DRAFT

Connecticut 2013 Annual Air Monitoring Network Plan

Connecticut Department of Energy and Environmental Protection
Bureau of Air Management
Draft June 18, 2013

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Acronyms and Abbreviations

AMTIC – Ambient Monitoring Technical Information Center
AQS – Air Quality System
CAA – Clean Air Act
CFR – Code of Federal Regulations
CO – carbon monoxide
CSA – combined statistical area
DEEP – Connecticut Department of Energy and Environmental Protection
CV – coefficient of variance
DAS – data acquisition system
DQA – data quality assessment
DQO – data quality objective
DSL – digital subscriber line
EPA – Environmental Protection Agency
FEM – Federal Equivalent Method
FRM – Federal Reference Method
GC – gas chromatography
GC/MS – gas chromatography/mass spectrometry
GIS – geographical information systems
GPS – global positioning system
HAP – hazardous air pollutant
HPLC – high performance liquid chromatography
ICP/MS – inductively coupled plasma/mass spectrometry
IMPROVE – Interagency Monitoring of Protected Visual Environments
IT – information technology
LAN – local area network
LMP – limited maintenance plan
MQO – measurement quality objectives
MPA – monitoring planning area
MSA – metropolitan statistical area
NAAQS – National Ambient Air Quality Standards
NIST – National Institute of Standards and Technology
NOAA – National Oceanic and Atmospheric Administration
NOx – nitrogen oxides
NOy – reactive oxides of nitrogen
NPAP – National Performance Audit Program
NSPS – New Source Performance Standard
OAQPS – Office of Air Quality Planning and Standards
OARM – Office of Administration and Resources Management
OIRM – Office of Information Resources Management
OMB – Office of Management and Budget
ORD – Office of Research and Development
PAMS – Photochemical Assessment Monitoring Stations
P&A – precision and accuracy
PE – performance evaluation
$PM_{2.5}$ – 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
RPD – relative percent difference
SIP – State Implementation Plan
SLAMS – state and local monitoring stations
SO_2 – sulfur dioxide
SOP – standard operating procedure
SPMS – special purpose monitoring stations
STN – Speciation Trends Network
TSA – technical system audit
TSP – total suspended particulate
VOC – volatile organic compound

Introduction

This document is the Draft Connecticut 2013 Air Monitoring Network Plan (Draft 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 of air quality monitoring sites and monitored air pollutants planned in the 18 months following submittal.

DEEP is holding a public comment period for this Draft Network Plan, which is posted on DEEP's website at DEEP: Air Monitoring Network. Public comments are due by July 18, 2013 and may be submitted via email or mail. Please submit comments to:

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Background

The Clean Air Act of 1970 (CAA) established the Environmental Protection Agency 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 depends significantly on federal support from EPA.

Future federal funding levels for air monitoring programs remain uncertain. 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 must continue to provide an acceptable level of service within these constraints by continually improving 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 do more with fewer resources by either improving operational efficiencies or reducing other aspects of the air monitoring network. Current efficiencies being employed include improvements to data acquisition (through software upgrades and the automating of data streams previously manual), to public data access (thorough Kiosks and improvements to the website), and to more informative multi-pollutant monitoring sites (through consolidation of resources).

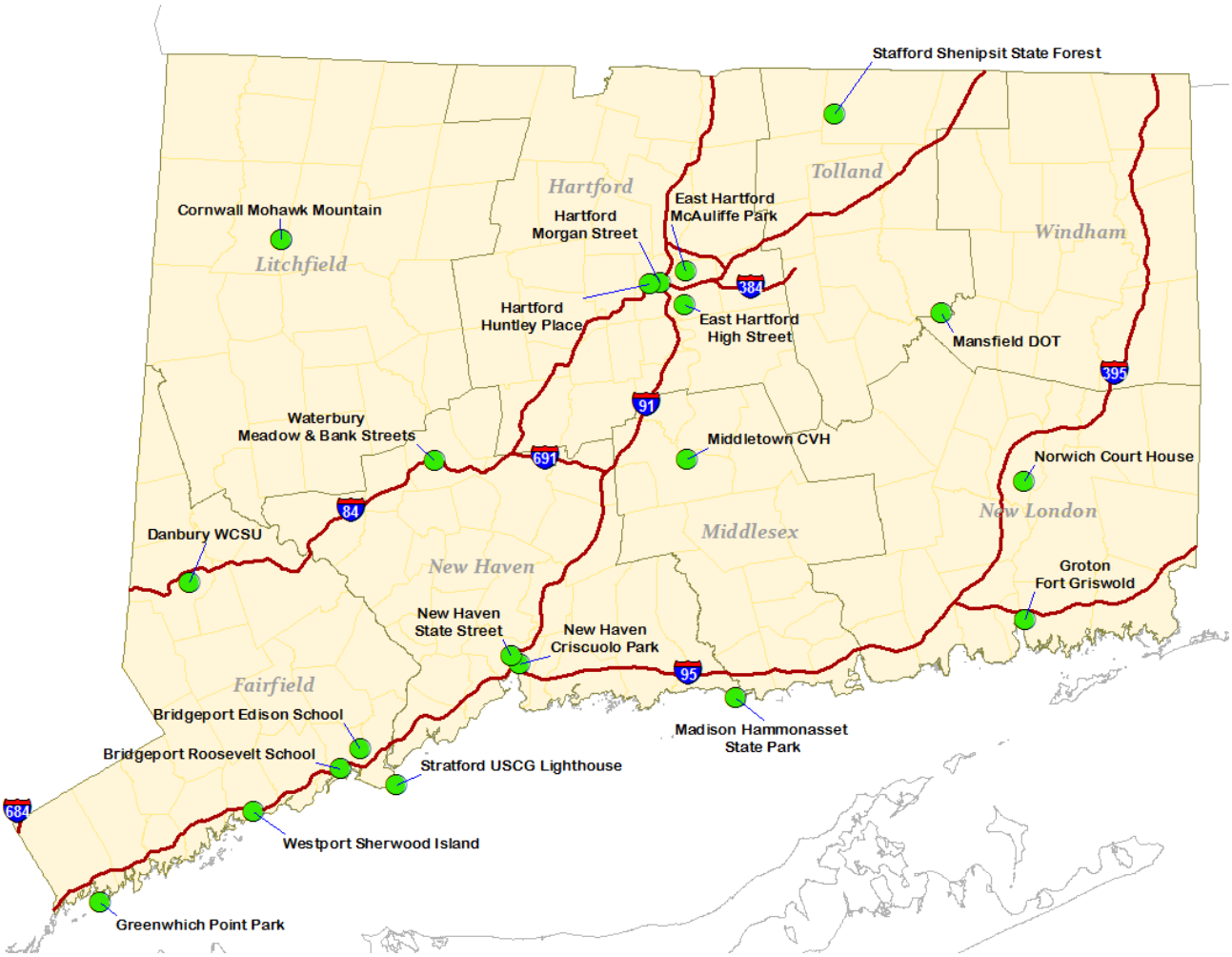
Network Overview

The DEEP air monitoring network (Figure 1) currently consists of 20 monitoring stations. Given continuously evolving standards, this Plan assumes the current level of staffing and federal funding will be maintained through federal FY14. Should EPA monitoring requirements significantly increase or should DEEP be impacted by staff attrition or a reduction in federal funding, the level of effort proposed in this Plan will have to be revisited.

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 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, there are several proposed changes to the monitoring network through the end of 2014, which include:

- Discontinuing federal reference method (FRM) $PM_{2.5}$ sampling at the Norwich Courthouse.
- Establishing continuous $PM_{10}/PM_{10\text{-}2.5}$ sampling at Hartford Huntley Place.
- Discontinuing SO_2 sampling at Westport Sherwood Island State Park.
- Commencing to report continuous $PM_{2.5}$ data from the Groton Fort Griswold, Waterbury Bank Street and Bridgeport Roosevelt School monitoring sites as federal equivalent method (FEM) data eligible for comparison to the $PM_{2.5}$ NAAQS.
- Suspending carbonyls sampling at East Hartford McAuliffe Park for 2013.

In addition to the above proposed changes, the Hartford Morgan Street CO site will be shut down on June, 30, 2013, as approved by EPA in the 2012 Network Plan[1]. The CO monitoring is now located within Hartford at the Near Road monitoring site at Huntley Place.

[1] http://www.ct.gov/deep/lib/deep/air_monitoring/ct2012networkplan_with_letter.pdf

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 culture embraced by DEEP, this 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.

Public Face

The DEEP is nearing completion of a dashboard to educate and inform the public about air quality using easily understandable metrics to convey how Connecticut is moving forward to achieve its clean air goals. DEEP is also nearing completion of a real-time air quality website that will be published summer 2013. A kiosk system will also be deployed in 2013 to provide real-time access to the air quality information, provide a platform to discuss health related issues with respect to air quality, and provide an overview of Connecticut's ambient air monitoring network. DEEP plans to deploy three kiosk systems at the nature centers in Madison at Hammonasset State Park and Westport at Sherwood Island State Park as well as at the visitor's center in Dinosaur State Park in Rocky Hill. The kiosks will be portable and available for various applications as part of DEEP's public outreach and education campaign. DEEP's public face efforts are discretionary and therefore not bound by EPA oversight and approval.

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.

Table 1: Monitoring Network Summary

Town	Site	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 (OC/EC, Continuous)	PM2.5 Sulfate (Continuous)	PM2.5 Carbon (BC/UVC, Continuous)	Ozone	SO2	CO	$NO/NO_2/NOx$	NOy	VOCs (PAMS)	Carbonyls (PAMS)	Traffic Count	Wind Speed	Wind Direction	Temperature	Dew Point / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
Bridgeport	Edison School															X													
Bridgeport	Roosevelt School	1/3		X	1/6												X								X				
Cornwall	Mohawk Mountain	1/3		X	1/3		X				X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X
Danbury	Western Connecticut State University	1/3		X											X								X	X	X		X		
East Hartford	High Street	1/3		X																			X	X					
East Hartford	McAuliffe Park	1/1		X	1/6									X	X	X	X	X		X	X*		X	X	X	X			X
Greenwich	Point Park														X								X	X	X		X		
Groton	Fort Griswold			X											X								P	P	X				
Hartford	Morgan Street																X												
Hartford	Huntley Place			X			P							X			X	X				X	X	X	X				
Madison	Hammonasset State Park														X								X	X	X				
Mansfield	DOT																						X	X					
Middletown	Connecticut Valley Hospital														X								X	X	X		X	X	
New Haven	Criscuolo Park	1/1	1/6	X	1/3	1/6	X	1/6	1/12	X		X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X
New Haven	State Street	1/3																											
Norwich	Norwich Courthouse	1/3																											
Stafford	Shenipsit State Forest														X								X	X	X				
Stratford	Stratford Lighthouse														X										X				
Waterbury	Meadow & Bank Street	1/3	1/6	X																			X	X	X		X		
Westport	Sherwood Island State Park	1/3													X	X		X		X			X	X	X	X			X

X=Existing P =Planned in 2013, X = Proposed to terminate in 2013
1/1, 1/3, 1/6, 1/12=1 day, 3 day, 6 day, 12 day sampling schedule
* Monitoring suspended for 2013 due to resource constraints.

