



1 **3.10 Air Quality**

2 **3.10.1 Summary of Draft Tier 1 EIS**

3 A qualitative air quality assessment was conducted to identify potential changes in vehicle
4 emissions, and the resulting potential changes in air quality, as a result of implementing the
5 Build Corridor Alternatives. The analysis is qualitative and does not include a detailed
6 quantitative evaluation of air quality emissions, which is consistent with a Tier 1 study. The
7 qualitative air quality assessment was completed by reviewing the results of the I-11 traffic
8 analysis as well as reviewing air quality State Implementation Plans relevant to the Study Area.

9 Air quality is regulated at the national level by the Clean Air Act of 1970 (CAA) (42 U.S.C. 7401
10 et seq.) as amended in 1977 and 1990. The US Environmental Protection Agency (USEPA) is
11 responsible for establishing National Ambient Air Quality Standards (NAAQS) for the following
12 six criteria pollutants: carbon monoxide (CO), ground-level ozone (O₃), nitrogen dioxide (NO₂),
13 sulfur dioxide, coarse and fine particulate matter (PM) (less than or equal to 10 microns [PM₁₀]
14 and less than or equal to 2.5 microns [PM_{2.5}]), and lead. Of the six NAAQS pollutants,
15 transportation sources contribute to CO, NO₂, PM, and O₃ (USEPA 2017b). USEPA works with
16 state and local jurisdictions to monitor ambient air levels for these pollutants. The State of
17 Arizona adopted the NAAQS for these criteria pollutants, which are summarized in **Table 3.10-**
18 **1**.

19 Federal regulations on vehicle emissions are expected to improve and further lower vehicle
20 emissions in the future. Air quality in the Study Area has steadily been improving as
21 demonstrated by the numerous decisions by USEPA that former nonattainment areas in the
22 Study Area are now in attainment with the NAAQS. Near Nogales, USEPA classified the area
23 as a moderate nonattainment area for PM_{2.5} and PM₁₀. The Rillito area is classified as a
24 moderate nonattainment area for PM₁₀. Phoenix Mesa and West Pinal areas are classified as
25 serious nonattainment areas for PM₁₀; these fall within the Green and Purple Alternatives. There
26 also is marginal nonattainment in Phoenix Mesa for O₃. The South Section transverses the
27 Tucson CO limited maintenance area.

28 Saguario National Park is designated as a Class 1 air shed. Class 1 air sheds are granted
29 special air quality protections under the CAA in areas such as national parks, national
30 wilderness areas, and national monuments where visibility is an important value. Transportation
31 sources do not significantly contribute to visibility impairment in these Class I areas (Arizona
32 Department of Environmental Quality [ADEQ] 2011).

33 The potential impacts to regional air quality are similar across the three Build Corridor
34 Alternatives. The Build Corridor Alternatives may impact local air quality conditions differently.
35 The Purple and Green Alternatives could lead to localized violations of CO, PM₁₀, and PM_{2.5} on
36 co-located SR 85 and/or I-10. The detailed quantitative analysis conducted in Tier 2 will identify
37 localized impacts to air quality.

1 **Table 3.10-1. National Ambient Air Quality Standards for Criteria Pollutants**

Pollutant/Averaging Time	Primary Standard ^a	Secondary Standard ^a
CO		
8-hour	9 ppm ^b	–
1-hour	35 ppm	–
Lead		
Rolling 3-Month Average	0.15 µg/m ³	0.15 µg/m ³
NO₂		
1-hour	100 ppb	–
Annual Arithmetic Mean ^c	53 ppb	53 ppb
O₃		
8-hour ^d	0.070 ppm	0.070 ppm
PM_{2.5}		
Annual	12 µg/m ³	15 µg/m ³
24-hour	35 µg/m ³	35 µg/m ³
PM₁₀		
24-hour	150 µg/m ³	150 µg/m ³
SO₂		
1-hour	75 ppb	–
3-hour	–	0.5 ppm

2 SOURCE: USEPA 2017b.

3 ppm = parts per million, µg/m³ = micrograms per cubic meter, ppb = parts per billion.

4 ^a Primary standards set limits to protect public health, including the health of sensitive populations, such as asthmatics, children, and
5 the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment and damage to
6 animals, crops, vegetation, and buildings.

7 ^b Due to mathematical rounding, a measured value of 9.5 ppm or greater is necessary to exceed the standard.

8 ^c The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer
9 comparison to the 1-hour standard.

10 ^d Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.

