

NCore Update

National Ambient Air Monitoring Conference

Nashville, TN

November 3rd, 2009



4103 BEACON AVE SOUTH
Seattle, WA



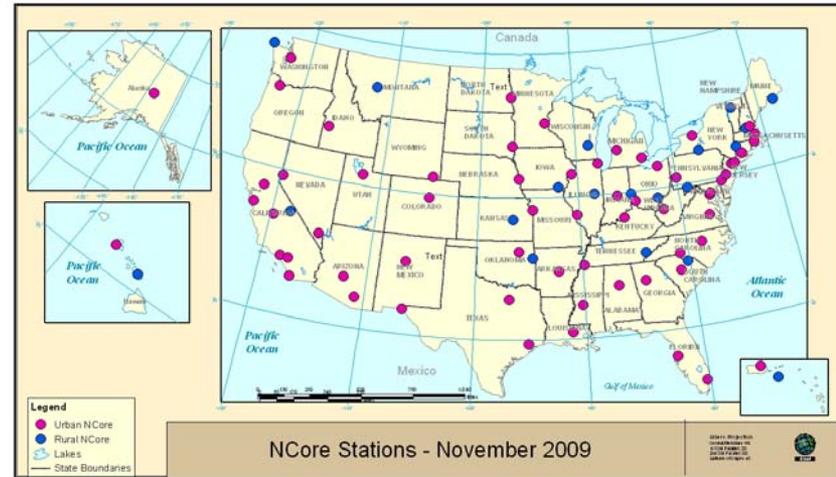
14700 GODDARD
Allen Park, MI



FIRE STATION#24
NORTH TULSA, OK

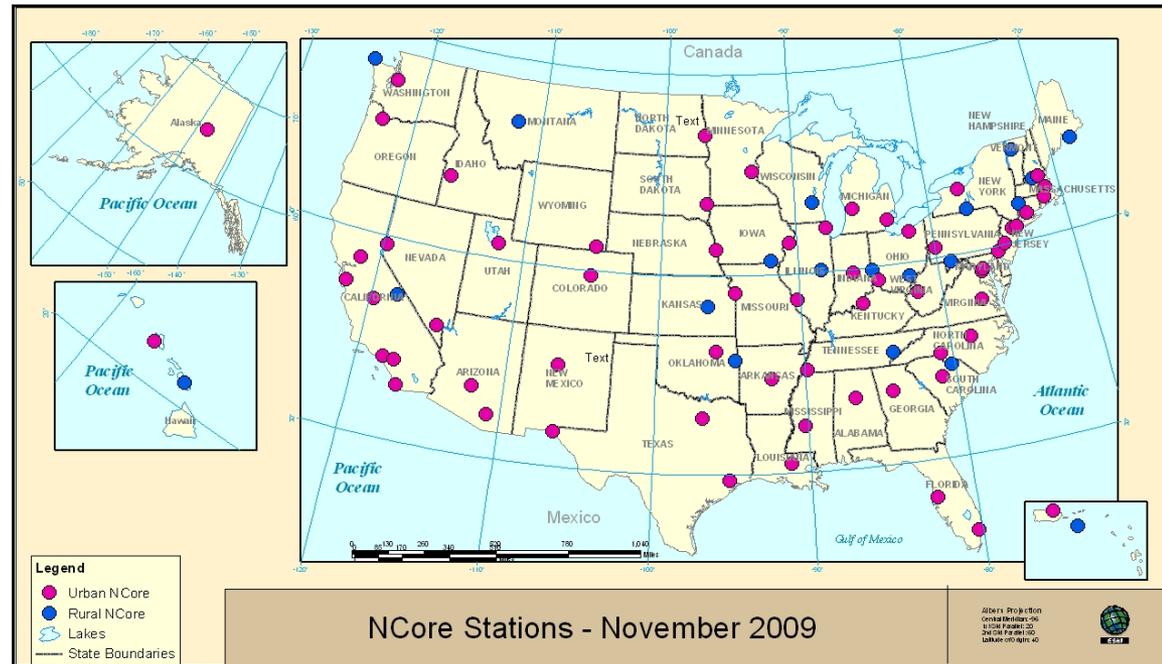


8311 Parklane Road
Columbia, SC



National Core (NCore) Network Status

- Plans received this summer
- 82 Stations Proposed
 - 62 Urban
 - 20 Rural
- EPA has processed approval of majority of stations
 - In the mail this week