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 [final rule cite]		Primary / Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution [78 FR 3086, Jan 15, 2013] Dec 14, 2012	$PM_{2.5}$	primary	Annual	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010]		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
[38 FR 25678, Sept 14, 1973]		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

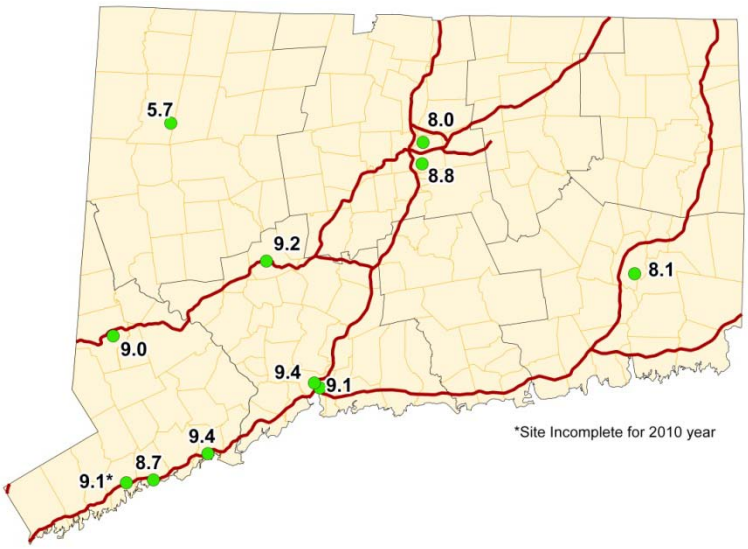
(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO_2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

$PM_{2.5}$ Annual Design Values (2010-2012)

The 2012 annual design values for $PM_{2.5}$, based on 2010 through 2012 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; however, Fairfield and New Haven Counties will remain designated as nonattainment until such time that EPA approves DEEP's redesignation request and maintenance plan for the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS, submitted on June 22, 2012.

Site	Design Value ($\mu g/m^3$)
Bridgeport	9.4
Cornwall	5.7
Danbury	9.0
East Hartford – High St.	8.8
East Hartford - McAuliffe	8.0
New Haven – Criscuolo	9.1
New Haven – State St.	9.4
Norwalk*	9.1
Norwich	8.1
Waterbury	9.2
Westport	8.7

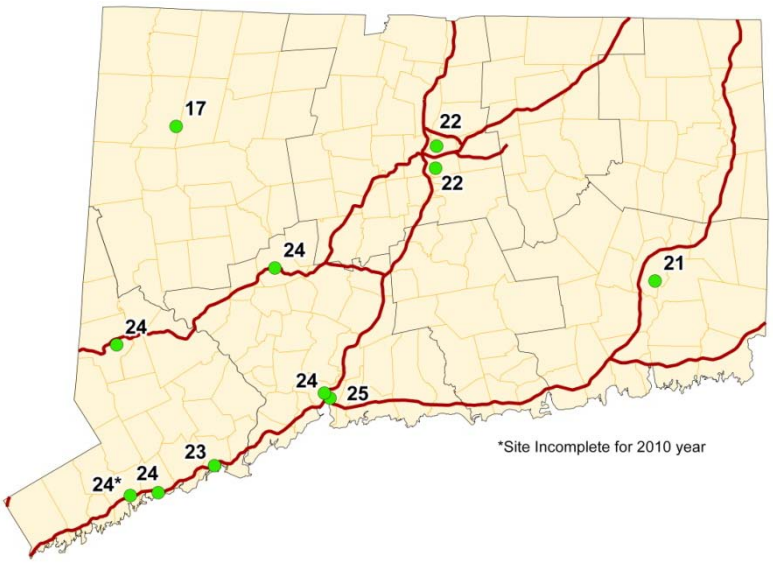


*Norwalk design values are computed from all three annual weighted means and 98th percentiles, respectively, although 2010 data did not achieve the required completeness of 75 percent due to roof construction.

$PM_{2.5}$ Daily Design Values (2010-2012)

Daily design values for $PM_{2.5}$ using 2010 through 2012 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; however, Fairfield and New Haven Counties will remain designated as nonattainment until such time that EPA approves DEEP's redesignation request and maintenance plan for the 1997 annual and 2006 24-hour $PM_{2.5}$ NAAQS, submitted on June 22, 2012.

Site	Design Value ($\mu g / m^3$)
Bridgeport	23
Cornwall	17
Danbury	24
East Hartford – High St.	22
East Hartford - McAuliffe	22
New Haven – Criscuolo	25
New Haven – State St.	24
Norwalk*	24
Norwich	21
Waterbury	24
Westport	24

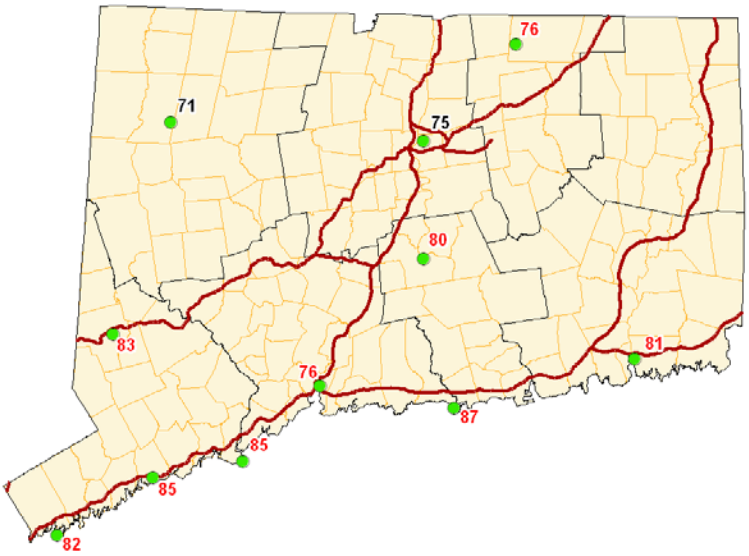


*Norwalk design value based on three years (2010-2012), although 2010 did not meet 75 percent data completeness due to construction at the site.

Ozone Design Values (2010-2012)

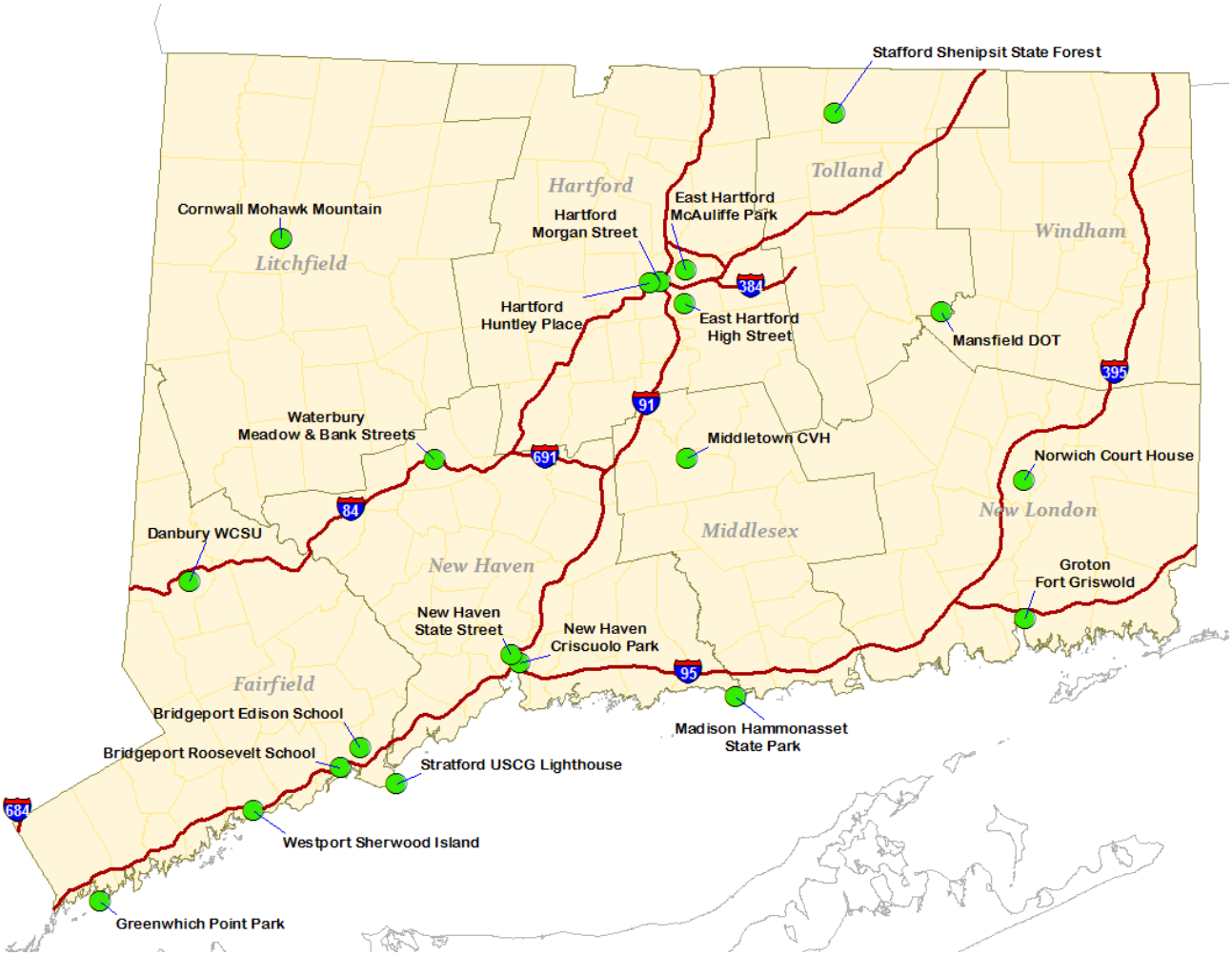
The 2012 ozone 8-hour design values are given in the table below. Ozone design values are derived by averaging three consecutive annual fourth highest daily maximum 8-hour ozone values. Based on the March 2008 revised ozone standard of 0.075 ppm (75 ppb), 9 out of 11 sites indicate nonattainment, shown in red font below. Currently, EPA has designated the ozone monitoring season in Connecticut to be from April through September.

Site	Design Value (ppb)
Cornwall	**71**
Danbury	**83**
East Hartford	**75**
Greenwich	**82**
Groton	**81**
Madison	**87**
Middletown	**80**
New Haven	**76**
Stafford	**76**
Stratford	**85**
Westport	**85**



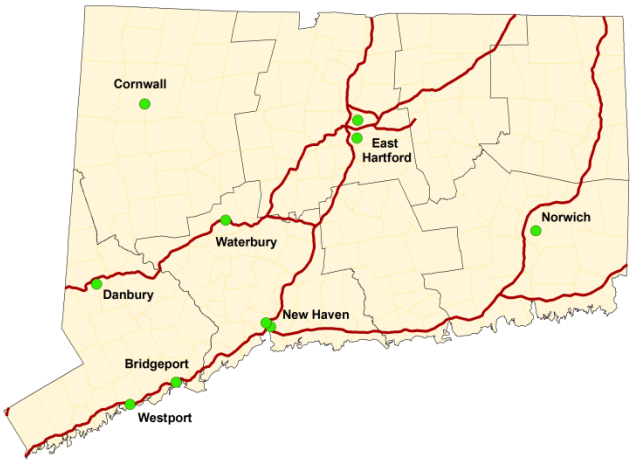
Overview of Network Operation

DEEP operates a network of 20 sites throughout Connecticut used for monitoring air pollutants and meteorological parameters. The map below indicates the DEEP air monitoring sites as of May 2013. This section contains information about monitoring methods and sampling frequencies, as well as monitoring network maps for each pollutant parameter. Any network changes planned before the end of 2014 are discussed as are any anticipated network changes beyond that period.



