

Connecticut 2011 Annual Air Monitoring Network Plan



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SIPRAC

June 9, 2011



What is the Annual Air Monitoring Network Plan?

- Proposes the intended organization, structure and distribution of the ambient air monitoring network for the state. (sites and pollutants to be *added, maintained or terminated* through the year)
- Written by the CTDEP and approved by EPA regional office.
- Due to EPA Regional Office on July 1st of every year, covers the period from July 1st of the current year- December 31st of the following year.
- Available for 30-day public comment period
- [Connecticut 2011 Annual Air Monitoring Network Plan](#) is posted on ct.gov website for a 30-day period (until July 6, 2011); comments will go to Peter Babich at pete.babich@ct.gov





How to get to the Annual Air Monitoring Network Plan.

www.ct.gov/dep

➤ [» AIR, LAND, WATER](#)

➤ [Air](#)

➤ [» AIR MONITORING](#)

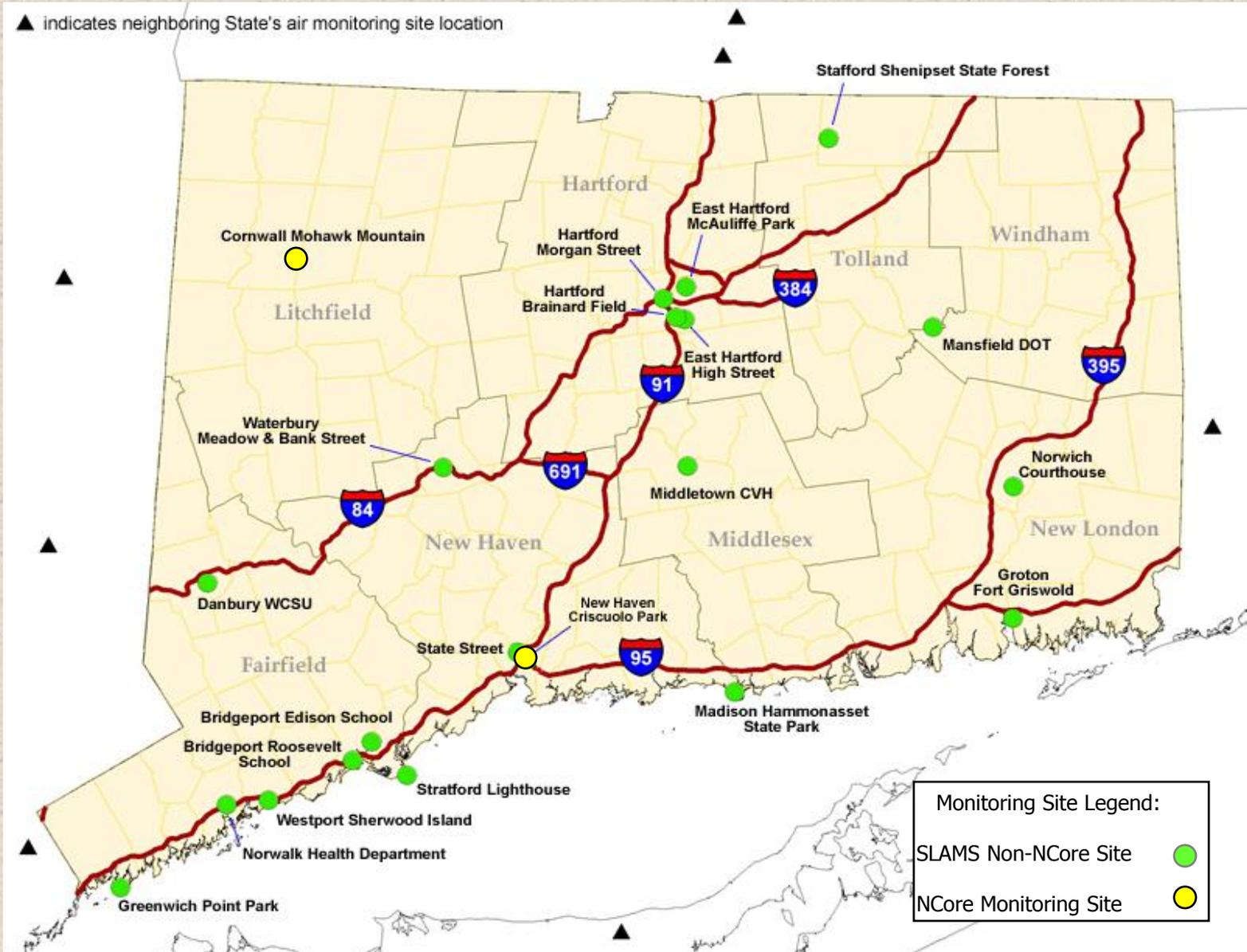
➤ [» NETWORK DESIGN](#)

