

San Joaquin Valley Regional Summary

Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare Counties

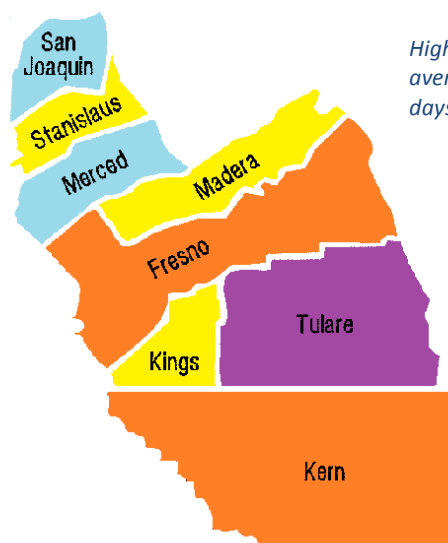
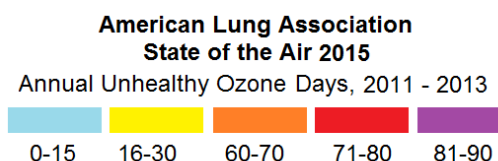
The San Joaquin Valley remains home to some of the most polluted air in the United States, in terms of both ozone and particle pollution. Emissions from the transportation sector are a leading source of pollution in the region, bringing significant lung health burdens.

Key Successes:

- Since the 2000 report, unhealthy ozone days have fallen by 41% in the region.
- All Valley counties experienced more unhealthy particle days over SOTA 2014, but unhealthy days have fallen by 36% since the 2004 report.
 - While all eight counties fail in the annual particle category, concentrations have fallen by 22% since the 2004 report
- Passenger vehicle and diesel engine controls have helped reduce emissions regionally.

Key Solutions:

- As transportation sources comprise approximately 85% of regional smog-forming NOx emissions, we need strong rules, programs and increasing investments in:
 - Healthier community planning focused on walking, biking and transit.
 - Deployment of zero emission vehicles and fuels, including Sustainable Freight systems.
- Maintain and enhance wood burning controls



Highest recorded annual average unhealthy ozone days by County.

Regional Grades and Ranking Among Top 25 Counties in the United States

| County | Ozone Days [†] | Ozone Grade | US Ozone Rank | PM Days [†] | PM Grade | US PM Day Rank | Annual PM Value [‡] | Annual PM Grade | US Annual PM Rank |
|-------------|-------------------------|-------------|---------------|----------------------|----------|----------------|------------------------------|-----------------|-------------------|
| Fresno | 68.0 | F | 6 | 47.0 | F | 1 | 16.4 | Fail | 5 |
| Kern | 69.7 | F | 5 | 43.2 | F | 2 | 17.3 | Fail | 2 |
| Kings | 23.5 | F | 11 | 40.8 | F | 3 | 17.0 | Fail | 3 |
| Madera | 31.8 | F | 8 | 28.8 | F | 7 | 18.1 | Fail | 1 |
| Merced | 14.3 | F | - | 18.2 | F | 13 | 13.3 | Fail | 12 |
| San Joaquin | 8.8 | F | - | 21.3 | F | 10 | 13.8 | Fail | 9 |
| Stanislaus | 22.3 | F | 13 | 38.0 | F | 4 | 15.7 | Fail | 6 |
| Tulare | 82.7 | F | 3 | 11.2 | F | 19 | 16.6 | Fail | 4 |

[†]Number of Days reported equals the weighted annual average of unhealthy ozone or particle days recorded over the three-year period of 2011-2013. An annual average of 3.3 or more unhealthy days earns an "F" grade.

[‡]Annual PM value represents the average concentration of particles measured in the air throughout the year. A concentration over 12 (micrograms/cubic meter) earns a "FAIL" grade.

