Connecticut 2017 Annual Air Monitoring Network Plan

Connecticut Department of Energy and Environmental Protection
Bureau of Air Management

Submitted for EPA Approval
July, 2017

Table of Contents

Acronyms and Abbreviations

AQI – Air Quality Index
AQS – Air Quality System
BAM – Beta Attenuation Monitor
BC – Black Carbon (Aethalometer)
CAA – Clean Air Act
CBSA – Core-Based Statistical area
CFR – Code of Federal Regulations
CO – carbon monoxide
CSA – combined statistical area
CSN – Chemical Speciation Network
DEEP – Connecticut Department of Energy and Environmental Protection
DAS – data acquisition system
EC/OC – Elemental Carbon/Organic Carbon
EPA – Environmental Protection Agency
FEM – Federal Equivalent Method
FRM – Federal Reference Method
GC – gas chromatography
GC/MS – gas chromatography/mass spectrometry
HAP – hazardous air pollutant
IMPROVE – Interagency Monitoring of Protected Visual Environments
LC – local conditions of temperature and pressure
LMP – limited maintenance plan
MPA – monitoring planning area
MSA – metropolitan statistical area
NAAQS – National Ambient Air Quality Standards
NOAA – National Oceanic and Atmospheric Administration
NOx – nitrogen oxides
NOy – reactive oxides of nitrogen
OAQPS – Office of Air Quality Planning and Standards
OTR – Ozone Transport Region
PAMS – Photochemical Assessment Monitoring Stations
$PM_{2.5}$ – fine particulate matter (<2.5 microns)
PM_{10} – respirable particulate matter (<10 microns)
$PM_{10-2.5}$ – coarse particulate matter (PM_{10} – $PM_{2.5}$)
QA – quality assurance
QA/QC – quality assurance/quality control
QAPP – quality assurance project plan
QMP – quality management plan
RH – relative humidity
SIP – State Implementation Plan
SLAMS – state and local monitoring stations
SO_2 – sulfur dioxide
SOP – standard operating procedure
STP – standard conditions of temperature and pressure (40 CFR 50.3: 25°C and 760 mm Hg)
TSA – technical system audit
TSP – total suspended particulate
UVC – Ultra-violet carbon (aethalometer)
VOC – volatile organic compound

Introduction

This document is the Connecticut 2017 Air Monitoring Network Plan (Network Plan), prepared by the Connecticut Department of Energy and Environmental Protection (DEEP) in accordance with 40 CFR 58.10. This plan meets the requirement to develop and submit to the Environmental Protection Agency (EPA) an annual air quality monitoring network plan to describe the air monitoring network and propose any changes to air quality monitoring sites and monitored air pollutants planned in the 18 months following submittal.

The draft Network Plan is posted on DEEP's website at DEEP: Air Monitoring Network. DEEP accepted public comments on this draft Network Plan from May 31, 2017 to June 30, 2017. Comments were submitted to:

Randall Semagin
Air Management, Planning and Standards Division
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106
P: 860.424.3255 | F: 860.706.5339 | E: randall.semagin@ct.gov

Background

The Clean Air Act of 1970 (CAA) established the EPA as the principal administrative body to enact regulations to meet the requirements of the CAA and subsequent amendments thereto. One such requirement directed EPA to set primary and secondary air quality standards, known as the National Ambient Air Quality Standards (NAAQS) for the six "criteria pollutants" that Congress determined presented serious negative impacts to human health and welfare. For areas within Connecticut that do not meet a NAAQS, DEEP develops State Implementation Plans (SIPs) to detail the steps to be taken to bring air quality into attainment. Ambient air quality monitoring is essential to track progress towards meeting clean air goals and demonstrate attainment.

While DEEP monitors ambient air quality in Connecticut primarily for comparison with the NAAQS, there are other important objectives to ambient air quality monitoring. This monitoring provides local air quality data to the public, supports air quality forecasting and the Air Quality Index (AQI), supports long-term health assessments and other scientific research, assists with air permitting and identifying long-term air quality trends to gauge effectiveness of air pollution control strategies and serves as an accuracy check on computer based air quality models. DEEP's ability to manage the air quality monitoring network greatly depends on federal grant support from EPA.

In previous years, Connecticut was able to support air monitoring operating expenses with state funds, specifically, the Clean Air Act fee. As the state budget challenges have continued, all general fund revenue is now used to support staff costs. Therefore, the air network operation is totally dependent of federal funds. Future federal funding levels for air monitoring programs continue to remain uncertain and many indications are that federal funding will be reduced during the time period covered by this plan. In addition, as with state governmental operations everywhere, state resources allocated to ambient air quality monitoring are unable to keep pace with rising costs. DEEP will strive to provide an acceptable level of service within these constraints by continually improving operations and focusing its efforts to ensure the completion of the most critical ambient air quality monitoring. As operating costs and federal monitoring requirements increase, DEEP must operate within its means by either improving operational efficiencies or reducing other aspects of the air monitoring network. Efficiencies being employed and expanded include improving data acquisition software and hardware, streamlining access to the public thorough DEEP's website, and reducing the number of monitoring sites or parameters measured by increasing multi-pollutant monitoring or terminating duplicative or unnecessary monitors.

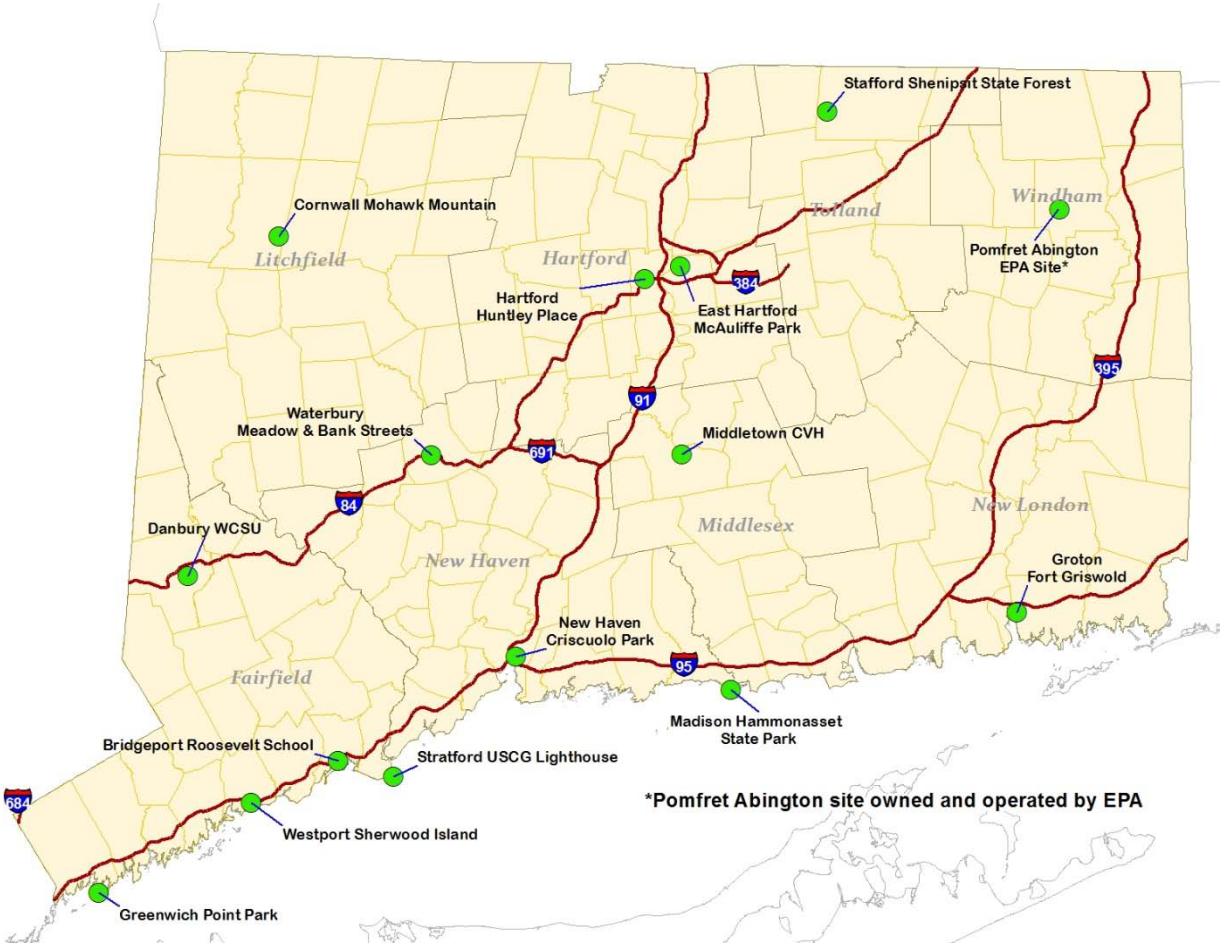
Network Overview

DEEP currently operates 14 stations in its air monitoring network (Figure 1). Given continuously evolving standards, this Plan assumes the current level of staffing and federal funding will be maintained through federal FY18. Should EPA monitoring requirements increase, federal funding be reduced, or DEEP be impacted by staff attrition or a significant reduction in funding, the level of effort proposed in this Plan will be reduced.

In October 2006, EPA established a network of core multi-pollutant sites. These sites are known as the National Core (NCore) network, the primary purpose of which is to consolidate monitoring of multiple

pollutants at fewer sites for efficiency and cost savings. In addition, the NCore sites provide a comprehensive suite of high-resolution pollutant data for NAAQS compliance assessment, research studies and long-term trends analysis. There are two NCore sites located in Connecticut: Criscuolo Park in New Haven, and Mohawk Mountain in Cornwall. Although these sites predated NCore, DEEP upgraded both sites to be consistent with NCore requirements.

Figure 1: Connecticut DEEP Air Monitoring Network



Proposed Network Changes

Details of the proposed monitoring network configuration are described in the following site information pages. In addition to infrastructure maintenance and improvements, DEEP proposes the following changes to the monitoring network during the period 2017-2018:

- Discontinue sulfur dioxide (SO_2) monitoring at the East Hartford McAuliffe Park site on March 31, 2017.
- Discontinue carbon monoxide (CO) monitoring at the East Hartford McAuliffe Park site on March 31, 2017.
- Commence nitrogen dioxide (NO2) monitoring at the Westport Sherwood Island site during the spring of 2017.
- Move the Middletown ozone (O_3) monitoring site to a new location on the Connecticut Valley Hospital campus during June – July 2017. Monitoring at both the pre-existing and new locations will be conducted simultaneously through September 30, 2017.
- Discontinue ozone monitoring at the Greenwich Point Park site in Greenwich, if necessary due to personnel or budget constraints during 2017-2018.

DEEP maintains its air monitoring network to fulfill critical data needs. Recent EPA NAAQS rule revisions have mandated additional monitoring, reporting and analysis associated with the SLAMS networks, and,

consistent with the LEAN[1] culture embraced by DEEP, this Network Plan calls for continued efforts to streamline data handling, while also looking for opportunities to identify and address low value added monitoring sites. If limited opportunities exist to disinvest from low value added monitoring sites, efficiencies nonetheless will occur by eliminating lower value data collection. Such efficiencies will be necessary to enable limited staff resources to focus on competing priorities, which may not be limited to air quality monitoring. If efficiencies alone are insufficient, either additional resources will be required or the scope of the monitoring program will need to be revisited.

Planned Monitoring Network Infrastructure Work: DEEP is planning to take steps to ensure that all former monitoring sites are properly decommissioned with regard to shelter, landscaping, security, monitoring, electronics and utility equipment during 2017-2018. In addition, an alternative location for the Middletown monitoring site is planned for installation and start-up during 2017.

Monitoring Site Information

The ambient air monitoring sites currently operated by DEEP are listed in the Table 1 below. Detailed information for each monitoring site is provided in a later section of this plan.

[1] https://www.lean.org/

Table 1: Monitoring Network Summary

Town	Site	PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation	Mixing Height
Bridgeport	Roosevelt School		1/6	X	1/6							X	X								X				
Cornwall	Mohawk Mountain	1/3		X			X		1/3	X	X	X	X			X			X	X	X	X	X		
Danbury	Western Connecticut State University	1/6		X						X	X								X	X	X		X		
East Hartford	McAuliffe Park	1/6		X	1/6					X	X	T†	T†	X					X	X	X	X	X	X	
Greenwich	Point Park										T								T	T	T				
Groton	Fort Griswold		1/6	X							X										X				
Hartford	Huntley Place	1/3		X			X			X			X	X				X	X	X	X		X		
Madison	Hammonasset State Park										X								X	X	X				
Middletown	Connecticut Valley Hospital										X								X	X	X				
New Haven	Criscuolo Park	1/3	1/6	X	1/3	1/6	X	1/3		X	X	X	X	X		X			X	X	X	X	X	X	X
Stafford	Shenipsit State Forest										X								X	X	X				
Stratford	Stratford Lighthouse										X										X				
Waterbury	Meadow & Bank Street	1/6		X															X	X	X				
Westport	Sherwood Island State Park										X			P					X	X	X				

X=Existing P = Planned in 2017/2018 T = Terminate in 2017/2018 T = Potentially terminate in 2017/2018

†East Hartford McAuliffe Park CO and SO_2 terminated on 3/31/2017.

National Ambient Air Quality Standards (NAAQS)

The EPA's Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants, known as the criteria pollutants. Table 2 summarizes the current NAAQS compliance requirements for the criteria pollutants.

Table 2: National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]		Primary / Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3 [2]	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb [3]	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm [4]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb [5]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

[2] In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

[3] The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

[4] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

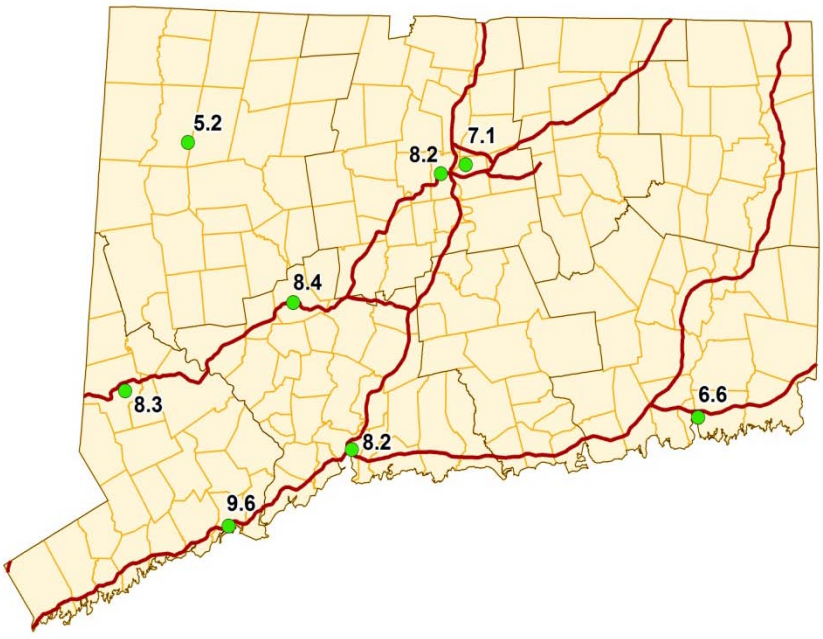
[5] The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)), A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

$PM_{2.5}$ Annual Design Values (2016)

The 2016 annual design values for $PM_{2.5}$, based on 2014 through 2016 data, are presented in the table and figure below. $PM_{2.5}$ annual design values are calculated using the 3-year average of the respective annual weighted averages. The current annual $PM_{2.5}$ NAAQS is 12.0 $\mu g/m^3$. All Connecticut monitors demonstrate compliance with the design value for the annual $PM_{2.5}$ NAAQS.

