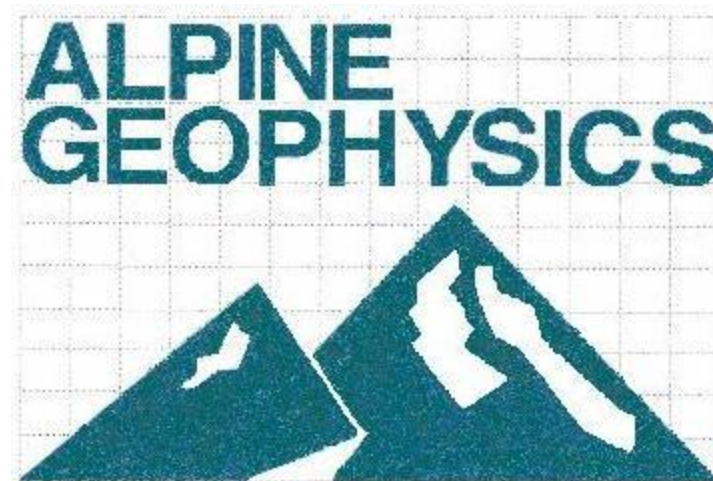# 2021-2023 Ozone and PM$_{2.5}$ Design Value Maps

November 2024

Prepared by Alpine Geophysics, LLC
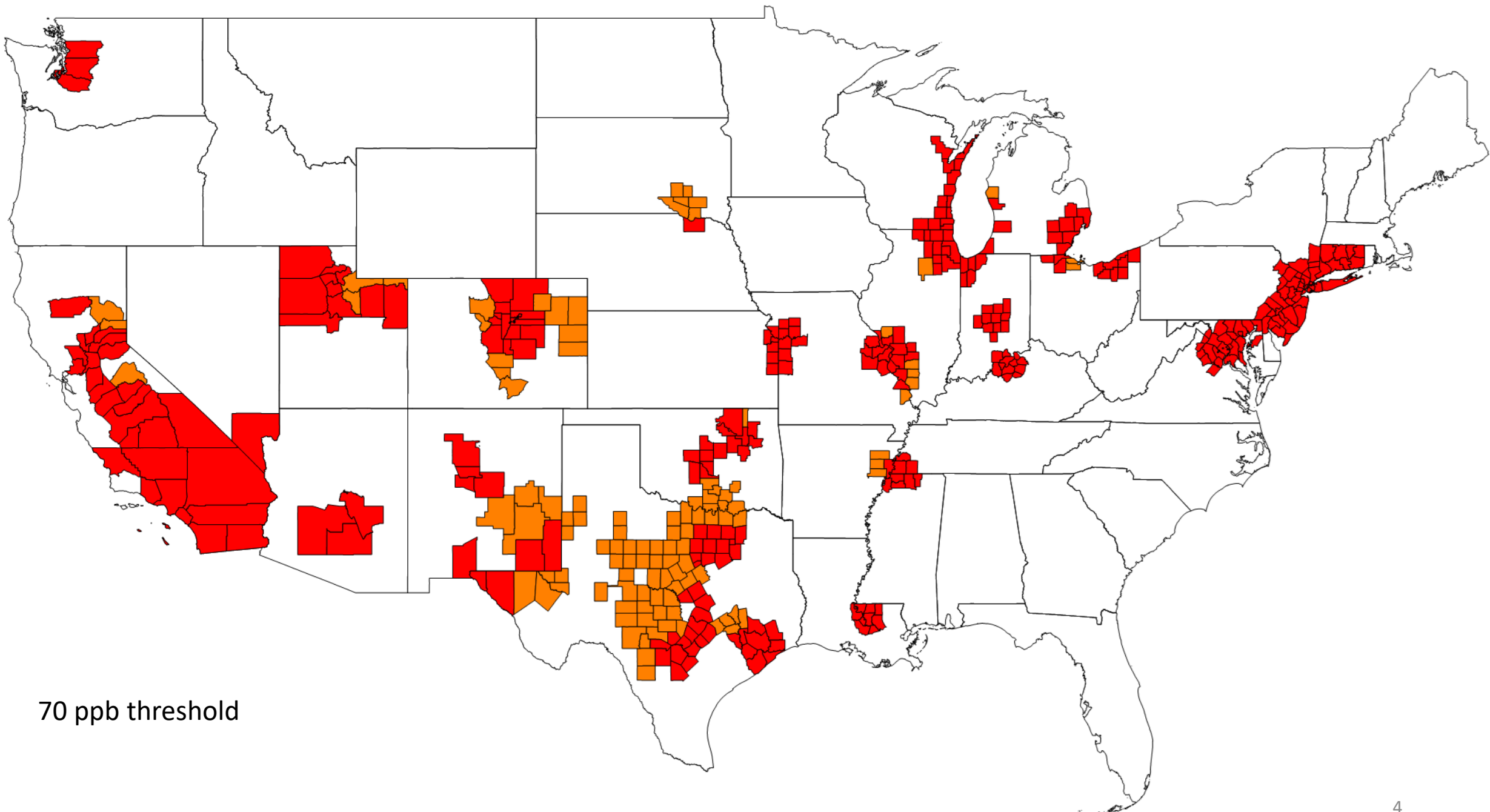
Ozone MDA8 Design Value Data and Map Key

