

2004 Annual Report on Air Quality in New England



United States Environmental Protection Agency, Region 1
Office of Environmental Measurement and Evaluation
North Chelmsford, MA 01863

August 2005

Ecosystems Assessment Unit

<http://www.epa.gov/region01/lab/reportsdocuments.html>

This Report has been prepared by the ECA Group at OEME with special thanks to;
Andrea Newman, Veridian Corp for the maps
Ann Sorensen, MADEP for help with Charts

If you would like a printed copy of this report contact the Author:
Wendy McDougall
OEME
11 Technology Drive
N.Chelmsford, MA 01863
(617)918-8323

The Photo on the cover is of Burlington, Vermont from www.hazecam.net

Table of Contents

Introduction	1
National Air Quality Standards.....	2
Health Effects of Criteria Pollutants.....	3
Ambient Air Quality Data, with 10 year Charts.....	5
Abbreviations and Symbols used in Air Quality Data Tables.....	6
Regional Data Summary.....	7
AQS Precision and Accuracy Data.....	104
Region I Non-Attainment Areas.....	106
Performance Evaluation Program Audits.....	108
State and Regional Contacts.....	110
Emission and Ozone Contacts	111

2004 ANNUAL REPORT ON AIR QUALITY IN NEW ENGLAND

This report represents 2004 annual air quality information for all states in New England. The majority of the data, included in this report, were submitted to EPA by the states from their ambient monitoring networks in accordance with 40 CFR 58. The only data from industrial monitors, which have been included, are from the Massachusetts Industrial Network, EPA-required networks in New Hampshire and Maine's licensing program. These industrial sites supplement the state networks.

This report reflects the status of the AIRS database as of May 2005. The majority of data used have been evaluated and verified by EPA. However, for those monitors that appear to be violating an applicable ambient air quality standard, the data may require further evaluation by both EPA and the states. For the 8-hour ozone standard, and the PM_{2.5} standard, EPA has designated areas as attainment/non-attainment.

A table of the National Ambient Air Quality Standards (NAAQS) follows this introduction.

There is a list of health effects of the criteria pollutants after the NAAQS.

The following table lists, by state, a summary of criteria pollutant data from sites in each state in New England, and from industrial sites in New Hampshire, Massachusetts, and Maine. The information presented compares the measured values to each NAAQS; it includes the number of violations, the maximum and second high values, and the annual means (arithmetic mean or average for SO₂, PM₁₀ and NO₂). An annual mean is not valid for intermittent data unless there are four valid quarters. For PM₁₀, 75% of the scheduled samples must be available for a quarter to be considered valid. For continuous data, 75% of the year must be available to calculate a valid annual average.

Included with this table, are graphs of selected air quality monitoring sites that show a multi-year span of data for PM₁₀, CO, PM_{2.5}, SO₂, and NO₂. A graph of the number of days ozone exceeded the standard during the last five years is used.

The State maps included display the location of the monitoring sites.

Precision and accuracy data submitted by the six New England states is graphed in a chart following the data tables. The 95% probability limit for six criteria pollutants are given as a network average for each state.

There are maps of the current areas in New England designated non-attainment by EPA. This is followed by the Performance Evaluation Program Audits.

The last section is a list of AIRS state and regional Air Quality Contacts and Emission data contacts, their addresses and phone numbers.

NATIONAL AIR QUALITY STANDARDS^a

For Criteria Pollutants

<u>Pollutant</u>	<u>Averaging Time</u> <u>Secondary Standards^c</u>	<u>Primary Standards^b</u>	
SO ₂	Annual Arithmetic Mean	80 ug/m ³ (0.03 ppm)	
	24 hours	365 ug/m ³ (0.14 ppm)	
	3 hours	--	1300 ug/m ³ (0.5 ppm)
Pm _{fine} ^{fg}	Annual (3-year average)	15.0 ug/m ³	Same as Primary
	24 hours	3-year average of 98 th percentile values ≤65 ug/m ³	Same as Primary
PM ₁₀ ^{df}	Annual Arithmetic Mean	50 ug/m ³	Same as Primary
	24 hours	150 ug/m ³	Same as Primary
CO	8 hours	9 ppm	Same as Primary
	1 hour	35 ppm	Same as Primary
O ₃ ^e	1 hour	0.125 ppm	Same as Primary
	8 hour	0.08 ppm	Same as Primary
NO ₂	Annual Arithmetic	(0.05 ppm)	
	Mean	100 ug/m ³	Same as Primary
Pb	Calendar Quarter Arithmetic Mean	1.5 ug/m ³	Same as Primary

^a National standards, other than those based on annual arithmetic means, are not to be exceeded more than once a year.

^b National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

^c National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

^d PM₁₀ replaced TSP as the ambient particulate standard effective July 31, 1987, and includes only those particles with an aerodynamic diameter of ≤ a nominal 10 microns. Expected number of exceedances shall not be more than one per year (3 year average) as determined by Appendix K and N of 40CFR Part 50.

^e 1-Hour: Expected number of exceedance days shall not be more than one per year (3 year average) as determined by Appendix H of 40CFR Part 50.

8-Hour: The standards are met at an ambient air quality site when the average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm as determined by Appendix I of 40CFR 50.

^f Measurement of PM₁₀ is at Standard Temperature and Pressure (STP). Measurement of PM_{2.5} for purposes of comparison to the standards shall be reported based on actual ambient temperature and pressure at the monitoring site during the measurement period.

^g Appendix N of 40 CFR Part 50 gives the specific procedures for determining whether the PM_{2.5} Primary and Secondary Annual and 24 Hour Standards are attained.

Health Effects of Criteria Pollutants

Lead (Pb)

Brain damage, kidney damage, and gastrointestinal distress are seen from short-term exposure to high levels of lead. Long-term exposure to lead in humans results in effects on the blood, central nervous system, blood pressure, kidneys, and Vitamin D metabolism. Children are particularly sensitive to the chronic effects of lead, with slowed cognitive development, reduced growth and other effects reported. The major sources of lead air pollution are lead smelters and battery manufacturing plants.

Ozone (O₃)

Ozone can irritate the respiratory system, causing coughing, throat irritation, and/or an uncomfortable sensation in the chest. Ozone can reduce lung function and make it more difficult to breathe deeply and vigorously. Ozone can aggravate asthma and increase susceptibility to respiratory infections. It injures vegetation, and has adverse effects on materials. Ozone is generally highest on sultry summer afternoons. Ozone is formed in the atmosphere by the reaction of nitrogen oxides, and hydrocarbons in the presence of sunlight.

Sulfur Dioxide (SO₂)

Children and adults with asthma who are active outdoors are most vulnerable to the health effects of sulfur dioxide. The primary effect they experience, even with brief exposure, is a narrowing of the airways, which may cause symptoms such as wheezing, chest tightness, and shortness of breath. Long-term exposure to both sulfur dioxide and fine particles can cause respiratory illness, alter the lung's defense mechanisms, and aggravate existing cardiovascular disease. It combines with water to form acid aerosols and sulfuric acid mist which falls to earth as acid rain, causing plant and structural damage, and acidifying bodies of water. Major sources include power plants and industrial boilers.

Nitrogen Dioxide (NO₂)

In children and adults with respiratory disease, nitrogen dioxide can cause respiratory symptoms such as coughing, wheezing, and shortness of breath, and affect lung function. In children, short-term exposure can increase the risk of respiratory illness. Studies suggest that long-term exposure may cause permanent structural changes in the lungs. The sources of nitrogen dioxide are motor-vehicle exhaust, and fuel combustion sources such as electric power generating facilities.

Carbon Monoxide (CO)

People with cardiovascular disease, such as angina, may experience chest pain and more cardiovascular symptoms if they are exposed to carbon monoxide, particularly while exercising. In healthy individuals, exposure to higher levels of carbon monoxide can affect mental alertness and vision. Carbon monoxide forms when the carbon in fuels does not completely burn. Motor vehicles are the most significant source.

Particulate Matter (PM_{2.5} and PM₁₀)

Both fine and coarse particles can accumulate in the respiratory system. When exposed to particulate matter (PM), people with existing heart or lung problems are at increased risk of premature death or admission to hospitals or emergency rooms. Children and people with existing lung disease may not be able to breathe as deeply or vigorously as they normally would, and they may experience symptoms such as coughing and shortness of breath. PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, causing more use of medication and more doctor visits. PM includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Sources of fine particles include all types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads.

This page intentionally left blank

Site Maps, Narratives, Summary Data, and Charts for the Criteria Pollutants in the Six New England States

Abbreviations and Symbols used in the Ambient Air Quality Data Section

SITE ID	Site Identification number	OBS > 35	Number of observations greater than 35 ppm for CO
POC	Parameter Occurrence Code - differentiates between monitors for a given pollutant	MAX 8-HR:	1st Highest 8-hour value recorded in the year
MT	Monitor type: 1=NAMS National Air Monitoring Station, 2=SLAMS State/Local Air Monitoring Station, 3=Other, 4=Industrial, Industrially owned Air Monitoring Station, 6,7,8=PAMS Photochemical Assessment Air Monitoring Station 0=Unknown, C=Non EPA Federal		2nd Second highest 8-hour value recorded in the year
YR	Year	OBS > 9	Number of 8-hour ave. greater than 9 ppm for CO
REP ORG	Reporting Organization	OBS > 365	Number of 24-hour ave. greater than 365 ug/m ³ for SO ₂
#OBS	Number of Observations	MAX 3-HR:	1st Highest 3-hour value recorded in the year
MAX 24-HR:	1st Highest 24-hour value recorded in the year		2nd Second highest 3-hour value recorded in the year
	2nd Second highest 24-hour value for the year	Obs > 1300	Number of 3-hour ave. greater than 1300 ug/m ³ for SO ₂
	3rd Third highest 24-hour value for the year.	NUM MEAS	The valid number of days measured
	4th Fourth highest 24-hour value for the year.	NUM REQ	The valid number of days in the ozone season
ARITH MEAN	Arithmetic mean	NUM OBS	Number of Observations
WTD ARITH MEAN	Weighted arithmetic mean	SCHEDULED NUM OBS	Number of observations scheduled
GEO MEAN	Geometric mean	% OBS	Percent completed of number of observations scheduled
GEO STD	Geometric standard deviation	VALID DAILY 1-HR MAXIMUM:	Maximum hourly values for
QUARTERLY ARITH MEANS:			1ST the highest day
1ST	First quarter arithmetic mean		2ND the second highest day
2ND	Second quarter arithmetic mean		3RD the third highest day
3RD	Third quarter arithmetic mean		4TH the fourth highest day
4TH	Fourth quarter arithmetic mean	VALS > .125: MEAS	Number of measured daily maximum \geq 0.125 ppm
MEANS > 1.5	Number of quarterly means greater than 1.5 ug/m ³ for lead	VALS > .125: EST	Number of expected violations
MAX VALUES:	1st Highest 24-hour value recorded for the year	MISS DAYS ASSUMED < STANDARD	Number of missing days assumed to be less than the standard
	2nd Second highest 24-hour value in the year.	THE DATA IN THE FOLLOWING SECTION CONSISTS OF BOTH STATE AND PRIVATE NETWORKS.	
METH	Method		
MAX 1-HR:	1st Highest 1-hour value recorded in the year		
	2nd Second highest 1-hour value recorded in the year		

2004 Summary of New England Ambient Air Quality and Atmospheric Deposition

The air quality in New England fluctuates with annual weather patterns. In general warm and dry summers result in higher concentrations of regional pollutants such as ozone and haze, than cool wet summers. The summer of 2004 was a slightly cooler summer than 2003. The slightly cooler summer in 2004 led to a slightly cleaner ozone season in 2004.

The maximum 1-hr ozone concentrations for each state in 2004 were: Connecticut (137 ppb ozone), Maine (117 ppb ozone), Rhode Island (136 ppb ozone), New Hampshire (116 ppb ozone), Massachusetts (130 ppb ozone) and Vermont (106 ppb ozone). Six ozone monitoring sites measured 1-hr ozone concentrations above or equal to 125 ppb ozone compared to 10 in 2003. Two ozone monitoring sites in New England recorded violations of the 8-hr ozone standard (the fourth highest 8-hr average ozone concentration ≥ 85 ppb ozone). In 2003, 14 ozone monitoring sites recorded violations to the 8-hr standard. The maximum single 8-hr average ozone concentration was recorded in Connecticut (111 ppb 8-hr average ozone). Vermont had no ozone monitoring sites that exceeded the 8-hr ozone standard.

Since 1993, the New England Photochemical Assessment Monitoring Stations (PAMS) have routinely measured air pollutants that contribute to the regional formation of ozone. These monitoring stations are located in each of the New England states, except Vermont. The 2004 regional PAMS data for ambient concentrations of hydrocarbon pollutants (total non-methane hydrocarbons-TNMOC) indicate that most, but not all, of the PAMS Type 2 core sites and downwind Type 3 and Type 4 sites are experiencing a continued decline in TMOC ambient concentrations from the mid-1990's.

For particulate matter, the highest annual average concentrations of fine particulate matter (PM_{2.5}) were measured in Connecticut (16.02 ug/m³) and in an urban location in Massachusetts (14.37 ug/m³). The highest annual average concentrations of PM₁₀ were also recorded in Connecticut (40.7 ug/m³). None of the PM₁₀ monitoring sites approached the PM₁₀ primary or secondary NAAQS for PM₁₀. The primary annual and acute (24-hr) exposure standards for fine particulate matter (PM_{2.5}) are based on a three year annual average and a three year average of the 98th percentile 24-hour concentration, respectively. In 2004 no sites in New England measured 24-hr PM_{2.5} concentrations exceeding the acute (98th Percentile) fine particulate standard. The data for 2002 – 2004 shows attainment of the annual fine particulate standard in the New England Region. Although the Stiles Street PM_{2.5} monitor in New Haven, CT has a 3-year annual average above the threshold of the annual PM_{2.5} standard, EPA has concluded that it is appropriate to consider the Stiles Street PM_{2.5} monitor a unique hot spot monitor, which is not appropriate for comparison with the annual PM_{2.5} NAAQS standard.

Air Quality Summary – Connecticut

Four carbon monoxide (CO) ambient monitoring sites operated in 2004. The highest recorded maximum 8-hour concentration (5.7 ppm) was recorded at the Hartford Courthouse site. This contrasts with previous 8-hour maximum measurements in 2003 and 2002 (5.7 ppm), 2001 (6.1 ppm), 2000 (8.5 ppm), 1999 (5.6 ppm), and 1998 (7.9 ppm). The trend graphs for the past twenty years show maximum concentrations of CO well below the national standards and indicated a downward trend in concentrations.

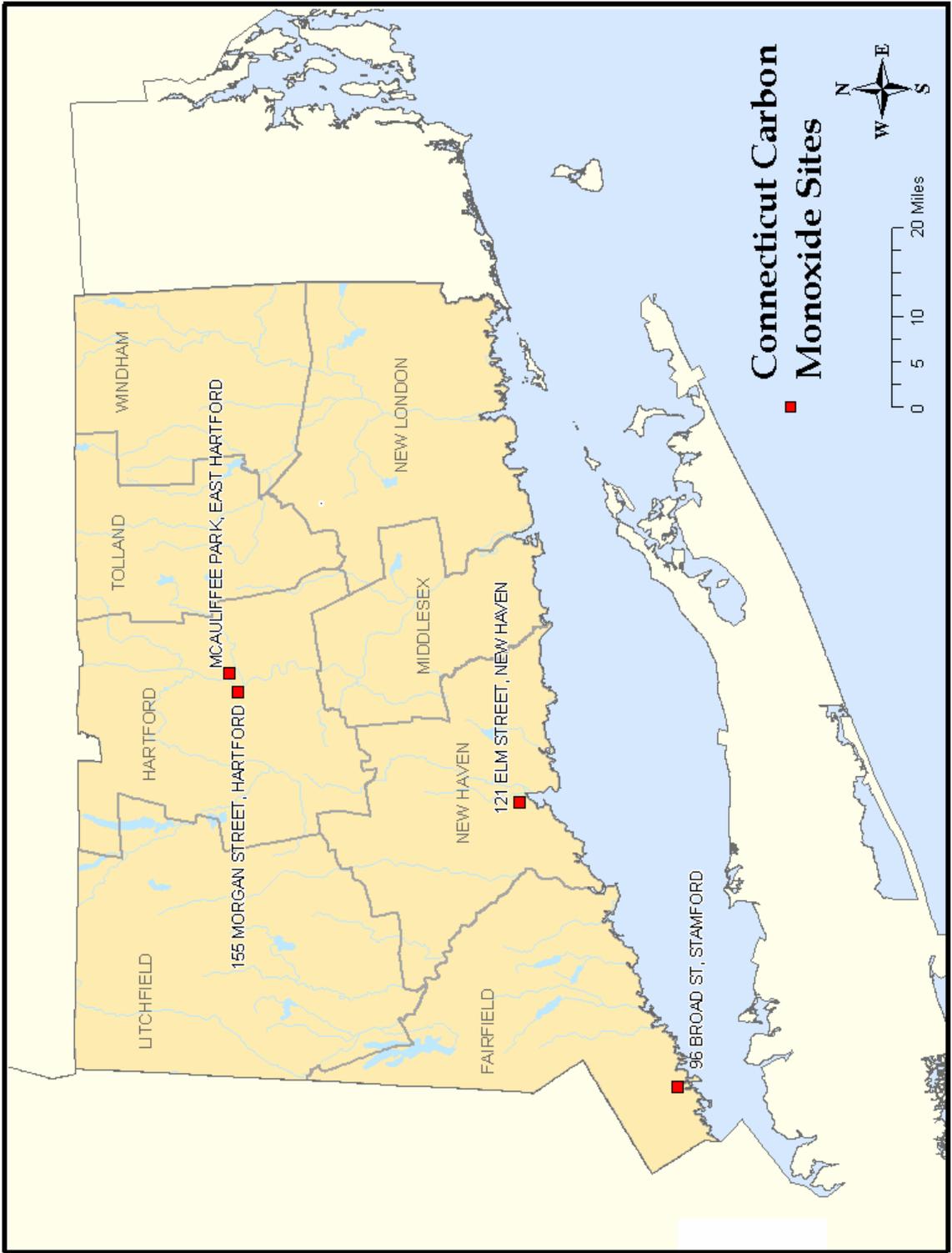
There have been no exceedances or violations of the quarterly lead (Pb) national standard for many years. By the end of 1996, the Connecticut ambient air monitoring program was reduced to one site, Waterbury. In 2002 the Waterbury monitoring site reported a maximum quarterly average Pb concentration of 0.02 ug/m³ (less than 2% of the NAAQS). Monitoring for lead in Connecticut was terminated late in 2002.

Not one of the four ambient air monitoring sites that measured nitrogen dioxide (NO₂) measured any violations of the NAAQS during 2004. New Haven reported concentrations that were roughly 50% of the NAAQS. The Photochemical Assessment Monitoring Stations (PAMS) located in East Hartford and Westport both reported concentrations of NO₂ well below the NAAQS. The twenty-year graphs for these sites show relatively constant annual concentrations of NO₂, and minor year-to-year fluctuations.

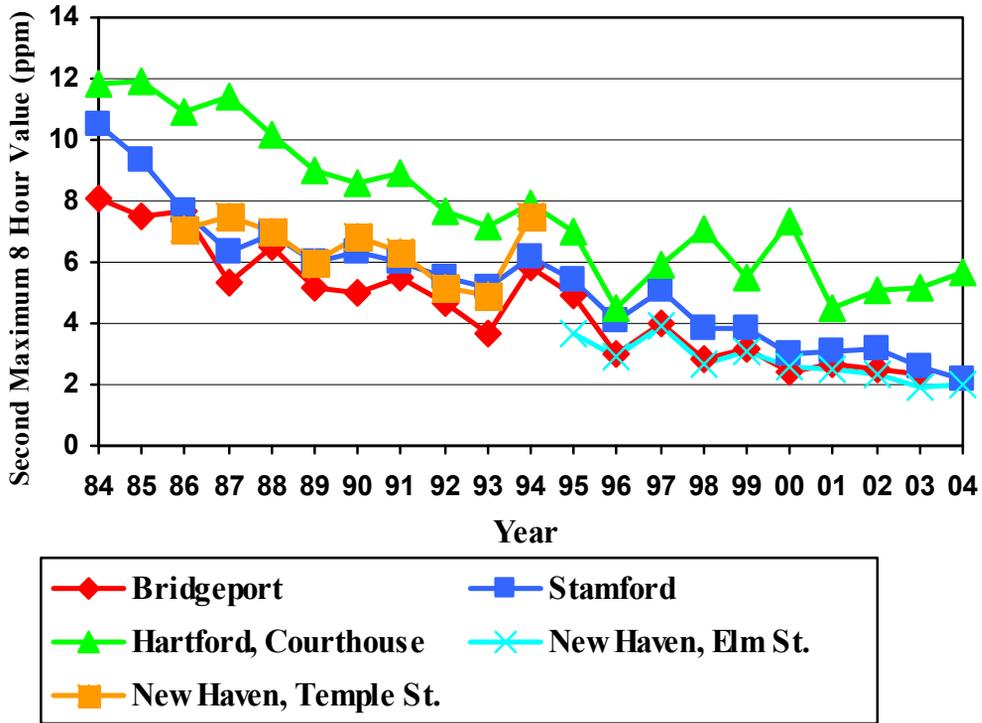
In 2004, three of the eleven ozone (O₃) monitoring sites exceeded the level of the 1-hour ozone standard. In 2003 seven of the eleven ozone exceeded the 1-hr NAAQS while in 2002 all eleven exceeded the 1-hour standard. In 2001 ten of the eleven sites exceeded this standard and in 2000 only five sites had comparable concentrations. In 1999 all of the ozone monitoring sites in Connecticut reported exceedances above the 1-hour NAAQS. These observed increases/decreases of NAAQS exceedances corresponds to changing summer weather conditions. Warm and dry summers, with more frequent periods of air stagnation and/or pollution transport conditions, generally record increased exceedances of the ozone NAAQS. The Madison ozone monitoring site measured the highest 1-hour maximum ozone concentration (137 ppb) and the highest second highest 1-hour maximum ozone concentration (106 ppb) was recorded in Westport.

During 2004, only one of the eleven ozone monitoring sites reported a fourth-highest daily 8-hour average ozone concentration above the level of the 8-hour NAAQS. In 2003 ten of the eleven ozone monitoring sites recorded values above the 8-hour NAAQS. The highest 8-hour ozone concentrations were measured in Madison (111 ppb). These data contrast to those recorded in 2002, 2001, 2000 and 1998, when the maximum 8-hour concentrations were 134, 133, 124 ppb and 118 ppb respectively.

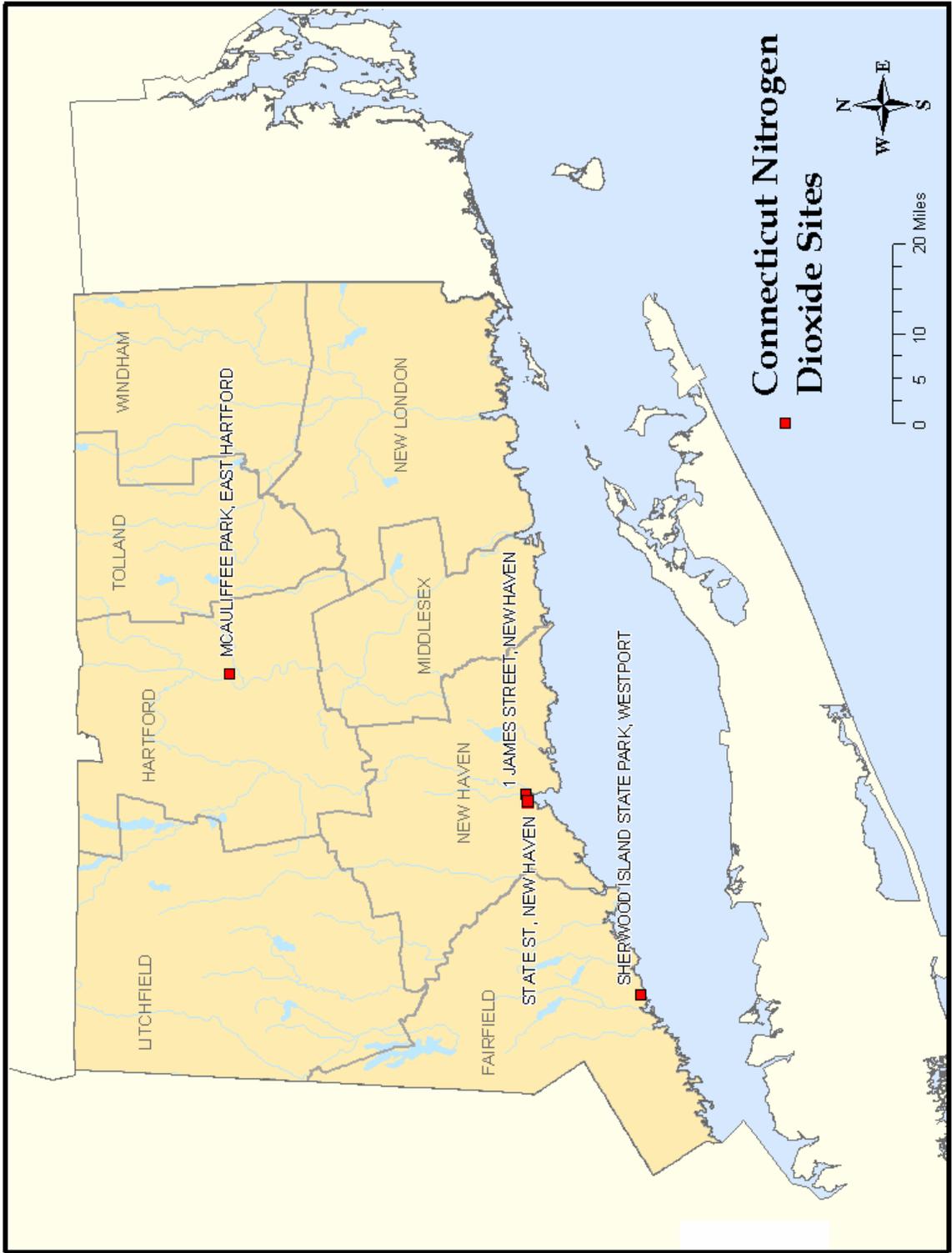
None of the monitoring sites that collected particulate matter of less than 10 microns (PM₁₀) recorded exceedances of either the 24-hour or the annual NAAQS for PM₁₀. As in 2002, 2001 and in 2000, the Stiles Street site in New Haven recorded the single highest 24-hour measurement (118 ug/m³). Similarly, the Stiles Street fine particulate monitoring site also recorded the highest weighted arithmetic average concentration (41 ug/m³). Of the sixteen PM_{2.5} monitoring sites in Connecticut that measured particulate matter in 2004, the New Haven area reported the highest concentrations. There were no exceedances or violations at any of the Connecticut ambient monitoring sites for either the 24-hour or 3-hour sulfur dioxide (SO₂) NAAQS. The highest annual arithmetic mean SO₂ concentration was measured at New Haven (5 ppb). New Haven also measured the highest 24-hour concentration (29 ppb) which was roughly 26% of the NAAQS. The twenty-year trend graphs for SO₂ show decreasing SO₂ concentrations with some year-to-year variability.



