

# Healthy People, Healthy Soil, and Profitable Farming – Re-Visioning the Agricultural Paradigm

## An Air Quality Perspective

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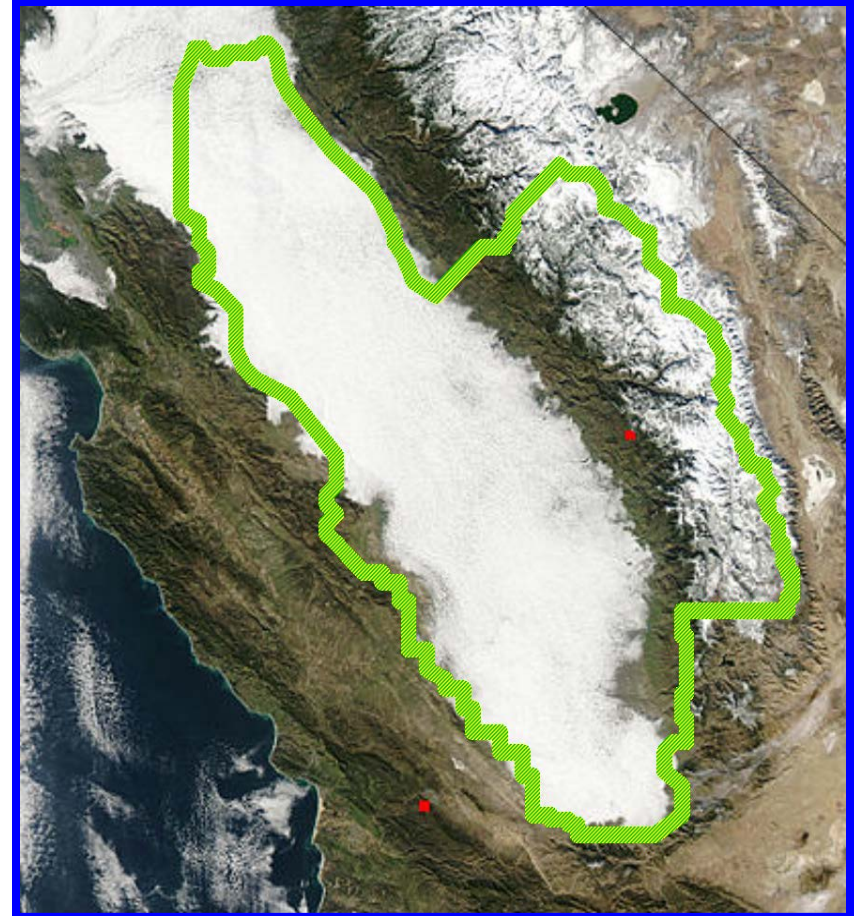