- All DVs obtained from EPA's site
  - https://www.epa.gov/air-trends/air-quality-design-values

- Map colors
  - "white" indicates attainment with the noted NAAQS threshold
  - "red" indicates nonattainment with NAAQS threshold at county, NAA, or CBSA level
 - "orange" indicates nonattanment based on the kriging* method

*see next slide

Kriging Calculation

- Calculated non-monitored county values using a standard method of geospatial statistical interpolation ("kriging") that is used where spatially-related data has been collected and estimates of "fill-in" data are desired in the locations (spatial gaps) between actual measurements

- Five (5) closest monitored values used to estimate non-monitored county values using this inverse-distance weighted averaging method
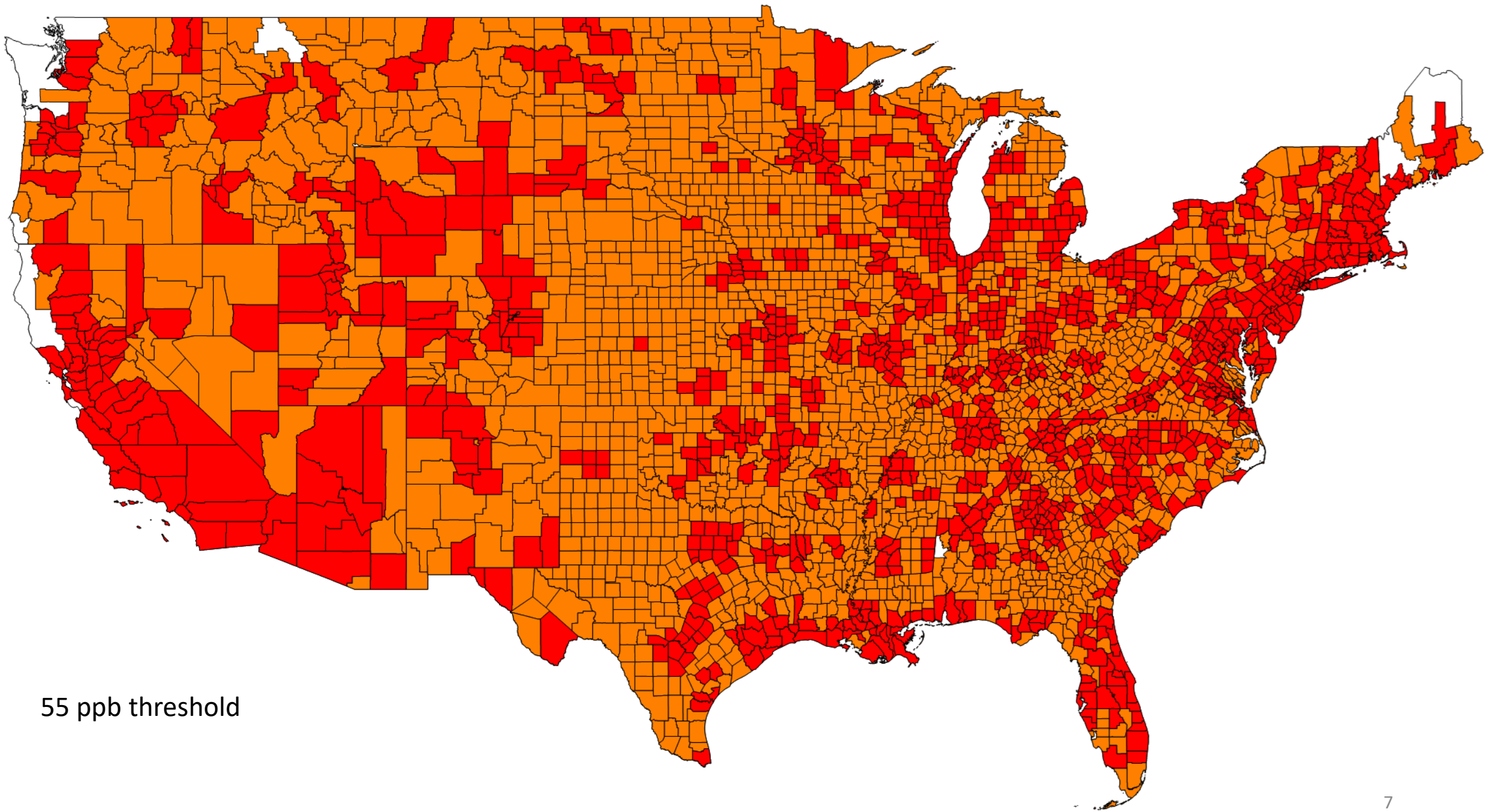
70 ppb threshold
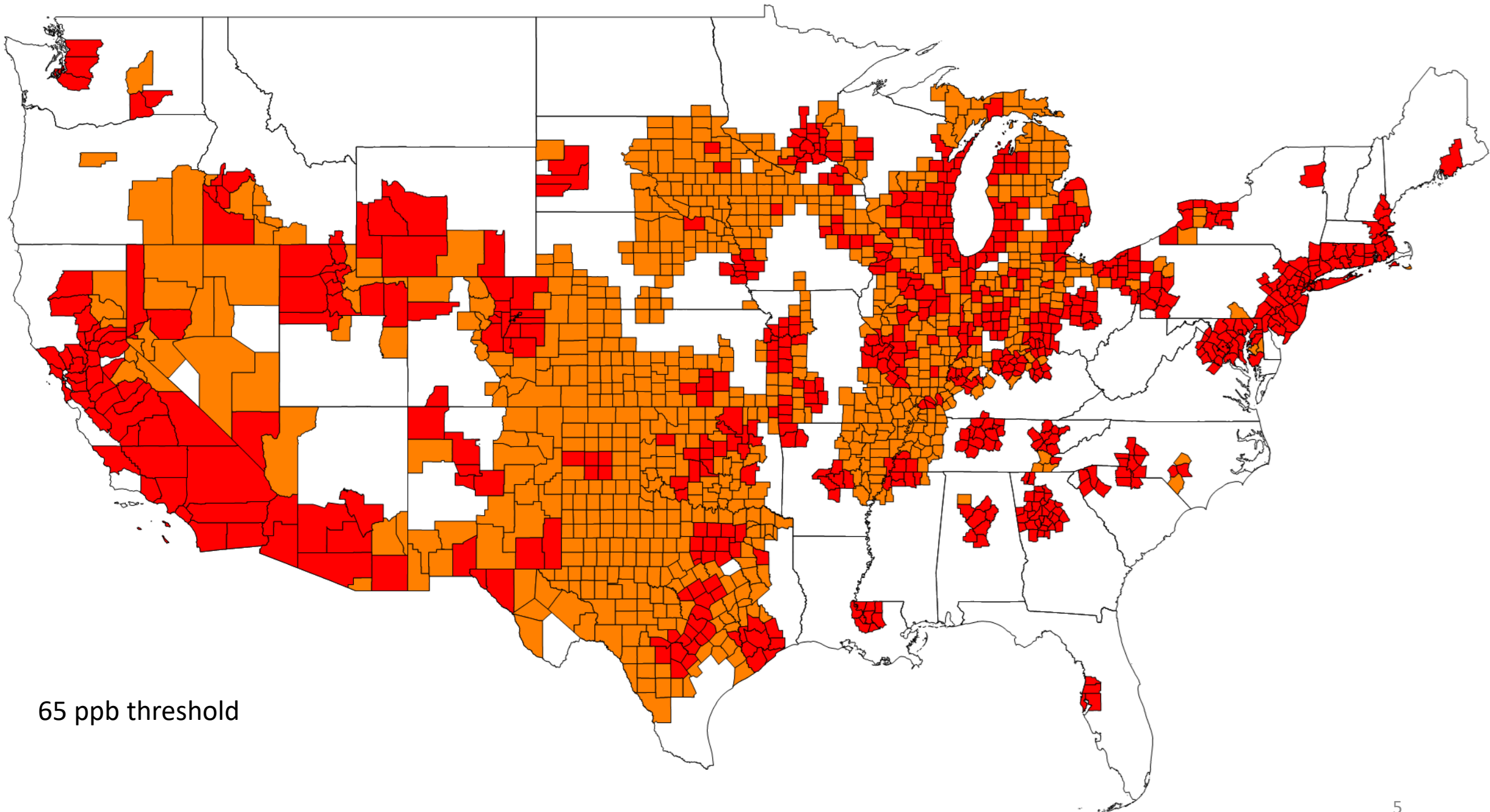
65 ppb threshold
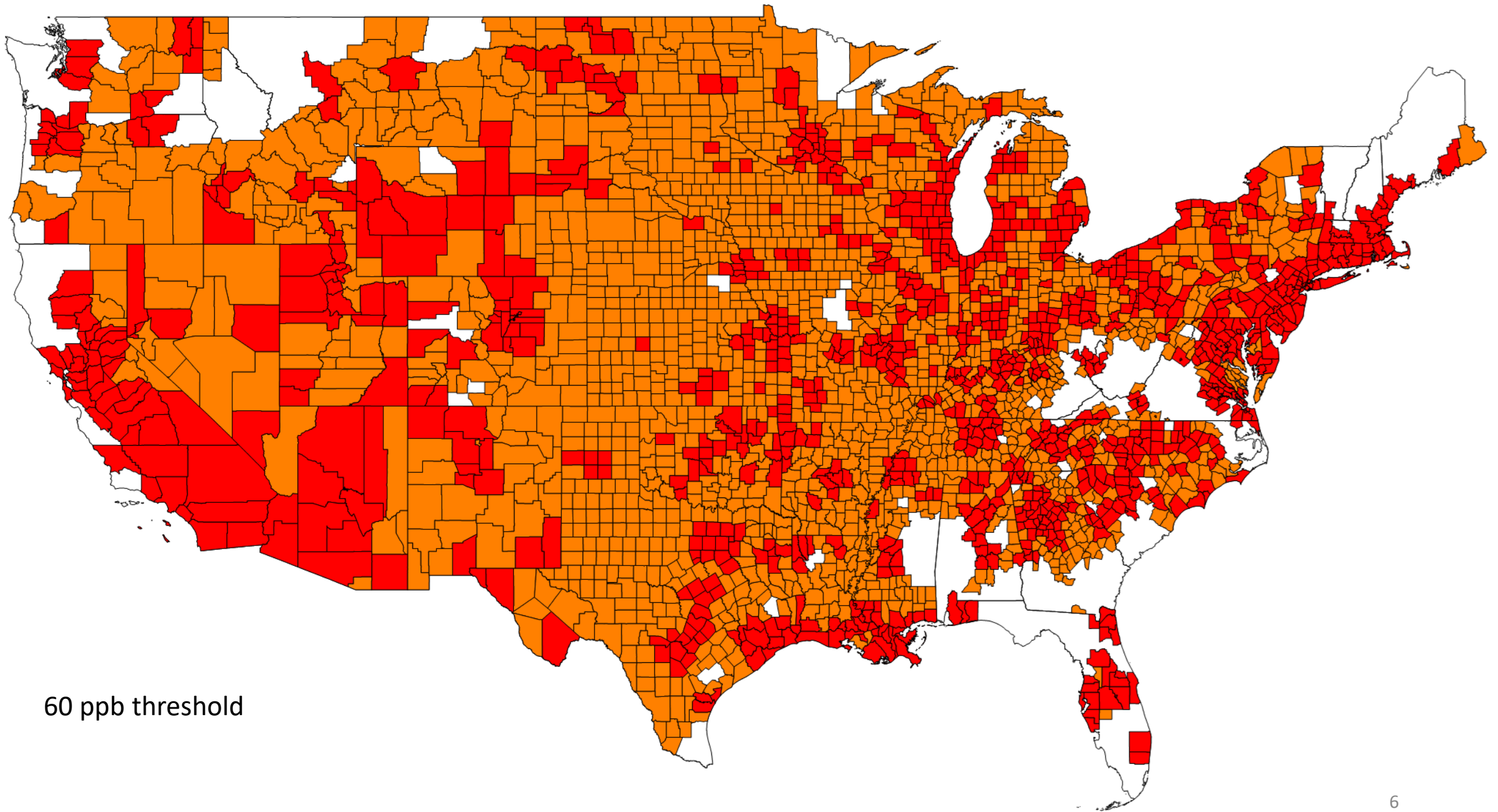
60 ppb threshold