Site	Design Value ($\mu g/m^3$)
Bridgeport	9.6
Cornwall	5.2
Danbury	8.3
East Hartford	7.1
Groton	6.6*
Hartford	8.2†
New Haven	7.6
Waterbury	8.4
NAAQS	**12.0**

* 2 years of data, started January 2015
† Incomplete data; started March 2014

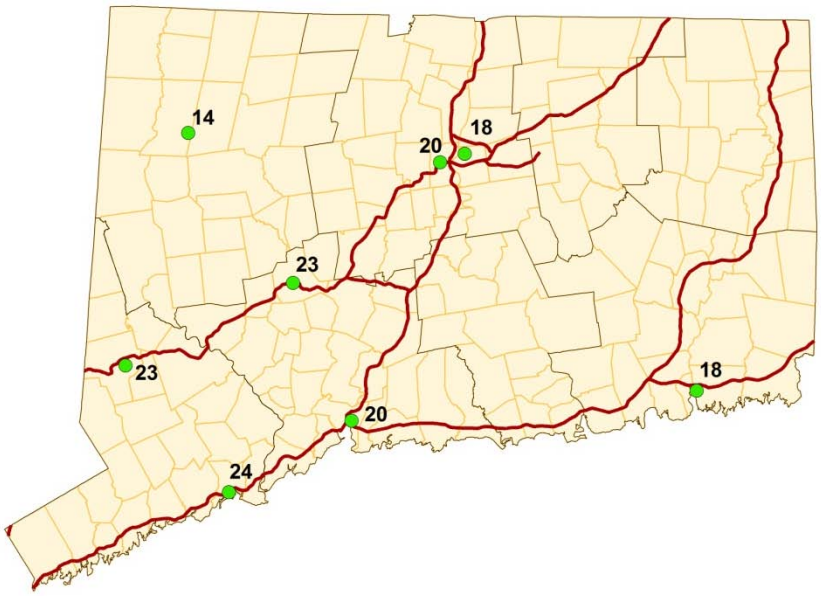


$PM_{2.5}$ Daily Design Values (2016)

Daily design values for $PM_{2.5}$ using 2014 through 2016 data are given below. $PM_{2.5}$ daily design values are calculated using the 3-year average of the annual 98th percentile values. The daily $PM_{2.5}$ NAAQS is 35 $\mu g/m^3$, revised in 2006 from the previous daily standard of 65 $\mu g/m^3$. Final designations relative to the 2006 24-hour $PM_{2.5}$ NAAQS were finalized by EPA in November 2009 (effective as of December 14, 2009), based upon measured data from 2006 through 2008. All Connecticut monitors demonstrate compliance with the design value for the 24-hour $PM_{2.5}$ NAAQS.

Site	Design Value ($\mu g/m^3$)
Bridgeport	24
Cornwall	14
Danbury	23
East Hartford	18
Groton	18*
Hartford	20†
New Haven	20
Waterbury	23
NAAQS	**35**

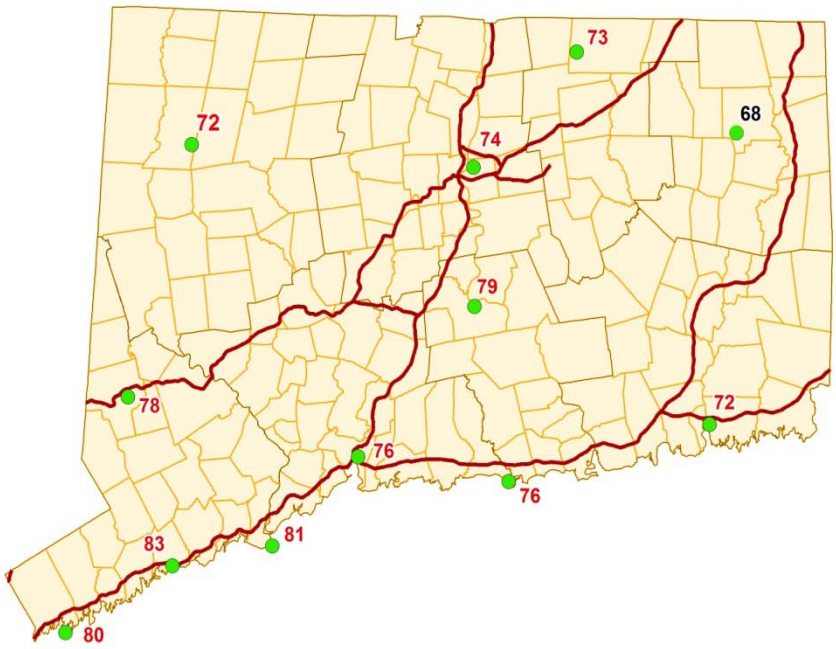
* 2 years of data, started January 2015
† Incomplete data, started March 2014



Ozone Design Values (2016)

The 2016 ozone 8-hour design values are given in the table below. Ozone design values are derived by averaging three consecutive annual fourth highest daily maximum 8-hour ozone values. Based on both the 2008 ozone standard of 0.075 ppm (75 ppb) and the new October 2015 revised ozone standard of 0.070 ppm (70 ppb), 9 out of 11 sites indicate nonattainment, shown in red font below. Starting in 2017, the ozone monitoring season in Connecticut is extended by a month, beginning March 1 and ending September 30.

Site	Design Value (ppb)
Abington	**68**
Cornwall	**72**
Danbury	**78**
East Hartford	**74**
Greenwich	**80**
Groton	**72**
Madison	**76**
Middletown	**79**
New Haven	**76**
Stafford	**73**
Stratford	**81**
Westport	**83**
NAAQS	**70**



CO, SO_2, NO_2, PM_{10} and Pb NAAQS Comparisons (2016)

Comparisons of ambient levels of CO, SO_2, NO_2, PM_{10} and Pb to the primary NAAQS are provided in the tables below. The design values for each pollutant were derived in accordance with 40 CFR 50. For PM_{10}, the 3-year fourth-high value, rounded to the tens place, is given to indicate the ambient level relative to the standard, as the actual design value is the expected number of annual exceedances of the standard, averaged over a 3-year period, which is in attainment with a value of less than or equal to one.

CO NAAQS Comparison

Site	1-Hr Design Value (ppm)	8-Hr Design Value (ppm)
Bridgeport	2.5	1.5
Cornwall	3.4	0.7
East Hartford	1.3	1.1
Hartford	2.2	1.5
New Haven	2.0	1.2
NAAQS	**35**	**9**

SO_2 NAAQS Comparison

Site	1-Hr Design Value (ppb)
Bridgeport	6
Cornwall	5
East Hartford	5
New Haven	9
NAAQS	**75**

NO_2 NAAQS Comparison

Site	1-Hr Design Value (ppb)	Annual Design Value (ppb)
East Hartford	45	9
Hartford	52	16
New Haven	53	14
NAAQS	**100**	**53**

PM_{10} NAAQS Comparison

Site	Daily Design Value ($\mu g/m^3$ STP)
Bridgeport	40
Cornwall	30
East Hartford	30
Hartford*	60
New Haven	40
NAAQS	**150**

*Incomplete, data only available for 2015-2016

Overview of Network Operation

DEEP operates a network of 14 State and Local Air Monitoring Stations (SLAMS) sites throughout Connecticut used for monitoring air pollutants and meteorological parameters. This section contains information about monitoring methods and sampling frequencies, as well as monitoring network maps for each pollutant parameter. Network changes planned before the end of 2018 are discussed as are any anticipated network changes beyond that period.

$PM_{2.5}$ Monitoring

Network Design The DEEP $PM_{2.5}$ network consists of Thermo/R&P Partisol®-Plus 2025/2025i sequential FRM air samplers with BGI VSCC (RFPS-0498-118) and Met One BAM 1020 continuous air samplers (EQPM-0798-122) for NAAQS compliance at eight air monitoring stations. The distribution of $PM_{2.5}$ sampling methods in the network and their applicability to NAAQS attainment are shown in Table 3. For the NAAQS compliance monitors, valid data from collocated and supplemental monitors, respectively, are used to fill in any missing or invalidated scheduled or nonscheduled days for the primary data set used for computing the design values.

The eight continuous BAM samplers in the network are designated FEM monitors, while the filter-based FRM monitors operate at a one-in-six day frequency, except for at the two NCore sites, New Haven and Cornwall, and the near road site in Hartford, all of which run on a one-in-three day schedule. As shown in Table 3, there are six primary $PM_{2.5}$ FRM monitors, so the collocated monitor in New Haven meets the requirement of 15 percent. The FEM monitor in Bridgeport is designated as primary, with an FRM monitor collocated, to meet collocation requirements for the FEM network.

DEEP will operate a Teledyne API T640X $PM_{10}/PM_{2.5}/PM_{10-2.5}$ FEM continuous analyzer (EQPM–0516–240**)** at the Hartford Huntley Place site, on a trial basis, beginning in June 2017. Otherwise, no changes to this network are proposed through the end of 2018.

In addition to the NAAQS compliance monitors discussed above, $PM_{2.5}$ is monitored at the Hartford Adriaen's Landing Village Green community monitoring station (not shown on map above). The data from the Village Green site is for public informational purposes only, and is not used to determine NAAQS compliance.

Table 3: $PM_{2.5}$ FRM/FEM Network Summary

Site	Primary (NAAQS)	Collocated (NAAQS)	Supplemental (NAAQS)
Bridgeport-Roosevelt Sch.	Continuous FEM	1-in-6 FRM	
Cornwall-Mohawk Mt.	1-in-3 FRM		Continuous FEM
Danbury-WCSU	1-in-6 FRM		Continuous FEM
East Hartford-McAuliffe Pk.	1-in-6 FRM		Continuous FEM
Groton-Ft. Griswold	Continuous FEM		1-in-6 FRM
Hartford-Huntley Pl.	1-in-3 FRM		Continuous FEM
New Haven-Criscuolo Pk.	1-in-3 FRM	1-in-6 FRM	Continuous FEM
Waterbury-Bank St.	1-in-6 FRM		Continuous FEM

$PM_{2.5}$ FEM Performance Assessment The continuous FEM monitors are evaluated by correlation with the FRM monitors on a site by site basis each calendar quarter. As part of this plan, correlations were completed using three years of data as presented in this section.

DEEP compared the continuous FEM $PM_{2.5}$ data with $PM_{2.5}$ FRM data for the 3-year period 2014-2016. Hourly BAM data was aggregated to valid 24-hour averages when at least 75 percent of the hours in each day were valid. Linear regressions performed on the correlation plots are given in Appendix A. The slopes and intercepts of the regression lines are summarized in Table 4. Figure 2 shows the results of these correlations graphically, where slope/intercept points enclosed by the polygon comply with EPA FEM performance criteria[6].

Table 4: CT PM2.5 FEM Performance Criteria Evaluation Summary (2014-2016 Data)

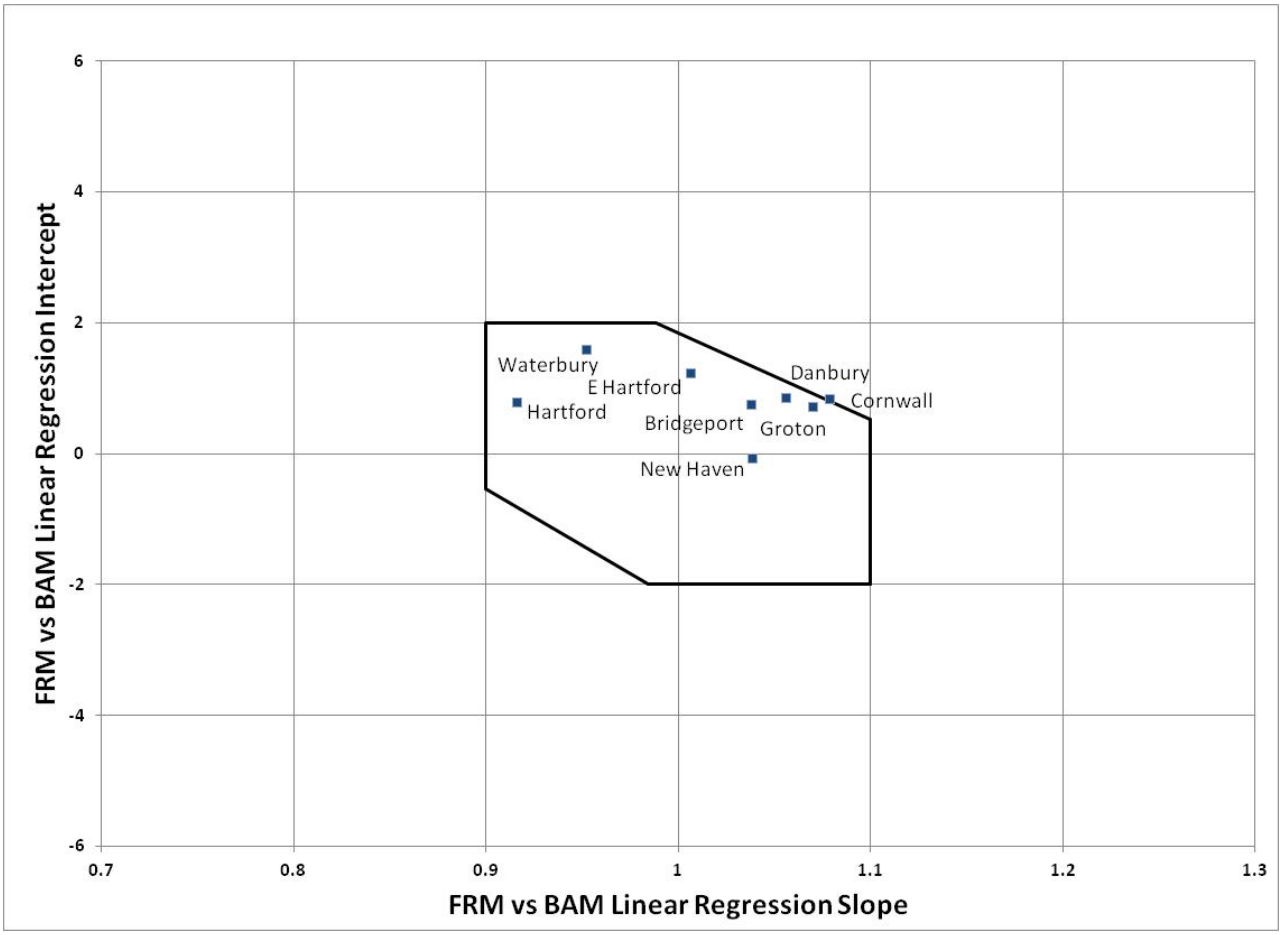
Correlation Data Summary							Evaluation Summary†			
Site Name	AQS ID	Slope	Intercept	R^2	No. Data Pairs	Meets FEM Performance Criteria	Slope ≥0.9 and ≤1.1	Intercept ≥-2 and ≤2	Intercept linear condition‡	Meets all performance conditions
Bridgeport Roosevelt School	09-001-0010	1.037	0.752	0.755	242	Y	1	1	1	1
Cornwall Mohawk Mt	09-005-0005	1.0787	0.8322	0.719	323	N	1	1	0	0
Danbury WCSU	09-001-1123	1.0696	0.7283	0.9032	266	Y	1	1	1	1
East Hartford McAuliffe Park	09-003-1003	1.006	1.2317	0.6356	742	Y	1	1	1	1
Groton - Fort Griswold*	09-011-0124	1.0564	0.8636	0.89	105	y	1	1	1	1
Hartford Huntley Place**	09-003-0025	0.916	0.7852	0.89	299	y	1	1	1	1
New Haven Criscuolo Park	09-009-0027	1.0385	-0.0591	0.86	747	y	1	1	1	1
Waterbury Bank Street	09-009-2123	0.952	1.595	0.71	249	Y	1	1	1	1