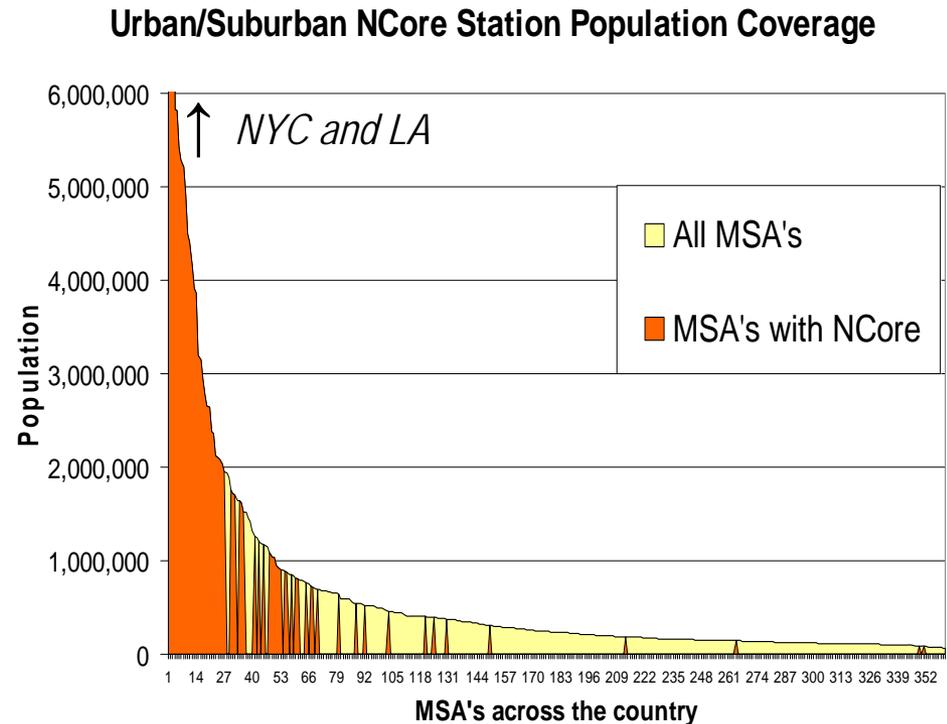


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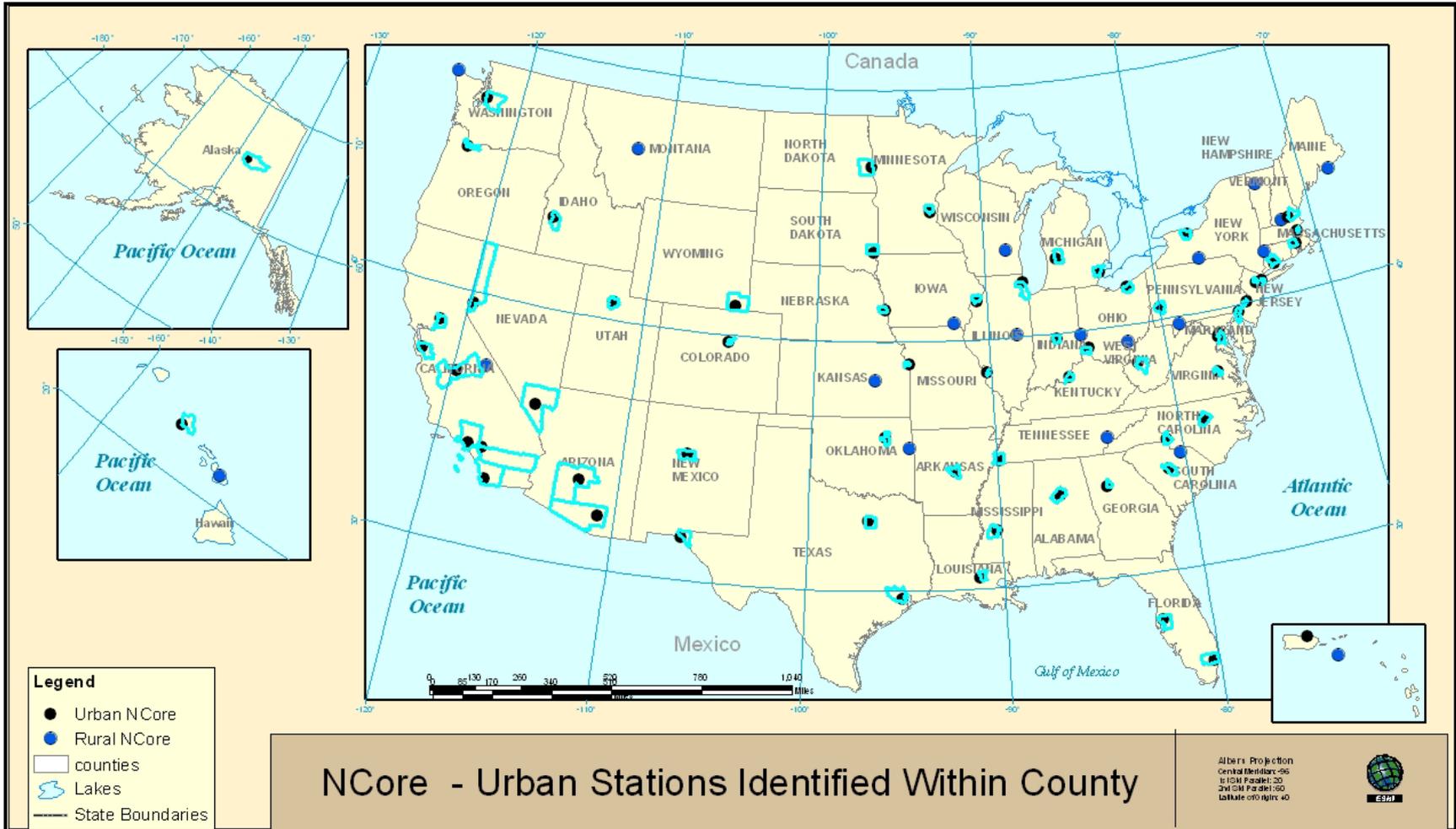


