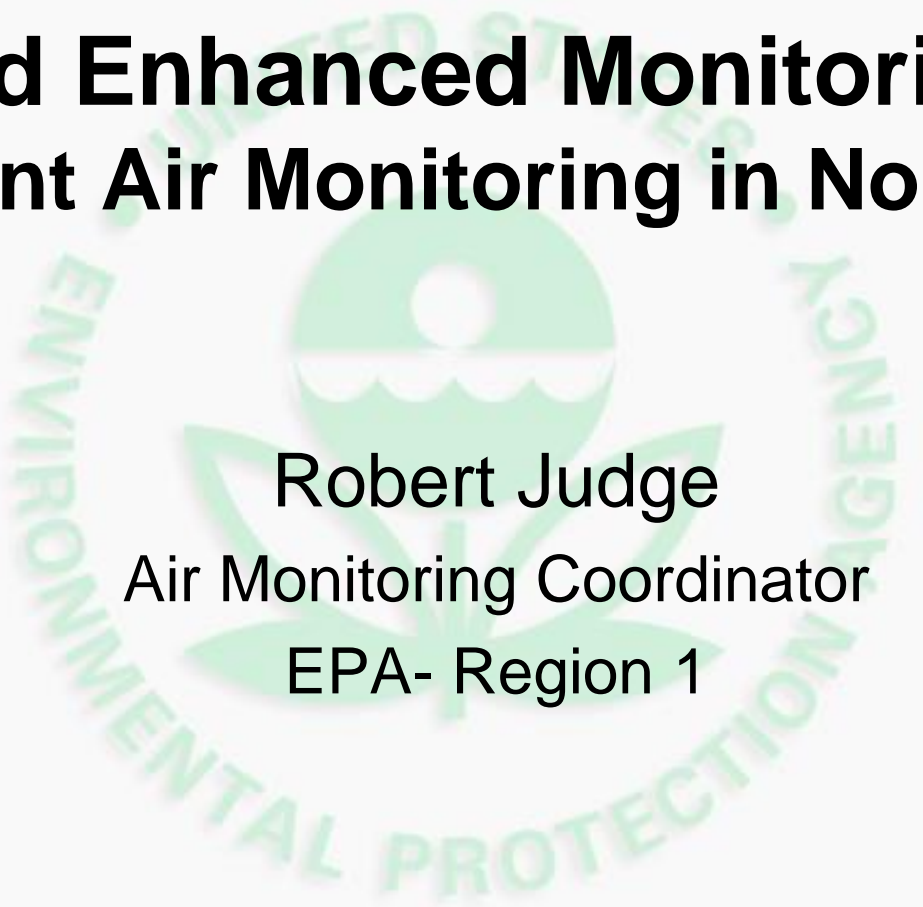


PAMS and Enhanced Monitoring Plans- Ambient Air Monitoring in Northeast



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Overview

2015 Final

Ozone Standards

Health-based: 70 ppb

Welfare-based: 70 ppb

The Photochemical Assessment Monitoring Station (PAMS) program (required by CAA) requires areas to collect enhanced ambient air measurements related to ozone. The rulemaking for the final 2015 ozone NAAQS included significant revisions to the PAMS requirements (80 FR 65292; October 26, 2015).

The first significant change was to only require PAMS sites at NCore sites in CBSAs of 1 million population or more, regardless of attainment status.

The second significant change required that States with Moderate and above 8-hour O₃ nonattainment areas and all states in the Ozone Transport Region to develop and implement an Enhanced Monitoring Plan (EMP) detailing enhanced O₃ and O₃ precursor monitoring activities to be performed.



Regulatory Revisions Finalized for PAMS

- Require PAMS at all NCore sites in CBSAs with a population greater than 1,000,000.
- In Region 1, this includes NCore sites at **East Providence, RI; Roxbury, MA; and Londonderry, NH. (MA has requested its site be at Lynn, MA)**
- In Region 2, this includes NCore sites at **Rochester, NY; Queens College, NY; and Newark Firehouse, NJ. (NY intends its Rochester site will be located along Long Island Sound at Flax Pond)**
- Require PAMS during PAMS season (June, July, August) at the above NCore sites but allow for Regional approval of alternative PAMS site. Required NCore/PAMS sites are to measure:
 - ozone,
 - “true” nitrogen dioxide, NO_x, and NO_y,
 - hourly speciated VOCs*,
 - three 8-hour averaged carbonyls on every third day (or hourly formaldehyde),
 - hourly averaged mixing height*,
 - and to a number of other meteorological parameters (e.g. wind speed and direction).*

**EPA included a waiver option that will allow the use of less frequent, longer-averaged VOC measurements in limited situations, and the possibility of meteorological measurements at nearby locations.*

Required PAMS Sites should be operational by June 1, 2019

- Require all O₃ moderate (or worse) NA areas and States in the OTR (i.e. all of NESCAUM and more) to also develop and implement an “enhanced ozone monitoring plan” (EMP)
 - Could include additional O₃ sites; additional NO₂, NO_x and/or NO_y sites; additional VOC measurements (different time periods or different locations); enhanced upper air measurements; etc.

