



Status Report: Review of Candidate NCore Sites



EPA NCore Training Workshop – National Ambient Air Monitoring Conference - 2009



NCore Flowchart

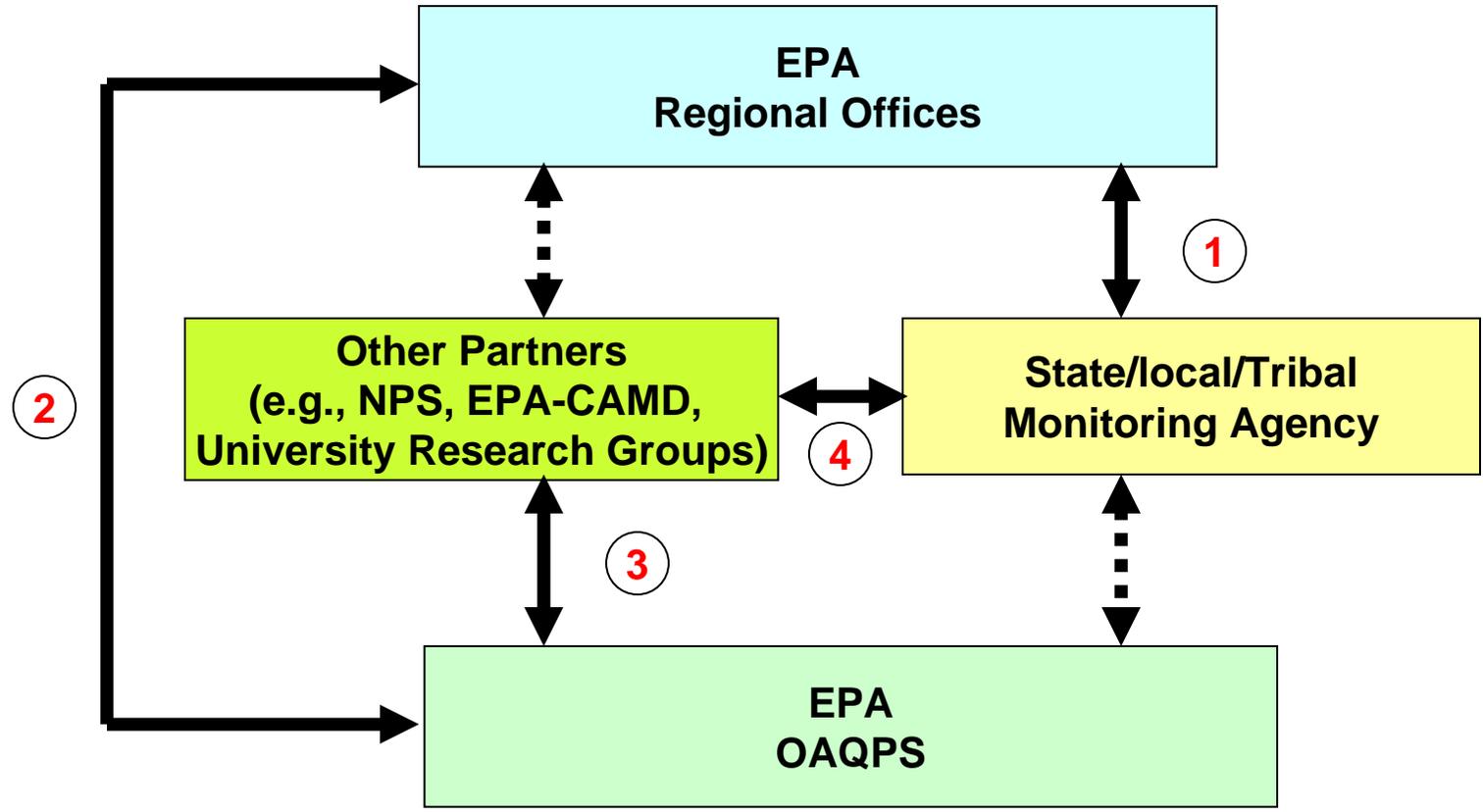
Monitoring Agency, Regional Offices, OAQPS, and other partners develop straw of Candidate NCore Stations

OAQPS-AAMG posts straw of Candidate NCore Stations to:
<http://www.epa.gov/ttn/amtic/ncore/networks.html>

- Lew sent out self assessment tool
- Region's do site visit



Communication Lines in Advance of NCore Station Plans



- Solid line are primary lines of communications
- - - - Dashed lines are secondary lines of communication

The screenshot displays the EPA NCore Network Web Tool interface. The top navigation bar includes the U.S. Environmental Protection Agency logo and the title "TTNWeb - Technology Transfer Network". The main content area is divided into several sections:

- Left Sidebar:** Contains navigation links for "AMTIC Home", "NCore Network Objectives", "Measurements", "National Map", and "Sites".
- Top Left:** A "NCore Site Locator" section with a map of the United States and a search bar.
- Top Center:** A search bar with options for "All EPA" and "This Area", and a "Go" button.
- Top Right:** The EPA logo and the text "U.S. Environmental Protection Agency".
- Center:** The main title "Candidate NCore Site 361010003" and "Basic Site Information" section.
- Right Side:** A photograph of the Pinnacle Park monitoring station, showing a white enclosure with various instruments on a gravel pad.
- Bottom Left:** A "Site Photographs" section with a directional compass and a photo of the site.
- Bottom Center:** A list of monitoring parameters with checkboxes, including PM2.5, PM10, PMcoarse, Continuous PM2.5, Aethelometer, CO, SO2, NOx, NOy, O3, Pb (TSP), Trace CO, Trace SO2, Trace NOy, NH3, HNO3, VOCs, semi-VOCs, and Carbonyls.
- Bottom Right:** A "cipitation" section with checkboxes for STN Supplemental, PAMS, NATTS, Improve, and CASTNET.