Urban/Suburban NCore Population Coverage

- 62 Urban NCore Stations
- Total population coverage of Urban/Suburban NCore (from 2005 census bureau estimate) for CSA's and CBSA's in the U.S.
 - 158 million people
- 27 Largest CSA/CBSA's are covered by NCore. This includes all metro areas with a population over:
 - 2 million people
- Largest population MSA not covered by an NCore station?
 - Orlando, FL
- Smallest population MSA covered by NCore
 - Cheyenne, WY

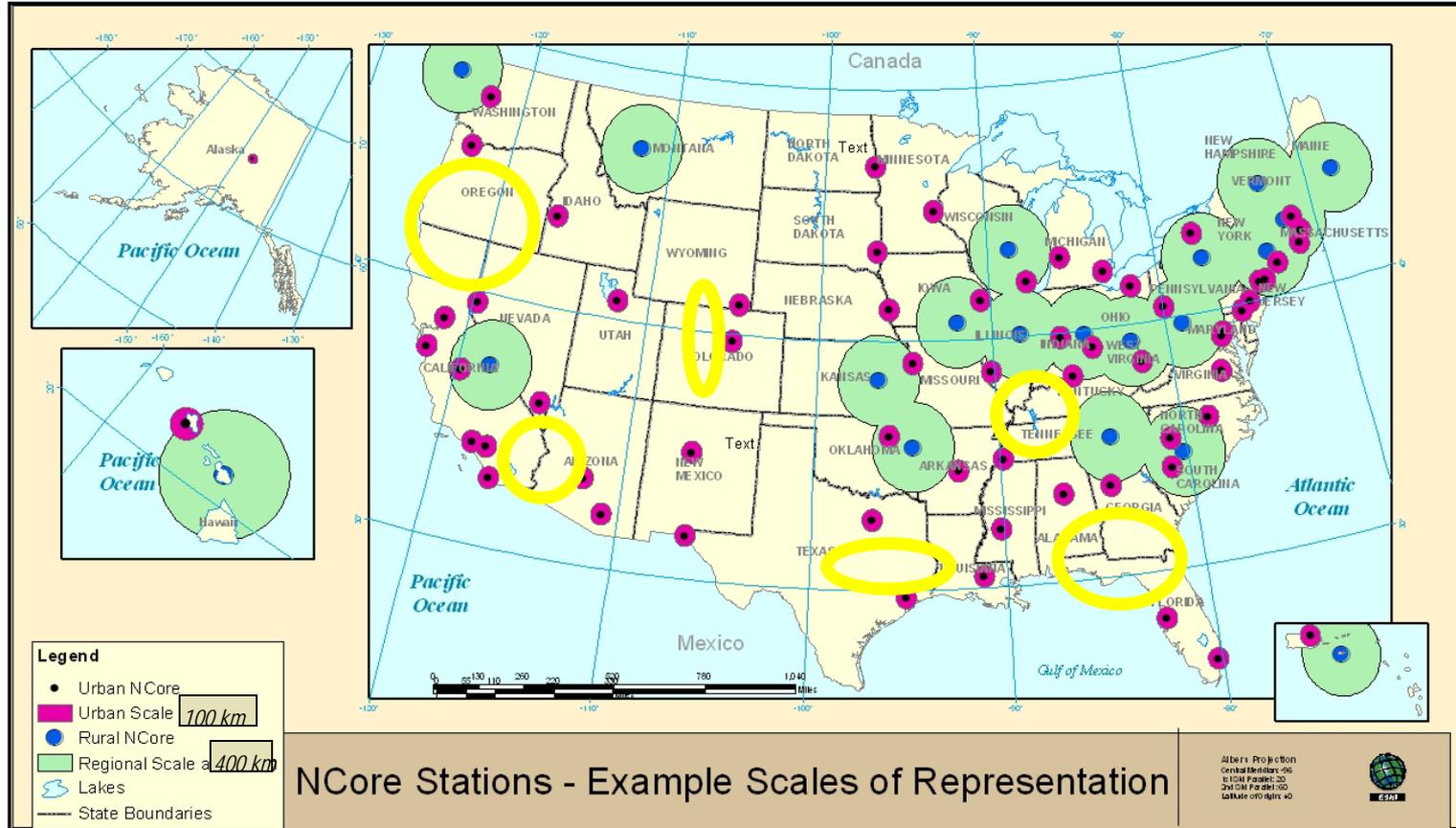


Urban Coverage by County



- Good Geographical Coverage Across the Country

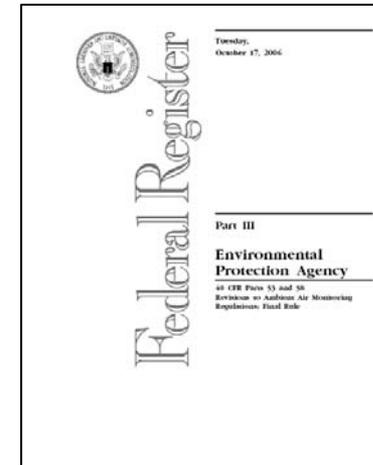
Rural NCore with example of 400 km Coverage



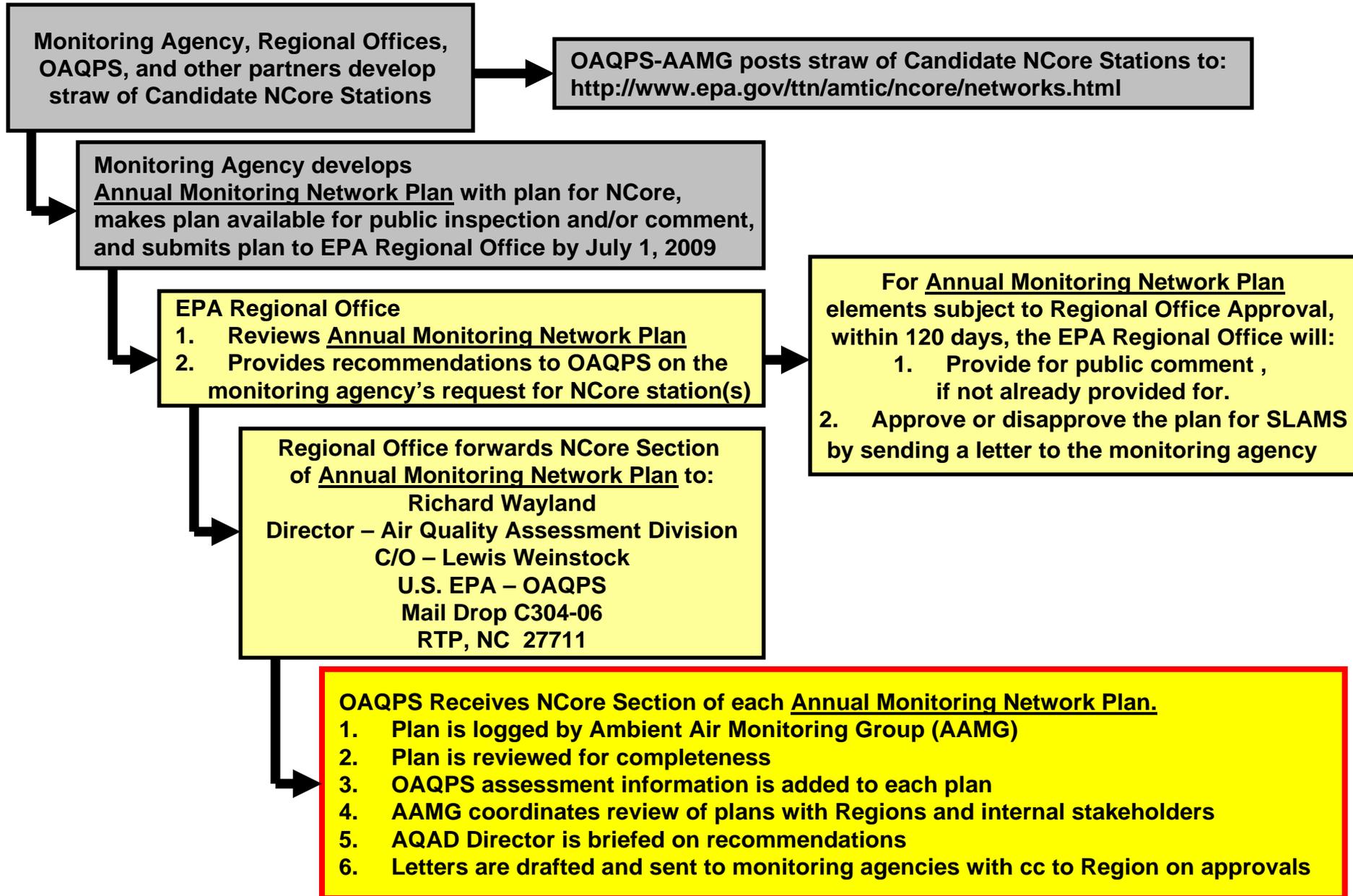
- Good rural coverage in Northeast and Midwest
- Additional Rural Coverage needed in:
 - West
 - Mountain West
 - Southwest
 - Southeast