Final EMPS should be submitted to the EPA Regions by July 1, 2018.

PAMS Equipment Purchases for required sites

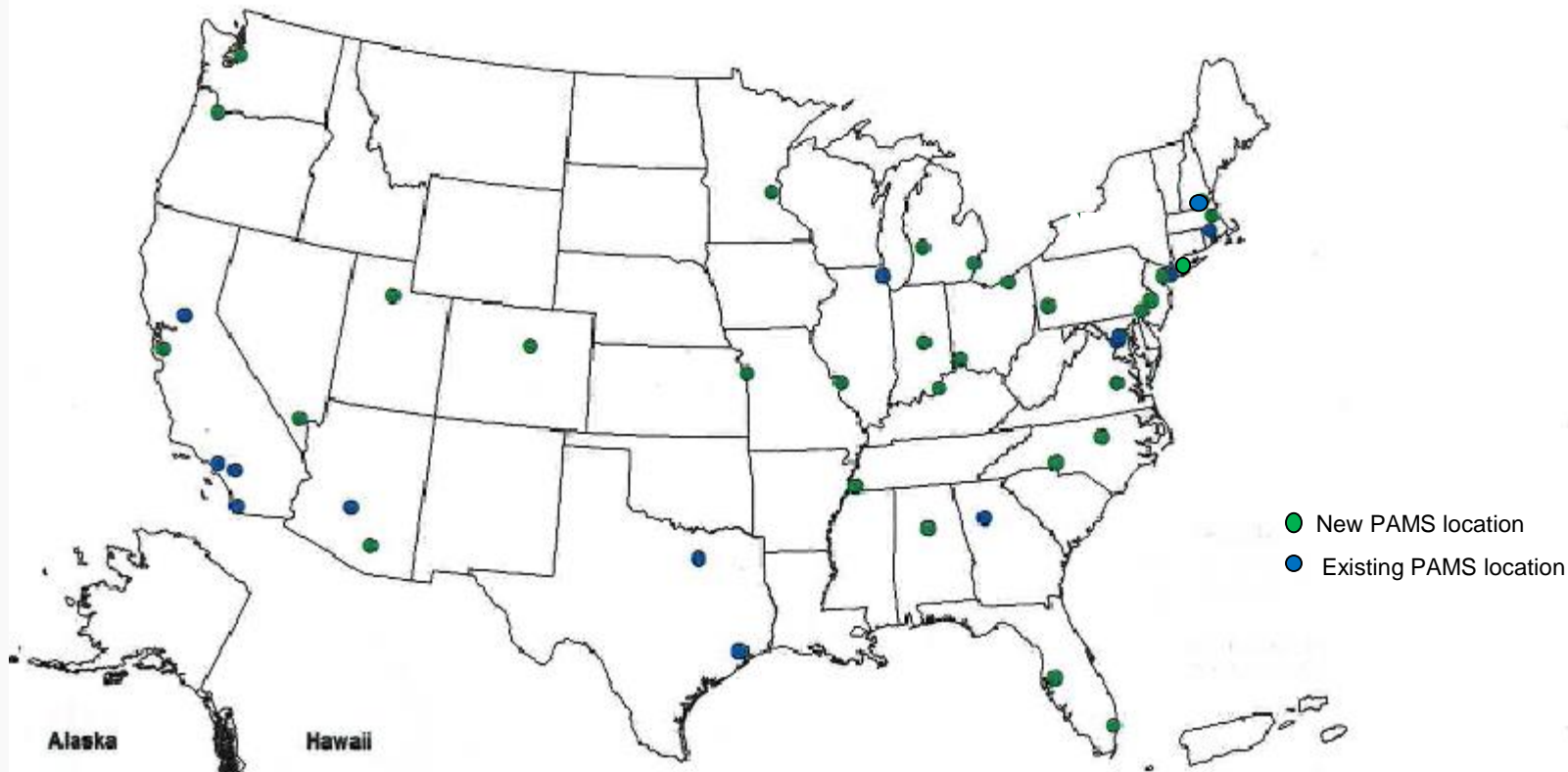


- EPA has funding to ensure that state/local agencies can acquire needed equipment, including:
 - Automated Gas Chromatographs (Auto GCs)
 - True NO₂ instruments
 - Ceilometers
- States willing and able to purchase the equipment on their own will be sent targeted funding to purchase these three items
 - Alternatively EPA will make the purchases for the states via the National Contracts, and supply the equipment to the states
- The deployment of this equipment is expected to occur over the next few years
 - 12 state/locals have already received equipment money through FY 2017
 - We are working with the remaining states to identify when and how they would like to obtain their equipment