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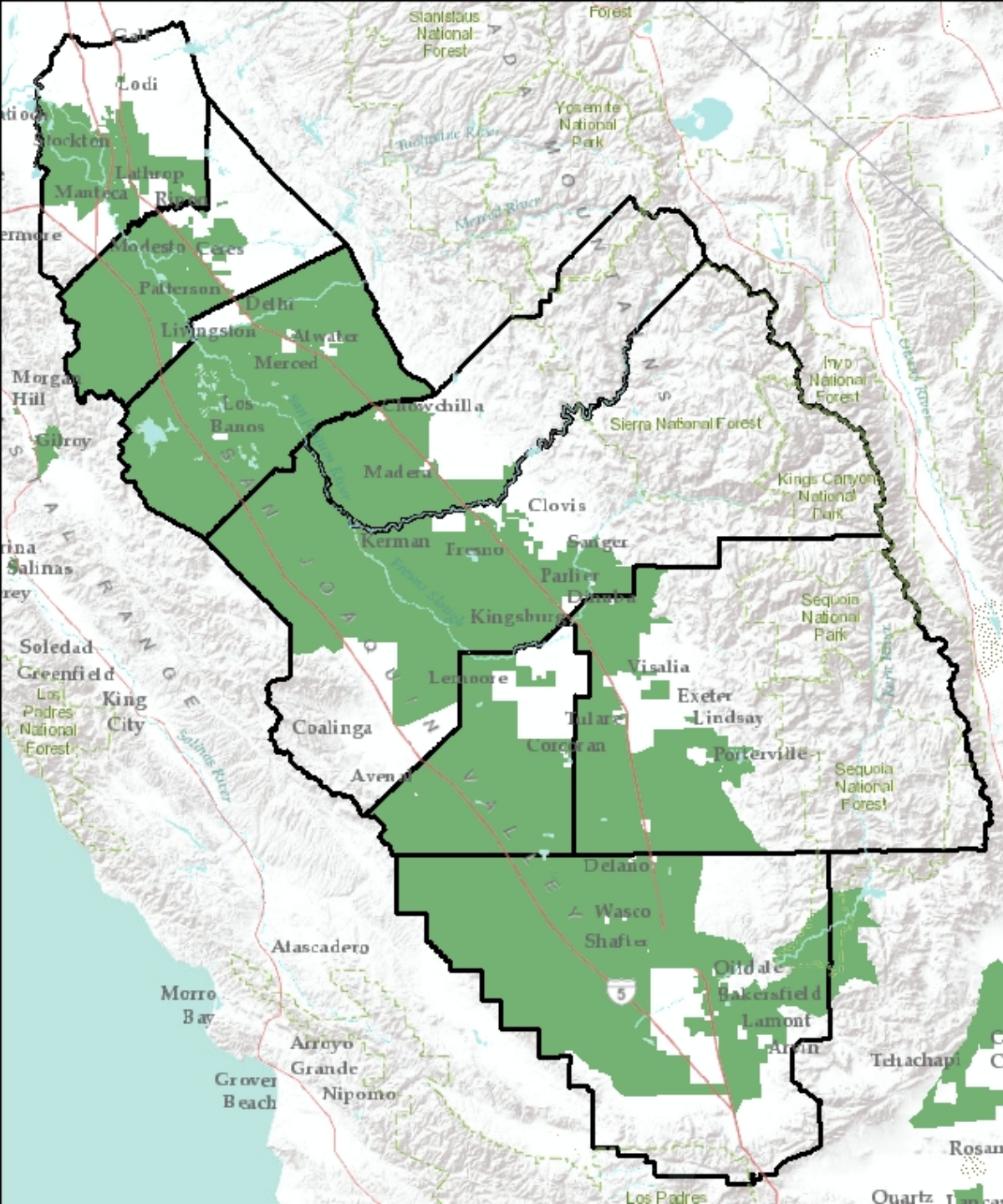
# Air Quality Challenges in the San Joaquin Valley

- Surrounding mountains and meteorology create ideal conditions for trapping air pollution
- Interstate-5 and Hwy 99 (major transportation corridors)
- Extreme nonattainment for 8-hr Ozone Standard (summer)
- Serious nonattainment for PM<sub>2.5</sub> Standards (winter)
- NO<sub>x</sub> the most critical pollutant in the SJV for both ozone and PM<sub>2.5</sub>
- ~ 85% of NO<sub>x</sub> from mobile sources
- > 80% reduction in stationary source NO<sub>x</sub> emissions since 1980