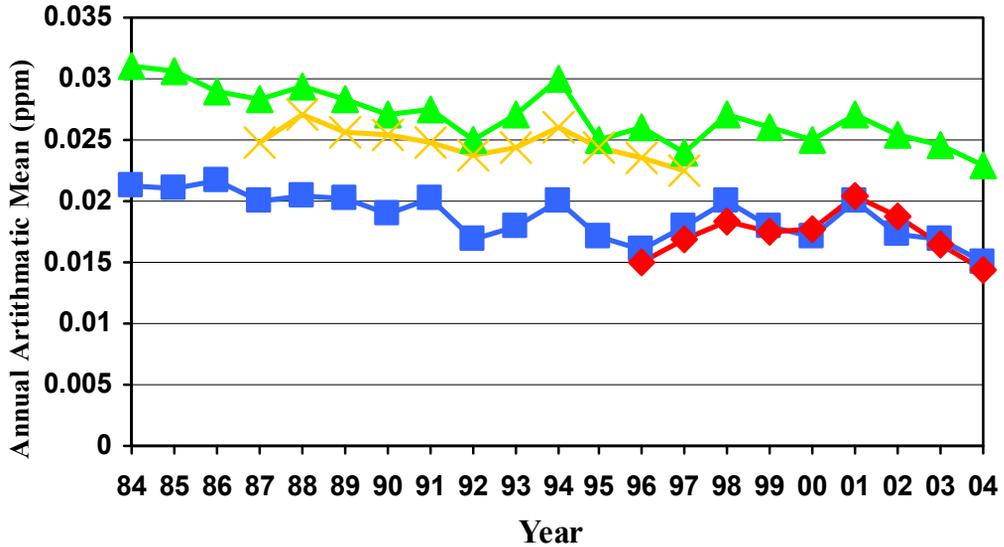
Connecticut Carbon Monoxide



Connecticut Carbon Monoxide													
All Values are in Units of Parts Per Million													
Site ID	P O Org	C Type	City	County	Address	# Obs	1-hour	1-hour	8-hour	8-hour	# > 9	Methods Used	
							Highest Value	2nd Highest Value	Highest Value	2nd Highest Value			
09-001-0020	1	251	Stamford	Fairfield	96 BROAD ST, LIBRARY	8514	4.2	4	0	3.1	2.2	0	54
09-003-0017	1	251	Hartford	Hartford	155 MORGAN STREET	8586	12.5	9.8	0	5.7	5.7	0	54
09-003-1003	1	251	East Hartford	Hartford	MCAULIFFEE PARK	8719	2.4	2.3	0	2	1.8	0	54
09-009-0025	1	251	New Haven	New Haven	121 ELM STREET	8436	3.1	2.8	0	2	2	0	54

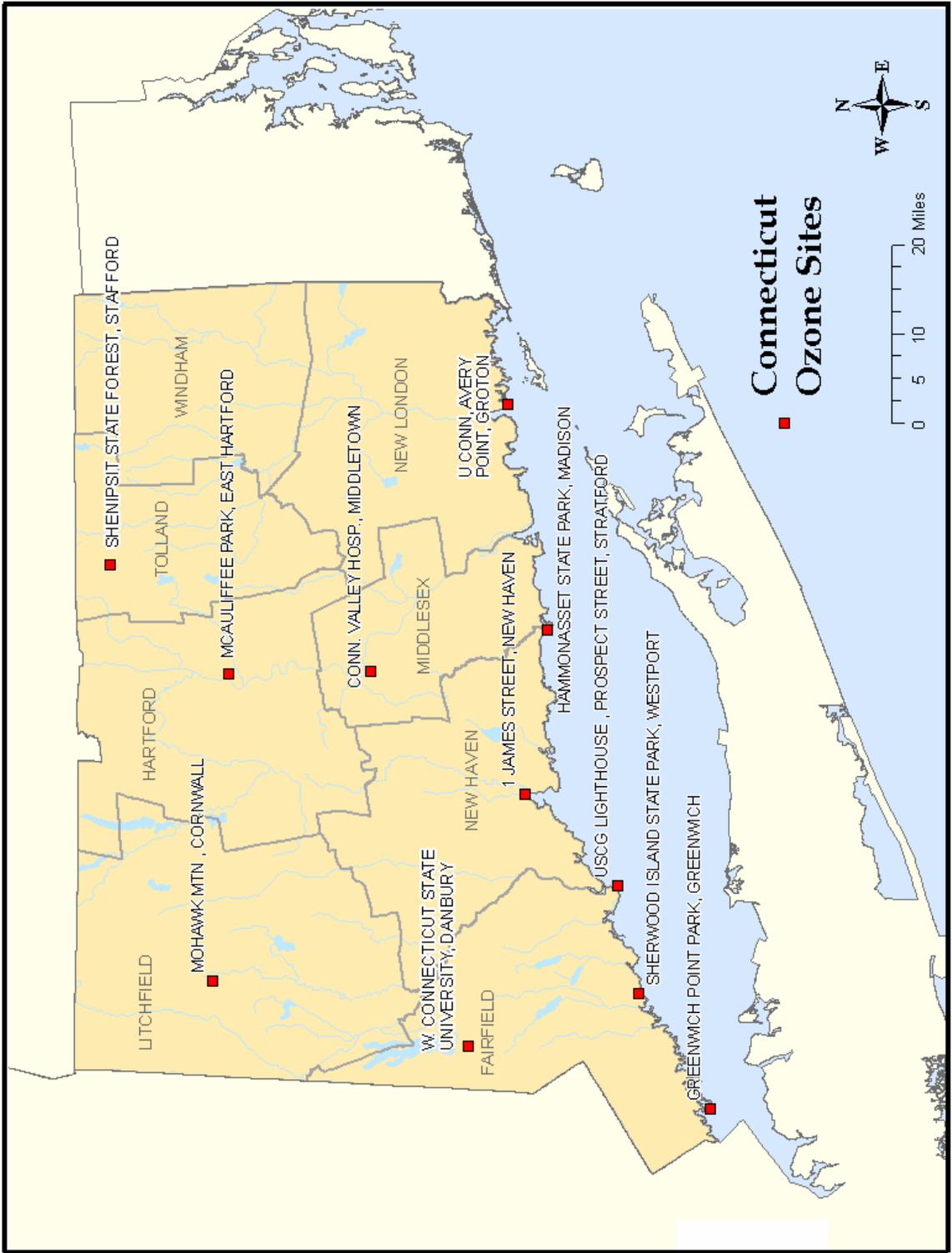


Connecticut Nitrogen Dioxide

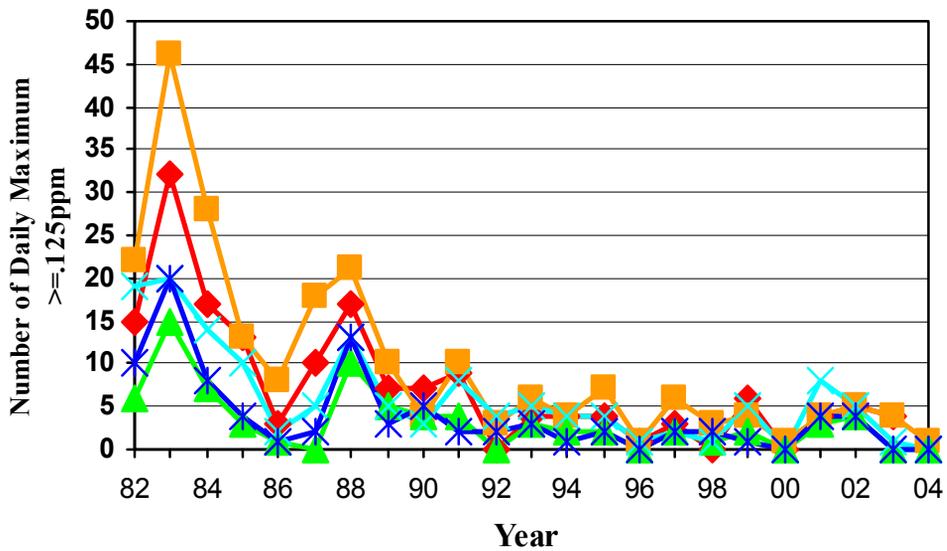


Connecticut										
Parameter: Nitrogen Dioxide										
All Values are in Units of Parts Per Million										
							1-hour	1-hour		
	P						Highest	2nd	Annual	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Highest	Arith.
09-001-9003	1	251	Westport	Fairfield	SHERWOOD ISLAND	74	8223	0.0580	0.0580	0.01440
09-003-1003	1	251	East Hartford	Hartford	MCAULIFFEE PARK	74	8607	0.0630	0.0630	0.01490
09-009-0027	1	251	New Haven	New Haven	1 JAMES STREET	74	7558	0.0770	0.0760	0.02020
09-009-1123	1	251	New Haven	New Haven	715 STATE STREET	74	960	0.0540	0.0520	0.02300 *

* Indicates that the mean does not satisfy summary criteria

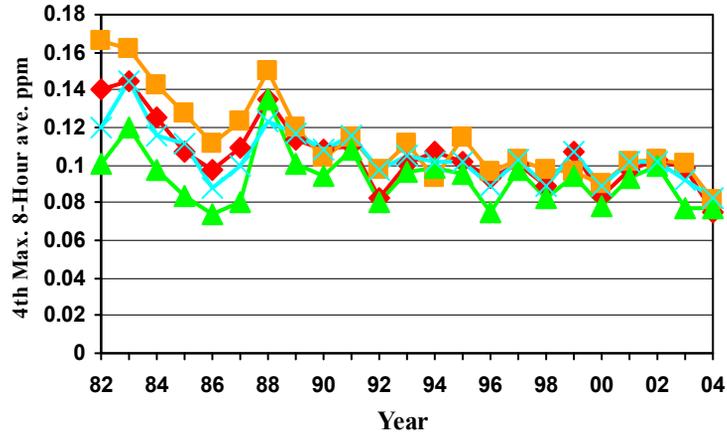


Connecticut Ozone 1-Hour Average



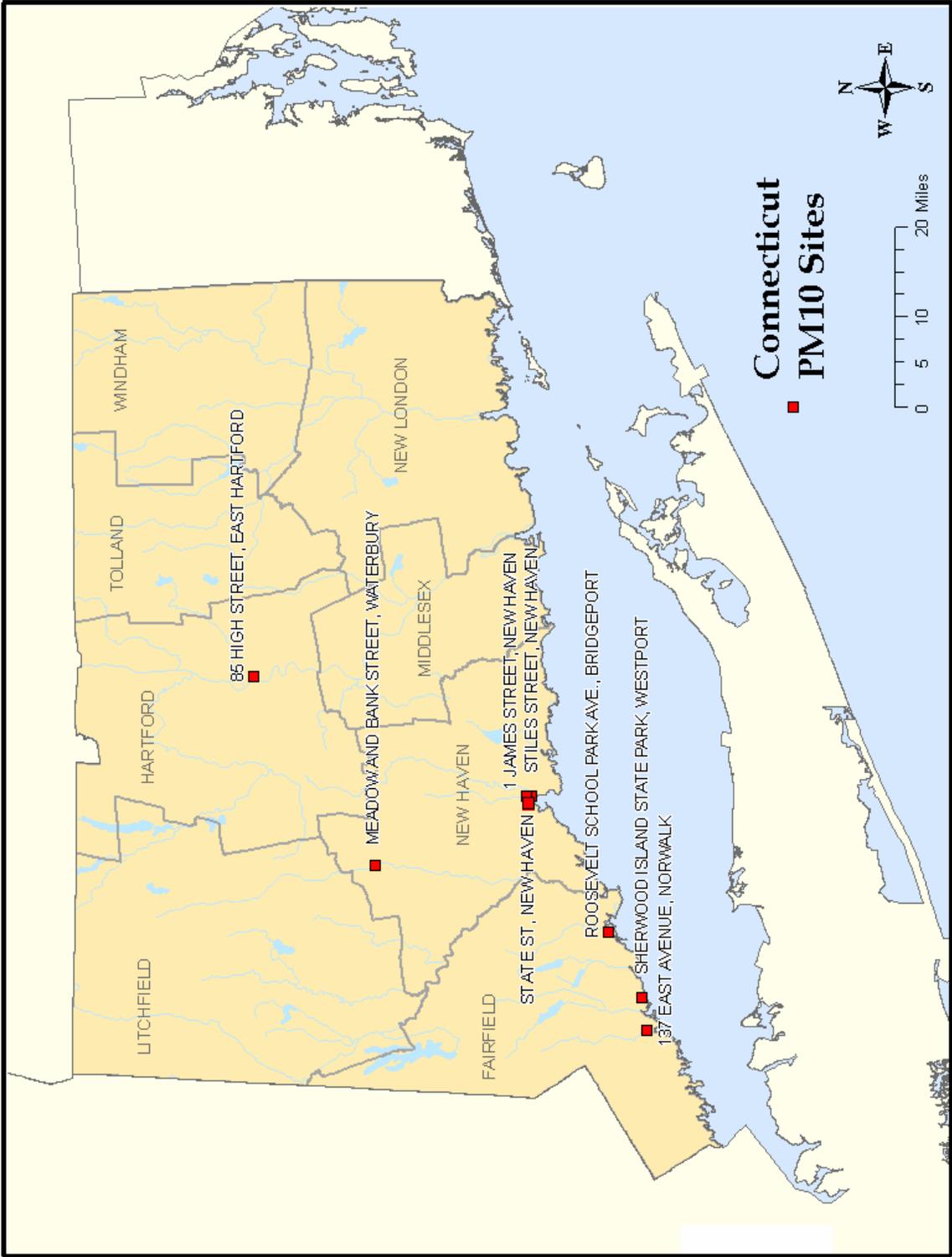
Connecticut															
Parameter: Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P									2nd	3rd	4th	Missing		
Site ID	O Rep.	C Org.	City	County	Address	Num Meas	Num Req	Highest Value	Highest Value	Highest Value	Highest Value	Day Max ≥ 0.125	Est. Day ≥ 0.125	Days < 0.125	Method used
09-001-0017	1	251	Greenwich	Fairfield	GREENWICH POINT PARK	175	183	0.108	0.102	0.101	0.098	0	0	2	47
09-001-1123	1	251	Danbury	Fairfield	W. CT STATE UNIVERSITY	182	183	0.108	0.104	0.103	0.102	0	0	1	47
09-001-3007	1	251	Stratford	Fairfield	USCG LIGHTHOUSE	183	183	0.135	0.105	0.103	0.099	1	1	0	47
09-001-9003	1	251	Westport	Fairfield	SHERWOOD ISLAND	182	183	0.129	0.106	0.098	0.097	1	1	0	47
09-003-1003	1	251	East Hartford	Hartford	MCAULIFFEE PARK	183	183	0.104	0.101	0.099	0.095	0	0	0	47
09-005-0005	2	251	Cornwall	Litchfield	MOHAWK MTN	174	183	0.108	0.105	0.100	0.099	0	0	1	47
09-007-0007	1	251	Middletown	Middlesex	CONN. VALLEY HOSPITAL	181	183	0.124	0.102	0.101	0.099	0	0	0	47
09-009-0027	1	251	New Haven	New Haven	1 JAMES STREET	183	183	0.104	0.096	0.093	0.092	0	0	0	47
09-009-3002	1	251	Madison	New Haven	HAMMONASSET STATE PARK	151	183	0.137	0.104	0.100	0.095	1	1.2	1	47
09-011-0008	1	251	Groton	New London	U. OF CONNECTICUT	181	183	0.119	0.086	0.083	0.082	0	0	2	47
09-013-1001	1	251	Stafford	Tolland	ROUTE 190	178	183	0.105	0.105	0.098	0.097	0	0	0	47

Connecticut Ozone 8-Hour Averages

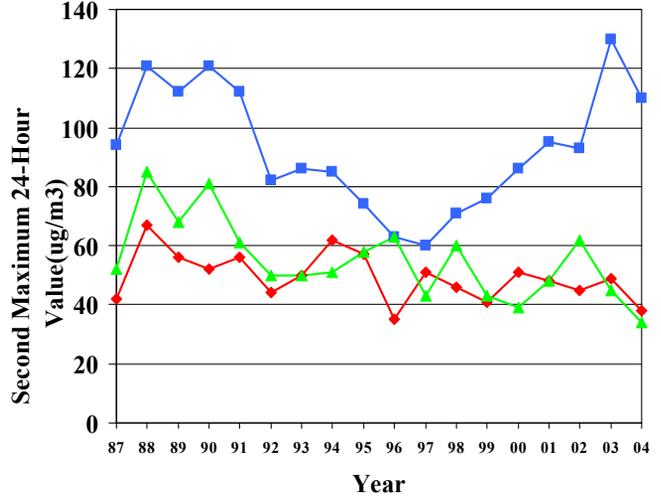
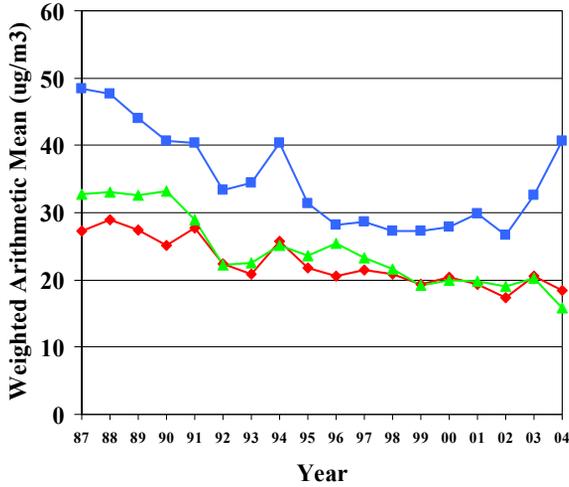


Connecticut														
Parameter: Ozone (8-Hour)														
All Values are in Units of Parts Per Million														
	P					Valid	Num		2nd	3rd	4th	Days		
	O Rept.				#	Days	Required	Highest	Highest	Highest	Highest	Max ≥	Method	
Site ID	C	Org.	City	County	Address	Obs	Meas.	Days	8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Reporte
09-001-0017	1	251	Greenwich	Fairfield	GREENWICH POINT PARK	94	172	183	0.085	0.084	0.079	0.075	1	47
09-001-1123	1	251	Danbury	Fairfield	W. CONNECTICUT STATE UNIVERSITY	99	182	183	0.098	0.092	0.086	0.086	4	47
09-001-3007	1	251	Stratford	Fairfield	USCG LIGHTHOUSE , PROSPECT ST.	99	182	183	0.110	0.088	0.081	0.081	2	47
09-001-9003	1	251	Westport	Fairfield	SHERWOOD ISLAND STATE PARK	98	179	183	0.099	0.087	0.082	0.081	2	47
09-003-1003	1	251	East Hartford	Hartford	MCAULIFFEE PARK	99	182	183	0.087	0.082	0.077	0.077	1	47
09-005-0005	2	251	Cornwall	Litchfield	MOHAWK MTN	93	171	183	0.099	0.086	0.084	0.083	2	47
09-007-0007	1	251	Middletown	Middlesex	CONN. VALLEY HOSPITAL	98	180	183	0.102	0.084	0.083	0.082	1	47
09-009-0027	1	251	New Haven	New Haven	1 JAMES STREET	99	181	183	0.085	0.078	0.077	0.073	1	47
09-009-3002	1	251	Madison	New Haven	HAMMONASSET STATE PARK	82	150	183	0.111	0.086	0.084	0.077	2	47
09-011-0008	1	251	Groton	New London	U CONN. AVERY POINT	98	180	183	0.095	0.079	0.077	0.075	1	47
09-013-1001	1	251	Stafford	Tolland	SHENIPSIT STATE FOREST	96	175	183	0.089	0.085	0.083	0.081	2	47

This page intentionally left blank



Connecticut Particulate Matter < 10 Microns (PM10)

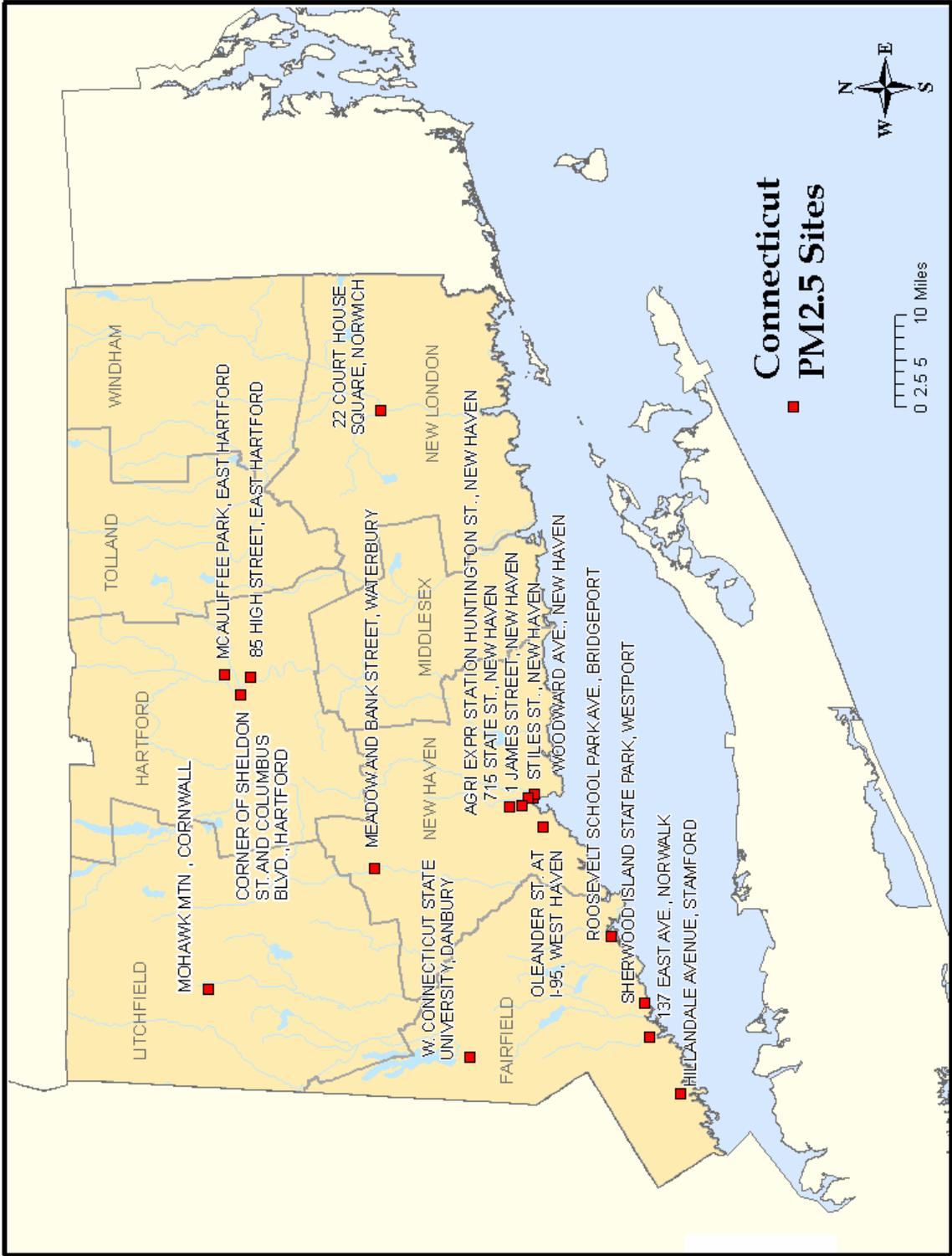


◆ Bridgeport Roosevelt School ■ New Haven Stiles St.
▲ Waterbury Meadow & Bank

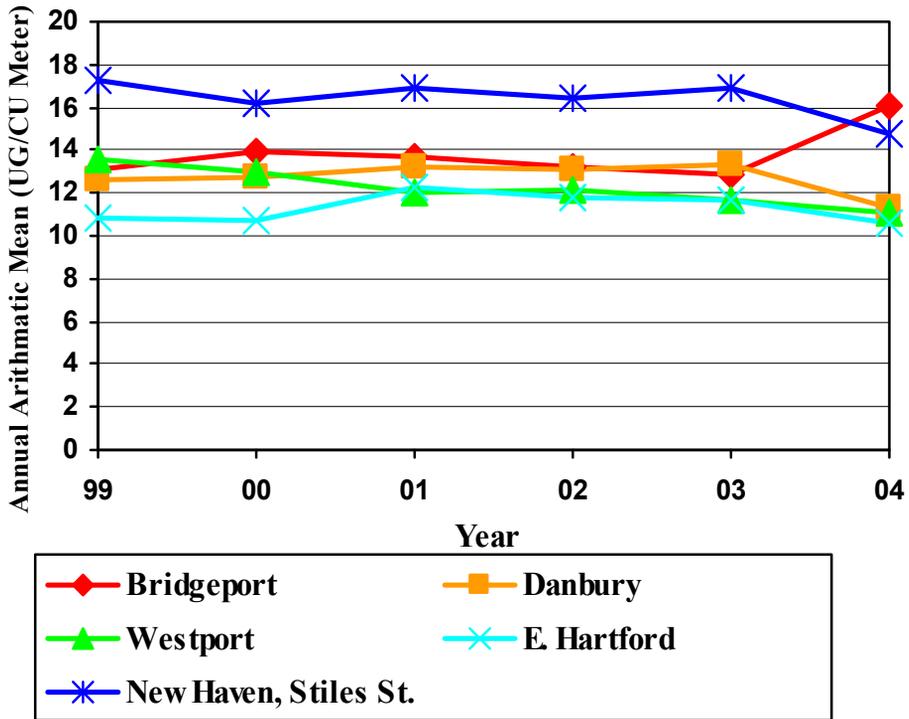
◆ Bridgeport Roosevelt School ■ New Haven Stiles St.
▲ Waterbury Meadow & Bank

