STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

August 9, 2010

VIA ELECTRONIC MAIL

Michael Kenyon, Director
USEPA Region 1 - Office of Environmental Measurement and Evaluation
11 Technology Drive
North Chelmsford, MA 01863
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RE: Connecticut 2010 Ambient Air Monitoring 5-Year Network Assessment

Dear Mr. Kenyon:

In fulfillment of the requirements of 40 CFR§53 and 58; Revisions to Ambient Air Monitoring Regulations; Final Rule posted to the Federal Register on October 17, 2006, the Connecticut Bureau of Air Management submits the Connecticut 2010 Ambient Air Monitoring 5-Year Network Assessment.

The Connecticut 2010 Ambient Air Monitoring 5-Year Network Assessment, which covers the Connecticut Department of Environmental Protection (CTDEP) existing air monitoring network was used to determine that the current Connecticut air monitoring network meets the monitoring objectives defined in appendix D of 40 CFR§58.

If you have any questions concerning this 5-year network assessment, please contact Peter Babich of my staff at 860-724-9615.

Sincerely,

Anne Gobin, Chief
Bureau of Air Management

AG:PB

cc: David Conroy, EPA R1
Katrina Kipp, EPA R1
Robert Judge, EPA R1

Enc: Connecticut 2010 Ambient Air Monitoring 5-Year Network Assessment

Connecticut 2010 Ambient Air Monitoring

5-Year Network Assessment

Connecticut Department of Environmental Protection
Bureau of Air Management
August 10, 2010

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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
CTDEP – Connecticut Department of Environmental Protection
CV – coefficient of variance
DAS – data acquisition system
DQA – data quality assessment
DQO – data quality objective
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
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
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} – $PM_{2.5}$)
PMSA – primary metropolitan statistical area
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

The Connecticut Department of Environmental Protection (CTDEP) regulates air quality to protect public health and the environment. Monitoring data is a crucial component of regulations used to determine compliance with the Federal Environmental Protection Agency (EPA) primary and secondary air quality standards. Other important uses of these monitors include: support of timely reporting of the Air Quality Index (AQI) and issuing air quality forecasts, support of long-term health assessments, and tracking long-term air quality both to gauge effectiveness of emission control and abatement strategies and to quantify accuracy of supporting model evaluations.

This development and submittal of a five-year network assessment is in accordance with §58.10, (d) which states:

> *"The State, or where applicable local, agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in appendix D to this part, whether new sites are needed, whether existing sites are no longer needed and can be terminated, and where new technologies are appropriate for incorporation in the ambient air monitoring network. The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals (e.g., children with asthma), and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself, such as nearby States and Tribes or health effects studies. For $PM_{2.5}$, the assessment also must identify needed changes to population-oriented sites. The State, or where applicable local, agency must submit a copy of this 5-year assessment, along with a revised annual network plan to the Regional Administrator. The first assessment is due July 1, 2010."*

The primary purpose of this assessment is to determine if the current air monitoring network in Connecticut, at a minimum, meets the requirements put forth in the Federal Register. This assessment does not propose any changes to the network, but rather determines whether each parameter at each site is critical, credible or marginal based on a number of factors as described in this document. Any changes to the network are proposed in the Annual Air Monitoring Network Plan. Each year, the Annual Network Plan is made available to the public on the ct.gov website for a 30-day comment period and then submitted to EPA Region I by July 1st of each year for approval. This evaluation is for ambient air monitoring, but the actual decision-making process also needs to consider permit applicant air quality needs. The more comprehensive decisions occur in the annual planning cycle.

Monitoring Site Network Map

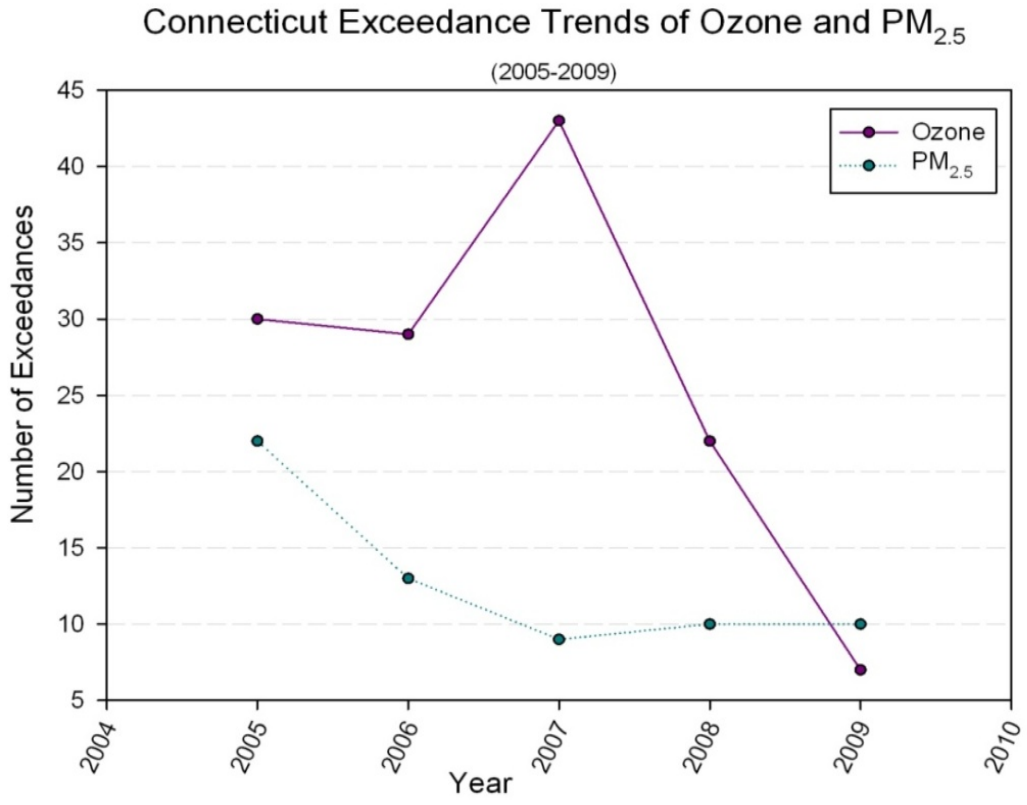
The CTDEP operates 24 permanent pollutant monitoring stations. Below is the EPA-approved CTDEP ambient air monitoring site network map as of June 2010.

Air Quality Summary

The table below displays the number of days above 100 on the AQI in 2009 and the extent of NAAQS violations by site. NAAQS violation for attainment purposes are determined based on core based statistical areas as defined by the census bureau, thus all Connecticut sites can have values below the standard and still be defined as a nonattainment area if the sites are included in an area where a surrounding state exceeds the NAAQS.

Pollutant	Extent of NAAQS Violations (list cities violating NAAQS)	Days above 100 on the AQI in 2009
Ozone	Stratford, Madison, Cornwall, East Hartford, Groton, Middletown, Westport, Danbury and Greenwich	7
$PM_{2.5}$	None	10
PM_{10}	None	0
SO_2	None	0
CO	None	0
NO_2	None	0
Pb	None	0

In the past five years, there has been a steady decline in the number of days which have exceeded 100 on the AQI (see figure below). Days above 100 the AQI are determined as the number of days any one site exceeds 100 on the AQI (or the equivalent concentration) by the most current standard. Ozone sites are noted to exceed when the 8-hour average is greater than 75 ppb. $PM_{2.5}$ is considered to exceed when the 24-hour average is greater than 35µg/m^3. The FRM is the primary source for data to determine AQI exceedance; 24-hour continuous $PM_{2.5}$ data, corrected to be FRM-like, is utilized when FRM data is unavailable.



Value Assignment to Sites and/or Monitors

Below are the value assignments used in this assessment and the criteria used to determine how the values are assigned. The criteria below does not include all factors in determining whether a site is critical, credible or marginal, but it does highlight the most common criteria considered. In the next sections, a network analysis is evaluated by each individual parameter, followed by an assessment of environmental justice communities and a population analysis. Finally, a site by site summary is included with value assignments and general rationale based on assessment where appropriate, followed by the plan for network optimization (e.g., keep parameter, upgrade instrumentation, further assessment necessary, etc.).

Critical Sites and Monitors – These sites are of high value and should be retained.

- Design value site for an area at or above 85 percent of the NAAQS
- Long-term multi-pollutant site(s) used by multiple data users for trends and model evaluation (i.e., SIP development and tracking). Note: often these are the design value or other important sites with lots of complimentary measurements
- Dedicated site for health or atmospheric study, or to inform policy options for State or local agency (often collocated with above; however, if not, a sunset date should be associated with the site)

Credible Sites and Monitors – These sites are the locations that are expected to continue, but may not be the design value location at or above the NAAQS. Sites in this category are generally retained, but occasionally may move to provide the optimum spatial coverage in a network. Large cities tend to have more of these, while small cities (e.g., less than 500,000 people) may have little, if any. Examples might include:

- Sites that provide the spatial richness of a network to identify exposures and support AQI forecasting and reporting
- Sites that while not the design value location are occasionally the highest across the metropolitan area due to seasonal meteorology or unique winds. (e.g., winds are normally from the Southwest, but occasionally come from the East which puts the area downwind of a much larger metropolitan area)
- Sites that are design value locations; however, the level is relatively low compared to the NAAQS. This might include source oriented monitors that are required, but are below the NAAQS.
- Sites that may be useful for NAAQS now in review.

Marginal Sites and Monitors – These sites and monitors are those locations that are candidates for removal or movement. This category includes locations and measurements that:

- Have outlived their intended purpose
- Are measurements that are of low value relative to the NAAQS. Also, the monitor is not required. For example, PM_{10} monitoring in many non-industrial eastern locations.
- Are not candidates for continued investment due to problems with siting criteria which cannot be resolved.
- Includes Special Purpose Monitors (SPMs) – If a monitor remains at a site for more than two years it is strongly encouraged that the site become a SLAMS and would fit into the critical or credible category, otherwise it is assumed that the SPM has fulfilled its objective and can be moved to another location to characterize the measurement of interest.
- Sites that correlate well (i.e., are not unique) with a nearby site(s), but which measure low levels than the nearby site.

New Sites and Monitors – These site represent potential areas of investment pending movement of monitoring resources from other locations or new resources introduced to our program.

- Locations that may result in a change to the design value location of a pollutant
- Newly required locations from recent NAAQS reviews
- Additional measurements at critical and credible locations that would add additional insight to data users

Parameter Network Analysis

Below are sections segregated by parameters with figures and tables describing the measurement scales, monitoring objectives, monitoring types and the value of each monitor as assigned in this assessment.

Ozone Network

Ozone Monitoring Overview

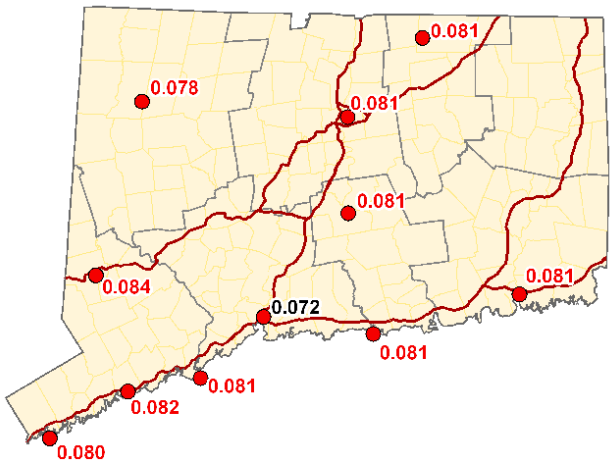
The CTDEP ozone network consists of eleven sites distributed over seven of Connecticut's eight counties, as shown in the map to the right. The Greenwich, Westport, Stratford and Madison sites, situated on the state's southern coast, are upwind background/regional transport sites for ozone, as the prevailing wind direction during higher ozone episodes is generally southwesterly. The principal monitoring objective for all interior sites, with the exception of Cornwall, is population exposure. Due to its location at high elevation in the rural northwestern hills of the state, the Cornwall ozone monitor objective is General/Background. All ozone sites operate from April 1 through September 30, per 40 CFR Part 58 App D, except for New Haven and Cornwall which operate year-round.

Ozone Monitoring Network

Ozone NAAQS Attainment

The ozone design values, shown in the table below for 2009, are derived by taking the 3-year average of the annual 4th high daily maximum 8-hr average ozone for each site. EPA issued a final rulemaking on March 12, 2008 that tightened the 8-hr ozone standard from effectively 0.084 ppm to 0.075 ppm. Currently the entire state of Connecticut is designated as non-attainment for ozone based on the old standard, and the 2009 ozone design values exceed the new standard at all sites with the exception of New Haven. EPA plans to finalize the nonattainment designations for the 2008 ozone NAAQS in March 2011. The proposed Ozone Monitoring Rule was issued in the summer of 2008 and finalized in 2010. The implementation of this rule may require expanding the ozone monitoring season in Connecticut into March and through October.

Site	2009 Design Value (ppm)
Cornwall	**0.078**
Danbury	**0.084**
East Hartford	**0.081**
Greenwich	**0.080**
Groton*	**0.081**
Madison	**0.081**
Middletown	**0.081**
New Haven – Criscuolo	**0.072**
Stafford	**0.081**
Stratford	**0.081**
Westport	**0.082**



Ozone 2009 Design Values

Ozone Network Design

All CTDEP ozone sites have ozone eight-hour 2009 design values above eighty-five percent of the NAAQS, and as such are considered to have monitoring value assessments of "critical." The table below shows general site characteristics of the sites in the ozone network.

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Monitor Type
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Critical	NCORE
Danbury	Western Connecticut State University	Urban Scale	Population Exposure	Critical	SLAMS
East Hartford	McAuliffe Park	Urban Scale	Population Exposure	Critical	PAMS
Greenwich	Point Park	Regional Scale	Upwind Background	Critical	SLAMS
Groton	Fort Griswold	Urban Scale	Population Exposure	Critical	SLAMS
Madison	Hammonasset State Park	Regional Scale	Population Exposure	Critical	SLAMS
Middletown	Connecticut Valley Hospital	Urban Scale	Population Exposure	Critical	SLAMS
New Haven	Criscuolo Park	Urban Scale	Population Exposure	Critical	NCORE/PAMS
Stafford	Shenipsit State Forest	Regional Scale	Population Exposure	Critical	SLAMS
Stratford	Stratford Lighthouse	Regional Scale	Population Exposure	Critical	SLAMS
Westport	Sherwood Island State Park	Regional Scale	Upwind Background	Critical	PAMS

The following table is a summary of the ozone network design criteria for each Connecticut Core-Based Statistical Areas (CBSAs), which consist of four Metropolitan Statistical Areas (MSAs) with populations greater than 250,000, and two Micropolitan Statistical Areas having populations of less than 250,000. The CBSA population estimates are 2009 U.S. Census Bureau population estimates based on the year 2000 census. The number of required monitors for each CBSA given in the table is the minimum on the basis of population and design value level as designated in 40CFR 58 App. D.

Core-Based Statistical Area	Estimated 2009 Population	Design Values > 85% Ozone NAAQS?	No. Monitors	Minimum No. Monitors Required
Bridgeport-Stamford-Norwalk	901,208	Y	4	2
Hartford-West Hartford-East Hartford	1,195,998	Y	3	2
New Haven-Milford	848,006	Y	2	2
Norwich-New London	266,830	Y	1	1
Torrington	188,728	Y	1	1
Willimantic	117,518	(Y)[1]	0	(1)[2]

1. Assumed ozone concentrations based on nearest monitors in Stafford and Groton.
2. Regional scale and proximity of other ozone sites may preclude necessity of an additional monitor in this mostly rural Micropolitan Statistical Area.

Connecticut meets or exceeds the minimum requirements in the five largest CBSAs, having the most monitors in the Bridgeport-Stamford-Norwalk CBSA. This area represents the state boundary area that is directly downwind of New York City, one of the largest CSAs in the country. As such, the higher density of monitors can provide critical data for regional transport into the state from the NYC area.