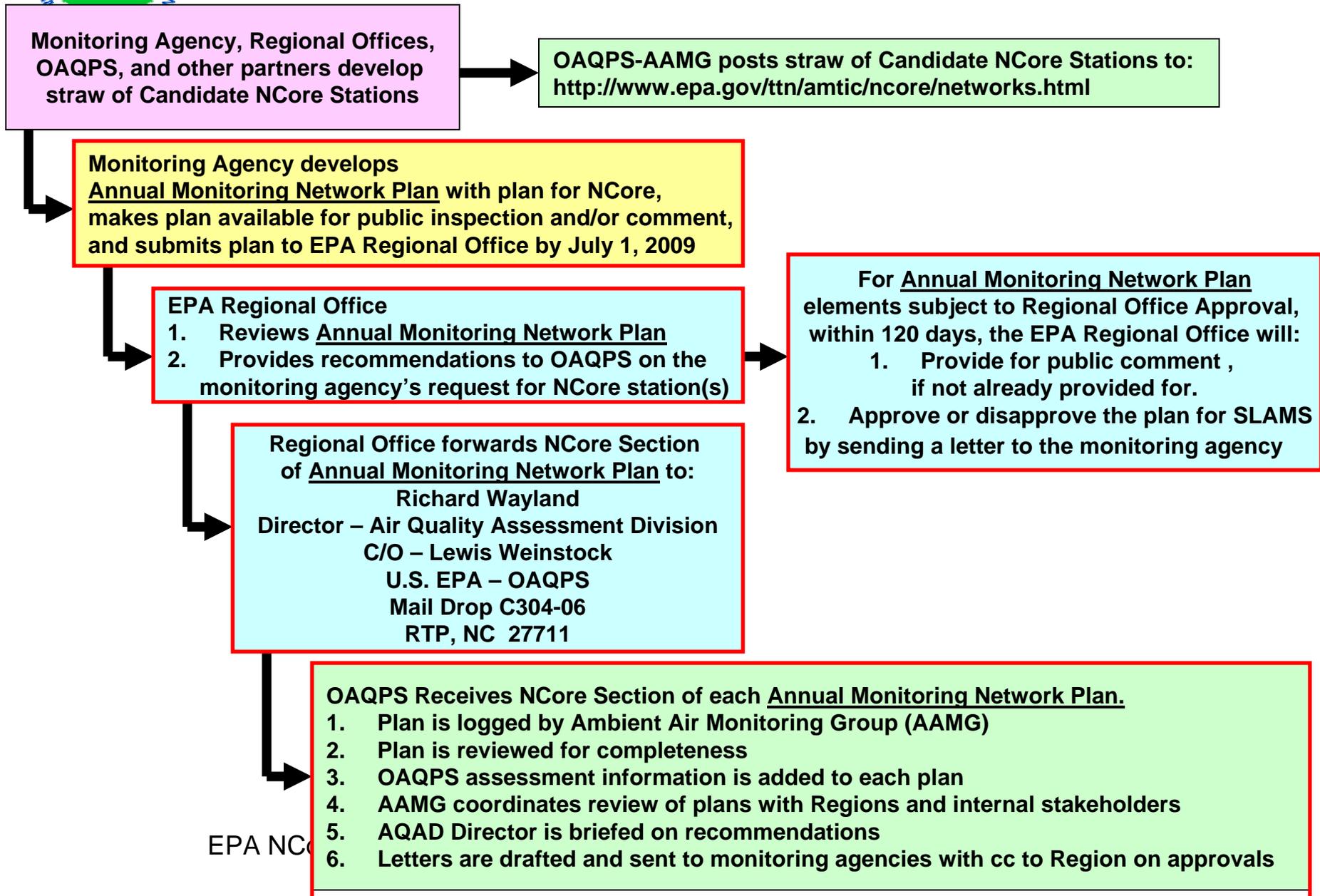
The interface also includes a "Trusted sites" indicator in the bottom right corner.