Connecticut																
Particulate Matter < 10 Microns																
ug/m3																
	Rep.									2nd	3rd	4th	Days	Est.	Day	Wtd.
SITE ID	P Org	City	County	Address	# Obs	# Req.	Days	% Obs	Highest Value	Highest Value	Highest Value	Highest Value	Max >150	Max >150	Arith. Mean	Methods Used
09-001-0010	1	251 Bridgeport	Fairfield	ROOSEVELT SCHOOL	58	61	58	95	56	38	38	36	0	0	18.4	62
09-001-3005	1	251 Norwalk	Fairfield	137 EAST AVENUE	53	61	53	87	39	32	32	31	0	0	15.9 *	62
09-001-9003	1	251 Westport	Fairfield	SHERWOOD ISL ST PARK	58	61	58	95	27	26	26	25	0	0	12.6	62
09-003-2006	1	251 East Hartford	Hartford	85 HIGH STREET	57	61	57	93	42	33	32	29	0	0	15.0	62
09-009-0018	1	251 New Haven	New Haven	STILES STREET	60	61	60	98	64	52	49	48	0	0	25.9	62
09-009-0018	3	251 New Haven	New Haven	STILES STREET	336	366	336	92	118	110	110	101	0	0	40.7	122
09-009-0018	4	251 New Haven	New Haven	STILES STREET	8209	366	334	91	118	110	109	101	0	0	40.7	122
09-009-0027	1	251 New Haven	New Haven	1 JAMES STREET	51	52	51	98	49	35	33	30	0	0	15.5	62
09-009-1123	1	251 New Haven	New Haven	715 STATE STREET	8	9	8	89	30	25	23	20	0	0	16.9 *	62
09-009-2123	1	251 Waterbury	New Haven	MEADOW & BANK ST.	58	61	58	95	41	34	31	29	0	0	15.8	62
09-009-2123	2	251 Waterbury	New Haven	MEADOW & BANK ST.	55	61	55	90	43	35	33	30	0	0	16.8	62

*Indicates that the mean does not satisfy summary criteria

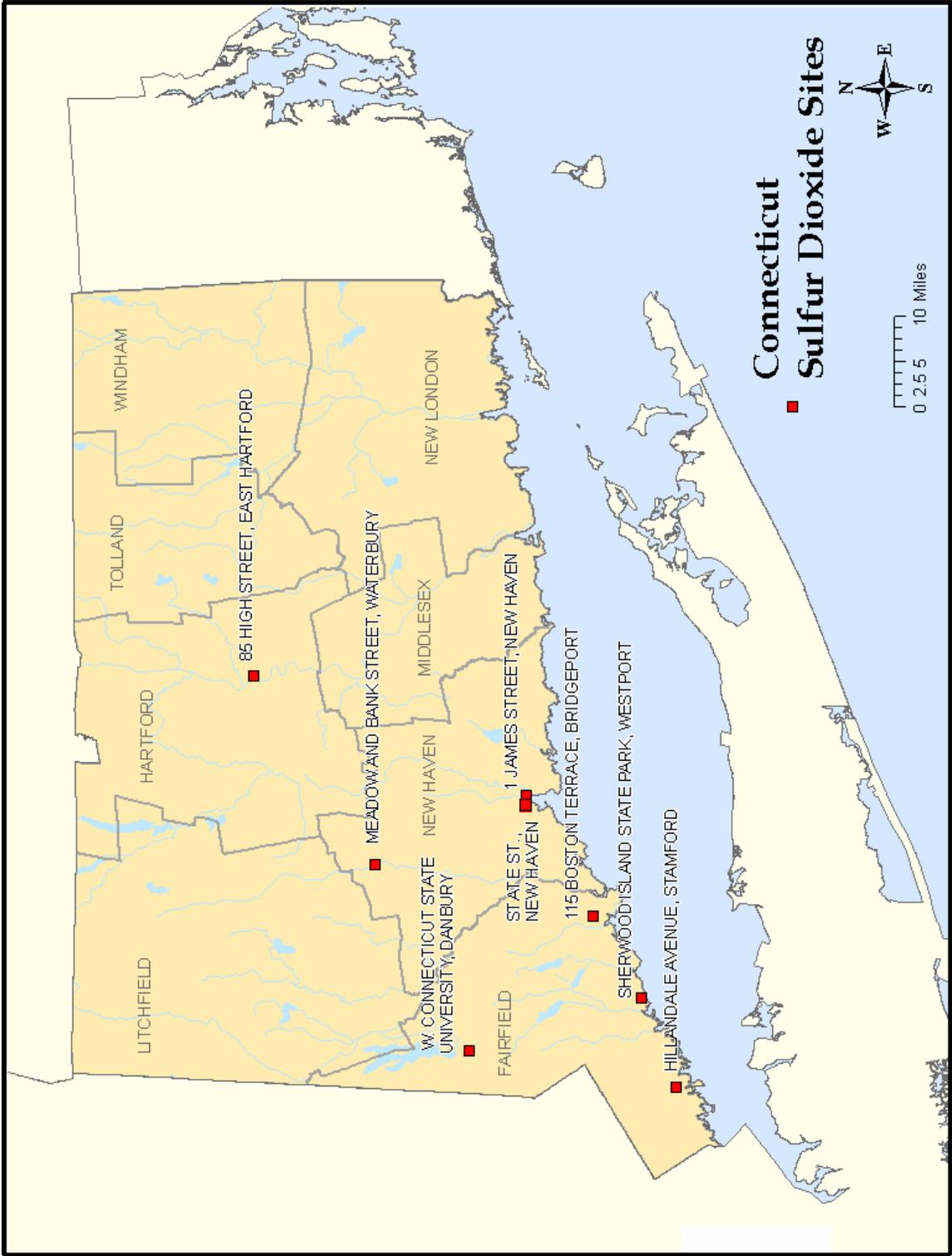


Connecticut Particulate Matter < 2.5 Microns (PM2.5)

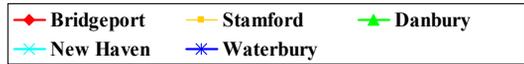
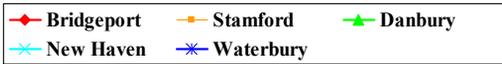
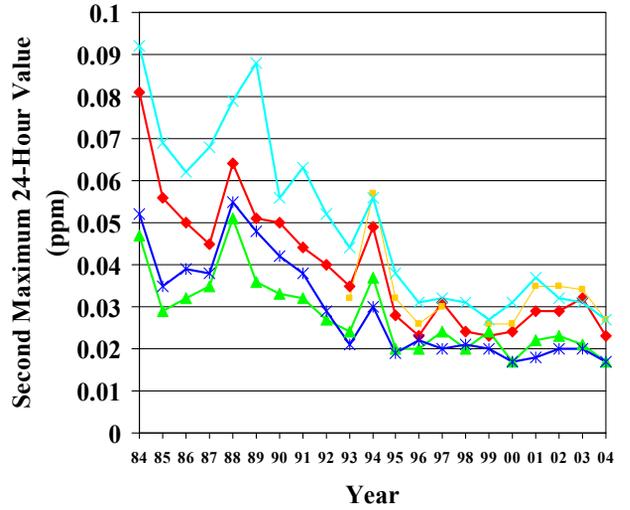
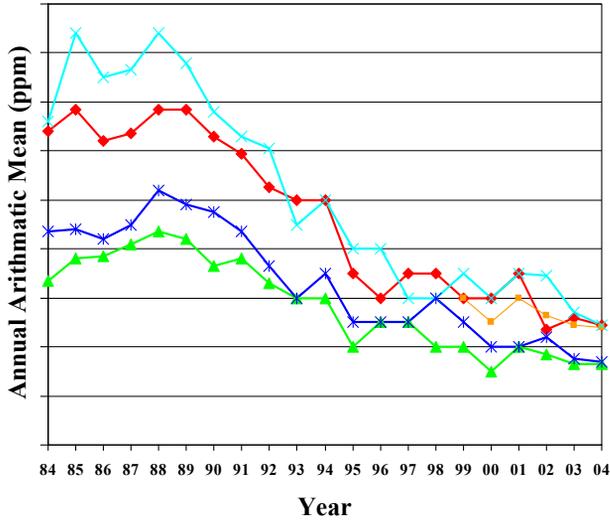


Connecticut													
Parameter: PM 2.5													
All Values are in UG/CU Meters Local Conditions													
	P					2nd	3rd	4th	98th	Wtd.			
	O Rept.				#	Highest	Highest	Highest	Highest	Percentile	Arith.	Method	
Site ID	C Org.	City	County	Address	Obs	Value	Value	Value	Value	Value	Mean	Used	
09-001-0010	1	251	Bridgeport	Fairfield	ROOSEVELT SCHOOL	87	46.0	44.2	34.2	32.5	44.2	12.39 *	145
09-001-0010	3	251	Bridgeport	Fairfield	ROOSEVELT SCHOOL	8432	52.2	50.8	44.5	44.1	41.0	16.02	731
09-001-1123	1	251	Danbury	Fairfield	W. CONNECTICUT STATE U.	94	41.0	38.4	27.5	26.8	38.4	11.29 *	145
09-001-2124	1	251	Stamford	Fairfield	HILLDALE AVE	97	40.5	35.0	32.2	31.4	35.0	11.84 *	145
09-001-3005	1	251	Norwalk	Fairfield	NORWALK HEALTH DEPT.	79	49.2	35.2	29.0	28.2	35.2	12.42 *	145
09-001-9003	1	251	Westport	Fairfield	SHERWOOD ISLAND	91	40.6	33.3	30.9	28.1	33.3	11.09 *	145
09-003-1003	1	251	East Hartford	Hartford	MCAULIFFEE PARK	275	53.1	39.3	35.6	34.4	30.8	10.64 *	145
09-003-1018	1	251	Hartford	Hartford	SHELDON ST	37	29.0	26.1	25.1	24.0	29.0	10.33 *	145
09-003-1018	3	251	Hartford	Hartford	SHELDON ST	2867	38.4	34.8	31.6	31.1	31.6	14.35 *	731
09-003-2006	3	251	East Hartford	Hartford	85 HIGH STREET	5422	55.6	53.7	47.4	44.6	42.7	16.76 *	731
09-005-0005	3	251	Comwall	Litchfield	MOHAWK MTN MICROWAVE	7015	44.1	36.7	35.2	32.3	28.0	9.15 *	731
09-009-0018	1	251	New Haven	New Haven	STILES STREET	262	40.0	38.0	36.6	35.4	34.4	14.81 *	145
09-009-0026	1	251	New Haven	New Haven	WOODWARD AVE	100	40.2	35.0	31.5	31.1	35.0	11.52 *	145
09-009-0027	1	251	New Haven	New Haven	1 JAMES STREET	255	44.1	43.2	36.7	35.6	36.7	11.96 *	145
09-009-0027	3	251	New Haven	New Haven	1 JAMES STREET	6695	53.0	49.9	47.5	47.2	45.4	14.56 *	731
09-009-0027	5	1217	New Haven	New Haven	1 JAMES STREET	82	45.9	35.8	35.7	32.7	35.8	13.02 *	810
09-009-1123	1	251	New Haven	New Haven	715 STATE STREET	91	46.3	36.5	36.2	30.2	36.5	12.49 *	145
09-009-1123	2	251	New Haven	New Haven	715 STATE STREET	43	43.1	29.9	25.6	24.1	43.1	12.83 *	145
09-009-1123	3	251	New Haven	New Haven	715 STATE STREET	1373	31.3	30.5	30.1	30.1	30.5	14.84 *	731
09-009-1123	5	1217	New Haven	New Haven	715 STATE STREET	13	24.0	23.1	22.2	20.0	24.0	15.43 *	810
09-009-2008	1	251	New Haven	New Haven	AGRI EXPR STATION	99	42.3	36.9	32.1	26.0	36.9	11.15 *	145
09-009-2123	1	251	Waterbury	New Haven	MEADOW AND BANK STREET	93	40.8	38.2	30.4	27.6	38.2	12.05 *	145
09-009-2123	2	251	Waterbury	New Haven	MEADOW AND BANK STREET	43	37.5	26.1	25.4	23.0	37.5	12.03 *	145
09-009-2123	3	251	Waterbury	New Haven	MEADOW AND BANK STREET	8551	45.4	41.6	39.6	35.9	30.7	12.79	731
09-009-8003	1	251	West Haven	New Haven	OLEANDER ST AT I-95	92	43.1	34.2	30.8	29.5	34.2	12.80 *	145
09-011-3002	1	251	Norwich	New London	22 COURT HOUSE SQUARE	97	55.9	31.2	31.1	30.1	31.2	11.05 *	145

*Indicates that the mean does not satisfy summary criteria



Connecticut Sulfur Dioxide



Connecticut																			
Parameter: Sulfur Dioxide																			
All Values are in Units of Parts Per Million																			
Site ID	P	O	Org	C	Type	City	County	Address	#	24-hour		3-hour		1-hour		Arith.	Method		
										Obs	Highest	2nd Highest	Obs	Highest	Highest 2nd			Obs	Highest
09-001-0012	1	251	Bridgeport			Bridgeport	Fairfield	115 BOSTON TERRACE	8735	0.024	0.023	0	0.036	0.035	0	0.042	0.039	0.0049	060
09-001-1123	1	251	Danbury			Danbury	Fairfield	W. CT STATE UNIV.	8740	0.019	0.017	0	0.028	0.023	0	0.038	0.031	0.0033	060
09-001-2124	1	251	Stamford			Stamford	Fairfield	HILLANDALE AVE	8701	0.028	0.027	0	0.044	0.040	0	0.046	0.044	0.0048	060
09-001-9003	1	251	Westport			Westport	Fairfield	SHERWOOD ISLAND	8522	0.021	0.021	0	0.034	0.031	0	0.039	0.037	0.0036	060
09-003-2006	1	251	East Hartford			East Hartford	Hartford	85 HIGH ST.	8300	0.021	0.019	0	0.028	0.027	0	0.033	0.032	0.0032	060
09-009-0027	1	251	New Haven			New Haven	New Haven	1JAMES ST.	7869	0.029	0.027	0	0.066	0.056	0	0.086	0.081	0.0049	060
09-009-1123	2	251	New Haven			New Haven	New Haven	715 STATE ST.	850	0.022	0.021	0	0.039	0.035	0	0.044	0.040	0.0085 *	060
09-009-2123	1	251	Waterbury			Waterbury	New Haven	MEADOW & BANK ST.	8577	0.019	0.017	0	0.029	0.029	0	0.040	0.039	0.0034	060

* Indicates that the mean does not satisfy summary criteria

This page intentionally left blank

Ambient Air Quality Summary - Maine Summary

Low-level, highly sensitive CO monitors have been operating at the Cape Elizabeth PAMS site and the Acadia National Park PAMS site. Measurements of CO at these sites are made to help understand ozone formation, summertime photochemistry and pollution transport along the Maine coast.

Ambient air monitoring for lead (Pb) has been discontinued because the concentration of lead in the air in Maine has been well below the NAAQS for many years.

Ambient air concentrations of nitrogen dioxide (NO₂) were recorded at three sites in Maine. No sites recorded NO₂ concentrations approaching the NAAQS. A long-path UV DOAS monitor measured NO₂ as part of BEAM monitoring effort in Portland. The other NO₂ monitors was located at the PAMS sites in Kittery. In addition, the Acadia National Park and the Cape Elizabeth PAMS sites also measured ambient concentrations of reactive nitrogen compounds as part of a program to understand photochemistry and transport of airborne pollutants along the coast.

During 2004, none of Maine's twelve ozone monitoring sites reported ozone concentrations over 124 ppb. The highest 1-hour ozone concentrations were recorded at the Chopps Point site in Woolwich at 119 ppb. There were no recorded concentrations of the fourth highest 8-hour average ozone concentration above the level of the 8-hour NAAQS. The highest 8-hour average was also at Chopps Point at 93 ppb.

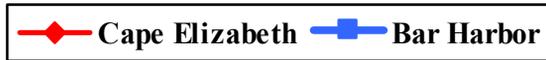
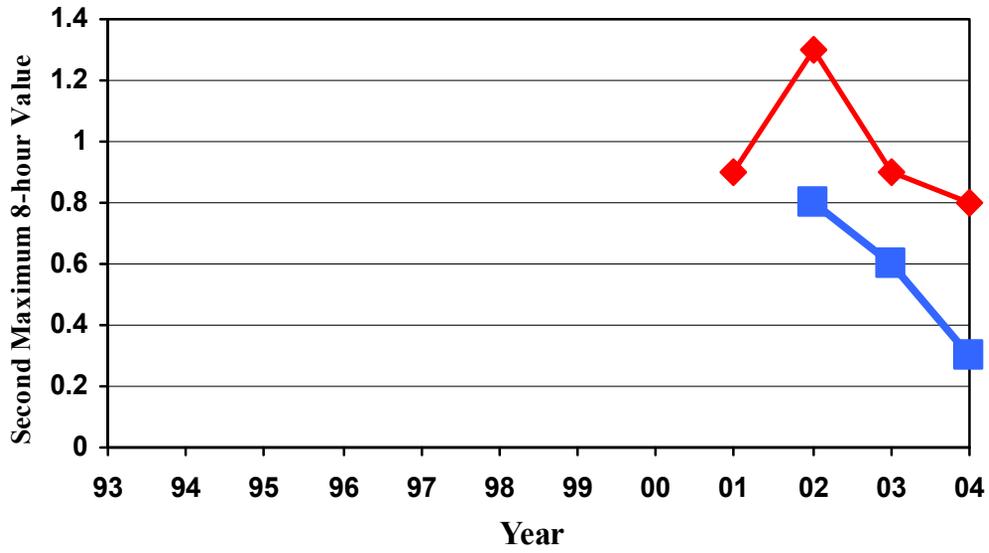
In 2004 no Particulate Matter sites which measured particles of 10 microns or less (PM₁₀) reported either 24-hour or annual violations of the NAAQS. The highest PM₁₀ concentrations were measured at the Madawska site (70 ug/m³). This site also recorded the highest annual weighted arithmetic mean PM₁₀ concentrations (32.4 ug/m³).

Maine began monitoring fine particulate matter (PM_{2.5}) in 1999. There are 10 PM_{2.5} monitoring sites in the state. Data for these sites indicate that none of the sites have recorded PM_{2.5} concentrations that would result in exceedance of the 24-hour or annual NAAQS for PM_{2.5}. Typically annual average PM_{2.5} concentrations are approximately 75% of the NAAQS in urban areas in Maine.

There were no exceedance or violations of the sulfur dioxide (SO₂) NAAQS during 2004 in Maine. The highest annual arithmetic mean concentration was reported at the Rumford site (3.5 ppb). The Easton monitoring site recorded the highest 24-hour second maximum at 21 ppb. The highest 3-hour second maximum concentration was recorded also in Easton (42 ppb). The trend in SO₂ concentrations is well below NAAQS and shows small year-to-year changes.



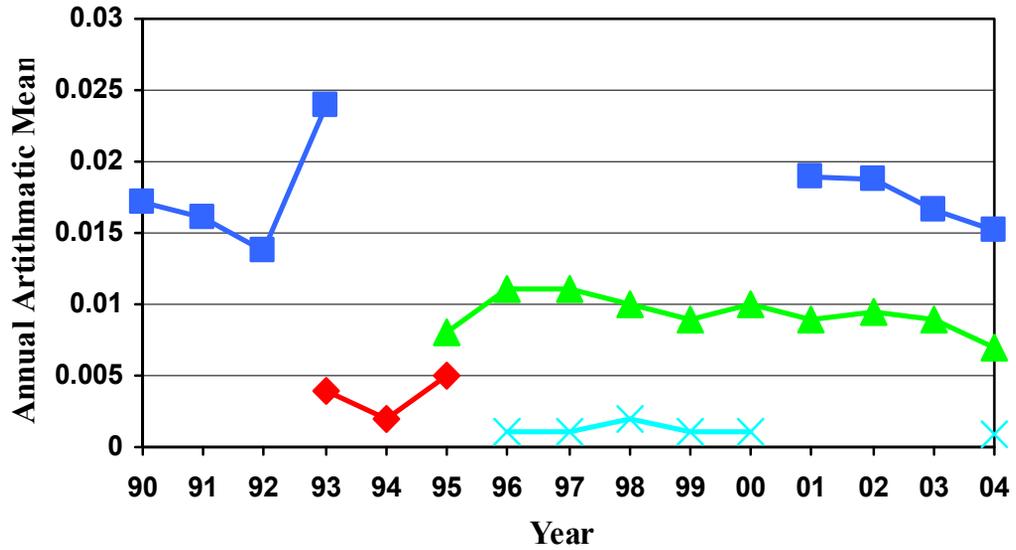
Maine Carbon Monoxide



Maine													
Carbon Monoxide													
All Values are in Units of Parts Per Million													
	P					1-hour	1-hour		8-hour	8-hour			
Site ID	C	Type	City	County	Address	# Obs	Highest Value	Highest Value	# > 35 Value	Highest Value	Highest Value	# > 9	Methods Used
23-005-2003	1	635	Cape Elizabeth	Cumberland	TWO LIGHTS STATE PARK	3617	0.8	0.8	0	0.8	0.7	0	93
23-009-0103	1	635	Bar Harbor	Hancock	MCFARLAND HILL	6194	0.3	0.3	0	0.3	0.3	0	54



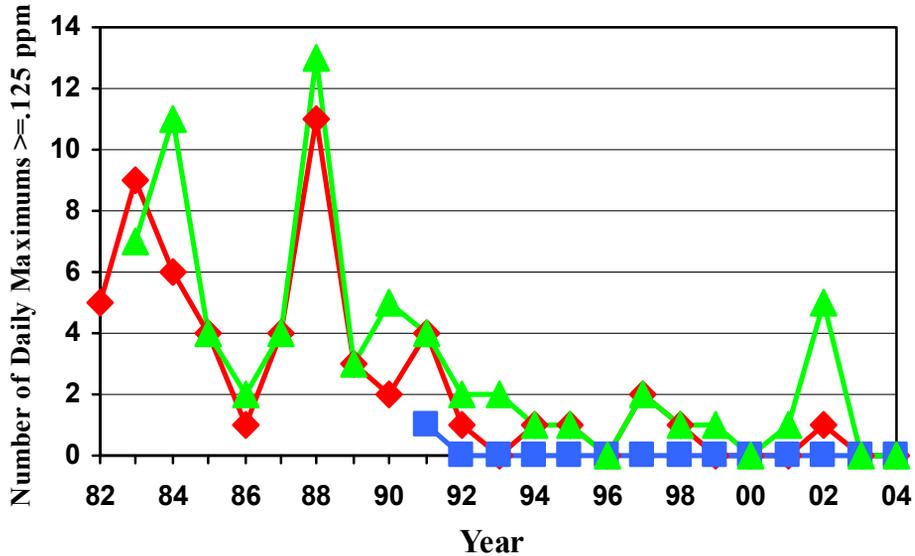
Maine Nitrogen Dioxide



Maine										
Parameter: Nitrogen Dioxide										
All Values are in Units of Parts Per Million										
								1-hour	1-hour	
	P							2nd	Annual	
Site ID	C Org.	City	County	Address	Method	Obs	Highest Value	Highest Value	Arith. Mean	
23-005-0027	1	635	Portland	Cumberland	26 MARGINAL WAY	75	8563	0.0530	0.0520	0.01524
23-009-0102	1	635	Bar Harbor	Hancock	TOP OF CADILLAC MTN.	75	3706	0.0141	0.0131	0.00093
23-031-3002	1	762	Kittery	York	FRISBEE SCHOOL	0	6280	0.0490	0.0480	0.00690

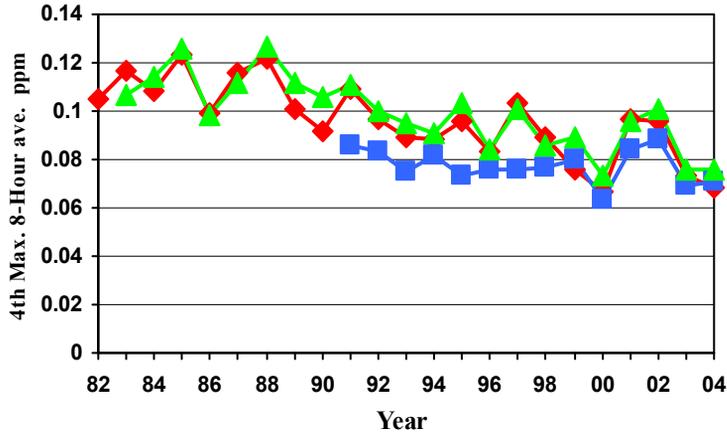


Maine Ozone 1-Hour Average



Maine															
Parameter: Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P							2nd	3rd	4th		Missing			
Site ID	O Rep.	C Org.	City	County	Address	Num Meas	Num Req	Highest Value	Highest Value	Highest Value	Highest Value	Day Max >= 0.125	Est. Day Max >= 0.125	Days < 0.125	Method used
23-001-0014	1	635	Durham	Androscoggin	ROUTE 9	145	183	0.106	0.098	0.085	0.083	0	0	0	47
23-005-0027	1	635	Portland	Cumberland	26 MARGINAL WAY	179	183	0.087	0.080	0.077	0.073	0	0	2	47
23-005-2003	1	635	Cape Elizabeth	Cumberland	TWO LIGHTS STATE PARK	180	183	0.097	0.085	0.083	0.081	0	0	1	47
23-009-0102	1	635	Bar Harbor	Hancock	TOP OF CADILLAC MTN.	174	183	0.108	0.100	0.099	0.096	0	0	0	47
23-009-0103	1	635	Bar Harbor	Hancock	MCFARLAND HILL	182	183	0.093	0.089	0.085	0.085	0	0	1	47
23-009-0301	1	635	Castine	Hancock	CASTINE MUNICIPAL GARAGE	182	183	0.085	0.079	0.078	0.075	0	0	1	47
23-009-0401	1	635	Winter Harbor	Hancock	MAINTENANCE ROAD	183	183	0.083	0.083	0.076	0.075	0	0	0	47
23-011-2005	1	635	Gardiner	Kennebec	PRAY STREET	180	183	0.103	0.084	0.081	0.080	0	0	2	47
23-013-0004	2	635	Port Clyde	Knox	MARSHALL PT. LIGHTHOUSE	182	183	0.100	0.086	0.082	0.082	0	0	1	47
23-017-3001	1	635	North Lovell	Oxford	ROUTE 5	183	183	0.078	0.073	0.071	0.068	0	0	0	47
23-019-4008	1	635	Holden	Penobscot	SUMMIT OF RIDER BLUFF	181	183	0.086	0.083	0.082	0.073	0	0	0	47
23-023-0004	1	635	Georgetown	Sagadahoc	REID STATE PARK	183	183	0.100	0.089	0.081	0.081	0	0	0	47
23-023-0005	1	635	Woolwich	Sagadahoc	CHOPPS POINT	152	183	0.119	0.095	0.090	0.087	0	0	0	47
23-029-0031	1	635	Perry	Washington	186 COUNTY ROAD	83	183	0.077	0.066	0.066	0.063	0	0	0	47
23-031-0038	1	635	West Buxton	York	PLAINS ROAD	183	183	0.103	0.097	0.085	0.083	0	0	0	47
23-031-0039	1	635	York	York	AGAMENTICUS ROAD	157	168	0.091	0.086	0.082	0.082	0	0	1	47
23-031-2002	1	635	Kennebunkport	York	OCEAN AVE/PARSONS WAY	180	183	0.104	0.089	0.086	0.086	0	0	1	47
23-031-3002	1	762	Kittery	York	FRISBEE SCHOOL	175	183	0.117	0.096	0.093	0.092	0	0	8	134
23-901-0001	1	635		MOBILE MONITOR	MS SCOTIA PRINCE	129	183	0.098	0.094	0.088	0.086	0	0	0	56