There are no ozone monitors in the Willimantic Micropolitan Statistical Area, where a minimum of one monitor would be required if the ozone design values in the area are presumed to be within fifteen

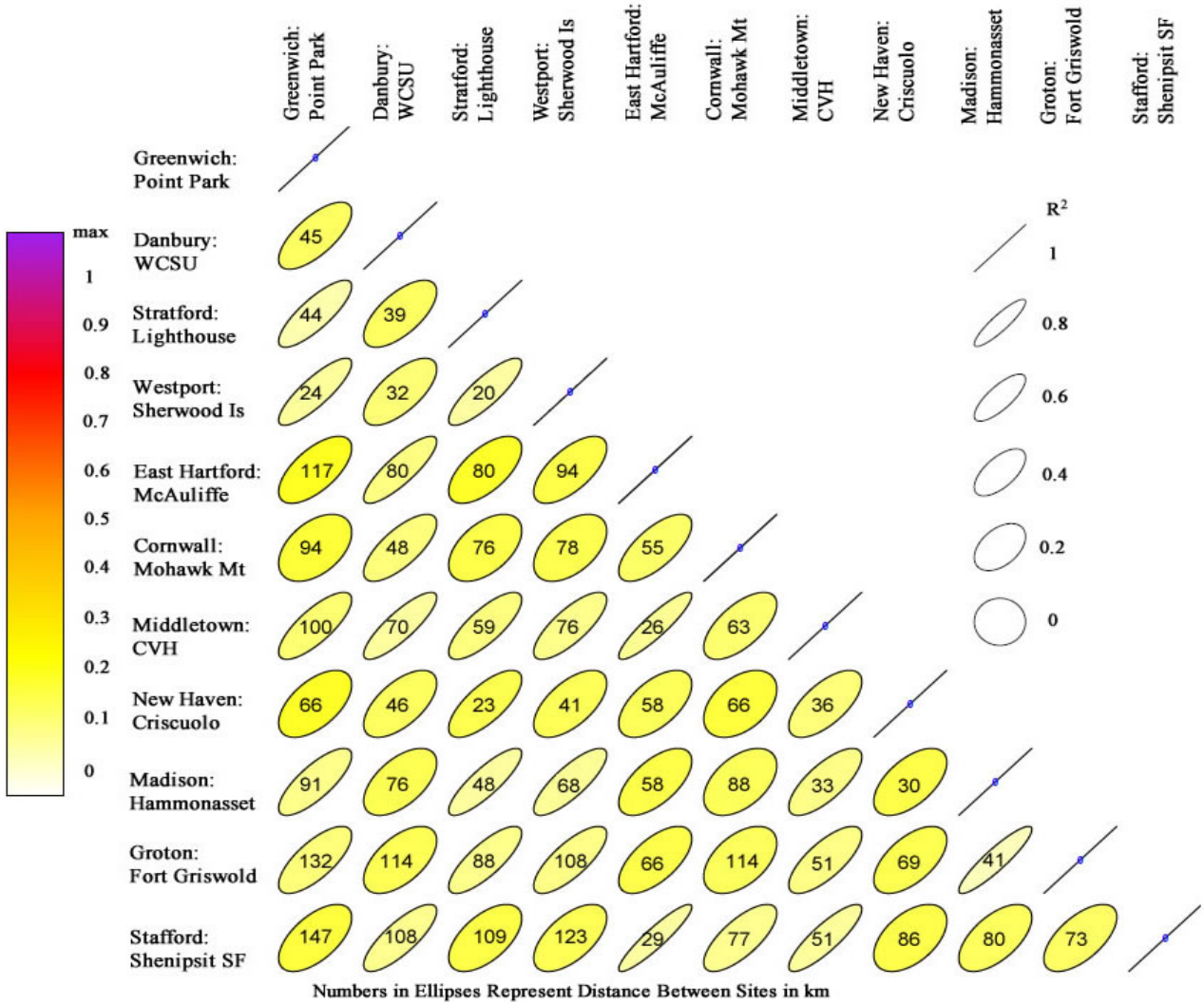
percent of the NAAQS. Given that this particular CBSA is primarily rural without significant sources of ozone precursors, the monitoring spatial scale is regional. As such, adding an ozone monitor in the Willimantic CBSA would not provide substantial additional air quality characterization that the nearby sites in Stafford and Groton do not currently provide.

Network Assessment Analysis

Connecticut performed ozone network analyses using the software tools recently developed by USEPA for use by states to assess whether the number and location of monitors is appropriate to characterize the air quality relative to the NAAQS or other requirements. The tools include: Population Animation, Correlation Matrix, Removal Bias, New Sites, and Areas Served tools. A detailed discussion of these tools is provided in the USEPA document *Network Assessment Analysis and Tools Documentation*.

Correlation Matrix: The figure below is the graphical output of the Correlation Matrix tool for ozone. The eccentricity of the ellipses represents the Pearson correlation factor for each pair of sites, showing that the maximum correlation between sites is about 0.84, with an average correlation of 0.69. The colored shading of the ellipses displays the relative difference in observed concentrations. The low relative maximum daily concentration differences across the network indicate that pollutant transport is likely a major contribution statewide ozone levels.

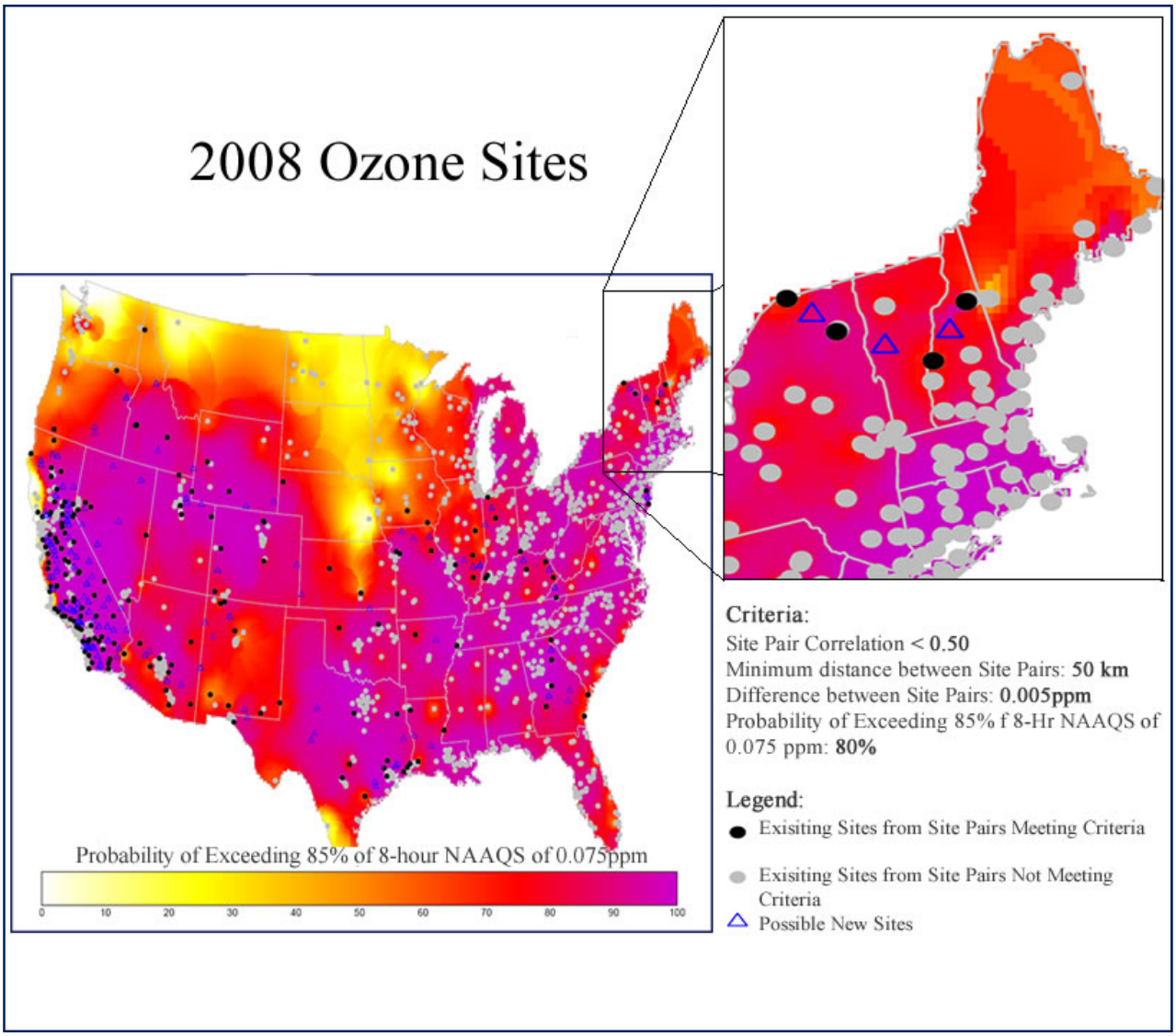
The results from the correlation matrix analyses show that the site with the highest overall correlation with other ozone sites is Middletown, with an average r-squared of 0.77 and a minimum r-squared of 0.73. Middletown also has the lowest average relative percent difference of all of the sites, with a value of 0.11. Cornwall has the lowest correlation with the other sites, as well as the highest concentration differences, which would be expected from a regional transport/general background site.



Correlation Matrix of Ozone Sites 2008

New Sites: The figure below represents model output for the New Sites tool with the user-determined input parameters indicated in the figure. In general, the model will indicate a new site between a pair of existing sites when (a) the Pearson correlation of the pair is less than specified, (b) the distance between pairs exceeds the minimum distance, (c) the average concentration difference exceeds the specified difference, and (d) the probability of exceeding eighty-five percent of the 8-hour NAAQS is greater than specified.

The results for the model run shown below that no additional ozone sites are needed to characterize ozone concentrations in Connecticut with the model input parameters as shown in the figure. When the new site criteria threshold was lowered by changing the average concentration difference from 0.005 to 0.002 ppm, the model indicated one additional site in the state, located in the Waterbury area. The concentration difference between New Haven and Cornwall, the site pair that induced the new site with the low threshold parameters, is primarily due to the fact that the two sites are characteristically different types of sites. New Haven is urban, coastal and low altitude, while Cornwall is rural, inland and high altitude. Therefore, the new site indication seems likely to be an artifact of the site type differences, and not due to a significant regional ozone concentration gradient.



Site Removal: The Site Removal Tool was run for each of the four Fairfield County ozone sites to assess the impact of removal of a site, as this CBSA has more sites than the minimum required based on

population, as shown in the CBSA summary table above. The model results show that removal of Stratford or Greenwich would result in significant negative bias, while removal of Westport would result in significant positive bias. However, as discussed above, these Fairfield County sites are important for monitoring transport from the central New York City CSA, in addition to assessing population exposure. According to the model, removal of Danbury would not have significant impacts to overall ozone concentrations, but the site is also downwind of NYC and well placed to monitor transport into Connecticut when wind directions are more southerly.

Site Name	DV 06-08	Mean Bias	SD Bias	No. Obs	p-value	Sig	Sites Used
Stratford	0.088	-0.004	0.0046714	151	1.14E-16	sig	090011123 (151) 090019003 (149) 090090027 (151) 090093002 (6) 361030002 (7) 361030004 (145) 361030009 (146) 361192004 (2)
Danbury	0.088	0	0.0050483	153	0.2778887	insig	090010017 (12) 090013007 (151) 090019003 (151) 090031003 (6) 090050005 (147) 090070007 (6) 090090027 (153) 360270007 (150) 360790005 (153) 361192004 (141)
Greenwich	0.089	-0.005	0.0048791	148	3.68E-22	sig	090011123 (12) 090019003 (148) 340315001 (12) 360050133 (148) 360790005 (12) 360810124 (148) 361030002 (145) 361030009 (3) 361192004 (136)
Westport	0.087	0.002	0.0056217	151	6.84E-05	sig	090010017 (148) 090011123 (151) 090013007 (149) 090090027 (2) 361030002 (148) 361030009 (146) 361192004 (139)

Site Removal Tool Output for Fairfield County Sites

$PM_{2.5}$ FRM Network

$PM_{2.5}$ FRM Monitoring Overview

The CTDEP operates fourteen $PM_{2.5}$ FRM sites in the air monitoring network. Four of the sites, Criscuolo Park in New Haven, McAuliffe Park in East Hartford, Westport and Norwich operate on an everyday sample schedule, while all other sites operate on a 1-in-3 day sample schedule. Two sites, Waterbury and Criscuolo Park in New Haven, have collocated $PM_{2.5}$ FRM samplers on a 1-in-6 day sample schedule.

$PM_{2.5}$ FRM Monitoring Network

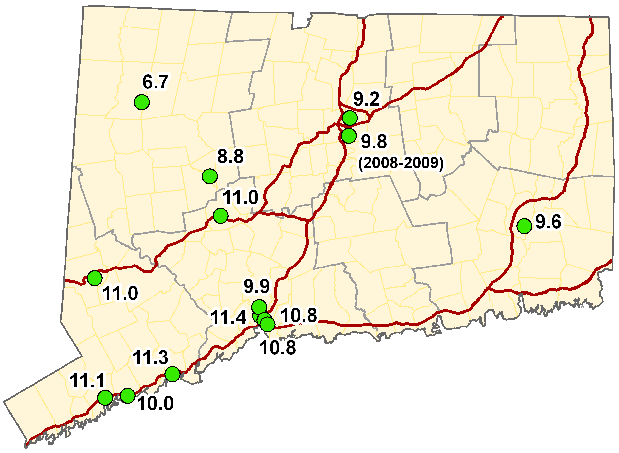
$PM_{2.5}$ Design Values

The $PM_{2.5}$ design values for 2007 through 2009 are given in the following table, and the spatial distribution of the 2009 design values are shown in the maps below. Each $PM_{2.5}$ design value is defined as the average of the yearly metrics from three successive years, where the *annual* metric is annual weighted mean and the *24-hour* metric is the 98th percentile value. All Connecticut sites attain both the annual and the 24-hour $PM_{2.5}$ NAAQS with the 2008 and 2009 design values. However, both the Bridgeport-Stamford-Norwalk and the New Haven-Milford CBSAs have sites exceeding 85 percent of the 24-hour standard, and as such are subject to more intensive monitoring requirements of 40 CFR Part 58 App D Table D-5. Although all Connecticut monitors are compliant with the 2006 $PM_{2.5}$ NAAQS, Fairfield and New Haven Counties are currently designated nonattainment for $PM_{2.5}$ as part of the New York-Newark-Bridgeport Combined Statistical Area, which includes monitors in violation of the standards.

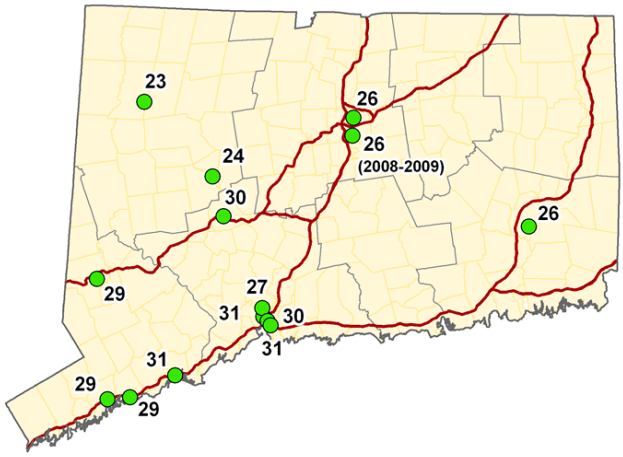
		2005-2007		2006-2008		2007-2009	
Town	**Site Description**	**Annual**	**24-Hour**	**Annual**	**24-Hour**	**Annual**	**24-Hour**
Bridgeport	Roosevelt School	13.6	38	12.4	33	11.3	31
Danbury	WCSU	12.8	33	12	31	11.0	29
Norwalk	Health Dept	13.0	36	11.8	31	11.1	29
Westport	Sherwood Is	12.9	34	10.6	30	10.0	29
East Hartford	McAuliffe Park	11.2	32	10.1	28	9.2	26
East Hartford	High St					9.8	26
Thomaston	WWTP					8.8	24
Cornwall	Mohawk Mt			7.3	26	6.7	23
New Haven	Woodward Av			11.6	32	10.8	30
New Haven	James St			11.7	33	10.8	31
New Haven	State St	14.1	36	12.2	34	11.4	31
New Haven	Huntington St			10.7	29	9.9	27
Waterbury	Bank St	13.6	36	11.9	32	11.0	30
Norwich	Court House	11.5	29	10.1	27	9.6	26

Values omitted when less than 3 years of data available to compute the design value, except East Hartford High Street, which is based on 2008-2009 data.

