

Enclosure 2
Responsiveness Summary

Responsiveness Summary to Comments on ADEQ's Proposed 2015 Ozone Boundaries

Summary and Responses for Comments from Maricopa Association of Governments (MAG)

MAG Comment #1

Providing the four data-contingent options in the recommendation are appropriate in order to determine what area is necessary for recommendation.

ADEQ Response to MAG Comment #1

The statute, Clean Air Act § 107, requires a recommendation based on areas that currently do not meet, or that currently contribute to areas that do not meet, the standard. Based on the statute and EPA guidance, ADEQ's recommended area now reflects current data. The recommendation also provides suggested alternatives for the EPA to consider. EPA has assured ADEQ that it will consider all available data to develop its final designations, as it is required to do.

MAG Comment #2

The Maricopa ozone boundary should not be expanded at this time since the Queen Valley and Tonto National Monument monitors only slightly exceed the standard, and there is a downward trend at the monitors.

ADEQ Response to MAG Comment #2

Boundary recommendations are data driven. An area that is not meeting the standard is a nonattainment area according to CAA section 107(d). Although the monitors mentioned may only slightly exceed the standard, current data shows that the monitors are still violating monitors according to how design values are calculated by rule. The monitors are violating regardless of the amounts they are exceeding, or their downward trends. Therefore, these monitors must be included in the nonattainment area. ADEQ and EPA will continue to consider updated monitoring data as it becomes available. If, prior to EPA's final designations, either or both monitors attain the standard, ADEQ will work with EPA to ensure the appropriate alternative boundary scenario is taken into consideration.

MAG Comment #3

Monitoring data from the 2016 ozone season should be evaluated first to determine if the monitors have met the standard or if it is necessary to revise the boundary recommendation.

ADEQ Response to MAG Comment #3

While the typical ozone season is still in progress, 2016 data has and continues to inform ADEQ's suggested alternative boundaries for the EPA's consideration.

MAG Comment #4

Preliminary exceedances of the 2015 ozone standard at the Queen Valley and Tonto National Monument monitors in the 2016 ozone season may in some cases be the result of exceptional events caused by wildfires and stratospheric intrusions of ozone.

ADEQ Response to MAG Comment #4

Juniper Fire - May through June

MAG: The Juniper fire affected the Queen Valley and Tonto National Monument monitors from mid-May to mid-June 2016.

ADEQ: ADEQ has evaluated the mentioned timeframe and does not find reason to believe that exceedances at either monitor were affected by wildfire during the timeframe. The preliminary analysis showed the winds aloft were out of the west/southwest causing lifted smoke to travel to the northeast, away from the Phoenix area, as well as satellite imagery highlighting the lack of Juniper Fire smoke significantly impacting the Phoenix area. During periods of calm winds, there appeared to be no significant drainage of PM_{2.5} into the Valley, with no monitors in the Phoenix area reporting unusually high PM_{2.5} concentrations. Due to the lack of observed PM_{2.5} in the Valley, it is difficult to conclude that the Juniper Fire had a strong enough impact to cause the ozone exceedances at Queen Valley and Tonto National Monument. It appears more likely that light winds and sunny skies, which led to exceedances both before and after the fire, were the primary factors leading to ozone exceedances on the days in question. Due to the lack of evidence supporting this exceptional event, and a low likelihood of concurrence from EPA, ADEQ will not likely pursue this exceptional event demonstration.

Stratospheric Intrusion April 24, 2016

MAG: Stratospheric intrusion is possibly indicated by weather conditions.

ADEQ: ADEQ has more carefully evaluated the April 24, 2016 date and has found some weak evidence to support that a stratospheric intrusion affected ozone concentrations at the Queen Valley monitor on April 24, 2016. There is evidence to support that a possible stratospheric intrusion did occur between Las Vegas, NV and Flagstaff, AZ during the night prior to the exceedance, but there is less evidence to support that the intrusion would have reached low enough elevations to influence the monitors in the Phoenix area. The evidence to support this exceptional event is weak and further analysis would be needed to determine any influence from the stratospheric intrusion. Concurrence of this exceptional event from EPA will not have a regulatory impact on the 2016 design value for the Queen Valley monitor, as the exceedance in question is not one of the four highest exceedances, and thus ADEQ will not likely pursue this exceptional event demonstration.

