

**Attachment 1 - Site Descriptions**

SITE ID	CITY	COUNTY	ADDRESS	Scale	Scale Comments	Reason for Monitor	ESTABLISHE	LATITUDE	LONGITUDE	MSA/CMSA
25-025-0002	BOSTON	SUFFOLK	KENMORE SQUARE	Middle	Five Road Intersection	Highest Concentration; Population Exposure	1/1/1965	+42.348933	-71.097708	Boston CMSA; Boston Metropolitan MSA
25-025-0042	BOSTON	SUFFOLK	HARRISON AVENUE	Neighborhood	Urban Background for Most Pollutants	Population Exposure	12/15/1998	+42.3295	-71.082619	Boston CMSA; Boston Metropolitan MSA
25-025-0043	BOSTON	SUFFOLK	150 NORTH STREET	Middle	Reconfigured 6/14	Population Exposure; Maximum Concentration	1/1/2000	+42.363069	-71.054336	Boston CMSA; Boston Metropolitan MSA
25-025-0044	BOSTON	SUFFOLK	19 VON HILLERN STREET	Middle	Near-road NO2 Site	Population Exposure; Maximum Concentration	6/15/2013	+42.325186	-71.056061	Boston CMSA; Boston Metropolitan MSA
25-023-0005	BROCKTON	PLYMOUTH	170 CLINTON STREET	Neighborhood	Replaced 25-023-0004 and added PM2.5 FEM	Population Exposure	6/30/2013	+42.065131	-71.012667	Boston CMSA; Brockton MSA
25-013-0008	CHICOPEE	HAMPDEN	ANDERSON ROAD	Urban	PAMS Springfield Type 2	PAMS - Max. Precursor; Others Population Exposure	1/1/1983	+42.194444	-72.555628	Springfield MSA
25-005-1006	FAIRHAVEN	BRISTOL	HASTINGS MIDDLE SCHOOL	Urban	Replaced previous Fairhaven Site	Population Exposure	6/30/2013	+41.645403	-70.898042	Boston CMSA
25-005-1004	FALL RIVER	BRISTOL	GLOBE STREET	Neighborhood		Highest Concentration; Population Exposure	2/1/1975	+41.685728	-71.169764	Providence-Pawtucket-Fall River MSA
25-011-2005	GREENFIELD	FRANKLIN	Veterans Field	Urban/Neighborhood	New PM site; also replaces Amherst ozone site	Population Exposure	1/1/2014	+42.605816	-72.596689	Springfield MSA
25-009-5005	HAVRHILL	ESSEX	WASHINGTON STREET	Urban	PM2.5 Neighborhood	Population Exposure	7/19/1994	+42.770867	-71.102831	Boston CMSA; Lawrence MSA
25-009-6001	LAWRENCE	ESSEX	WALL EXPERIMENT STA	Neighborhood		Population Exposure	4/3/1999	+42.698245	-71.164951	Boston CMSA; Lawrence MSA
25-009-2006	LYNN	ESSEX	390 PARKLAND	Urban	PAMS Boston Type 2	PAMS - Max. Precursor; Ozone Population Exposure	1/1/1992	+42.474671	-70.971358	Boston CMSA; Boston Metropolitan MSA