$PM_{2.5}$ 2007-2009 Design Values ($\mu g/m^3$)



$PM_{2.5}$ 2009 Annual Design Values



$PM_{2.5}$ 2009 Daily Design Values

$PM_{2.5}$ Monitoring Network Design

A summary of the $PM_{2.5}$ FRM network site characteristics is shown in the following table. Most of the sites are in locations that represent neighborhood spatial scale concentrations, while the Cornwall and Westport sites have regional scales. Cornwall, located in a remote rural area, is a general/background site. Westport, although approximately only 2 kilometers from a major interstate roadway, is located on the prevailing upwind side of it, but is generally directly in the path of regional transport into Connecticut from the New York-New Jersey industrial and metropolitan area. The Bridgeport Roosevelt School and New Haven State Street sites monitoring objectives are representative of the highest concentrations in their respective CBSAs, due to their close proximity to major interstate highways with high traffic counts and patterns of traffic congestion.

Most sites are given the value assignment "critical," with the exceptions of three former special studies sites. Both the New Haven Agricultural Center and New Haven Woodward Avenue sites, which recently have stopped operations with EPA Region 1 approval, have "marginal" value, as they are located within close proximity to two other New Haven sites with higher $PM_{2.5}$ levels. Since Thomaston was established

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Bridgeport	Roosevelt School	Neighborhood	Highest Concentration	Critical	SLAMS
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Critical	NCORE
Danbury	Western Connecticut State University	Neighborhood	Population Exposure	Critical	SLAMS
East Hartford	High Street	Neighborhood	Population Exposure	Credible	SLAMS
East Hartford	McAuliffe Park	Neighborhood	Population Exposure	Critical	SLAMS
Groton	Fort Griswold	Urban Scale	Population Exposure	Credible	SLAMS
New Haven	Agricultural Center	Neighborhood	Population Exposure	Marginal	SLAMS
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Critical	NCORE
New Haven	State Street	Neighborhood	Highest Concentration	Critical	SLAMS
New Haven	Woodward Avenue Fire House	Neighborhood	Population Exposure	Marginal	SLAMS
Norwalk	Health Department	Neighborhood	Population Exposure	Critical	SLAMS
Norwich	Norwich Courthouse	Neighborhood	Population Exposure	Critical	SLAMS
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS
Waterbury	Meadow & Bank Street	Neighborhood	Population Exposure	Critical	SLAMS
Westport	Sherwood Island State Park	Regional Scale	Upwind Background	Critical	SLAMS

as a special purpose monitor in 2006 solely in support of a PM source apportionment study that has since been completed, and since it is an area with $PM_{2.5}$ levels well below 85 percent of NAAQS, it is considered to be of "marginal" value and has been proposed to be discontinued in the 2010 Network Plan.

Connecticut currently meets and exceeds the minimum number of required monitors for each CBSA as required in 40 CFR Part 58 Appendix D. Fairfield County and New Haven County are the only CBSAs in the state that have had monitors with design values within 85 percent of the 24-hour NAAQS for the past three years. Monitors are also included in the network for the two NCore sites, located in New Haven and Cornwall. Although there are no monitors in the Willimantic CBSA, the low population density (no urban areas greater than 50,000 population) and the absence of high vehicle traffic areas indicates that any monitoring would result in design values below the 85 percent NAAQS threshold.

Core-Based Statistical Area	Estimated 2009 Population	Design Values > 85% PM2.5 NAAQS?	No. Monitors	Minimum No. Monitors Required
Bridgeport-Stamford-Norwalk	901,208	Y	4	2
Hartford-West Hartford-East Hartford	1,195,998	N	2	2
New Haven-Milford	848,006	Y	5	2
Norwich-New London	266,830	N	1	0
Torrington	188,728	N	2	0
Willimantic	117,518	(N)	0	0

Summary of $PM_{2.5}$ Monitoring Minimum Requirements

Network Assessment Analysis

Connecticut performed PM2.5 network analyses using the software tools recently developed by USEPA for use by states to assess whether the number and location of monitors is appropriate to characterize the air quality relative to the NAAQS or other requirements. The tools include: Population Animation, Correlation Matrix, Removal Bias, New Sites, and Areas Served tools. A detailed discussion of these tools is provided in the USEPA document *Network Assessment Analysis and Tools Documentation*.

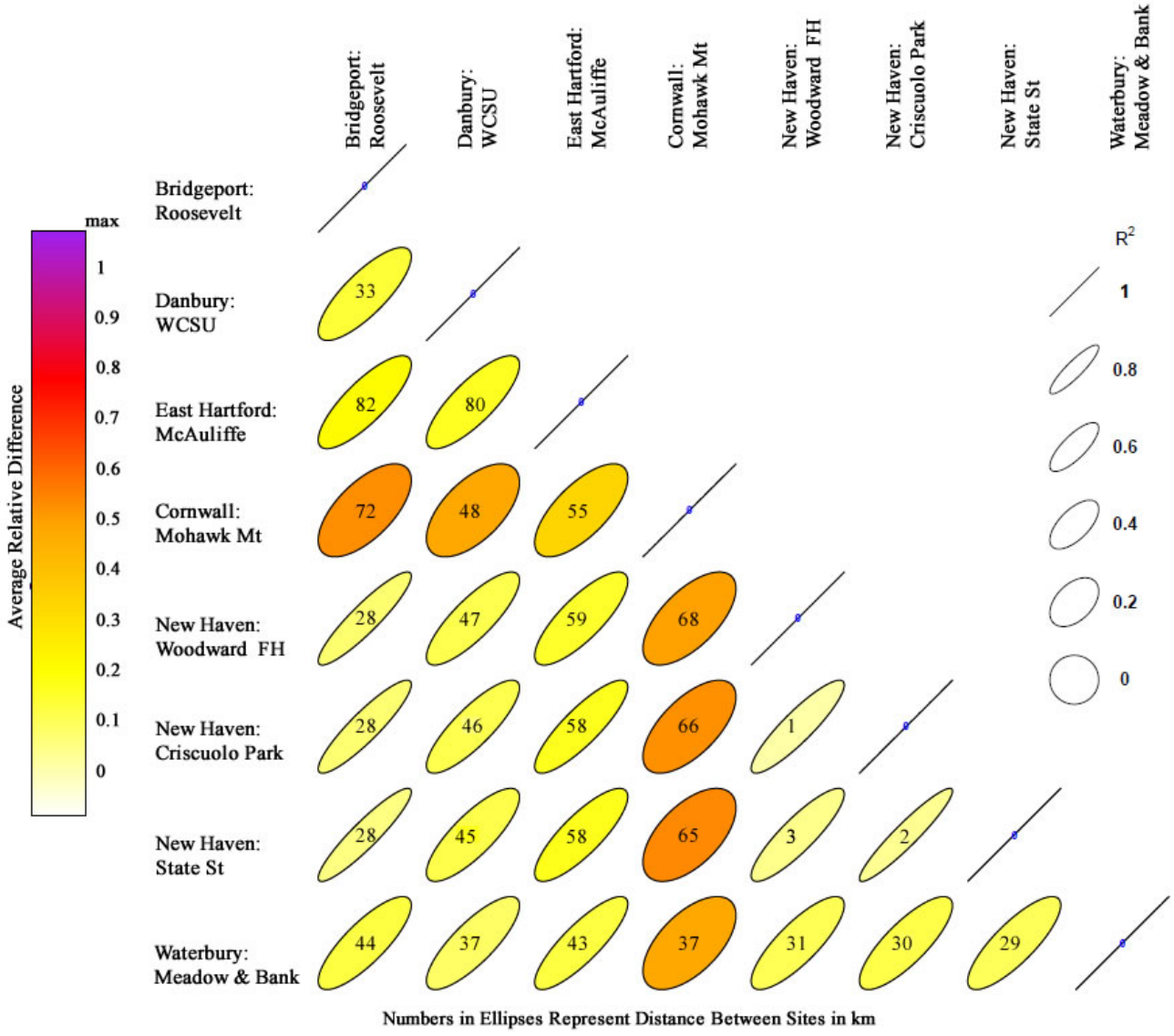
Correlation Matrix: The correlation matrix model tool was run to evaluate the uniqueness or potential redundancy of each $PM_{2.5}$ FRM site. User controlled inputs included the calendar year or years of data and the sites used for the comparison, which are selected by defining a rectangle on a map. Due to reasons not readily apparent, several sites were excluded by the certain selections of data years, so the results of three different runs are presented to characterize all of the Connecticut sites using the maximum amount of data. The first figure below is the graphical output for Connecticut sites for the entire data period, available, 2005-2008. The eccentricity of the ellipses represents the Pearson correlation factor for each pair of sites, with the maximum correlations and lowest differences found for all of the New Haven and Bridgeport pairs. The highest concentration differences and lowest correlations were between Cornwall and all other sites. This run did not include New Haven Agricultural Center nor Norwich Court House.

The second figure below is the result of running the model for CT sites for 2005-2006 so as to include Norwich in the results. The results indicate that Norwich has moderate levels of correlation and relative difference with the other sites, showing higher correlations with East Hartford McAuliffe Park and New Haven Criscuolo Park.

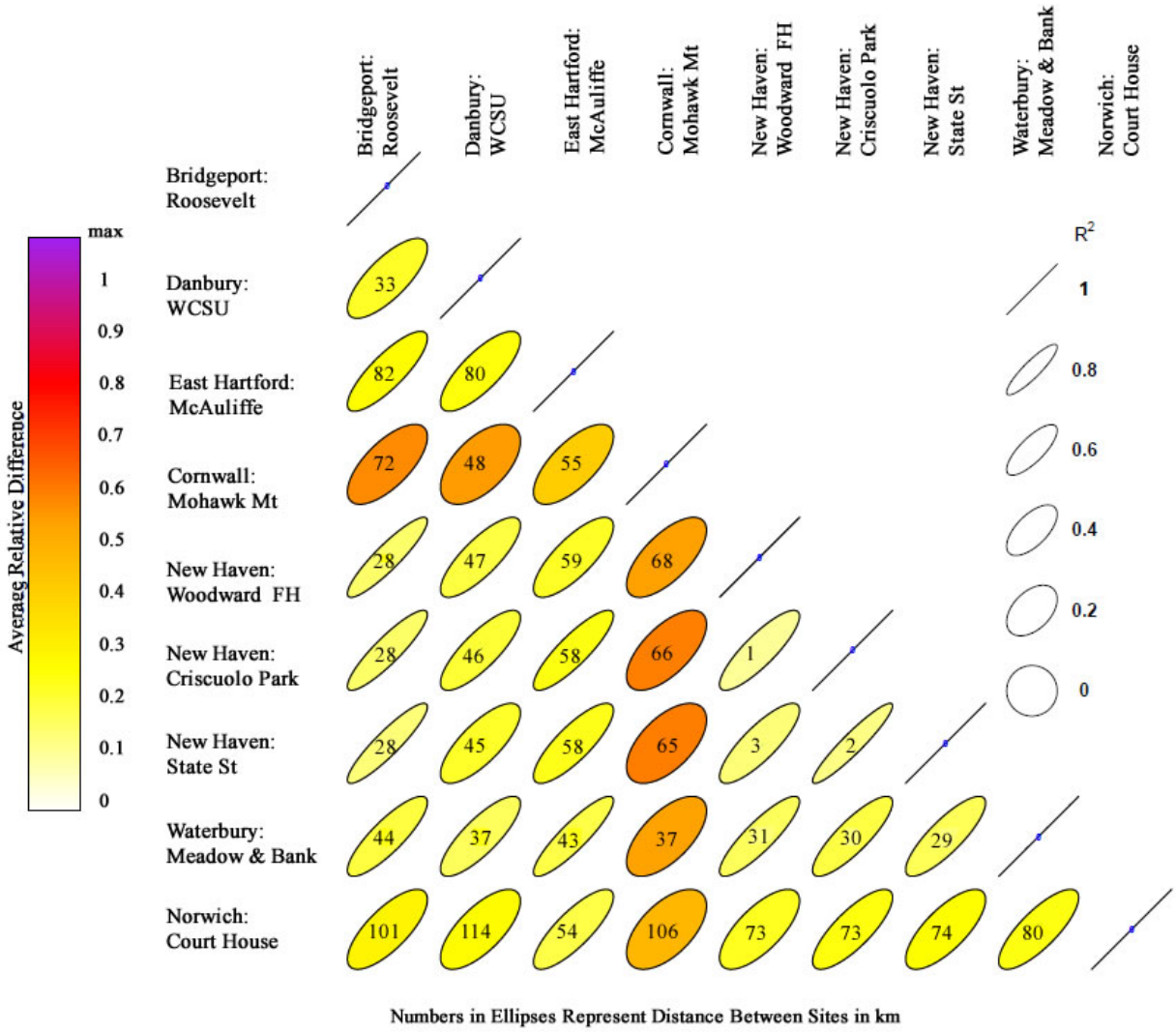
An analyses of the all of the New Haven sites, using model year 2007, as shown in the third correlation matrix figure below, shows that there is are very strong correlations between both the Agricultural Center site and the other New Haven sites, and between the Woodward Avenue Fire House site and the other New Haven sites, with Pearson correlation factor values of approximately 0.97 for all pairs, and relative percent differences of 0.7-0.8 for Woodward and 0.13-0.14 for the Ag Center. The higher percent differences with the Ag Center are most likely due to that site's being the most far removed from the major highways. A table presents the numeric output from the 2007 model run below. All of the sites are within a 3km radius of each other, and a low relative difference in the observed concentrations

indicate that these two sites are the most redundant in the network, and are of marginal value to effectively characterizing air quality and protecting health.