MAG Comment #5

The Queen Valley monitor recorded preliminary 2016 ozone concentration exceedances while the monitor was operating with a consistent 2.5 to 3 percent high bias. Hence, the monitor was recording higher ozone concentrations than may have actually occurred. Monitor concentrations during the period that MAG mentions (approximately April to June 5, 2016) at the Queen Valley monitor should be critically evaluated given the known high bias of the recorded ozone concentrations.

ADEQ Response to MAG Comment #5

ADEQ's final recommendation is based on 2013-2015 data, which shows the Queen Valley monitor is currently violating the 2015 Ozone NAAQS. ADEQ understands that MAG is looking toward future design values with this comment regarding bias.

ADEQ has begun a pilot program for our ozone monitors to perform informal quality control checks nightly and investigation is recommended to the technical monitoring staff if the bias at a monitor hits 2 percent above or below the standard. Even so, ADEQ believes that 2.5 to 3 percent is an acceptable margin of error considering our resources, regulation, EPA policy, and our lack of confidence in the consistency of the bias.

While there was an upward bias of 2.5 to 3 percent through mid-June 2016 at the Queen Valley monitor, this bias falls within the acceptable +/- 7 percent bias allowed by EPA regulation.¹ Further, per policy,² EPA does not recommend post-processing data to account for a bias, and ADEQ agrees with this recommendation. The statistical inconsistencies and number of assumptions needed to data-fill makes the practice unreliable, as well as resource intensive and overly burdensome. This sort of data-filling would also need to be performed for all monitors across the state for consistency's sake, and the same level of detailed bias data is not available at all Arizona ozone monitors, nor for past years.

MAG Comment #6

MAG suggests that because the Queen Valley and Tonto National Monument monitors are located in or near the Tonto National Forest and in the intermountain west, these areas are likely subjected to high levels of background from natural and international sources. Therefore, there is no clear benefit to include the area in the nonattainment area.

ADEQ Response to MAG Comment #6

ADEQ understands that biogenic background emissions can have a large impact on monitored concentrations. At this time, however, except for limited exceptional events and international and "rural" transport, there is no regulatory mechanism to exclude or adjust data based on how monitored concentrations are affected by chronic background conditions. ADEQ must include all nonattaining monitors in its recommendation.

Pinal County Air Quality Control District (Pinal County) Comments

Pinal County Comment #1

Queen Valley is a small desert community of approximately 800 people and contributes little to ozone formation.

ADEQ Response to Pinal County Comment #1

ADEQ does not assert that the Queen Valley contributes more than a de minimis amount to the Queen Valley monitor. The monitor is violating the 2015 ozone standard, and for this reason the area is recommended for nonattainment.

¹ 40 CFR 58, Appendix A, section 2.3.1.2.

² EPA's Quality Assurance Handbook Vol. II, section 12, May 2013.

Pinal County Comment # 2

Local area economic impacts will follow a nonattainment designation in Pinal County. Such a designation will slow economic development, affecting planned region-wide economic development projects.

ADEQ Response to Pinal County Comment #2

The Clean Air Act does not provide a mechanism to consider economic development in designating areas consistent with the NAAQS. ADEQ has found that the recommended area in Pinal County is either not attaining the NAAQS or is already contributing to the nonattainment of other monitors in the Phoenix area. If the EPA ultimately designates these areas as nonattainment, economic development will need to take place within the context of a nonattainment area.

Pinal County Comment #3

Emission data referenced in the draft boundary recommendation do not quantify precursor emissions generated within the Pinal County portion of the recommended nonattainment boundary, and when local emissions estimates are available they should be used over the National Emissions Inventory (NEI). The Maricopa Association of Governments (MAG) has done mobile emissions modeling in the region at a finer spatial scale than the National Emission Inventory (NEI), and therefore, this modeling should be incorporated into the five factor analysis.

ADEQ Response to Pinal County Comment #3

ADEQ did review and use the individual permitted point source contribution data supplied by Pinal County, as well as the NEI, to make its recommendation. ADEQ understands that point sources are not a large contributor to the nonattainment of the area, but point source emissions are just one of the four overarching emissions categories. Considering other likely emissions activities in the area (mobile source emissions and area source emissions) given the level of development in the area, ADEQ determined that the area should be included in the nonattainment area as a contributor to the Queen Valley monitor, as well as to multiple other monitors within Maricopa County.