# CalEnviro-Screen 3.0

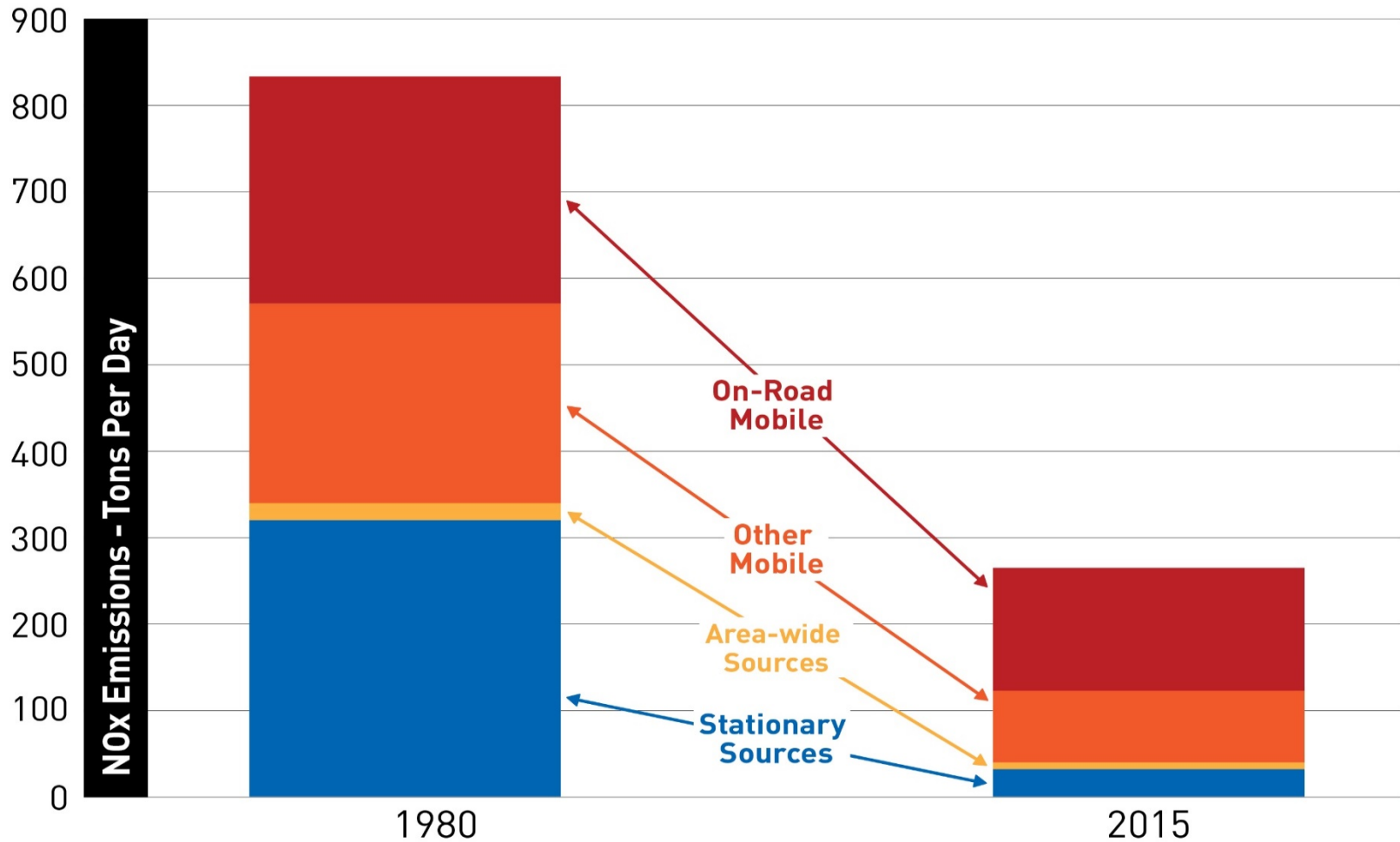
The San Joaquin Valley is home to 20 of the 30 most disadvantaged communities in the state



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# Major Reduction in all Sectors (1980 v. 2015)