$PM_{2.5}$ FRM Network

DEEP operates 10 $PM_{2.5}$ FRM sites in the air monitoring network using Thermo Partisol®-Plus 2025/2025i sequential air samplers with BGI VSCC (RFPS-0498-118). Two of the sites, Criscuolo Park in New Haven and McAuliffe Park in East Hartford, operate on a daily sample schedule while all the other sites operate on a 1-in-3 day sample schedule. Two sites, Waterbury and Criscuolo Park in New Haven, operate collocated $PM_{2.5}$ FRM samplers on a 1-in-6 day sample schedule. Proposed changes to the $PM_{2.5}$ network through 2013 include the elimination of the Norwich $PM_{2.5}$ FRM monitor. Removal of the Norwich $PM_{2.5}$ FRM monitor is contingent on EPA's concurrence that



Groton Fort Griswold continuous $PM_{2.5}$ monitoring is eligible to be considered an FEM monitor that will be used to determine New London County compliance with the $PM_{2.5}$ NAAQS. DEEP will continue to work with the vendor to resolve ongoing sampler software issues the new Thermo 2025i series samplers so that they may be deployed during 2013-2014.

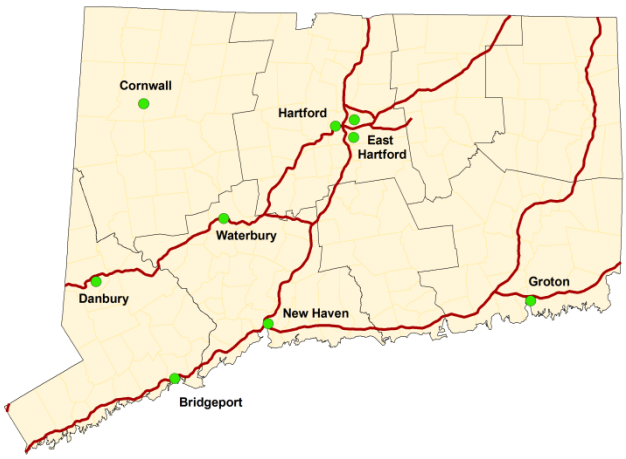
PM_{10} / $PM_{10-2.5}$ FRM Network

DEEP operates four PM_{10} FRM sites in the air monitoring network using Thermo Partisol®-Plus 2025 sequential air samplers (RFPS-1298-127). The two NCore sites, Cornwall and New Haven, operate on a 1-in-3 day sample schedule, while Bridgeport and East Hartford are operated on a 1-in-6 day sample schedule. In addition, the New Haven site has a collocated PM_{10} FRM sampler operating on a 1-in-6 day sample schedule. All sites that have PM_{10} FRM samplers also have $PM_{2.5}$ FRM samplers. As such, $PM_{10-2.5}$ data, which represent the coarse fraction of inhalable PM, is also provided at the four sites. Coarse PM is defined as thoracic PM having particle sizes between 2.5 and 10 microns. DEEP will continue to work with the vendor to resolve ongoing sampler software issues the new Thermo 2025i series samplers so that they may be deployed during 2013-2014. No further changes to this network are proposed through the end of 2013.

PM Speciation Network

$PM_{2.5}$ chemical speciation measurements are being obtained at four sites in the DEEP air monitoring network. The IMPROVE (Interagency Monitoring of Protected Visual Environments) monitor is located at the Cornwall site and the STN (Speciation Trends Network) monitor is at the New Haven Criscuolo Park site. Both sites are operated on the standard EPA PM 1-in-3 day sample schedule and provide 24-hour integrated filter-base measurements. DEEP also operates continuous sulfate and continuous organic and elemental carbon monitors, which provide hourly average measurements, at the Cornwall and New Haven Criscuolo Park sites. In addition, black carbon and ultra-violet channel carbon (a wood smoke PM surrogate) are monitored at the Criscuolo Park, Cornwall, Hartford and East Hartford McAuliffe Park sites using 7-channel TAPI Model 633 aethalometers.

Continuous PM Network



DEEP operates eleven continuous PM monitors at nine sites. This network includes continuous MetOne BAM 1020 $PM_{2.5}$ samplers at each of the nine sites, and paired continuous MetOne 1020 BAM PM_{10}/ $PM_{10-2.5}$ samplers (EQPM-0798-122/EQPM-0709-185) at the two NCore sites (New Haven and Cornwall). All BAM monitors are operated year-round and the hourly data is reported to AQS and is used for air quality index (AQI) reporting. In addition to the BAMs, there is a Thermo

1405-DF dichotomous particulate sampler undergoing field testing at the New Haven NCore site. However, the 1405-DF data has not been fully quality assured and validated and therefore has not been submitted to AQS.

EPA's December 2012 PM NAAQS[2] rule requires that State and Local Air Monitoring Stations (SLAMS) $PM_{2.5}$ data from FEM monitors must be reported to AQS and be eligible for comparison to the NAAQS to determine attainment. The rule provides that data from FEM monitors not meeting the required level of performance may be exempted from NAAQS comparison if requested by the state and approved by the EPA Regional Office. All MetOne BAM 1020 $PM_{2.5}$ samplers currently operating in the DEEP network are configured as Federal Equivalent Method (FEM) Class III monitors (EQPM-0308-0170). In accordance with an analysis performed by DEEP showing poor correlation to data from collocated FRMs, this Draft Network Plan requests EPA approve exempting data from five monitors (Danbury, East Hartford McAuliffe Park, East Hartford High Street, Cornwall Mohawk Mountain, and New Haven Criscuolo Park) from NAAQS comparison to determine attainment. However, two monitors, Bridgeport Roosevelt School and Waterbury Bank Street, demonstrated sufficient compliance with EPA's performance standard such that they may be used for NAAQS compliance.

$PM_{2.5}$ BAM Performance Evaluation

DEEP conducted a $PM_{2.5}$ BAM performance evaluation using data from the 7 sites that have collocated FRMs. As such, the Hartford and Groton BAMs were not included. The Hartford BAM, having begun operations on April 1, 2013, is currently a special purpose monitor and may not be used for attainment purposes. DEEP's evaluation is based on calendar year 2012 $PM_{2.5}$ FRM and FEM ambient data. DEEP selected 2012 because there are sufficient valid pairs to perform the analysis and because equipment, firmware and procedures had been upgraded to improve BAM performance. DEEP is continuing this process by working with the vendor, reaching out to other state monitoring programs and EPA staff, and refining operating and calibration procedures while closely tracking monitor performance.

Correlation plots with data summaries of $PM_{2.5}$ FRM with FEM data for each site derived from the EPA $PM_{2.5}$ continuous monitor comparability assessment tool[3] are provided in Appendix A. DEEP also derived correlations from 2012 AQS data manually using Microsoft Excel for the linear regressions. These correlations are shown in Appendix B.

The results from the Excel-based correlations are summarized in Table 3 below. DEEP found the results from the EPA tool to be similar, with small differences possibly due to linear regression method differences. Correlations were generally high, with coefficients of determination (R^2) between 0.77 and 0.92, with the exception of Cornwall, with an R^2 value of 0.31. As shown in Table 3, only 2 monitors, Bridgeport and Waterbury, meet the linear regression slope and intercept performance criteria for the $PM_{2.5}$ FEM. Regression slope and intercept for the monitors is shown graphically in Figure 2, where the area enclosed by the polygon indicates acceptable combinations of slope and intercept. The linear function boundaries are shown by the colored line segments.

Based on this analysis, DEEP requests that the continuous $PM_{2.5}$ FEM monitors at Danbury, East Hartford (McAuliffe Park and High Street), Cornwall and New Haven be exempt from consideration for $PM_{2.5}$ NAAQS attainment. Table 4 provides a summary of the status of the continuous $PM_{2.5}$ monitor network as proposed by DEEP in this plan. Based on EPA's anticipated approval of these recommendations, they will be implemented on January 1, 2014.

DEEP commits to update this analysis and reconsider the suitability of the continuous $PM_{2.5}$ data for NAAQS comparison in the 2014 and 2015 Annual Network Plans.

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[2] 78 FR 3086, Jan 15, 2013

[3] http://www.epa.gov/airquality/airdata/ad_rep_frmfem.html

Table 3: CT $PM_{2.5}$ FEM Performance Criteria Evaluation Summary

							Evaluation Summary*			
Site Name	AQS ID	Slope	Intercept	R2	No. Data Pairs	Meets FEM Performance Criteria	Slope ≥0.9 and ≤1.1	Intercept ≥-2 and ≤2	Intercept linear condition†	Meets all performance conditions
New Haven Criscuolo Park	09-009-0027	0.99	3.26	0.77	347	N	1	0	0	0
Waterbury Bank Street	09-009-2123	1.1	0.44	0.8	115	Y	1	1	1	1
Danbury WCSU	09-001-1123	1.91	-1.15	0.91	111	N	0	1	0	0
East Hartford McAuliffe Park	09-003-1003	1.06	1.61	0.86	344	N	1	1	0	0
East Hartford High Street	0--003-2006	1.15	0.62	0.92	110	N	0	1	0	0
Bridgeport Roosevelt School	09-001-0010	0.9	-0.35	0.8	104	Y	1	1	1	1
Cornwall Mohawk Mountain	09-005-0005	0.69	3.51	0.31	112	N	0	0	1	0

*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)

Figure 2: CT $PM_{2.5}$ FEM Comparison with EPA Performance Standards

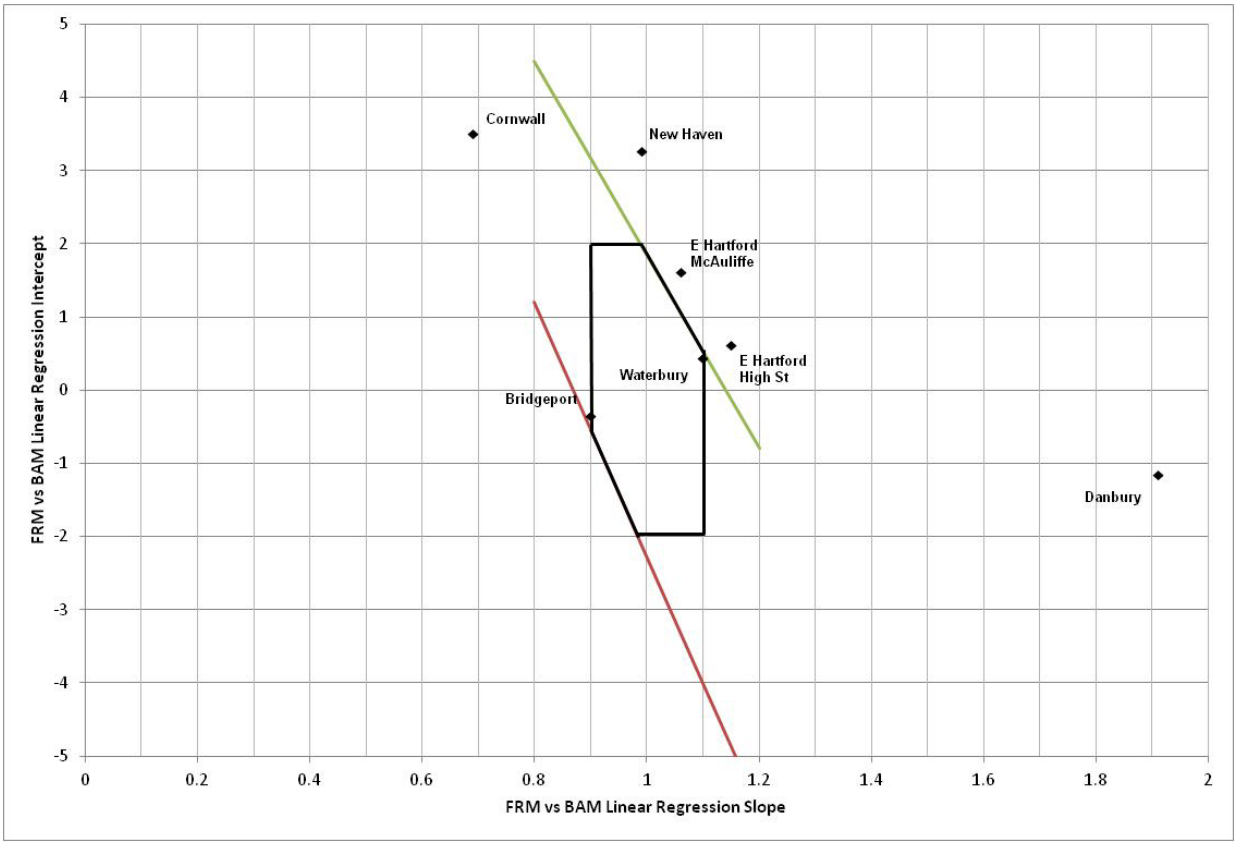
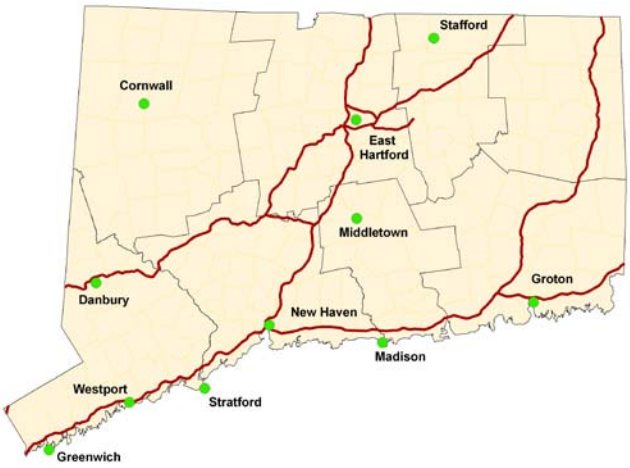