Maine Ozone 8-Hour Average

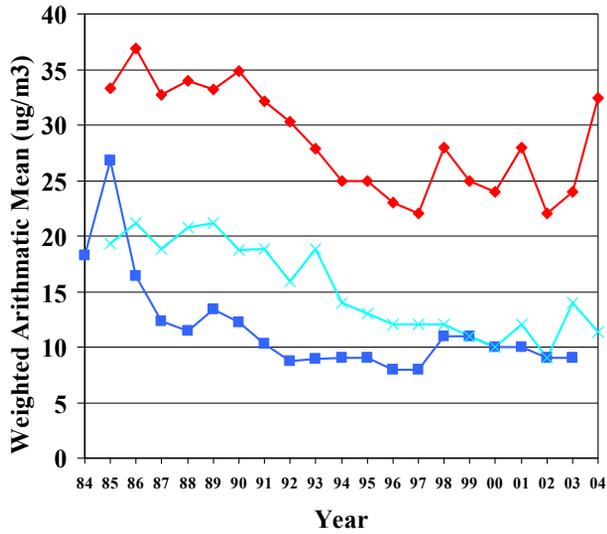


Maine													
Parameter: Ozone (8-Hour)													
All Values are in Units of Parts Per Million													
	P					Valid	Num		2nd	3rd	4th	Days	
	O Rept.				#	Days	Required	Highest	Highest	Highest	Highest	Max ≥	
Site ID	C	Org. City	County	Address	Obs	Meas.	Days	8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Method
23-001-0014	1	635 Durham	Androscoggin	ROUTE 9	78	143	183	0.083	0.077	0.072	0.072	0	47
23-005-0027	1	635 Portland	Cumberland	26 MARGINAL WAY	98	179	183	0.072	0.064	0.059	0.057	0	47
23-005-2003	1	635 Cape Elizabeth	Cumberland	TWO LIGHTS STATE PARK	97	178	183	0.078	0.072	0.068	0.068	0	47
23-009-0102	1	635 Bar Harbor	Hancock	TOP OF CADILLAC MOUNTAIN	94	172	183	0.084	0.083	0.082	0.082	0	47
23-009-0103	1	635 Bar Harbor	Hancock	MCFARLAND HILL	99	182	183	0.079	0.077	0.076	0.073	0	47
23-009-0301	1	635 Castine	Hancock	CASTINE MUNICIPAL GARAGE	99	182	183	0.072	0.070	0.070	0.068	0	47
23-009-0401	1	635 Winter Haven	Hancock	MAINTENANCE ROAD	100	183	183	0.077	0.071	0.070	0.070	0	47
23-011-2005	1	635 Gardiner	Kennebec	PRAY STREET	98	179	183	0.084	0.074	0.071	0.071	0	47
23-013-0004	2	635 Port Clyde	Knox	MARSHALL POINT LIGHTHOUSE	98	180	183	0.075	0.074	0.074	0.074	0	47
23-017-3001	1	635 North Lovell	Oxford	ROUTE 5, DOT	100	183	183	0.068	0.067	0.066	0.063	0	47
23-019-4008	1	635 Holden	Penobscot	SUMMIT OF RIDER BLUFF	98	180	183	0.076	0.074	0.067	0.065	0	47
23-023-0004	1	635 Georgetown	Sagadahoc	REID STATE PARK	100	183	183	0.080	0.074	0.071	0.069	0	47
23-023-0005	1	635 Woolwich	Sagadahoc	CHOPPS POINT	82	150	183	0.093	0.080	0.076	0.075	1	47
23-029-0031	1	635 Perry	Washington	186 COUNTY ROAD	45	83	183	0.065	0.061	0.056	0.055	0	47
23-031-0038	1	635 Hollis	York	PLAINS ROAD,	100	183	183	0.082	0.077	0.076	0.075	0	47
23-031-0039	1	635 York	York	AGAMENTICUS ROA	92	155	168	0.074	0.072	0.072	0.070	0	47
23-031-2002	1	635 Kennebunkport	York	OCEAN AVE/PARSONS WAY	98	179	183	0.086	0.076	0.076	0.076	1	47
23-031-3002	1	762 Kittery	York	FRISBEE SCHOOL,	95	174	183	0.100	0.083	0.081	0.080	1	134
23-901-0001	1	635	Mobile monitor	MS SCOTIA PRINCE	69	126	183	0.080	0.075	0.071	0.068	0	56

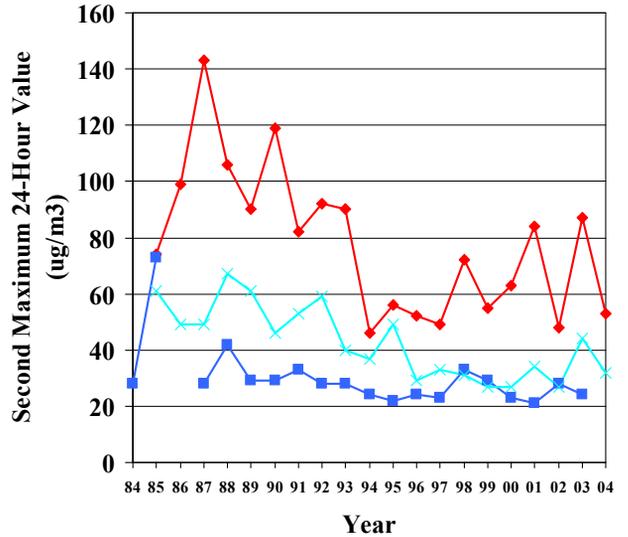
This page intentionally left blank



Maine Particulate Matter < 10 Microns (PM10)



—♦— Madawaska —■— Bridgton —x— Jay Bomaster Prop.



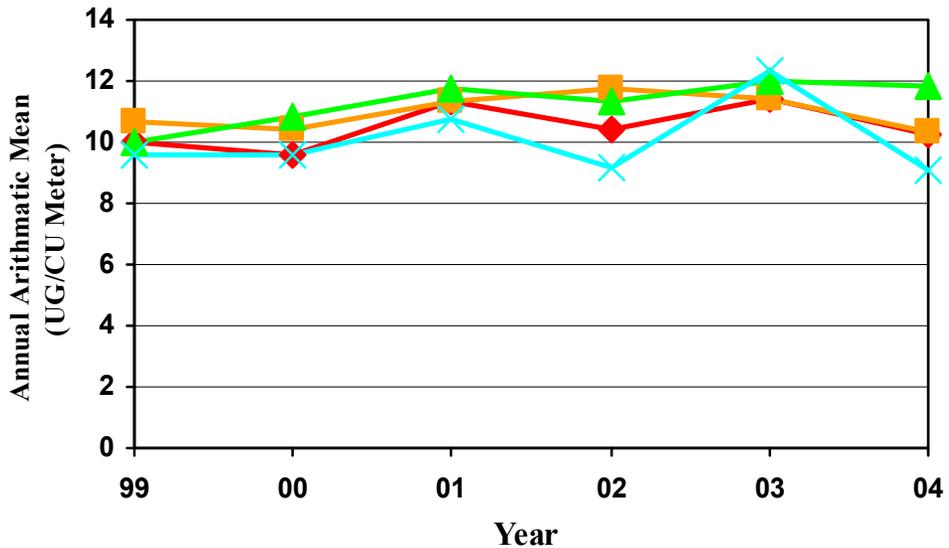
—♦— Madawaska —■— Bridgton —x— Jay Bomaster Prop.

Maine Particulate Matter < 10 Microns ug/m3																	
SITE ID	Rep. P	Org	City	County	Address	# Obs	# Req.	Days	Valid % Obs	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	Days Max >150	Est. Days Max >150	Wtd. Arith. Mean	Methods Used
23-001-0011	2	635	Lewiston	Androscoggin	COUNTRY KITCHEN	60	61	60	98	46	43	41	35	0	0	19.4	126
23-003-0013	2	635	Madawaska	Aroostook	MADAWASKA TANG'S PALACE	20	30	20	67	70	53	52	43	0	0	32.4 *	64
23-003-1008	1	635	Presque Isle	Aroostook	PI REG OFF 58 CENTRAL DR	29	30	29	97	30	27	26	17	0	0	12.8 *	63
23-003-1011	2	635	Presque Isle	Aroostook	RIVERSIDE STREET	8755	366	366	100	63	61	59	57	0	0	15.0	79
23-003-1018	1	635	Easton	Aroostook	RICHARDSON ROAD	53	61	52	85	56	45	42	41	0	0	19.0 *	64
23-007-0003	1	635	Jay	Franklin	JEWELL PROPERTY	60	61	60	98	33	33	27	27	0	0	12.2	63
23-007-0004	3	528	Jay	Franklin	BOMASTER PROPERTY	61	61	61	100	34	32	25	23	0	0	11.4	62
23-011-0016	2	635	Augusta	Kennebec	LINCOLN ST.	58	61	58	95	38	38	37	31	0	0	15.5	126
23-017-2007	1	635	Rumford	Oxford	VILLAGE GREEN-ROUTE#108	61	61	60	98	35	35	29	24	0	0	11.5	62

*Indicates that the mean does not satisfy summary criteria



Maine Particulate Matter < 2.5 Microns (PM2.5)

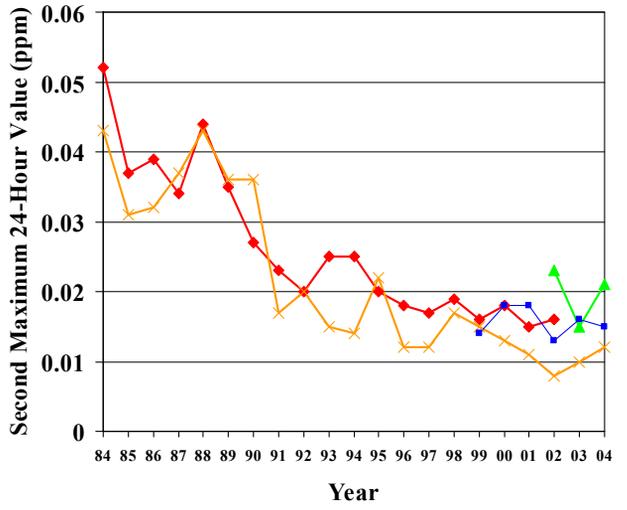
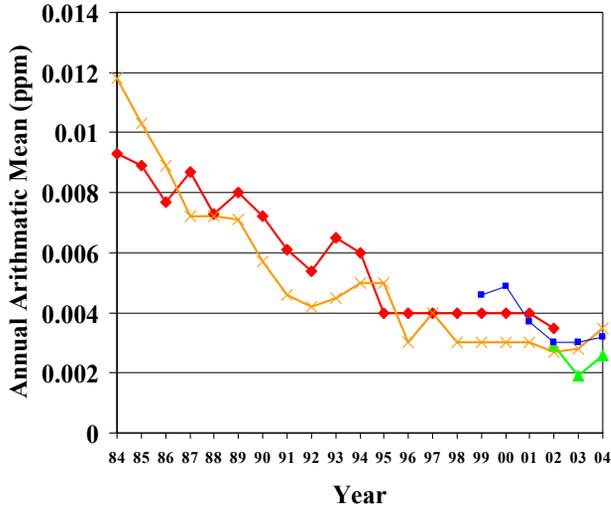


Maine												
Parameter: PM 2.5												
All Values are in UG/CU Meters Local Conditions												
	P						2nd	3rd	4th	98th	Wtd.	
Site ID	O Rept.				#	Highest	Highest	Highest	Highest	Percentile	Arith.	Method
	C Org.	City	County	Address	Obs	Value	Value	Value	Value	Value	Mean	Used
23-001-0011	1	635 Lewiston	Androscoggin	COUNTRY KITCHEN	118	37.5	32.8	27.9	25.1	27.9	10.26	118
23-001-0011	3	635 Lewiston	Androscoggin	COUNTRY KITCHEN	8706	39.1	28.7	25.6	23.3	18.9	6.15	701
23-003-0013	1	635 Madawaska	Aroostook	TANGS PALACE	118	56.2	28.8	28.5	26.8	28.5	10.33	118
23-003-1011	1	635 Presque Isle	Aroostook	RIVERSIDE STREET	117	44.8	26.9	25.9	23.3	25.9	9.08	118
23-005-0015	1	635 Portland	Cumberland	TUKEY'S BRIDGE	50	34.5	29.5	25.7	23.7	34.5	11.70 *	118
23-005-0027	1	635 Portland	Cumberland	26 MARGINAL WAY	136	34.5	30.9	29.6	28.7	29.6	11.80	118
23-005-0027	2	635 Portland	Cumberland	26 MARGINAL WAY	57	27.0	26.9	26.1	22.3	26.9	11.58	118
23-005-0027	3	635 Portland	Cumberland	26 MARGINAL WAY	8752	33.6	31.2	27.7	24.3	22.4	7.30	701
23-009-0103	1	635 Bar Harbor	Hancock	MCFARLAND HILL	123	27.7	22.6	21.5	18.7	18.7	5.86	118
23-009-0103	3	635 Bar Harbor	Hancock	MCFARLAND HILL	8531	26.9	26.5	19.7	18.6	14.5	3.78	701
23-011-0016	1	635 Augusta	Kennebec	LINCOLN STREET	55	30.2	22.7	19.3	17.9	22.7	9.06 *	117
23-011-0016	2	635 Augusta	Kennebec	LINCOLN STREET	61	30.4	23.9	22.4	19.1	23.9	9.72	117
23-011-2002	1	635 Waterville	Kennebec	COREY'S MUSIC	57	28.6	22.4	19.2	18.6	22.4	9.68	117
23-017-2011	1	635 Rumford	Oxford	RUMFORD AVENUE	60	45.3	33.4	30.8	26.4	33.4	10.62	117
23-019-0002	1	635 Bangor	Penobscot	WASHINGTON ST.	120	29.6	22.5	21.9	19.5	21.9	8.76	118
23-019-0002	3	635 Bangor	Penobscot	WASHINGTON ST.	8495	25.9	22.6	21.3	19.2	16.9	6.06	701

*Indicates that the mean does not satisfy summary criteria



Maine Sulfur Dioxide



◆ Lewiston Country Kitchen ▲ Easton
✕ Rumford, Village Green ■ Portland

◆ Lewiston Country Kitchen ▲ Easton
✕ Rumford, Village Green ■ Portland

Maine																
Parameter: Sulfur Dioxide																
All Values are in Units of Parts Per Million																
						24-hour	24-hour		3-hour	3-hour		1-hour	1-hour			
	P					hour	hour		hour	hour		hour	hour			
	O	Org			#	Obs	Highest	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method	
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14 Value	Highest	Highest	> 0.5 Value	Highest	Mean	Used	
23-003-1018	1	635	Easton	Aroostook	RICHARDSON ROAD	8668	0.022	0.021	0	0.045	0.042	0	0.053	0.052	0.0026	060
23-005-0027	1	635	Portland	Cumberland	26 MARGINALWAY	8710	0.021	0.015	0	0.037	0.029	0	0.048	0.046	0.0032	060
23-009-0103	1	635	Bar Harbor	Hancock	MCFARLAND HILL	6285	0.004	0.004	0	0.007	0.007	0	0.010	0.009	0.0005	060
23-017-2007	2	106	Rumford	Oxford	VILLAGE GREEN	8684	0.012	0.012	0	0.020	0.019	0	0.024	0.023	0.0035	009

This page intentionally left blank

Ambient Air Quality Summary – Massachusetts

Massachusetts has reduced their carbon monoxide (CO) monitoring network from nine sites in 2002 to five sites in 2004 principally because CO levels have dropped to levels well below National Ambient Air Quality Standards (NAAQS) at all sites in the state. The five remaining monitoring sites are located in Boston (Kenmore Square and Harrison Ave - Roxbury), Springfield (Liberty Street), Worcester (Summer Street), and Lowell (Old City Hall). No exceedances of the 8-hour NAAQS for CO have been recorded at any site in Massachusetts since 1996. The twenty year trend graph of second maximum 8-hour CO concentrations in Massachusetts generally shows an average decrease of more than 6 ppm over the twenty year period at each of the five sites included in the analysis. The highest levels each year are normally observed at sites in Springfield and were less than 35% of the 8-hour NAAQS in 2004.

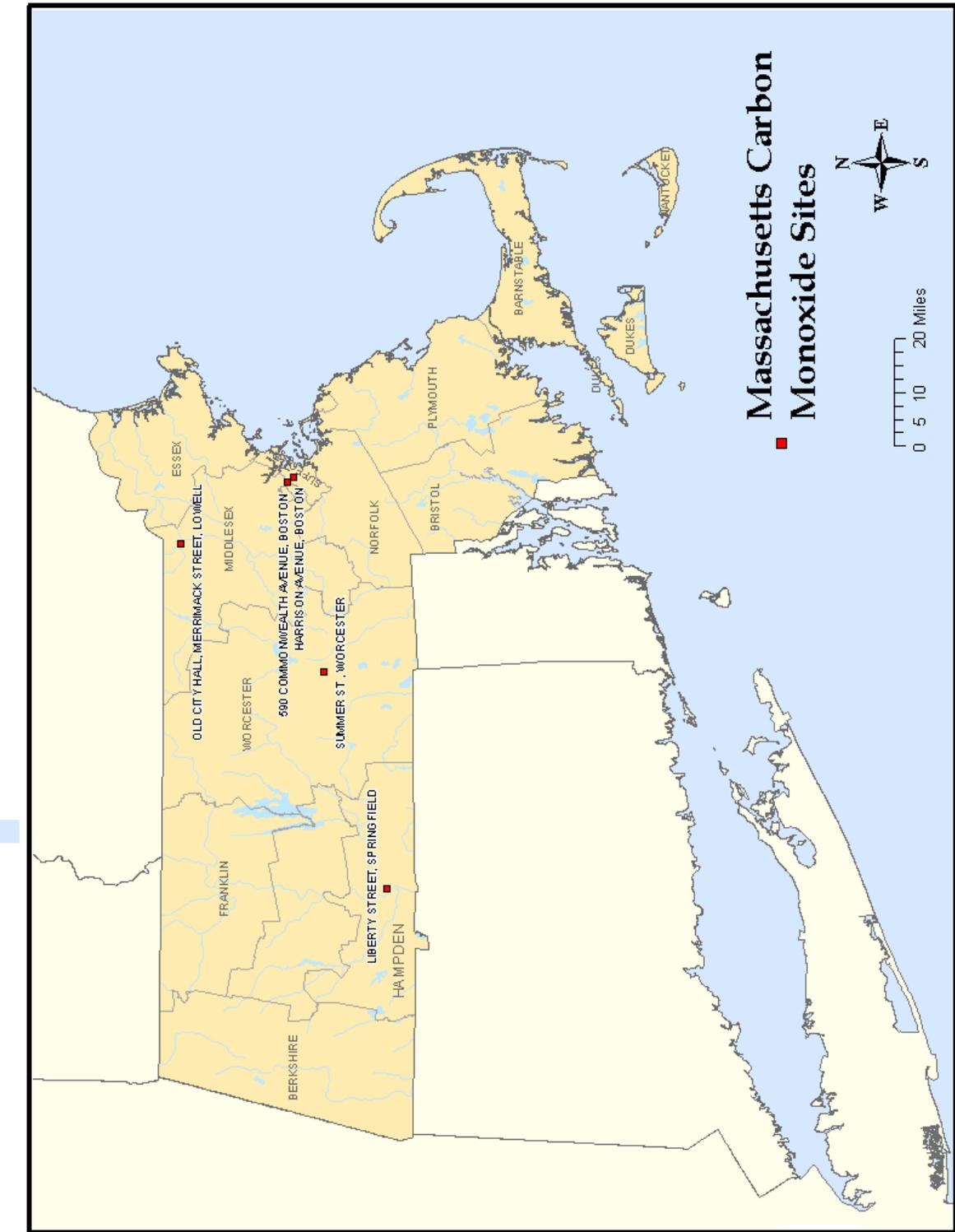
In 1996, Massachusetts discontinued monitoring of lead (Pb) at all but one site in Boston because the levels were well below the NAAQS and the minimum detection level for the measurement method. The maximum quarterly average concentration of lead at the Kenmore Square (Boston) site (0.01 ug/m³) was well below (~1%) the NAAQS for lead.

Nitrogen dioxide (NO₂) measurements were made at 13 monitoring sites in Massachusetts during 2004. The highest one-hour concentrations of NO₂ were recorded at monitors in Boston, Springfield, Worcester and Chicopee. The lowest one-hour concentrations were measured at the Truro and Newbury sites. The highest annual mean NO₂ concentrations were recorded at Kenmore Square (25 ppb or 25% of the NAAQS) and the lowest concentrations at Truro (3 ppb), Newbury (3 ppb) and the Quabbin Summit (5 ppb). A slightly downward trend in NO₂ concentration can be detected in the 20-year trend data.

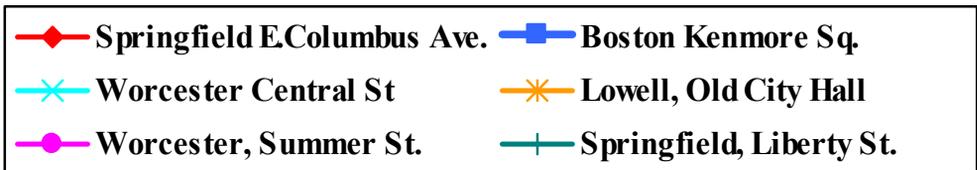
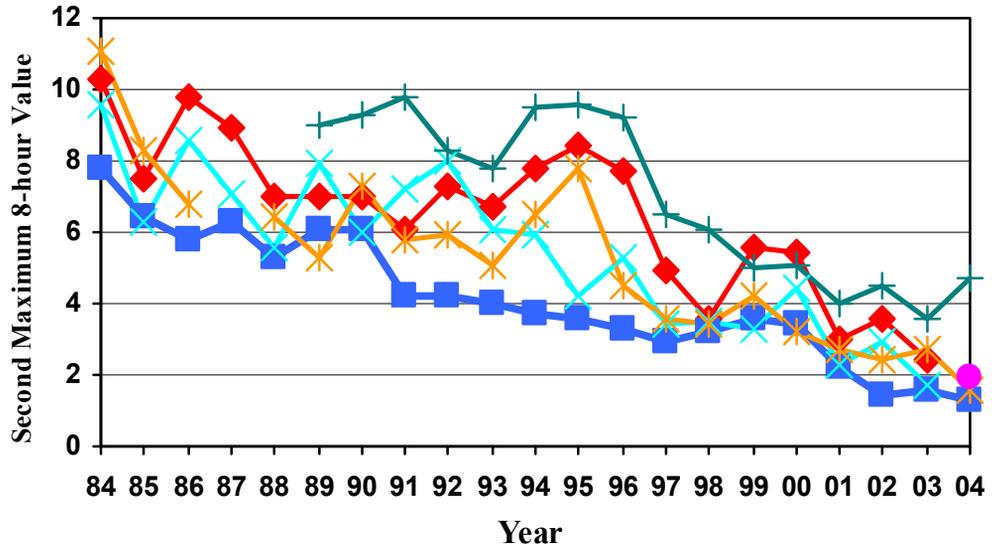
During 2004, only one out fifteen monitoring sites in Massachusetts measured ozone levels over 124 ppb. The highest 1-hour concentrations of ozone were recorded at the Truro (130 ppb) and Fairhaven (116 ppb). Two sites recorded levels above 125 ppb in 2003, eleven sites were over 124 ppb in 2002, six sites recorded levels above 124 ppb in 2001, and only Truro measured values of ozone higher than 124 ppb in 2000. In 2004, none of the fifteen ozone monitoring sites recorded a fourth highest 8-hour average ozone concentration above the level of the 8-hour NAAQS. In 2003, three of thirteen monitoring sites recorded a fourth highest 8-hour average above the NAAQS, in 2002 fourteen of the fifteen ozone monitoring sites recorded a fourth highest 8-hour average ozone concentration above the 8-hour NAAQS, in 2001 eleven of the fifteen sites were above this level, and in 2000 no sites recorded a value above the 8-hour ozone NAAQS. Generally, years with hotter summers like in 2002 have higher ozone levels while years with cool and/or wet summers like in 2003 and 2004 tend to have lower ozone levels.

In 2004, Massachusetts monitored for PM₁₀ using the traditional Selective Size Inlet High Volume method at only the Roxbury site while the modified Federal Reference Method for PM_{2.5} (without the particle size separator) was utilized at six locations including the Roxbury site. The highest annual average concentration of PM₁₀ was recorded at the Charlestown (25 ug/m³) monitoring site. The highest 24-hour PM₁₀ concentration was recorded at the Boston-Kenmore Square site (88 ug/m³). Over the past 20 years PM₁₀ levels have shown quite a bit of year to year variability especially for the twenty four hour sampling period, however the overall PM₁₀ levels at each site do not appear to trend up or down during the time period. Since 1999, 26 PM_{2.5} monitoring sites have been deployed in Massachusetts. Sixteen PM_{2.5} sites were operated in 2004. The highest PM_{2.5} concentrations have been measured in the urban areas of Boston and Springfield. In 2004, the Kenmore Square, Charlestown and North Street sites measured annual average PM_{2.5} concentrations of 13.4 ug/m³, 13.9 ug/m³ and 14.4 ug/m³, respectively. These values are similar to 2003 with the measured concentrations at Kenmore Square of 12.8 ug/m³, Charlestown at 12.5 ug/m³ and North Street at 13.6 ug/m³. Massachusetts seems to have solved their problems with PM_{2.5} data completeness. For 2004, thirteen of sixteen sites report a valid annual average as compared with 2003 where only four of fifteen sites report a valid annual average. No apparent trend is evident for PM_{2.5} levels since 1999.