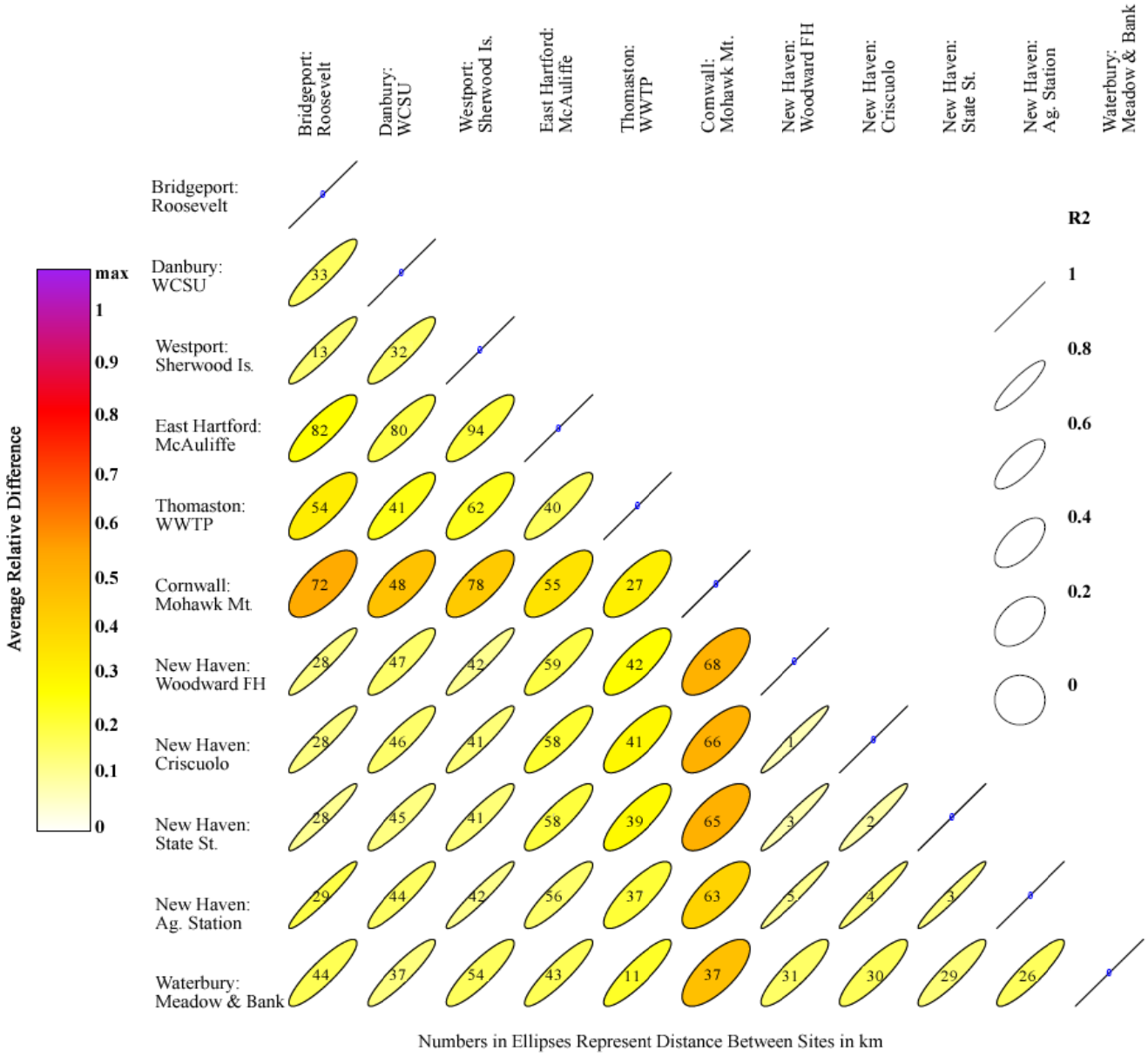
It is also of worth to note the relative difference between the Bridgeport Roosevelt site and the New Haven sites is fairly low at 12-14%, with a correlation factor of 0.8, suggesting similar siting variables and emissions at either site. However this alone does not reduce the value of the Bridgeport site, due to the quantity and magnitude of the local sources and magnitude of the daily concentrations observed.



$PM_{2.5}$ Correlation Matrix for 2005-2008



Correlation Matrix 3 Day FRM 2005-2006, showing Norwich

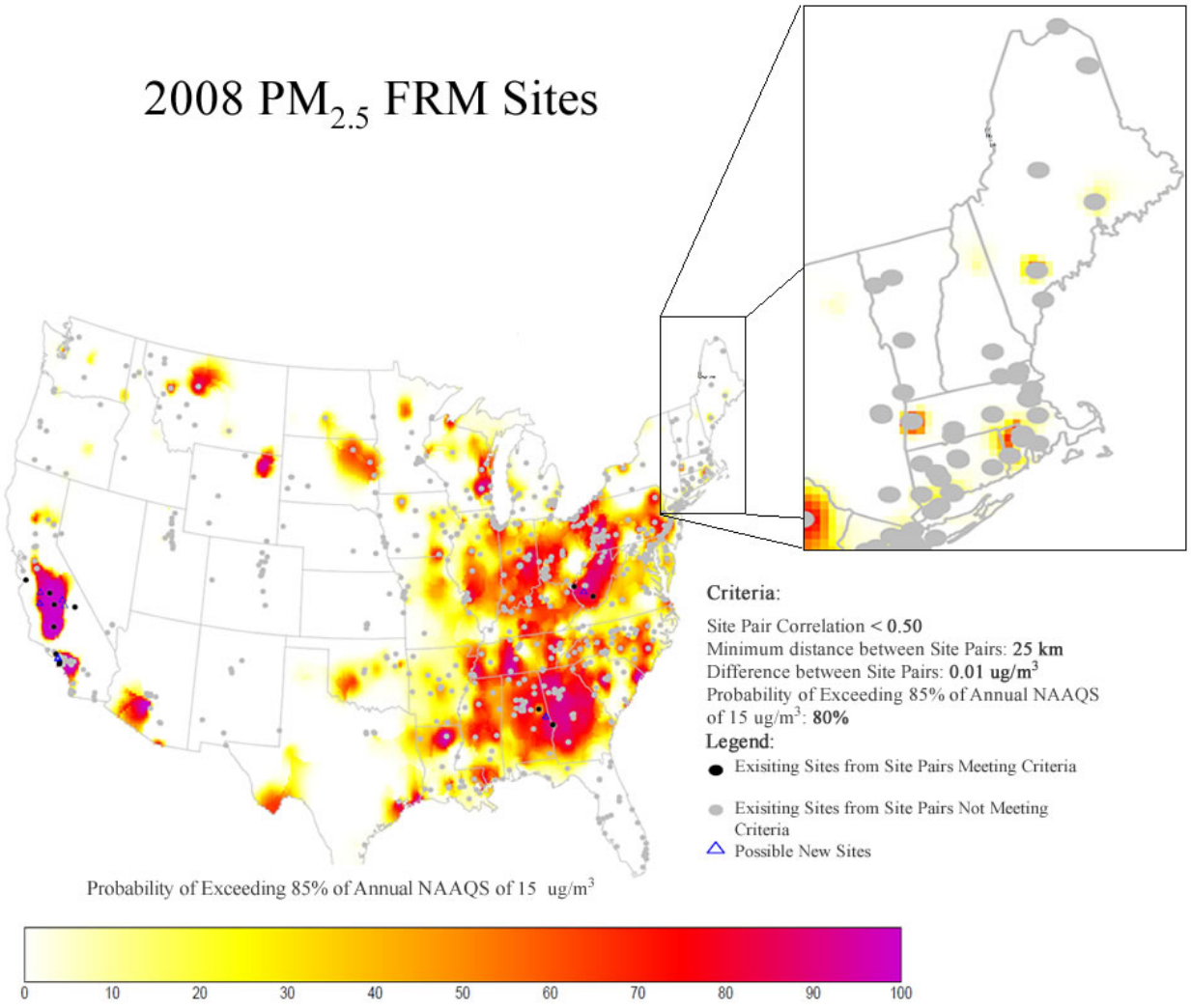


Correlation Matrix 3 Day FRM 2007, showing all New Haven sites

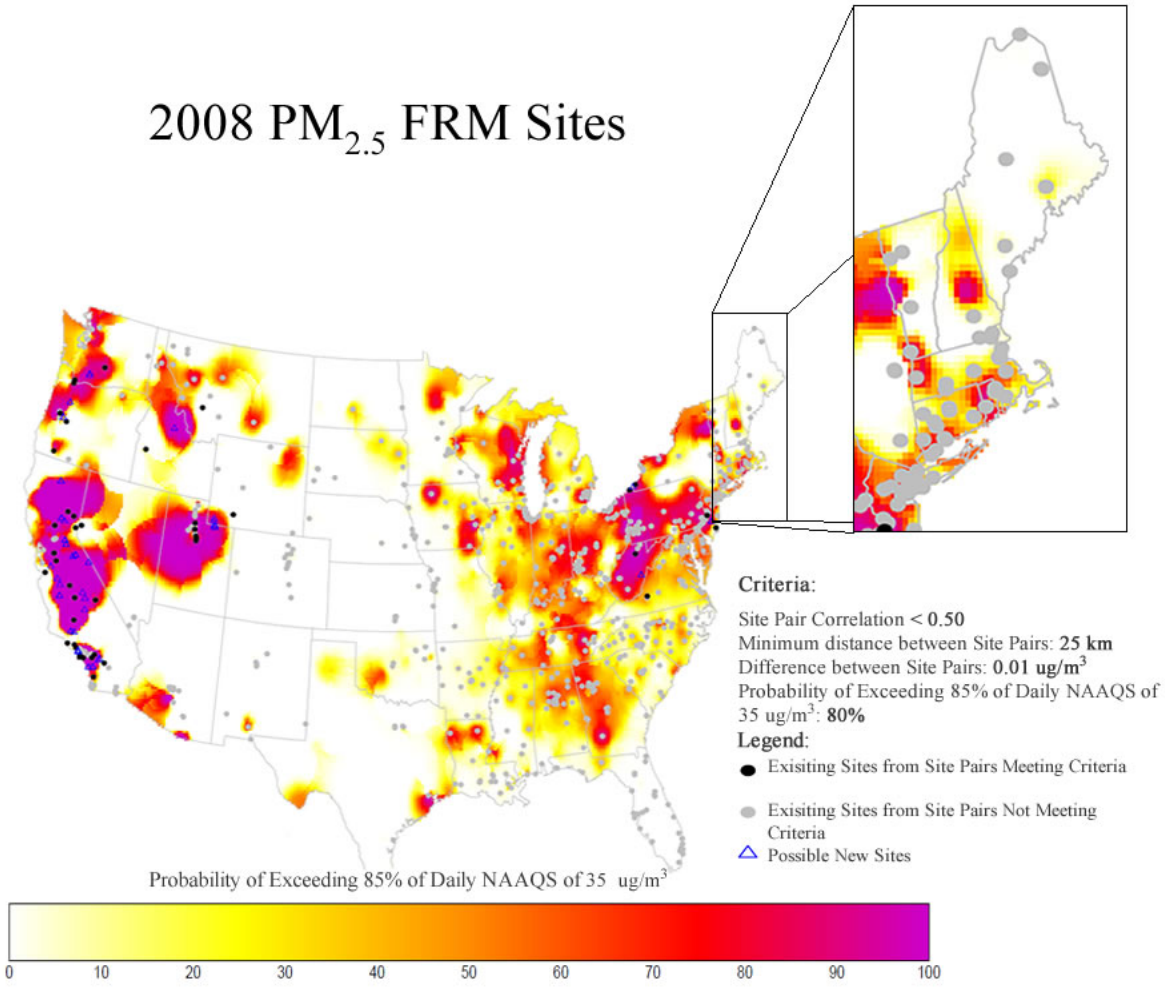
Site ID	Site Name	avg_rel_diff	median_rel_diff	sd_rel_diff	min_rel_diff	max_rel_diff	nobs	corr	dist (km)
Sites paired with New Haven Woodward Ave (090090026)									
90010010	Bridgeport Roosevelt	0.123	0.082	0.121	0.000	0.567	107	0.942	28
90011123	Danbury WCSU	0.146	0.102	0.147	0.000	0.813	112	0.889	47
90019003	Westport Sherwood	0.109	0.079	0.111	0.000	0.532	107	0.944	42
90031003	East Hartford McAuliffe	0.183	0.126	0.188	0.000	1.149	109	0.877	59
90050004	Thomaston WWTP	0.252	0.165	0.250	0.000	1.538	107	0.789	42
90050005	Cornwall Mohawk	0.462	0.366	0.351	0.010	1.403	112	0.690	68
90090027	New Haven Criscuolo	0.070	0.050	0.087	0.000	0.564	108	0.971	1
90091123	New Haven State	0.079	0.050	0.080	0.000	0.421	110	0.968	3
90092008	New Haven Ag Ctr	0.112	0.089	0.098	0.000	0.427	113	0.971	5
90092123	Waterbury Bank	0.150	0.102	0.163	0.000	0.898	112	0.873	31
Sites paired with New Haven Agricultural Ctr (090092008)									
90010010	Bridgeport Roosevelt	0.181	0.136	0.150	0.000	0.579	115	0.958	29
90011123	Danbury WCSU	0.153	0.114	0.147	0.000	0.710	120	0.913	44
90019003	Westport Sherwood	0.113	0.090	0.095	0.000	0.452	115	0.955	42
90031003	East Hartford McAuliffe	0.146	0.079	0.160	0.000	0.772	116	0.894	56
90050004	Thomaston WWTP	0.196	0.123	0.223	0.000	1.783	114	0.822	37
90050005	Cornwall Mohawk	0.371	0.253	0.318	0.011	1.274	119	0.732	63
90090026	New Haven Woodward	0.112	0.089	0.098	0.000	0.427	113	0.971	5
90090027	New Haven Criscuolo	0.135	0.099	0.120	0.000	0.550	116	0.968	4
90091123	New Haven State	0.127	0.087	0.114	0.000	0.627	117	0.971	2
90092123	Waterbury Bank	0.159	0.105	0.160	0.000	0.728	120	0.899	26

Correlation Matrix Output for New Haven Agricultural Center and Woodward Av Sites

New Sites: The figures below represent model output for the New Sites tool for both the annual and daily (24-hour) $PM_{2.5}$ NAAQS, with the user-determined input parameters indicated in the figures. In general, the model will indicate a new site between a pair of existing sites when (a) the Pearson correlation of the pair is less than specified, (b) the distance between pairs exceeds the minimum distance, (c) the average concentration difference exceeds the specified difference, and (d) the probability of exceeding eighty-five percent of the NAAQS is greater than specified. The results for the model run shown below that no additional $PM_{2.5}$ sites are needed to characterize $PM_{2.5}$ concentrations in Connecticut with the model input parameters as shown in the figure.



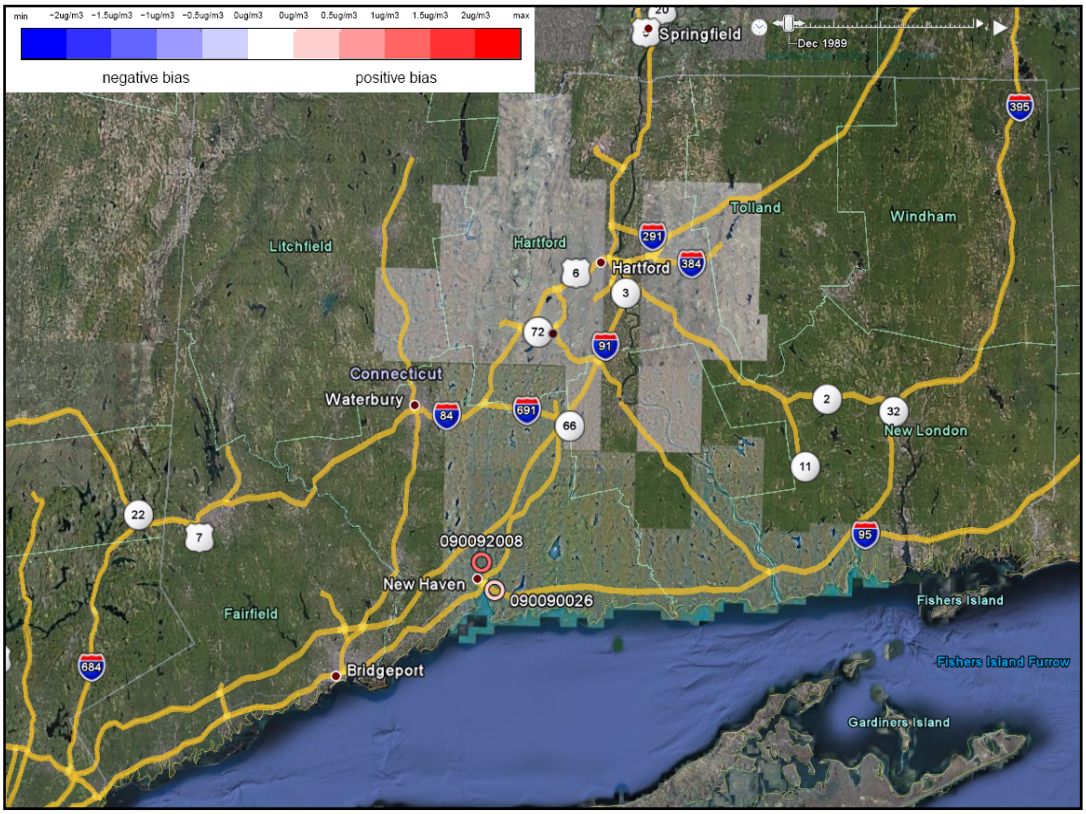
New sites based on 80% probability of exceeding Annual $PM_{2.5}$ NAAQS of 15 µg/m³



New sites based on 80% probability of exceeding Daily $PM_{2.5}$ NAAQS of 35 µg/m³

Site Removal Tool: The site removal tool was run for each $PM_{2.5}$ site in the network independently, for which the results are summarized in the table below. The graphical output of the model is shown below for the New Haven Woodward Avenue and New Haven Agricultural Center sites. The Woodward Avenue site is the only site listed as "insignificant" by the model. While the Agricultural Center is considered, according to model output, to be significantly distinct from the other sites, its removal would result in a small positive bias in the local air quality characterization. However, since correlation with the remaining New Haven sites is high, protection of the public would not be compromised.