NCore Station Approval

- §58.10 Annual monitoring network plan and periodic network assessment
 - Provides for annual monitoring network plans
 - The plan for establishing required NCore multipollutant stations shall be submitted to the Administrator not later than July 1, 2009
- Approval of NCore plans has been delegated to:
 - Richard (Chet) Wayland) - Division Director of Air Quality Assessment Division, EPA – Office of Air Quality Planning and Standards



NCore Network Planning and Approval Flowchart



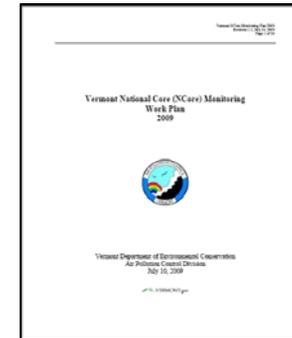
OAQPS Receives NCore Section of each Annual Monitoring Network Plan.

1. Plan is logged by Ambient Air Monitoring Group (AAMG)
2. Plan is reviewed for completeness
3. OAQPS assessment information is added to each plan
4. AAMG coordinates review of plans with Regions and internal stakeholders
5. AQAD Director is briefed on recommendations
6. Letters are drafted and sent to monitoring agencies with cc to Region on approvals



Tools used for NCore Approval Review

- ✓ Annual Monitoring Plan
- ✓ Regional Recommendations
- ✓ NCore Site Characterization Reports from Sonoma Technology Inc.
 - Copies of site characterization reports available in exhibition hall and on web
- ✓ AirExplorer/Google Earth kml files of PM_{2.5} mass, CSN, and ozone monitoring stations
 - <http://www.epa.gov/airexplorer/>



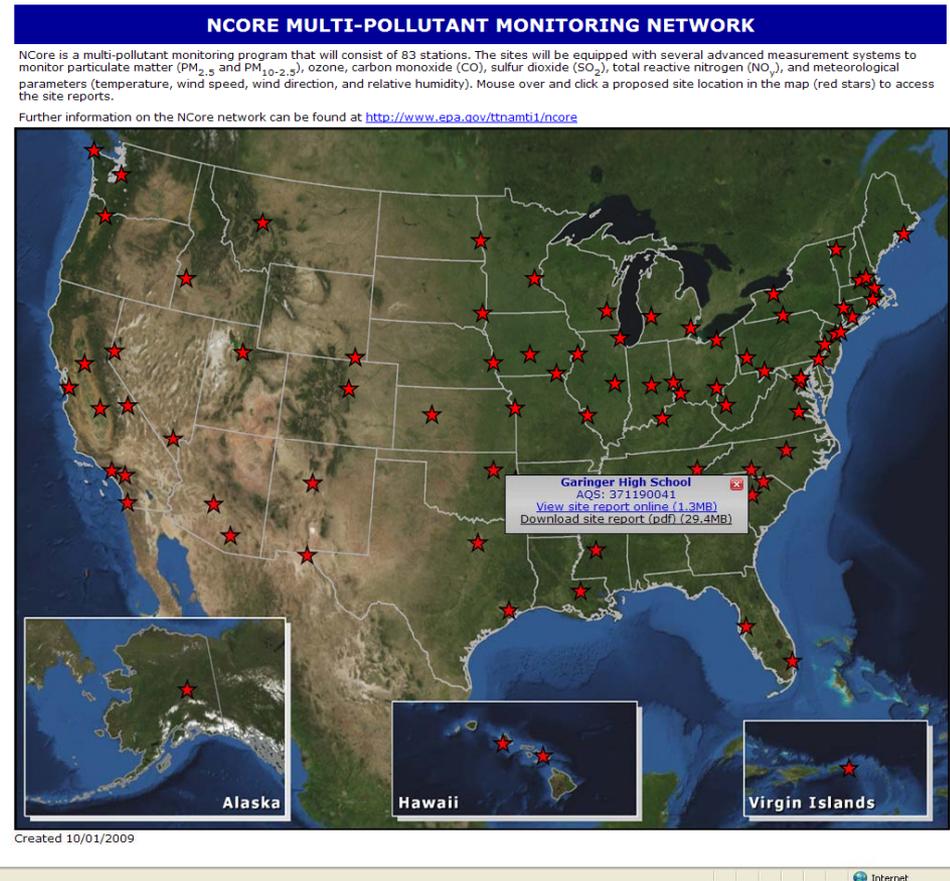


Map Monitoring Sites
Explore monitoring locations with Google Earth. Download annual and daily data.