25-021-3003	MILTON	NORFOLK	BLUE HILL	Urban	Transport PM and Ozone; Elevated Terrain	Upwind Background PM2.5; Maximum Ozone	4/2/2002	+42.2118	-71.114506	Boston CMSA; Boston Metropolitan MSA
25-009-4005	NEWBURYPORT	ESSEX	261 NORTHERN BLVD	Urban	PAMS Boston Type 3	Maximum Ozone Conc.; Population Exposure	7/1/2010	+42.814444	-70.818333	Boston CMSA; Boston Metropolitan MSA
25-003-5001	PITTSFIELD	BERKSHIRE	78 CENTER STREET	Neighborhood		Population Exposure	12/1/1998	+42.448028	-73.254575	Pittsfield MSA
25-003-0006	PITTSFIELD	BERKSHIRE	1 SOUTH STREET	Neighborhood		Population Exposure	12/1/2005	+42.452036	-73.255556	Pittsfield MSA
25-013-0016	SPRINGFIELD	HAMPDEN	LIBERTY STREET	Neighborhood		Population Exposure; Maximum Concentration	4/1/1988	+42.109011	-72.591289	Springfield MSA
25-001-0002	TRURO	BARNSTABLE	FOX BOTTOM AREA	Regional	Regional Ozone Transport	General/Background	4/1/1987	+41.975833	-70.024167	Barnstable MSA
25-027-0024	UXBRIDGE	WORCESTER	366 E.HARTFORD AVE.	Urban	State line Upwind; Required for CMSA	Ozone Transport; Population Exposure	11/1/2008	+42.099722	-71.619917	Boston CMSA; Worcester MSA
25-015-4002	WARE	HAMPSHIRE	QUABBIN SUMMIT	Urban	PAMS Springfield Type3	Maximum Ozone Conc.; Background for some pollutants	6/1/1985	+42.298514	-72.334575	Springfield MSA
25-027-0015	WORCESTER	WORCESTER	WORC. AIRPORT	Urban	Worcester/Springfield Interface - Ozone	Population Exposure	5/7/1979	+42.274342	-71.876022	Boston CMSA; Worcester MSA
25-027-0016	WORCESTER	WORCESTER	2 WASHINGTON STREET	Neighborhood		Population Exposure	10/1/2003	+42.260125	-71.798889	Boston CMSA; Worcester MSA
25-027-0023	WORCESTER	WORCESTER	SUMMER STREET	Neighborhood	CO is Middle Scale	Population Exposure	1/1/2004	+42.263978	-71.794836	Boston CMSA; Worcester MSA
25-017-0009	CHELMSFORD	MIDDLESEX	EPA NERL	Urban	Downwind of Worcester	Population Exposure	4/1/2005	+42.626925	-71.362128	Boston CMSA; Lowell MSA
25-007-0001	AQUINNAH	DUKES	WAMPANOAG TRIBE	Middle		Regional	4/1/2004	+41.330489	-70.785764	Providence-Fall River-Warwick; RI-MA