The site removal analysis estimated the concentrations with 2005-2008 data of surrounding sites and compares with each site's actual concentrations. The removal of both New Haven Agricultural Center and the New Haven Woodward Fire House sites would result in a slight positive bias when estimating the areas concentrations. However, the magnitude of the average bias of these sites, 0.3µg/m³ and 1.5 µg/m³ at the New Haven Fire House and the Ag Center respectively, is within the precision of the method. Thus, the removal of these two sites would not alter the overall attainment designation and the areas would be well represented by the two remaining New Haven sites, Criscuolo Park and State Street.



Site Name	Mean Bias	SD Bias	No. Obs	p-value	sig
Bridgeport-Roosevelt School	-0.8	1.730287	109	7.08E-06	sig
Danbury-WCSU	-1.1	2.302343	116	9.35E-07	sig
Westport-Sherwood Is	0.8	2.12155	349	1.90E-12	sig
East Hartford-McAuliffe Park	0.6	1.851703	343	3.46E-10	sig
East Hartford-High St	-1	1.510398	112	5.53E-11	sig
Thomaston-WWTP	1.8	3.093229	118	3.69E-09	sig
Cornwall-Mohawk Mt	3	2.962651	119	0	sig
New Haven-Woodward Av	0.2	1.367239	120	0.070557	insig
New Haven-Criscuolo Park	-0.7	1.922013	354	5.47E-11	sig
New Haven-State St	-0.7	1.550759	118	1.63E-06	sig
New Haven-Ag Center	1.4	1.16474	113	0	sig
Waterbury-Bank St	-2.1	3.940987	121	2.33E-08	sig
Norwich-Court House	-0.5	1.903176	349	8.99E-06	sig

Summary of Site Removal Tool Output for $PM_{2.5}$ (2005-2008)

$PM_{2.5}$ Continuous Network

Continuous $PM_{2.5}$ Monitoring Overview

The CTDEP operates nine continuous $PM_{2.5}$ sites in the air monitoring network. All continuous $PM_{2.5}$ samplers are operated year-round and the measurements are sent to the EPA AIRNow website for AQI purposes on an hourly basis. The MetOne BAM is operated at the Cornwall, Danbury, Groton Fort Griswold, Waterbury, East Hartford High Street and New Haven Criscuolo Park sites, while the Thermo FDMS 8500 is operated at the Bridgeport Roosevelt School, East Hartford McAuliffe Park, Thomaston and New Haven Criscuolo Park sites. In addition to both types of continuous $PM_{2.5}$ samplers, a continuous PM_{10} MetOne BAM is also operated at Criscuolo Park. A Thermo1405-DF, which measures both continuous $PM_{2.5}$ and $PM_{10-2.5}$ is currently deployed at the New Haven Criscuolo Park site and will be deployed at Cornwall in 2010.

Continuous $PM_{2.5}$ Monitoring Network

The primary objective of the continuous $PM_{2.5}$ network is to obtain high-resolution, real-time data to be used for the determination of the current AQI, as well as used to forecast the AQI for the following day.

Recently, several continuous $PM_{2.5}$ methods have been designated Federal Equivalent Methods (FEMs) for fine particulates. There will be a considerable side-by-side comparison between the filter-based FRM and the FEM samplers at each site before continuous $PM_{2.5}$ data is considered and reported as FEM data. The current continuous $PM_{2.5}$ network has been determined to provide adequate coverage across Connecticut, so no new sites are considered necessary at present time, nor are any sites deemed as candidates to shutdown. All EPA network assessment tools were run for the continuous $PM_{2.5}$ network; however, due to the exclusion of the majority of the sites within the tools, they proved inconclusive for this assessment.

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Bridgeport	Roosevelt	Neighborhood	Highest Concentration	Critical	SLAMS
Cornwall	Mohawk Mountain	Regional	Regional Transport	Critical	NCORE
Danbury	Western Connecticut State University	Neighborhood	Population Exposure	Critical	SLAMS
East Hartford	High Street	Neighborhood	Population Exposure	Credible	SLAMS
East Hartford	McAuliffe Park	Neighborhood	Population Exposure	Critical	SLAMS
Groton	Fort Griswold	Urban Scale	Population Exposure	Credible	SLAMS
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Critical	NCORE
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS
Waterbury	Meadow & Bank Street	Neighborhood	Population Exposure	Critical	SLAMS
Westport	Sherwood Island State Park	Regional Scale	Upwind Background	Critical	SLAMS

CTDEP Continuous $PM_{2.5}$ Monitoring Sites

PM Speciation Network

PM Speciation Monitoring Overview

$PM_{2.5}$ chemical speciation measurements are being obtained at four sites in the CTDEP air monitoring network. The IMPROVE (Interagency Monitoring of Protected Visual Environments) site is located at the Cornwall site and the EPA STN (Speciation Trends Network) site is at the New Haven Criscuolo Park site. Both sites are operated on the same 1-in-3 day sample schedule and provide 24-hour integrated filter-base measurements. Continuous sulfate and continuous organic and elemental carbon sampling is being conducted at the Cornwall and the New Haven Criscuolo Park sites. The Aethalometer used to measure black carbon and wood smoke PM is currently in operation at the Criscuolo Park, Cornwall, Thomaston and East Hartford McAuliffe Park sites.

PM Speciation Network

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Critical	IMPROVE/NCORE
East Hartford	McAuliffe Park	Neighborhood	Population Exposure	Credible	SLAMS
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Critical	STN
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS

CTDEP PM Speciation Monitoring Sites

PM_{10} FRM/Continuous Network

PM_{10} FRM Network

The CTDEP operates six PM_{10} FRM sites in the air monitoring network. All sites are operated on a 1-in-6 day sample schedule. Two sites, Waterbury and Criscuolo Park in New Haven, operate collocated PM_{10} FRM samplers on a 1-in-6 day sample schedule. All sites that operate PM_{10} FRM samplers, also operate $PM_{2.5}$ samplers, which provide $PM_{10-2.5}$ measurements.

PM_{10} Monitoring Network

PM_{10} sampling at three sites, Westport, Norwalk and Waterbury, are considered to be marginal and have been proposed to be shutdown in the *Connecticut 2010 Annual Air Monitoring Network Plan*. PM_{10} sampling at New Haven Criscuolo Park and Cornwall Mohawk Mountain is an NCore requirement and also necessary for lead monitoring. Continuous PM_{10} FEM sampling is also being conducted at both NCore sites providing both continuous FEM PM_{10} and FEM PM-coarse measurements. PM_{10} sampling at Bridgeport and East Hartford are both candidates for shutdown in the future depending on potential PM-coarse standards being established.

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Bridgeport	Roosevelt	Neighborhood	Highest Concentration	Credible	SLAMS
Cornwall	Mohawk Mountain (planned to be online 1/1/2011)	Regional	General/Background	Credible	NCORE
East Hartford	McAuliffe Park	Neighborhood	Population Exposure	Credible	SLAMS
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Credible	NCORE
Norwalk	Health Department	Neighborhood	Population Exposure	Marginal	SLAMS
Waterbury	Meadow & Bank Street	Neighborhood	Population Exposure	Marginal	SLAMS
Westport	Sherwood Island State Park	Regional Scale	Upwind Background	Marginal	SLAMS

CTDEP PM_{10} Monitoring Sites

PAMS Network

PAMS Monitoring Overview

The CTDEP operates three PAMS sites in the air monitoring network. PAMS measurements are obtained from June 1st through August 31st. PAMS sampling generates hourly measurements of 56 volatile organic compounds (VOCs), such as benzene and toluene, which are precursors to ozone formation. Carbonyl sampling is also done in conjunction with PAMS at the East Hartford site on a 1-in-3 day sample schedule from June 1st through August 31st; four three-hour samples are collected and analyzed for formaldehyde and acetaldehyde. Currently, upper air measurements obtained at the New Brunswick, NJ and Stowe, MA sites are used for modeling purposes.

PAMS Monitoring Network

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type	PAMS Site Type
East Hartford	McAuliffe Park	Urban	Highest Concentration	Credible	PAMS	Type II
New Haven	Criscuolo Park	Urban	Regional Transport	Credible	PAMS/NCORE	Type II
Westport	Sherwood Island	Neighborhood	Upwind Background	Credible	PAMS	Type I & III

CTDEP PAMS Monitoring Sites

Four types of PAMS sites were defined at the outset of the program:

1. Type I: sited upwind of sources of photochemically reactive VOC's, representative of and useful in characterizing transported VOC
2. Type II: sites of maximum precursor impact on ozone production. These sites are typically most relevant to urban air toxic studies.
3. Type III: site expected to show maximum ozone impacts downwind of maximum precursor emissions
4. Type IV: far downwind of precursor emissions, representative of downwind transport and aging of precursors leaving an area

Connecticut currently operates three sites:

1. East Hartford McAuliffe Park (Type II) – Located downwind of the I91/I95 interchange, it is representative of the Hartford MSA comprising a population of <1.1 million people. The predominate precursor sources impacting the site are transportation related. The site provides Connecticut's longest record of VOC data having been in continuous operation since 1993 and thus provides a long term data set valuable for evaluation of trends in VOC levels, as well as analysis of control strategies. The EH site is the single carbonyl sampling site in the Ct. network.
2. Westport Sherwood Island (Type I & III) – The Westport site is located approximately 40 miles upwind of New York City MSA. It provides data to indicate the background VOC transported into the Connecticut airshed satisfying the Type I designation criteria. Its location adjacent to I95 also offers transportation related data and is thus representative as Type III designation. It has been in operation since 1996 and thus provides a long term data set valuable for evaluation of trends in VOC levels, as well as analysis of control strategies.

3. New Haven Criscuolo Park (Type II) – This site is one of the two NCore sites designated for Connecticut. It is located adjacent to the I95/I91 interchange, near upwind from one of Ct's largest seaport cargo offloading ports. In addition to other industrial sources, the site is impacted by transportation related emissions including significant diesel emissions from port related activities (heavy trucks, ships, barges, etc). Of the three Connecticut PAMS sites, New Haven typically captures the highest concentrations of monitored VOCs. Due to its inclusion in the NCore network, and the significant impact of commercial sources, Criscuolo Park is well sited for urban air toxic analysis.

A thorough PAMS network assessment was not addressed in this 5-year network assessment as it has been recognized that any PAMS network assessment must be done on a regional basis. Currently there are workgroups being formed to look at the PAMS network as a whole based on the original objectives of the PAMS program, analysis of PAMS data obtained over the last 15 years and the prospect of lower ozone NAAQS, as well as the lengthening of the ozone season.

NOx / NOy Network

NOx / NOy Monitoring Overview

The CTDEP operates four nitrogen oxide (NOx) sites in the air monitoring network. All NOx samplers are operated year-round. Nitrogen oxide (NO) and nitrogen dioxide (NO_2) measurements are obtained primarily to complement the PAMS measurements to study ozone formation. The CTDEP operates one NOy (total reactive oxides of nitrogen) sampler at the New Haven Criscuolo Park site. Both NOx and NOy samplers will be deployed to the Cornwall Mohawk Mountain site in 2010 to be online by January 1, 2011.

The current network serves to meet NCore (Cornwall, New Haven) and PAMS (East Hartford, New Haven, Westport) requirements, as well as special purpose monitoring to obtain measurements used in source apportionment monitoring (Thomaston).

NOx/ NOy Monitoring Network

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Credible	NCORE
East Hartford	McAuliffe Park	Neighborhood	Population Exposure	Credible	PAMS
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Credible	NCORE/PAMS
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS
Westport	Sherwood Island State Park	Neighborhood	Population Exposure	Credible	PAMS

CTDEP NOx Monitoring Sites

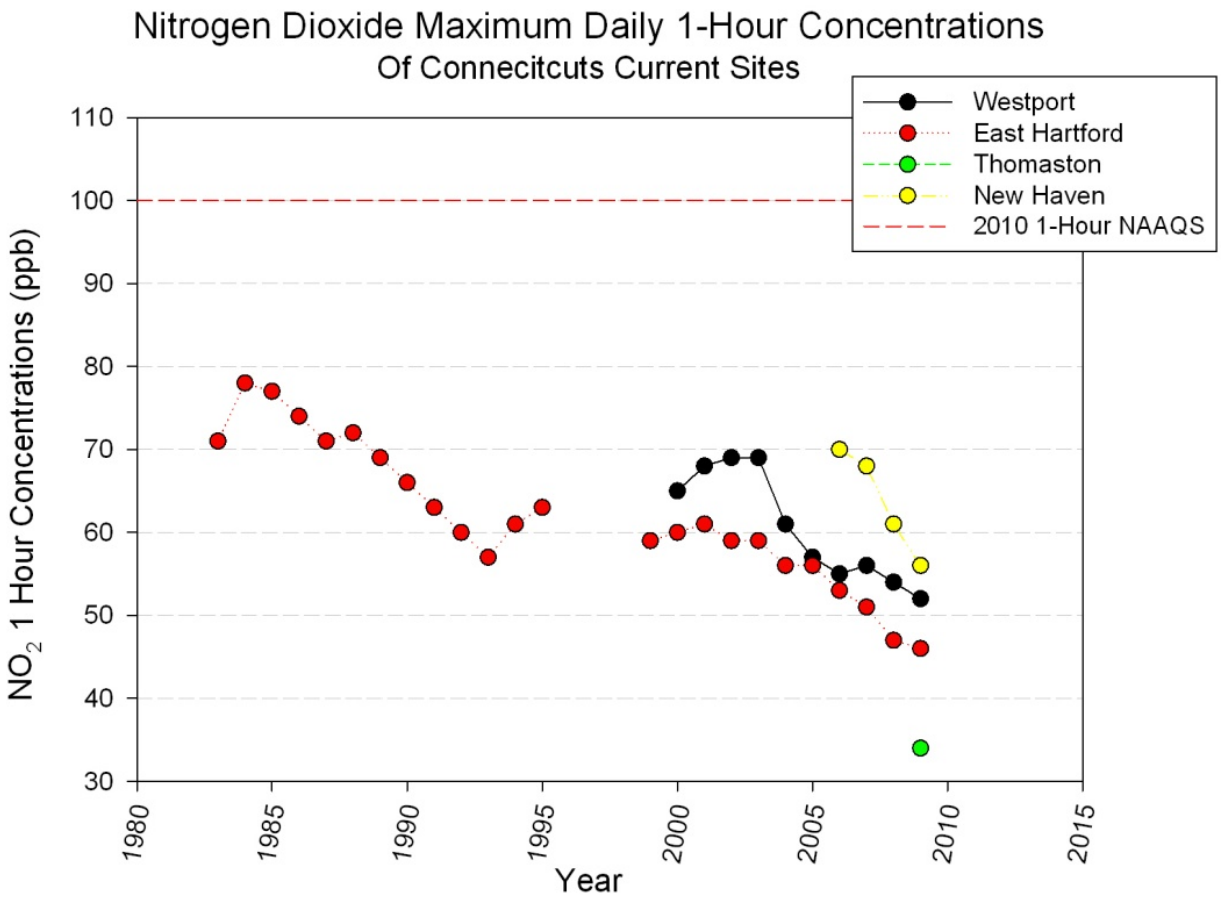
Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Credible	NCORE
New Haven	Criscuolo Park	Neighborhood	Population Exposure	Credible	NCORE/PAMS

CTDEP NOy Monitoring Sites

NOx Network Design

On January 22, 2010 EPA finalized a new 1-Hour NO_2 NAAQS set at 100 ppb and retained the annual average NO_2 standard at a level of 53 ppb. The new NAAQS is a rolling 3-year average of the 98th percentile of the highest daily maximum concentration in each year. The 98th percentiles of Connecticut's daily highs are approximately 50% of the standard. See 1-Hour Design Value Trends figure on the next page.