*Based on two years of data, FRM Operations began Jan 2015.
**Based on two years of data, FRM operations began March 2014.
†A value of 1 indicates condition satisfied, 0 indicates condition not satisfied
‡Intercept between 15.05-(17.32*Slope) and 15.05-(13.20*Slope)

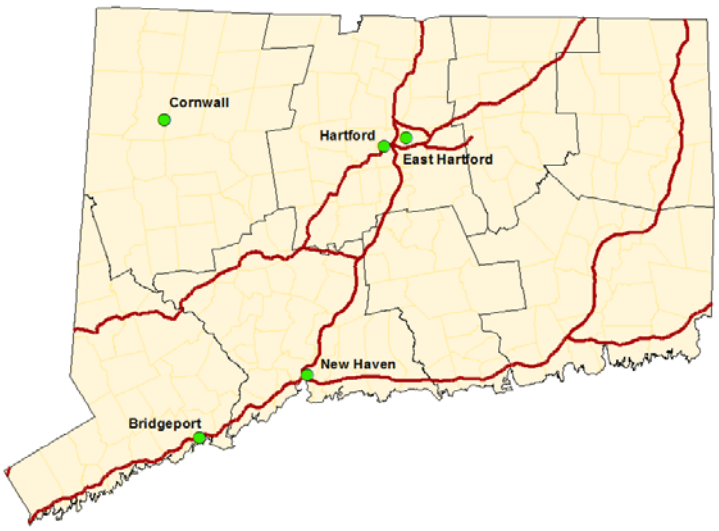
The data indicate that all sites except, Cornwall Mohawk Mountain currently meet FEM criteria, although the Cornwall site is very close to meeting these criteria. DEEP will continue evaluating FEM performance through FEM-FRM comparisons on a quarterly basis as part of data validation.

[6] 40 CFR 53 Table C-4

Figure 2: CT PM2.5 FEM Comparison with EPA Performance Standards (2014-2016 data)



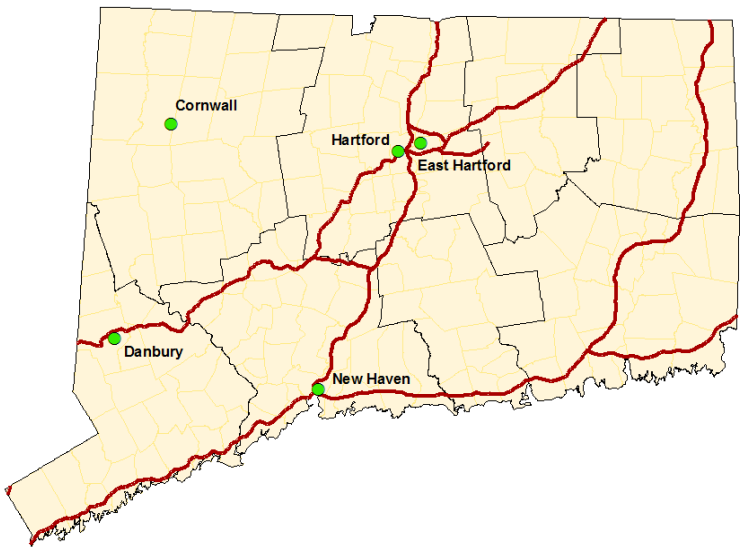
PM_{10} / $PM_{10-2.5}$ Monitoring



DEEP operates three PM_{10}/$PM_{10-2.5}$ FRM sites in the air monitoring network using Thermo Partisol®-Plus 2025/2025i sequential air samplers (RFPS-1298-127). The New Haven NCore site operates on a 1-in-3 day sample schedule, while Bridgeport and East Hartford are operated on a 1-in-6 day sample schedule. The New Haven site has a collocated PM_{10} FRM sampler operating on a 1-in-6 day sample schedule. In addition to the FRM PM_{10} monitors, three sites, Cornwall Mohawk Mountain, New Haven Criscuolo Park and Hartford Huntley Place, have FEM Met One BAM 1020 continuous PM_{10} monitors (EQPM-0798-122). All primary and collocated PM_{10} FRM samplers are paired with $PM_{2.5}$ FRM samplers for coarse PM ($PM_{10-2.5}$). As such, the New Haven site has $PM_{10-2.5}$ collocated FRM monitors, as requested by EPA as part of a minimum number of $PM_{10-2.5}$ collocated sites for data quality assessment. In addition, all FEM PM_{10} analyzers are paired with FEM $PM_{2.5}$ analyzers for continuous $PM_{10-2.5}$. Coarse PM is defined as thoracic PM having particle aerodynamic diameters between 2.5 and 10 microns, operationally defined as the difference PM_{10} minus $PM_{2.5}$ from co-located monitors.

DEEP will operate a Teledyne API T640X PM_{10}/$PM_{2.5}$/$PM_{10-2.5}$ FEM continuous analyzer (EQPM–0516–240**)** at the Hartford Huntley Place site, on a trial basis, beginning in June 2017. Otherwise, no changes to this network are proposed through the end of 2018.

PM Speciation Monitoring



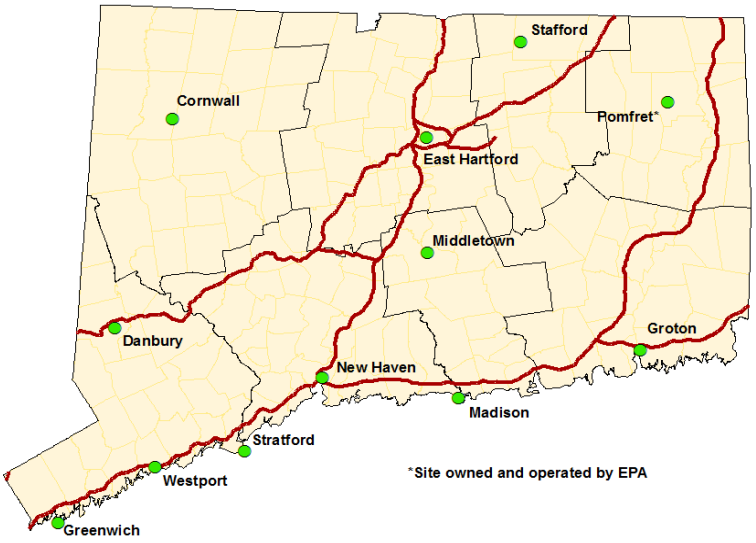
$PM_{2.5}$ chemical speciation measurements are obtained at five sites in the DEEP air monitoring network. These include filter-based daily composite 1-in-3 day samples at the NCore sites, and continuous hourly black carbon at five sites.

The Interagency Monitoring of Protected Visual Environments (IMPROVE) monitor is located at the Cornwall site and the Chemical Speciation Network (CSN) monitor is at the New Haven Criscuolo Park site. Both sites are operated on the standard EPA 1-in-3 day PM sample schedule and provide 24-hour integrated filter-base measurements.

Black carbon (BC) and ultra-violet channel carbon (UVC), a wood smoke PM surrogate, are monitored at the Criscuolo Park, Cornwall, Hartford, East Hartford McAuliffe Park and Danbury WCSU sites using 7-channel TAPI Model 633 aethalometers. No changes are proposed to the PM speciation network during 2017-2018.

Ozone Monitoring

DEEP operates eleven ozone sites in the air monitoring network for NAAQS compliance. The ozone analyzers at the Cornwall Mohawk Mountain, East Hartford McAuliffe Park and New Haven Criscuolo Park sites are operated year-round, while the remaining sites are operated during the EPA ozone season for Connecticut, which is from March 1 to September 30. In addition to the DEEP network, EPA operates an ozone monitor in Abington (Pomfret) during the ozone season as part of its Clean Air Status and Trends (CASTNET) network.



NAAQS compliance ozone monitoring in the DEEP network is conducted using Teledyne-API Model T400 UV photometric ozone analyzers (method EQOA-992-087). Ozone measurements are sent to the EPA AIRNow website for AQI purposes on an hourly basis.

DEEP is planning to relocate the Middletown Connecticut Valley Hospital (CVH) site from its present location on the sixth floor of Shew Hall to a dedicated shelter in a flat open area 435 meters to the southwest on the CVH campus. Appendix B includes information describing the location and site characteristics of the proposed new monitoring shelter, including mapping, local traffic data, site wind data, general site characteristics and photographs.

Due to existing and potentially worsening fiscal and personnel constraints, DEEP is considering the removal of the Greenwich ozone monitor from the network. At the present time, a termination date is not set, but DEEP will consult with EPA Region 1 if a decision is made to move forward.

In addition to the NAAQS compliance monitors discussed above, ozone is monitored year-round at the Hartford Adriaen's Landing Village Green community monitoring station (not shown on map above). The data from the Village Green site is for public informational purposes only, and is not used to determine NAAQS compliance.

PAMS Monitoring and Enhanced Monitoring Plans

DEEP formerly operated two Photochemical Assessment Monitoring Stations (PAMS) sites in the air monitoring network in 2015, at the New Haven Criscuolo Park and East Hartford McAuliffe Park sites. However, the recently revised ozone NAAQS rule[7] requires PAMS measurements at NCore sites that are located in CBSAs with populations of 1,000,000 or more. Since Connecticut's NCore sites are located in CBSAs with populations less than one million, this requirement does not apply. However, the rule requires that states located within the Ozone Transport Region (OTR) and/or states with O_3 nonattainment areas classified moderate and above develop and implement Enhanced Monitoring Plans (EMPs) proposing additional O_3, O_3 precursor and/or meteorological monitoring activities. DEEP is in the process of reviewing options that may include, but are not limited to, additional O_3 air measurements on or near Long Island Sound, upper air measurements, measurements of Total VOCs or a reduced number of VOC species (which may include benzene and toluene), additional NO_2 monitoring, and boundary layer studies. As discussed below, DEEP is proposing operation of a direct NO_2 monitor at the Westport location in support of planned upper air monitoring during 2017 using aircraft over Long Island Sound and coastal Connecticut.

[7] 80 FR 65292; October 26, 2015

NO_2 and NO/NO_Y Monitoring

DEEP operates three nitrogen dioxide (NO_2) sites in the monitoring network using Teledyne-API Model T500U (EQNA-0514-212), which are capable of directly measuring NO_2 using cavity attenuated phase shift (CAPS) spectroscopy methodology.

The NO_2 monitors are maintained at three sites, Hartford Huntley Place, East Hartford McAuliffe Park and New Haven Criscuolo Park, for regulatory compliance.

DEEP also operates two nitrogen oxide/total reactive oxides of nitrogen (NO/NO_Y) TAPI model T200U/501 monitors, at Cornwall Mohawk Mountain and New Haven Criscuolo Park, to comply with NCore requirements. NO_Y is defined as $NO+NO_2+NO_Z$, where NO_Z represents higher oxides of nitrogen.

The NO_2 and NO/NO_Y networks fulfill requirements for NCore and SLAMS monitoring of these parameters. These requirements include: near road and area wide NO_2 monitoring in a Core-based statistical area (CBSA) with a population greater than 1,000,000(Hartford and East Hartford sites, respectively); nationwide NO_2 monitoring for susceptible and vulnerable populations at site selected by EPA (New Haven) and NCore NO/NO_Y monitoring (Cornwall and New Haven).

DEEP is proposing to commence direct NO_2 sampling at the Westport Sherwood Island site during the spring of 2017. NO_2 measures at this site will be useful for validating and complementing data collected in aircraft monitoring of ozone episodes planned during the 2017 ozone season.

CO Monitoring

DEEP operates four carbon monoxide (CO) sites in the air monitoring network. All CO samplers are operated year-round and employ TEI 48i- TLE analyzers (RFCA-0981-054). Of the 4 sites, New Haven and Cornwall comply with the requirement for CO monitoring at NCore sites, Bridgeport monitors under a CO limited maintenance plan, and Hartford fulfills near road requirements.[8] The Hartford area is no longer subject to a CO limited maintenance plan, which ended in 2015.[9] Also, the EPA Regional Administrator has not indicated

[8] 76 FR 54294; August 31, 2011

[9] 69 FR 50071; August 12, 2004

any locations for additional CO monitoring.

Given that the East Hartford CO monitor is not used to meet EPA requirements, and given its very low design values relative to the NAAQS, as shown in an earlier section of this Network Plan, DEEP is requesting approval for termination of the monitor as of April 1, 2017.

SO_2 Monitoring

DEEP currently operates three sulfur dioxide (SO_2) sites in the air monitoring network. A fourth SO2 monitor, which was located at East Hartford McAuliffe Park, was shut down on March 31, 2017. DEEP is requesting formal approval of this network change in this Plan.

All samplers are TEI 43i-TLE SO_2 analyzers (EQSA-0486-060) and are operated year-round. Both 1-hour average and 5-minute block average SO_2 data are validated and reported to EPA.