➤ [Connecticut 2011 Annual Air Monitoring Network Plan \(PDF\)](#)





Connecticut 2011 Air Monitoring Network



Monitoring Site Legend:

- SLAMS Non-NCore Site ●
- NCore Monitoring Site ●

Very Unhealthy
200
Unhealthy
150
Unhealthy for Sensitive Groups
100
Moderate
50
Good

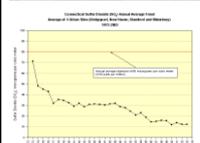
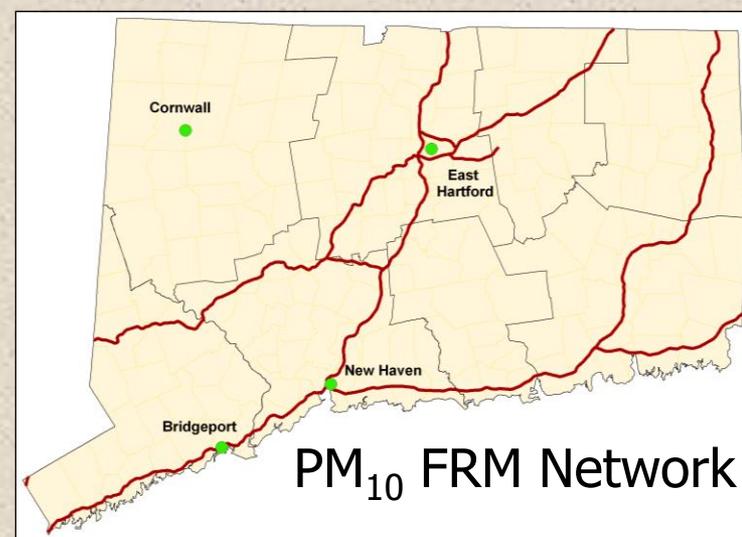
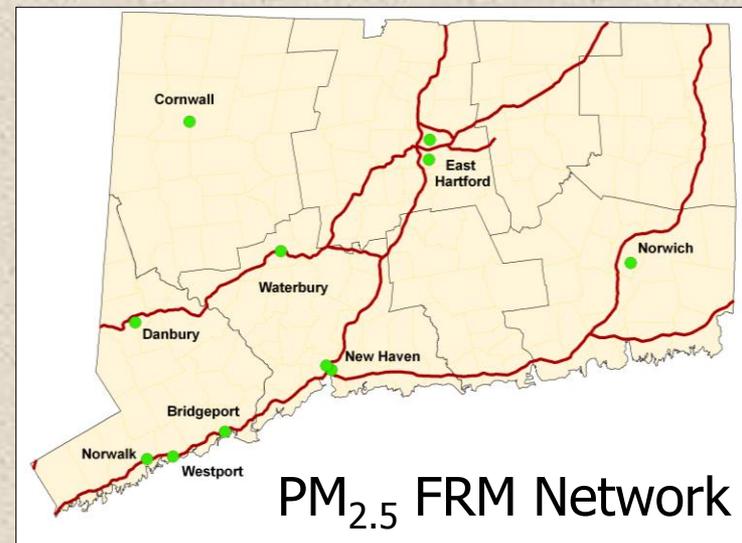
AQI
AIR QUALITY INDEX
50 100 150 200