Table 4: Proposed Monitor Status of the DEEP Continuous $PM_{2.5}$ Network

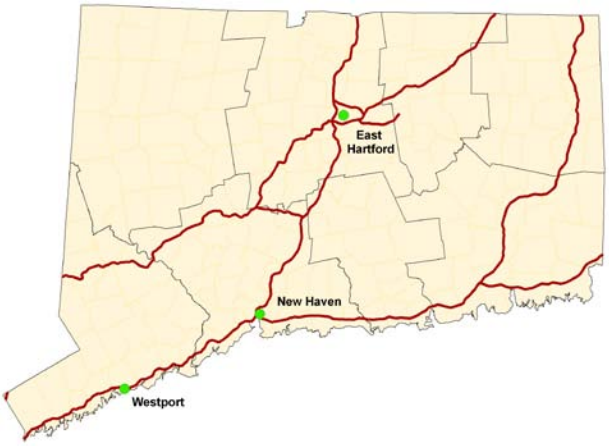
Site Name	AQS ID	Parameter Name	Parameter Code	Monitor Type	Monitor Status for NAAQS	Meets FEM Performance Criteria	Eligibility for AQI Reporting
Bridgeport Roosevelt School	09-001-0010	PM2.5 LC	88101	SLAMS	Collocated	Y	Y
Danbury WCSU	09-001-1123	Acceptable PM2.5 AQI	88502	SLAMS	n/a	N	Y
Hartford Huntley Place	09-003-0025	Acceptable PM2.5 AQI	88502	SPM	n/a	n/a	Y
East Hartford McAuliffe Park	09-003-1003	Acceptable PM2.5 AQI	88502	SLAMS	n/a	N	Y
East Hartford High Street	0--003-2006	Acceptable PM2.5 AQI	88502	SLAMS	n/a	N	Y
Cornwall Mohawk Mountain	09-005-0005	Acceptable PM2.5 AQI	88502	SLAMS	n/a	N	Y
New Haven Criscuolo Park	09-009-0027	Acceptable PM2.5 AQI	88502	SLAMS	n/a	N	Y
Waterbury Bank Street	09-009-2123	PM2.5 LC	88101	SLAMS	Primary	Y	Y
Groton Fort Griswold	09-011-0124	PM2.5 LC	88101	SLAMS	Primary	n/a	Y

Ozone Network

DEEP operates eleven ozone sites in the air monitoring network. The ozone analyzers at the Cornwall and New Haven Criscuolo Park sites are operated year-round, while the remaining sites are operated from April 1 through September 30. Monitoring is conducted using Teledyne-API Model T400 photometric ozone analyzers (method EQOA-992-087). Ozone measurements are sent to the EPA AIRNow website for AQI purposes on an hourly basis.

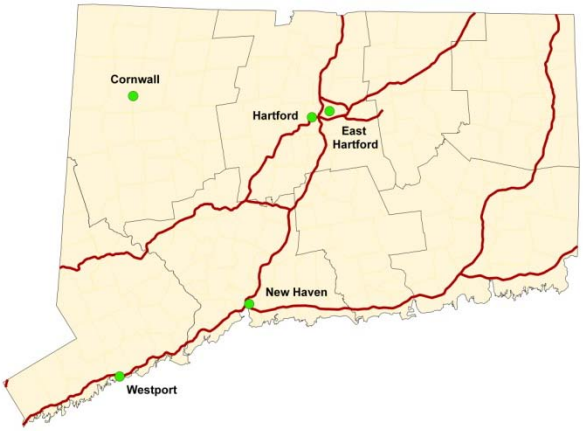


PAMS Network



DEEP operates three Photochemical Assessment Monitoring Stations (PAMS) sites in the air monitoring network. PAMS measurements are obtained from June 1 through August 31 each year. PAMS sampling generates hourly measurements of 56 volatile organic compounds (VOCs), such as benzene and toluene, which are precursors to ozone formation. Two Synspec Gas Chromatographs (FID and PID detectors) are deployed at the Westport Sherwood Island and New Haven Criscuolo Park sites. A Perkin Elmer Gas Chromatograph (FID detectors) is operated at East Hartford. All three sites have on-site surface meteorological monitoring, while upper air measurements for ozone transport modeling are obtained from regional National Oceanic and Atmospheric Administration (NOAA) radiosondes. Carbonyl sampling at East Hartford has been suspended for 2013 due to a re-prioritization of limited funding resources.

NO_2 / NO_Y Network



DEEP operates five nitrogen dioxide (NO_2) sites in the air monitoring network. All NO_2 analyzers are operated year-round. DEEP is currently replacing the TE Model 42C $NO/NO_2/NO_X$ (RFNA-1289-074) analyzers with Teledyne-API Model T200U (RFNA-1194-099) units.

Nitrogen oxide and total oxides of nitrogen (NO/NO_x) are currently required at NCore sites (for NAAQS compliance) and PAMS sites (for their role in ozone formation). Nitrogen oxide and total reactive oxides of nitrogen (NO/NO_Y) are required at the NCore sites as well as at one of the PAMS sites, which should be either an upwind background (Type 1) or a maximum ozone (Type 3) site. NO_Y is defined as $NO+NO_2+NO_z$ (higher oxides of nitrogen). The New Haven Criscuolo Park site NO_Y monitor is intended to satisfy the PAMS requirement for NO_Y. TAPI Model T200EU/501 analyzers are employed for NO_Y monitoring.

On January 22, 2010, EPA finalized a revised NO_2 NAAQS, which included new requirements for near-road NO_2 monitoring to be implemented by January 1, 2013. A subsequent NO_2 rule[4] issued on March 7, 2013, extended the deadline for the initial phase of near-road monitors to be operating by January 1, 2014. The current NO_2 rules requires states to establish a network of NO_2 near-road monitoring and community based monitoring sites based on population. All core-based statistical areas (CBSAs) with populations greater than 500,000 are required to have one near-road monitor by January 1, 2017. CBSAs with more than 1,000,000 people are required to have a community-based monitor in addition to the near road monitor by January 1, 2014. Under the current rule, three CBSAs (Bridgeport-Stamford-Norwalk, Hartford-West Hartford-East Hartford and New Haven-Milford) will require near road monitors, and one CBSA (Hartford-West Hartford-East Hartford) will require a community based monitor. The near-road sites must be selected from the highest annual average daily traffic (AADT) road segments in each CBSA where the maximum hourly NO_2 concentrations are expected to occur, taking into consideration

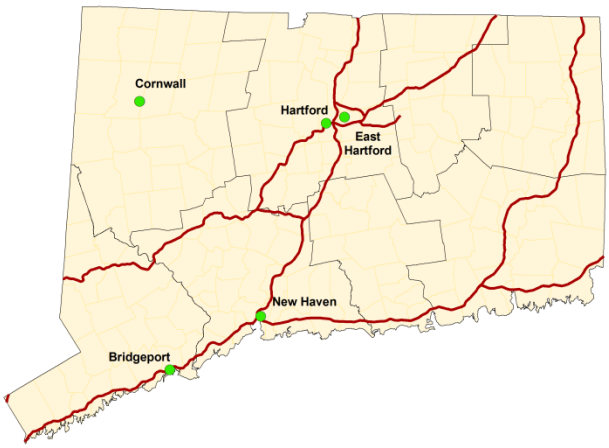
[4] http://www.epa.gov/airquality/nitrogenoxides/pdfs/20130307fr.pdf

fleet mix, roadway design, traffic congestion patterns, terrain and meteorology. Near-road sites must meet applicable siting criteria as indicated in the final NO_2 NAAQS rules and guidance documents. Based on analysis of these factors, DEEP selected and EPA approved the near-road site location at 17 Huntley Place, Hartford, adjacent to I-84 westbound near the intersections of Huntley, Hoadley, Walnut and High Streets. The site became operational on April 1, 2013.

The January 2010 rule also specifies siting requirements for the community based monitors. The requirement may be satisfied by a current PAMS site where the highest concentrations occur in the area and the site represents a neighborhood or urban scale. The existing East Hartford McAuliffe Park NO_2 monitor was selected to serve as the community-wide monitoring in the Hartford CBSA because it meets EPA's requirements. In addition to the minimally-required four near-road and community-wide NO_2 monitors indicated above, the EPA Regional Administrators must identify at least 40 NO_2 monitors nationwide to help protect communities that are susceptible or vulnerable to NO_2 related health effects. Working closely with DEEP, the EPA Regional Administrator has identified the New Haven Criscuolo Park site as one of these nationwide monitors.

CO Network

As of June 30, 2013, DEEP will operate five carbon monoxide (CO) sites in the air monitoring network. All CO samplers are operated year-round and employ TE 48i- TLE analyzers (RFCA-0981-054). Of the 5 sites, New Haven and Cornwall comply with the requirement for CO monitoring at NCore sites (sampling at NCore sites is at trace level), Hartford and Bridgeport monitor under CO limited maintenance plans, and East Hartford and New Haven include CO as a complement to the PAMS monitoring.

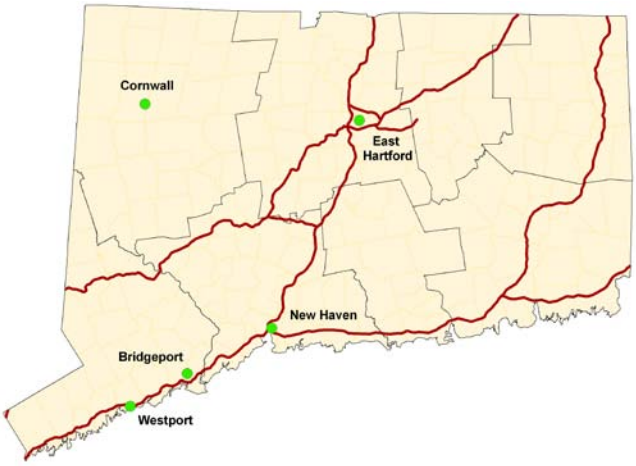


EPA's most recent revision to the CO NAAQS rule, finalized August 12, 2011, specifies CO monitoring collocated with NO_2 near-road monitors in CBSAs with populations greater than 1,000,000. This requirement applies to the Hartford-West Hartford-East Hartford CBSA. As discussed in the 2012 Plan, DEEP replaced the Hartford Morgan Street CO monitor with a CO monitor at the Hartford Huntley Place near-road NO_2 site. DEEP operated the Morgan Street, Hartford CO monitor concurrently with the Huntley Place CO monitor for the period of April 1 to June 30, 2013. A preliminary analysis of this data indicates that, while both sites are well below the 1-hour and 8-hour CO NAAQS, Huntley Place CO values are approximately one half those of Morgan Street. Table 3 presents a summary of the CO data at the two sites from April 1 to June 9, 2013. CO monitoring at the Huntley Place meets the local monitoring requirement for DEEP's Hartford area CO limited maintenance plan (LMP) (DEEP, 2004) as well as the near-road CO monitoring requirement.