Under this new rule, Connecticut is required to have four monitors, three near road monitors (New Haven, Fairfield and Hartford Counties) and one community based monitor (Hartford County). Designations for the new standard are required by January 2012 based on the existing community based monitors. Re-designations based on the new network are required to be submitted to the EPA by January 2016/17. Attainment is required by January 2021/22. The monitoring network must meet the new requirements by January 1, 2013. The Connecticut 2011 Annual Air Monitoring Network Plan will propose siting to address both these new and existing requirements.



Nitrogen Dioxide 1-Hour Design Values

SO_2 Network

SO_2 Monitoring Overview

The CTDEP operates six sulfur dioxide (SO_2) sites in the air monitoring network. All SO_2 samplers are operated year-round. SO_2 monitoring is conducted at the Cornwall, Thomaston, New Haven Criscuolo Park, Bridgeport Edison School, East Hartford McAuliffe Park and Westport sites.

Current SO2 monitoring indicates that SO2 concentrations are well below the annual and 24-hour SO_2 air quality standards that were established in 1971. However, On June 2, 2010 the EPA finalized a new 1-hour SO_2 NAAQS of 75 ppb. SO_2 measurements in Connecticut indicate that the New Haven Criscuolo Park site, with the highest SO_2 measurements in Connecticut, would have a 2009 1-hour design value of 49 ppb[1]. The design value is the average over three consecutive years of the annual 99th percentiles of the daily maximum one-hour values. See 1-Hour Design Value Trends figure on the next page.

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Bridgeport	Edison School	Neighborhood	Source Impact	Credible	SLAMS
Cornwall	Mohawk Mountain	Regional Scale	General/Background	Credible	NCORE
East Hartford	McAuliffe Park	Urban Scale	Population Exposure	Credible	SLAMS
New Haven	Criscuolo Park	Urban Scale	Highest Concentration	Credible	NCORE
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS
Westport	Sherwood Island State Park	Neighborhood	Upwind Background	Credible	SLAMS

CTDEP Sulfur Dioxide Monitoring Sites

SO_2 Network Design

The current SO_2 network design serves to meet NCore requirements (Cornwall, New Haven), source impact monitoring with highest modeled concentration criteria (Bridgeport) and special purpose monitoring to obtain measurements used in source apportionment monitoring (Thomaston). With the recently finalized new NAAQS, several new monitoring requirements are now in place. New siting criteria are based on a PWEI (Population Weighted Emissions Index). The newly developed PWEI incorporates both population and source sizes. The table below summarizes the state SO2 emissions and PWEI values. EPA's preliminary PWEI analysis requires Hartford County to have one monitor, Fairfield County to have one monitor and New Haven County to have one monitor. Additional source-specific or receptor-specific monitors may be required by EPA in one or more CBSAs in forthcoming guidance, based on analyses of point source emissions inventories and/or dispersion modeling. The monitoring network must meet the new requirements by January 1, 2013. The Connecticut 2011 Annual Air Monitoring Network Plan will propose siting to address the new requirements.

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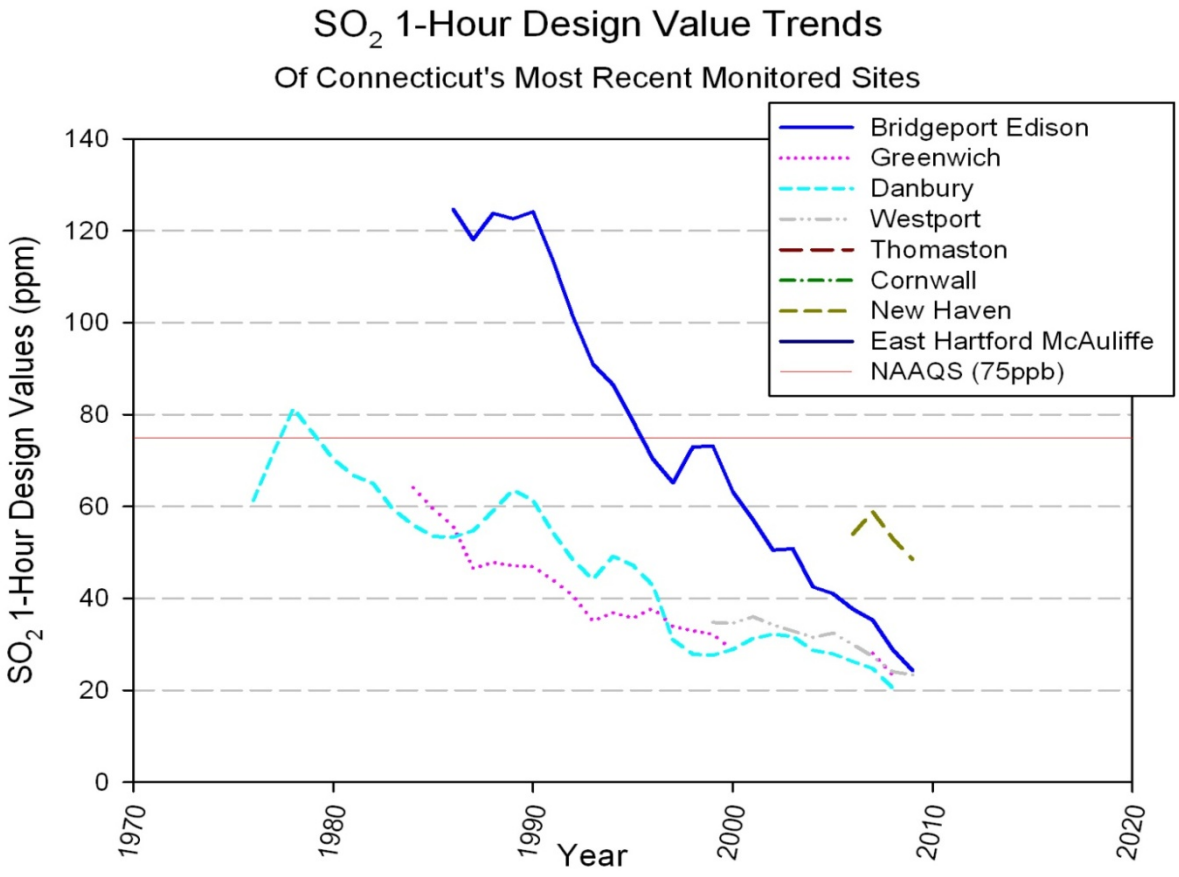
[1] Note this value is not a valid design value 2008's data was incomplete due to site improvements made through out a large portion of the year. However, 2009 data is complete and the 4th high is only 0.035ppm.



CBSA	Population	SO2 Emissions (t)	PWEI (M-person-t)	Highest SO2 Point Source (t)	No. Monitors	No. PWEI Monitors Required
Bridgeport-Stamford-Norwalk	901,208	9512	8573	2831	2	1
Hartford-West Hartford-East Hartford	1,195,998	8862	10599	1370	1	1
New Haven-Milford	848,006	7809	6622	1447	1	1
Norwich-New London	266,830	5861	1564	2755	0	0
Torrington	188,728	1206	228	2	1	0
Willimantic	117,518	1068	126	232	0	0

SO_2 Emissions and PWEI Values for CT CBSAs

CO Network

CO Monitoring Overview

The CTDEP operates seven carbon monoxide (CO) sites in the air monitoring network. All CO samplers are operated year-round. Trace-CO samplers are deployed at the Thomaston, Westport and New Haven Criscuolo Park sites. Trace-CO samplers will be deployed to the Bridgeport Roosevelt School, Cornwall, East Hartford McAuliffe Park and Hartford Morgan Street sites in 2010.

CO Monitoring Network

The current CO network is designed to support the PAMS and NCORE networks, as well as satisfy the state's limit maintenance plans. CO is a useful co-pollutant to monitor as it can aide in source determination, thus the requirement to monitor at PAMS and NCORE sites. The limited maintenance plan of 2004 extended the existing limited maintenance plans by 10 years. Thus the Hartford-New Britain-Middletown area is extended from 2006-2015, the New Haven-Meridan-Waterbury area is extended from 2009-2015 and the Connecticut portion o the New York-Northern NJ-Long Island area from 2011-2020. In accordance with these plans the monitoring will continue in these areas to assure 8-Hr design values of 7.65ppm (85% of the NAAQS, 9ppm) or less if a site exceeds this level a full maintenance plan must be developed. Connecticut's highest sites have been below the level of 7.65 ppm since 1994. 2008 design values for all current monitoring sites can be noted on the table below. However despite the fact that our highest design value observed in 2008 is less than 40% of the NAAQS, there are no plans to shut down sites, except for Thomaston, which was installed in 2006 as a special study site. With the proposed new rule anticipated this October Connecticut has decided that all decisions to expand or decrease the CO network will begin once the anticipated rule is made final.

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Bridgeport	Roosevelt School	Middle Scale	Population Exposure	Credible	SLAMS
Cornwall	Mohawk Mountain	Regional Scale	General Background	Credible	NCORE
East Hartford	McAuliffe Park	Urban Scale	Population Exposure	Credible	PAMS
Hartford	Morgan Street Courthouse	Microscale	Highest Concentration	Credible	SLAMS
New Haven	Criscuolo Park	Urban Scale	Population Exposure	Credible	NCORE/PAMS
Thomaston	Waste Water Treatment Plant	Neighborhood	Population Exposure	Marginal	SLAMS
Westport	Sherwood Island State Park	Neighborhood	Upwind Background	Credible	PAMS

CTDEP Carbon Monoxide Monitoring Sites

Site Name	8-Hour Design Value (ppm)
Bridgeport Roosevelt	2.0
Westport Sherwood	1.1
Hartford Morgan St	3.3
East Hartford McAuliffe	1.2
Thomaston WWTP	0.9
New Haven Criscuolo	1.6

CO 8-Hour Design Values of 2008

Lead Network

Lead (Pb) Monitoring Overview

The CTDEP operates one lead (Pb) monitoring site in the air monitoring network. Lead measurements are obtained from analysis of the low volume PM_{10} filters. Lead sampling began at the New Haven Criscuolo Park site on January 1, 2010. Lead sampling will begin at the Cornwall Mohawk Mountain site on January 1, 2011.

Lead Monitoring Network

Town	Site	Measurement Scale	Monitoring Objective	Value Assignment	Site Type
Cornwall	Mohawk Mountain	Regional Scale	General Background	Credible	NCORE
New Haven	Criscuolo Park	Urban Scale	Population Exposure	Credible	NCORE

CTDEP Lead Monitoring Sites

Lead (Pb) Network Design

On October 15, 2008, EPA promulgated a decrease in the NAAQS for lead (Pb) from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. On December 23, 2009 the EPA proposed to revise the ambient monitoring requirements for measuring airborne lead. EPA proposed to change the lead emissions monitoring threshold to 0.50 tons per year (tpy). A review of Connecticut Pb emission sources based on the 2005 National Emission Inventory (NEI) determined that there was no potential of individual or clustered Pb sources to approach or exceed the revised NAAQS. Therefore, source-oriented monitoring would not be required in Connecticut.

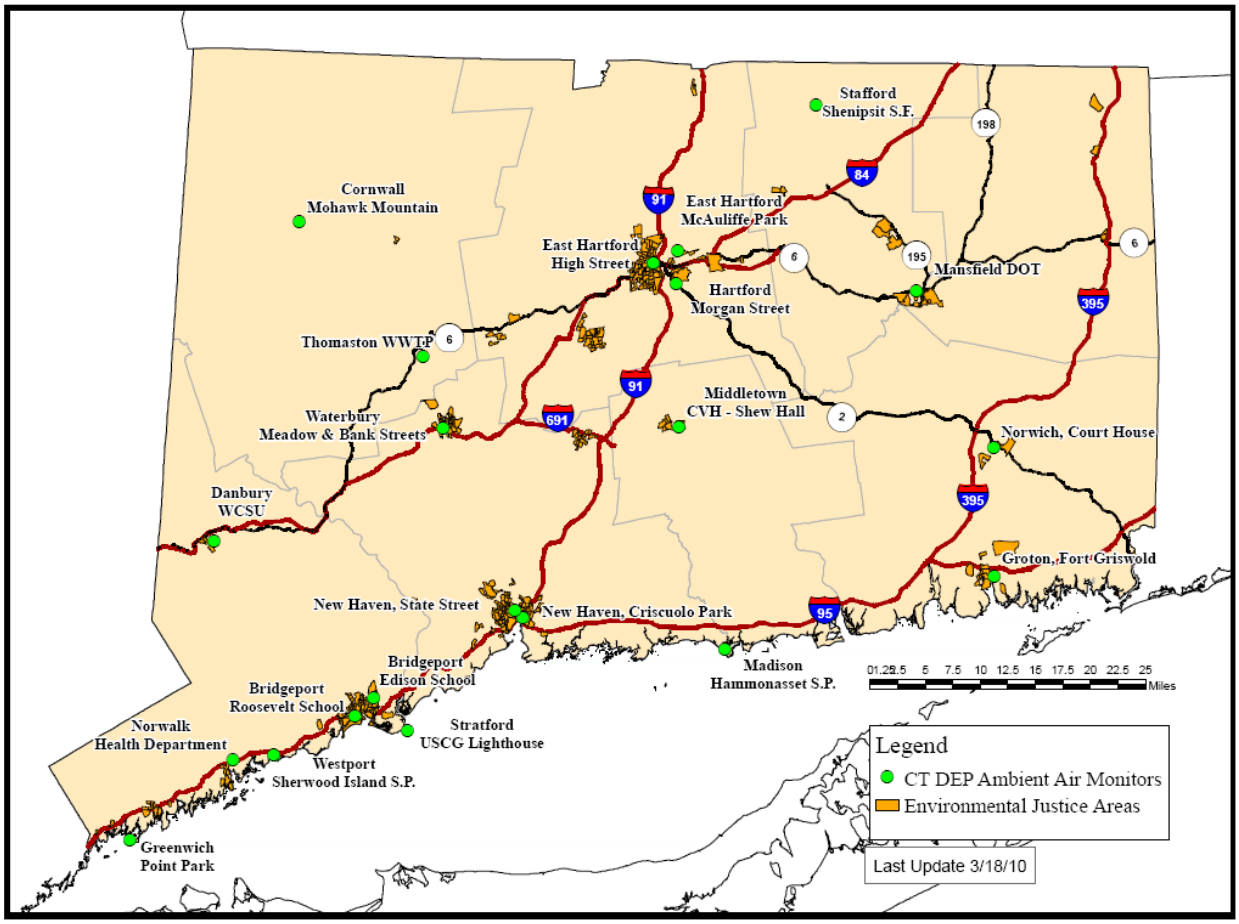
EPA also proposed to replace the current requirement to place lead monitors in each Core Based Statistical Area (CBSA) with a population of 500,000 or more people with a requirement for lead monitoring at all NCore sites. CTDEP has proposed in the Connecticut 2010 Annual Air Monitoring Network Plan to begin monitoring for lead at the Cornwall Mohawk Mountain NCore sites by January 1, 2011 as well as continue lead monitoring at the Criscuolo Park NCore site. Both sites will utilize low-volume PM_{10} gravimetric samplers to determine lead concentrations. Initial attainment designations were sent to the EPA October 2009. Re-designations with the new network data are due October 2011. Attainment is required by January 2017.