Connecticut 2011 Air Monitoring Network

General Monitoring Objectives

- Compliance Purposes: Determine attainment status for criteria pollutants.
- AQI Reporting: Provide timely and accurate data for Air Quality Index and forecasting.
- Control Strategies: Develop new strategies and assess existing ones.
- Trend Analysis: Assess short-term and long-term pollutant trends.
- SIP Development: Provide data used in modeling to aid in development of State Implementation Plans.
- Characterize Sources: Distinguish between contributions from local sources and the effects of long range transport.
- Support long-term health assessments and model evaluations.





New Requirements to the Connecticut Air Monitoring Network

Pb (Lead) Monitoring

- The new requirements stipulate Pb monitoring at urban NCore sites, and at emission sources larger than 0.5 tons per year.
- CT is required to monitor at the New Haven NCore Site. All of CT's sources fall below the required threshold for source monitoring.
- CTDEP began conducting Pb sampling as of January 1, 2010 on a 1-in-6 day sampling schedule. Analysis is non-destructive XRF on lo-vol PM10 filters.



Very Unhealthy
200
Unhealthy
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Unhealthy for Sensitive Groups
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Moderate
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Good



New Requirements to the Connecticut Air Monitoring Network

SO₂ (Sulfur Dioxide) Monitoring

- The 2010 standard requires a minimum number of SO₂ monitors in each CBSA based on a population-weighted SO₂ emissions index (PWEI).

CBSA ID	CBSA Name	CBSA Population (7/2009)	2008 NEI SO ₂ per CBSA (tpy)	PWEI (Million person-tpy)	Minimum Monitors Required
25540	Hartford-West Hartford-East Hartford	1195943	4817	5761	1
14860	Bridgeport-Stamford-Norwalk	900678	6413	5776	1
35300	New Haven-Milford	848434	3810	3233	0
35980	Norwich-New London	264293	1427	377	0
45860	Torrington	188000	862	162	0
48740	Willimantic	117478	3243	381	0

- CTDEP is proposing the existing McAuliffe Park (East Hartford) and Edison School (Bridgeport) SO₂ monitors to satisfy the PWEI-based requirement.



New Requirements to the Connecticut Air Monitoring Network

Near Road Monitoring

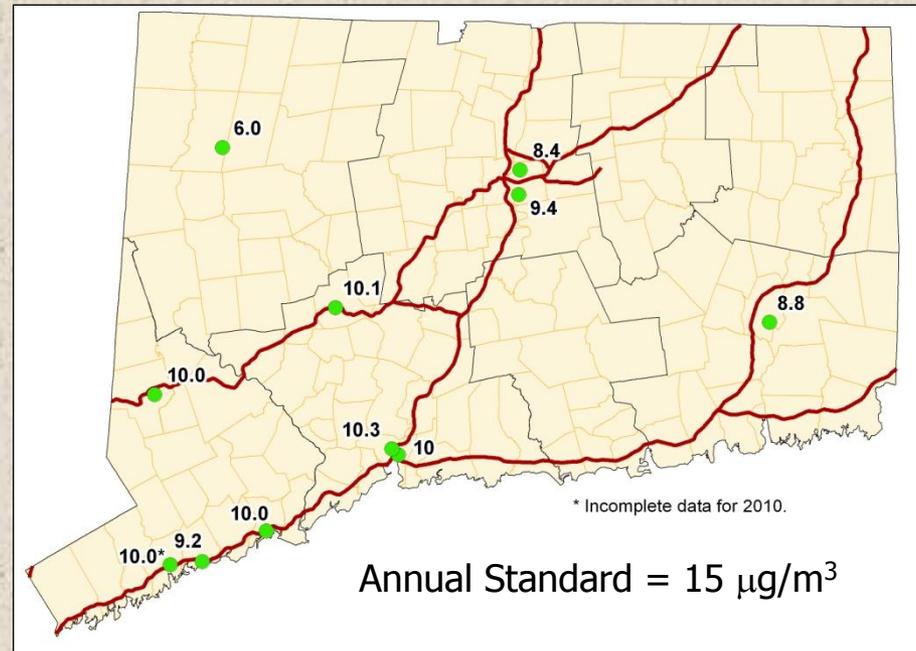
- NO₂ (Nitrogen Dioxide)
 - The 2010 NO₂ rule establishes a network of NO₂ near-road monitoring sites based on population estimates. All core-based statistical areas (CBSAs) with populations greater than 500,000 are required to have one near-road monitor, and CBSAs with more than 1,000,000 people require an additional community-based monitor.
 - Monitors should be placed close to the highest practical ADT (Average Daily Traffic) road segments within the CBSA.
 - Connecticut will be required to install new near-road sites in the Bridgeport-Stamford-Norwalk , New Haven-Milford and Hartford-West Hartford-East Hartford CBSAs.
 - Connecticut is currently investigating appropriate sites.