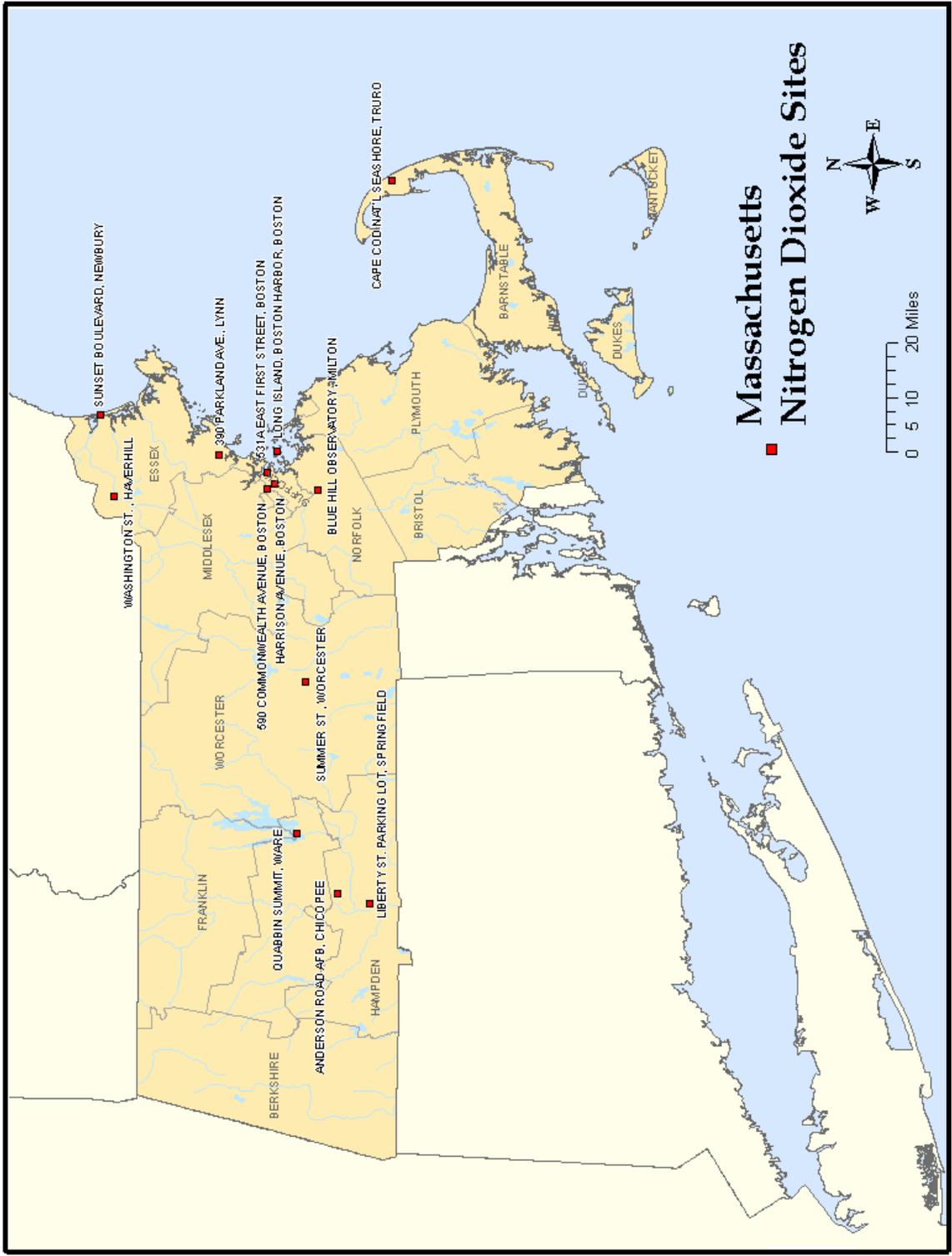
Ten sulfur dioxide (SO₂) monitoring sites were operated in Massachusetts during 2004. No exceedance or violation of the annual or 24-hour (primary) or the 3-hour (secondary) NAAQS for SO₂ was recorded in 2004. The highest 3-hour and the highest 24-hour SO₂ concentrations were recorded at the East First Street site in Boston at 124 ppb and 41 ppb respectively, well below both standards. All SO₂ trend sites in Massachusetts showed a general decline in SO₂ concentrations over the past 20 years.



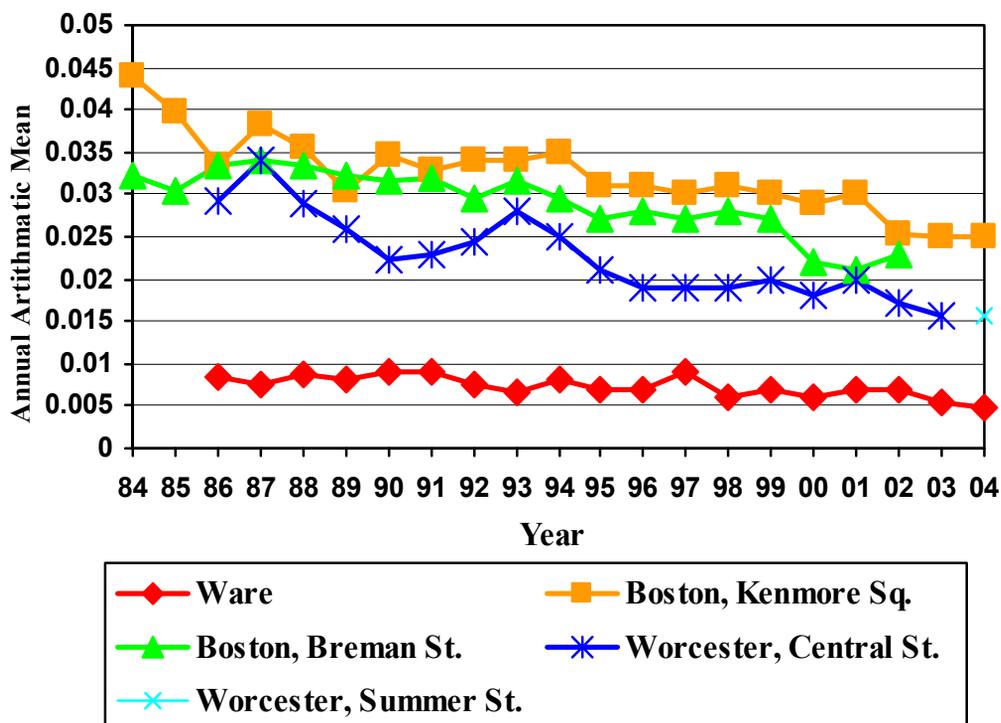
Massachusetts CO



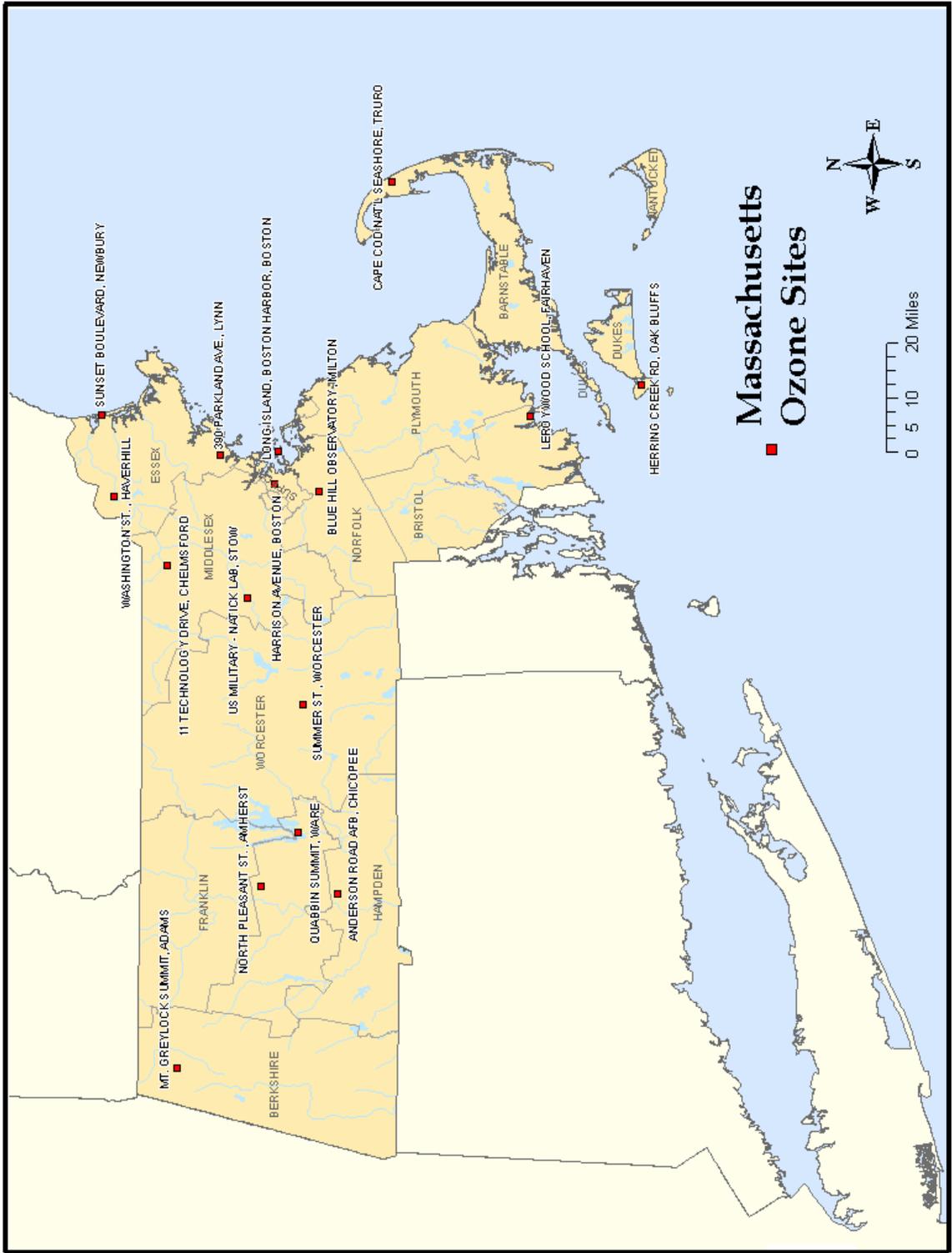
Massachusetts												
Carbon Monoxide												
All Values are in Units of Parts Per Million												
	P					1-hour	1-hour		8-hour	8-hour		
	O				#	Highest	Highest	# > 35	Highest	Highest	# > 9	Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	Value	Value	Value	Used
25-013-0016	1	660	Springfield	Hampden	LIBERTY STREET	7907	6.2	4.7	0	4.1	3.1	93
25-017-0007	1	660	Lowell	Middlesex	OLD CITY HALL	8226	2.7	2.5	0	1.9	1.6	93
25-025-0002	1	660	Boston	Suffolk	KENMORE SQUARE	8194	2.2	2.1	0	1.3	1.3	93
25-025-0042	1	660	Boston	Suffolk	HARRISON AVENUE	7268	3.1	2.8	0	2	1.5	67
25-027-0023	1	660	Worcester	Worcester	SUMMER ST	8048	4.1	3.9	0	2.9	1.9	93



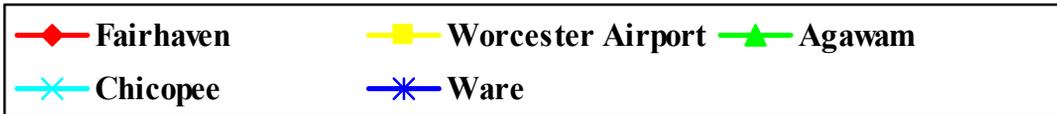
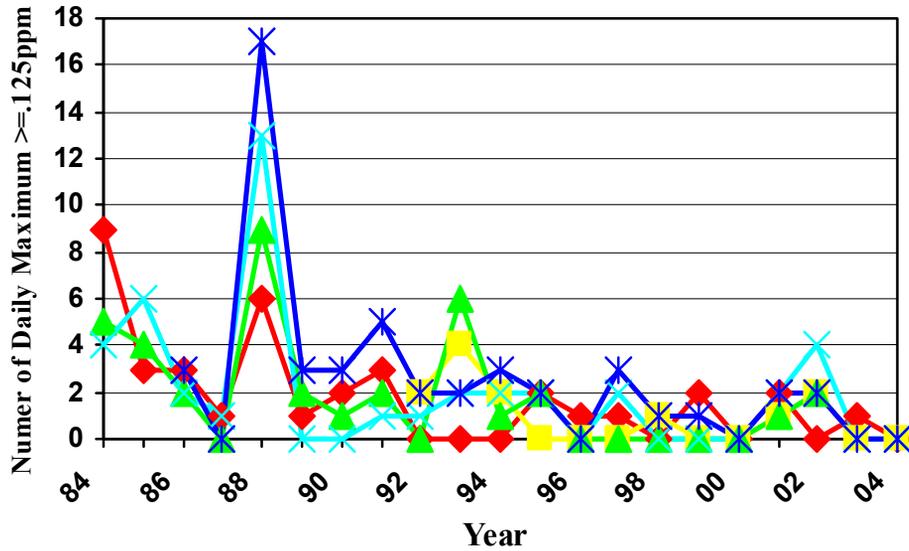
Massachusetts NO2



Massachusetts									
Parameter: Nitrogen Dioxide									
All Values are in Units of Parts Per Million									
							1-hour	1-hour	
	P							2nd	Annual
	O Rept.					#	Highest	Highest	Arith.
Site ID	C Org.	City	County	Address	Method	Obs	Value	Value	Mean
25-001-0002	1	660 Truro	Barnstable	FOX BOTTOM AREA	74	4199	0.0110	0.0090	0.00250
25-009-2006	1	660 Lynn	Essex	390 PARKLAND AVE	82	7716	0.0480	0.0420	0.00870
25-009-4004	1	660 Newbury	Essex	SUNSET BOULEVARD	74	4275	0.0190	0.0190	0.00280
25-009-5005	1	660 Haverhill	Essex	WASHINGTON ST.	74	4820	0.0450	0.0430	0.00980
25-013-0008	1	660 Chicopee	Hampden	ANDERSON ROAD	82	7581	0.0690	0.0610	0.00870
25-013-0016	1	660 Springfield	Hampden	LIBERTY STREET	82	8422	0.0640	0.0640	0.01740
25-015-4002	1	660 Ware	Hampshire	QUABBIN SUMMIT	82	8116	0.0430	0.0420	0.00470
25-021-3003	1	660 Milton	Norfolk	MILTON MA, BLUE HILLS	82	4232	0.0310	0.0300	0.00440
25-025-0002	1	660 Boston	Suffolk	KENMORE SQUARE	82	8199	0.0800	0.0760	0.02500
25-025-0040	1	345 Boston	Suffolk	531A EAST FIRST ST.	74	8543	0.0960	0.0810	0.01630
25-025-0041	1	660 Boston	Suffolk	LONG ISLAND HOSPITAL	74	3977	0.0440	0.0410	0.00700
25-025-0042	1	660 Boston	Suffolk	HARRISON AVENUE	74	7631	0.0620	0.0580	0.01690
25-027-0023	1	660 Worcester	Worcester	SUMMER ST	74	7782	0.0930	0.0600	0.01570

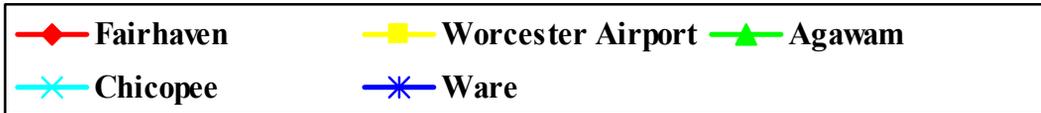
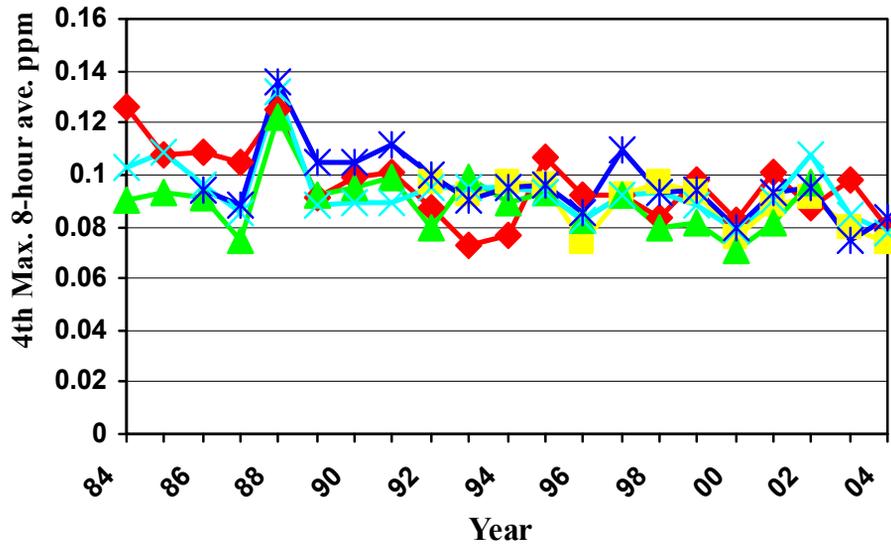


Massachusetts Ozone 1-Hour Average



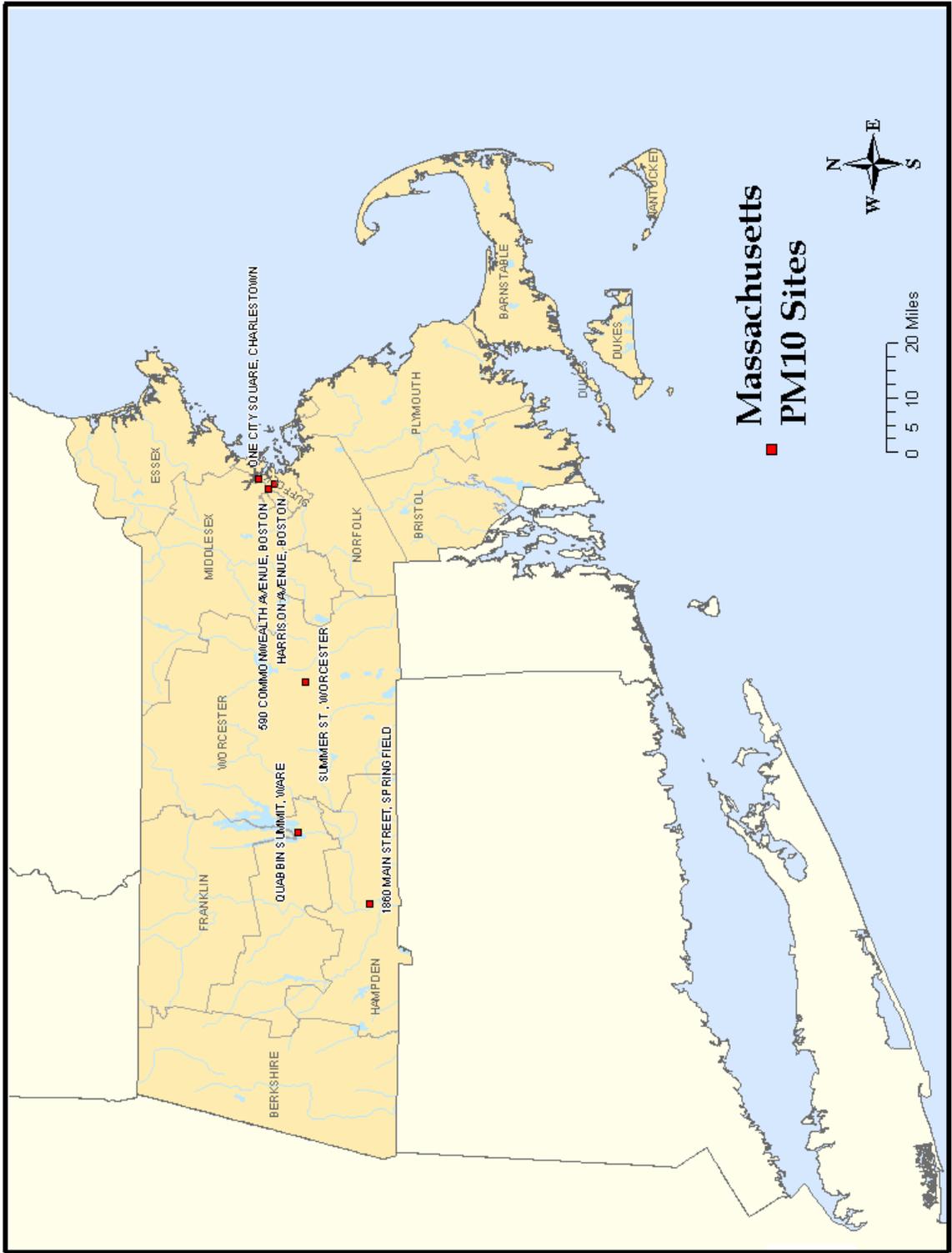
Massachusetts															
Parameter: Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
Site ID	P	O Rep.	City	County	Address	Num Meas	Num Req	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	Day Max ≥ 0.125	Est. Day ≥ 0.125	Missing Days < 0.125	Method used
25-001-0002	1	660	Truro	Barnstable	FOX BOTTOM AREA	183	183	0.130	0.100	0.097	0.092	1	1	0	183
25-003-4002	1	660	Adams	Berkshire	MT. GREYLOCK SUMMIT	152	183	0.096	0.096	0.093	0.091	0	0	1	152
25-005-1002	1	660	Fairhaven	Bristol	LERROY WOOD SCHOOL	178	183	0.116	0.096	0.094	0.092	0	0	2	178
25-007-0001	1	30	Oak Bluffs	Dukes	HERRING CREEK RD	180	183	0.091	0.080	0.080	0.079	0	0	2	180
25-009-2006	1	660	Lynn	Essex	390 PARKLAND AVE	181	183	0.105	0.105	0.096	0.091	0	0	2	181
25-009-4004	1	660	Newbury	Essex	SUNSET BOULEVARD	181	183	0.100	0.098	0.091	0.089	0	0	1	181
25-009-5005	1	660	Haverhill	Essex	WASHINGTON ST.	116	122	0.110	0.089	0.086	0.081	0	0	1	116
25-013-0008	1	660	Chicopee	Hampden	ANDERSON ROAD	181	183	0.104	0.101	0.094	0.091	0	0	2	181
25-015-0103	1	660	Amherst	Hampshire	NORTH PLEASANT	179	183	0.099	0.096	0.088	0.081	0	0	4	179
25-015-4002	1	660	Ware	Hampshire	QUABBIN SUMMIT	181	183	0.114	0.104	0.098	0.097	0	0	2	181
25-017-1102	1	660	Stow	Middlesex	US MILITARY RESERVATION	169	183	0.102	0.088	0.081	0.080	0	0	3	169
25-021-3003	1	660	Milton	Norfolk	MILTON MA, BLUE	182	183	0.112	0.110	0.100	0.089	0	0	1	182
25-025-0041	1	660	Boston	Suffolk	LONG ISLAND HOSPITAL	180	183	0.106	0.098	0.088	0.087	0	0	3	180
25-025-0042	1	660	Boston	Suffolk	HARRISON AVENUE	181	183	0.106	0.081	0.078	0.072	0	0	2	181
25-027-0015	1	660	Worcester	Worcester	WORCESTER AIRPORT	181	183	0.101	0.090	0.086	0.085	0	0	2	181

Massachusetts Ozone 8-Hour Average

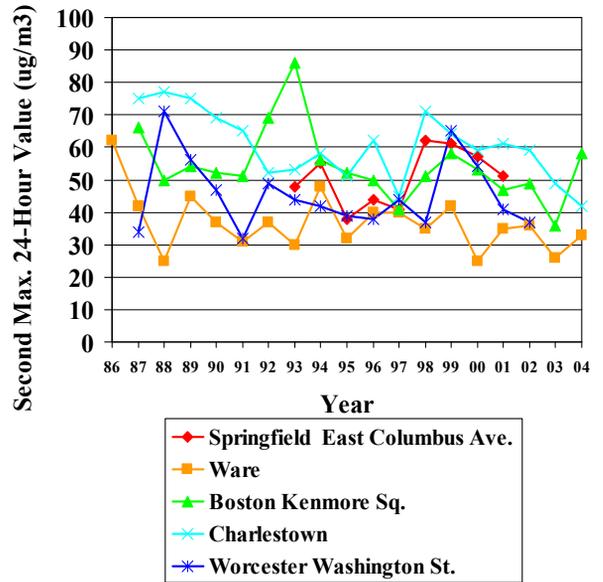
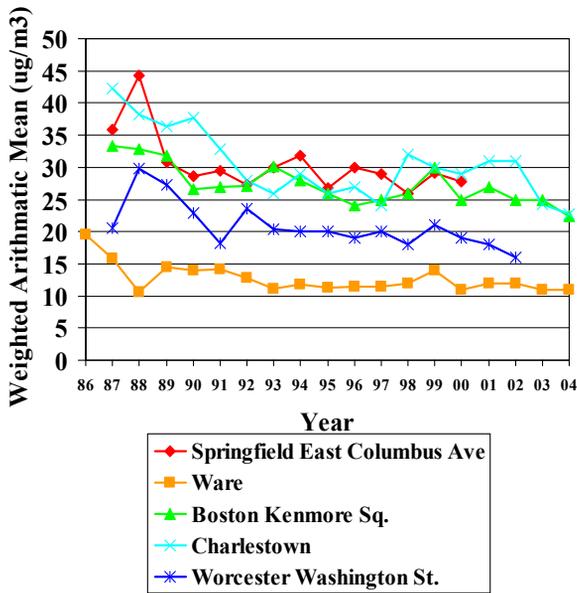


Massachusetts														
Parameter: Ozone (8-Hour)														
All Values are in Units of Parts Per Million														
	P					Valid	Num		2nd	3rd	4th	Days		
	O Rept.					#	Days	Required	Highest	Highest	Highest	Highest	Max >	Method
Site ID	C Org.	City	County	Address	Obs	Meas.	Days		8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Reporte
25-001-0002	1	660	Truro	Barnstable	FOX BOTTOM AREA	99	181	183	0.107	0.089	0.085	0.083	3	87
25-003-4002	1	660	Adams	Berkshire	MT. GREYLOCK SUMMIT	83	151	183	0.086	0.081	0.075	0.071	1	87
25-005-1002	1	660	Fairhaven	Bristol	LEROY WOOD SCHOOL	97	177	183	0.099	0.084	0.082	0.080	1	87
25-007-0001	1	30	Oak Bluffs	Dukes	HERRING CREEK RD	98	179	183	0.078	0.074	0.074	0.072	0	87
25-009-2006	1	660	Lynn	Essex	390 PARKLAND AVE	98	180	183	0.092	0.088	0.083	0.083	2	87
25-009-4004	1	660	Newbury	Essex	SUNSET BOULEVAR	98	180	183	0.085	0.084	0.079	0.077	1	87
25-009-5005	1	660	Haverhill	Essex	WASHINGTON ST.	93	114	122	0.091	0.078	0.078	0.072	1	87
25-013-0008	1	660	Chicopee	Hampden	ANDERSON ROAD	97	178	183	0.093	0.083	0.080	0.078	1	87
25-015-0103	1	660	Amherst	Hampshire	NORTH PLEASANT ST.	98	179	183	0.088	0.079	0.076	0.062	1	87
25-015-4002	1	660	Ware	Hampshire	QUABBIN SUMMIT	99	181	183	0.091	0.090	0.086	0.083	3	87
25-017-1102	1	660	Stow	Middlesex	US MILITARY RESERVATION	91	166	183	0.085	0.075	0.071	0.070	1	87
25-021-3003	1	660	Milton	Norfolk	MILTON MA, BLUE HILLS	99	181	183	0.100	0.095	0.084	0.078	2	87
25-025-0041	1	660	Boston	Suffolk	LONG ISLAND HOSPITAL	98	179	183	0.094	0.081	0.080	0.079	1	87
25-025-0042	1	660	Boston	Suffolk	HARRISON AVENUE	98	179	183	0.088	0.068	0.066	0.064	1	87
25-027-0015	1	660	Worcester	Worcester	WORCESTER AIRPORT	97	178	183	0.082	0.082	0.076	0.074	0	87