The network requirements for SO_2 monitoring include NCore, population-weighted emissions index (PWEI) and Regional Administrator-required monitoring.[10] The Cornwall and New Haven sites satisfy the NCore SO_2 requirement.

Table 5 shows the PWEI values for CBSAs that are within or intersecting Connecticut, based on the 2014 National Emissions Inventory and US Census Bureau 2015 county population estimates. The SO_2 NAAQS monitoring requirements based on PWEI values state that a monitor is required in areas having PWEI values greater than or equal to 5,000. Therefore, no PWEI SO_2 monitors are currently required in the state. Also, the Regional Administrator has not indicated any additional SO_2 monitors in areas having the potential to violate the NAAQS, areas where vulnerable or sensitive populations may be impacted, or near large sources not conducive to modeling. We also note that the SO_2 design values, as provided in an earlier section of this Network Plan, range from 5 to 9 ppb, and are well below the 1-hour NAAQS of 75 ppb.

As such, DEEP is requesting approval for discontinuation of the East Hartford McAuliffe Park SO_2 monitor as of April 1, 2017. Although not covered by PWEI requirements, DEEP intends to continue SO_2 monitoring at Bridgeport Roosevelt School at this time, given that it is located in an area of higher concentrations, vulnerable and sensitive populations and a large, but declining, emissions source.

[10] 75 FR 35520; June 22, 2010

Table 5: Population Weighted Emissions Index (PWEI) Values for Connecticut CBSAs

Core-Based Statistical Area (CBSA)	SO_2 (tpy)	Population	PWEI (MMperson-tons/yr)
Bridgeport-Stamford-Norwalk, CT	3573.11	948053	3387
Hartford-West Hartford-East Hartford, CT	3762.76	1211324	4558
Torrington, CT	731.01	183603	134
New Haven-Milford, CT	2690.13	859470	2312
Norwich-New London, CT	1209.38	271863	329
Worcester, MA-CT	2258.63	935536	2113

EPA's June 2010 SO_2 final NAAQS rule and subsequent SO_2 data requirements rule[11] indicate that, in addition to design values from NCore and PWEI-required monitoring, EPA may use refined dispersion modeling and/or source monitoring to predict SO_2 levels for attainment designations based on source emissions. Although Connecticut's highest SO_2 source, Bridgeport Harbor Station Unit 3, has emissions well below the 2000 tons per year (tpy) threshold levels for this rule, Connecticut has indicated that it will perform dispersion modeling to characterize the source impact on ambient SO2 concentrations. As such, there is no need to maintain Edison School as a potential maximum impact monitor for SO_2 designation.

Lead (Pb) Monitoring

The DEEP lead (Pb) monitoring network, which consisted of primary 1-in-6 day and collocated 1-in-12 day sampling at the New Haven Criscuolo Park urban NCore site, was discontinued on June 30, 2016 under provisions of EPA's March 2016 Monitoring Rule,[12] which removed the requirement for urban NCore Pb monitoring (existing monitors with three years of data could be removed with EPA concurrance). No additional Pb monitors are required in Connecticut for stationary source or airport monitoring as required by the 2010 Pb NAAQS rule.[13]

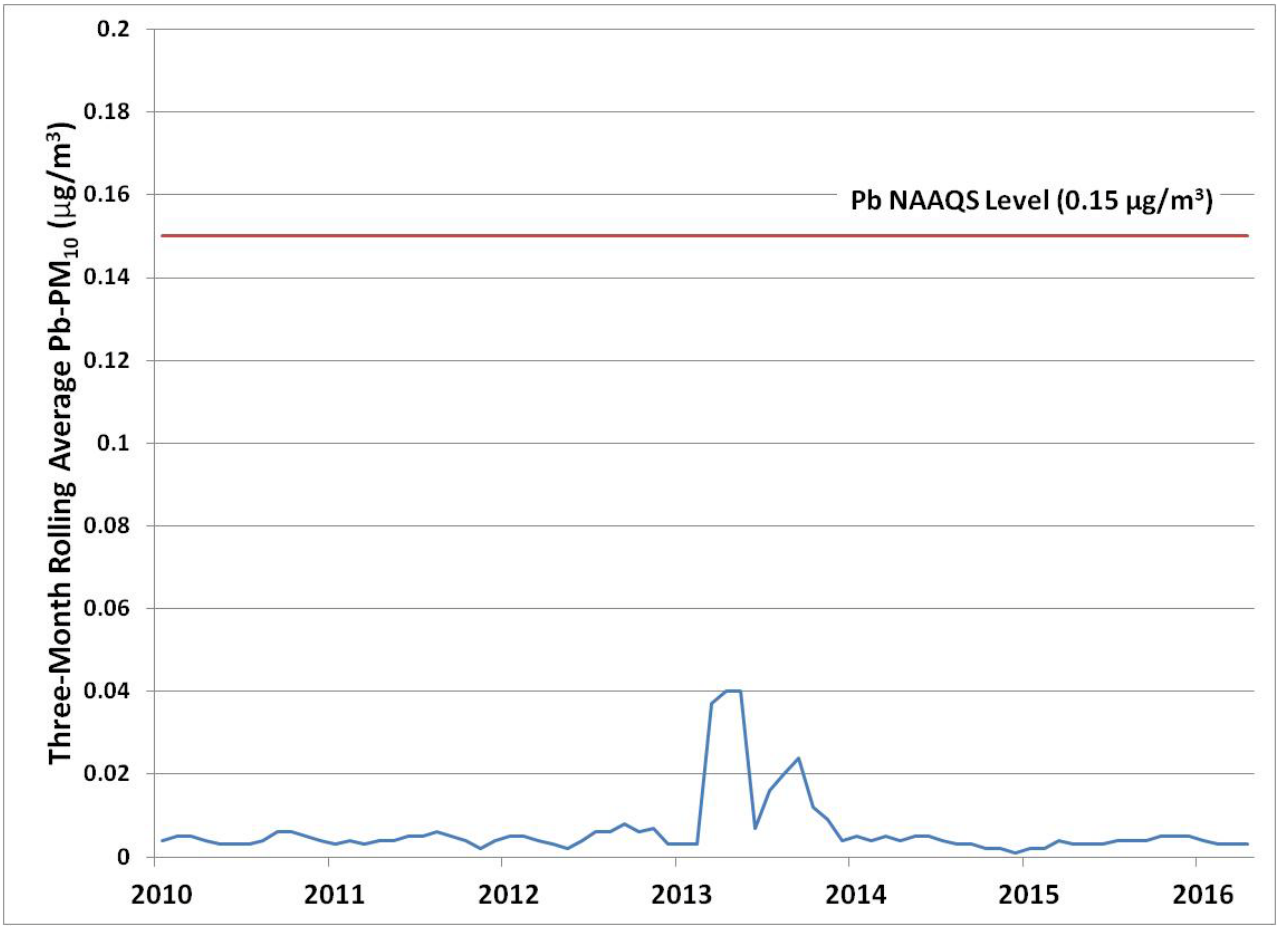
Lead measurements are obtained from Energy Dispersive X-Ray Fluorescence (XRF) analysis of the 47 mm Teflon filter samples collected using a low-volume (lo-vol) FRM R&P Partisol Plus 2025 PM_{10} Sequential Air Samplers. Although the Pb NAAQS is defined as 0.15 µg/m^3 lead in total suspended particulates (TSP), Pb monitoring regulations allow surrogate monitoring of Pb in PM_{10} (Pb-PM_{10}), providing that design values are below two-thirds of the NAAQS, or below 0.10 µg/m^3. New Haven Pb-PM_{10} values remained well below this threshold, with a 2015 design value of 0.04 µg/m^3, while most monthly averages are in the range of 0.00-0.01 µg/m^3 (Figure 3).

[11] 80 FR 51052; August 21, 2015

[12] 81 FR 17248; March 28, 2016

[13] 75 FR 81126; December 27, 2010

Figure 3: Pb-PM10 Monitored Levels, Jan 2010 – Jun 2016



Detailed Site Information

The following section presents detailed information for each monitoring site, such as: identification code, location, history, monitored parameters, monitoring objectives, history and descriptive information.

Town – Site:	**Pomfret – Abington**		
County:	**Windham**	Latitude:	**41.84046°**
Address:	**80 Ayers Road**	Longitude:	**-72.010368°**
AQS Site ID:	**09-015-9991**	Elevation:	**209 m (686 ft)**
Spatial Scale:	**Regional**	Year Established:	**1993**
Statistical Area:	**CBSA Willimantic, CT**		

This site is not under the operational control or purview of DEEP and is included in this Network Plan for informational purposes only

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X													

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Abington site is a regional-scale site located in a rural/agricultural area in northeast Connecticut in the town of Pomfret. This site is operated by the National Park Service under the direction of EPA as part of their Clean Air Status and Trends Network (CASTNET). It is located on a hilltop approximately 2.3 km south of State Route (SR) 44 and 0.6 km east of SR 97. The site includes a portable shed located in the center of an agricultural field that is surrounded by forest. DEEP tracks ambient air quality and quality assurance data from the site but is not responsible for site operations and planning.

Monitoring Objectives: The Abington monitoring site objective is to collect ozone measurements to assess long-terms trends as part of the national CASTNET network. The site will also be used to determine compliance with the ozone NAAQS in Windham County.

Planned changes for 2017-2018: This site is not under the operational control or purview of DEEP and is included in this Network Plan for informational purposes only.

Town – Site:	**Bridgeport – Roosevelt School**		
County:	**Fairfield**	Latitude:	**41.17086°**
Address:	**Park Avenue**	Longitude:	**-73.19476°**
AQS Site ID:	**09-001-0010**	Elevation:	**7 m (23 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1982**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
	1/6	X	1/6									X	X								X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Roosevelt School site is a neighborhood-scale site located in southwestern Connecticut in the city of Bridgeport. This site is located 50 m to the north of I-95 and 200 m to the west of the I-95 and Rte 8 interchange. This coastal site is located in a schoolyard and residential neighborhoods are present in every direction of the site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Bridgeport Roosevelt School monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI and forecasting purposes. The $PM_{2.5}$ FEM is designated as the primary sampler to for NAAQS. CO measurements will continue to be conducted at this site per requirements of the CO limited maintenance plan (LMP).

Planned changes for 2017-2018: There are no changes planned for the period 2017 through 2018.

Town – Site:	**Cornwall – Mohawk Mountain**		
County:	**Litchfield**	Latitude:	**41.82140°**
Address:	**Mohawk Mountain**	Longitude:	**-73.29733°**
AQS Site ID:	**09-005-0005**	Elevation:	**505 m (1656 ft)**
Spatial Scale:	**Regional**	Year Established:	**1988**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NOx$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
1/3		X			X				1/3	X	X	X	X			X			X	X	X	X	X	X

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Mohawk Mountain site is a rural regional-scale site located in northwestern Connecticut in the town of Cornwall. The site is located at the summit of Mohawk Mountain with an elevation of 505 m (1656 ft), and is approximately 17 km to the east of the New York border and 25 km to the south of the Massachusetts border. This site meets all siting requirements and criteria and has been approved by EPA as an NCore site.

Monitoring Objectives: The primary monitoring objectives are to meet NCore requirements for O_3, CO, SO_2, NO, NOy, $PM_{2.5}$ FRM, PM_{10} FRM, $PM_{10\text{-}2.5}$ FRM, $PM_{2.5}$ speciation, continuous $PM_{2.5}$ and surface meteorology. $PM_{2.5}$ chemical speciation measurements are collected through the IMPROVE network as one-in-three day 24-hour samples and by continuous analyzers for fine particulate carbon parameters (BC/UVC).

Planned changes for 2017-2018: There are no changes planned for the period 2017 through 2018.

Town – Site:	**Danbury – Western Connecticut State University**		
County:	**Fairfield**	Latitude:	**41.398692°**
Address:	**White Street**	Longitude:	**-73.443148°**
AQS Site ID:	**09-001-1123**	Elevation:	**116 m (380 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1974**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
1/6		X								X	X								X	X	X		X	

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Western Connecticut State University (WCSU) site is a neighborhood-scale site for $PM_{2.5}$ and an urban-scale site for O_3, located in western Connecticut in the city of Danbury. This site is located on the top level of a parking garage on the WCSU campus. This site is located approximately 140 m to the southeast of I-84 on White Street. Residential neighborhoods are located in all directions of the site. This site meets all siting requirements and criteria and has been approved by EPA Region I.

Monitoring Objectives: The Danbury WCSU monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI and forecasting purposes. Ozone is measured at the Danbury site for compliance assessment and AQI forecast reporting. Black carbon (BC/UVC) aethalometer monitoring is included to track the wood smoke contribution to PM pollution.

Planned changes for 2017-2018: There are no changes planned for 2017 through 2018.

Town – Site: **East Hartford – McAuliffe Park**
County: **Hartford** Latitude: **41.78471°**
Address: **McAuliffe Park** Longitude: **-72.63158°**
AQS Site ID: **09-003-1003** Elevation: **15 m (50 ft)**
Spatial Scale: **Neighborhood** Year Established: **1981**
Statistical Area: **CSA (Hartford-West Hartford-Willimantic)**

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
1/6		X	1/6							X	X	X	X	X					X	X	X	X	X	

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The McAuliffe Park site is neighborhood-scale site located in central Connecticut in the town of East Hartford. The site is located approximately 120 m to the east of Rte 5, 2.0 km to the east of I-91 and 2.5 km to the south of I-291. This site is located 3.7 km to the northeast of the city of Hartford. Residential neighborhoods are located in all directions of this site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I. DEEP upgraded the air monitoring equipment shelter during Fall of 2013, during which time most monitors experienced some data loss.

Monitoring Objectives: The East Hartford McAuliffe Park monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI and forecasting purposes. The SO2 monitor satisfies the PWEI requirement for the Hartford-West Hartford-East Hartford CBSA. A PM_{10} FRM is operated for SLAMS compliance purposes, as well as to gather $PM_{10-2.5}$ measurements. Ozone is measured at the McAuliffe Park site for compliance assessment and AQI and forecast reporting. A collocated FRM sampler is operated at this site to gather FRM precision data

Planned changes for 2017-2018: DEEP is seeking formal approval for the shutdown of the SO_2 and CO monitors as of March 31, 2017. Otherwise, no changes are anticipated at the site through 2018.

Town – Site:	**Greenwich – Point Park**		
County:	**Fairfield**	Latitude:	**41.005047°**
Address:	**Point Park**	Longitude:	**-73.58382°**
AQS Site ID:	**09-001-0017**	Elevation:	**3 m (10 ft)**
Spatial Scale:	**Urban**	Year Established:	**1978**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NO_x$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											T								T	T	T			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018 T = Potential to terminate in 2017/2018

Site Description: The Greenwich Point Park site is an urban-scale site located is southwestern Connecticut on the Long Island Sound in the town of Greenwich. This is a coastal site located approximately 3.0 km to the southeast and 5.0 km to the northeast of the New York border. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I

.