55 ppb threshold

PM$_{2.5}$ Design Value Data and Map Key

- All DVs obtained from EPA's site
  - https://www.epa.gov/air-trends/air-quality-design-values

- Map colors
  - "white" indicates attainment with the noted PM$_{2.5}$ NAAQS
  - "red" indicates nonattainment with noted PM$_{2.5}$ NAAQS at county/CBSA level
  - "orange" indicates nonattainment with noted PM$_{2.5}$ NAAQS using kriging

9.0 μg/m³ annual PM$_{2.5}$ NAAQS
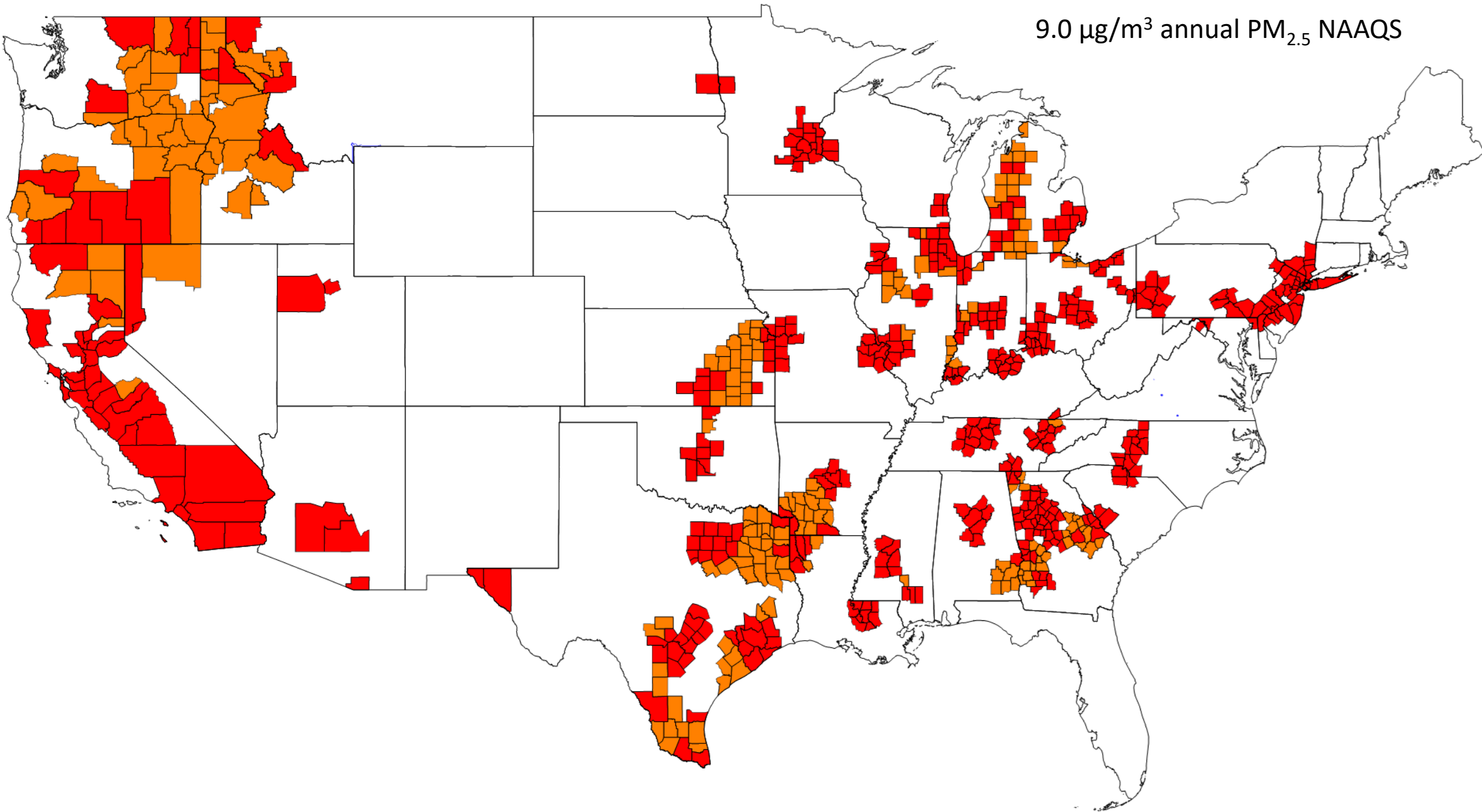
35 μg/m³ daily PM$_{2.5}$ NAAQS
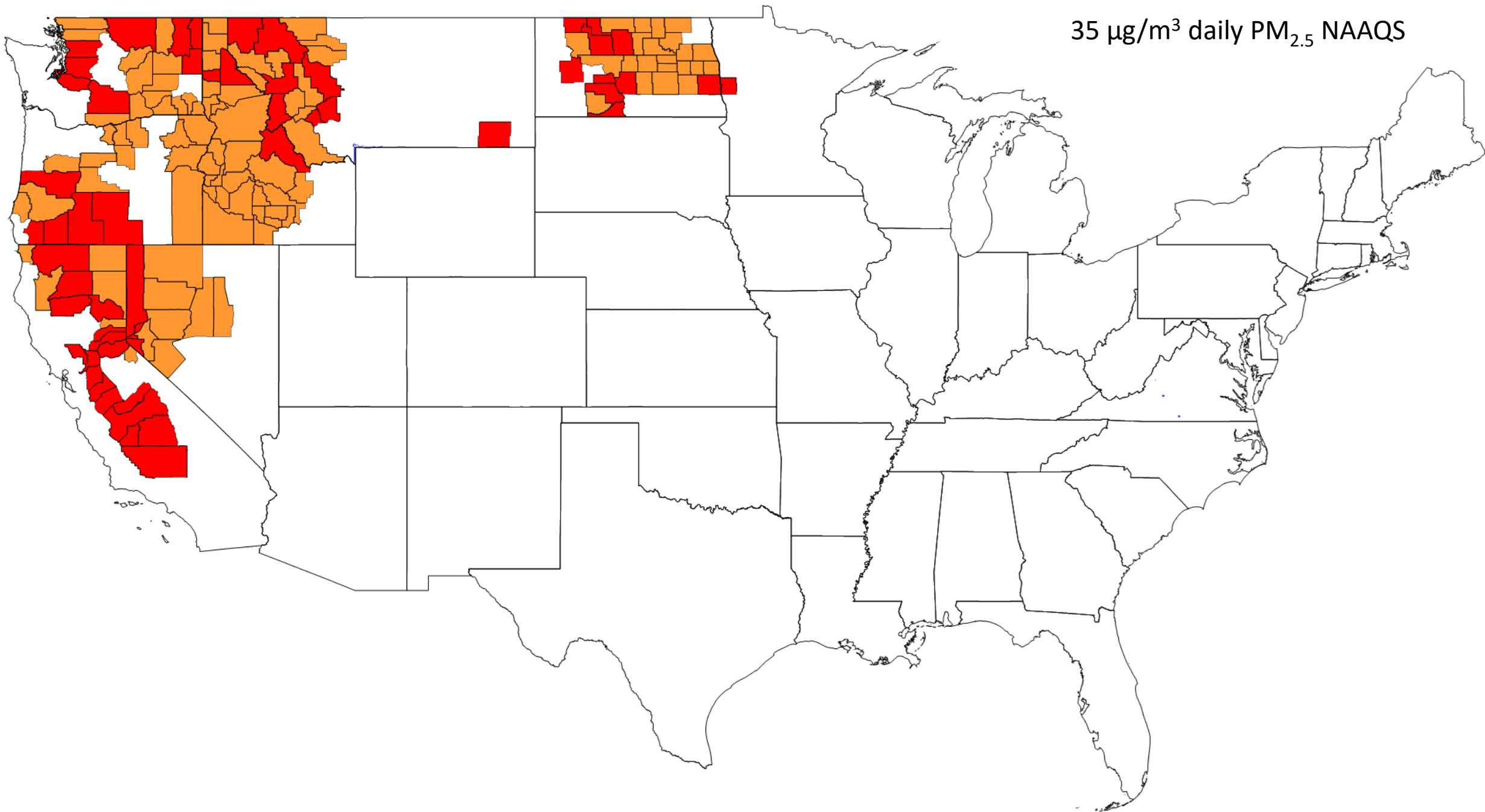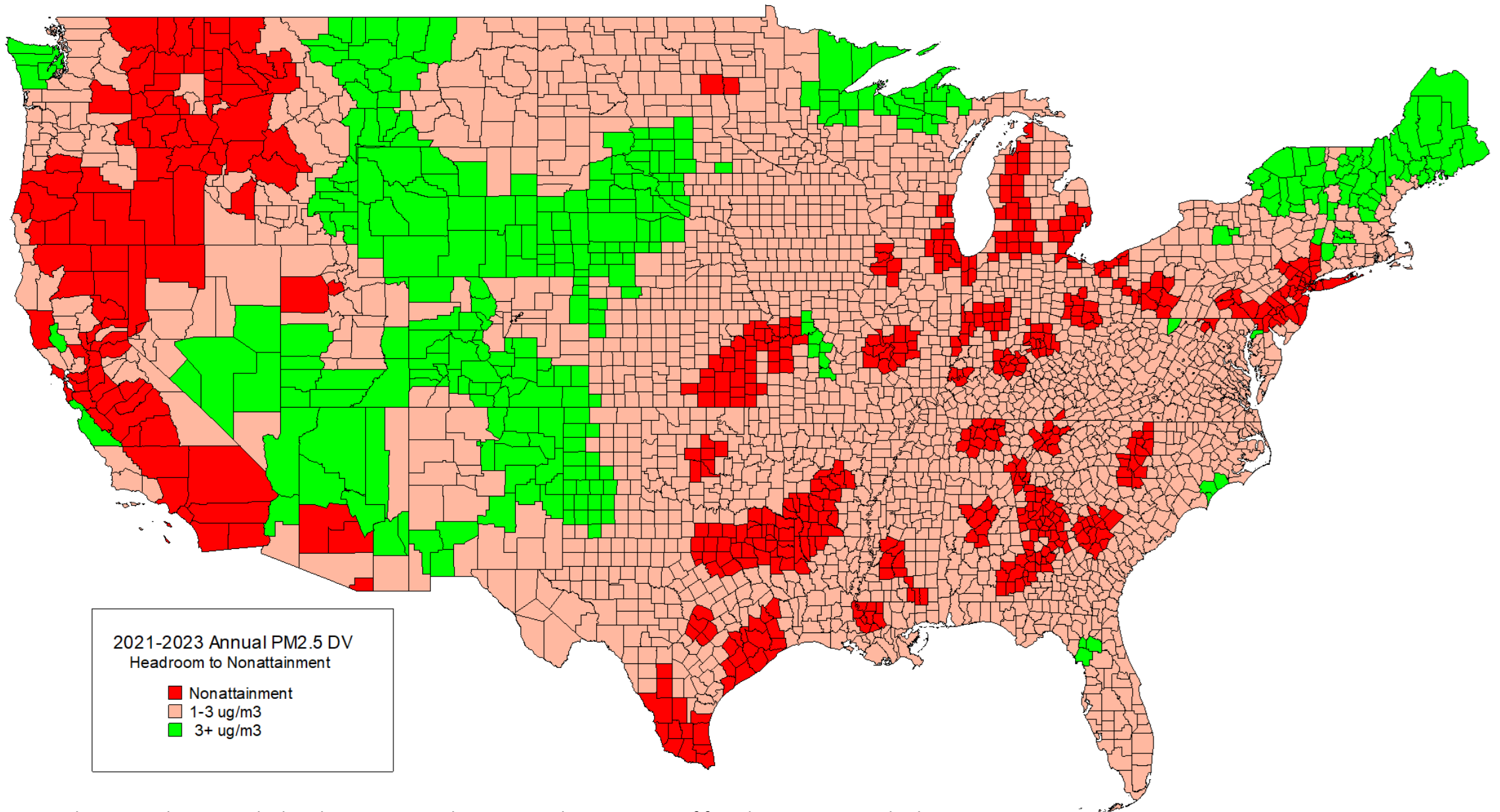
PM$_{2.5}$ DV Headroom Mapping

- Used maximum annual 2021-2023 PM$_{2.5}$ DVs to represent each monitored county and expanded to CBSA boundaries using maximum value within the CBSA

- "Headroom" is remaining $\mu g/m^3$ to reach annual PM$_{2.5}$ NAAQS

Headroom to 9.0 μg/m³ Annual PM₂.₅ NAAQS

Legend:
2021-2023 Annual PM2.5 DV
Headroom to Nonattainment

- Nonattainment
- 1-3 ug/m3
- 3+ ug/m3

Non-monitored county values are calculated using inverse distance weighting average of five closest monitored values