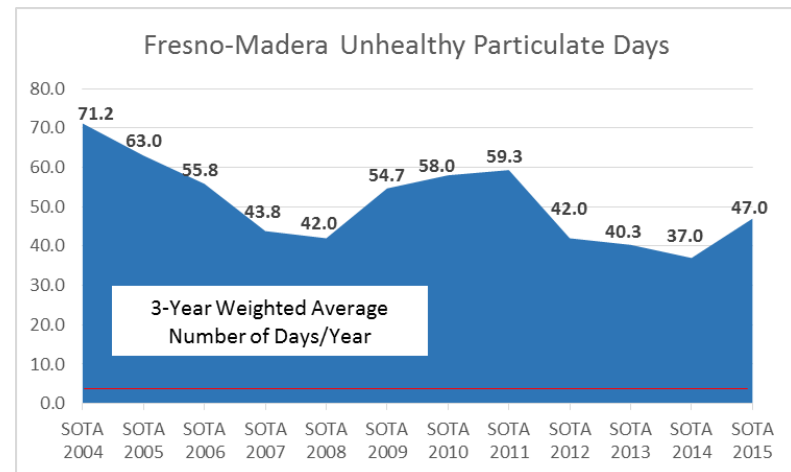
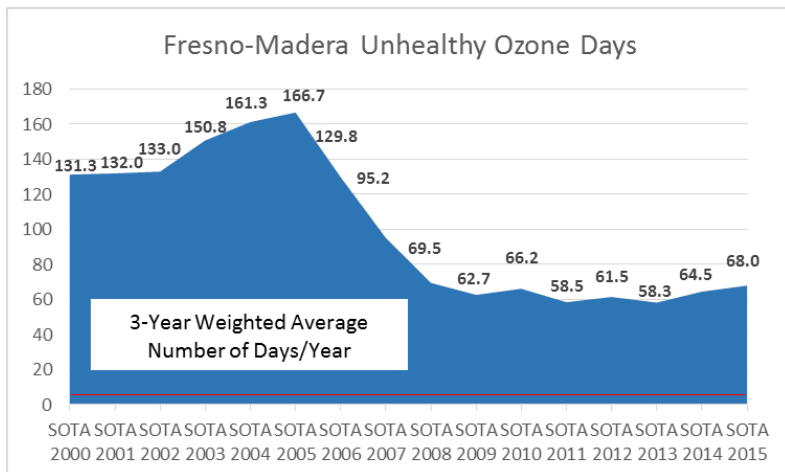
Populations Vulnerable to Air Pollution:

While even healthy adults and children are harmed by air pollution, most at risk are children, the elderly, those with heart and lung disease, diabetes, of lower socio-economic status, or proximity to major sources of pollution, like ports, rail yards or busy roadways. For these vulnerable populations, particle pollution increases the risk of asthma attacks and respiratory distress, heart attacks, stroke, and premature death. The World Health Organization concluded in 2013 that breathing particle pollution causes lung cancer. Ground-level ozone triggers asthma attacks, increases the risk of hospital admissions and emergency room visits and even increases the risk of premature death. In the San Joaquin Valley, millions of residents face increased health risks due to unhealthy air.

| County | Total Population | Children under 18 | Adults over 65 | Pediatric Asthma | Adult Asthma | COPD | Heart Disease | Diabetes | Poverty |
|------------------------|------------------|-------------------|----------------|------------------|----------------|----------------|----------------|----------------|----------------|
| Fresno | 955,272 | 278,110 | 103,705 | 24,637 | 58,765 | 30,120 | 43,282 | 62,691 | 263,134 |
| Kern | 864,124 | 256,286 | 83,355 | 22,704 | 52,702 | 26,422 | 37,419 | 54,932 | 195,433 |
| Kings | 150,960 | 41,854 | 13,265 | 3,708 | 9,403 | 4,549 | 6,334 | 9,529 | 28,388 |
| Madera | 152,389 | 42,859 | 19,064 | 3,797 | 9,561 | 5,096 | 7,460 | 10,718 | 33,785 |
| Merced | 263,228 | 79,906 | 26,885 | 7,079 | 15,883 | 8,043 | 11,487 | 16,722 | 62,055 |
| San Joaquin | 704,379 | 198,720 | 80,542 | 17,604 | 44,161 | 23,160 | 33,502 | 48,340 | 127,598 |
| Stanislaus | 525,491 | 145,255 | 61,652 | 12,868 | 33,197 | 17,455 | 25,308 | 36,403 | 103,926 |
| Tulare | 454,143 | 144,482 | 45,908 | 12,799 | 26,839 | 13,630 | 19,496 | 28,386 | 132,911 |
| Regional Totals | 4,069,986 | 1,187,472 | 434,376 | 105,197 | 250,510 | 128,474 | 184,288 | 267,720 | 947,230 |

Air Pollution Trends

While progress has been made in some areas of the San Joaquin Valley, many trends have flattened out or fluctuated annually based on weather conditions, including the ongoing California drought conditions. Particle pollution days have increased in all eight Valley counties over the last SOTA report. Public support for strong, continued actions in all sectors are needed to cut pollution in this region. Further, all regions are seeing climate impacts to air quality. Intensifying droughts and related weather conditions, wildfire risks and prolonged heat events will increasingly threaten decades of clean air progress.