NCore Network Web Tool

<http://www.epa.gov/ttn/amtic/ncore/networks.html>

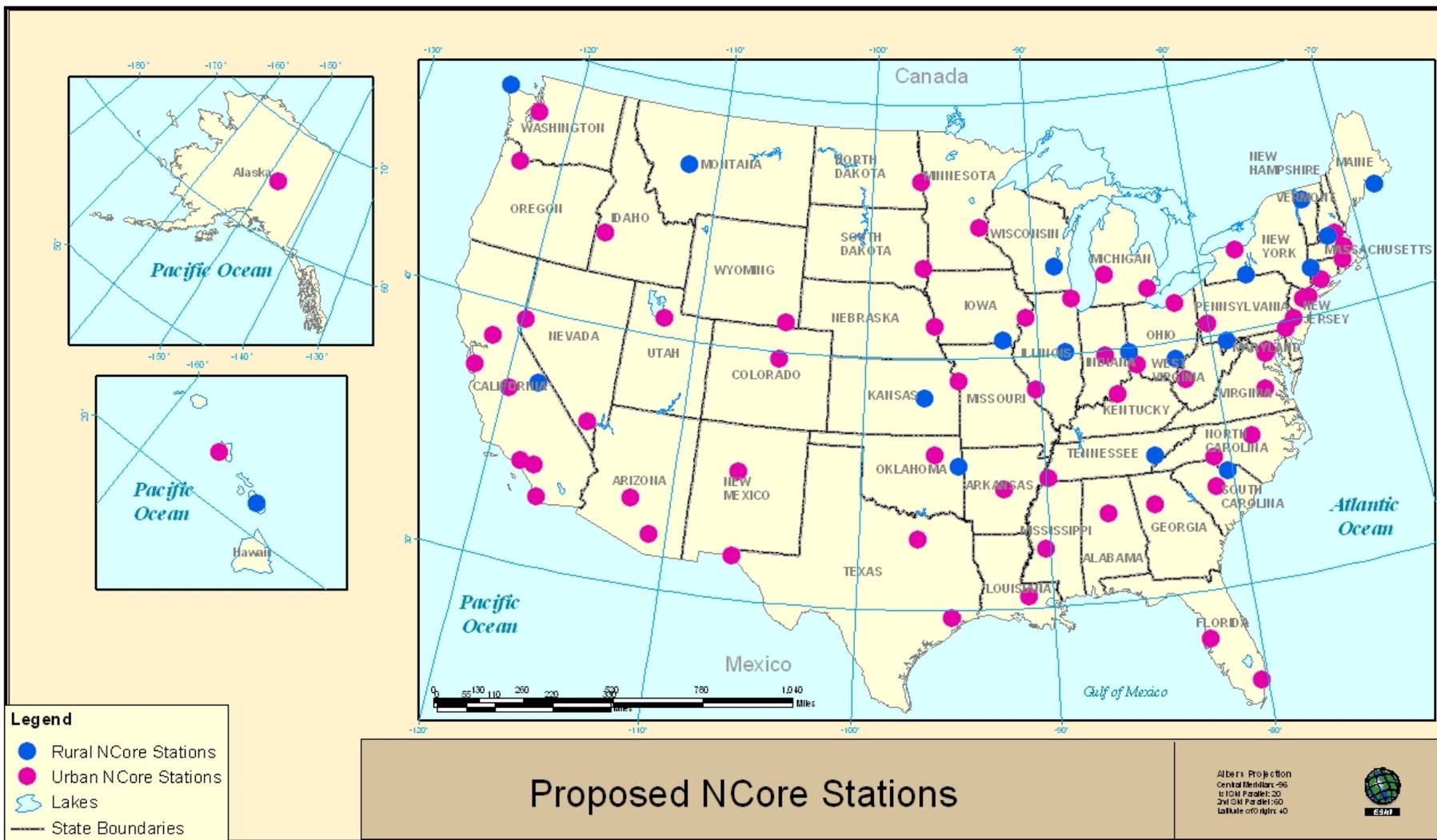


NCore Plan Approval Flowchart





Proposed NCore Network October 2009





NCore plans

- Network currently consist of 82 sites
 - 62 Urban
 - 20 Rural
- 39 NCore sites are CSN Speciation Trend sites
- 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



NCore Plan Approvals

- “Slam Dunks” - Many existing monitoring sites that met our requirements for NCore stations
- Other sites are good location but have some questions that need answered.
- Began approving in October 2009
 - Approval Letter from OAQPS Director Chet Wayland
 - 2 addendums:
 - » PM Coarse speciation and Mass
 - » AQS steps after approval



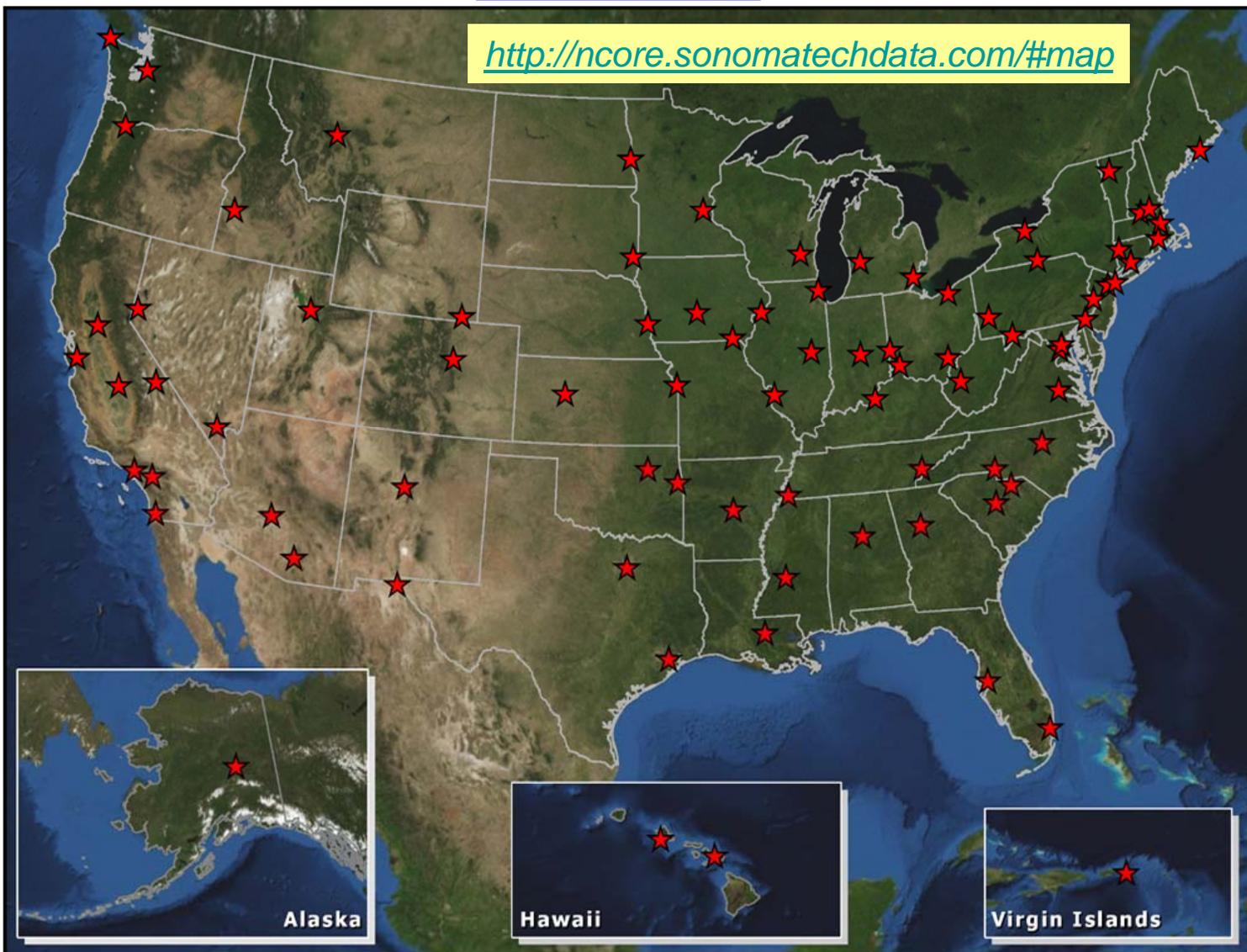
Tools used for NCore Approval

- Annual Monitoring Plan and Regional Recommendation
- NCore site characterization reports using Sonoma Technology Inc.
 - Google Earth Site views
 - Local Topography
 - Landcover
 - Population densities
 - Traffic volumes
 - Emissions data
 - Pollution trajectories
 - Wind roses
 - Fuel use
 - Climate summaries

NCORE MULTI-POLLUTANT MONITORING NETWORK

NCORE is a multi-pollutant monitoring program that will consist of 83 stations. The sites will be equipped with several advanced measurement systems to monitor particulate matter ($PM_{2.5}$ and $PM_{10-2.5}$), ozone, carbon monoxide (CO), sulfur dioxide (SO_2), total reactive nitrogen (NO_x), and meteorological parameters (temperature, wind speed, wind direction, and relative humidity). Mouse over and click a proposed site location in the map (red stars) to access the site reports.