Unfortunately, as with various areas within the state, a more detailed emissions inventory for this area is not available. ADEQ did contact MAG regarding using their mobile emissions modeling results as part of the five factor analysis, but MAG's modeling is not complete and the gridded emissions inventories that support the ozone modeling are not available for distribution at this time.

Pinal County Comment #4

ADEQ did not adequately consider the current level of control of emissions sources in Pinal County. The level of controls should have been more thoroughly explored as part of ADEQ's 5 factor analysis.

ADEQ Response to Pinal County Comment #4

ADEQ addressed the level of control in the Area A part of Pinal County.³ Further, ADEQ notes that area may still be contributing to another area's nonattainment regardless of the level of controls already in place.

³ See Section 3.1.2 of the 2015 Ozone NAAQS Boundary Recommendation (Section 3.4.2.1 of the proposed 2015 Ozone NAAQS Boundary Recommendation Draft).

The 2008 Phoenix-Mesa Nonattainment Area also has reformulated gas, a vehicle inspection and maintenance program, and low permitting thresholds, but in spite of the level of control, monitors in that area are still not meeting the standard and the area is contributing to monitored exceedances. The San Tan Valley portion of Pinal County is an urbanized area extending from the current Phoenix-Mesa nonattainment area. Considering the recent population growth and traffic in San Tan Valley, a high level of urban driven emissions is likely produced by the area. ADEQ's evaluation of meteorology indicates that these urban driven emissions from the San Tan Valley portion of Pinal County are likely contributing to nonattainment at several monitors, including Queen Valley, and should therefore be included in the nonattainment area.

Pinal County Comment #5

Pinal County believes that a portion of the proposed nonattainment area may be meeting the 2015 Ozone NAAQS given historical Combs School (San Tan Valley) monitoring data collected from 2004 through 2010.

ADEQ Response to Pinal County Comment #5

Given the lack of a current monitor in the immediate area, the San Tan Valley area may be meeting the NAAQS. However, given the proximity of the populated area to the 2008 Phoenix-Mesa Ozone Nonattainment Area, ADEQ's analysis concentrated on the whether the San Tan Valley portion of Pinal County is likely contributing emissions to the ambient air at other monitors that do not meet the NAAQS. ADEQ believes that this urbanized area, as a part of the Phoenix-Scottsdale-Mesa metropolitan area, is contributing to nonattainment at Queen Valley and other monitors in the Phoenix area.

Pinal County Comment #6

From a health perspective, a nonattainment designation for the San Tan Valley area would offer no additional protection to the residents of the area.

ADEQ Response to Pinal County Comment #6

If the San Tan Valley area is designated nonattainment with the Phoenix area, it will hopefully come into attainment within three years of designation. In the meantime, local residents would be protected from potential increased emissions from new major sources. If the area's classification is later increased to moderate, there are additional measures that may be put in place to ensure that the area, along with the rest of the Phoenix area, will decrease its ozone levels to meet the 2015 NAAQS.

Pinal County Comment #7

The meteorological analysis of the Queen Valley monitor in the draft boundary recommendation, utilizing a wind and HYSPLIT analysis of the monitor on the 10 highest ozone concentration days (2013-2015), does not support the conclusion that the San Tan Valley/Queen Creek area contributes to nonattainment at the Queen Valley ozone monitor. In addition, the draft recommendation relies on HYSPLIT back trajectories to demonstrate air parcel movement, which must be used in conjunction with precursor emissions data to establish that an area contributes to measured concentrations at a monitor.

ADEQ Response to Pinal County Comment #7

While emissions from the San Tan Valley/Queen Creek area don't always directly impact the Queen Valley monitor, they do likely contribute to the monitor on some exceedance days (See Figure 1).

Additionally, as a largely developed extension of the Phoenix-Scottsdale-Mesa metropolitan area, emissions from the San Tan Valley/Queen Creek area likely affect multiple monitors in Phoenix, other than just the Queen Valley monitor. There were numerous other monitors with HYSPLIT analyses that showed influence from the San Tan Valley area that were not included in the recommendation for simplicity's sake, but that can be seen in Appendix A of the Recommendation. Figure 2 below highlights some of these, which, coupled with the emissions analysis of the area, leads to the conclusion that the San Tan Valley area is an extension of the urban area and contributes to ozone production at monitors throughout the valley.