11 **3.10.2 Summary of Changes Since Draft Tier 1 EIS**

12 Agency and public feedback on air quality focused on concerns with impacts, such as visibility
13 to Saguaro National Park, impacts to climate change and greenhouse gases, concerns with the
14 project being in compliance with NAAQS, and a general concern for the project increasing air
15 pollution in the Analysis Area. These air quality concerns did not result in changes to this Tier 1
16 analysis but would be addressed during the Tier 2 analysis.

17 **3.10.3 No Build Alternative**

18 Under the No Build Alternative, vehicles would continue to utilize the existing transportation
19 network in the Study Area. The county-to-county daily freight truck flows are expected to
20 increase at a range of 239 to 288 percent by 2040. Although truck emissions are improving over
21 time due to national emissions standards, increases in truck traffic along with increased



1 congestion would lead to a heightened risk of localized violations of NAAQS under the No Build
2 Alternative.

3 **3.10.4 Recommended Alternative**

4 The nonattainment and maintenance areas shown on **Figure 3.10-1** have not changed from
5 those mapped in the Draft Tier 1 EIS. The Recommended Alternative passes through the
6 Nogales PM₁₀ and PM_{2.5} moderate nonattainment areas, the Tucson CO limited maintenance
7 area, the Rillito PM₁₀ moderate nonattainment areas, the Phoenix Mesa and West Pinal PM₁₀
8 serious nonattainment area, and the Phoenix Mesa O₃ marginal nonattainment area. The figure
9 also displays the Saguaro National Park Class 1 air shed.

10 Quantitative studies that would take place during the more detailed Tier 2 analysis would focus
11 on sensitive receptors in Saguaro National Park and would highlight those differences between
12 the Recommended and Preferred Alternatives. An air quality conformity analysis to determine
13 whether the project conforms to the State Implementation Plan would be conducted in Tier 2.