Further information on the NCore network can be found at <http://www.epa.gov/ttnamti1/ncore>

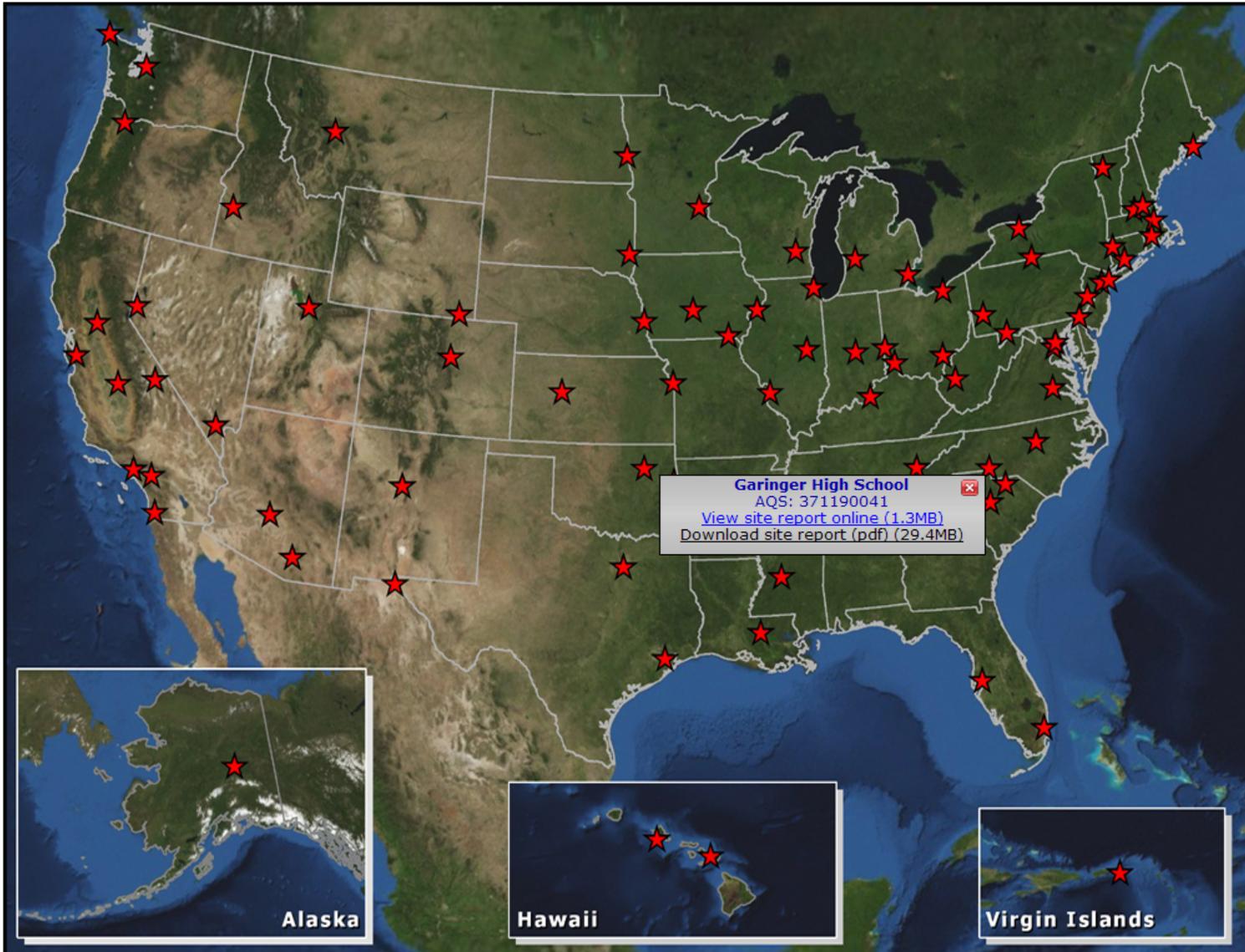


Created 10/01/2009

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Aerial Site Views



Image from Google Earth

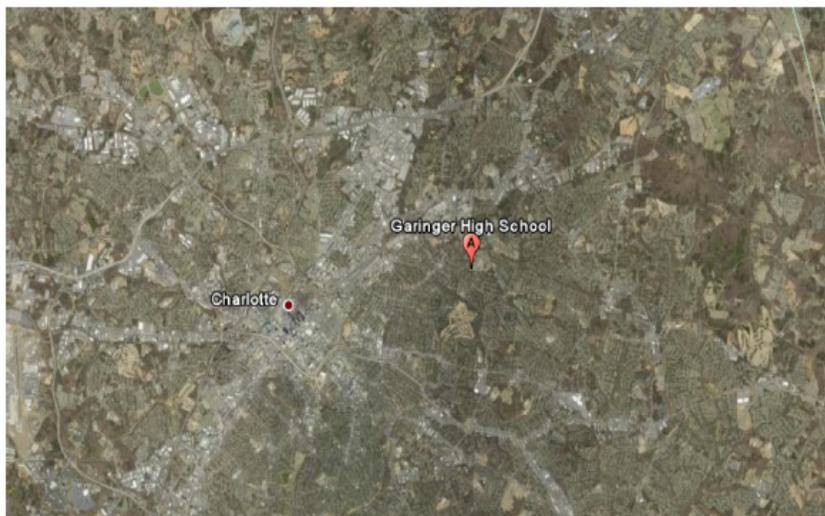
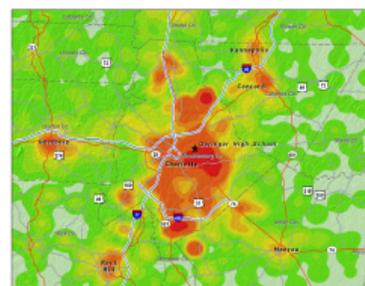
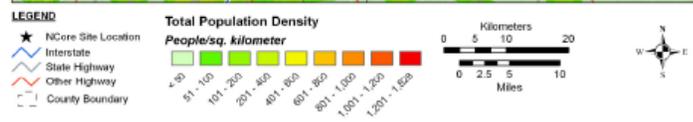
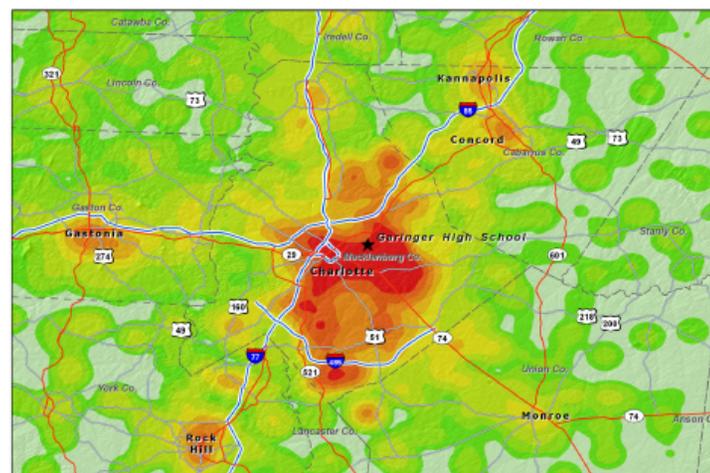