**Attachment 2 - Site Measurements**

SITE ID	CITY	ADDRESS	O3	CO	SO2	Pb	NO	NO2	NOx	NOy	METEOROLOGICAL	PM10 (LV)	PM25 (FRM)	BAM 2.5	VOC (TOXICS)	VOC (PAMS)	CARBONYLS	BLACK CARBON
1 25-025-0002	BOSTON	KENMORE SQUARE			SO2t		NO	NO2	NOx			PM10 (6-DAY)	PM2.5 (3-DAY)					
2 25-025-0042	BOSTON	HARRISON AVENUE	O3	COt	SO2t	Pb	NO	NO2	NOx	NOy	WD, WS, TEMP, RH, BP, SOLAR	PM10 (2)(3-DAY )	PM2.5 (3-DAY)	FEM BAM 2.5	VOC (TOXICS)		CARBONYLS (6th-DAY)	BLACK CARBON
3 25-025-0043	BOSTON	150 NORTH STREET											PM2.5 (2) (Daily)	FEM BAM 2.5				BLACK CARBON
4 25-025-0044	BOSTON	19 VON HILLERN STREET		COt			NO	NO2	NOx		WD, WS, TEMP, RH, BP, SOLAR		PM2.5 (3-DAY)	FEM BAM 2.5				BLACK CARBON
5 25-023-0005	BROCKTON	170 CLINTON STREET	O3										PM2.5 (2) (3-DAY)	FEM BAM 2.5				
6 25-013-0008	CHICOPEE	ANDERSON ROAD	O3	COt			NO	NO2	NOx		WD, WS, TEMP, RH, BP, SOLAR		PM2.5 (2) (3-DAY)			VOC (PAMS)	CARBONYLS (PAMS)	
7 25-005-1006	FAIRHAVEN	HASTINGS SCHOOL	O3								WD, WS, TEMP, RH, BP, SOLAR							
8 25-005-1004	FALL RIVER	GLOBE STREET	O3		SO2								PM2.5 (3-DAY)	FEM BAM 2.5				
9 25-011-2005	GREENFIELD	FRANKLIN	O3								WD, WS, TEMP, RH, BP, SOLAR		PM2.5 (3-DAY)	FEM BAM 2.5				BLACK CARBON
10 25-009-5005	HAVERHILL	WASHINGTON STREET	O3								WD, WS, TEMP, RH, BP, SOLAR		PM2.5 (3-DAY)	FEM BAM 2.5				
11 25-009-6001	LAWRENCE	WALL EXPERIMENT STA											PM2.5 (3-DAY)					
12 25-009-2006	LYNN	390 PARKLAND	O3	COt			NO	NO2	NOx		WD, WS, TEMP, RH, BP, SOLAR, Precipitation		PM2.5 (3-DAY)	FEM BAM 2.5	VOC (TOXICS)	VOC (PAMS)	CARBONYLS (PAMS)	
13 25-021-3003	MILTON	BLUE HILL	O3				NO	NO2	NOx		WD, WS, TEMP, RH, BP, SOLAR			FEM BAM 2.5				
14 25-009-4005	NEWBURYPORT	261 NORTHERN BLVD	O3				NO	NO2	NOx	NOy	WD, WS, TEMP, RH, BP, SOLAR					VOC (PAMS)		
15 25-003-5001	PITTSFIELD	78 CENTER STREET											PM2.5 (3-DAY)					
16 25-003-0006	PITTSFIELD	1 SOUTH STREET												FEM BAM 2.5				
17 25-013-0016	SPRINGFIELD	LIBERTY STREET		CO	SO2		NO	NO2	NOx			PM10 (6-DAY)	PM2.5 (3-DAY)	FEM BAM 2.5				BLACK CARBON
18 25-001-0002	TRURO	FOX BOTTOM AREA	O3								WD, WS, TEMP, RH, BP, SOLAR		IMPROVE PM2.5 (3-DAY)					
19 25-027-0024	UXBRIDGE	366 E.HARTFORD AVE.	O3								WD, WS, TEMP, RH, BP, SOLAR							
20 25-015-4002	WARE	QUABBIN SUMMIT	O3		SO2t		NO	NO2	NOx	NOy	WD, WS, TEMP, RH, BP, SOLAR, Precipitation	PM10 (6-DAY)	IMPROVE PM2.5 (3-DAY)	FEM BAM 2.5		VOC (PAMS)		
21 25-027-0015	WORCESTER	WORC. AIRPORT	O3								WD, WS, TEMP, RH, BP, SOLAR							
22 25-027-0016	WORCESTER	2 WASHINGTON STREET											PM2.5 (3-DAY)					
23 25-027-0023	WORCESTER	SUMMER STREET		COt	SO2		NO	NO2	NOx			PM10 (6-DAY)	PM2.5 (3-DAY)	FEM BAM 2.5				
24 25-017-0009	CHELMSFORD	EPA NERL	O3															
25-007-0001	AQUINNAH	WAMPANOAG TRIBE	O3										IMPROVE PM2.5 (3-DAY)					

COt = Trace Range Carbon Monoxide

SO2t = Trace Range Sulfur Dioxide

Note: (2) means collocated measurements.