Table 5: Summary of Hartford CO Sites Comparison (4/1/13-6/9/13)

	Avg 1-hr (ppm)	Max 1-hr (ppm)	Max 8-hr (ppm)	Percent of EPA 1-hr Standard	Percent of EPA 8-hr Standard
Hartford Huntley Place	0.30	1.04	0.67	3%	7%
Hartford Morgan Street	0.57	1.94	1.33	6%	15%

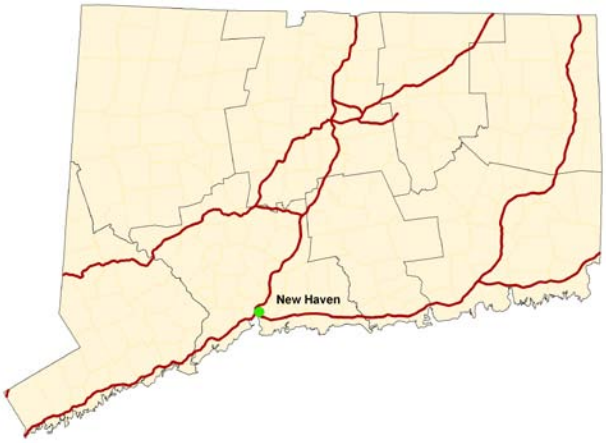
SO_2 Network



DEEP operates five sulfur dioxide (SO_2) sites in the air monitoring network. All samplers are TE 43i-TLE SO_2 analyzers (EQSA-0486-060) and are operated year-round. NCore site analyzers are operating at trace level measurements. Both 1-hour and 5-minute block average SO_2 data are validated and reported to EPA.

The Bridgeport Edison School and the East Hartford McAuliffe Park SO_2 monitors continue to satisfy the requirements of the June 2, 2010 SO_2 final NAAQS rule[5] for population-weighted emissions index (PWEI) monitoring in the Bridgeport-Stamford-Norwalk and Hartford-East Hartford-West Hartford CBSAs, respectively. In addition, SO_2 monitoring is required at both the Cornwall Mohawk Mountain and the New Haven Criscuolo Park NCore sites. As such, DEEP proposes to discontinue SO_2 monitoring at the Westport Sherwood Island State Park site on December 31, 2013.

Lead (Pb) Network



The DEEP Pb monitoring network consists of primary 1-in-6 day and collocated 1-in-12 day sampling at the New Haven Criscuolo Park urban NCore site in fufillment of the revised Pb NAAQS and monitoring requirements promulgated in December 2010. 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 1.5 $\mu g/m^3$ lead in total suspended particulates, Pb monitoring regulations allow surrogate monitoring of Pb in PM10, as long as design values are below 2/3 of the NAAQS, or 1.0 $\mu g/m^3$. New Haven Pb values continue to remain well below this threshold, within the range of 0.00-0.02 $\mu g/m^3$. No changes to the Pb monitoring network are anticipated through the end of 2013.

Data Acquisition Network

The most significant change within the data acquisition network during the past year includes the conversion of data logging PCs to virtual machines with near-real time backup to protect data and facilitate configuration of replacement PCs at the remote monitoring sites. On-going projects include data management systems software upgrades and continuation of the implementation of an automated PM sampling data transfer system.

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.

[5] http://www.epa.gov/ttn/naaqs/standards/so2/fr/20100622.pdf

Town – Site:	**Bridgeport – Edison School**		
County:	**Fairfield**	Latitude:	**41.19500°**
Address:	**115 Boston Terrace**	Longitude:	**-73.16350°**
AQS Site ID:	**09-001-0012**	Elevation:	**34 m (110 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1983**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
														X																

X=Existing, P =Proposed, = Planned to terminate

Site Description: The Edison School site is a neighborhood-scale site located in southwestern Connecticut in the town of Bridgeport. This site is located 170 m to the north of Rte 1, 2.2 km to the north of I-95 and 2.7 km to the east of Rte 8. 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 Bridgeport Edison School monitoring site objective is to collect SO_2 measurements for compliance purposes and to potentially address the source-oriented monitoring requirement for the recently finalized 1-hour SO_2 NAAQS.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X			1/6										X											X				

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Roosevelt School site is a neighborhood-scale site located in southwestern Connecticut in the town 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. CO measurements will continue to be conducted at this site per requirements of the CO limited maintenance plan (LMP).

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X	X		1/3		X		X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Mohawk Mountain site is a regional-scale site located in northwestern Connecticut in the town of Cornwall. The site is located at the top 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 internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Cornwall Mohawk Mountain site was approved to be an NCore site on October 30, 2009 by EPA OAQPS. The primary monitoring site objective is to meet NCore requirements. Trace-CO, NOy, NOx, PM_{10} FRM and continuous $PM_{10-2.5}$ and $PM_{2.5}$ were deployed to the Cornwall Mohawk Mountain site in 2010 as part of NCore siting requirements. Other monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI reporting and forecasting purposes. $PM_{2.5}$ chemical speciation measurements are collected through the IMPROVE network. Ozone is measured at the Mohawk Mountain site for compliance assessment and AQI and forecasting purposes. Trace-SO_2 monitoring is being conducted to collect PM precursor gas measurements. Continuous organic carbon (OC) and elemental carbon (EC), sulfate, $PM_{2.5}$ measurements are collected as part of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Rural Aerosol Intensive Network (RAIN) to study the effects of regional haze and to provide data and information to develop the Regional Haze State Implementation Plan and subsequent revision thereto.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X											X											X	X	X		X		

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Western Connecticut State University (WCSU) site is a neighborhood site located in western Connecticut in the town 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 internally by DEEP and independently 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 and forecasting purposes.

Planned changes for 2012-2013: None

Town – Site:	**East Hartford – High Street**		
County:	**Hartford**	Latitude:	**41.74259°**
Address:	**High Street**	Longitude:	**-72.63433°**
AQS Site ID:	**09-003-2006**	Elevation:	**12 m (40 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1989**
Statistical Area:	**CSA (Hartford-West Hartford-Willimantic)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X																						X	X					

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The High Street site is neighborhood-scale site located in central Connecticut in the town of East Hartford. The site is located approximately 70 m to the northeast of Rte 2 and 20 m to the west of High Street. This site is located 4.2 km to the southeast 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.

Monitoring Objectives: The East Hartford High Street monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI and forecasting purposes.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/1		X			1/6							X	X	X	X	X			X	X*				X	X	X	X			X

X=Existing, P =Proposed, = Proposed to terminate

* Monitoring suspended for 2013 due to federal funding reduction.

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 is upgrading the air monitoring equipment shelter during summer 2013, and anticipates a 1 to 2 week period of data loss in October 2013 when the building will be replaced.

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. A PM_{10} FRM is operated for 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 forecasting purposes and PAMS and NO_x monitoring is conducted to obtain measurements of ozone precursors. CO measurements are being collected to complement the PAMS measurements. Carbonyl sampling has been suspended for 2013 due to a reduction in federal funding for monitoring.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
													X											X	X	X		X		

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Greenwich Point Park site is an urban-scale site located is southwestern Connecticut on the Long Island Sound in 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 forecasting purposes.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
P		X											X											P	P	X				

X=Existing, P =Proposed, = Proposed to terminate

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 forecasting purposes.

Planned changes for 2012-2013: Consolidation of Norwich $PM_{2.5}$ FRM site with the Groton Fort Griswold site by operation of the continuous PM2.5 analyzer as an FEM. Also, installation of a meteorological tower for wind speed and wind direction measurements is planned.

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Traffic Counter	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
P		x					P					x			x	x							P	x	x	x				

X=Existing, P =Proposed, = Proposed to terminate

Site Description: Hartford – Huntley Place 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 and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Near Road monitoring objective will focus monitoring resources to capture short-term NO2 concentrations near heavily trafficked roads, to assess area-wide (or community-wide) NO2 concentrations, and to assess NO2 concentrations for vulnerable and susceptible populations. The data will be also used to help determine compliance with 1-hour NO2 National Ambient Air Quality Standard, as established by EPA in 2010. The site will run NO/NO2/NOx, CO, PM2.5 (BAM), BC/UVC, Wind speed/direction, outside/inside temperature, a traffic counter, and proposed PM2.5 sequential sampler and PM10 BAM sampler. A beta version of a direct NO2 analyzer will also be tested at this location.

Planned changes for 2013-2014: Addition of traffic counter, PM10 BAM, PM2.5 FRM, and beta Direct NO_2 analyzer

Town – Site:	**Madison – Hammonasset State Park**		
County:	**New Haven**	Latitude:	**41.25984°**
Address:	**Hammonasset SP**	Longitude:	**-72.55018°**
AQS Site ID:	**09-009-3002**	Elevation:	**3 m (10 ft)**
Spatial Scale:	**Regional**	Year Established:	**1981**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
													X											X	X	X				

X=Existing, P =Proposed, = Proposed to terminate

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.

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

Planned changes for 2012-2013: None

Town – Site:	**Mansfield – DOT**		
County:	**Tolland**	Latitude:	**41.73140°**
Address:	**N. Frontage Road**	Longitude:	**-72.21163°**
AQS Site ID:	**09-013-0003**	Elevation:	**76 m (253 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2006**
Statistical Area:	**CSA (Hartford-West Hartford-Willimantic)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
																								X	X					

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Mansfield DOT site is a neighborhood-scale site located in eastern Connecticut to the north of downtown Mansfield. This site is located on North Frontage Road and is 60 m to the north of Rte 6. Residential neighborhoods are located in all directions of this site with the downtown located to the south. This site meets all siting requirements and criteria and has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Mansfield DOT site monitoring objective is to collect meteorological data for forecasting and modeling purposes.

Planned changes for 2012-2013: None

Town – Site:	**Middletown – Central Valley Hospital**		
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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
													X											X	X	X		X	X	

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Middletown Central Valley Hospital 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 Region I and EPA Headquarters. This site has been approved internally by DEEP and independently by EPA Region I.

Monitoring Objectives: The Middletown Central Valley Hospital monitoring site objective is to collect ozone measurements for compliance assessment and AQI and forecasting purposes.

Planned changes for 2012-2013: None

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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/1	1/6	X			1/3	1/6	X	X		X	X	X	X	X	X	X	X	X	X		X			X	X	X	X	X	X	X

X=Existing, P =Proposed, = Proposed to terminate

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 New Haven Criscuolo Park site was approved to be an NCore site on October 30, 2009 by EPA OAQPS. The primary monitoring site objective is to meet NCore requirements. Other monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes and continuous $PM_{2.5}$ for AQI reporting and forecasting purposes. A $PM_{2.5}$ colocated FRM sampler is operated at this site to gather precision measurements. $PM_{2.5}$ chemical speciation measurements are collected through the EPA Speciation Trends Network (STN). A PM_{10} FRM is operated for compliance purposes, as well as to gather $PM_{10-2.5}$ measurements and obtain lead measurements to determine compliance with the newly established lead NAAQS. PM_{10} FRM sampling frequency was increased from 1-in-6 day sampling to 1-in-3 day sampling to meet NCore requirements. A PM_{10} colocated FRM sampler is operated at this site to gather precision measurements. Ozone is measured at the Criscuolo Park site for compliance assessment and AQI and forecasting purposes and PAMS and NO_x monitoring is conducted to obtain measurements of ozone precursors. Trace-CO measurements are being collected to complement the PAMS measurements. Trace-SO_2 monitoring is being conducted to collect PM precursor gas measurements.