NCore Site Characterization Reports

- Google Earth Site views
- Local Topography
- Land cover
- Population densities
- Traffic volumes
- Emissions data
- Pollution trajectories
- Wind roses
- Fuel use
- Climate summaries



<http://ncore.sonomatechdata.com/#map>



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Aerial Site Views



Image from Google Earth

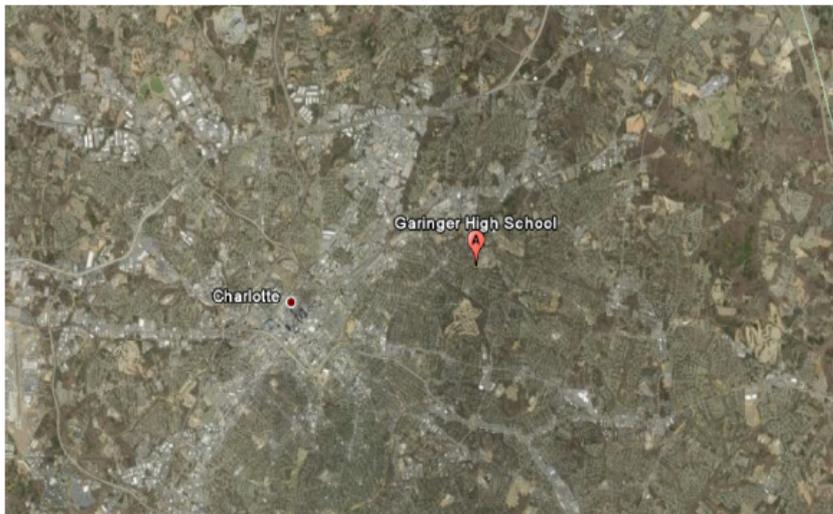
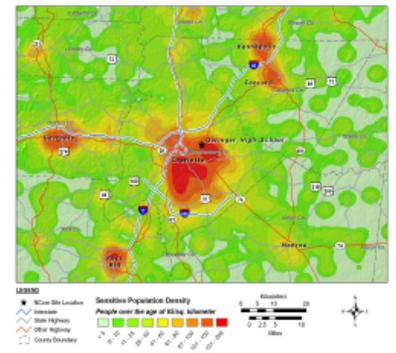
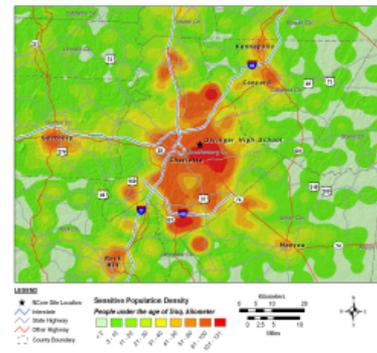
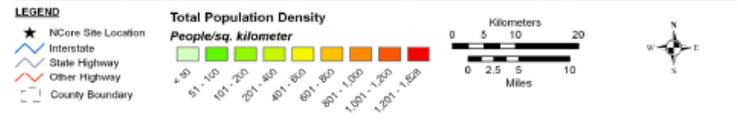
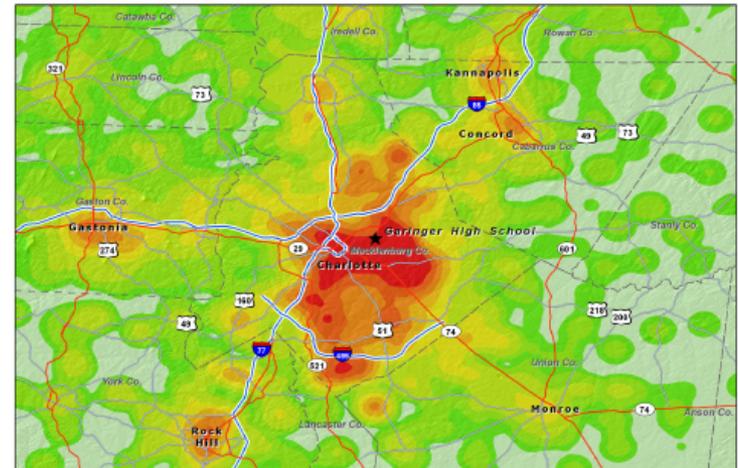