FEM BAM = Federal Equivalent Method Beta Attenuation Monitor

SPECIAL MONITORING

Synspec GC-PID (VOCs)

NCore; PM2.5 Speciation; Toxic Metals; PMcoarse; PAHS; Lead

PM2.5 Speciation

Lead

IMPROVE Operated By U.S. NPS

RADNET HiVOL TSP

**Attachment 3 - Sampling and Analytical Methods**

Parameter	Abbreviation	Sampling Methodology	Analytical Method	Sample Frequency
Ozone	O3	Continuous Instrument	Ultra Violet (UV) Light Photometry	Continuous/Hourly
Carbon Monoxide	CO	Continuous Instrument	Gas Filter Correlation; Non-Dispersive Infrared (NDIR) Detection	Continuous/Hourly
Sulfur Dioxide	SO2	Continuous Instrument	UV Fluorescence	Continuous/Hourly
Nitric Oxide	NO	Continuous Instrument	Chemiluminescence	Continuous/Hourly
Nitrogen Dioxide	NO2	Continuous Instrument	Chemiluminescence	Continuous/Hourly
Total Nitrogen Oxides	NOx	Continuous Instrument	Chemiluminescence	Continuous/Hourly
Total Reactive Nitrogen	NOy	Continuous Instrument	Chemiluminescence	Continuous/Hourly
Lead	Pb	Low Volume; Size Selective	X Ray Fluorescence	1 Every 6th Day/24 hour
PM2.5	PM2.5	Low Volume; Size Selective	Gravimetric	1 Every 3rd Day/24 hour
PM10	PM10	Low Volume; Size Selective	Gravimetric	1 Every 6th Day/24 hour
PM2.5 Hourly	BAM	Continuous Instrument	Beta Attenuation	Hourly
PM2.5 Speciation	STN	Low Volume; Size Selective	ICPMS /Ion Chromatography/ Total Carbon	1 Every 3rd Day/24 hour
PM Coarse	PM Coarse	Subtraction; PM10 minus PM2.5	Gravimetric	1 Every 3rd Day/24 hour
IMPROVE PM2.5	IMPROVE	Low Volume; Size Selective	IMPROVE Protocol	1 Every 6th Day/24 hour
Black Carbon	BC	Continuous Instrument	Optical Transmittance	Continuous/Hourly
Toxic Elements	HV Toxics	High Volume/PM10	ICP/MS	1 Every 6th Day/24 hour
Toxic VOCs	VOCs (Toxics)	Passivated Canister	GC/MS	1 Every 6th Day/24 hour
Toxic VOCs (Kenmore)	VOCs (Toxics)	AutoSampling Gas Chromatograph	GC-PID	Every 15 minutes ;Averaged to One hour
Toxic Carbonyls	Carbonyls	DNPH on Silica Gel Traps	HPLC	1 Every 6th Day/24 hour
PAMS VOCs	VOCs (PAMS)	Subambient Preconcentration	GC-FID	Hourly (Season)
PAMS VOCs	VOCs (PAMS)	Passivated Canister	GC-FID	1 Every 6th Day/24 hour (Year Round)
PAMS Carbonyls	Carbonyls (PAMS)	DNPH on Silica Gel Traps	HPLC	8 3-hour Every Third Day (Season)
PAMS Carbonyls	Carbonyls (PAMS)	DNPH on Silica Gel Traps	HPLC	1 Every 6th Day/24 hour (Year Round)
Polyaromatic Hydrocarbons	PAHs	Quartz Filter; PUF Cartridge	GC/MS	1 Every 6th Day/24 hour (Year Round)
Wind Speed/Direction	WS/WD	Continuous Instrument	Ultrasonic Sensors	Hourly
Solar	Solar	Continuous Instrument	Pyranometer	Hourly
Relative Humidity	RH	Continuous Instrument	Electronic Sensor	Hourly
Ambient Temperature	Tem	Continuous Instrument	Electronic Thermister	Hourly
Barometric Pressure	BP	Continuous Instrument	Electronic Sensor	Hourly
Precipitation	Precip	Continuous Instrument	Tipping Bucket	Hourly