14 **3.10.5 Preferred Alternative**

15 The Recommended and Preferred Alternatives would have similar impacts to regional air
16 quality.

17

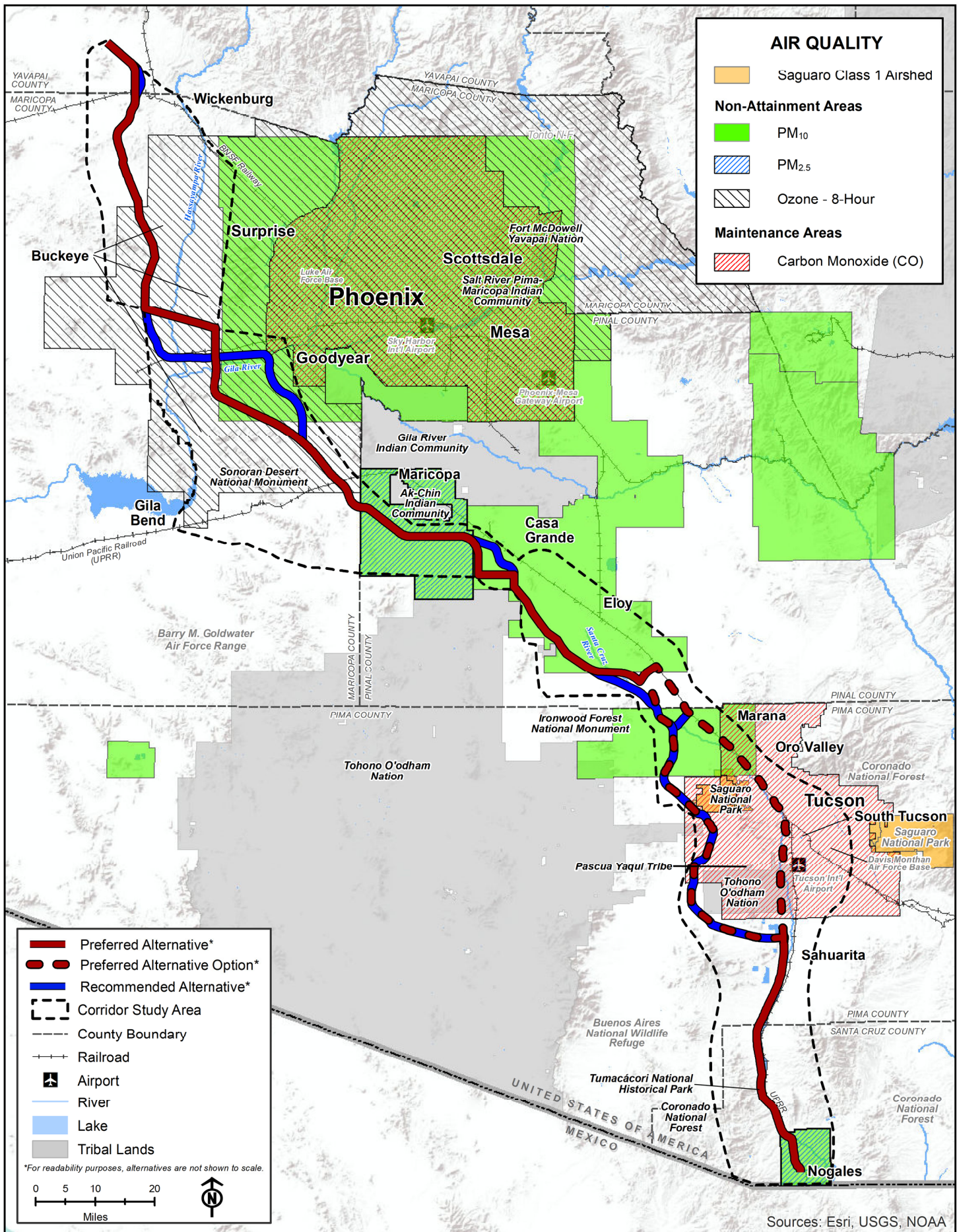


Figure 3.10-1. Nonattainment and Maintenance Areas along the Recommended and Preferred Alternatives



1 **3.10.6 Mitigation and Tier 2 Analysis**

2 **3.10.6.1 Tier 2 Analysis Commitments**

3 FHWA and ADOT completed an initial level of analysis in this Final Tier 1 EIS to identify a
4 2,000-foot-wide preferred Build Corridor Alternative. Additional analysis in Tier 2 will inform
5 (1) the selection of a specific alignment (approximately 400 feet wide) within the selected
6 2,000-foot-wide corridor and (2) the selection of the west option or east option in Pima County.
7 Tier 2 analysis will also identify measures to avoid, minimize, or mitigate impacts to air quality.
8 Specifically, ADOT commits to carrying out the following analysis during the Tier 2 process:

- 9 • **T2-Air Quality-1:** Conduct a detailed air quality analysis for further environmental
10 evaluation. Transportation conformity analysis could be required based on the
11 nonattainment and maintenance designations of the areas surrounding the Study Area.
12 Attainment status for the applicable areas will be re-evaluated during Tier 2 analysis.
- 13 • **T2-Air Quality-2:** Assess vehicle emissions along the I-11 Corridor. Modeling of CO and PM
14 at the project level will be conducted to determine potential localized air quality effects
15 (hotspots) from future construction and operation of the I-11 Corridor.
- 16 • **T2-Air Quality-3:** Quantitatively assess greenhouse gas emissions using USEPA's Motor
17 Vehicles Emissions Simulator (MOVES) model or the model in place at the time of Tier 2
18 analyses.
- 19 • **T2-Air Quality-4:** Conduct an analysis of localized air quality impacts to sensitive areas,
20 including the Saguaro National Park. The analysis will assess NAAQS and criteria pollutants
21 and will consider the spacing of interchanges and associated idling impacts on adjacent
22 receptors. ADOT will provide the opportunity for NPS to review the air quality emission
23 inventory and modeling protocols.

24 **3.10.6.2 Mitigation to be Evaluated in Tier 2**

25 FHWA and ADOT will consider specific measures to avoid, minimize, and mitigate impacts to air
26 quality from the Project during Tier 2 studies. No specific mitigation measures pertaining to air
27 quality have been determined at this time. Examples of measures that ADOT may evaluate in
28 Tier 2 include:

- 29 • Minimize idling time to save fuel and reduce emissions.
- 30 • Use cleaner fuels for construction equipment and vehicles to reduce exhaust emissions.
- 31 • Keep construction equipment well-maintained to ensure that exhaust systems are in good
32 working order, and the exteriors are as clean of fugitive dust as possible.
- 33 • Control fugitive dust through a Fugitive Dust Control Plan, including watering disturbed
34 areas.
- 35 • To minimize wind-blown dust from blasting, particularly near community areas, control
36 blasting and avoid blasting on days with high winds.



- 1 • Develop a traffic plan to minimize traffic flow interference from construction equipment
2 movement and activities.
- 3 • Space interchanges to reduce local impacts of idling on sensitive areas near the new
4 corridor.
- 5 • Conduct analysis and implement other applicable local requirements, such as at the county-
6 level.
- 7