

# **Pinal County Air Quality Regulatory Air Monitoring**

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A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, set against the blue background.

# CRITERIA POLLUTANTS

- ▶ Criteria pollutants are pollutants for which the EPA has set forth National Ambient Air Quality Standards (NAAQS).
- ▶ The NAAQS are intended to protect the public health and welfare by setting limits on the allowable level of each pollutant.
  - ▶ Primary Standards protect the public health
  - ▶ Secondary Standards protect public welfare
- ▶ The criteria pollutants are:  $PM_{10}$ ,  $PM_{2.5}$ ,  $O_3$ ,  $CO$ ,  $SO_2$ ,  $NO_2$ , and Pb.
- ▶ Areas which exceed the NAAQS are defined as nonattainment for the pollutant that exceeded the standard

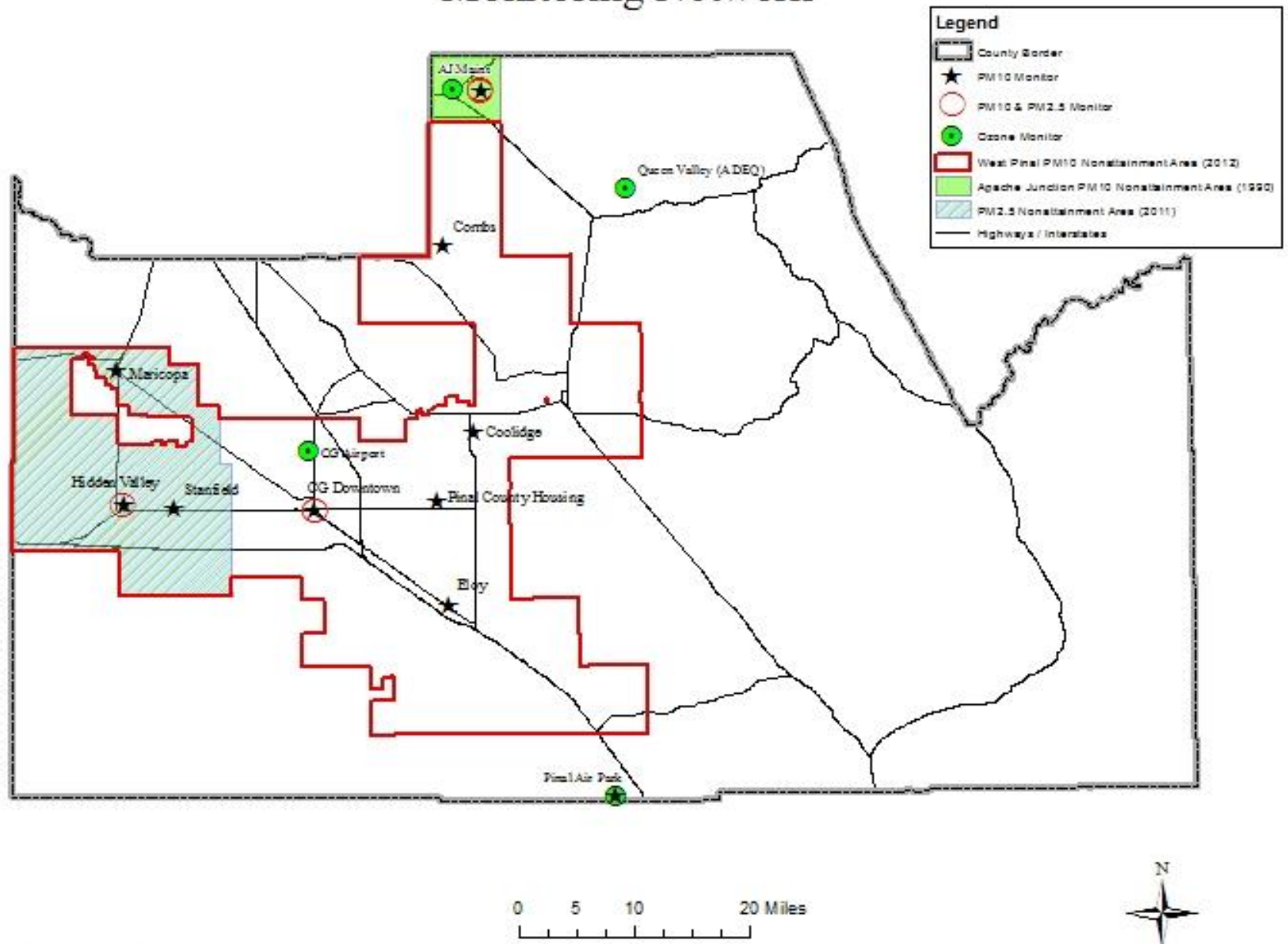
# FEDERAL AIR MONITORING REQUIREMENTS

- ▶ Defined at 40 Code of Regulations Part 58 and appendices.
  - ▶ Part 58 defines:
    - ▶ Quality Assurance Methods
    - ▶ Monitoring Methods
    - ▶ Network Design
    - ▶ Site Design
    - ▶ Sample Frequency
    - ▶ Federal Reporting
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# MONITORING OBJECTIVES

1. Determine the highest concentrations expected to occur in the areas covered by the network
2. Determine representative concentrations in areas of high population density
3. Determine the impact on ambient pollution levels of significant sources or source categories.
4. Determine general background concentration levels.
5. Determine the extent of regional pollutant transport among populated areas.
6. Determine the welfare related impacts in more rural and remote areas in support of secondary standards.