- CO (Carbon Monoxide)
 - EPA's recently proposed CO NAAQS revision includes monitoring requirements of one near-road monitor in CBSAs with populations greater than 1,000,000, which would apply to the Hartford-West Hartford-East Hartford CBSA.
 - It will be co-located with the proposed Hartford area NO₂ near-road monitor.
 - The new monitors must be operational by January 1, 2013.



PM_{2.5} Annual Design Value Map 2008-2010

3-year average of the respective annual averages



Site	Design Value (µg/m ³)
Bridgeport	10.0
Cornwall	6.0
Danbury	10.0
East Hartford - High St.	9.4
East Hartford - McAuliffe	8.4
New Haven - Criscuolo	10.0
New Haven - State St.	10.3
Norwalk*	10.0
Norwich	8.8
Waterbury	10.1
Westport	9.2





PM_{2.5} Daily Design Value Map 2008-2010

3-year average of the annual 98th percentile values



Site	Design Value ($\mu\text{g}/\text{m}^3$)
Bridgeport	28
Cornwall	19
Danbury	27
East Hartford - High St.	25
East Hartford - McAuliffe	24
New Haven - Criscuolo	29
New Haven - State St.	29
Norwalk*	26
Norwich	24
Waterbury	27
Westport	27

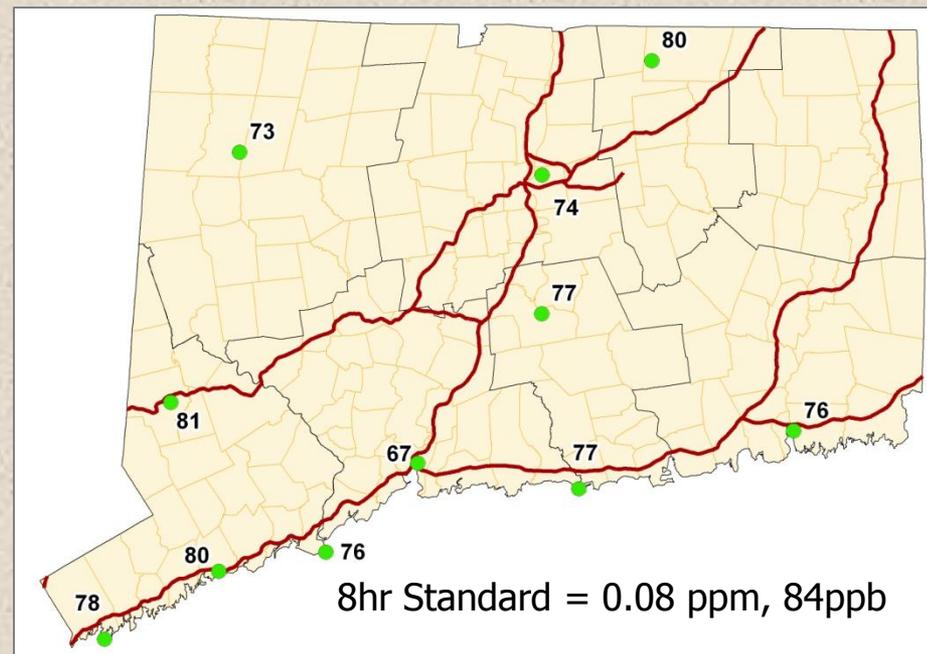




Ozone Design Value Map 2008-2010

3-year average of the annual 4th maximum daily maximum 8-hr ozone average

Site	Design Value (ppb)
Cornwall	73
Danbury	81
East Hartford	74
Greenwich	78
Groton	76
Madison	76
Middletown	77
New Haven - Criscuolo	67
Stafford	79
Stratford	76
Westport	80