ADEQ analyzed emission indicators according to the EPA's five factors appropriately as a weight of evidence. By evaluating traffic and population in the area of San Tan Valley/Queen Creek, and likely commuting habits of the area to and from Phoenix, ADEQ concluded that emissions, combined with modeled meteorological conditions, contribute to multiple Phoenix area monitors.

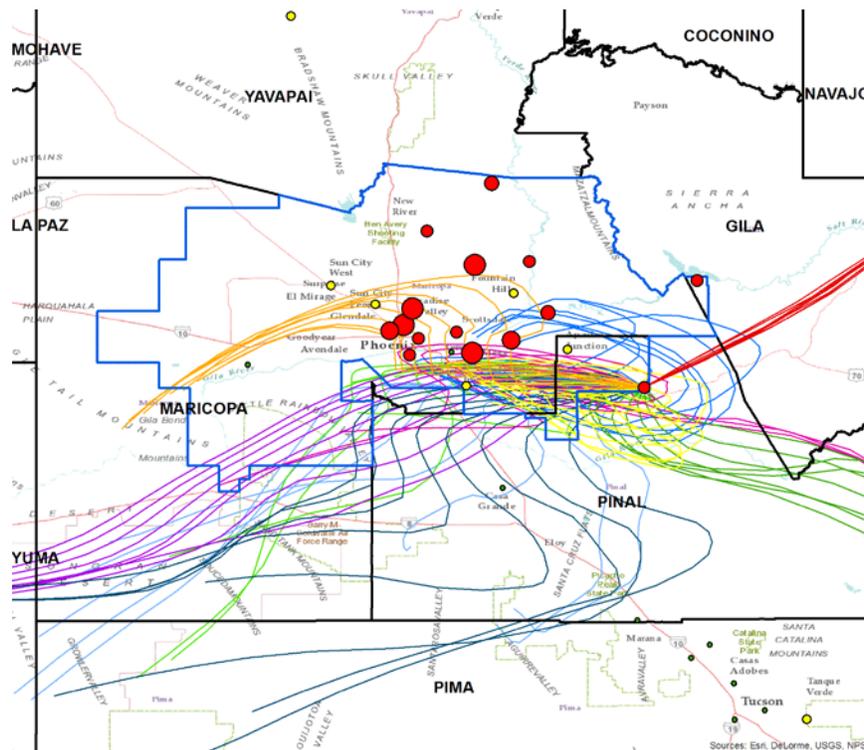


Figure 1 Queen Valley ten highest ozone concentration day HYSPLITS, which do show air movement over and from the San Tan Valley/Queen Creek area on some of the exceedance days. Each exceedance day is shown in a different color.