Image from Google Earth

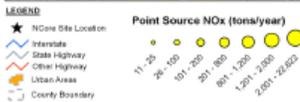
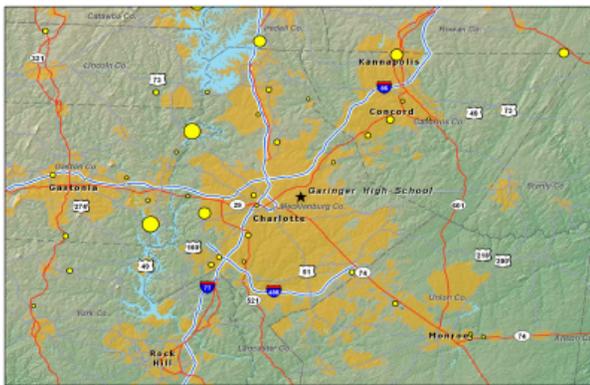
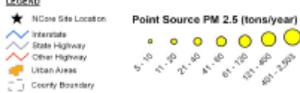
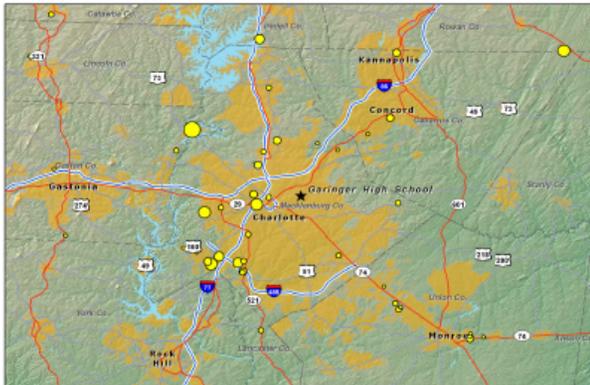
Population Density

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).



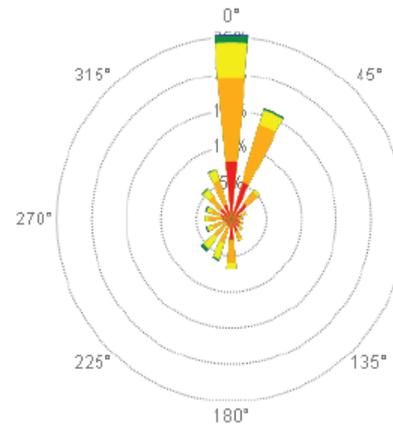
Facility Emissions

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>.