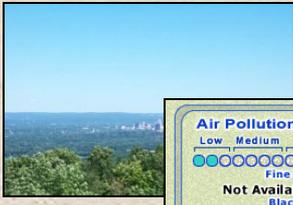
- There are no exceedances in reference to the current standard 84 ppb, the revised 2008 standard is expected July 31, 2011.



Connecticut 2011 Annual Air Monitoring Network Plan



Connecticut 2011 Air Monitoring Network

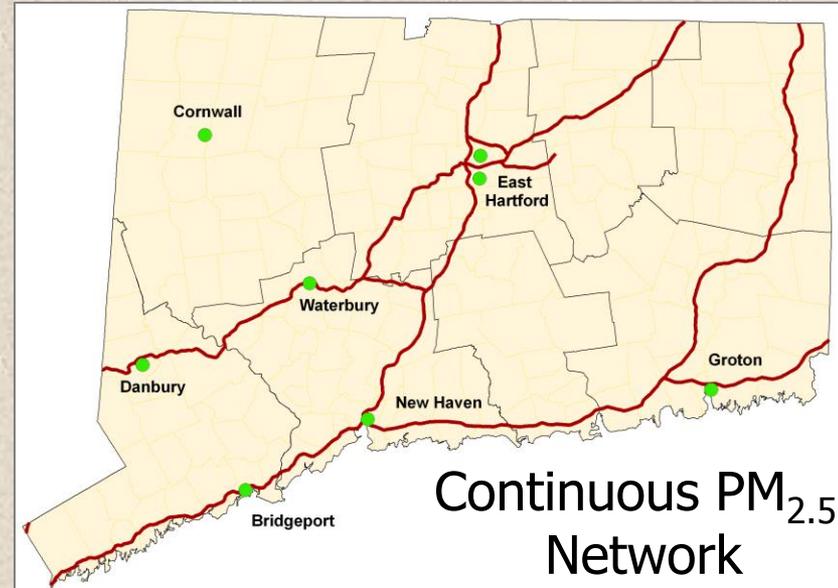


Air Pollution		Temp.	Wind	Precip.	About These Data
Low	Medium	Current	Speed	1 Hour	
High	42°		10 mph	N/A	
●●●●●●●● Fine Particles Not Available ●●●●●●●● Black Carbon ●●●●●●●● Ozone	Humidity 67%	Direction N	24 Hours N/A		