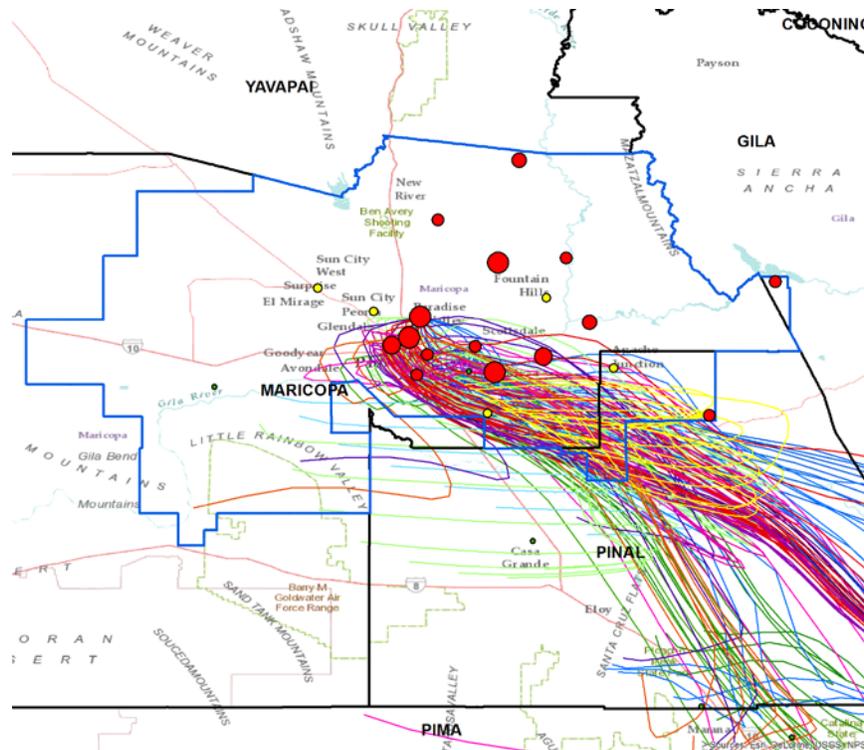


Figure 2 HYSPLITs from multiple monitors in the central Phoenix metropolitan area that show air movement over and from the San Tan Valley/Queen Creek area on high ozone concentration days.

Pinal County Comment #8

Additional documentation is needed to support the weight of evidence analysis. The recommendation does not clearly describe how evaluation of the various factors led to the conclusion that the Pinal County portion of the proposed nonattainment boundary contributes to ozone nonattainment.

ADEQ Response to Pinal County Comment #8

ADEQ respectfully disagrees with Pinal County. ADEQ collected and evaluated a large quantity of data in preparation for the recommendations. ADEQ additionally requested input and data from several hundred stakeholders and considered each comment received, formal and informal. In considering all the data for the Phoenix area, ADEQ mainly relied on EPA boundary designation guidance, which lays out a five factor weight of evidence analysis to follow. The guidance does not quantify the weight that should be attributed to each factor, but ADEQ's interpretation demonstrated that virtually all of the factors support the inclusion of San Tan Valley.

ADEQ analyzed the five factors of air quality data, emissions and emissions related data, meteorology, topography, and jurisdiction with respect to San Tan Valley and the Queen Valley monitor. With respect to air quality data, the Queen Valley monitor, as well as other monitors throughout the Phoenix area, are not attaining the standard. Regarding emissions and emissions related data, urban traffic is clearly apparent in San Tan Valley and population increased substantially between 2000 and 2010. There are also few point sources in San Tan Valley. However, considering the high density of average daily traffic, high commuting levels between Pinal and Maricopa Counties, and the population in San Tan Valley compared to the rest of Pinal County, one can assume that a high proportion of the population and mobile source related emissions from Pinal County can be attributed to San Tan Valley. Meteorological

analyses show likely air parcel movement passing through San Tan Valley to Queen Valley monitor and other nonattaining monitors during exceedance events, within the context of topographic conditions. Likewise, meteorological analyses show that air parcels from the existing nonattainment area are also likely impacting the area between the existing nonattainment area and the Queen Valley monitor. As far as jurisdiction is concerned, ADEQ placed the least weight on this factor as a part of its boundary designation because this factor does not reflect the nonattainment status of an area. However, MAG already has transportation planning in San Tan Valley and would likely have air quality planning, as well. Pinal County Air Quality Control District would likely have permitting and enforcement authority over the area. Maricopa County, MAG, Pinal County, Sun Corridor Metropolitan Planning Organization have all worked and continue to cooperatively work together in several planning capacities, including to improve air quality.

Given the above main reasons, ADEQ interprets the data as demonstrating that San Tan Valley, as an urbanized, developed, and highly populated area, is likely contributing to the ambient air in other areas that are not meeting the NAAQS. The full data available is presented in the recommendation and TSD.

Sun Corridor Metropolitan Planning Organization (Sun Corridor) & Central Yavapai Metropolitan Planning Organization (CYMPO) Comments (ADEQ combined the comments from Sun Corridor and CYMPO due to their similarities.)

Sun Corridor and CYMPO Comment #1

The Phoenix nonattainment area should not be expanded to include the Tonto National Monument monitor because the data excludes an exceptional event, affecting the monitor's attainment status.

ADEQ Response to Sun Corridor and CYMPO Comment #1

Until the EPA concurs with exceptional events, the Tonto monitor is still legally not attaining.

Sun Corridor and CYMPO Comment #2

The Phoenix nonattainment area should not be expanded to include the Queen Valley monitor because the monitor is only slightly exceeding the standard.