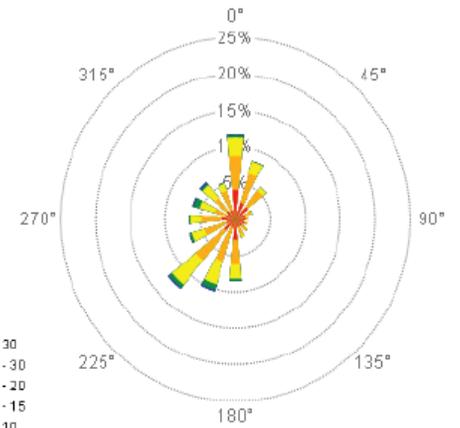


Wind Patterns

FALL
September, October, and November, 2005-2007

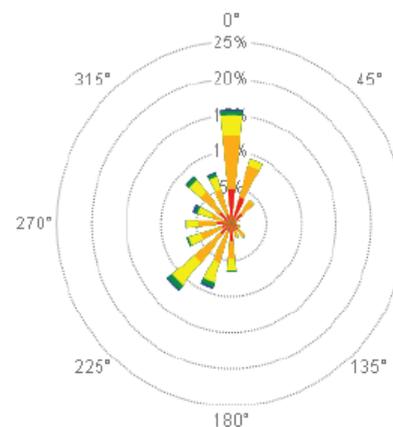


SPRING
March, April, and May, 2005-2007

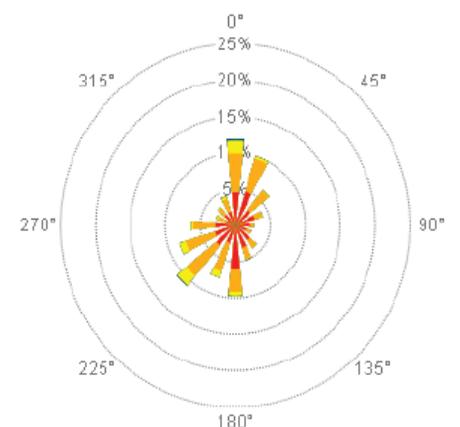


Wind Rose Legend
Wind Speed Units: miles per hour

WINTER
December, January, and February, 2005-2007



SUMMER
June, July, and August, 2005-2007