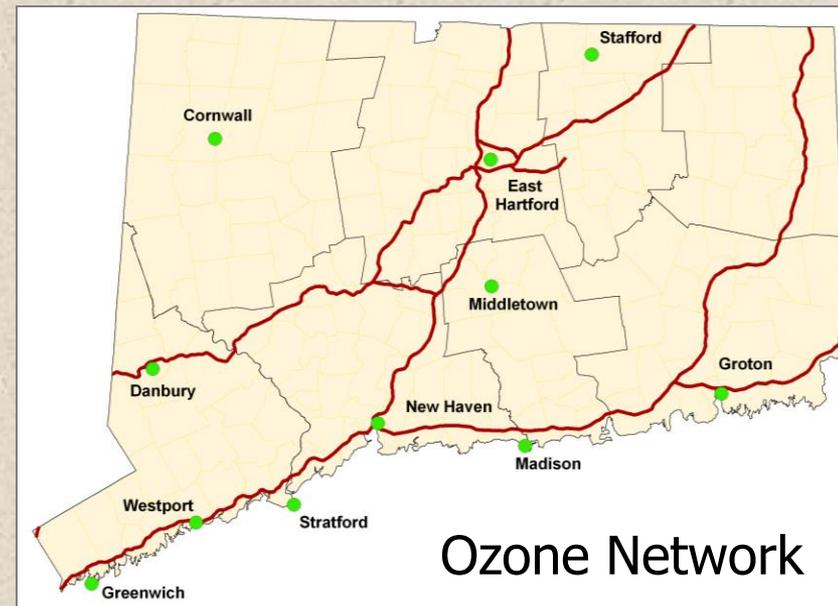
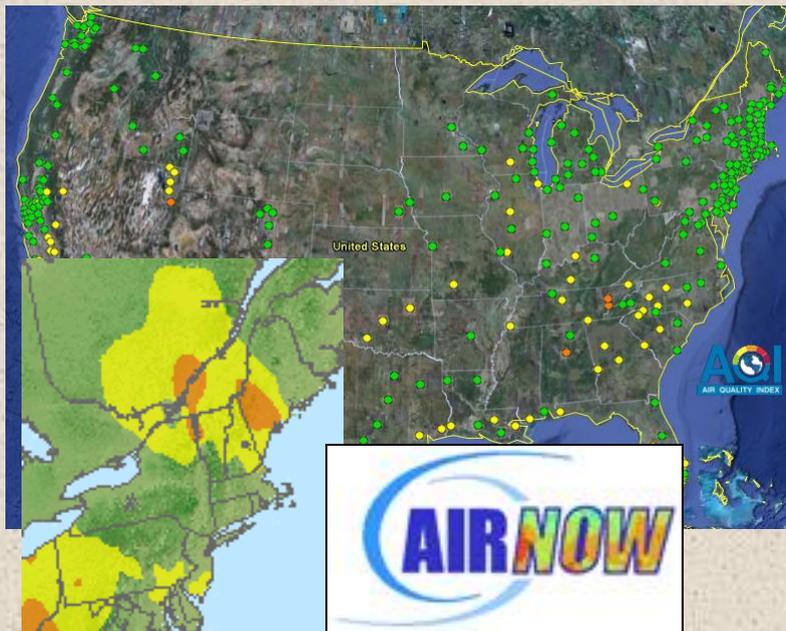


Monday, March 26, 2007

Yesterday's Air Quality	Good
Today's Air Quality	Good to Moderate
Tomorrow's Forecasted Air Quality	Good



Continuous PM_{2.5} Network



Ozone Network





Monitoring Site Information Table

Site Information Table

Town	Site	PM2.5 FRM	PM2.5 FRM colo	PM2.5 BAM	PM2.5 Nephelometer	PM2.5/PM10/PM-Coarse FDMS	PM10 FRM (lo-vol)	PM10 FRM colo	PM10 BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/JVC	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						
Cornwall	Mohawk Mountain	1/3		X	X	P	1/3		X		X	X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X		
Danbury	Western Connecticut State University	1/3		X											X											X	X	X		X				
East Hartford	High Street	1/3		X																						X	X							
East Hartford	McAuliffe Park	1/1		X			1/6							X	X	X	X	X			X	X				X	X	X	X		X			
Greenwich	Point Park														X												X	X	X	X				
Groton	Fort Griswold			X											X													X						
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	Criscuolo Park	1/1	1/6	X		P	1/3	1/6	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	
New Haven	State Street	1/3																																
Norwalk	Health Department	1/3																																
Norwich	Norwich Courthouse	1/3																																
Stafford	Shenipsit State Forest														X											X	X	X						
Stratford	Stratford Lighthouse														X													X						
Waterbury	Meadow & Bank Street	1/3	1/6	X																						X	X	X		X				
Westport	Sherwood Island State Park	1/3													X	X	X	X			X					X	X	X	X				X	

X=Existing, P =Planned, = Planned to Terminate, 1/1=Everyday sampling, 1/3=1-in-3 day sampling, 1/6=1-in-6 day sampling