Region Summary

The San Joaquin Valley Air Basin is home to 10% of California's population though the region's population and vehicle miles traveled are growing much faster than the rest of the state. Air quality in the San Joaquin Valley is influenced in part by transported air pollution from the Bay Area and Sacramento although the majority of pollution is generated locally. The weather and terrain of the Valley, including hot weather, bordering mountains and periods of stagnant air are ideal conditions for forming and trapping pollutants. The Valley can experience inversion layers that trap polluted air for days at a time.

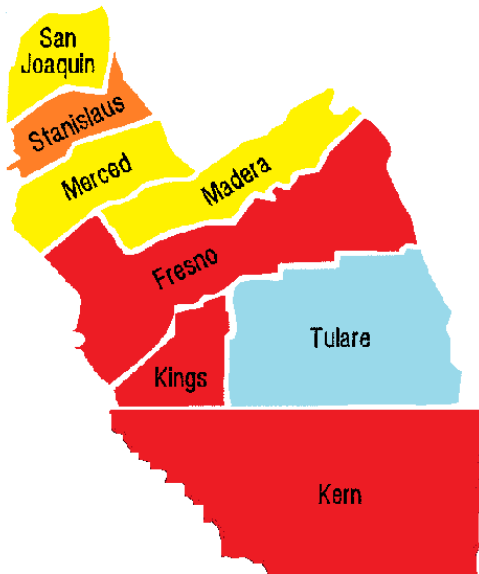
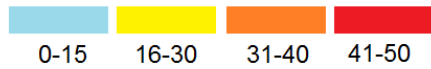
| Metropolitan Areas appearing in SOTA 2015 National Rankings | | | |
|--|--------------|-----------------------------|-------------------------|
| Metro Area | Ozone | Short-term Particles | Annual Particles |
| Bakersfield | 3 | 2 | 2 |
| Fresno-Madera | 4 | 1 | 1 |
| Hanford-Visalia | 2 | 3 | 3 |
| Modesto-Merced | 8 | 4 | 4 |
| SF-Oakland-San Jose-Stockton | 36 | 6 | 7 |

Key Emission Sources:

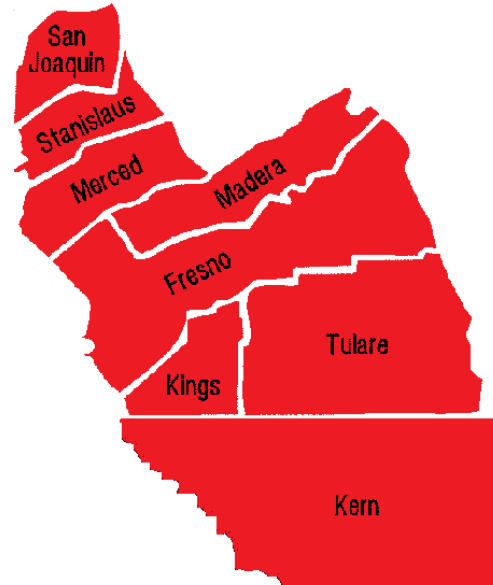
- On-road vehicles, especially diesel trucks and buses contribute the majority of the NO_x emissions (ingredient of ozone) in the San Joaquin Valley; all mobile sources combined account for 85 percent.
- Goods movement operations, including the Port of Stockton
- Agricultural burning and operations, especially diesel agricultural equipment and vehicles
- Fugitive emissions from the oil and gas industry represent a significant source of stationary source pollution
- Residential wood burning (contributes to elevated Winter time particle levels)
- Exceptional events, like wildfires add to the Valley's air pollution challenges.

Pollution hotspots like freeways and major roadways, ports and rail yards pose real health risks to nearby residents and should be the focus of additional monitoring (monitoring stations are distributed throughout California counties and are not always in close proximity to major or localized pollution sources). As the result of new federal regulations, several air districts throughout California are now installing and operating permanent air monitoring sites near major roadways.

**American Lung Association
State of the Air 2014**
Annual Unhealthy Particulate Days, 2011 - 2013



**American Lung Association
State of the Air 2015**
Annual Particulate Grade



All sources: American Lung Association, State of the Air 2015
California Air Resources Board, Almanac of Emissions and Air Quality, 2013

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