Arizona recommends that all of the following counties (except for Indian Country) be designated attainment for the 8-hour ozone NAAQS:

- Apache County
- Cochise County
- Coconino County
- Gila County
- Graham County
- Greenlee County
- La Paz County
- Mohave County
- Navajo County
- Pima County
- Santa Cruz County
- Yavapai County
- Yuma County

In addition, Arizona recommends that Maricopa County and Pinal County (except for Indian Country), except for those portions described below be designated attainment for the 8-hour ozone NAAQS.

Nonattainment Area

The nonattainment area recommended by Arizona in 2011 encompasses the existing 8-hour ozone planning area (1997 standard) and additional areas to the west and southwest where new power plants are located. The recommended area excludes the Gila River Indian Community, Salt River Pima Maricopa Indian Community and the Fort McDowell Yavapai Nation.

Figure 3 illustrates the recommended 8-hour nonattainment area. Table 3 describes by county and township the areas of the State recommended for Attainment/Unclassifiable and Nonattainment.

Figure 3: Revised 8-Hour Ozone Nonattainment Area Recommendation

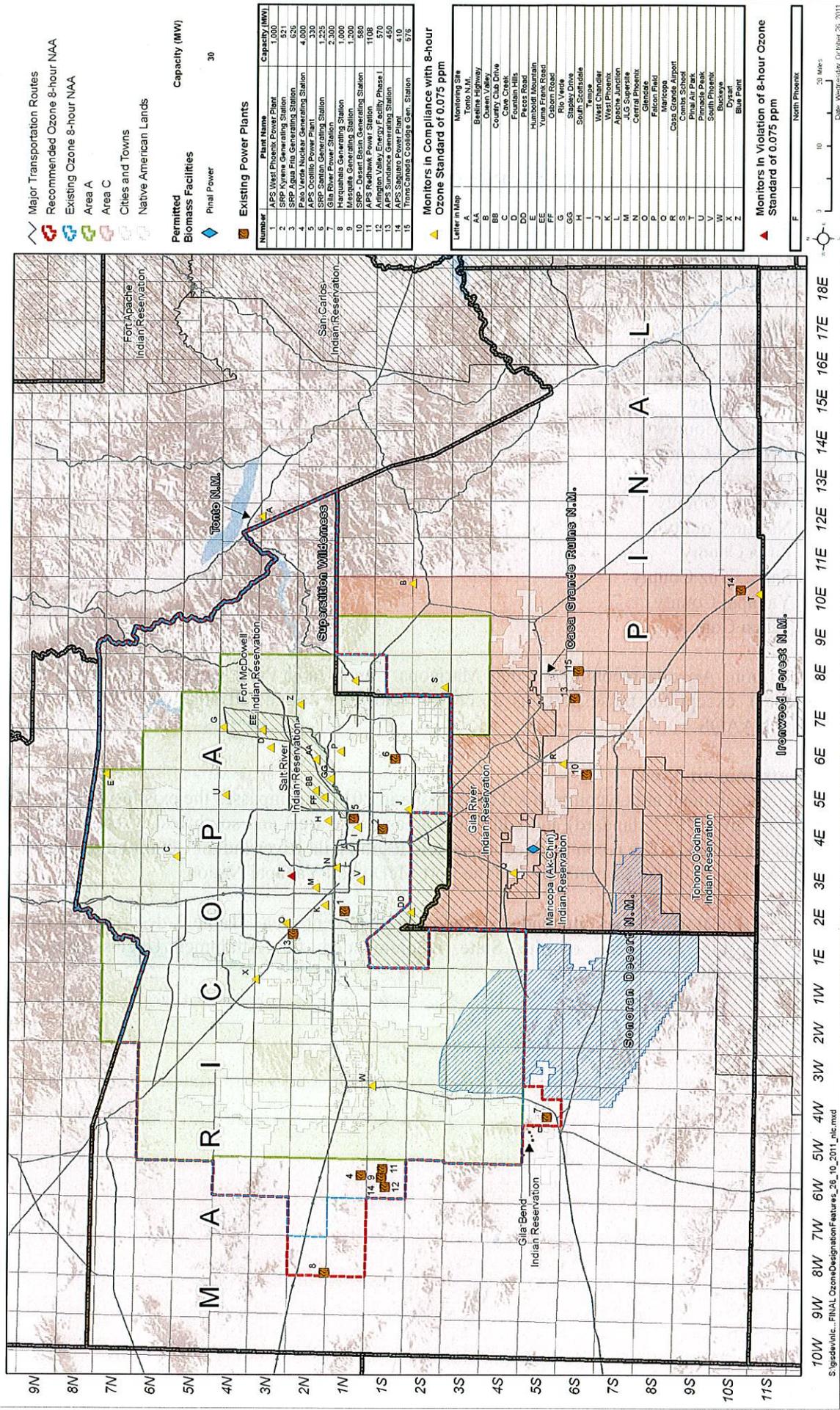


Table 3: Recommended Attainment/Unclassifiable and Nonattainment Areas for Arizona