Monitoring Objectives: The Greenwich Point Park monitoring site objectives include collecting ozone measurements for compliance assessment and AQI and forecast reporting.

Planned changes for 2017-2018: DEEP is considering termination of the Greenwich ozone and meteorological monitors if necessitated by further fiscal and/or personnel constraints.

Town – Site:	**Groton – Fort Griswold**		
County:	**New London**	Latitude:	**41.35362°**
Address:	**141 Smith Street**	Longitude:	**-72.07882°**
AQS Site ID:	**09-011-0124**	Elevation:	**37 m (120 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2007**
Statistical Area:	**MSA (Norwich-New London)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
	1/6	X									X										X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Fort Griswold site is a neighborhood-scale site located in southeastern Connecticut in the town of Groton. This site is located approximately 1.1 km to the south of I-95 and 0.5 km to the east of the New London Harbor. Residential neighborhoods are located in all directions of this site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Groton Fort Griswold monitoring site objectives include monitoring of the two key pollutants, ozone and $PM_{2.5}$, for the southeastern part of Connecticut. Ozone is measured at the Fort Griswold site for compliance assessment and AQI and forecast reporting. $PM_{2.5}$ is currently monitored NAAQS compliance and AQI reporting. The FEM monitor is designated as primary and the FRM sample is designated as collocated for FEM network quality assurance data.

Planned changes for 2017-2018: None

Town – Site:	**Hartford – Huntley Place**		
County:	**Hartford**	Latitude:	**41.771444°**
Address:	**10 Huntley Place**	Longitude:	**-72.679923°**
AQS Site ID:	**09-003-0025**	Elevation:	**57.2 m (187.7 ft)**
Spatial Scale:	**Near Road**	Year Established:	**2013**
Statistical Area:	**CSA (Hartford-West Hartford-Willimantic)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
1/3		X			X					X			X	X				X	X	X	X		X	

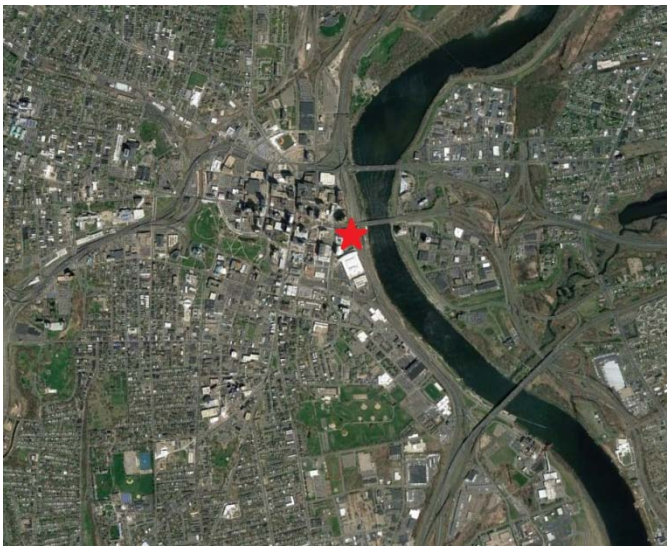
X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Huntley Place site is a near-road site located in north central Hartford. The site, located on the north west side of US I-84, is approximately 0.25 km to the west of the US I-91 corridor and the Founders and Buckley Bridges over the Connecticut River. Residential neighborhoods are located to the north, east and west of the site. This site meets all siting requirements for a near-road NO_2 site, and has been approved by EPA.

Monitoring Objectives: The primary monitoring objectives for the site are to capture NO_2 concentrations near heavily trafficked roads, to assess area-wide NO_2 concentrations, and to assess NO_2 concentrations for vulnerable and susceptible populations in adjacent neighborhoods. The data will be also used to help determine compliance with the 1-hour NO_2 NAAQS as established by EPA in 2010. This site also collects CO, continuous $PM_{2.5}$ & PM_{10} (BAM), BC/UVC and traffic counts.

Planned changes for 2017-2018: None.

Town – Site:	**Hartford –Village Green (Not a SLAMS site)**		
County:	**Hartford**	Latitude:	**41.764826°**
Address:	**Adriaen's Landing**	Longitude:	**-72.668190°**
AQS Site ID:	**Not applicable**	Elevation:	**11 m (36 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2015**
Statistical Area:	**CBSA (Hartford-West Hartford-Willimantic)**		



PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NO_x$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
		X									X								X	X	X	X	X	

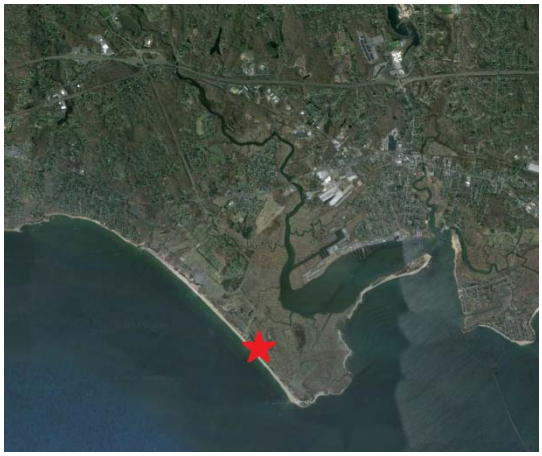
X=Existing P = Planned in 2017/2018 T = Proposed to terminate in 2017/2018

Site Description: The Village Green site in Hartford is an air monitoring system incorporated into a park bench. The site is located in an urban neighborhood in downtown Hartford. The Village green site is located close to the intersection of two major highways: I-91 and I 84. In addition, this site is close to Connecticut's near road site in Huntley and the East Hartford site. Data from the Village Green site is for public informational purposes only, and is not used to determine NAAQS compliance.

Monitoring Objectives: The Hartford Adriaen's Landing Village Green monitoring objectives are to collect ozone measurements for research purposes, engage communities in air pollution awareness, and increase air pollution monitoring coverage. Ozone, $PM_{2.5}$, wind speed and direction, temperature, barometric pressure and relative humidity are measured.

Planned changes for 2017-2018: No changes are planned during 2017-2018.

Town – Site:	**Madison – Hammonasset State Park**		
County:	**New Haven**	Latitude:	**41.25984°**
Address:	**Hammonasset SP**	Longitude:	**-72.55018°**
AQS Site ID:	**09-009-9002**	Elevation:	**3 m (10 ft)**
Spatial Scale:	**Regional**	Year Established:	**1981**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		



PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X								X	X	X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Hammonasset State Park site is a regional-scale site located in central coastal Connecticut in the town of Madison. This site is located approximately 1.5 km to the south of Rte 1 and 3.0 km to the south of I-95 on the Long Island Sound. Residential neighborhoods are located primarily to the northeast, north and northwest of the site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I. On August 30, 2012, the site was relocated approximately 450 meters to the southwest within the park due to storm damage at the previous location. The previous AQS ID was 09-009-3002.

Monitoring Objectives: The Madison Hammonasset State Park monitoring site objective is to collect ozone measurements for compliance assessment and AQI forecast reporting.

Planned changes for 2016-2017: None.

Middletown – Connecticut Valley Hospital

Town – Site:			
County:	**Middlesex**	Latitude:	**41.55224°**
Address:	**Shew Hall**	Longitude:	**-72.63004°**
AQS Site ID:	**09-007-0007**	Elevation:	**58 m (190 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1980**
Statistical Area:	**CSA (Hartford-West Hartford-Willimantic)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NOx$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X								X	X	X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Middletown Connecticut Valley Hospital (CVH) site is a neighborhood-scale site located in central Connecticut. This site is located approximately 0.2 km to the east of Rte 9. Residential neighborhoods are located to the west, north and south of this site. This site meets all siting requirements and criteria with the exception of the height requirement. A height requirement waiver has been approved and granted by EPA. DEEP is moving the site to a new location nearby on the CVH campus as discussed earlier in this Network Plan.

Monitoring Objectives: The CVH monitoring site objective is to collect ozone measurements for compliance assessment and AQI forecast reporting.

Planned changes for 2017-2018: The monitors will be moved to a new shelter within the CVH campus during May-June of 2017. DEEP will continue to operate the monitors at both the old and new locations through the end of the 2017 ozone season for data comparison purposes.

Town – Site:	**New Haven – Criscuolo Park**		
County:	**New Haven**	Latitude:	**41.30117°**
Address:	**1 James Street**	Longitude:	**-72.90288°**
AQS Site ID:	**09-009-0027**	Elevation:	**3 m (10 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2004**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation	Mixing Height
1/3	1/6	X	1/3	1/6	X			1/3		X	X	X	X	X		X			X	X	X	X	X	X	X

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Criscuolo Park site is a neighborhood-scale site located on the western side of the city of New Haven. The site is approximately 0.25 km to the north of the I-95 Quinnipiac River Bridge. The site is approximately 1.0 km to the east of the I-91 and I-95 interchange. Bulk gasoline transfer stations are located 0.3 to 2.0 km to the south of the site. Residential neighborhoods are located to the west, north and east of the site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The primary monitoring objectives are to meet NCore requirements for O_3, CO, SO_2, $PM_{2.5}$ FRM, PM_{10} FRM, $PM_{10-2.5}$ FRM, $PM_{2.5}$ speciation, continuous $PM_{2.5}$ and surface meteorology. NO_2 monitoring is conducted in fulfillment of the requirement for NO_2 monitoring of vulnerable and sensitive populations 40 nationwide sites selected by the Regional Administrators. $PM_{2.5}$ chemical speciation measurements are collected through the Chemical Speciation Network (CSN) as one-in-three day 24-hour samples and by continuous analyzers for fine particulate carbon parameters (BC/UVC and EC/OC) and sulfate. Ozone is measured at the Criscuolo Park site for compliance assessment and AQI forecast reporting.

Planned changes for 2016-2017: None.

Town – Site:	**Stafford – Shenipsit State Forest**		
County:	**Tolland**	Latitude:	**41.97568°**
Address:	**Route 190**	Longitude:	**-72.38674°**
AQS Site ID:	**09-013-1001**	Elevation:	**265 m (869 ft)**
Spatial Scale:	**Regional**	Year Established:	**1980**
Statistical Area:	**CBSA (Hartford-West Hartford-Willimantic)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NOx$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X								X	X	X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Shenipsit State Forest site is a regional-scale site that is located in northern Connecticut in the town of Stafford. The site is approximately 100 m to the south of Rte 190, 17 km to the east of I-91 and 12 km to the northwest of I-84. This site is located 34 km to the northeast of the city of Hartford. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Stafford Shenipsit State Forest monitoring site objective is to collect ozone measurements for compliance assessment and AQI forecasting purposes.

Planned changes for 2016-2017: None.

Town – Site:	**Stratford – Lighthouse**		
County:	**Fairfield**	Latitude:	**41.15181°**
Address:	**Prospect Drive**	Longitude:	**-73.10334°**
AQS Site ID:	**09-001-3007**	Elevation:	**3 m (10 ft)**
Spatial Scale:	**Regional**	Year Established:	**1980**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	$NO/NO_2/NOx$	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X										X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Stratford Lighthouse site is a regional-scale site located in southwestern Connecticut in the town of Stratford. This is a coastal site that is located 4.5 km to the southeast of I-95 and is directly on the Long Island Sound. This site is approximately 45 km to the northeast of the New York State border. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Stratford Lighthouse monitoring site objective is to collect ozone measurements for compliance assessment and AQI forecasting purposes.

Planned changes for 2017-2018: None

Town – Site: **Waterbury – Meadow & Bank Street**
County: **New Haven** Latitude: **41.55046°**
Address: **Meadow & Bank** Longitude: **-73.04365°**
AQS Site ID: **09-009-2123** Elevation: **80 m (269 ft)**
Spatial Scale: **Neighborhood** Year Established: **1975**
Statistical Area: **CSA (New York-Newark-Bridgeport)**

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
1/6		X																	X	X	X			

X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

Site Description: The Waterbury site is a neighborhood-scale site located in western Connecticut at Meadow Street and Bank Street in the Naugatuck River Valley. This site is approximately 170 m to the south of I-84, 300 m to the east of Rte 8 and 0.75 km to the east of the I-84 and Rte 8 interchange. Residential neighborhoods are located in all directions of the site. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Waterbury Meadow & Bank Street site monitoring objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI forecast reporting. The $PM_{2.5}$ BAM and has been designated as an FEM to be used to determine NAAQS compliance as well.

Planned changes for 2017-2018: None.