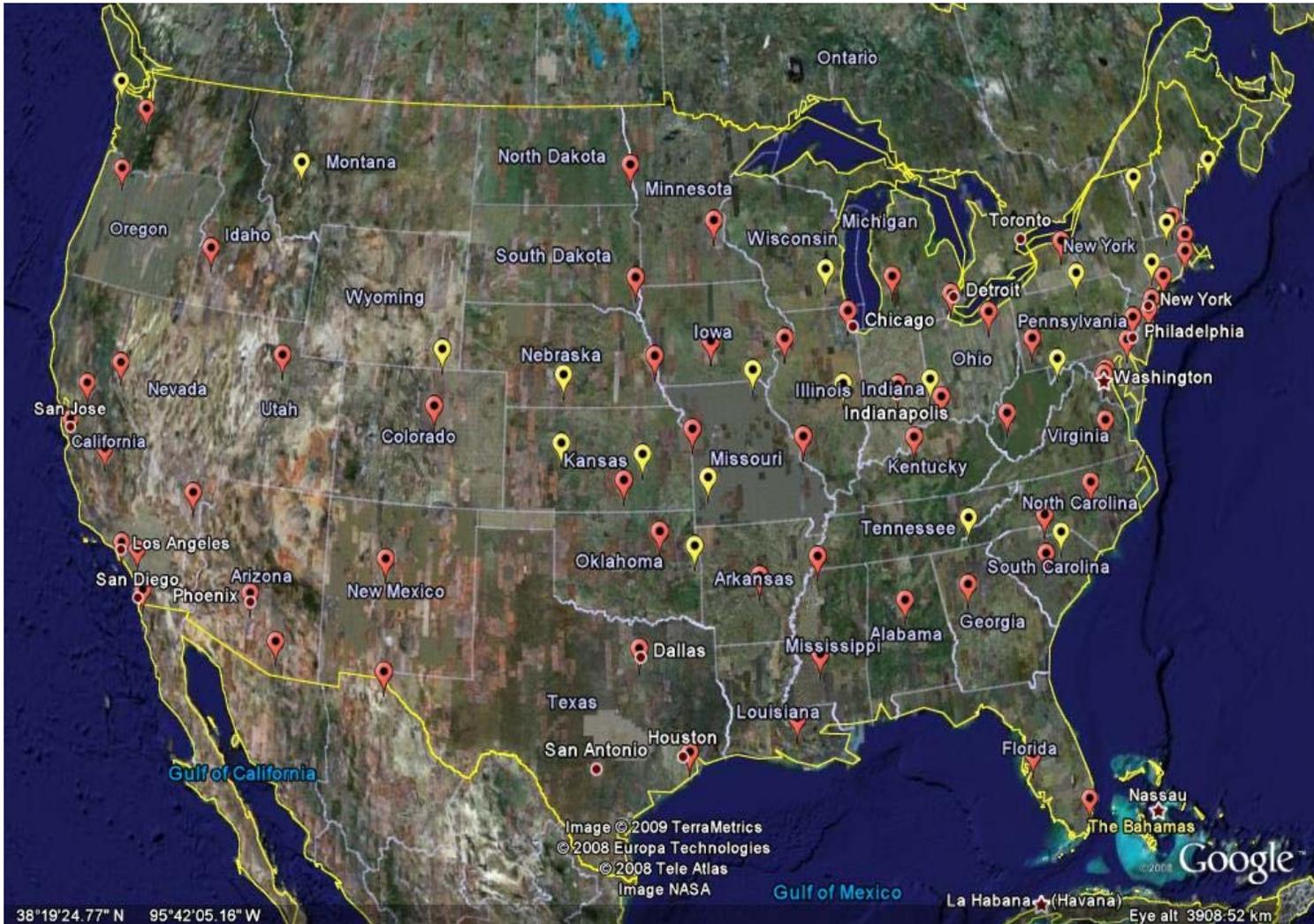


NCore Website

- 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>



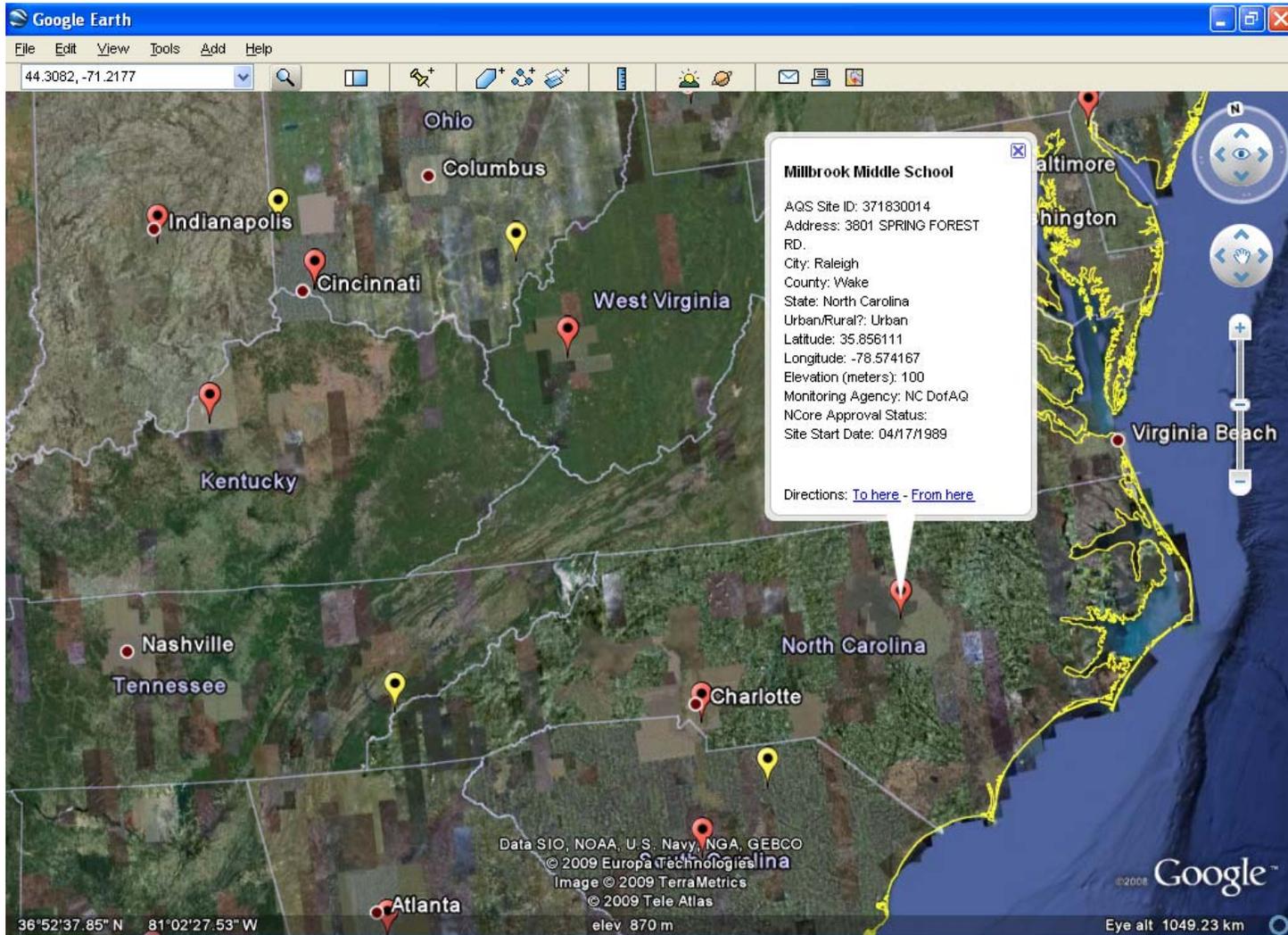
NCore – AMTIC website



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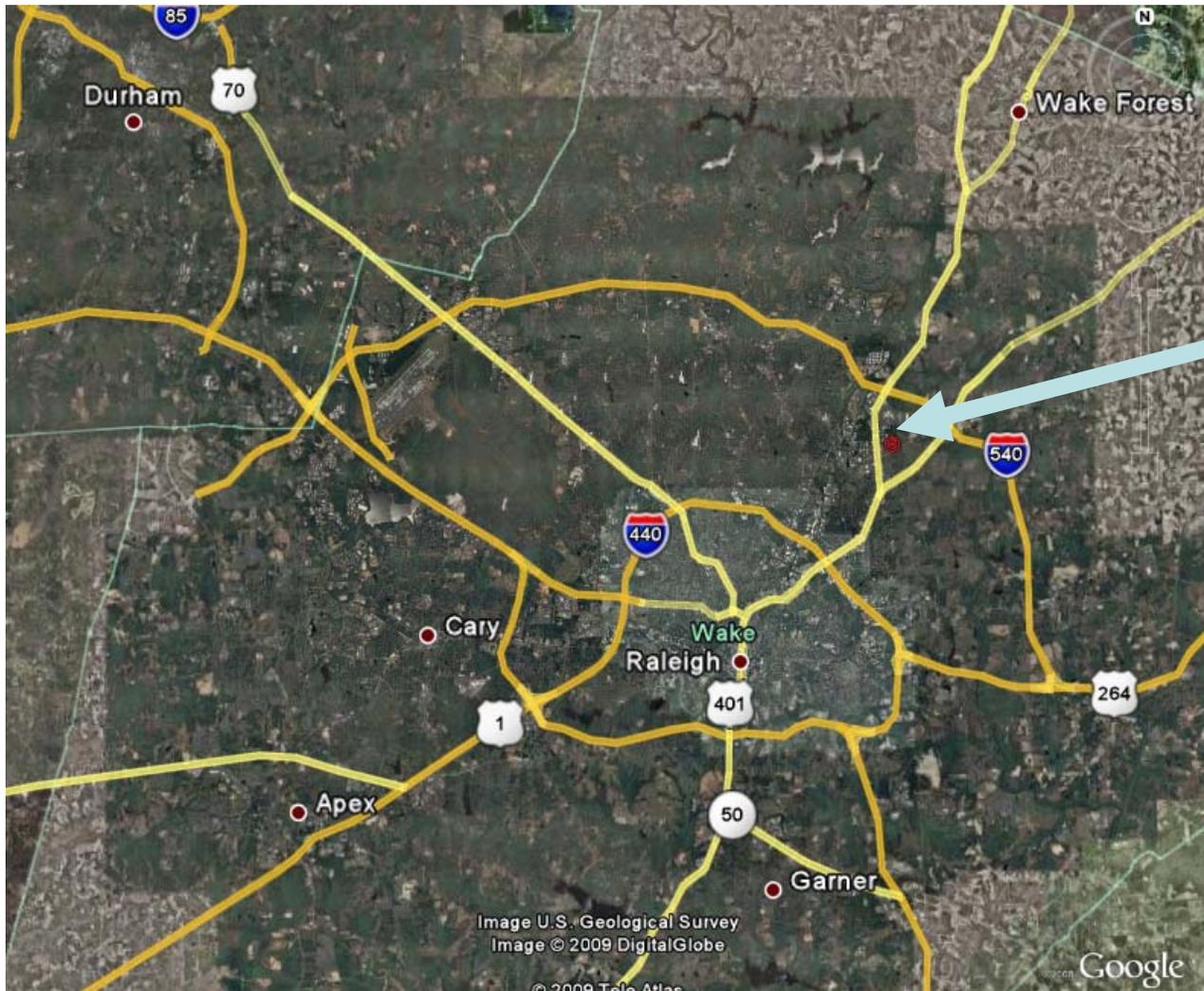
Regional/State View



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Looking at NCore across an Urban area