Arizona-Ozone (2008 8-Hour Standard)

Designated Area	Designation Type	Classification Type
<p>Phoenix Area: Maricopa County (part).....</p> <p>T1N, R1E (except that portion in Indian Country) T1N, R2E T1N, R3E T1N, R4E (except that portion in Indian Country) T1N, R5E (except that portion in Indian Country) T1N, R6E T1N, R7E T1N, R1W T1N, R2W T1N, R3W T1N, R4W T1N, R5W T1N, R6W T1N, R7W T1N, R8W</p> <p>T2N, R1E T2N, R2E T2N, R3E T2N, R4E T2N, R6E (except that portion in Indian Country) T2N, R7E (except that portion in Indian Country) T2N, R8E T2N, R9E T2N, R10E T2N, R11E T2N, R12E (except that portion in Gila County) T2N, R13E (except that portion in Gila County) T2N, R1W T2N, R2W T2N, R3W T2N, R4W T2N, R5W T2N, R6W T2N, R7W T2N, R8W</p> <p>T3N, R1E T3N, R2E</p>	<p>Nonattainment</p>	

Designated Area	Designation Type	Classification Type
<p>T3N, R3E T3N, R4E T3N, R5E (except that portion in Indian Country) T3N, R6E (except that portion in Indian Country) T3N, R7E (except that portion in Indian Country) T3N, R8E T3N, R9E T3N, R10E (except that portion in Gila County) T3N, R11E (except that portion in Gila County) T3N, R12E (except that portion in Gila County) T3N, R1W T3N, R2W T3N, R3W T3N, R4W T3N, R5W T3N, R6W</p> <p>T4N, R1E T4N, R2E T4N, R3E T4N, R4E T4N, R5E T4N, R6E (except that portion in Indian Country) T4N, R7E (except that portion in Indian Country) T4N, R8E T4N, R9E T4N, R10E (except that portion in Gila County) T4N, R11E (except that portion in Gila County) T4N, R12E (except that portion in Gila County) T4N, R1W T4N, R2W T4N, R3W T4N, R4W T4N, R5W T4N, R6W</p> <p>T5N, R1E T5N, R2E T5N, R3E T5N, R4E T5N, R5E T5N, R6E T5N, R7E T5N, R8E T5N, R9E (except that portion in Gila County) T5N, R10E (except that portion in Gila County) T5N, R1W</p>		

Designated Area	Designation Type	Classification Type
<p>T5N, R2W T5N, R3W T5N, R4W T5N, R5W</p> <p>T6N, R1E (except that portion in Yavapai County) T6N, R2E T6N, R3E T6N, R4E T6N, R5E T6N, R6E T6N, R7E T6N, R8E T6N, R9E (except that portion in Gila County) T6N, R10E (except that portion in Gila County) T6N, R1W (except that portion in Yavapai County) T6N, R2W T6N, R3W T6N, R4W T6N, R5W</p> <p>T7N, R1E (except that portion in Yavapai County) T7N, R2E (except that portion in Yavapai County) T7N, R3E T7N, R4E T7N, R5E T7N, R6E T7N, R7E T7N, R8E T7N, R9E (except that portion in Gila County) T7N, R1W (except that portion in Yavapai County) T7N, R2W (except that portion in Yavapai County)</p> <p>T8N, R2E (except that portion in Yavapai County) T8N, R3E (except that portion in Yavapai County) T8N, R4E (except that portion in Yavapai County) T8N, R5E (except that portion in Yavapai County) T8N, R6E (except that portion in Yavapai County) T8N, R7E (except that portion in Yavapai County) T8N, R8E (except that portion in Yavapai and Gila Counties) T8N, R9E (except that portion in Yavapai and Gila Counties)</p> <p>T1S, R1E (except that portion in Indian Country) T1S, R2E (except that portion in Pinal County and in Indian Country)</p>		

Designated Area	Designation Type	Classification Type
T1S, R3E T1S, R4E T1S, R5E T1S, R6E T1S, R7E T1S, R1W T1S, R2W T1S, R3W T1S, R4W T1S, R5W T1S, R6W		
T2S, R1E (except that portion in Indian Country) T2S, R5E T2S, R6E T2S, R7E T2S, R1W T2S, R2W T2S, R3W T2S, R4W T2S, R5W		
T3S, R1E T3S, R1W T3S, R2W T3S, R3W T3S, R4W T3S, R5W		
T4S, R1E T4S, R1W T4S, R2W T4S, R3W T4S, R4W T4S, R5W		
T5S, R4W (Sections 1 through 22 and 27 through 34)		
Pinal County (part)	Nonattainment	
T1N, R8E		
T1S, R8E (Sections 1 through 12)		
Rest of State (except those portions in Indian Country)	Attainment/ Unclassifiable	

Designated Area	Designation Type	Classification Type
Apache County Cochise County Coconino County Gila County Graham County Greenlee County La Paz County Maricopa County (part) Remainder of County Mohave County Navajo County Pima County Pinal County (part) Remainder of County Santa Cruz County Yavapai County Yuma County		