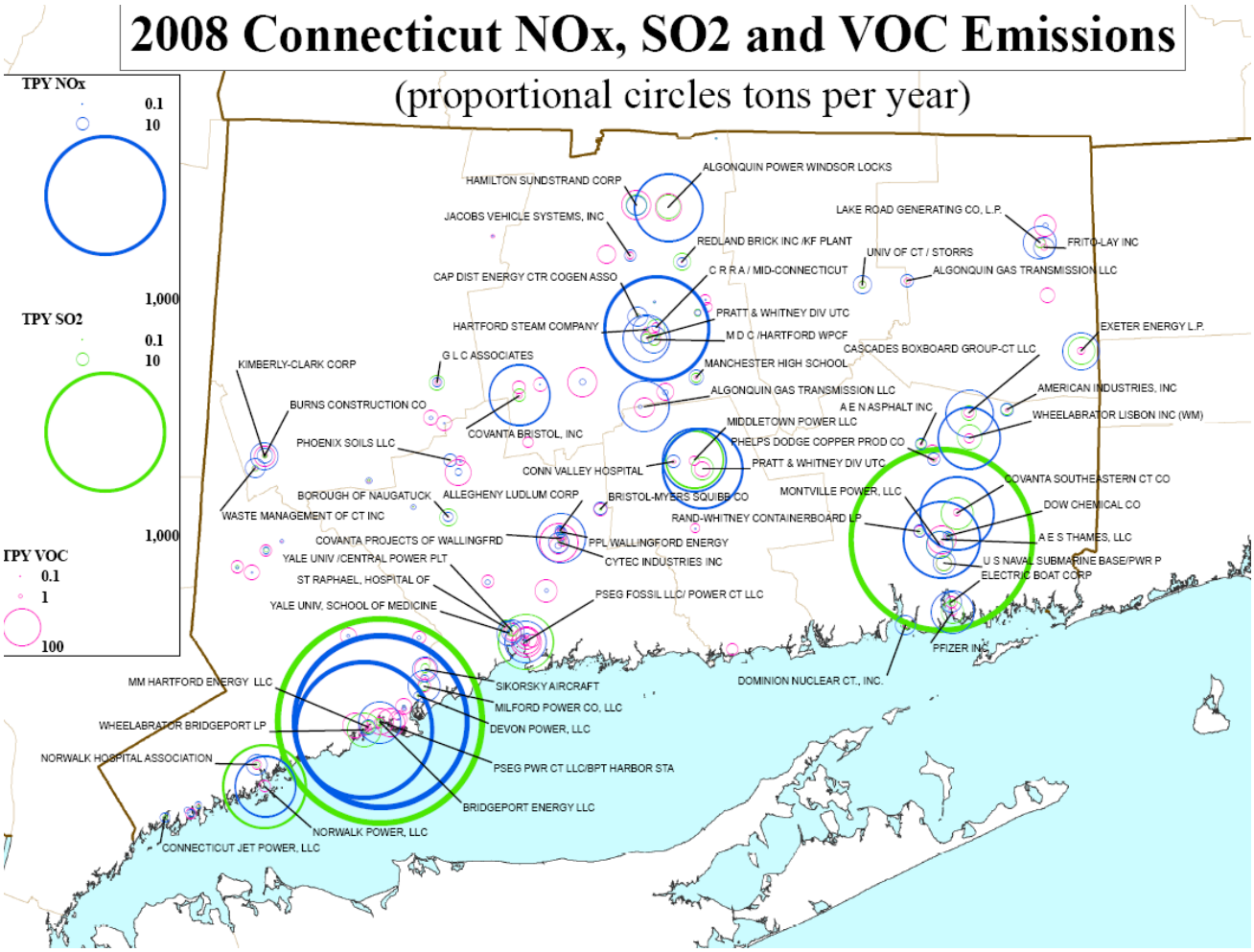
Environmental Justice Communities

In accordance with the Connecticut Department of Environmental Protection's Environmental Justice Plan areas which 30% or greater of the population have an income below 200% of the federal poverty level or a distressed municipality will be protected with the appropriate environmental laws; in specific ambient air monitoring of affecting facilities (i.e. electric generating facilities with a capacity of 10MW of greater, sewage or solid waste incinerators, any major source of air pollution as defined by the Clean Air Act CAA, for further detail see http://www.ct.gov/dep/lib/dep/environmental_justice/EJ_fs.pdf).

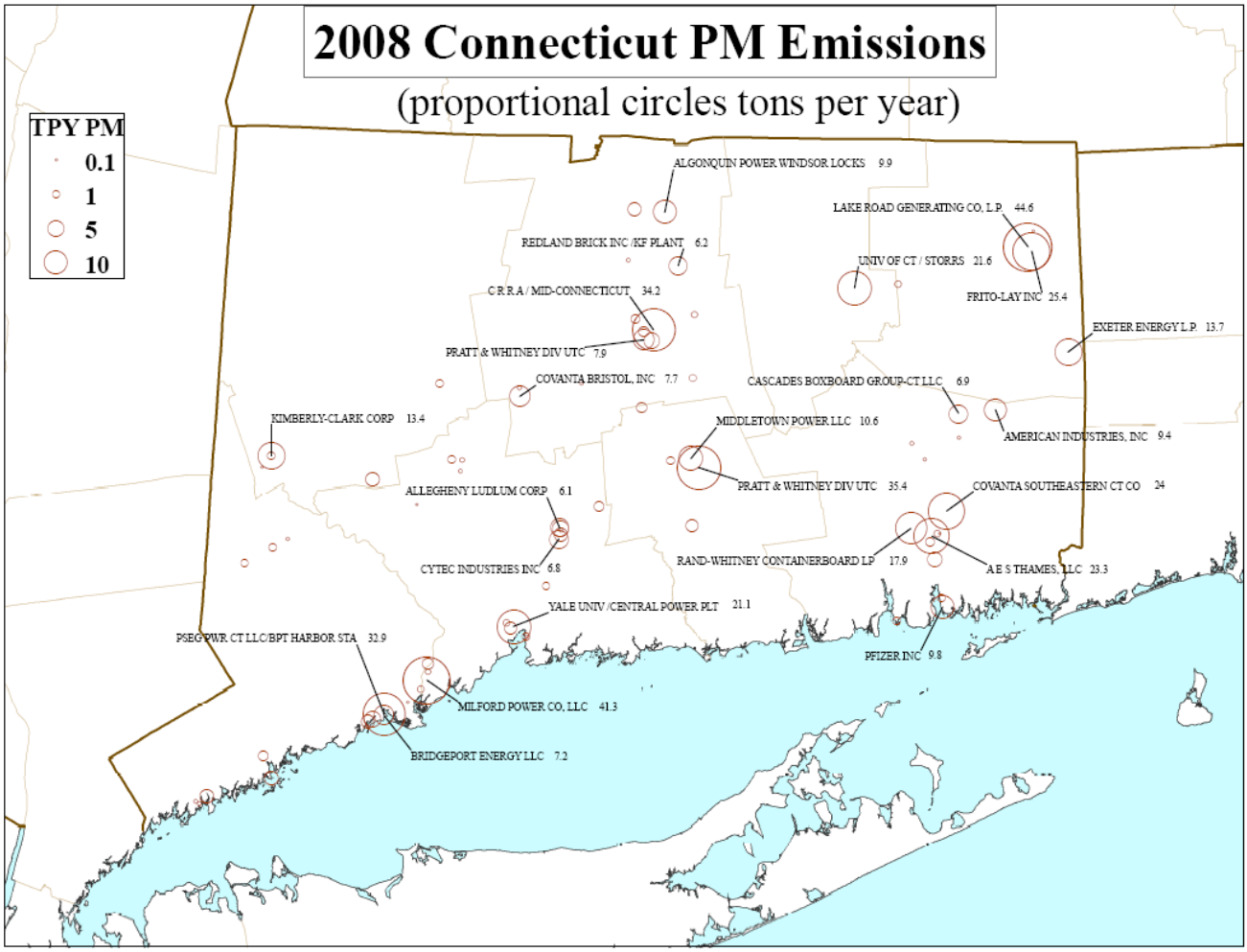
The figure below displays the areas which fall under the environmental justice communities definition and the ambient air monitoring stations around the state of Connecticut. All environmental justice areas, with the exception of those that have been determined to be in areas with minimal sources, are have ambient air monitors in or near. The figures on the following pages are source locations and emissions for NOx, SO_2, VOCs and PM.

Connecticut DEP Ambient Air Monitoring Sites and Environmental Justice Areas.





Connecticut 2008 NOx, SO_2 and VOC Emissions for Major Stationary Sources

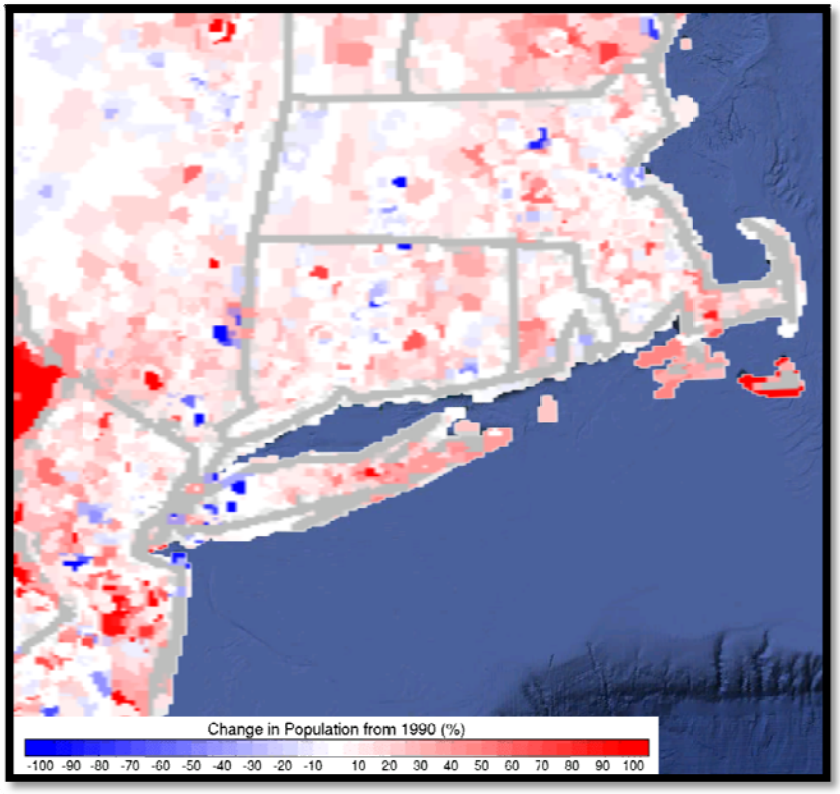


Connecticut 2008 PM Emissions for Major Stationary Sources

Population Analysis

Overall, the Connecticut population grew 6.6 percent from 1990 to 2008, which matched the growth rate of the United States during the same time period. The largest increases in the state were in Tolland, Middlesex and Windham Counties (14.4-16.5 percent), while Hartford County had the lowest rate of growth at 2.8 percent. The population trends are summarized in the table below.

The results of the Population Analysis tool show that most of the state's census block groups have population changes less than 10 percent, with a some higher growth areas around Tolland, Middlesex and Windham counties. There are a couple of isolated block groups in the Winsted and East Haddam areas with growth rates of approximately 65 percent, and a few small areas of Hartford, Enfield and New London show population decreases in the 20-40 percent range. In general, the population tool and census statistics do not seem to indicate any significant population shifts that might warrant population-oriented monitoring changes in the network.



Population Analysis Tool Graphical Output, 1990-2008

Geographic Area	1990 Population	2008 Population	Percent Change 1990-2009
USA	248,709,873	304,374,846	6.6%
Connecticut	3,287,116	3,502,932	6.6%
Fairfield County	827,645	894,401	8.1%
Hartford County	851,783	876,319	2.9%
Litchfield County	174,092	188,647	8.4%
Middlesex County	143,196	164,932	15.2%
New Haven County	804,219	845,573	5.1%
New London County	254,957	265,830	4.3%
Tolland County	128,699	149,919	16.5%
Windham County	102,525	117,311	14.4%

Population Trends for US, Connecticut and Connecticut Counties, 1990-2008 (Source: US Census Bureau)

Monitor and Site Network Summary

Below is a table with a list of all monitoring sites currently operated by the State of Connecticut. The following pages list detailed information for each monitoring site. The monitoring sites are listed in alphabetical order by site name.

Site Information Table

Town	Site	PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
Bridgeport	Edison School														X																
Bridgeport	Roosevelt School	1/3		X		1/6		X								X											X				
Cornwall	Mohawk Mountain	1/3		X	X	P		P		X	X	X	X	X	X	P	P	P	P						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			X
Greenwich	Point Park													X											X	X	X		X		
Groton	Fort Griswold	P		X										X											P	P	X		P		
Hartford	Brainard Field																							X							
Hartford	Morgan Street Courthouse															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	Agricultural Center	1/3																													
New Haven	Criscuolo Park	1/1	1/6	X	X	1/6	1/6	X	X		X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X
New Haven	State Street	1/3																													
New Haven	Woodward Avenue Fire House	1/3																													
Norwalk	Health Department	1/3				1/6																									
Norwich	Norwich Courthouse	1/1																													
Stafford	Shenipsit State Forest													X											X	X	X				
Stratford	Stratford Lighthouse													X													X				
Thomaston	Waste Water Treatment Plant	1/3		X							X	X	X		X	X	X					X			X	X	X	X		X	
Waterbury	Meadow & Bank Street	1/3	1/6	X		1/6	1/6																		X	X	X		X		
Westport	Sherwood Island State Park	1/1				1/6								X	X	X	X			X					X	X	X	X			X

X = Existing P = Planned = Critical = Credible = Marginal

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
													X																

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
SO_2	**Neighborhood**	**Source Impact**	**Credible** – Source impact monitor with highest modeled concentrations.	**Keep** – valuable for modeling; esp. with new NAAQS and monitoring requirements.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X		1/6		1/6								X											X				

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Highest Concentration**	**Critical** - near daily NAAQS and design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Highest Concentration**	**Critical** – supports AQI; FEM evaluation.	**Keep** - Replace FDMS TEOM with FEM MetOne BAM.
PM_{10} FRM	**Neighborhood**	**Highest Concentration**	**Credible** – potential future PMcoarse site.	Candidate site to discontinue FRM.
PM-Coarse	**Neighborhood**	**Highest Concentration**	**Credible** – potential future PMcoarse site.	Candidate site to discontinue FRM.
CO	**Neighborhood**	**Population Exposure**	**Credible** – required as part of CO limited maintenance plan.	**Keep** – investigate requirements of maintenance plan. Table further discussions until CO NAAQS review is complete.
Temperature			**Credible**	

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:

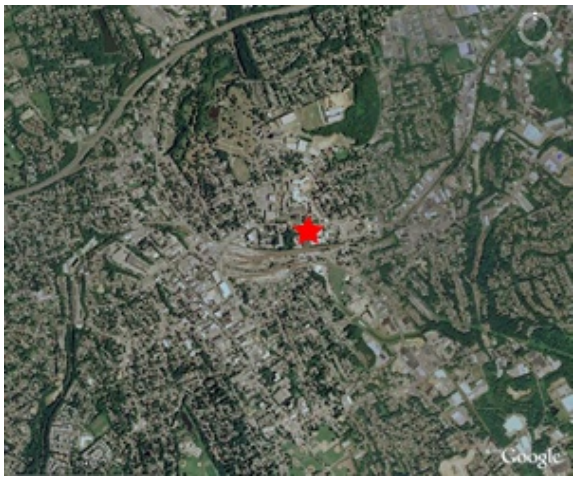
PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVC	Ozone	SO2	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point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