Image from Google Earth

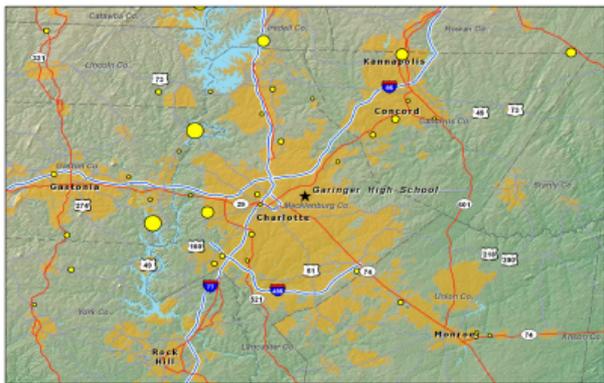
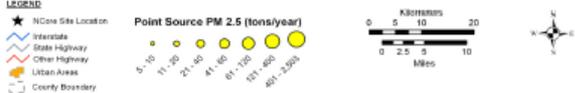
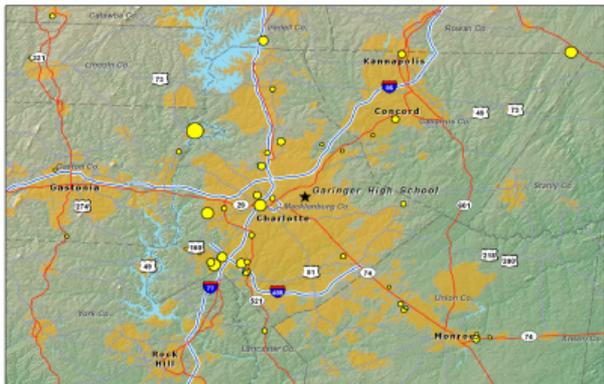
Population Density

Population data were collected at the block-group level from the 2007 Census population projection estimates. Population density was mapped for the following population/socioeconomic parameters: total population and sensitive population (under the age of 5 and over the age of 65).



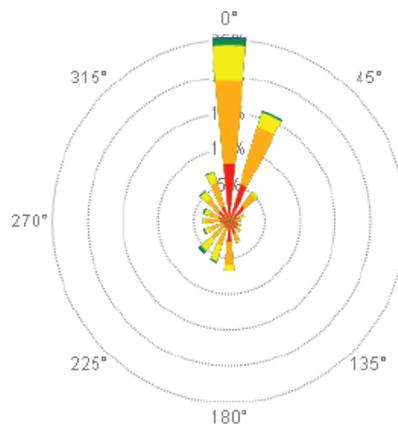
Facility Emissions

Major point source emissions data for VOCs, PM_{2.5}, NO_x, and SO₂ were collected from EPA's Air Quality System (AQS). Point source locations were mapped in graduated symbols depicting the 2005 annual emissions estimates. More information on facility emissions can be found at <http://www.epa.gov/air/emissions/where.htm>.

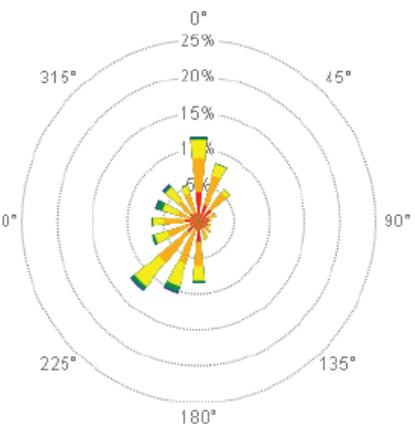


Wind Patterns

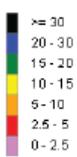
FALL
September, October, and November, 2005-2007



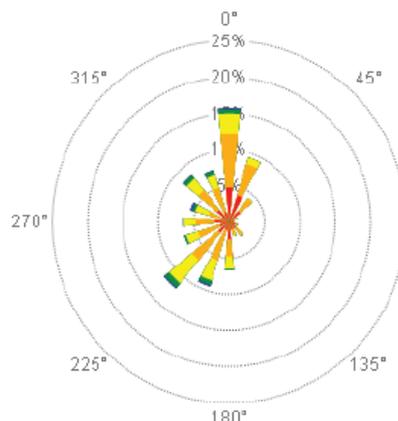
SPRING
March, April, and May, 2005-2007



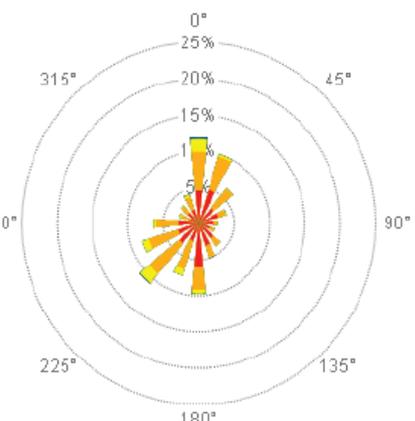
Wind Rose Legend
Wind Speed Units: miles per hour