This page intentionally left blank

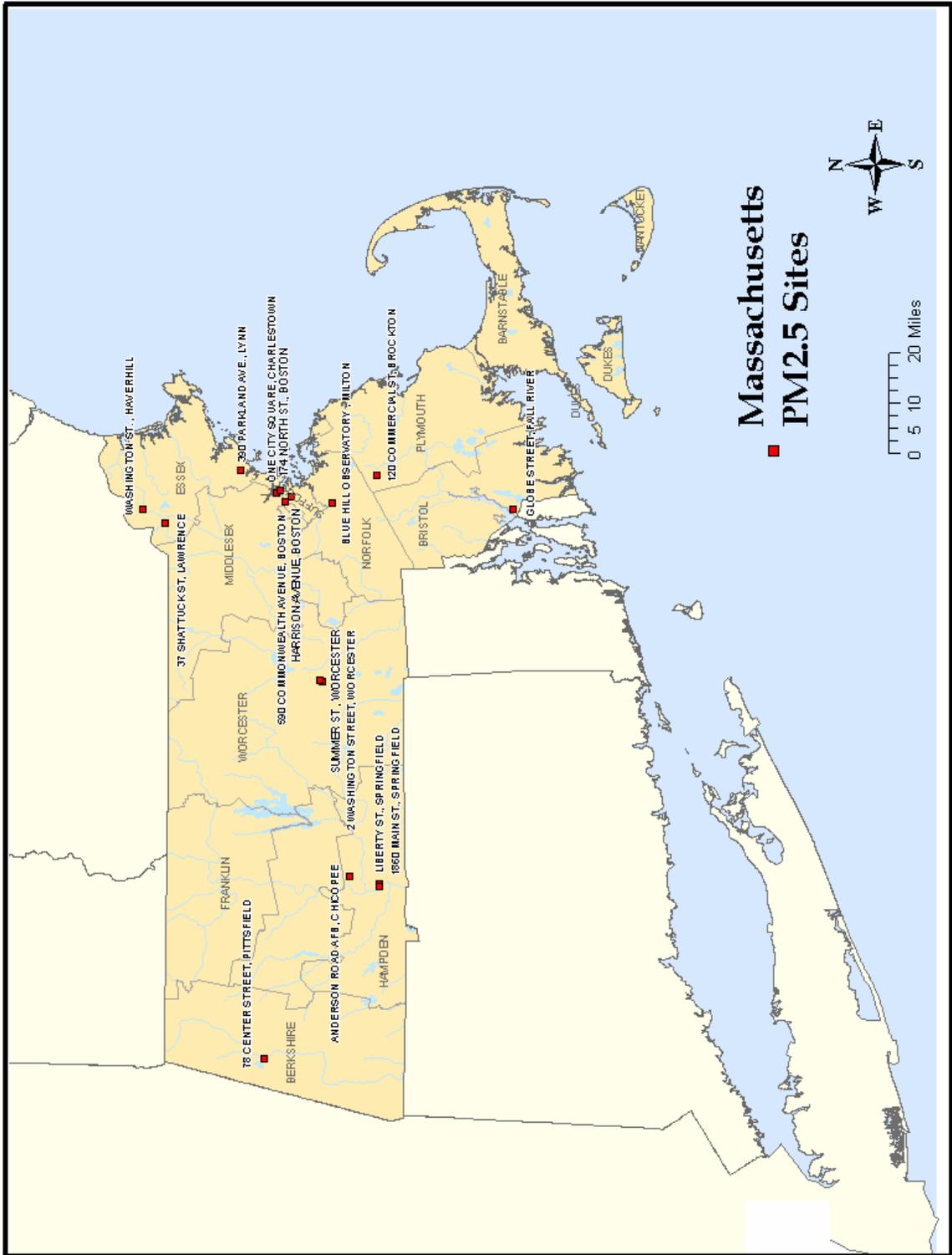


Massachusetts Particulate Matter < 10 Microns (PM10)

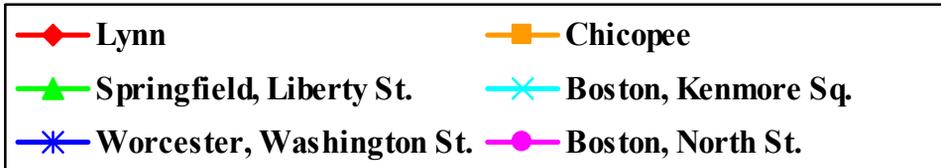
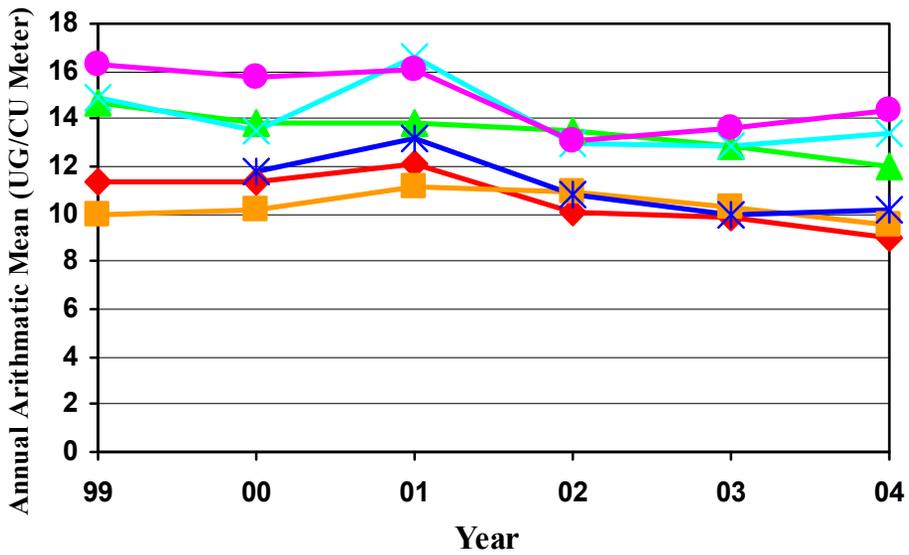


Massachusetts																	
Particulate Matter < 10 Microns at Standard Conditions																	
ug/m3																	
SITE ID	P	Rep. Org	City	County	Address	# Obs	# Req.	Days	Valid % Obs	Highest Value	2nd	3rd	4th	Days	Est. Days	Wtd.	Methods
											Highest Value	Highest Value	Highest Value	>150	>150	Arith. Mean	
25-013-2009	4	660	Springfield	Hampden	1860 MAIN STREET	58	61	58	95	80	48	45	45	0	0	19.4	132
25-015-4002	4	660	Ware	Hampshire	QUABBIN SUMMIT	57	61	57	93	41	33	27	23	0	0	10.9	132
25-025-0002	4	660	Boston	Suffolk	590 COMMONWEALTH AVE	62	61	61	100	88	58	50	46	0	0	22.4	132
25-025-0027	4	660	Boston	Suffolk	ONE CITY SQ., CHARLESTOWN	54	61	53	87	47	42	39	39	0	0	22.7	132
25-025-0027	5	660	Boston	Suffolk	ONE CITY SQ., CHARLESTOWN	53	61	52	85	68	52	52	44	0	0	25.3 *	132
25-025-0042	1	660	Boston	Suffolk	HARRISON AVENUE	51	61	51	84	42	38	31	29	0	0	17.9 *	63
25-025-0042	2	660	Boston	Suffolk	HARRISON AVENUE	47	61	47	77	67	40	38	32	0	0	20.1 *	63
25-025-0042	4	660	Boston	Suffolk	HARRISON AVENUE	52	61	51	84	44	42	35	30	0	0	18.9 *	132
25-027-0023	4	660	Worcester	Worcester	SUMMER ST	54	61	53	87	64	57	49	43	0	0	22.4 *	132

*Indicates that the mean does not satisfy summary criteria

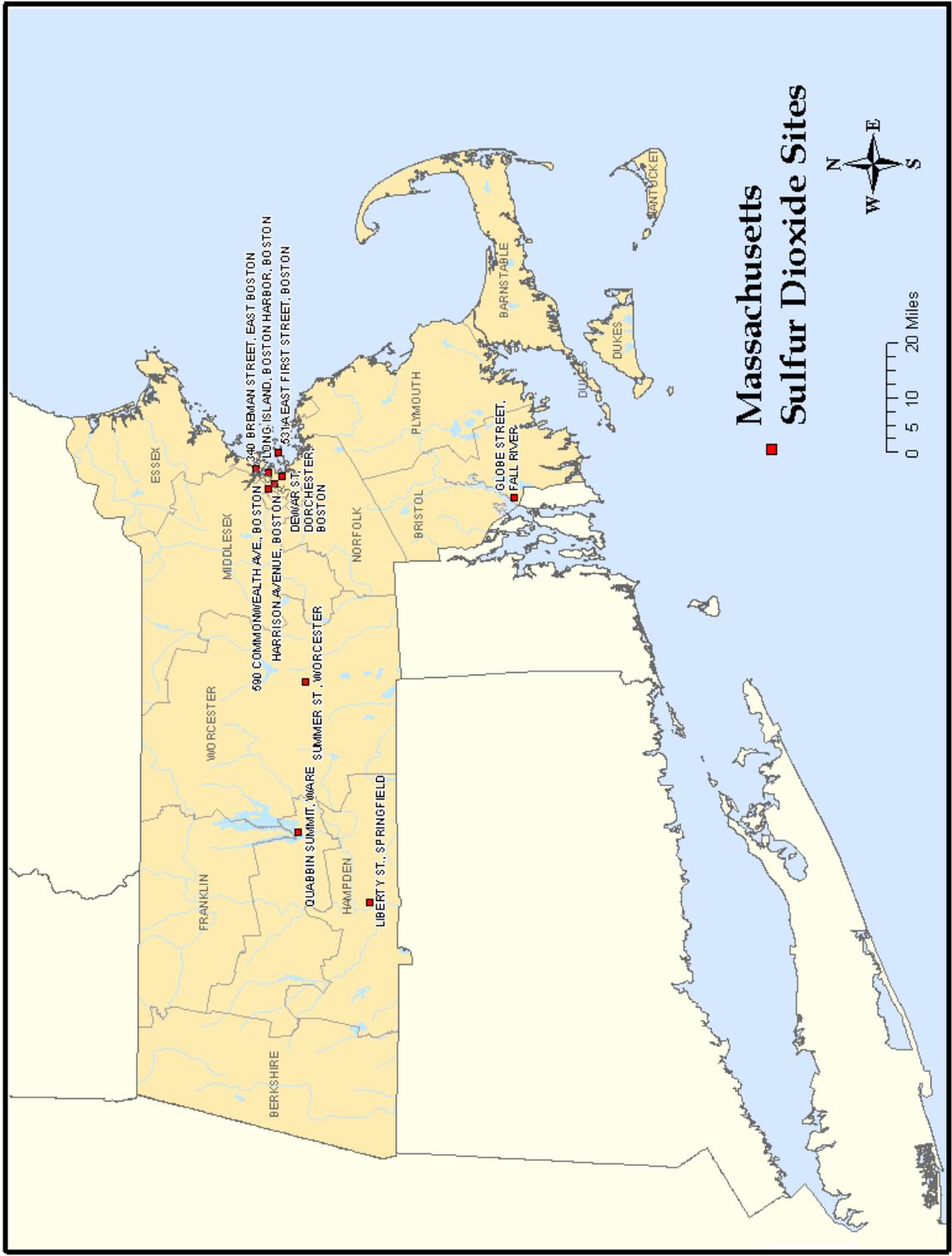


Massachusetts Particulate Matter < 2.5 Microns (PM2.5)

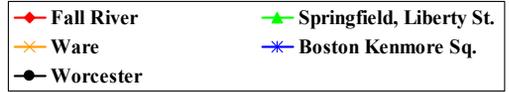
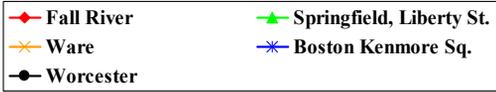
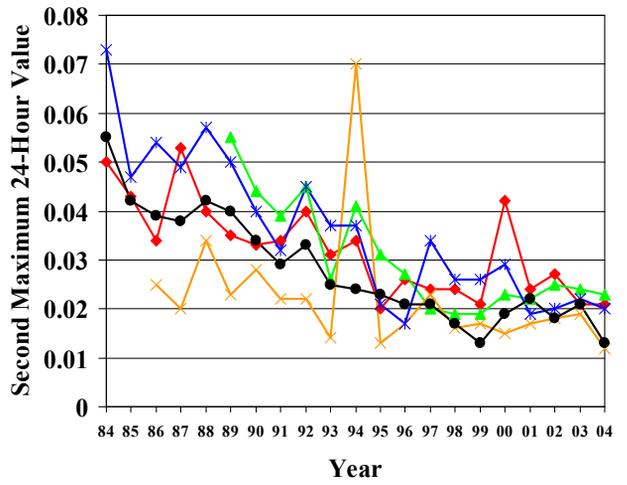
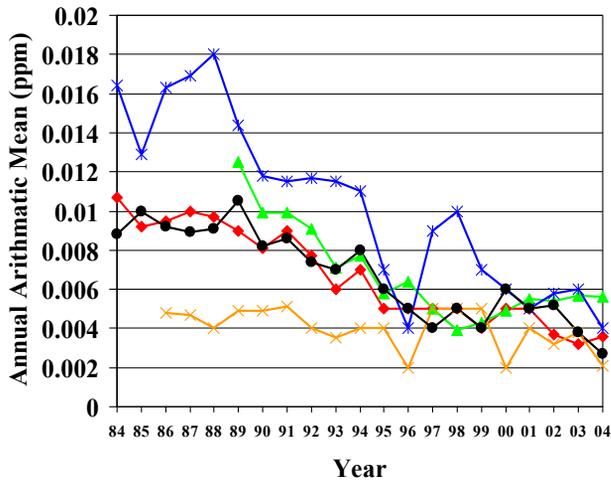


Massachusetts													
Parameter: PM 2.5													
All Values are in UG/CU Meters Local Conditions													
Site ID	P	O Rept.			#	Highest	2nd	3rd	4th	98th	Wtd.	Methods	
		C Org.	City	County	Address	Obs	Value	Highest	Highest	Highest	Percentile	Arith.	Used
							Value	Value	Value	Value	Value	Mean	
25-003-5001	1	660	Pittsfield	Berkshire	78 CENTER STREET	113	39.0	30.3	29.8	28.7	29.8	10.54	120
25-005-1004	1	660	Fall River	Bristol	GLOBE STREET	117	38.2	32.4	26.3	24.7	26.3	10.25	120
25-005-1004	3	660	Fall River	Bristol	GLOBE STREET	8634	48.1	43.4	38.4	38.1	35.9	11.67	731
25-009-2006	1	660	Lynn	Essex	390 PARKLAND AVE	120	39.7	25.8	25.5	24.2	25.5	9.00	120
25-009-5005	1	660	Haverhill	Essex	WASHINGTON STEET	118	41.2	27.0	27.0	22.7	27.0	9.52	120
25-009-5005	3	660	Haverhill	Essex	WASHINGTON STEET	3994	45.4	33.0	31.1	28.4	28.4	9.39 *	731
25-009-6001	1	660	Lawrence	Essex	WALL EXPERIMENT STATION	104	41.8	28.9	27.2	26.4	27.2	10.48 *	120
25-013-0008	1	660	Chicopee	Hampden	ANDERSON ROAD	223	44.7	33.7	27.3	26.5	24.8	9.53	120
25-013-0008	5	1217	Chicopee	Hampden	ANDERSON ROAD	110	44.6	34.9	28.6	25.8	28.6	10.15	810
25-013-0016	1	660	Springfield	Hampden	LIBERTY STREET	258	43.9	37.1	35.6	35.3	32.0	11.98	120
25-013-0016	2	660	Springfield	Hampden	LIBERTY STREET	119	43.5	33.9	31.0	30.6	31.0	12.15	120
25-013-0016	3	660	Springfield	Hampden	LIBERTY STREET	8567	65.1	49.3	42.1	41.4	34.3	12.87	731
25-013-2009	1	660	Springfield	Hampden	1860 MAIN STREET	113	42.7	33.1	31.4	27.7	31.4	11.28	120
25-021-3003	3	660	Milton	Norfolk	MILTON MA, BLUE HILLS	4879	32.6	31.8	23.8	23.7	23.7	7.00 *	731
25-023-0004	1	660	Brockton	Plymouth	120 COMMERCIAL STREET	120	35.0	32.3	24.7	24.5	24.7	10.14	120
25-023-0004	2	660	Brockton	Plymouth	120 COMMERCIAL STREET	106	33.0	30.2	24.8	24.2	24.8	9.96 *	120
25-025-0002	1	660	Boston	Suffolk	KENMORE SQUARE	119	44.1	33.7	30.0	28.5	30.0	13.35	120
25-025-0027	1	660	Boston	Suffolk	ONE CITY SQUARE	315	41.8	36.4	32.1	31.0	29.8	12.55 *	120
25-025-0027	2	660	Boston	Suffolk	ONE CITY SQUARE	97	42.9	32.6	30.0	29.2	32.6	13.90 *	120
25-025-0042	1	660	Boston	Suffolk	HARRISON AVENUE	234	40.2	30.6	30.0	29.9	28.3	11.38	120
25-025-0042	3	660	Boston	Suffolk	HARRISON AVENUE	7411	51.5	40.1	38.7	38.7	35.3	13.98	731
25-025-0042	5	1217	Boston	Suffolk	HARRISON AVENUE	107	39.9	29.6	28.7	26.2	28.7	10.96 *	0
25-025-0042	6	1217	Boston	Suffolk	HARRISON AVENUE	55	29.2	25.8	25.4	23.3	25.8	11.47 *	0
25-025-0043	1	660	Boston	Suffolk	174 NORTH STREET	121	46.4	30.4	29.6	29.3	29.6	14.37	120
25-025-0043	3	660	Boston	Suffolk	174 NORTH STREET	8596	51.2	39.0	37.4	36.7	34.0	13.73	731
25-027-0016	1	660	Worcester	Worcester	2 WASHINGTON STREET	116	39.9	34.1	31.1	28.8	31.1	10.21	120
25-027-0023	1	660	Worcester	Worcester	SUMMER STREET	219	36.2	33.5	32.0	31.2	30.9	11.39 *	120
25-027-0023	3	660	Worcester	Worcester	SUMMER STEET	6495	46.5	35.2	33.6	33.0	30.3	11.68 *	731

*Indicates that the mean does not satisfy summary criteria



Massachusetts Sulfur Dioxide



Massachusetts															
Parameter: Sulfur Dioxide															
All Values are in Units of Parts Per Million															
	P					24-	24-		3-hour	3-hour		1-hour	1-hour		
	O Org				#	hour	hour	Obs	Highest	2nd	Highest	Obs	Highest	Highest	Arith.
Site ID	C Type City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Value	Mean	Method
25-005-1004	1 660	Fall River	Bristol	GLOBE STREET	8553	0.029	0.021	0	0.069	0.058	0	0.085	0.084	0.0036	077
25-013-0016	1 660	Springfield	Hampden	LIBERTY STREET	8491	0.026	0.023	0	0.040	0.038	0	0.048	0.046	0.0056	060
25-015-4002	1 660	Ware	Hampshire	QUABBIN SUMMIT	8593	0.014	0.012	0	0.020	0.019	0	0.021	0.021	0.0021	077
25-025-0002	1 660	Boston	Suffolk	KENMORE SQUARE	8527	0.021	0.020	0	0.033	0.028	0	0.035	0.035	0.0040	061
25-025-0019	1 345	Boston	Suffolk	LONG ISLAND	8696	0.015	0.014	0	0.021	0.020	0	0.026	0.025	0.0040	060
25-025-0020	1 345	Boston	Suffolk	DEWAR STREET	8742	0.017	0.014	0	0.025	0.025	0	0.030	0.030	0.0041	060
25-025-0021	2 345	Boston	Suffolk	340 BREMAN STREET	8715	0.018	0.017	0	0.029	0.029	0	0.037	0.032	0.0048	060
25-025-0040	1 345	Boston	Suffolk	531A EAST FIRST ST.	8742	0.041	0.019	0	0.124	0.102	0	0.162	0.126	0.0064	060
25-025-0042	1 660	Boston	Suffolk	HARRISON AVE.	7489	0.021	0.016	0	0.025	0.025	0	0.037	0.031	0.0038	000
25-027-0023	1 660	Worcester	Worcester	SUMMER STREET	8366	0.014	0.013	0	0.019	0.018	0	0.027	0.025	0.0027	060

This page intentionally left blank

Ambient air Quality Summary - New Hampshire

During 2003 and 2004, New Hampshire continued to streamline and improve its ambient air quality monitoring network. The carbon dioxide monitor in Manchester was moved from the Bridge Street location to the central Manchester monitoring location at Pearl Street in 2002. The Portsmouth monitoring site, located at the Port Authority site was moved to Pierce Island at the end of 2002. The Portsmouth-Court Street PM10 and PM2.5 particulate monitors were moved to Pierce Island at the end of 2003. The Rye Harbor ozone monitoring site was discontinued after the 2003 season and replaced by the Sea Coast Science Center site located on Odiorne Point (Rye, NH). The ozone monitor in Rochester was discontinued in 2003. The Brentwood PAMS site, which measured ozone precursors (hydrocarbons and oxides of nitrogen), ozone and meteorological conditions, was moved to Gilson Road (Nashua, NH) in 2003. Monitoring for oxides of nitrogen continued through 2003 at Brentwood, then discontinued. Measurements of sulfur dioxide were discontinued at three sites in 2003: Sanders Associates (Nashua, NH), Storrs Street (Concord, NH), and Pembroke Hills (Pembroke, NH).

The accompanying charts indicate that there has been substantial improvement in air quality, based on long-term measurements of air pollutants at New Hampshire air quality monitoring sites. Air pollution levels are significantly below primary and secondary National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂) and coarse particulate matter (PM₁₀ – particulate matter with a mass mean diameter of less than 10 microns). Long-term changes in the ambient concentration of ozone and fine particulate matter (PM_{2.5}) do not show improvements that are as large as those of the other pollutants, partly because the concentrations of ozone and fine particulate matter are sensitive to atmospheric conditions that promote transport, transformation and accumulation, as well as direct emissions (fine particulate matter).

In 1999, New Hampshire established a network of fine particulate monitors (PM_{2.5}). By 2003, eleven monitoring sites provided data on the concentration of PM_{2.5} in the state. Over the past several years the highest concentrations of PM_{2.5} have been in the Portsmouth, Nashua, Manchester and Keene urban areas. The lowest PM_{2.5} levels were recorded in Laconia and Peterborough. During 2004, relatively high concentrations of fine particulate matter (PM_{2.5} – [FRM – Federal Reference Method] annual weighted arithmetic mean) were recorded at the Railroad Street site in Keene (10.86 ug/m³) and the Lancaster Street site in Berlin (10.83 ug/m³) compared with the other eight New Hampshire monitoring sites. These concentrations were well below the primary standard for PM_{2.5} which is 15 ug/m³. The highest annual weighted arithmetic mean concentration of PM_{2.5} (12.29 ug/m³) was recorded at the Pierce Island site in Portsmouth (NH) using a continuous federal equivalent method instrument.

None of the three coarse particulate matter (PM₁₀) sites in New Hampshire exceeded or violated the annual or 24-hr NAAQS for PM₁₀ over the past eight years (1997-2004). The highest 24-hour concentration in 2004 was recorded in Manchester, with a highest second maximum of 39 ug/m³ (less than 30% of the NAAQS). The highest maximum annual average PM₁₀ was also recorded in Manchester (17.1 ug/m³ or ~30% of the NAAQS). Over the past ten years, all of the PM₁₀ monitors in New Hampshire recorded PM₁₀ concentrations below the national standards. Yearly variability is common, however, due to differences in weather and local PM₁₀ emissions.

None of the thirteen ozone monitors in New Hampshire violated the 1-hour NAAQS in 2004. The Seacoast Science Center site in Rye and the Pierce Island site in Portsmouth reported the highest 1-hour daily maximum ozone concentrations (114 ppb and 116 ppb, respectively). During 2003 none of the ozone sites violated the 1-hour NAAQS. In 2002 five sites reported concentrations above 124 ppb, in 2001 there were three sites above 124 ppb, and there were no reported exceedances of the 1-hour ozone NAAQS in 2000. For the 8-hour ozone standard, none of the thirteen O₃ sites reported a fourth highest 8-hr average ozone concentration above the 85 ppb NAAQS. The maximum 8-hour average in 2003 was recorded on Pierce Island (Portsmouth), which recorded an 8-hour concentration of 98 ppb.

During 2004, no exceedance or violation of the sulfur dioxide NAAQS occurred at any of the monitoring sites in New Hampshire. The highest annual SO₂ concentration was recorded in Keene (0.0074 ppm). However, as was the case in 2003, the Pembroke site reported the highest 24-hour second maximum SO₂ concentration (0.056 ppm), and reported the highest 3-hour SO₂ second maximum concentration (0.130 ppm).

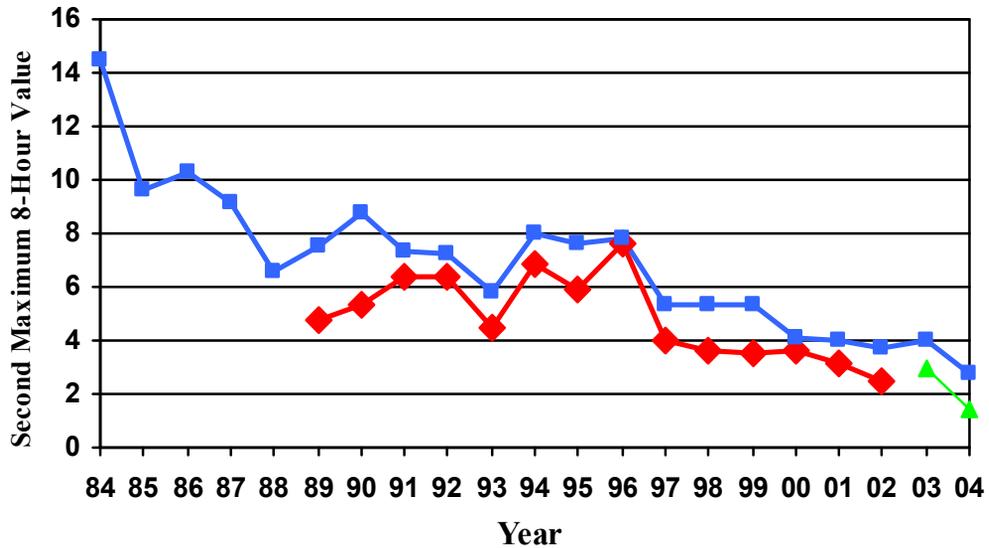
In 2004 nitrogen dioxide (NO₂) was measured at three monitoring sites. The Portsmouth and Manchester monitoring sites recorded the highest NO₂ concentrations, but well below the standard. The ten-year trend in NO₂ indicates that there has been no recent upward or downward trend in concentration.