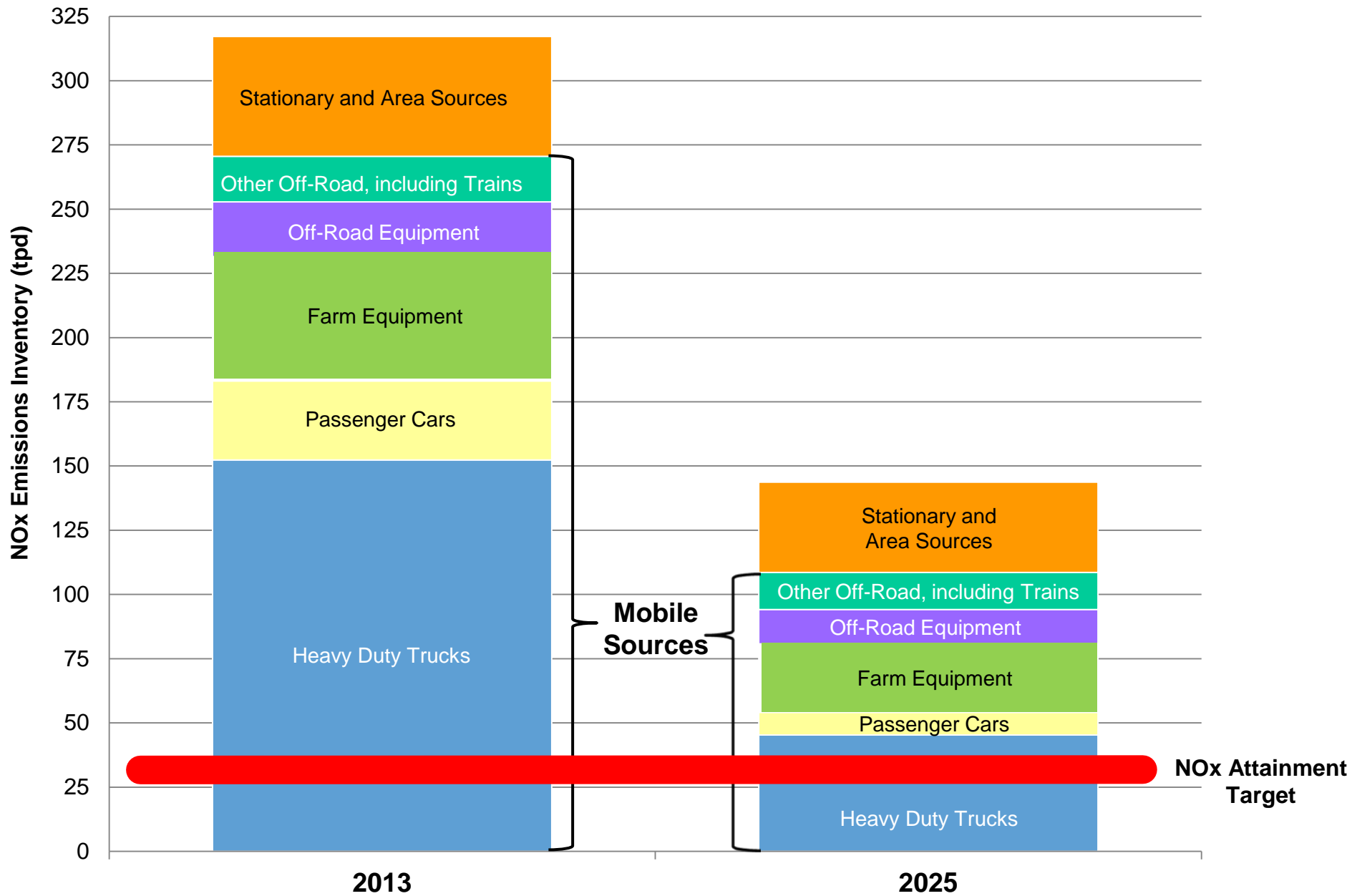


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# Additional NOx Reductions Needed in SJV

(2025 Serious Deadline for 2012 Annual PM2.5 Std)



# District Must Develop Plans that Show Valley Will Achieve Clean Air

- **Stationary Equipment (District jurisdiction):**
  - Rules for commercial charbroilers, residential fireplaces, boilers, glass furnaces, flares...
  - 5<sup>th</sup>-6<sup>th</sup> iteration of many rules since 1970s and 80s
  - Only very small reductions possible – 2.3 tons/day
- **Mobile Sources (State/Fed Jurisdiction):**
  - Computer models show Valley needs 55 tons/day more to achieve clean air
  - State has committed to 30 tons/day from mobile
  - District will invest >\$400 million/yr to replace cars, trucks, tractors, etc., with cleaner units



# Significant Sanctions if District Plan Can't Show Clean Air by 2025

- Virtual Ban on Industrial Development
  - 2-1 emission offsets
- Loss of Federal Highway Funding
  - Over \$2 billion dollars per year
- Federal EPA takes over local program
  - Federal Implementation Plan
  - No-drive days, no-farm days possible
- Current planning efforts are close, but need more reductions for attainment
  - **Sanctions could start in 2-3 years**

# Impacts from Healthy Soil Efforts

- Most appear beneficial to air quality:
  - Efforts that minimize soil disturbance are beneficial (less dust, tractor passes)
    - No Till, Minimum Till, other
  - Alternatives to open burning of woody ag waste
    - Chip and incorporate prunings
    - Chip and incorporate whole orchards
    - Pyrolysis/Biochar
- Air quality benefits of composting less clear
  - Pro: diversion goals achieved, GHGs reduced
  - Con: criteria and toxic pollutants increased
    - Affect public health, especially in EJ communities





# Estimated Composting Impacts

- CalRecycle: need 90 more composting operations, 5 - 15 in SJV
- Millennial Jane's composting operation:
  - 500 wet tons of compost/day
  - 0.5 tons VOC/day, 0.06 tons NOx/day
  - Controlled composting, ~\$1,000,000 in ERCs
  - Only on-site emissions, doesn't include trucking to and from site (CEQA)
- For 15 such composting operations in SJV
  - 7.5 tons VOC/day, 0.9 tons NOx/day



# Problem and Potential Solutions

- Ambitious District Air Quality Plan: by 2025, only 2.3 t/d NO<sub>x</sub> reductions from ALL stationary sources
  - So composting growth can negate half of plan's reductions (result: sanctions & prolonged unhealthy air)
- Potential solutions – what if...
  - Composting facilities commit to taking agricultural woody waste, reducing emissions from open burning?
  - Rules are changed to allow “netting”, where reductions come from eliminating historical fate of organics (landfill?)
  - Controls are applied to existing uncontrolled composting operations, creating reductions that can mitigate new/expanded operations?
  - The state provides funding for needed mitigation?