Planned changes for 2012-2013: None

Town – Site:	**New Haven – State Street**		
County:	**New Haven**	Latitude:	**41.31078°**
Address:	**715 State Street**	Longitude:	**-72.91688°**
AQS Site ID:	**09-009-1123**	Elevation:	**9 m (30 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1975**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3																														

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The State Street site is a neighborhood-scale site located in the center of New Haven near the State Street and Trumbull Street intersection. The site is located 0.3 km to the west of I-91 and approximately 1.0 km to the northwest of the I-91 and I-95 interchange. Residential neighborhoods are located to the east, west, north and south 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 New Haven State Street monitoring site objective is to collect $PM_{2.5}$ FRM measurements for compliance purposes.

Planned changes for 2012-2013: None

Town – Site:	**Norwich – Courthouse**		
County:	**New London**	Latitude:	**41.52407°**
Address:	**22 Courthouse Sq.**	Longitude:	**-72.07676°**
AQS Site ID:	**09-011-3002**	Elevation:	**12 m (39 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1984**
Statistical Area:	**MSA (Norwich-New London)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3																														

X=Existing, P =Proposed, = Proposed to terminate

Site Description: The Norwich Courthouse site is a neighborhood-scale site located in southeastern Connecticut in the center of the town of Norwich. The site is located in downtown Norwich between Water Street and Cliff Street and is approximately 3.5 km to the east of I-395. Residential neighborhoods are located to the east, west, north and south 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 Norwich Courthouse monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes. Everyday $PM_{2.5}$ sampling was discontinued as of January 1, 2011 with 1-in-3 day sampling being established. The 2006 regulations required everyday sampling to be conducted at all sites that were within 5% of the daily $PM_{2.5}$ NAAQS of 35 $\mu g/m^3$ for a minimum of three years. The current daily design value for this site based on 2007-2009 data is 26 $\mu g/m^3$, well below the current NAAQS. Sampling through 2010 provided four continuous years of everyday $PM_{2.5}$ FRM sampling (2007-2010).

Planned changes for 2012-2013: Elimination of site. Consolidation of this site with the Groton-Fort Griswold location meeting EPA compliance requirements for 1-in-3 day $PM_{2.5}$ monitoring.

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:	**CSA (Hartford-West Hartford-Willimantic)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
													X											X	X	X				

X=Existing, P =Proposed, = Proposed to terminate

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 and forecasting purposes.

Planned changes for 2012-2013: 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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
													X													X				

X=Existing, P =Proposed, = Proposed to terminate

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 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 and forecasting purposes.

Planned changes for 2012-2013: 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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3	1/6	X																						X	X	X		X		

X=Existing, P =Proposed, = Proposed to terminate

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 reporting and forecasting purposes. Colocated samplers are operated at this site to gather precision measurements. PM_{10} FRM sampling was discontinued as of January 1, 2011. PM_{10} sampling was initially established at this site in the anticipation of a PM-coarse standard in 2006.

Planned changes for 2012-2013: 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)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/3													X	X		X			X					X	X	X	X			X

X=Existing, P =Proposed, = Proposed to terminate

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: The Westport Sherwood Island State Park monitoring site objectives include collecting $PM_{2.5}$ FRM measurements for compliance purposes. Ozone is measured at the Westport site for compliance assessment and AQI and forecasting purposes, and PAMS and NO_x monitoring is conducted to obtain measurements of ozone precursors.

Planned changes for 2012-2013: Proposed discontinuation of SO_2 monitoring at this site.

References

Connecticut Department of Environmental Protection (2004). Limited Maintenance Plans for the Hartford, the New Haven, and the Connecticut Portion of the New York/New Jersey/Connecticut Carbon Monoxide Maintenance Areas. June 18, 2004

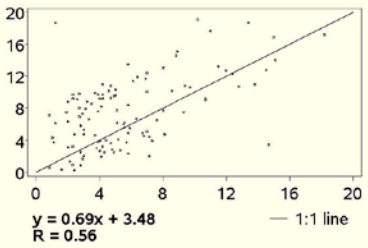
Appendix A EPA Continuous $PM_{2.5}$ Assessment Tool Output

PM 2.5 Continuous Monitor Comparability Assessment

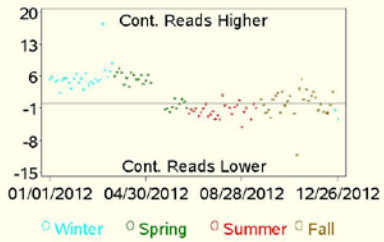
Site 09-005-0005: Torrington, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

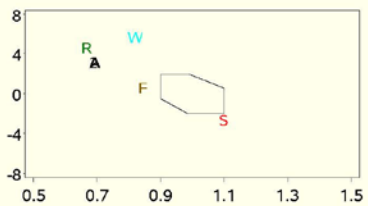
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



Cont. minus FRM PM 2.5 ($\mu g/m^3$)

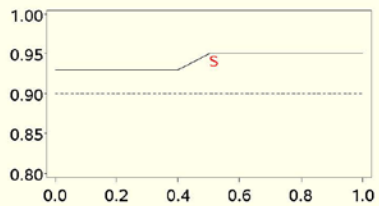


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**112**	**5.6**	**7.4**	**1.31**
Winter	29	4.7	9.9	2.09
Spring	26	5.0	8.3	1.67
Summer	27	7.2	5.6	0.78
Fall	30	5.7	5.8	1.01
2010	0	.	.	.
2011	0	.	.	.
2012	112	5.6	7.4	1.31

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**112**	**70.1**	**74**	**39.8**
Winter	29	172	21	97.5
Spring	26	126	16	63.7
Summer	27	-31	19	-16
Fall	30	14.2	18	10.4
2010	0	.	.	.
2011	0	.	.	.
2012	112	70.1	74	39.8

Data Source: EPA AQS Data Mart

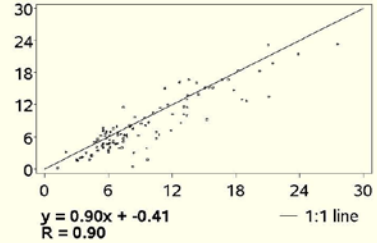
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

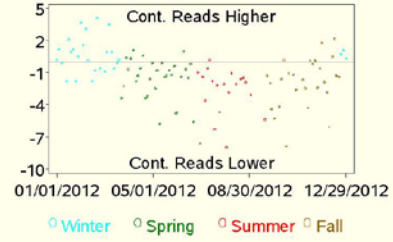
Site 09-001-0010: Bridgeport, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

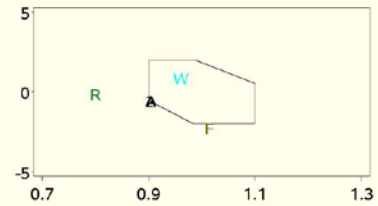
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



Cont. minus FRM PM 2.5 ($\mu g/m^3$)

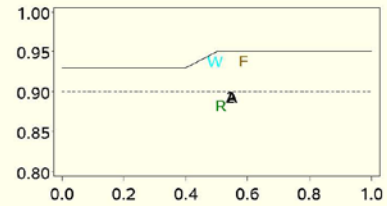


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**104**	**9.4**	**8.1**	**0.86**
Winter	27	9.4	10.1	1.07
Spring	30	7.5	6.0	0.81
Summer	20	10.3	7.3	0.71
Fall	27	11.0	9.1	0.82
2010	0	.	.	.
2011	0	.	.	.
2012	104	9.4	8.1	0.86

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**104**	**-16**	**92**	**-11**
Winter	27	8.4	27	8.4
Spring	30	-19	25	-17
Summer	20	-31	18	-26
Fall	27	-25	22	-15
2010	0	.	.	.
2011	0	.	.	.
2012	104	-16	92	-11

Data Source: EPA AQS Data Mart

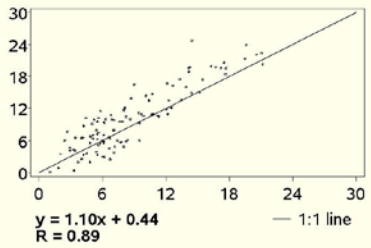
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

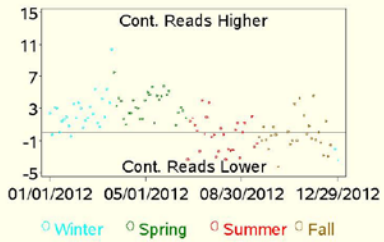
Site 09-009-2123: Waterbury, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

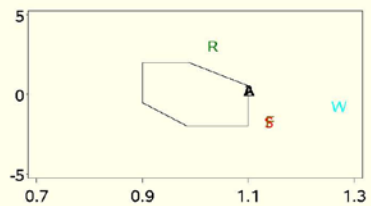
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



Cont. minus FRM PM 2.5 ($\mu g/m^3$)

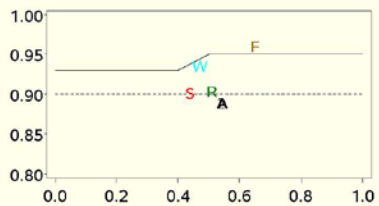


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**113**	**8.6**	**9.9**	**1.15**
Winter	29	10.1	12.2	1.21
Spring	29	6.6	10.1	1.53
Summer	28	8.6	8.3	0.96
Fall	27	9.2	9.0	0.98
2010	0	.	.	.
2011	0	.	.	.
2012	113	8.6	9.9	1.15

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**113**	**17.2**	**99**	**20.2**
Winter	29	19.7	28	19.0
Spring	29	62.2	27	57.5
Summer	28	-5.0	24	-2.2
Fall	27	-11	20	-1.6
2010	0	.	.	.
2011	0	.	.	.
2012	113	17.2	99	20.2

Data Source: EPA AQS Data Mart

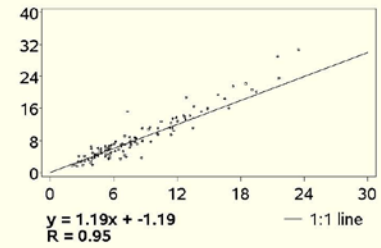
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

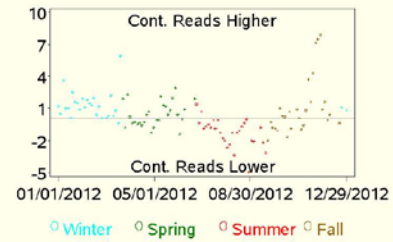
Site 09-001-1123: Danbury, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

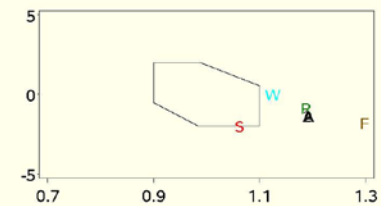
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



Cont. minus FRM PM 2.5 ($\mu g/m^3$)