Monitoring Site Information Page



Town - Site: **New Haven - Criscuolo Park**
 County: **New Haven**
 Address: **1 James Street**
 AQS Site ID: **09-009-0027**
 Spatial Scale: **Neighborhood**
 Statistical Area: **CSA (New York-Newark-Bridgeport)**

Latitude: **41.30117°**
 Longitude: **-72.90288°**
 Elevation: **3 m (10 ft)**
 Year Established: **2004**



Pollutant and Meteorological Parameters:

	PM _{2.5} FRM	PM _{2.5} FRM colr	PM _{2.5} BAM	PM _{2.5} Nephelometer	PM _{2.5} /PM ₁₀ /PM ₁₀ Coliase/EDMS	PM ₁₀ FRM (w-vol)	PM ₁₀ FRM colr	PM ₁₀ BAM	STN	IMPROVE	Continuous OC/EC	Continuous Sulfate	BC/UVc	Ozone	SO ₂	CO	NOx	NOy	Lead (Pb)	VOCs (PAMS)	Carbonyls (PAMS)	Cont. PAH	Mercury	Dioxins	Wind Speed	Wind Direction	Temperature	Dew Point	Rain Fall	Barometric Pressure	Solar Radiation
1/1	1/6	X			1/3	1/3	1/6	X	X	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, T=Planned to Terminate, 1/1=Everyday sampling, 1/3=1-in-3 day sampling, 1/6=1-in-6 day sampling

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

Monitoring Objectives: The New Haven Criscuolo Park site was approved to be an NCore site on October 30, 2009 by EPA OAQPS. The primary monitoring site objective is meet NCore requirements. Other monitoring site objectives include collecting PM_{2.5} FRM measurements for compliance purposes and continuous PM_{2.5} for AQI reporting and forecasting purposes. A PM_{2.5} collocated FRM sampler is operated at this site to gather precision measurements. PM_{2.5} chemical speciation measurements are collected through the EPA Speciation Trends Network (STN). A PM_{2.5} FRM is operated for compliance purposes, as well as to gather PM₁₀ measurements and obtain lead measurements to determine compliance with the newly established lead NAAQS. PM₁₀ FRM sampling frequency was increased from 1-in-6 day sampling to 1-in-3 day sampling to meet NCore requirements. A PM₁₀ collocated FRM sampler is operated at this site to gather precision measurements. Ozone is measured at the Criscuolo Park site for compliance assessment and AQI and forecasting purposes and PAMS and NO_x monitoring is conducted to obtain measurements of ozone precursors. Trace-CO measurements are being collected to complement the PAMS measurements. Trace-SO₂ monitoring is being conducted to collect PM precursor gas measurements.

Planned changes for 2011-2012: Install FEM-ready paired MetOne 1020 BAM PM_{2.5}/PM₁₀/PM_{CO} monitors.

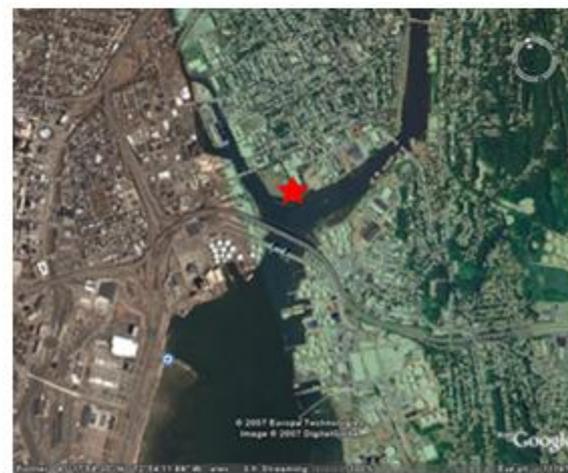


Monitoring Site Information Page (top)

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28

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1/1	1/6	X		P	1/3	1/6	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X

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Submit comments by July 6, 2011 to:

Peter Babich

By Email: pete.babich@ct.gov

or

By Mail: Peter Babich

CTDEP

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Hartford, CT 06106