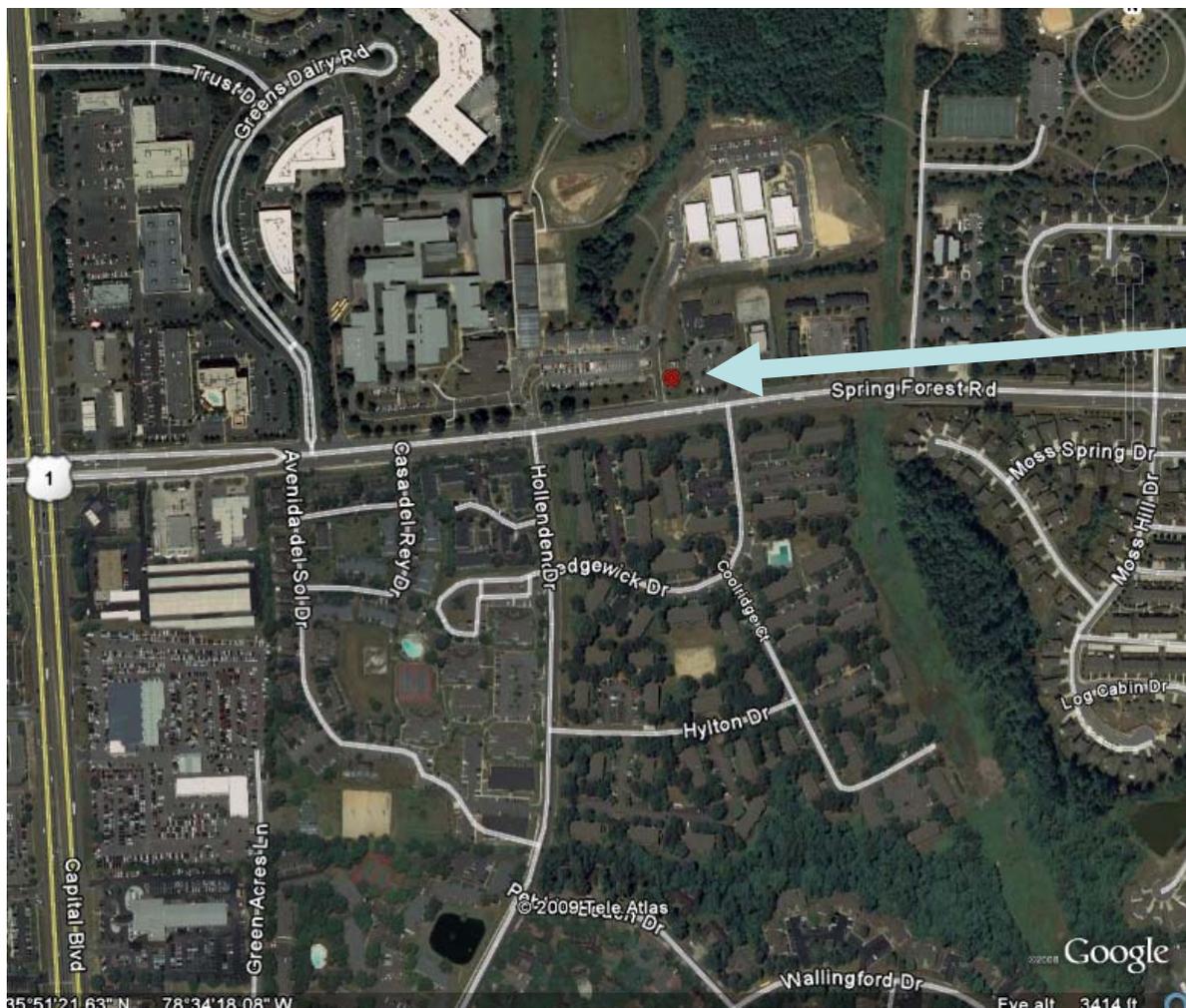


Millbrook Middle School
AQS Site ID: 371830014
Address: 3801 SPRING FOREST RD.
City: Raleigh
County: Wake
State: North Carolina
Urban/Rural?: Urban
Latitude: 35.856111
Longitude: -78.574167
Elevation (meters): 100
Monitoring Agency: NC DofAQ
NCore Approval Status: Agreed
Site Start Date: 04/17/1989

Directions: [To here](#) - [From here](#)



Looking at NCore siting across a neighborhood



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

- 9 sites requested NO_y waiver.
- 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



NO_y waiver cont...

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

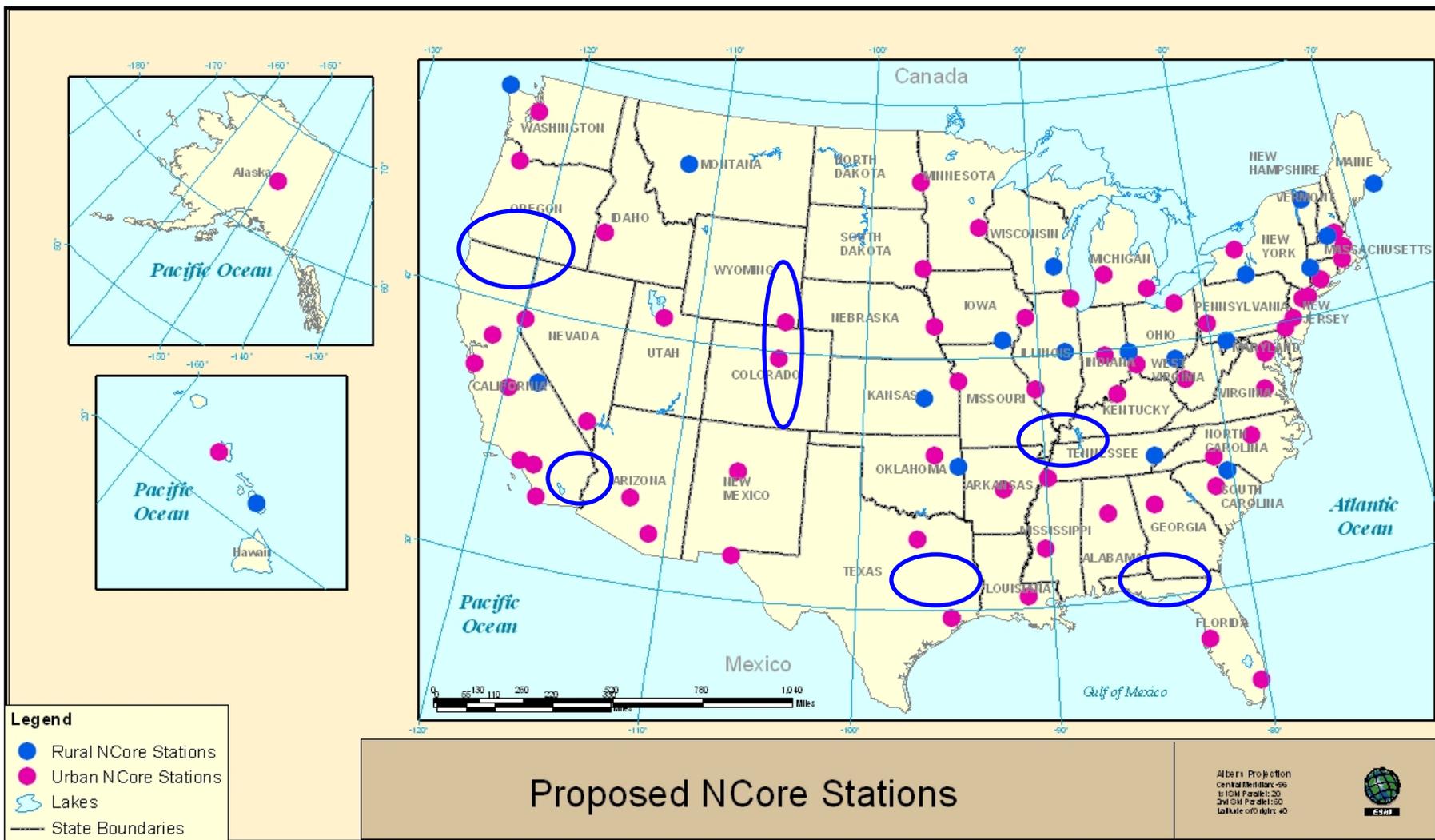


Next Steps

- Approval letter continuing to be sent out to State Air Directors
- Identification of remaining rural locations
 - To ensure enough rural coverage
 - Work with Regions, State and other agencies
 - NPS, CASTNET



NCore – Additional Rural Coverage Needs





Questions