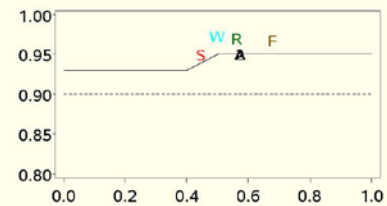


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**111**	**8.2**	**8.6**	**1.05**
Winter	28	9.0	10.3	1.14
Spring	28	6.1	6.5	1.07
Summer	28	8.6	7.4	0.85
Fall	27	9.2	10.3	1.12
2010	0	.	.	.
2011	0	.	.	.
2012	111	8.2	8.6	1.05

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**111**	**1.5**	**100**	**3.4**
Winter	28	15.5	26	14.7
Spring	28	3.5	22	9.9
Summer	28	-18	26	-17
Fall	27	4.9	26	6.6
2010	0	.	.	.
2011	0	.	.	.
2012	111	1.5	100	3.4

Data Source: EPA AQS Data Mart

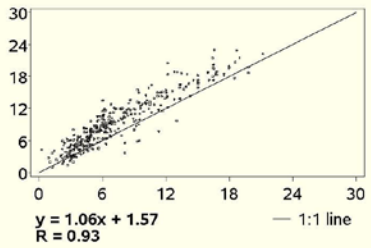
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

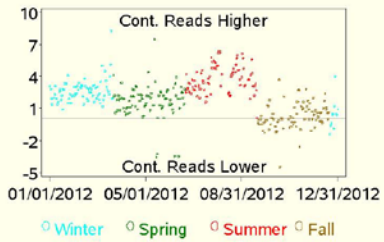
Site 09-003-1003: East Hartford, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

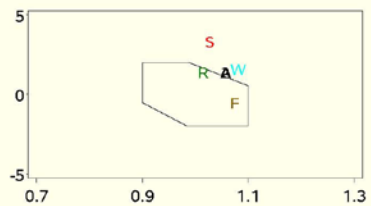
Cont. (y) vs. FRM (x) PM 2.5 (µg/m³)



Cont. minus FRM PM 2.5 (µg/m³)

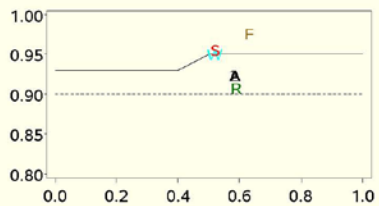


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 (µg/m³)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**344**	**7.3**	**9.3**	**1.27**
Winter	89	7.3	9.7	1.33
Spring	89	5.8	7.4	1.29
Summer	81	8.1	11.8	1.46
Fall	85	8.1	8.4	1.03
2010	0	.	.	.
2011	0	.	.	.
2012	344	7.3	9.3	1.27

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**344**	**39.4**	**304**	**31.6**
Winter	89	59.1	81	37.4
Spring	89	38.0	74	32.7
Summer	81	59.5	74	52.4
Fall	85	1.3	75	3.5
2010	0	.	.	.
2011	0	.	.	.
2012	344	39.4	304	31.6

Data Source: EPA AQS Data Mart

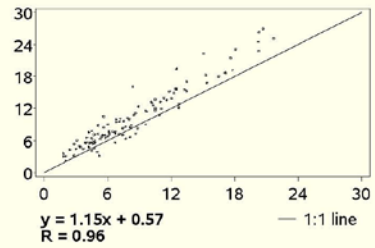
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

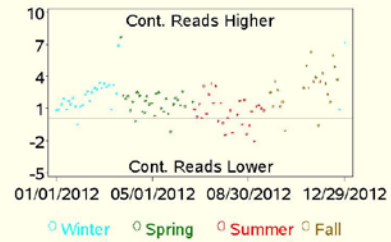
Site 09-003-2006: East Hartford, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

Cont. (y) vs. FRM (x) PM 2.5 (µg/m³)



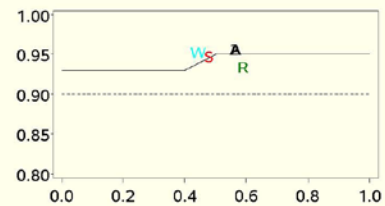
Cont. minus FRM PM 2.5 (µg/m³)



Additive (y) vs. Multiplicate (x) Bias

A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 (µg/m³)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**110**	**8.5**	**10.3**	**1.21**
Winter	29	9.5	11.8	1.24
Spring	30	6.0	7.7	1.27
Summer	29	8.2	8.8	1.08
Fall	22	10.8	13.8	1.27
2010	0	.	.	.
2011	0	.	.	.
2012	110	8.5	10.3	1.21

Appendix A Statistics

Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**110**	**25.4**	**103**	**23.3**
Winter	29	25.6	29	25.6
Spring	30	32.6	26	27.3
Summer	29	11.0	26	7.4
Fall	22	34.3	22	34.3
2010	0	.	.	.
2011	0	.	.	.
2012	110	25.4	103	23.3

Data Source: EPA AQS Data Mart

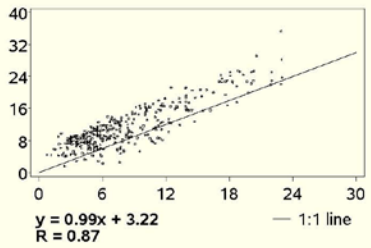
Generated on: May 6, 2013

PM 2.5 Continuous Monitor Comparability Assessment

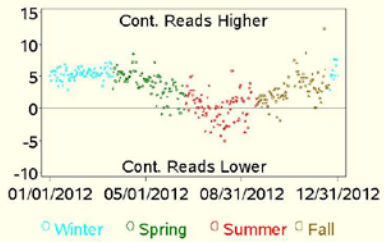
Site 09-009-0027: New Haven, CT

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC-Gravimetric (145), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM-1020 W/PM2.5 SCC-Beta Attenuation (731), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

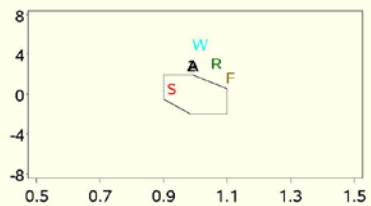
Cont. (y) vs. FRM (x) $PM_{2.5}$ ($\mu g/m^3$)



Cont. minus FRM $PM_{2.5}$ ($\mu g/m^3$)

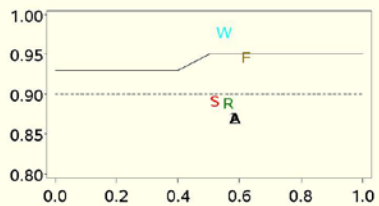


Additive (y) vs. Multiplicate (x) Bias



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 0=2010, 1=2011, 2=2012
W=Winter, R=Spring, S=Summer, F=Fall

Mean $PM_{2.5}$ ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**347**	**8.4**	**11.5**	**1.38**
Winter	89	8.5	14.0	1.64
Spring	90	6.5	10.3	1.59
Summer	85	9.3	9.5	1.02
Fall	83	9.3	12.2	1.32
2010	0	.	.	.
2011	0	.	.	.
2012	347	8.4	11.5	1.38

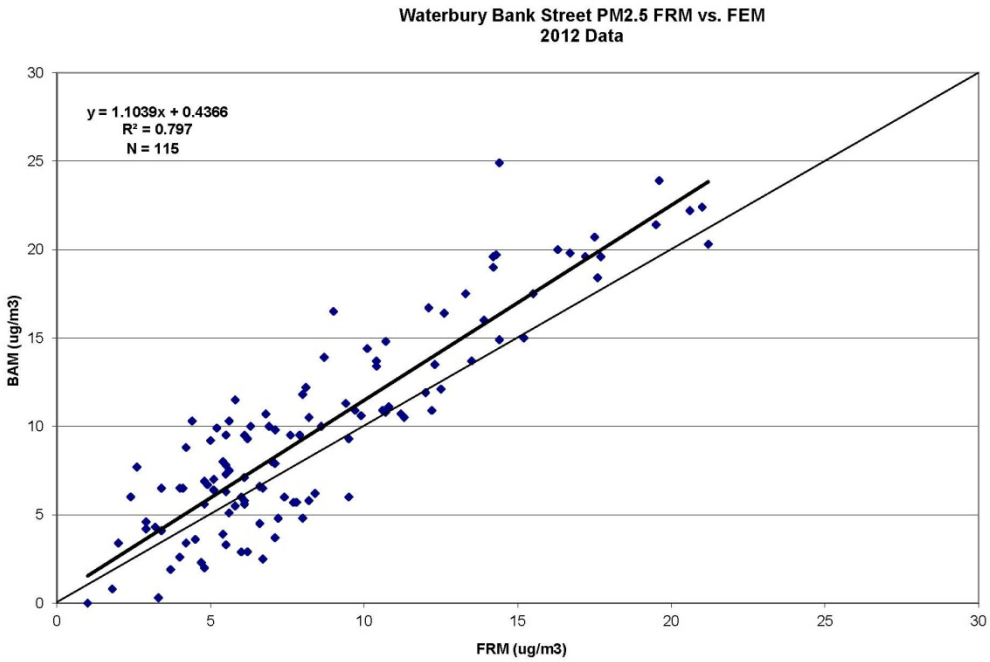
Appendix A Statistics

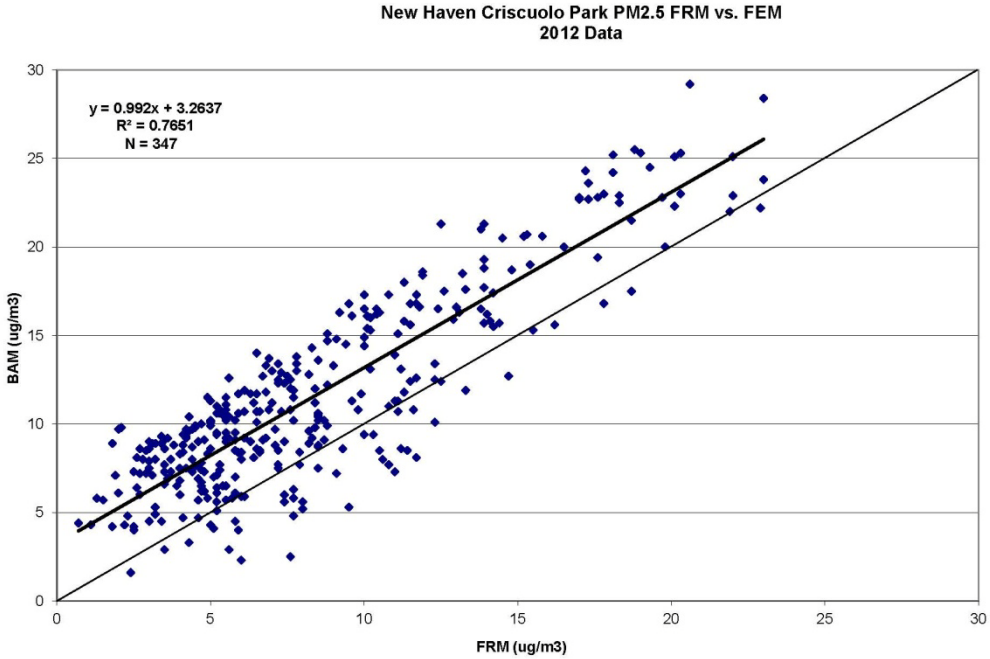
Dataset	N (all observations)	Bias	N (only >= 3 ug/m^3)	Bias
AllData	**347**	**57.7**	**319**	**47.6**
Winter	89	88.2	84	76.6
Spring	90	79.6	78	64.6
Summer	85	10.4	79	9.5
Fall	83	49.8	78	37.8
2010	0	.	.	.
2011	0	.	.	.
2012	347	57.7	319	47.6