In 2004, there were no violations of the 8-hour or 1-hour National Ambient Air Quality Standard (NAAQS) for carbon monoxide (CO) at the two CO monitoring sites in New Hampshire. This is the seventh year in a row during which no exceedances occurred. The last exceedances of the 8-hour CO NAAQS occurred in Manchester (13.5 ppm) during the winter of 1996. In 2004, Manchester reported a second maximum 8-hour average CO concentration of 2.2 ppm, which was roughly 25-30% of the standard. The Nashua site recorded a second maximum 8-hour average CO concentration of 4.8 ppm. The most recent ten year trend for CO indicates that the CO levels show moderate year-to-year fluctuations, but tend to be falling and well below the NAAQS.

During 1996, New Hampshire discontinued ambient air monitoring for lead (Pb). Historically, lead concentrations in New Hampshire ambient air declined to the point where virtually no lead was detectible at the monitoring sites.



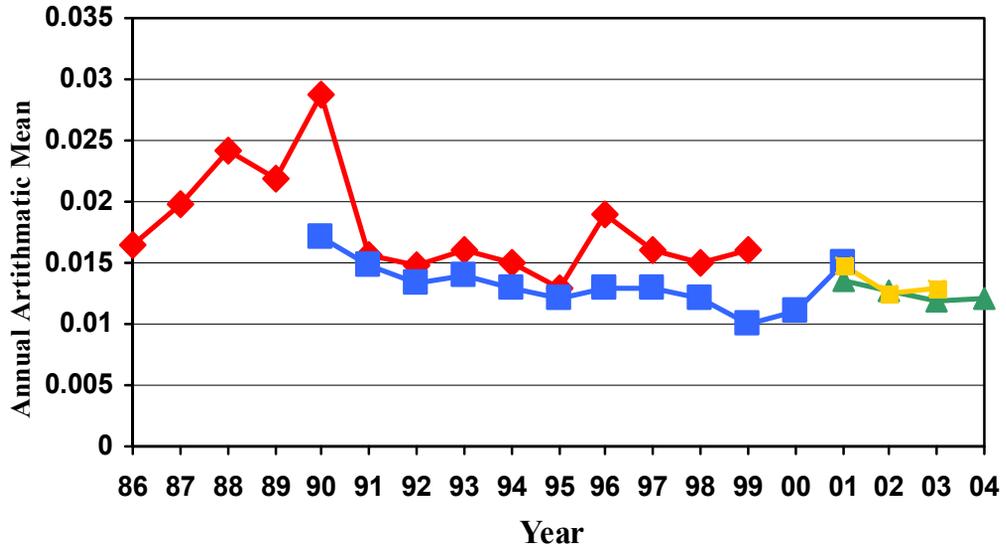
New Hampshire Carbon Monoxide



New Hampshire												
2004 Carbon Monoxide												
All Values are in Units of Parts Per Million												
	P					1-hour	1-hour		8-hour	8-hour		
	O	Org				#	Highest	Highest		Highest	Highest	Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9 Used
33-011-0020	1	762	Manchester	Hillsborough	PEARL ST	8437	4.7	2.2	0	1.7	1.4	0 54
33-011-1009	1	762	Nashua	Hillsborough	25 MAIN STREET	8732	7.1	4.8	0	4	2.8	0 0

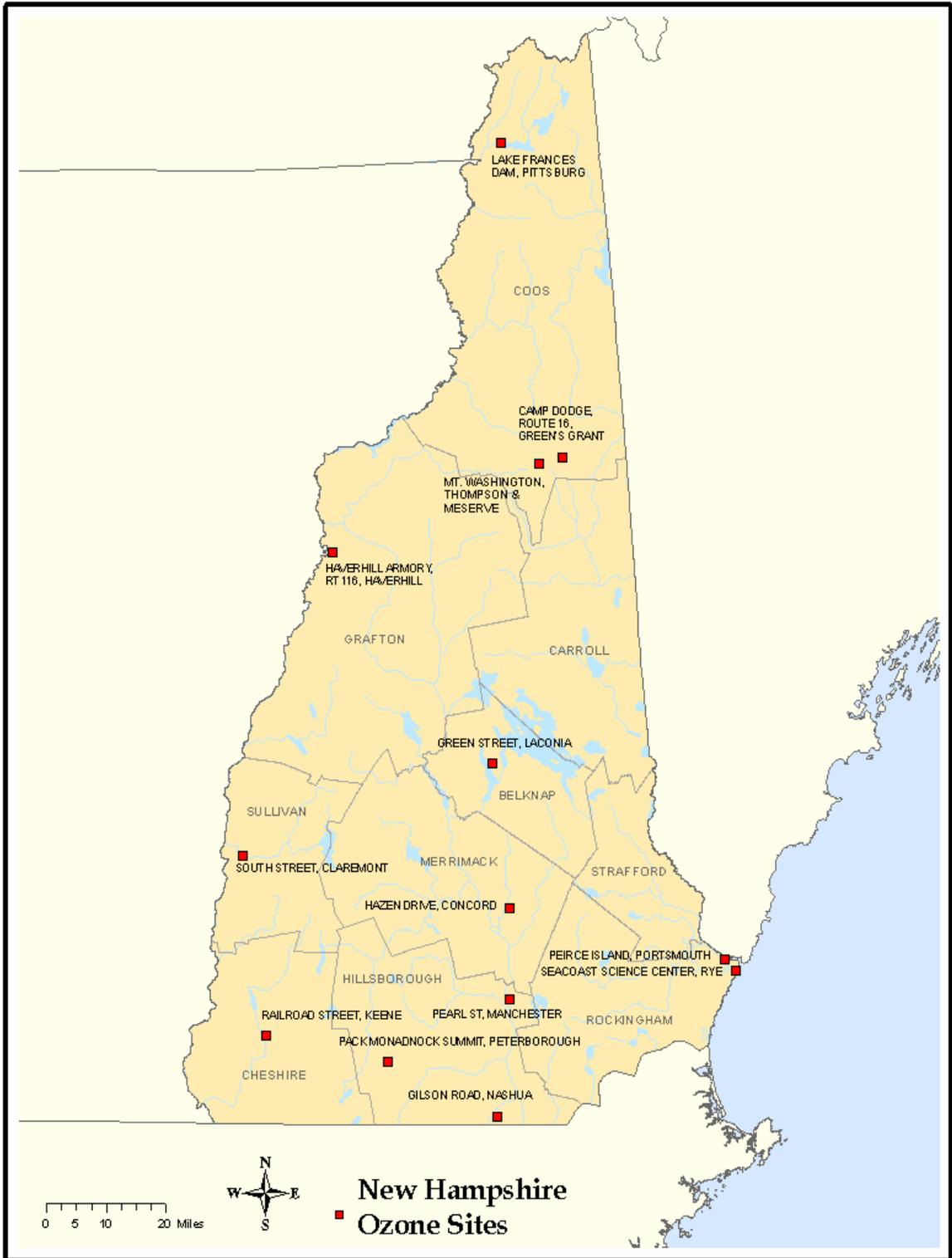


New Hampshire Nitrogen Dioxide

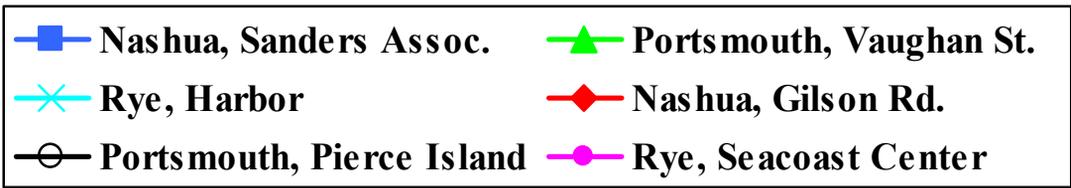
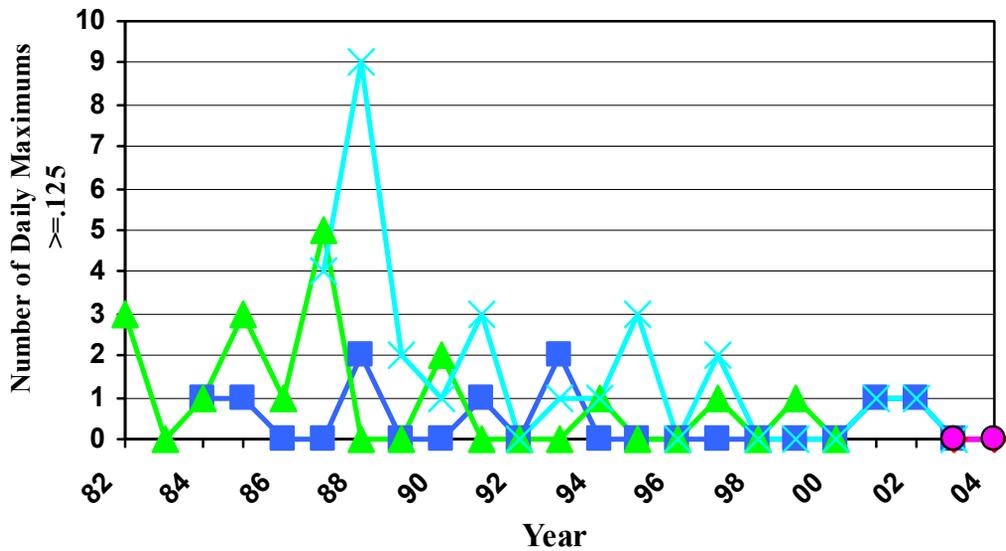


New Hampshire										
2004 Nitrogen Dioxide										
All Values are in Units of Parts Per Million										
								1-hour	1-hour	
	P							2nd	Annual	
Site ID	O Rept.	C Org.	City	County	Address	Method	# Obs	Highest Value	Highest Value	Arith. Mean
33-011-0020	1	762	Manchester	Hillsborough	PEARL ST	0	8627	0.0620	0.0580	0.01200
33-011-1011	1	762	Nashua	Hillsborough	GILSON ROAD	74	4547	0.0280	0.0280	0.00300 *
33-015-0014	1	762	Portsmouth	Rockingham	PIERCE ISLAND	0	8333	0.0470	0.0420	0.00730

* Indicates that the mean does not satisfy summary criteria



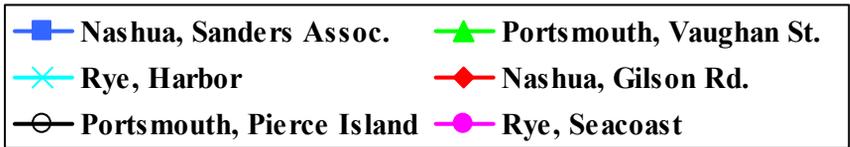
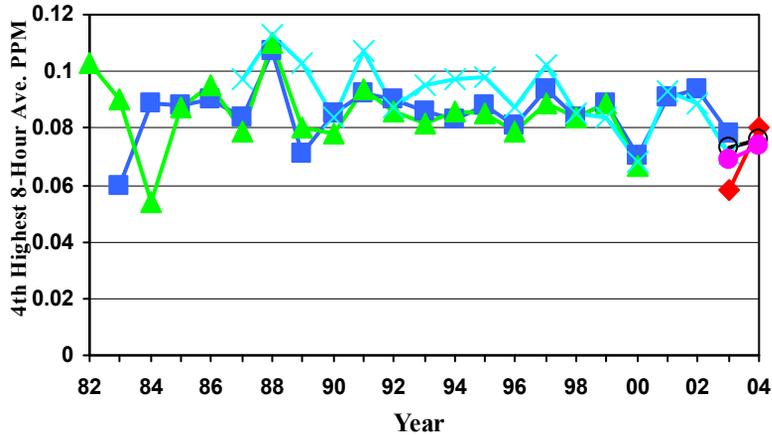
New Hampshire Ozone 1-Hour Average



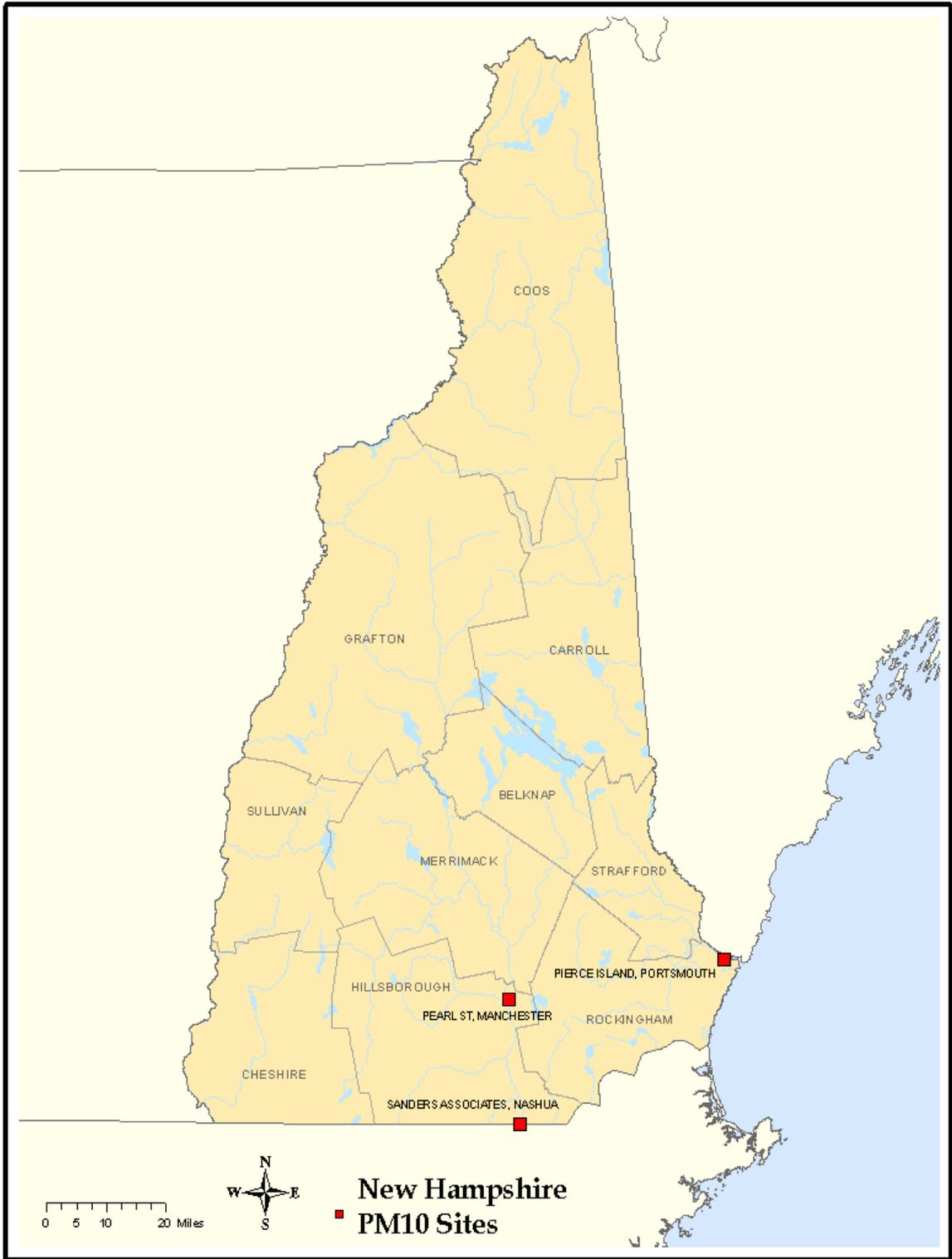
New Hampshire															
2004 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
Site ID	O Rep.	C Org.	City	County	Address	Num Meas	Num Req	Highest Value	Highest Value	Highest Value	Highest Value	Day Max ≥ 0.125	Est. Day Max ≥ 0.125	Day Days < 0.125	Method used
33-001-2004	1	762	Laconia	Belknap	GREEN STREET	183	183	0.093	0.085	0.084	0.078	0	0	0	134
33-005-0007	1	762	Keene	Cheshire	RAILROAD STREET	173	183	0.102	0.095	0.086	0.085	0	0	5	134
33-007-4001	1	762		Coos	MT. WASHINGTON SUMMIT	103	183	0.097	0.094	0.093	0.092	0	0	2	134
33-007-4002	1	762	Greens Grant	Coos	CAMP DODGE	171	183	0.102	0.082	0.077	0.076	0	0	5	134
33-007-4003	1	762	Pittsborough	Coos	LAKE FRANCES DAM	176	183	0.079	0.074	0.073	0.073	0	0	2	134
33-009-0008	1	762	Haverhill	Grafton	HAVERHILL	182	183	0.089	0.089	0.083	0.077	0	0	1	134
33-011-0020	1	762	Manchester	Hillsborough	PEARL ST	181	183	0.104	0.088	0.082	0.081	0	0	2	134
33-011-1011	1	762	Nashua	Hillsborough	GILSON ROAD	160	183	0.110	0.094	0.093	0.092	0	0	10	134
33-011-5001	1	762	Peterborough	Hillsborough	PACK MONADNOCK	175	183	0.098	0.094	0.089	0.088	0	0	1	134
33-013-1007	1	762	Concord	Merrimack	HAZEN DRIVE	179	183	0.104	0.091	0.085	0.081	0	0	1	134
33-015-0014	1	762	Portsmouth	Rockingham	PIERCE ISLAND	174	183	0.116	0.106	0.096	0.089	0	0	3	134
33-015-0016	1	762	Rye	Rockingham	SEACOAST SCIENCE CENTER	180	183	0.114	0.090	0.087	0.087	0	0	2	134
33-019-0003	1	762	Claremont	Sullivan	SOUTH STREET	181	183	0.106	0.105	0.096	0.082	0	0	2	134

This page intentionally left blank

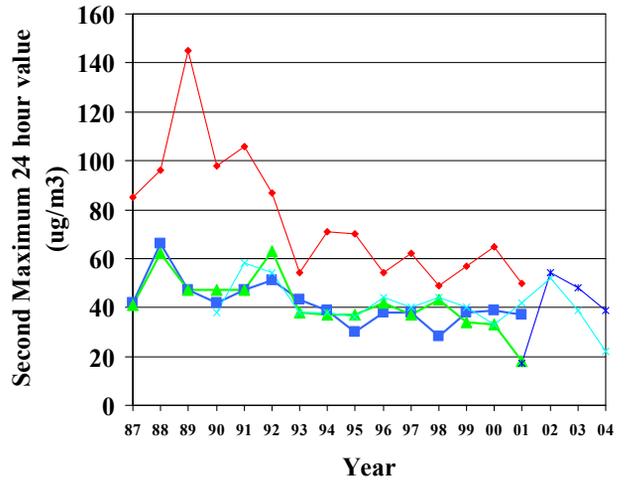
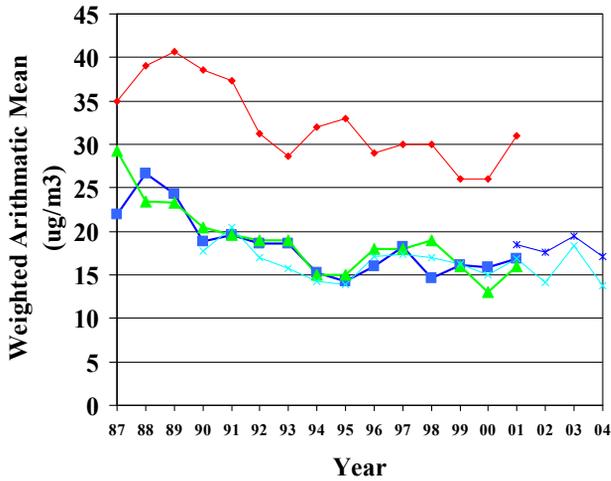
New Hampshire Ozone 8-Hour Average



New Hampshire														
Parameter: Ozone (8-Hour)														
All Values are in Units of Parts Per Million														
	P													
	O Rept.													
Site ID	C Org.	City	County	Address	Obs	Valid Days	Num Required Days	Highest 8-Hr Value	2nd Highest 8-Hr Value	3rd Highest 8-Hr Value	4th Highest 8-Hr Value	Max ≥ 0.085	Days	Method
33-001-2004	1	762 Laconia	Belknap	GREEN STREET,	100	183	183	0.083	0.076	0.076	0.070	0	134	
33-005-0007	1	762 Keene	Cheshire	RAILROAD STREET	93	171	183	0.081	0.079	0.074	0.069	0	134	
33-007-4001	1	762 Coos	Coos	MT. WASHINGTON SUMMIT	53	97	183	0.089	0.088	0.086	0.081	3	134	
33-007-4002	1	762 Grant's Green	Coos	CAMP DODGE	92	169	183	0.086	0.070	0.070	0.067	1	134	
33-007-4003	1	762 Coos	Coos	LAKE FRANCES DAM	96	175	183	0.068	0.067	0.067	0.067	0	134	
33-009-0008	1	762 Haverhill	Grafton	HAVERHILL	99	182	183	0.084	0.074	0.074	0.074	0	134	
33-011-0020	1	762 Manchester	Hillsborough	PEARL ST	99	181	183	0.094	0.074	0.073	0.071	1	134	
33-011-1011	1	762 Nashua	Hillsborough	GILSON ROAD	82	150	183	0.097	0.087	0.081	0.080	2	134	
33-011-5001	1	762 Peterborough	Hillsborough	PACK MONADNOCK SUMMIT	95	174	183	0.087	0.084	0.078	0.076	1	134	
33-013-1007	1	762 Concord	Merrimack	HAZEN DRIVE	97	178	183	0.092	0.083	0.075	0.072	1	134	
33-015-0014	1	762 Portsmouth	Rockingham	PIERCE ISLAND	95	173	183	0.098	0.080	0.080	0.076	1	134	
33-015-0016	1	762 Rye	Rockingham	SEACOAST SCIENCE CENTER	97	178	183	0.093	0.078	0.075	0.074	1	134	
33-019-0003	1	762 Claremont	Sullivan	SOUTH STREET	99	181	183	0.095	0.084	0.081	0.076	1	134	

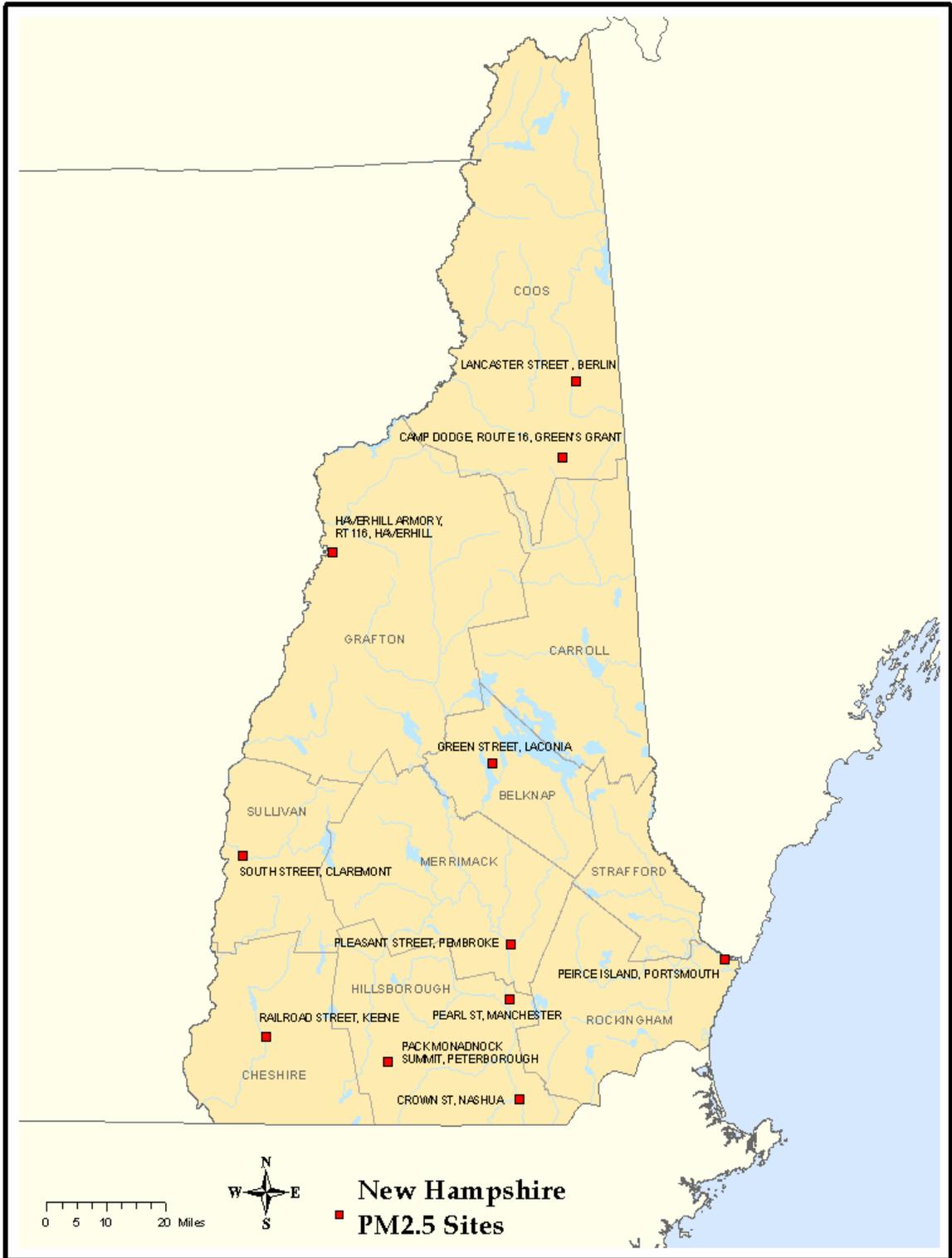


New Hampshire Particulate Matter < 10 Microns (PM10)