ADEQ Response to Sun Corridor and CYMPO Comment #2

The monitor is currently violating the standard and is therefore included in the recommended nonattainment area. Please refer to ADEQ's response to MAG Comment #2, above.

Sun Corridor and CYMPO Comment #3

The Phoenix nonattainment area should not be expanded to include the Queen Valley monitor because it is showing a downward trend in its concentrations.

Response to Sun Corridor and CYMPO Comment #3

A downward trend does not mean that an area is attaining a standard. Please refer to ADEQ's response to MAG Comment #2, above.

Sun Corridor and CYMPO Comment #4

To include the Pinal County area would have a negative impact on economic development in the area.

ADEQ Response to Sun Corridor and CYMPO Comment #4

There is currently no mechanism under the Act to consider economic development in designating areas consistent with the NAAQS. This is also discussed in Response to Pinal County Comment #2, above.

Chamber of Commerce Comments

The Chamber of Commerce (“the Chamber”) appreciated the fact that ADEQ held multiple stakeholder meetings, including in Yuma County. The Chamber also stated that while it may not be apparent to those who did not participate in the stakeholder meetings, the draft reflects ADEQ’s consideration of discussions at those meetings. The Chamber supports the draft boundaries as reinforced by data, reasonable, and as compact as possible to meet regulatory requirements. However, the Chamber encourages ADEQ to re-evaluate its recommendations to ensure the designations appropriately reflect the most succinct boundaries.

ADEQ Response to the Chamber’s Comments

ADEQ appreciates the Chamber’s support and has thoroughly re-evaluated the data. After limited modifications, ADEQ concludes that the recommended boundary is as compact as possible to in good faith meet regulatory requirements based on current and valid data.

Salt River Project (SRP) Comments

SRP Comment #1

SRP understands why ADEQ considered the San Tan Valley area as a contributor to the ozone exceedances at the Queen Valley monitor, but asserts that there would be limited benefit in including the area in the nonattainment area. The San Tan Valley area contains no permitted industrial sources that emit more than 1 ton per year and the primary source of ozone precursor emissions is local vehicle traffic, for which there are already a number of programs in place to minimize ozone precursors from mobile sources.

ADEQ Response to SRP Comment #1

An area may still be contributing to another area’s nonattainment regardless of the level of controls already in place. This is discussed in further detail in ADEQ’s response to Pinal County’s Comment #4.

SRP Comment #2

ADEQ’s proposed boundary expansion into the San Tan Valley extends too far. ADEQ’s proposed expansion of the nonattainment area boundary in Pinal County extends beyond the [current] San Tan Valley Census Designated Place (CDP) boundaries by approximately 4 miles to the west and 2 miles to the east.

The proposed expansion extends too far for the following reasons:

1. These areas east and west of the San Tan Valley CDP are undeveloped or agricultural land (Figure 1 of SRP’s comment letter).

2. The areas east and west of the San Tan Valley CDP contain no permitted industrial sources.
3. Limited additional emissions from traffic and population would be gained in those areas as well (Figure 2 and 3 of SRP's comment letter).
4. Population growth has stagnated in the area since the 2010 Census (Figure 4 of SRP's comment letter), and future growth is expected to occur within CDP boundaries, since these areas outside the San Tan Valley CDP are largely State Trust Land or owned by the Bureau of Land management or the Bureau of Reclamation which cannot be developed for private use under its current classification (Figure 5 of SRP's comment letter).

ADEQ Response to SRP Comment #2

When analyzing the extent of the proposed nonattainment area, SRP raises valid points. ADEQ has reevaluated the data and concluded that the nonattainment area should more closely align with the 2010 San Tan Valley CDP boundary. Figure 3 below highlights the changes to the final recommended nonattainment boundary from the draft nonattainment boundary, with the final boundary more closely aligning with the 2010 San Tan Valley CDP boundary. The new adjusted boundary also more closely aligns with the population and traffic in the area, as seen in Figure 4, and excludes some previously uninhabited areas along the edges.