# Pinal County Air Quality Control District Monitoring Network



# MONITORING ON THE GROUND

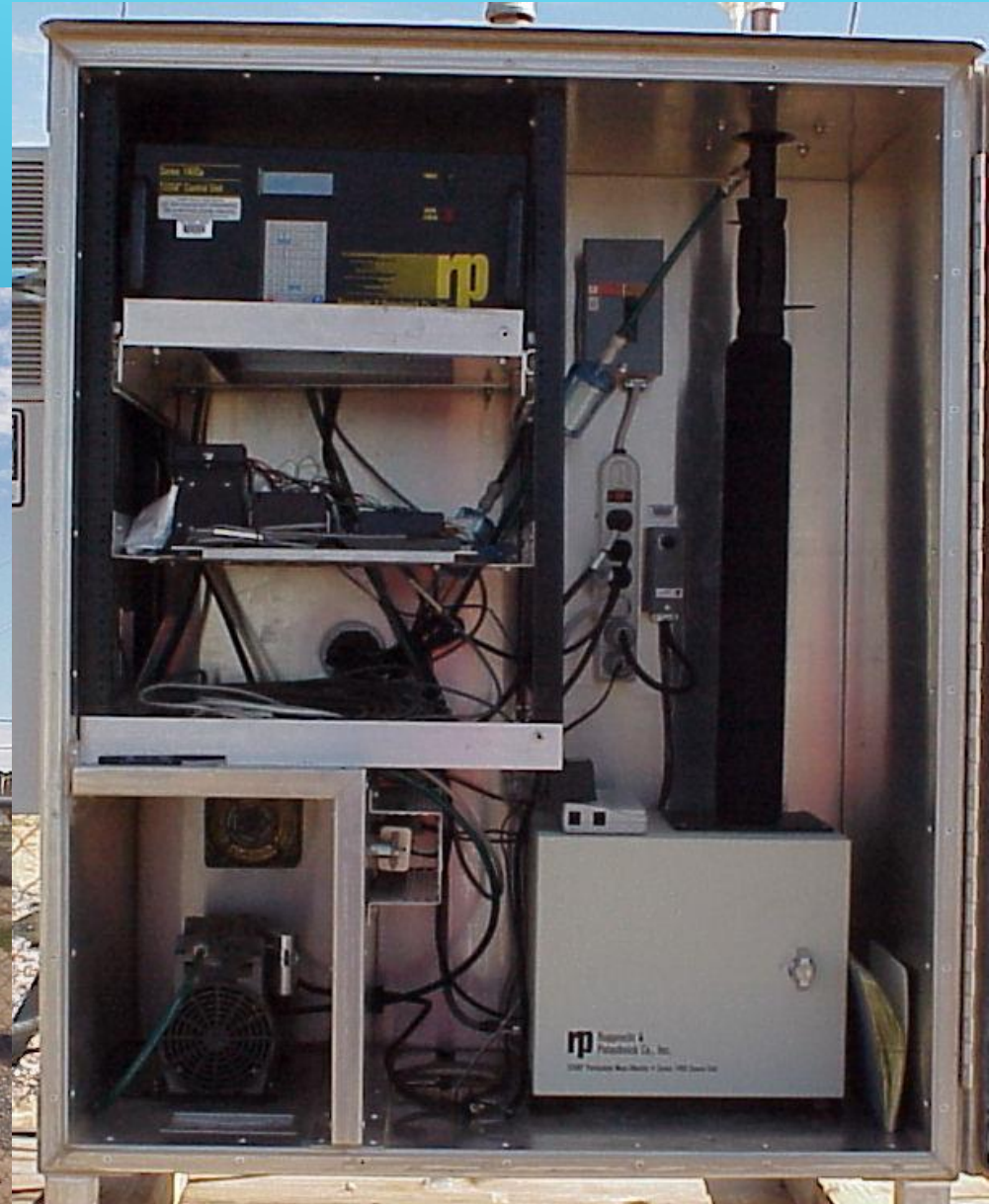
- ▶ Fixed locations required to compare to NAAQS timelines.
- ▶ Equipment/Sites are not very portable.
- ▶ Generally located in populated areas
- ▶ Core Requirements: Access, Security, and Power. Expensive to establish.
- ▶ Remote access to instrument via cellular network.
- ▶ Data interval of 1-hour normal, 5 minute averages possible with some instruments.
- ▶ Pinal County collects ambient data for PM<sub>10</sub>, PM<sub>2.5</sub> and ozone.

# SITE EXAMPLES






# PM10 TEOM - FEM







# NON-REGULATORY MONITORING


- ▶ Pinal County has conducted short term, localized monitoring efforts in the past.
    - ▶ Nuisance complaints, intensive and comparison studies.
    - ▶ Portable non-regulatory monitors; E-BAM, Dust-Tracks, Mini-Vols
  - ▶ Finding Temporary locations is sometime a challenge.
  - ▶ Short term data generally do not fit into NAAQS timelines.
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# SOLAR E-BAMS STUDY SITE



# CONCLUSION

- ▶ Regulatory monitoring limitations:
    - ▶ Timely feedback for event response is limited by collection frequency and measurement averaging.
    - ▶ Lack of mobility limits “hot spot” measurements.
    - ▶ Site infrastructure cost are high.
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# POTENTIAL METHOD TO VERIFY MITIGATION EFFECTIVENESS

- ▶ Quantitative Approach:
    - ▶ Surface stabilization tests; pre and post mitigation.
    - ▶ Develop numerical emissions estimates.
    - ▶ Quantify pre and post emissions.
    - ▶ On-going observation and re-testing.
    - ▶ Revisit mitigation as necessary.
  - ▶ Semi-quantitative Approach
    - ▶ Surface stabilization tests.
    - ▶ Visual observations & documentation over time.
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