Town – Site:	**Westport – Sherwood Island State Park**		
County:	**Fairfield**	Latitude:	**41.11822°**
Address:	**Sherwood Island SP**	Longitude:	**-73.33681°**
AQS Site ID:	**09-001-9003**	Elevation:	**4 m (13 ft)**
Spatial Scale:	**Regional**	Year Established:	**1996**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

PM2.5 (FRM)	PM2.5 (FRM, Collocated)	PM2.5 (Continuous - FEM)	PM10/PM-Coarse (FRM)	PM10/PM-Coarse (FRM, Collocated)	PM10/PM-Coarse (Continuous)	Lead-PM10	Lead-PM10 (Collocated)	PM Speciation (CSN)	PM Speciation (IMPROVE)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	Direct NO_2	NO/NO_2/NOx	NO/NOy	VOCs (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Barometric Pressure	Solar Radiation
											X			P					X	X	X			

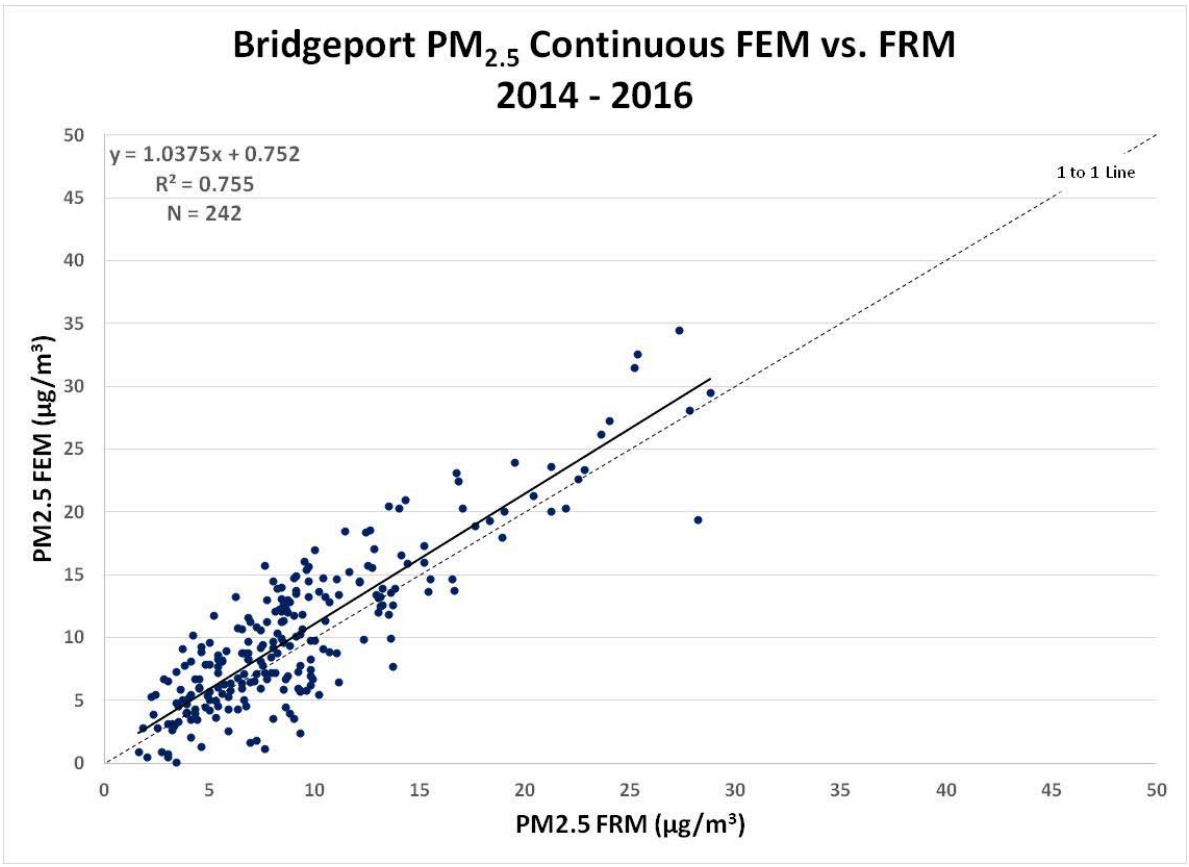
X=Existing P = Planned in 2017/18 T = Proposed to terminate in 2017/2018

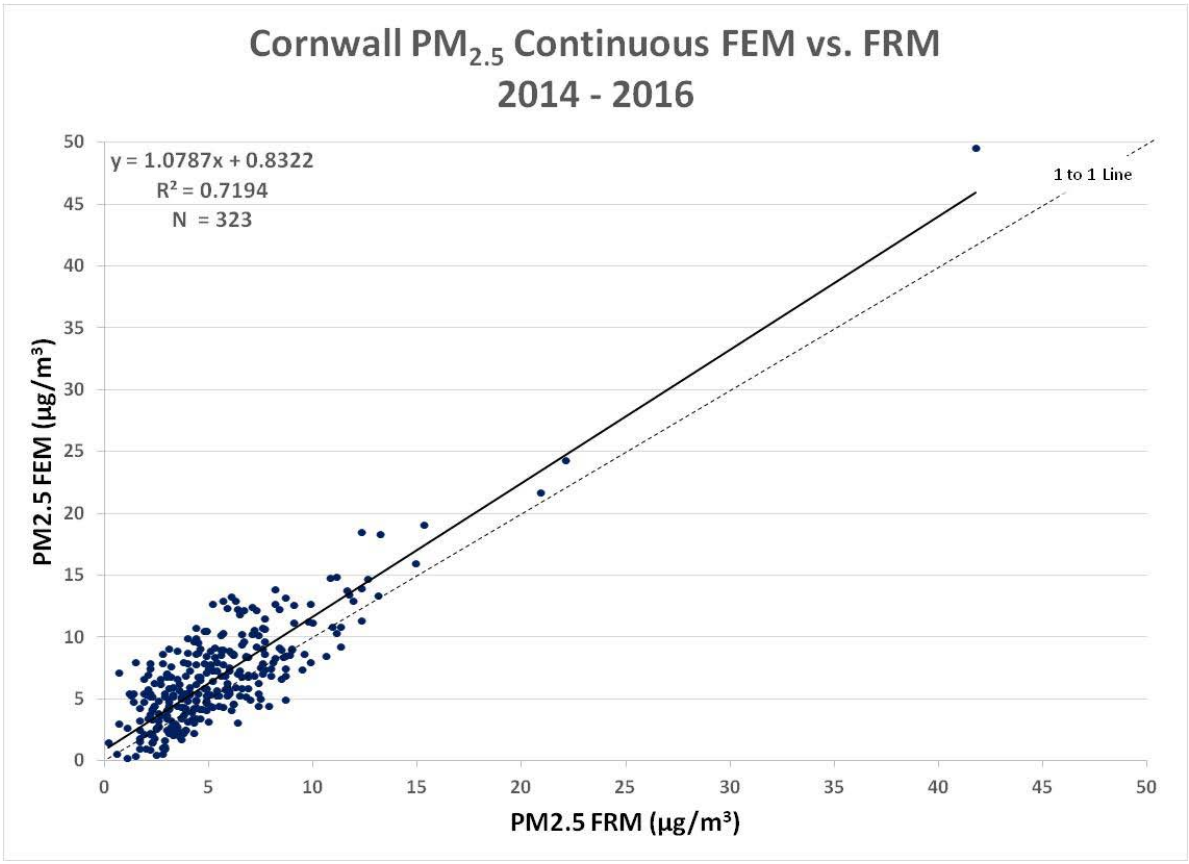
Site Description: The Westport Sherwood Island State Park site is a regional-scale site located in southwestern Connecticut. This is a coastal site that is approximately 0.5 km to the south of I-95 on the Long Island Sound. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

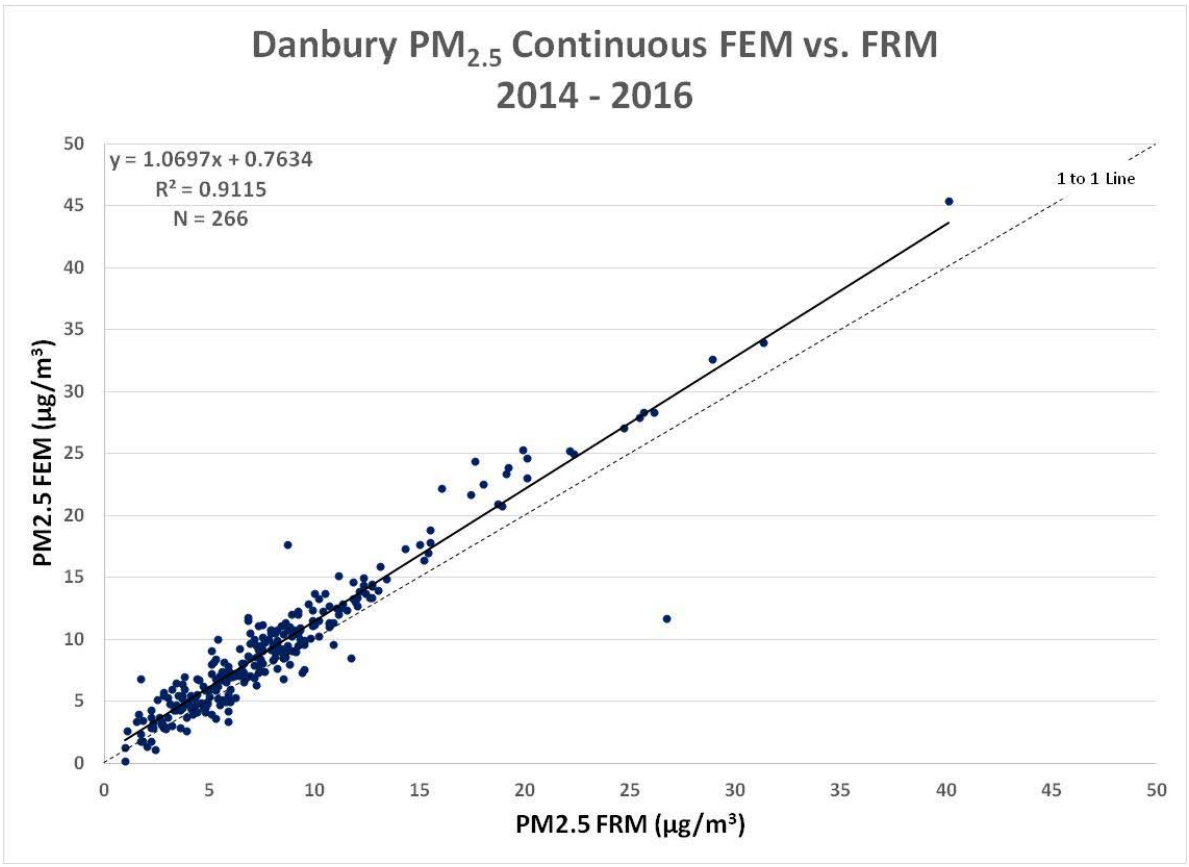
Monitoring Objectives: Ozone is measured at the Westport site for compliance assessment and AQI forecast reporting. Also, a direct NO_2 is planned to start in 2017 to provide enhanced measurements for ozone attainment planning in southwest Connecticut.

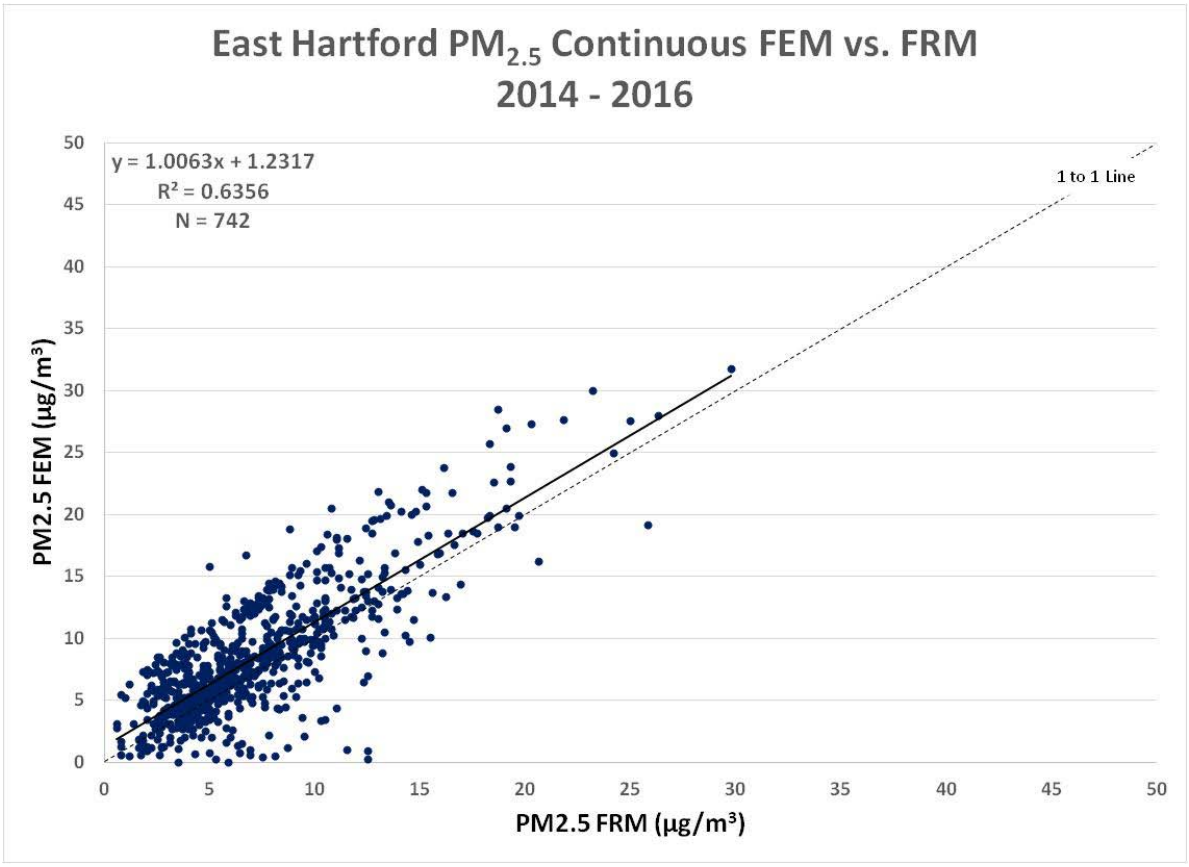
Planned changes for 2017-2018: A direct NO_2 monitor is proposed to begin in the spring of 2017.

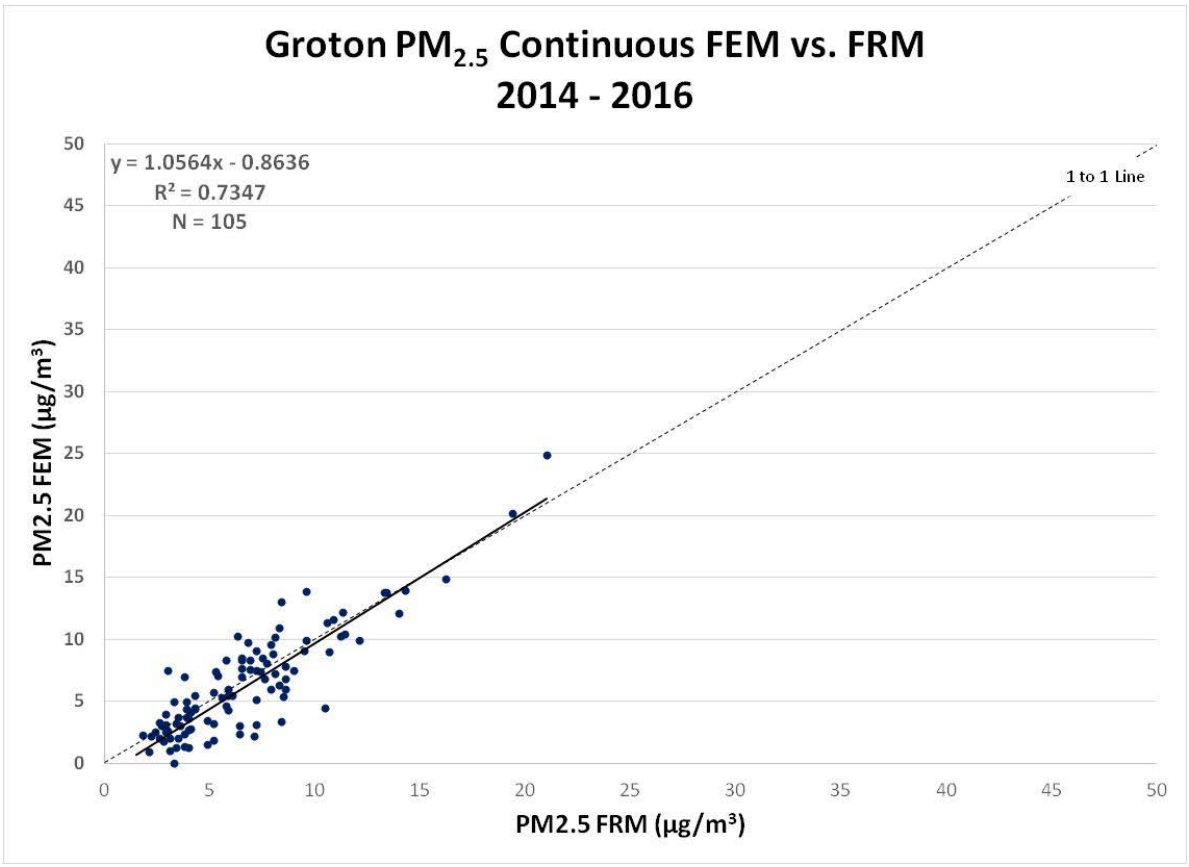
Appendix A $PM_{2.5}$ FRM vs. Continuous Correlation Charts