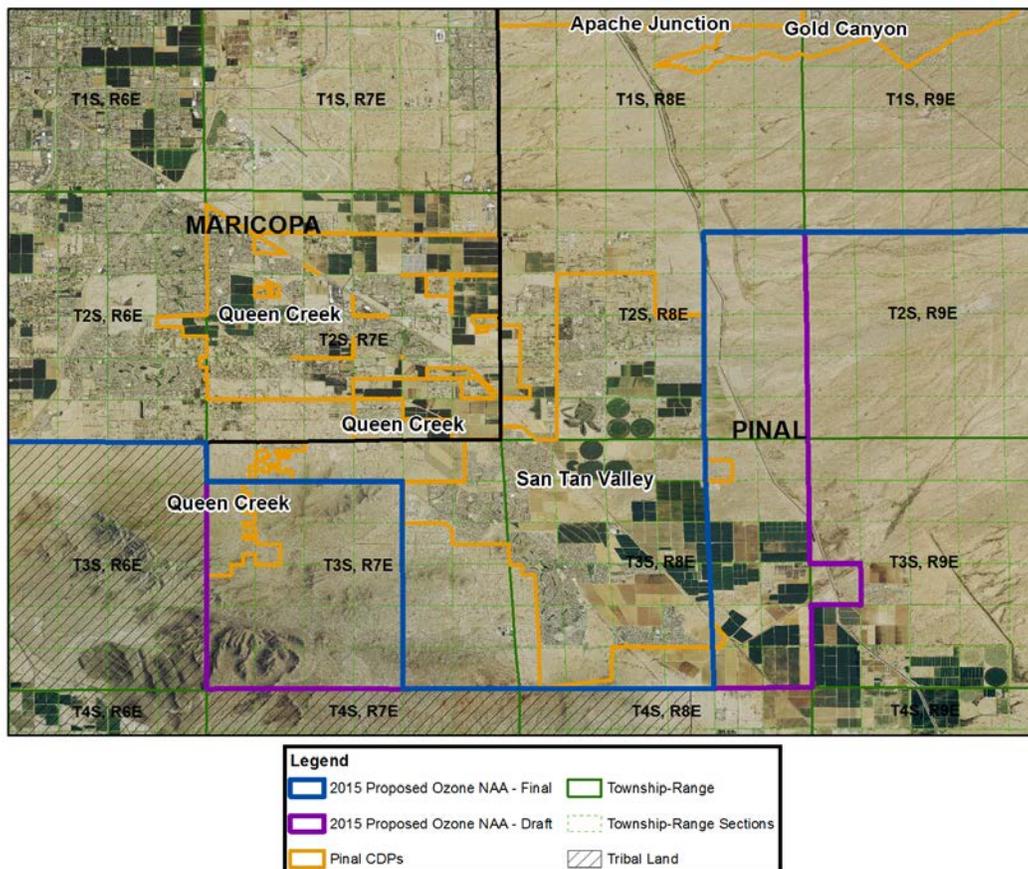


Figure 3 Changes to the recommended boundary more closely align with the San Tan Valley CDP.