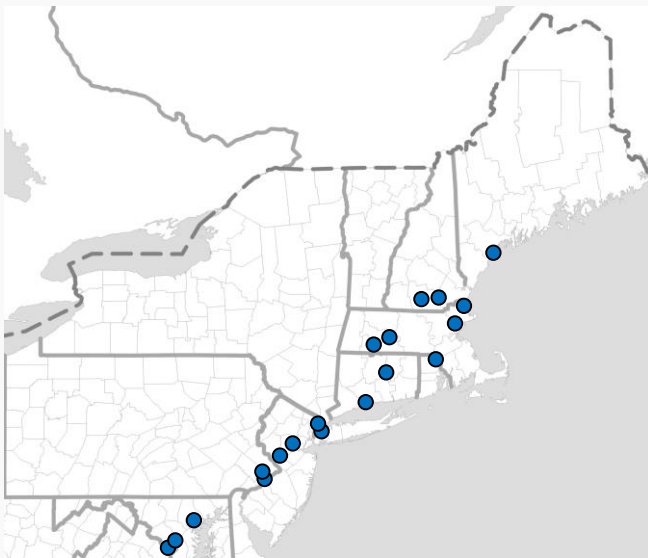
Estimated location of required PAMS locations based on final network design requirements (ie, NCore sites in CBSAs with greater than 1,000,000 population)



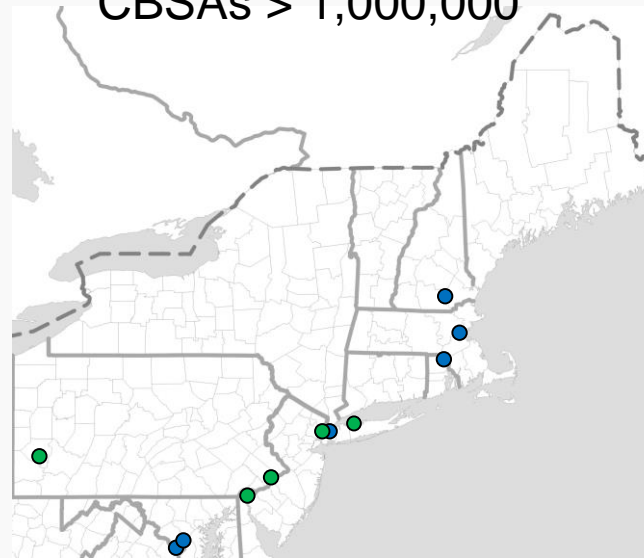


PAMS/EMPs

Current PAMS Sites



NCore sites in CBSAs > 1,000,000



- New PAMS location
- Existing PAMS location

New PAMS Requirements

- PAMS collocated with all existing NCore sites in areas with pop. of 1 million or more.
- All moderate and above NAs and **all OTR states** to develop and implement an enhanced ozone monitoring plan.