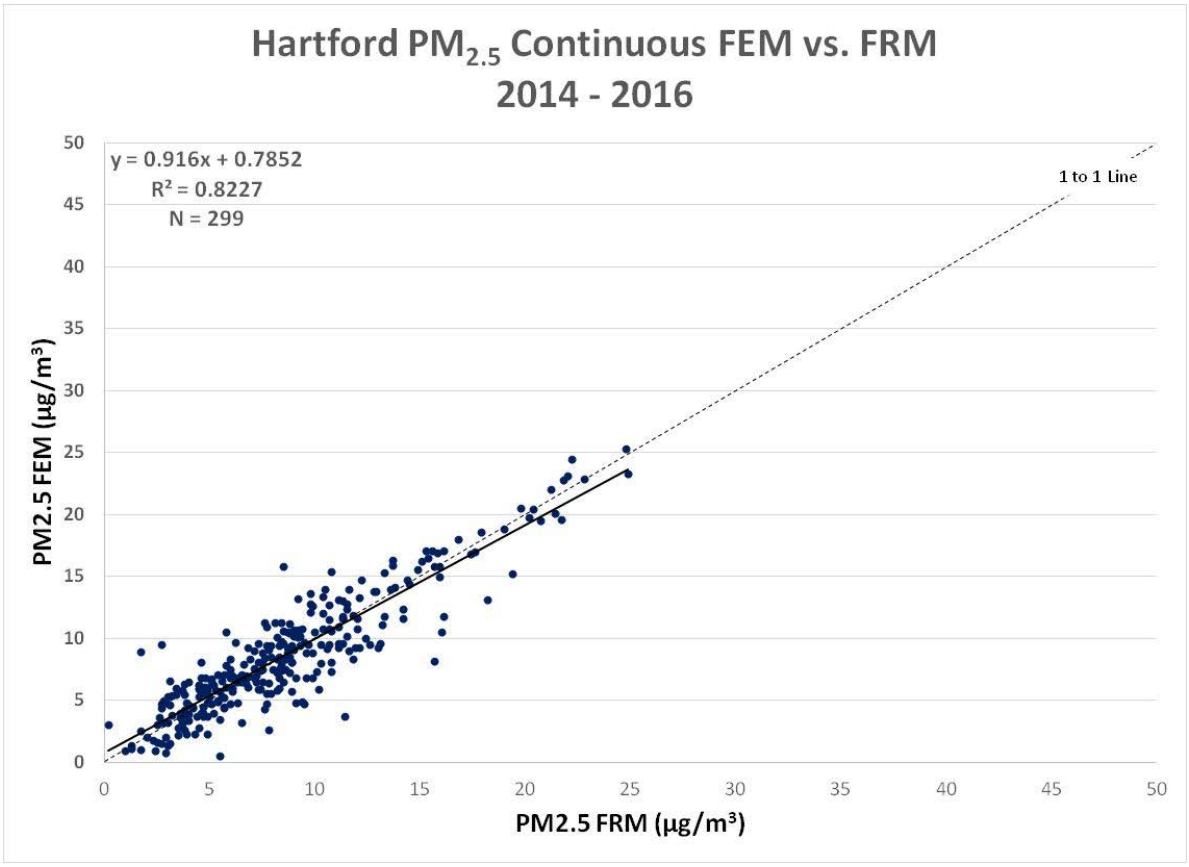

Bridgeport PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.0375x + 0.752
R² = 0.755
N = 242
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50

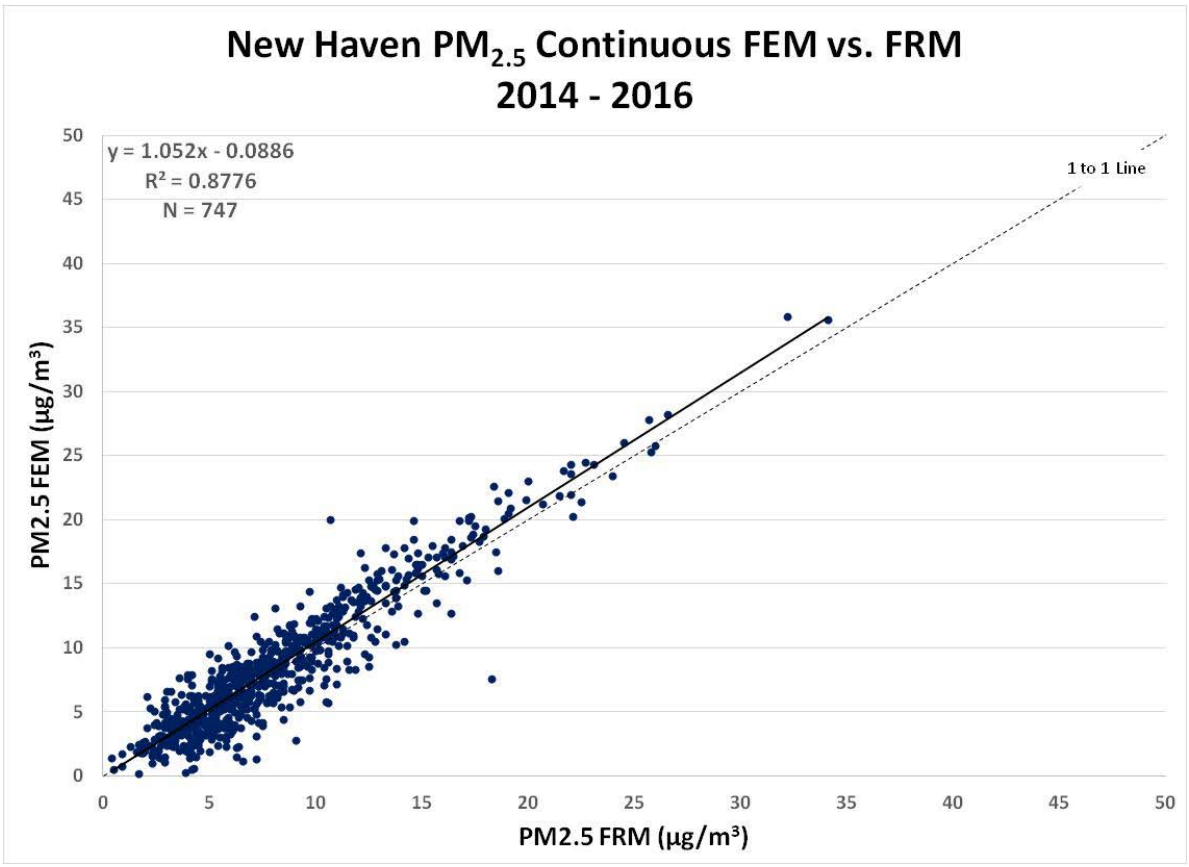

Cornwall PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.0787x + 0.8322
R² = 0.7194
N = 323
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50

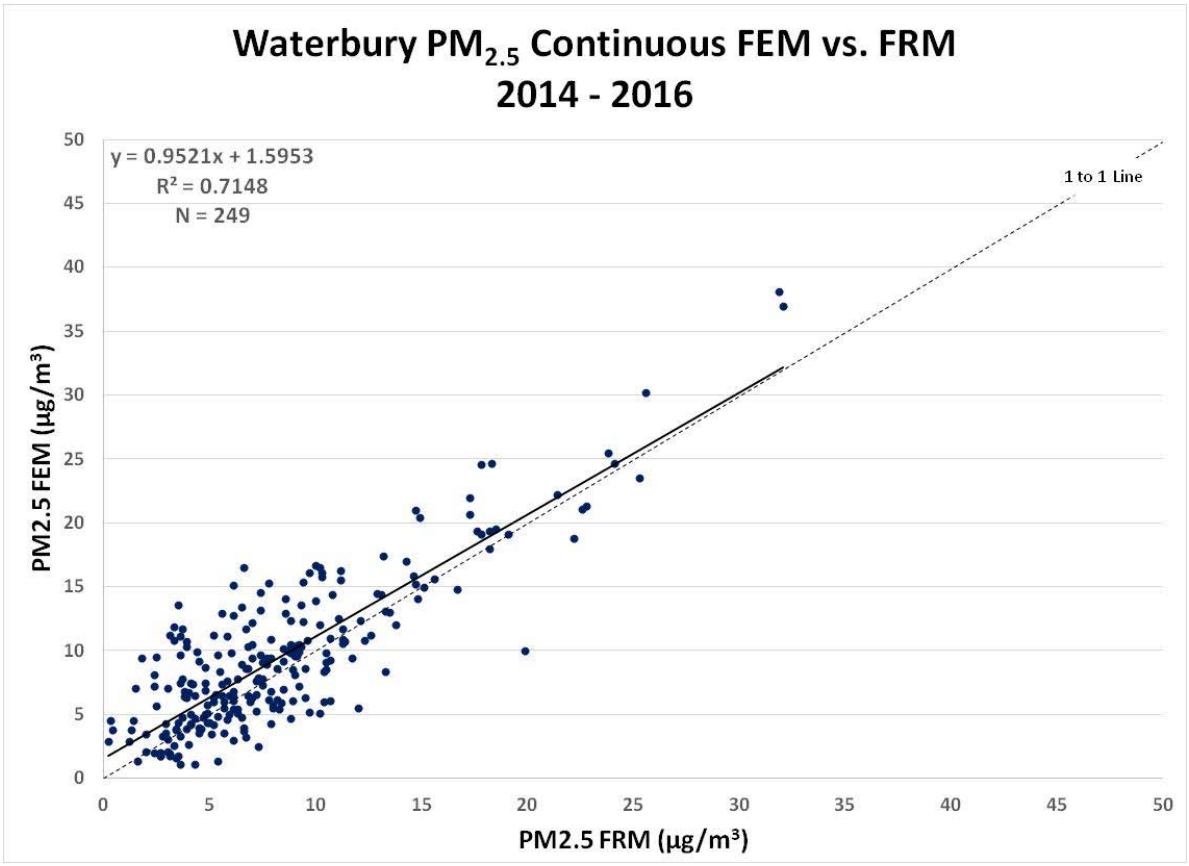

Danbury PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.0697x + 0.7634
R² = 0.9115
N = 266
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50


East Hartford PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.0063x + 1.2317
R² = 0.6356
N = 742
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50


Groton PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.0564x - 0.8636
R² = 0.7347
N = 105
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50


Hartford PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 0.916x + 0.7852
R² = 0.8227
N = 299
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50

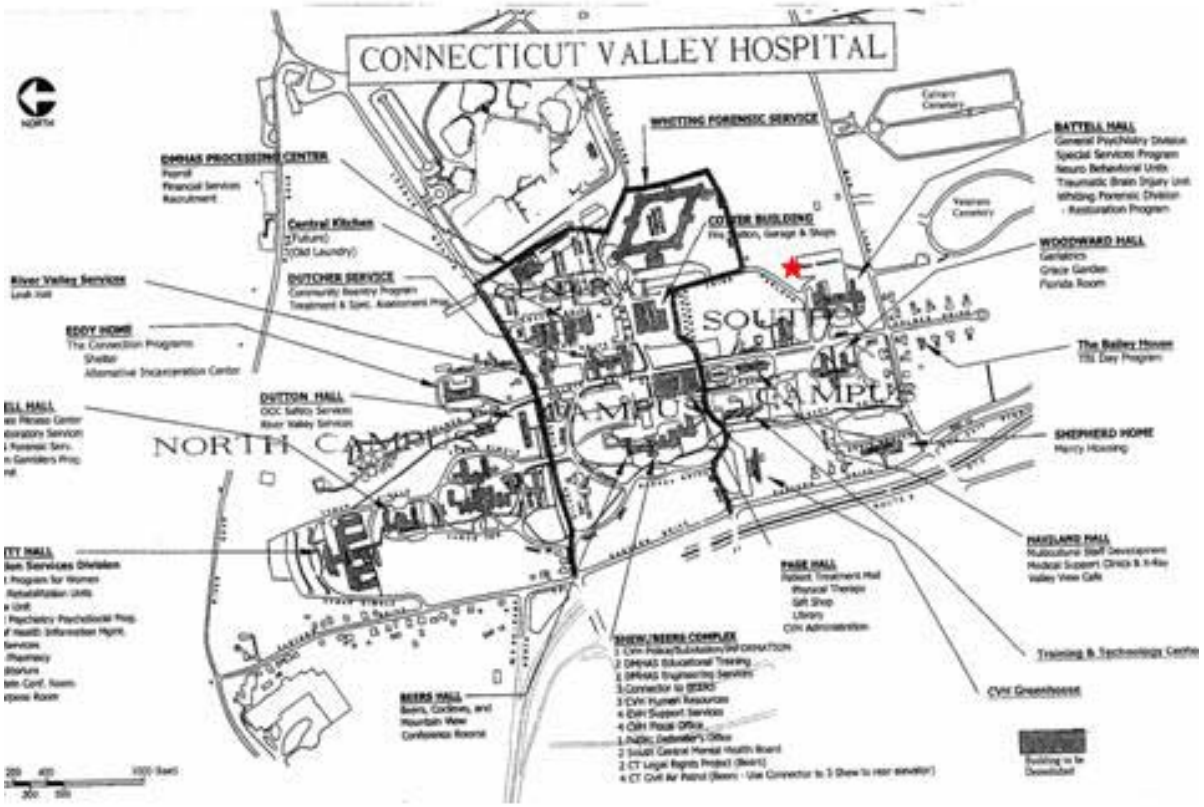

New Haven PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 1.052x - 0.0886
R² = 0.8776
N = 747
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50


Waterbury PM2.5 Continuous FEM vs. FRM
2014 - 2016
y = 0.9521x + 1.5953
R² = 0.7148
N = 249
1 to 1 Line
PM2.5 FEM (µg/m³)
PM2.5 FRM (µg/m³)
0
5
10
15
20
25
30
35
40
45
50