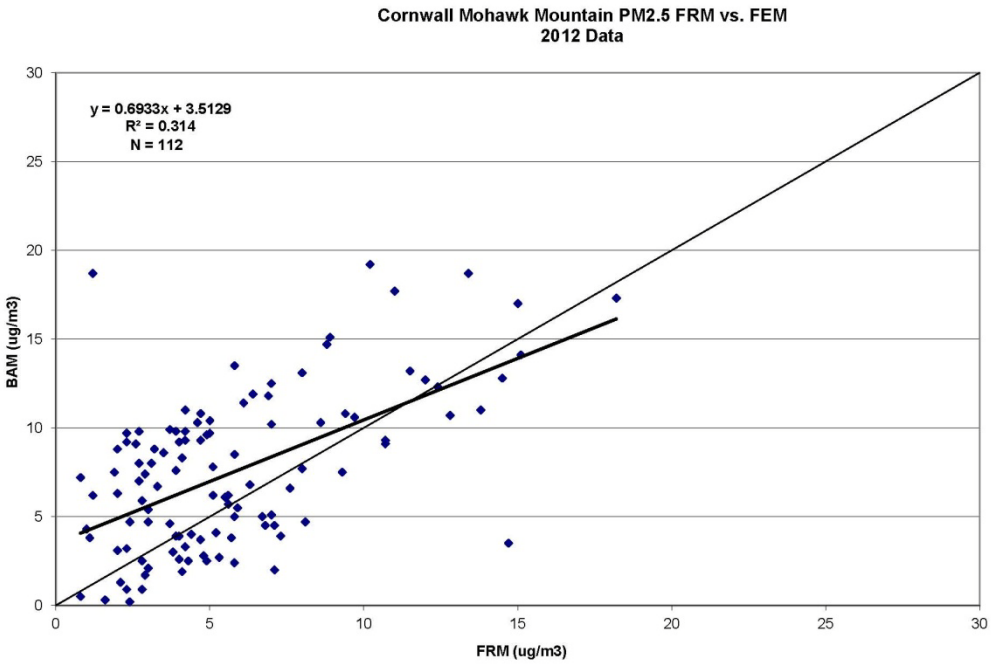
Data Source: EPA AQS Data Mart

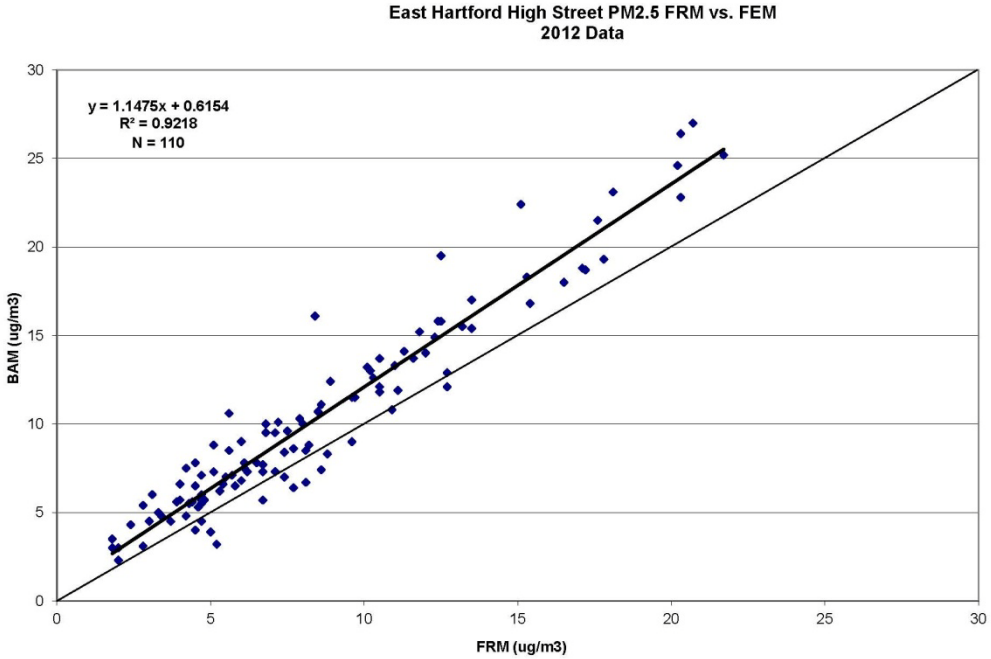
Generated on: May 6, 2013

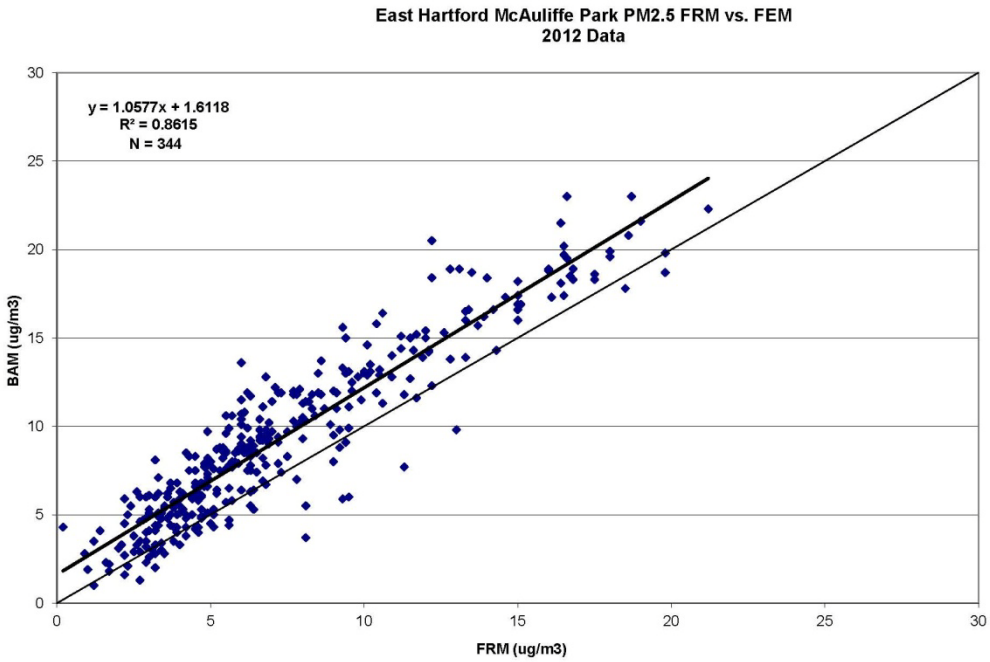
Appendix B Continuous $PM_{2.5}$ Correlation Charts

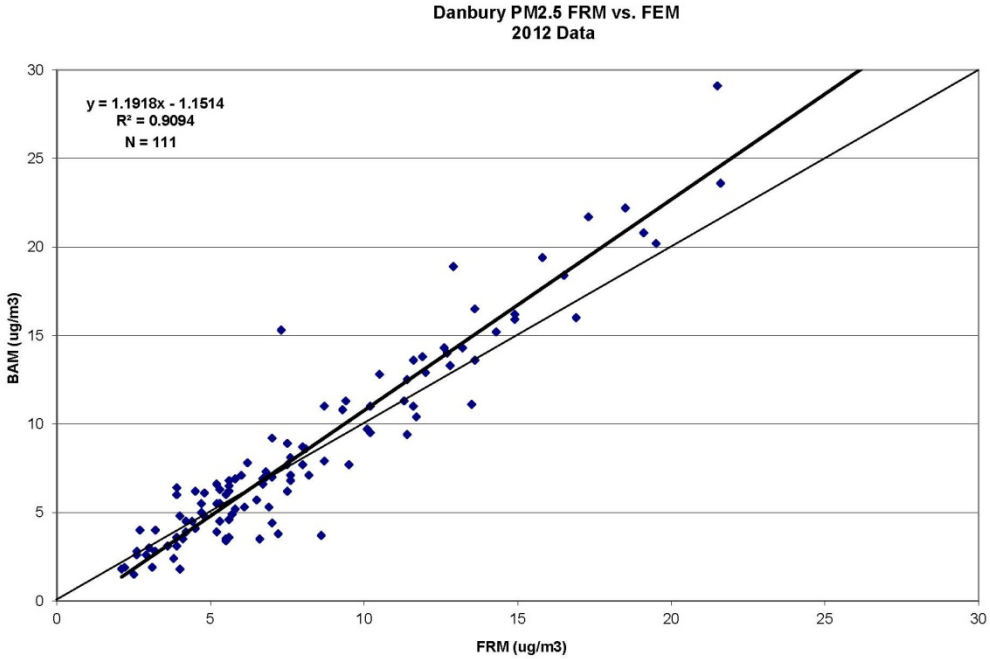

Waterbury Bank Street PM2.5 FRM vs. FEM
2012 Data
y = 1.1039x + 0.4366
R² = 0.797
N = 115
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30

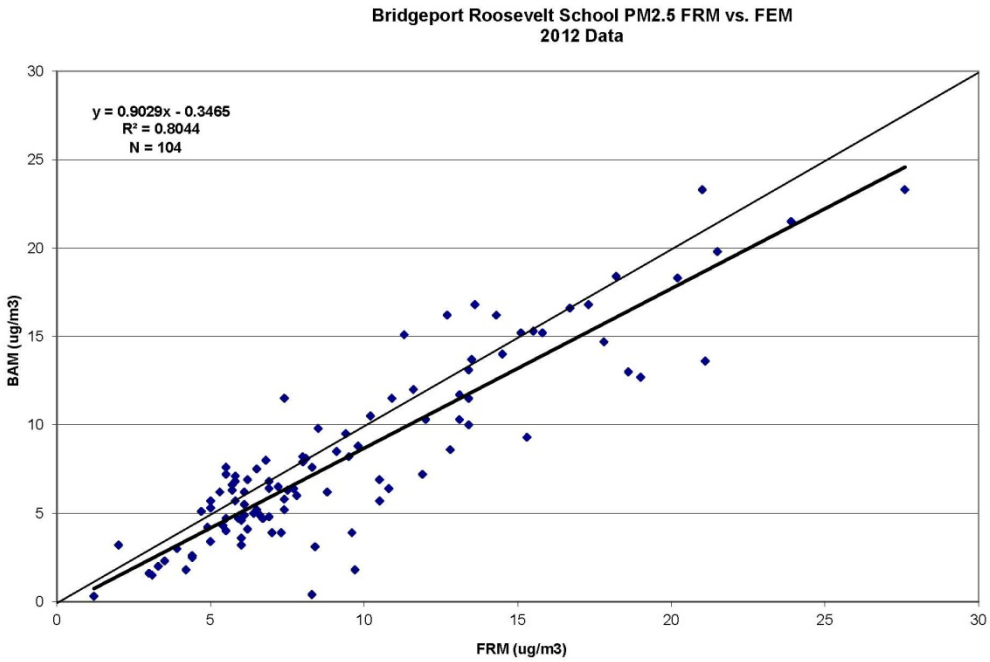

New Haven Criscuolo Park PM2.5 FRM vs. FEM
2012 Data
y = 0.992x + 3.2637
R² = 0.7651
N = 347
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30


Cornwall Mohawk Mountain PM2.5 FRM vs. FEM
2012 Data
y = 0.6933x + 3.5129
R² = 0.314
N = 112
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30


East Hartford High Street PM2.5 FRM vs. FEM
2012 Data
y = 1.1475x + 0.6154
R² = 0.9218
N = 110
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30


East Hartford McAuliffe Park PM2.5 FRM vs. FEM
2012 Data
y = 1.0577x + 1.6118
R² = 0.8615
N = 344
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30


Danbury PM2.5 FRM vs. FEM
2012 Data
y = 1.1918x - 1.1514
R² = 0.9094
N = 111
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30


Bridgeport Roosevelt School PM2.5 FRM vs. FEM
2012 Data
y = 0.9029x - 0.3465
R² = 0.8044
N = 104
BAM (ug/m3)
FRM (ug/m3)
0
5
10
15
20
25
30