WINTER
December, January, and February, 2005-2007



SUMMER
June, July, and August, 2005-2007



NCore Websites

- EPA AMTIC website will be updated with Google Earth Maps and site information with photos
 - <http://www.epa.gov/ttn/amtic/ncore/index.html>
 - Link to AQS data
- NCore site characterization reports on website hosted by STI
 - <http://ncore.sonomatechdata.com>



NCore Plans and Chemical Speciation

- 39 NCore sites are CSN Speciation Trend sites
 - These are part of the SLAM DUNKS
- 6 cities are moving the STN site
 - » Providence, RI
 - » Philadelphia, PA
 - » Gulfport, MS
 - » Charleston, SC
 - » Missoula, MT
 - » Fairbanks, AK



NCore plans cont...

- NCore sites leveraged with other networks
 - 9 rural sites are IMPROVE sites (may increase)
 - 14 sites are NATTS sites
 - 11 sites are PAMS sites
- 71 sites are either Chemical Speciation Network STN or Supplemental Speciation sites



NO_y Waivers - Part 58, Appendix D, 3(b)(1)

- NO_y waivers requested for 9 stations.
- To further investigate waiver EPA evaluated available information
 - Southeastern Aerosol Research and Characterization (SEARCH) data
 - Atlanta, GA – true NO_x and NO_y instruments
 - Community Multiscale Air Quality (CMAQ) model
- Results showed:
 - Long term (yr): values similar to each other
 - Short term: diurnal pattern during episodes in warm months, significant difference between NO_x (photolytic version) and NO_y



NOy waiver cont...

- Reconfirmed data users need for NOy measurements
 - Strong support for consistency across network
 - Input from key stakeholders for NCore
 - including Modelers
 - Majority of NCore sites have successfully implemented NOy measurements
- Based on these consideration, the NOy waivers will not be approved.
- For more information see poster by Rich Scheffe.



Next Steps on Approval of NCore Stations

- Approval letters being sent to Senior Official who submitted NCore Plan
 - Most stations have been approved
- Approval letters will come later for:
 - A small number of stations who are moving due to loss of site or looking for a more optimum location
 - These stations expected to be approved once confirmation of new location can be made
- Identification of remaining rural locations
 - To ensure enough rural coverage
 - Work with Regions, State and other agencies
 - Our preference is for States to coordinate with an existing NPS or CASTNET station
 - Need to factor in rural ozone monitoring – Final rule in 2010



What to Expect in Approval Letter

- ✓ Short one-page letter approving Station

- ✓ Enclosures to the letter
 - PM_{10-2.5} methods
 - Options for PM_{10-2.5} mass
 - Do not implement PM_{10-2.5} speciation
 - AQS Coding Instructions

Will email a BCC copy to technical contacts in Region and Monitoring Agency



*Your NCore Site Is Approved!
Now What?!*

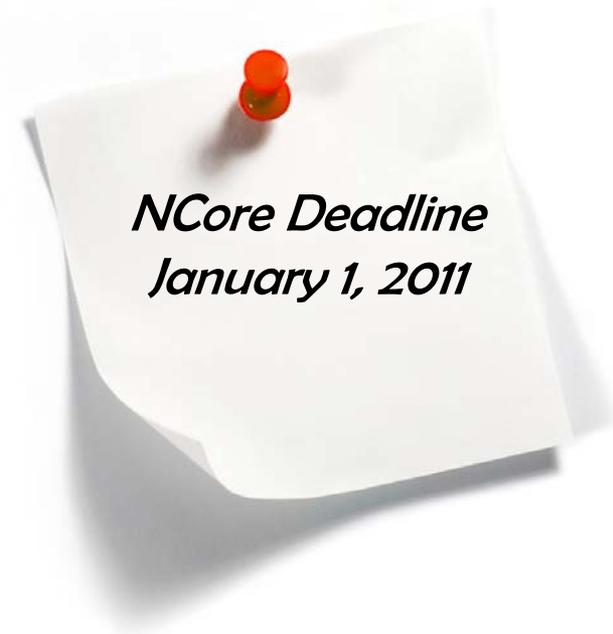


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What Comes Next?

- Complete equipment procurement (as needed), acceptance, and deployment
- **Get with your Region ASAP if you do not have the right equipment for any of the required measurements including zero gas generators and/or calibrators**
- Gain operational experience and compile a quality control track-record
 - Trace gases, new PM samplers, meteorology
- Develop/revise SOPs and QAPP for new measurements
- Train station operators and brief QA staff
- Commence data reporting to AQS and AirNowTech when a “comfort level” is achieved



Questions ?



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