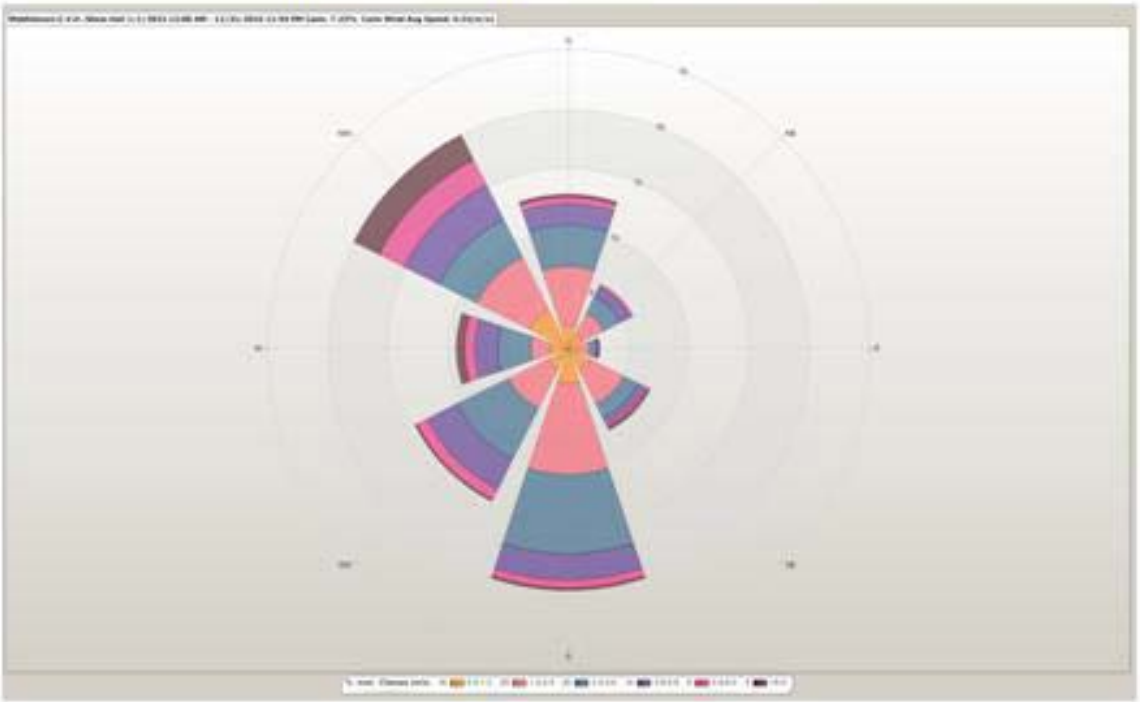
Appendix B Middletown Site Relocation Information

Proposed Site Location Features

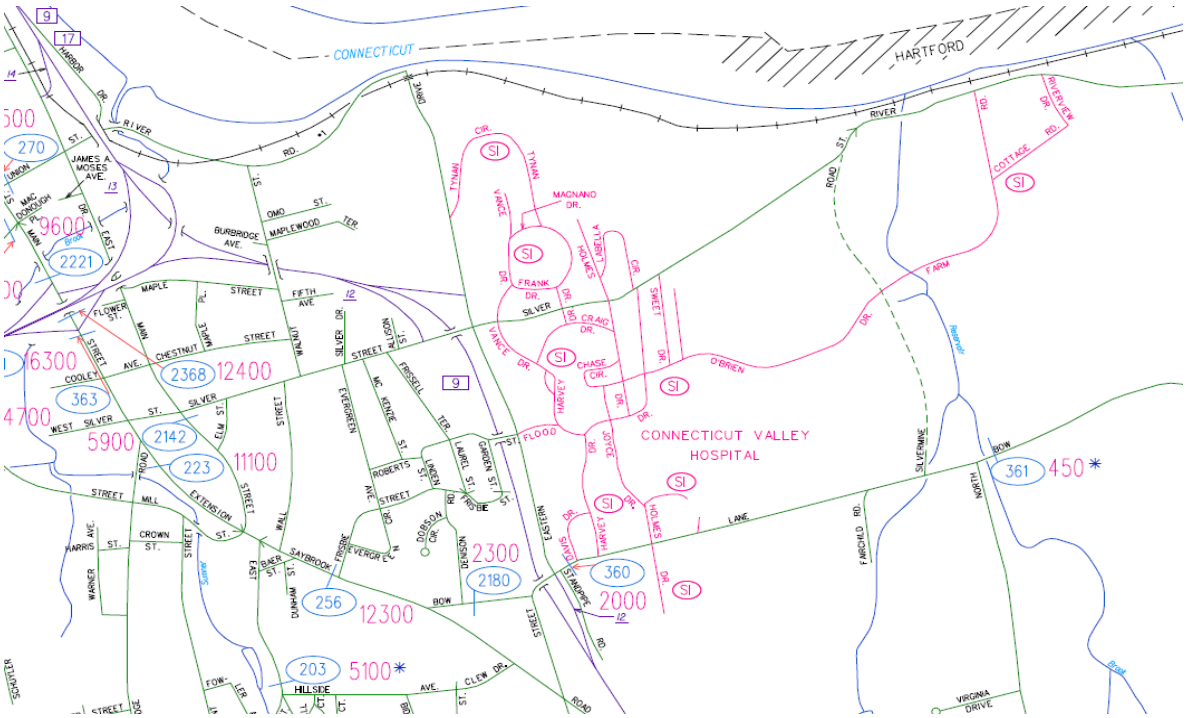
- Approximately level terrain within hundred meters
- 16 m from a tree dripline to the northeast.
- 84 m to nearest multi-story building to the west-southwest.
- 435 m southwest of current CVH monitor.
- 38 m to a 1-story gazebo to the southeast.
- Proposed site located in a field just north of a parking lot.
- Proposed monitors to be located in 7'X8' shelter on a pad at ground level.
- Proposed site has been approved by CVH.



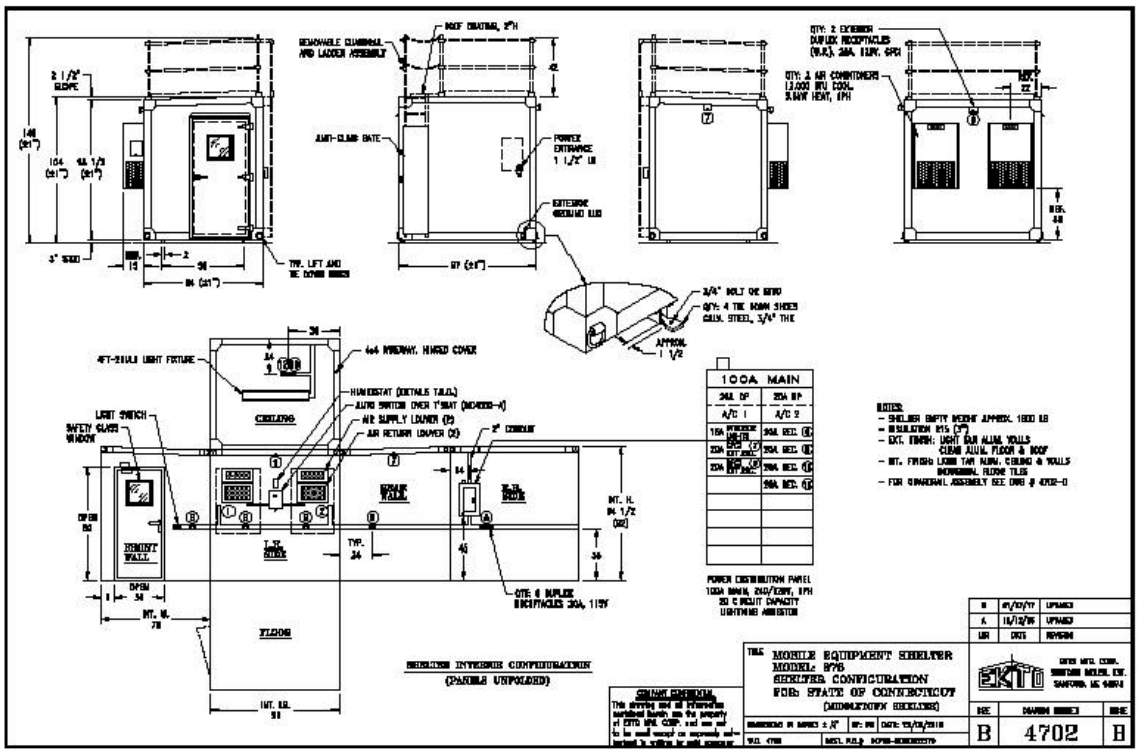
Middletown Wind Rose (2015-2016)



Most Recent CT DOT Annual Average Daily Traffic Count Data for Middletown CVH Area



Proposed Middletown Shelter Design Diagram



Looking Northwest

Looking Northeast

Looking Southeast

Looking Southwest


Looking East


Looking West


Looking South

Appendix C Public Comments and DEEP Responses

The following excerpted comments were received during the Network Plan public comment period. DEEP responses are indicated following each comment.

Comments from EPA-New England, dated June 26, 2017:

Thank you for providing EPA with a draft of the Connecticut Department of Energy and Environmental Protection (CT DEEP) 2017 Annual Air Monitoring Network Plan which was made available on May 31, 2017 for public comment. EPA-New England has reviewed your draft plan with respect to meeting the requirements of 40 CFR Part 58. Upon final submission of this document in July, we will move forward regarding approval of the Annual Network Plan. In addition, upon final submission of this document, we will work with our Headquarters offices to address the portions of the plan which require their attention, most notably monitoring associated with NCore and STN. The following are our comments:

EPA comment 1: We acknowledge the following overall changes to your network, on page 5 (note that we do have comments on some of these planned changes- as articulated below):

DEEP proposes the following changes to the monitoring network during the period 2017-2018:
• Discontinue sulfur dioxide (S02) monitoring at the East Hartford McAuliffe Park site on March 31, 2017,
• Discontinue carbon monoxide (CO) monitoring at the East Hartford McAuliffe Park site on March 31, 2017.
• Commence nitrogen dioxide (NO2) monitoring at the Westport Sherwood Island site during the spring of 2017.
• Move the Middletown ozone (O3) monitoring site to a new location on the Connecticut Valley Hospital campus during June - July 2017. Monitoring at both the pre-existing and new locations will be conducted simultaneously through September 30,2017.
• Discontinue ozone monitoring at the Greenwich Point Park site in Greenwich, if necessary due to personnel or budget constraints during 2017-2018.

DEEP response 1: No response required.

EPA comment 2: The shutdown of the Greenwich monitor could result in challenges because even though this monitor is beyond network minimums, and has not recently been among the highest in the area; it is a violating monitor with an incomplete design value. It is also important for AIRNOW reporting purposes. Therefore, we recommend that CT DEEP continue monitoring at Greenwich and not implement the change listed in the proposed plan.

DEEP response 2: DEEP appreciates EPA's comment on the potential impacts associated with the possible shutdown of the Greenwich ozone monitor. It is important to note that DEEP is not proposing to shut down the Greenwich ozone at this time. However, given the challenges presented by servicing this site in the face of diminishing resources, DEEP must continue to examine all aspects of the network and best operational practices.

EPA comment 3: Pages 9-11. EPA expects to release design values for all criteria pollutants in July, 2017 which includes 2016 data for the entire country. We will work with you to ensure the design values represented here are consistent with those values.

DEEP response: DEEP will ensure that the final 2016 design values presented in this plan are consistent with those that will be published by EPA Office of Air Quality Planning and Standards.

EPA comment 4: Pages 12-14 note that CT DEEP is utilizing all its continuous $PM_{2.5}$ monitors for NAAQS compliance purposes and coded as 88101[14] effective the beginning of 2016. EPA is very pleased that CT has made this decision and supports CT in the other noted changes relative to collocated FRMs and sampling frequency at locations that have these continuous $PM_{2.5}$ monitors. We note that in 2 cases, CT is identifying the FEM as the primary monitor, and in 6 others, the FRM remains the primary monitor. Be aware that collocation requirements for quality assurance (QA) purposes are based on the primary monitor. Also note that for purposes of establishing design values, data will be substituted from non-primary monitors reporting

[14] 88101 is the AQS parameter code representing $PM_{2.5}$ for NAAQS attainment compliance.

as 88101 for any day the primary monitor does not operate. There are a number of further potential resource-saving opportunities relative to the $PM_{2.5}$ network if the continuous FEM were considered the primary monitor, and we would be happy to discuss those possibilities.

DEEP response: DEEP is open to consideration of further cost-saving suggestions, including using more primary continuous FEM monitors in the $PM_{2.5}$ network; however, at this time, the current $PM_{2.5}$ FEM samplers do not have sufficient quality assurance and operational (internal) diagnostic data for stand-alone operation without regular comparison with co-located FRM samplers.

EPA comment 5: Page 16. We note that CT is no longer collecting PAMS at the 2 former PAMS locations in CT - New Haven Criscuolo Park and East Hartford McAuliffe Park. Given the discontinuation of VOC measurements, you may want to consider the advantages of measuring some of these VOCs at the near road site at Huntley Place. As you know, based on a CASAC recommendation, EPA encouraged air toxics measurements at near road locations. In addition, measurements of VOCs/ air toxics have had historical value at the New Haven site relative to nearby sources. As EPA Region 1 considers how to equitably distribute the PAMs funding it is receiving in the next couple of years before the new PAMS requirements are implemented, this will be considered. However, most importantly, as you correctly note, we look forward to working with you as you develop the Enhanced Monitoring Plan as required by EPA's recent ozone NAAQS rule effective December 28, 2015.

DEEP response 5: Given current resource constraints, DEEP is not considering additional monitoring at the Hartford near road site. Relative to EMP requirements, DEEP may contemplate new VOC measurements, and DEEP looks forward to continuing to work with EPA in drafting CT's EMP.

EPA comment 6: As you are aware, EPA-New England has developed a GIS tool which can be helpful to identify valley locations across the region which may be impacted by wood smoke. Given the proposed changes to your network and associated resource savings, we think there might be additional opportunities to conduct $PM_{2.5}$ monitoring in CT, and we urge you to consider the results of that tool as it relates to some areas in Connecticut that may be impacted by wood smoke. We also stand ready to help identify additional cost saving measures across your monitoring network. EPA- New England appreciates your partnership in conducting ambient air monitoring, and we look forward to working with you to continuously improve the quality of ambient air in Connecticut. We look forward to the submission of the final Annual Air Monitoring Network Plan this July.

DEEP response 6: In the next network plan, DEEP will utilize EPA's GIS Valley Identification Tool in an effort to prioritize and streamline the $PM_{2.5}$ network.