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Regional Scale**	**NCore/General/ Background**	**Critical** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Regional Scale**	**NCore/General/ Background**	**Critical** – supports AQI; FEM evaluation.	**Keep**
PM_{10} Continuous	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement; continuous PMcoarse.	**Online by 1/1/2011**
PM_{10} FRM	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Online by 1/1/2011**
PM-Coarse	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Online by 1/1/2011**
IMPROVE	**Regional Scale**	**NCore/General/ Background**	**Critical** – historical trends; national IMPROVE network.	**Keep**
OC/EC	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Keep**
Continuous Sulfate	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Keep**

BC/UVC	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement; mobile source; woodsmoke source impact information.	**Keep**
Ozone	**Regional Scale**	**NCore/General/ Background**	**Critical** – supports AQI; design value for ozone.	**Keep** – required year-round operation.
SO_2	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Keep**
CO	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Online by 1/1/2011**
NOx	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Online by 1/1/2011**
NOy	**Regional Scale**	**NCore/General/ Background**	**Credible** – NCore requirement.	**Online by 1/1/2011**
Lead (Pb)	**Regional Scale**	**NCore/General/ Background**	**Credible** – likely monitoring requirement for new NAAQS.	**Online by 1/1/2011**
Wind Speed			**Critical**	
Wind Direction			**Critical**	
Temperature			**Critical**	
Dew Point/ Rel. Humidity			**Critical**	
Rain Fall			**Critical**	
Barometric Pressure			**Critical**	
Solar Radiation			**Critical**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X										X											X	X	X		X		

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Critical** – supports AQI; FEM evaluation.	**Keep**
Ozone	**Urban Scale**	**Population Exposure**	**Critical** – supports AQI; design value for ozone.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	
Rain Fall			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3		X																					X	X					

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Credible** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Credible** – supports AQI; FEM evaluation.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/1		X		1/6		1/6					X	X	X	X	X			X	X				X	X	X	X			X

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Critical** – supports AQI; FEM evaluation.	**Keep** - Replace FDMS TEOM with FEM MetOne BAM.
PM_{10} FRM	**Neighborhood**	**Population Exposure**	**Credible** – potential future PMcoarse site.	Candidate site to discontinue FRM.
PM-Coarse	**Neighborhood**	**Population Exposure**	**Credible** – potential future PMcoarse site.	Candidate site to discontinue FRM.
BC/UVC	**Neighborhood**	**Population Exposure**	**Credible** – mobile source; woodsmoke source impact information.	**Keep**
Ozone	**Urban Scale**	**Population Exposure**	**Critical** – supports AQI; design value for ozone.	**Keep**
SO_2	**Urban Scale**	**Population Exposure**	**Credible** - potentially meets need for area-wide site.	**Keep** – potential Hartford County site to fulfill requirements associated with new NAAQS.

CO	**Neighborhood**	**Population Exposure**	**Credible** – PAMS requirement; potential future site required by revised NAAQS.	**Keep** – Table further discussions until CO NAAQS review is complete.
NOx	**Neighborhood**	**Population Exposure**	**Credible** – PAMS requirement.	**Keep** - Could be proposed as area-wide site for NO_2.
VOCS	**Neighborhood**	**Population Exposure**	**Credible** – required PAMS site.	Regional PAMS network assessment necessary.
Carbonyls	**Neighborhood**	**Population Exposure**	**Credible** – PAMS requirement; valuable toxics information.	Evaluate if carbonyl sampling should be moved to New Haven Criscuolo Park.
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	
Dew Point / Rel. Humidity			**Credible**	
Solar Radiation			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
												X											X	X	X		X		

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Ozone	**Urban Scale**	**Population Exposure/Regional Transport**	**Critical** – supports AQI; design value for ozone.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	
Rain Fall			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
P		X										X											P	P	X		P		

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Urban Scale**	**Population Exposure**	**Credible** - design value for $PM_{2.5}$.	Site not suitable for deploying FRM; evaluating alternative sites.
$PM_{2.5}$ Continuous	**Urban Scale**	**Population Exposure**	**Credible** – supports AQI; FEM evaluation.	Candidate to be shutdown. Evaluating alternative sites.
Ozone	**Urban Scale**	**Population Exposure**	**Credible** – supports AQI; design value for ozone.	Candidate to be shutdown. Evaluating alternative sites.
Wind Speed			**Credible**	Site not suitable for meteorological tower; evaluating alternative sites.
Wind Direction			**Credible**	Site not suitable for meteorological tower; evaluating alternative sites.
Temperature			**Credible**	
Rain Fall			**Credible**	

Town – Site: **Hartford – Brainard Field**
County: **Hartford** Latitude: **41.74551°**
Address: **Maxim Road** Longitude: **-72.64917°**
AQS Site ID: **Not assigned** Elevation: **12 m (39 ft)**
Spatial Scale: **Neighborhood** Year Established: **2003**
Statistical Area: **CSA (Hartford-West Hartford-Willimantic)**

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
																						X							

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Dioxins	**Neighborhood**	**Population Exposure/Source Impact**	**Credible**	State legislated mandate.

Town – Site:	**Hartford – Morgan Street Courthouse**		
County:	**Hartford**	Latitude:	**41.76923°**
Address:	**155 Morgan Street**	Longitude:	**-72.67033°**
AQS Site ID:	**09-003-0017**	Elevation:	**8 m (25 ft)**
Spatial Scale:	**Micro**	Year Established:	**1984**
Statistical Area:	**CSA (Hartford-West Hartford-Willimantic)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
														X															

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
CO	**Microscale**	**Highest Concentration**	**Credible** – required as part of CO limited maintenance plan.	**Keep** – investigate requirements of maintenance plan. Table further discussions until CO NAAQS review is complete.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
												X											X	X	X				

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Ozone	**Regional Scale**	**Population Exposure**	**Critical** – supports AQI; design value for ozone.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
																							X	X					

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Wind Speed			**Credible** – provides wind data for eastern CT.	Candidate site to be shutdown; possible continuous $PM_{2.5}$ site for eastern CT.
Wind Direction			**Credible** – provides wind data for eastern CT.	Candidate site to be shutdown; possible continuous $PM_{2.5}$ site for eastern CT.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
												X											X	X	X		X	X	

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Ozone	**Urban Scale**	**Population Exposure**	**Critical** – supports AQI; design value for ozone.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	
Rain Fall			**Credible**	
Barometric Pressure			**Credible**	

Town – Site:	**New Haven – Agricultural Center**		
County:	**New Haven**	Latitude:	**41.33145°**
Address:	**Huntington Street**	Longitude:	**-72.91980°**
AQS Site ID:	**09-009-2008**	Elevation:	**40 m (131 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2003**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

Pollutant and Meteorological Parameters:

	PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3																														

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue site in 2010 Network Plan.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/1	1/6	X	X	1/6	1/6	X	X		X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Critical** – supports AQI; FEM evaluation.	**Keep**
PM_{10} Continuous	**Neighborhood**	**Population Exposure**	**Credible** – NCore requirement; continuous PMcoarse.	**Keep**
PM_{10} FRM	**Neighborhood**	**Population Exposure**	**Credible** – NCore requirement.	**Keep**
PM-Coarse	**Neighborhood**	**Population Exposure**	**Credible** – NCore requirement.	**Keep**
STN	**Neighborhood**	**Population Exposure**	**Credible**	**Keep**
OC/EC	**Neighborhood**	**Population Exposure**	**Credible** – NCore requirement.	**Keep**
Sulfate	**Regional Scale**	**Population Exposure**	**Credible**– NCore requirement.	**Keep**

BC/UVC	**Neighborhood**	**Population Exposure**	**Credible** – NCore requirement; mobile source; woodsmoke source impact information.	**Keep**
Ozone	**Urban Scale**	**Population Exposure**	**Critical**– supports AQI; design value for ozone.	**Keep** – required year-round operation.
SO_2	**Neighborhood**	**Highest Concentration**	**Credible**– NCore requirement.	**Keep** – potential New Haven County site to fulfill requirements associated with new NAAQS.
CO	**Neighborhood**	**Population Exposure**	**Credible**– NCore requirement.	**Keep**
NOx	**Neighborhood**	**Population Exposure**	**Credible**– NCore requirement.	**Keep**
NOy	**Neighborhood**	**Population Exposure**	**Credible**– NCore requirement.	**Online by 1/1/2011**
Lead (Pb)	**Neighborhood**	**Population Exposure**	**Credible** – requirement for new NAAQS.	**Keep**
VOCS	**Neighborhood**	**Population Exposure**	**Credible** – required PAMS site.	**Keep** – valuable toxics information.
Continuous PAH	**Neighborhood**	**Population Exposure**	**Credible** – valuable, high-resolution PAH data.	**Keep**
Mercury	**Regional Scale**	**Population Exposure**	**Marginal** – baseline total ambient Hg determination.	Proposed to discontinue site in 2010 Network Plan.
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	
Dew Point/ Rel. Humidity			**Credible**	
Rain Fall			**Credible**	
Barometric Pressure			**Credible**	
Solar Radiation			**Credible**	

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)**		

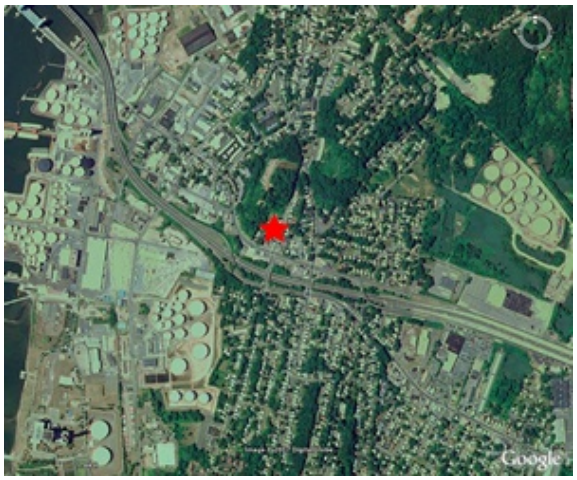
Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3																													

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Highest Concentration**	**Critical** - near daily NAAQS and design value for $PM_{2.5}$.	**Keep**

Town – Site: **New Haven – Woodward Avenue Fire House**
County: **New Haven** Latitude: **41.29122°**
Address: **Woodward Avenue** Longitude: **-72.89406°**
AQS Site ID: **09-009-0026** Elevation: **21 m (70 ft)**
Spatial Scale: **Neighborhood** Year Established: **2003**
Statistical Area: **CSA (New York-Newark-Bridgeport)**



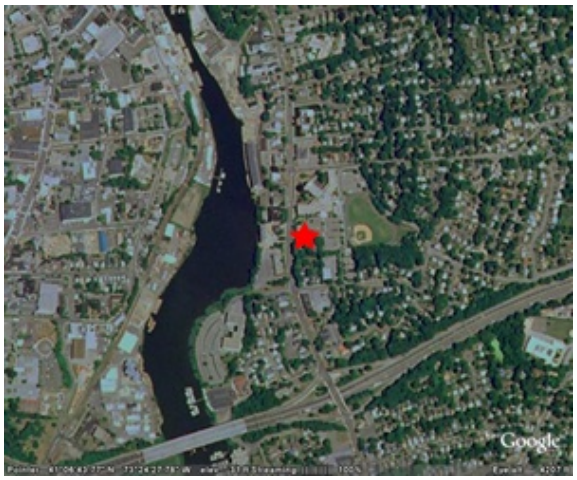
Pollutant and Meteorological Parameters:

	PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3																														

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue site in 2010 Network Plan.

Town – Site:	**Norwalk – Health Department**		
County:	**Fairfield**	Latitude:	**41.11248°**
Address:	**137 East Avenue**	Longitude:	**-73.40737°**
AQS Site ID:	**09-001-3005**	Elevation:	**15 m (50 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**1969**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		



Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3				1/6																									

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep**
PM_{10} FRM	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/1																														

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep -** Proposed to reduce sampling from 1/1 day to 1/3 day in 2010 Network Plan.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
												x											x	x	x				

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Ozone	**Regional Scale**	**Population Exposure / General Background**	**Critical** – supports AQI; design value for ozone.	**Keep**
Wind Speed			**Credible**	
Wind Direction			**Credible**	
Temperature			**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
												x													x				

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
Ozone	**Regional Scale**	**Upwind Background**	**Critical** – supports AQI; design value for ozone.	**Keep**
Temperature			**Credible**	

Town – Site:	**Thomaston – Waste Water Treatment Plant**		
County:	**Litchfield**	Latitude:	**41.64486°**
Address:	**Old Waterbury Rd.**	Longitude:	**-73.07908°**
AQS Site ID:	**09-005-0004**	Elevation:	**104 m (340 ft)**
Spatial Scale:	**Neighborhood**	Year Established:	**2006**
Statistical Area:	**CSA (New York-Newark-Bridgeport)**		

Pollutant and Meteorological Parameters:

PM2.5 FRM	PM2.5 FRM colo	PM2.5 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3		x							x	x	x		x	x	x					x			x	x	x	x		x	

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
OC/EC	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
Sulfate	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
BC/UVC	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
NO_x	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
SO_2	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
CO	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
Continuous PAH	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.

Wind Speed			**Marginal**	Proposed to discontinue in 2010 Network Plan.
Wind Direction			**Marginal**	Proposed to discontinue in 2010 Network Plan.
Temperature			**Marginal**	Proposed to discontinue in 2010 Network Plan.
Dew Point			**Marginal**	Proposed to discontinue in 2010 Network Plan.
Barometric Pressure			**Marginal**	Proposed to discontinue in 2010 Network Plan.

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/3	1/6	x		1/6	1/6																		x	x	x		x		

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Neighborhood**	**Population Exposure**	**Critical** - design value for $PM_{2.5}$.	**Keep**
$PM_{2.5}$ Continuous	**Neighborhood**	**Population Exposure**	**Critical** – supports AQI; FEM evaluation.	**Keep**
PM_{10} FRM	**Neighborhood**	**Population Exposure**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
Wind Speed	**Neighborhood**	**Population Exposure**	**Credible**	
Wind Direction	**Neighborhood**	**Population Exposure**	**Credible**	
Temperature	**Neighborhood**	**Population Exposure**	**Credible**	
Rain Fall	**Neighborhood**	**Population Exposure**	**Credible**	

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 Continuous	PM10 Continuous	PM10 FRM (lo-vol)	PM10 FRM colo	PM-Coarse (FRM or Cont.)	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 / Rel. Humidity	Rain Fall	Barometric Pressure	Solar Radiation
1/1			1/6									x	x	x	x			x					x	x	x	x			x

X = Existing P = Planned = Critical = Credible = Marginal

Parameter	Measurement Scale	Monitoring Objective	Assigned Value from Assessment	Plan for Network Optimization
$PM_{2.5}$ FRM	**Regional Scale**	**Upwind Background**	**Critical** - design value for $PM_{2.5}$.	**Keep -** Proposed to reduce sampling from 1/1 day to 1/3 day in 2010 Network Plan.
PM_{10} FRM	**Regional Scale**	**Upwind Background**	**Marginal**	Proposed to discontinue in 2010 Network Plan.
Ozone	**Regional Scale**	**Upwind Background**	**Critical** – supports AQI; design value for ozone.	**Keep**
NO_x	**Regional Scale**	**Upwind Background**	**Credible** – PAMS requirement.	**Keep**
SO_2	**Regional Scale**	**Upwind Background**	**Credible** - potentially meets need for area-wide site.	**Keep** – potential Fairfield County site to fulfill requirements associated with new NAAQS.
CO	**Regional Scale**	**Upwind Background**	**Credible** – PAMS requirement.	**Keep** – Table further discussions until CO NAAQS review is complete.

VOCs	**Regional Scale**	**Upwind Background**	**Credible** – required PAMS site.	Regional PAMS network assessment necessary.
Wind speed			**Credible**	
Wind direction			**Credible**	
Temperature			**Credible**	
Dew Point			**Credible**	
Solar Radiation			**Credible**	