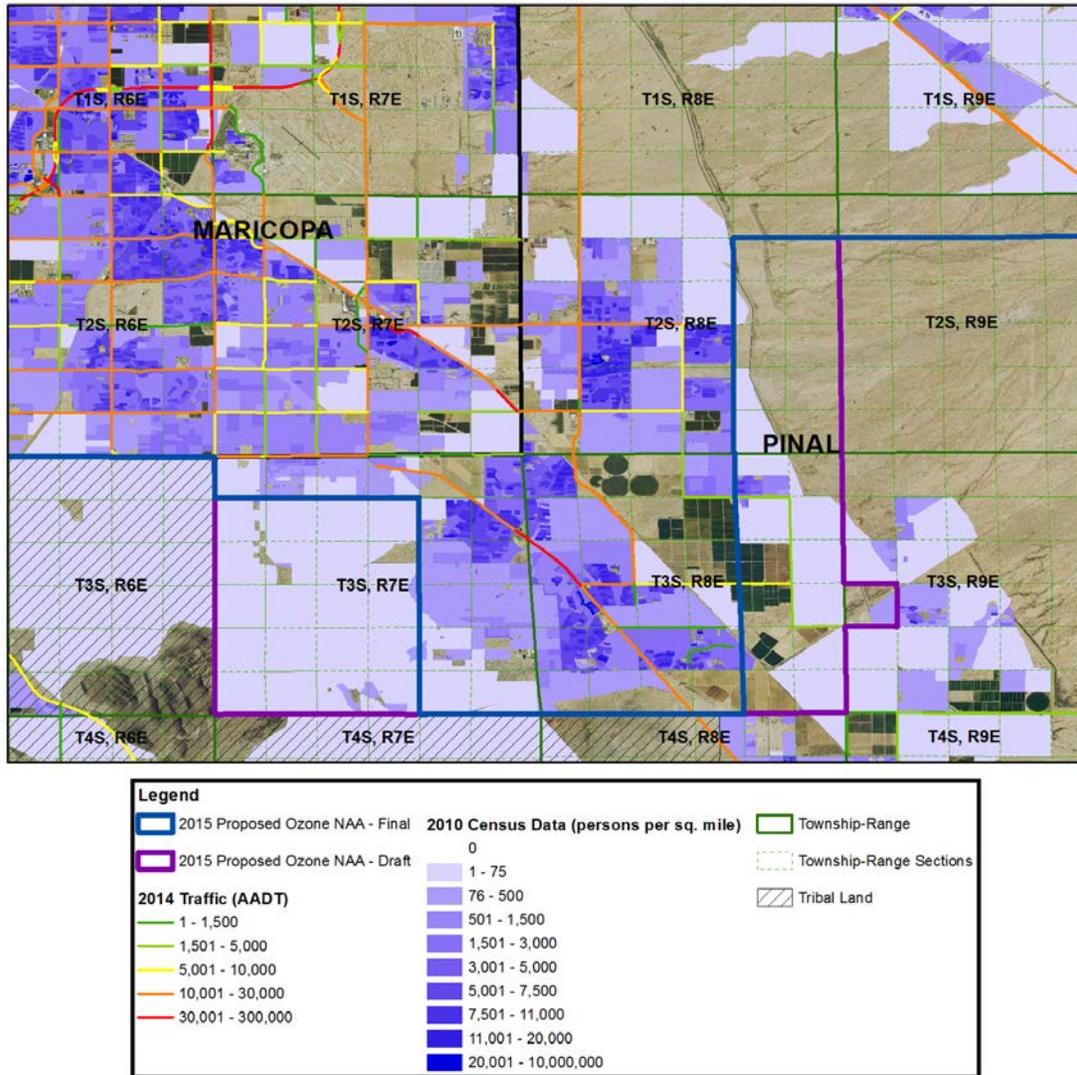


Figure 4 Changes to the recommended boundary more closely align with the population and traffic in the area.

SRP Comment #3

ADEQ appropriately excludes other neighboring towns in Pinal County beyond San Tan Valley from the recommended nonattainment area boundary. SRP supports ADEQ's conclusion, which is based on population, traffic, and meteorological analysis, that the closest adjacent towns of Coolidge and Florence do not contribute to ozone exceedances at the Queen Valley monitor.

ADEQ Response to SRP Comment #3

ADEQ appreciates SRP's feedback.

Arizona Mining Association (AMA) Comments

AMA Comment #1

AMA encourages ADEQ to remove the data contingent recommendations. AMA notes that recent air data from the Pinal County Queen Valley ozone monitor reveals it will likely be in violation of the 2015

Ozone NAAQS given the 2016 design value. For this reason, the contingent recommendations that exclude the Queen Valley monitor are no longer viable.

[ADEQ Response to AMA Comment #1](#)

ADEQ agrees that at this time, it will make one boundary recommendation and suggest viable alternatives for the EPA's consideration.

[AMA Comment #2](#)

AMA recognizes ADEQ's responsibility to comply with the Clean Air Act requirements even while the state challenges the 70 ppb standard. AMA also commended ADEQ for its inclusive stakeholder process. The Arizona Mining Association generally supported the draft recommendations for both the Phoenix and Yuma areas, and quotes the draft itself as evidence for its support.

[ADEQ Response to AMA Comment #2](#)

ADEQ appreciates AMA's feedback.

[Peter Hyde ASU Adjunct Research Professor Comments](#)

ADEQ has enclosed Mr. Hyde's comment letter along with the other seven received comments, although the letter was submitted a month after the comment period concluded. ADEQ appreciates Mr. Hyde's feedback and has taken these comments under advisement as stakeholder input.