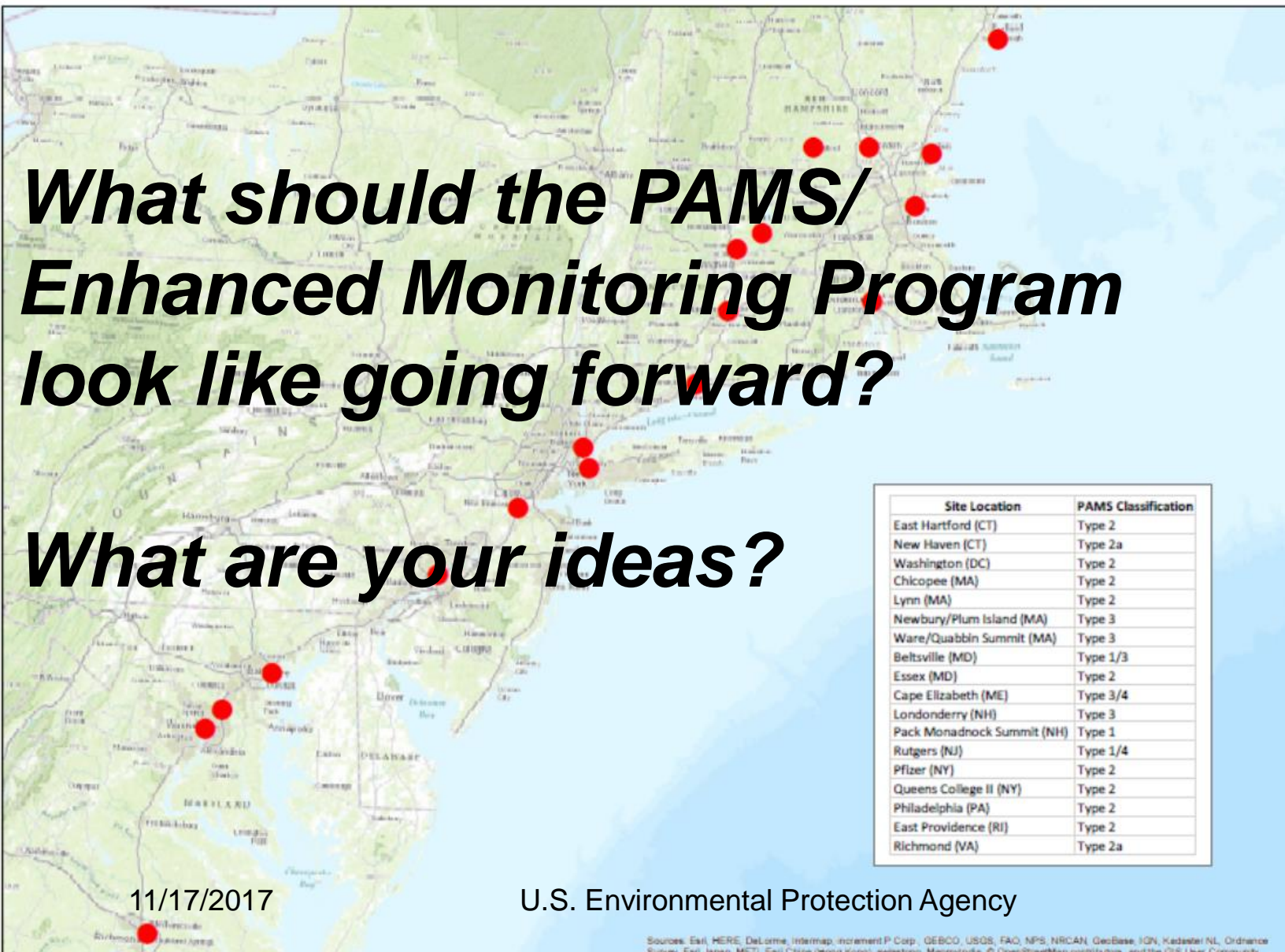
Progress on EMPs

- Since February, 2017, Region 1 has convened a conference call every other month to “plan” for an EMP across the OTR.
- Planners, modelers, monitoring contacts, as well as EPA Regions, EPA OAQPS, EPA ORD, NASA and academia invited.
- Purpose of these calls:
 - 1) Understand what different States/ local Agencies are considering for EMPs.
 - 2) Understand how air monitoring information is utilized in modeling and planning.
 - 3) Learn about “advanced” measurements and newer technologies.



Progress on EMPs

- Ideas discussed, beyond the “required” PAMS locations:
 - 1) Upper air measurements with PANDORA spectrometers in concert with NASA.
 - 2) Other technologies for “upper air” measurements.
 - 3) Coordinated “balloon launches.”
 - 4) Special aircraft studies, measurements.
 - 5) Ozone measurements on ferries.
 - 6) Additional Carbonyl and/ or VOC measurements.
 - 7) Additional other measurements at fixed location sites, or unique locations at land/ water interface (e.g., CO₂ as a tracer for fuel combustion?).



***What should the PAMS/
Enhanced Monitoring Program
look like going forward?***

What are your ideas?

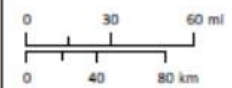
Active PAMS Sites in the Northeast

PAMS Site Locations:
● Active

Date: December 14, 2015
Map Projection: GCS NAD83

Data Sources:
PAMS Site Locations - U.S. EPA Air Data (2015);
Base Map - ESRI (2015).

Site Location	PAMS Classification
East Hartford (CT)	Type 2
New Haven (CT)	Type 2a
Washington (DC)	Type 2
Chicopee (MA)	Type 2
Lynn (MA)	Type 2
Newbury/Plum Island (MA)	Type 3
Ware/Quabbin Summit (MA)	Type 3
Beltsville (MD)	Type 1/3
Essex (MD)	Type 2
Cape Elizabeth (ME)	Type 3/4
Londonderry (NH)	Type 3
Pack Monadnock Summit (NH)	Type 1
Rutgers (NJ)	Type 1/4
Pfizer (NY)	Type 2
Queens College II (NY)	Type 2
Philadelphia (PA)	Type 2
East Providence (RI)	Type 2
Richmond (VA)	Type 2a



11/17/2017

U.S. Environmental Protection Agency

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox India, © OpenStreetMap contributors, and the GIS User Community



Questions?

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