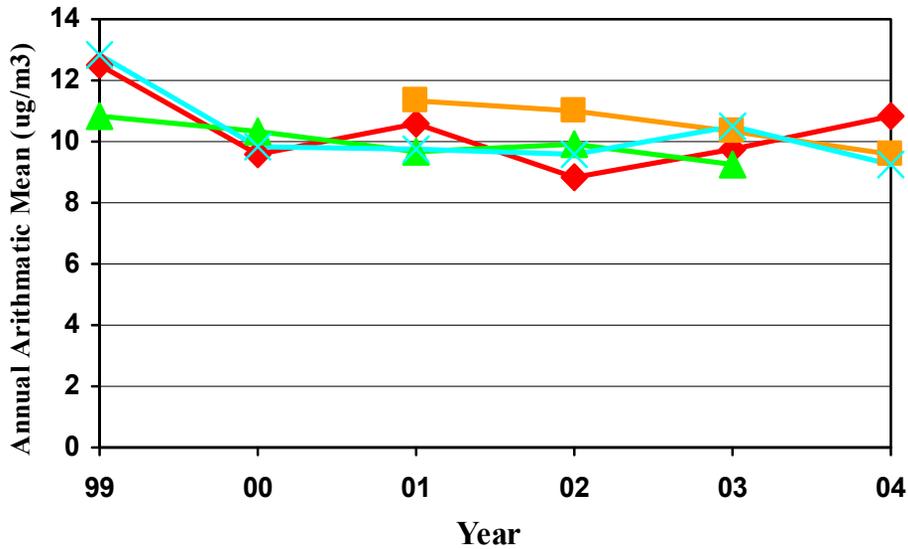


New Hampshire																
2004 Particulate Matter < 10 Microns																
ug/m3																
SITE ID	Rep. P	City	County	Address	# Obs	# Req.	Number Valid Days	% Obs	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	Days Max >150	Est. Days >150	Wtd. Arith. Mean	Methods Used
33-011-0020	1	762 Manchester	Hills	PEARL ST	58	61	58	95	42	39	37	30	0	0	17.1	64
33-011-0020	2	762 Manchester	Hills	PEARL ST	53	61	53	87	54	37	37	27	0	0	16.7 *	64
33-011-1010	1	762 Nashua	Hills	SANDERS	10	15	10	67	25	22	21	17	0	0	13.7 *	64
33-015-0014	1	762 Portsmouth	Rockingham	PIERCE ISLAND	58	61	58	95	32	31	23	23	0	0	14.8	64

*Indicates that the mean does not satisfy summary criteria

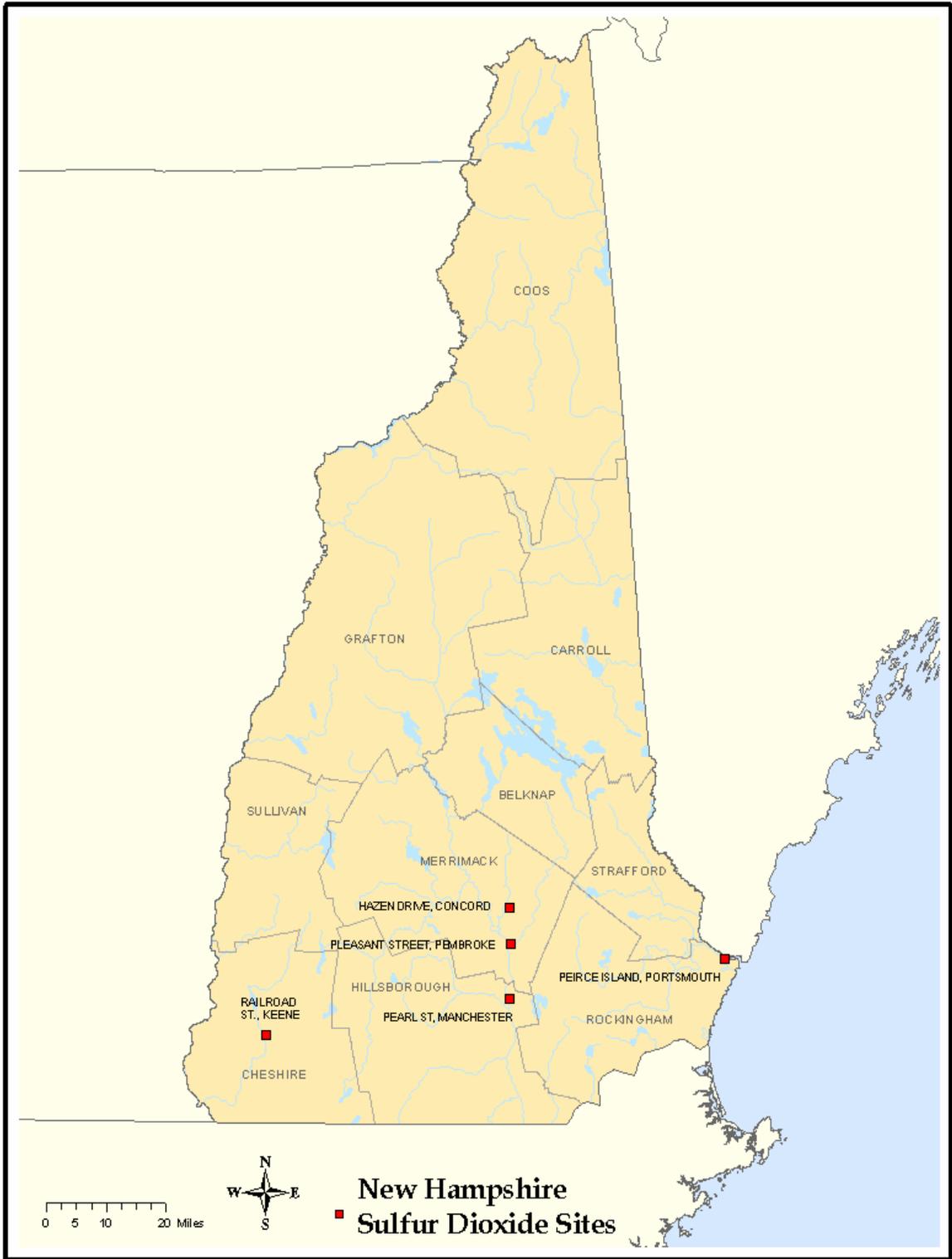


New Hampshire Particulate Matter < 2.5 Microns (PM2.5)

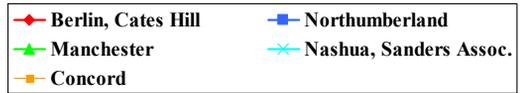
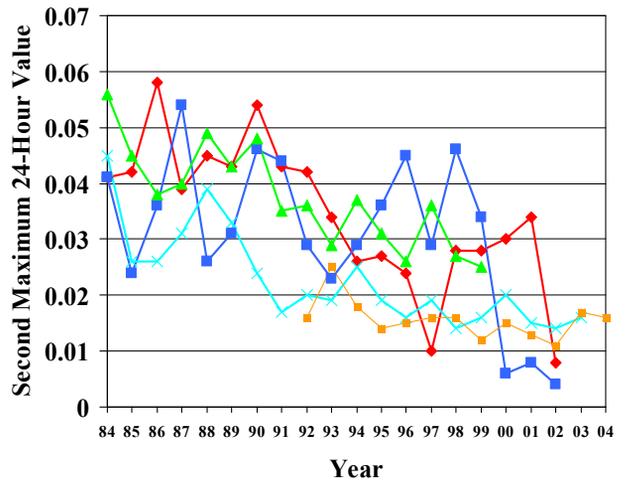
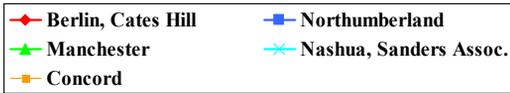
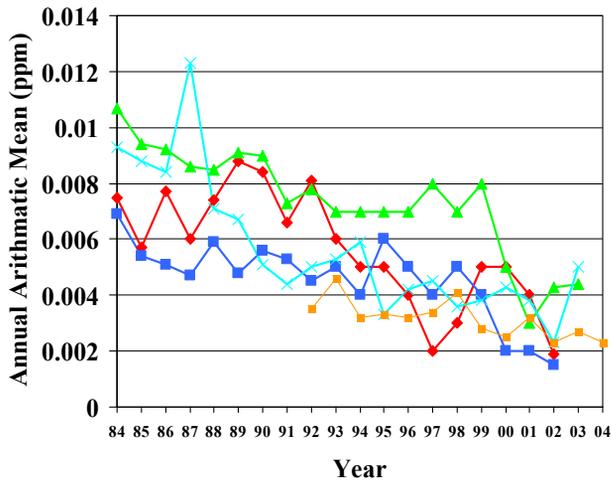


New Hampshire												
2004 PM 2.5												
All Values are in UG/CU Meters Local Conditions												
Site ID	P	O Rept.	County	Address	#	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	98th Percentile Value	Wtd. Arith. Mean	Method Used
33-001-2004	1	762 Laconia	Belknap	GREEN STREET	59	34.1	22.3	18.7	16.0	22.3	7.08	116
33-001-2004	2	762 Laconia	Belknap	GREEN STREET	56	34.2	19.2	14.4	11.4	19.2	6.63	116
33-005-0007	1	762 Keene	Cheshire	RAILROAD STREET	61	30.4	30.2	29.3	28.0	30.2	10.86	116
33-007-0014	1	762 Berlin	Coos	LANCASTER STREET	120	37.9	31.9	28.7	23.7	28.7	10.83	116
33-007-4002	3	762 Grant's Green	Coos	CAMP DODGE	3525	48.9	45.9	25.0	15.1	25.0	4.55 *	711
33-009-0008	1	762 Haverhill	Grafton	HAVERHILL	61	33.2	28.4	25.7	17.3	28.4	7.57	116
33-009-0008	3	762 Haverhill	Grafton	HAVERHILL	7892	34.2	32.1	24.5	23.2	20.5	6.11 *	703
33-011-0020	1	762 Manchester	Hills	PEARL ST	119	44.9	32.9	28.2	26.7	28.2	9.58	116
33-011-0020	2	762 Manchester	Hills	PEARL ST	61	31.8	23.2	21.0	19.4	23.2	9.70	116
33-011-0020	3	762 Manchester	Hills	PEARL ST	6686	42.5	30.8	28.6	27.3	25.1	8.25	703
33-011-0020	5	1217 Manchester	Hills	PEARL ST	55	32.7	22.7	20.3	19.7	22.7	9.88	820
33-011-1010	1	762 Nashua	Hills	SANDERS	122	43.5	29.0	27.1	25.6	27.1	9.41	116
33-011-5001	1	762 Peterborough	Hills	PACK MONADNOCK	60	30.9	27.3	17.7	13.3	27.3	5.88	116
33-011-5001	3	762 Peterborough	Hills	PACK MONADNOCK	8350	26.6	26.2	24.6	19.2	18.0	4.16	0
33-013-1006	1	762 Pembroke	Merrimack	PLEASANT STREET	121	44.0	30.9	29.3	23.5	29.3	9.79	116
33-015-0014	1	762 Portsmouth	Rockingham	PIERCE ISLAND	117	38.4	28.8	27.7	21.3	27.7	9.02	116
33-015-0014	3	762 Portsmouth	Rockingham	PIERCE ISLAND	6298	43.9	36.9	34.1	33.2	29.2	12.29 *	703
33-015-0014	5	1217 Portsmouth	Rockingham	PIERCE ISLAND	119	38.3	28.4	27.6	19.5	27.6	8.91	820
33-019-0003	1	762 Claremont	Sullivan	SOUTH STREET	61	33.0	30.7	24.4	19.1	30.7	9.21	116

*Indicates that the mean does not satisfy summary criteria



New Hampshire Sulfur Dioxide



New Hampshire																
2004 Sulfur Dioxide																
All Values are in Units of Parts Per Million																
Site ID	P	C Type	City	County	Address	#	Obs	24-hour	24-hour	3-hour		1-hour		Arith. Mean	Method Used	
								Highest	Highest	> 0.14 Value	Highest 2nd	Highest 2nd	> 0.5 Value			Highest 2nd
33-005-0007	1	762	Keene	Cheshire	RAILROAD STREET	1429	0.015	0.014	0	0.029	0.026	0	0.038	0.035	0.0074	023
33-011-0020	1	762	Manchester	Hills	PEARL STREET	8707	0.022	0.017	0	0.039	0.032	0	0.060	0.053	0.0046	060
33-013-1006	1	762	Pembroke	Merrimack	PLEASANT STREET	8373	0.085	0.056	0	0.156	0.130	0	0.182	0.178	0.0068	060
33-013-1007	1	762	Concord	Merrimack	HAZEN DRIVE	5672	0.025	0.016	0	0.055	0.042	0	0.072	0.059	0.0023	060
33-015-0014	1	762	Portsmouth	Rockingham	PIERCE ISLAND	8703	0.018	0.016	0	0.058	0.053	0	0.087	0.071	0.0039	060

This page intentionally left blank

Air Quality Summary - Rhode Island

No exceedance or violation of the 1-hour or 8-hour carbon monoxide (CO) NAAQS was recorded at the two CO monitoring sites in Rhode Island during 2004. The Dorrance Street site in Providence reported the highest 8-hour second maximum CO level (2.5 ppm) which was slightly higher than the previous year at 2.3 ppm. Over the past five years the highest 8-hour second maximum concentration of CO at this site was in 2001 at 3.8 ppm. Lower concentrations of CO were recorded at the East Providence site with the highest 8-hour second maximum concentration within the past five years occurring in 2001 at 2.7 ppm. The 20 year trend of CO concentrations shows a downward trend.

Rhode Island operated a lead ambient air monitoring between 1980 and 1992. The measurement of lead was discontinued because of extremely low lead levels being recorded throughout the state.

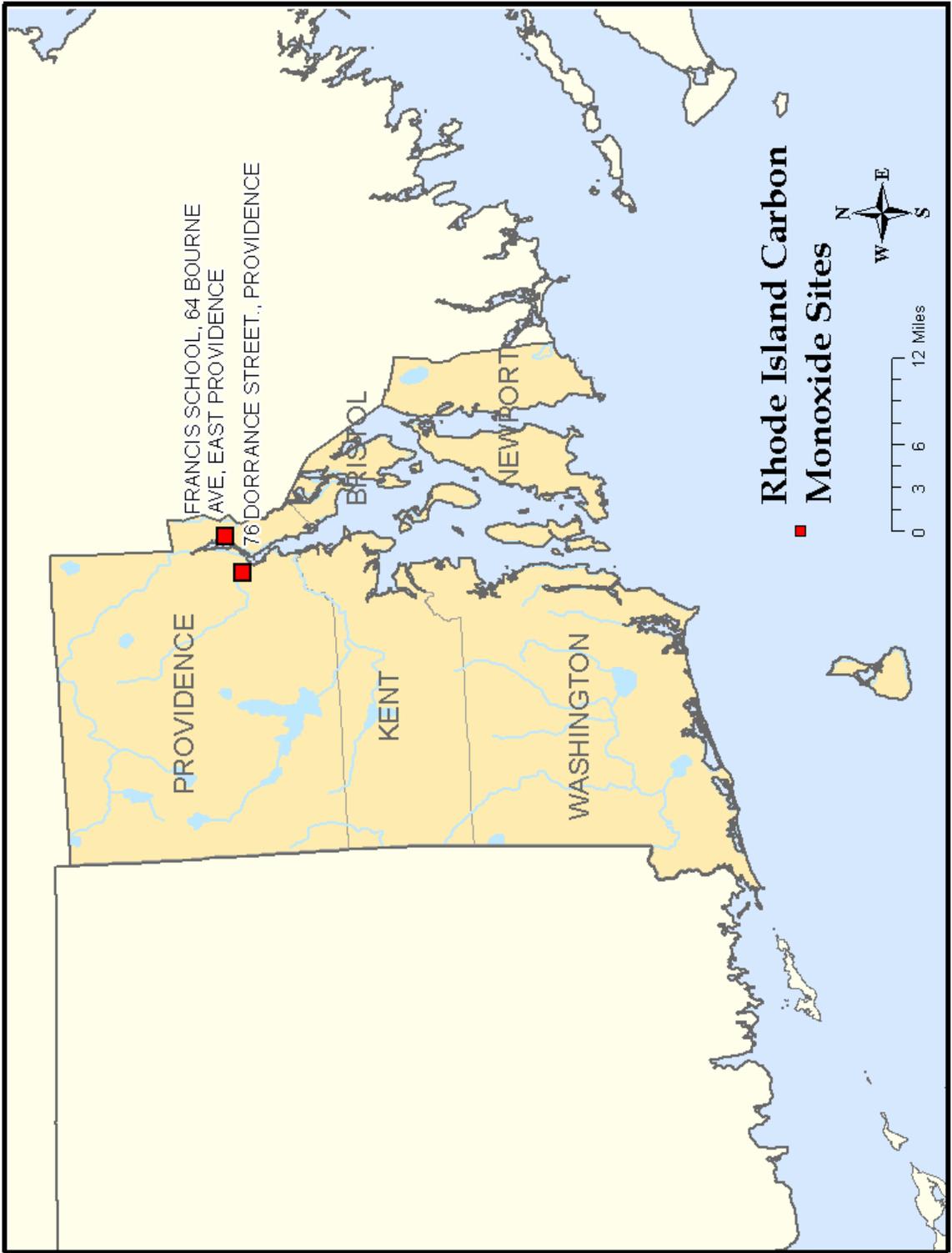
Rhode Island operated three nitrogen dioxide (NO₂) monitoring sites during 2004. NO₂ monitors were located at two Photochemical Assessment Monitoring Stations (PAMS) sites and at the Rockefeller Library in Providence. This latter site recorded the highest annual arithmetic mean concentration of NO₂ of 18 ppb, which was slightly lower than the previous year of 19 ppb. The 20 year NO₂ concentration trend at the Rockefeller Library Site has remained relatively flat. Each year, over the past five years, the mean NO₂ concentration during the PAMS season has been approximately three times higher at the Francis School Site (9 ppb) compared to the Alton Jones Site (3 ppb).

Two of the three ozone (O₃) monitoring sites in Rhode Island each reported one exceedance of the 1-hour O₃ NAAQS during 2004. Looking back over the past nine years there were more exceedances of the 1-hr standard in 2001 compared to other years. One of the three O₃ sites reported a fourth highest 8-hr average O₃ concentration of at least 85 ppb. Over the past five years, 2001 recorded more days above 85 ppb at each of the three monitoring sites compared to other years. The Narragansett site recorded the highest 1-hour O₃ concentration of 136 ppb and the highest 8-hour average concentration of 110 ppb during 2004.

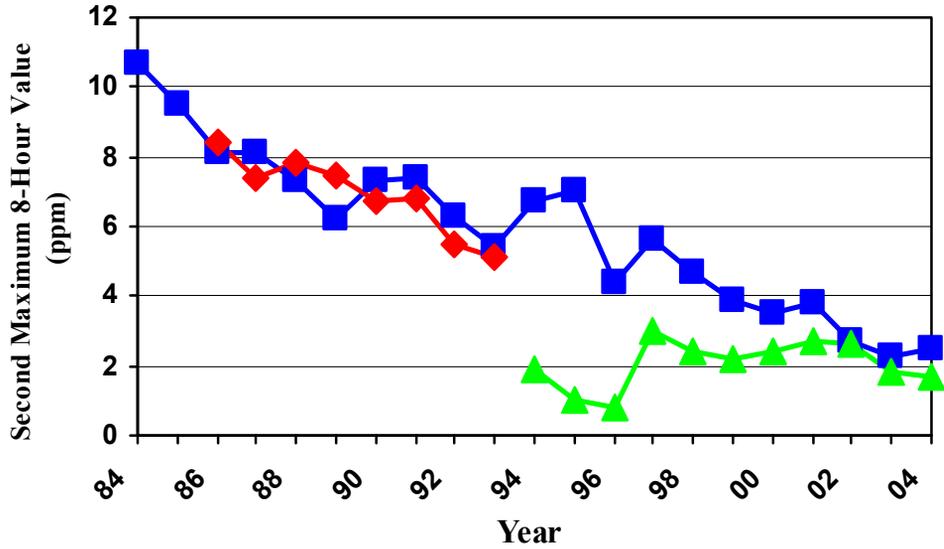
None of the particulate matter (PM₁₀) sites in Rhode Island had any exceedances or violations of the annual or 24-hour standards over the past five years. Of the four PM₁₀ monitoring sites, the Vernon Street site in Pawtucket reported both the highest 24-hour second maximum value of 45 ug/m³ and the highest annual arithmetic mean of 21 ug/m³ during 2004. The long range graphs for PM₁₀ show no discernable upward or downward trends.

In 2004, Rhode Island operated a network of five fine particulate matter (PM_{2.5}) sites. During 2004, the annual arithmetic mean concentrations of PM_{2.5} were highest in the Providence area compared to the rural site at Alton Jones. The six year concentration trends for the Alton Jones Site, Francis School, Prairie Ave., and Vernon Street Sites have remained relatively flat.

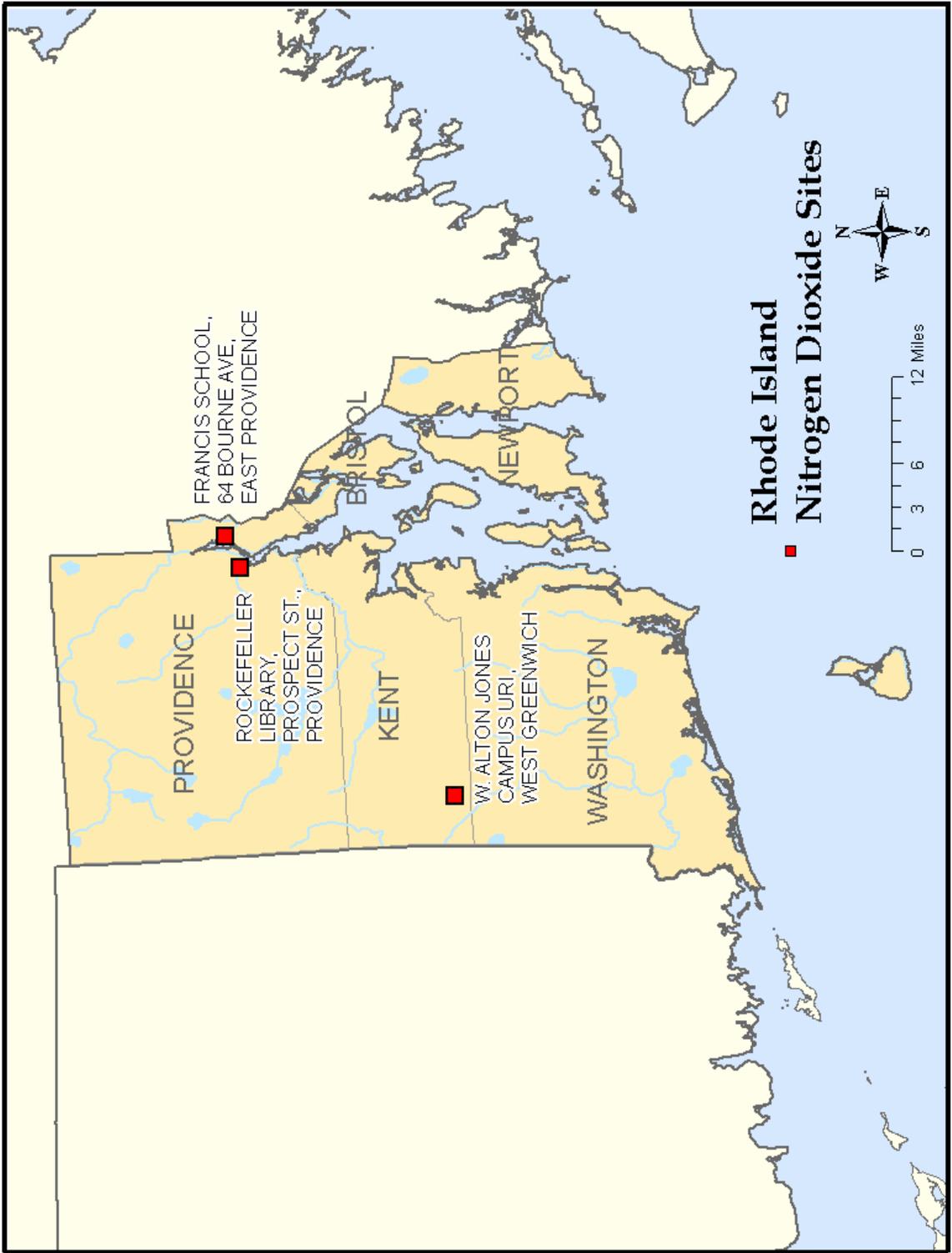
Two air quality monitoring sites measured sulfur dioxide (SO₂) in Rhode Island during 2004. There were no exceedances or violations of the annual, 24-hour, or 3-hour NAAQS. The Rockefeller Library site in Providence reported the highest arithmetic mean concentration of SO₂ at 7 ppb, which was ~23% of the NAAQS, the highest 24-hour second maximum concentration (24 ppb), and the highest 3-hour second maximum concentration of SO₂ (37 ppb). The long range trend for SO₂ concentrations in Rhode Island continually shows a slight downward trend.



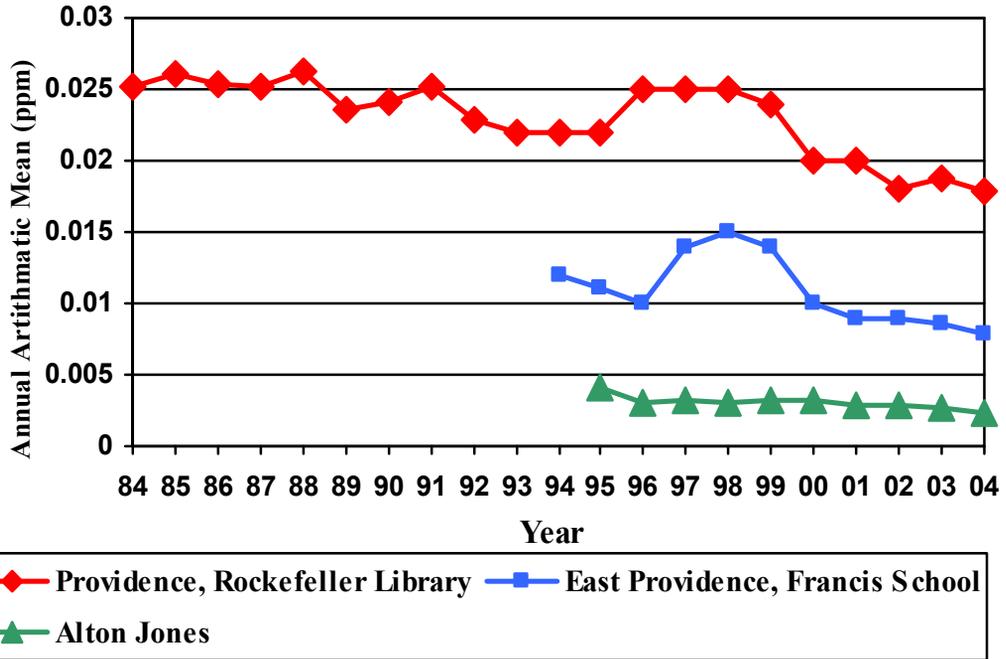
Rhode Island Carbon Monoxide



Rhode Island													
Carbon Monoxide													
All Values are in Units of Parts Per Million													
	P					1-hour	1-hour		8-hour	8-hour			
	O	Org				#	Highest	Highest		Highest	Highest	Methods	
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
44-007-1009	1	907	Providence	Providence	76 DORRANCE STREET	8441	3.7	3.5	0	2.5	2.5	0	54
44-007-1010	1	907	East Providence	Providence	FRANCIS SCHOOL	8135	4.2	2.4	0	2.1	1.7	0	54

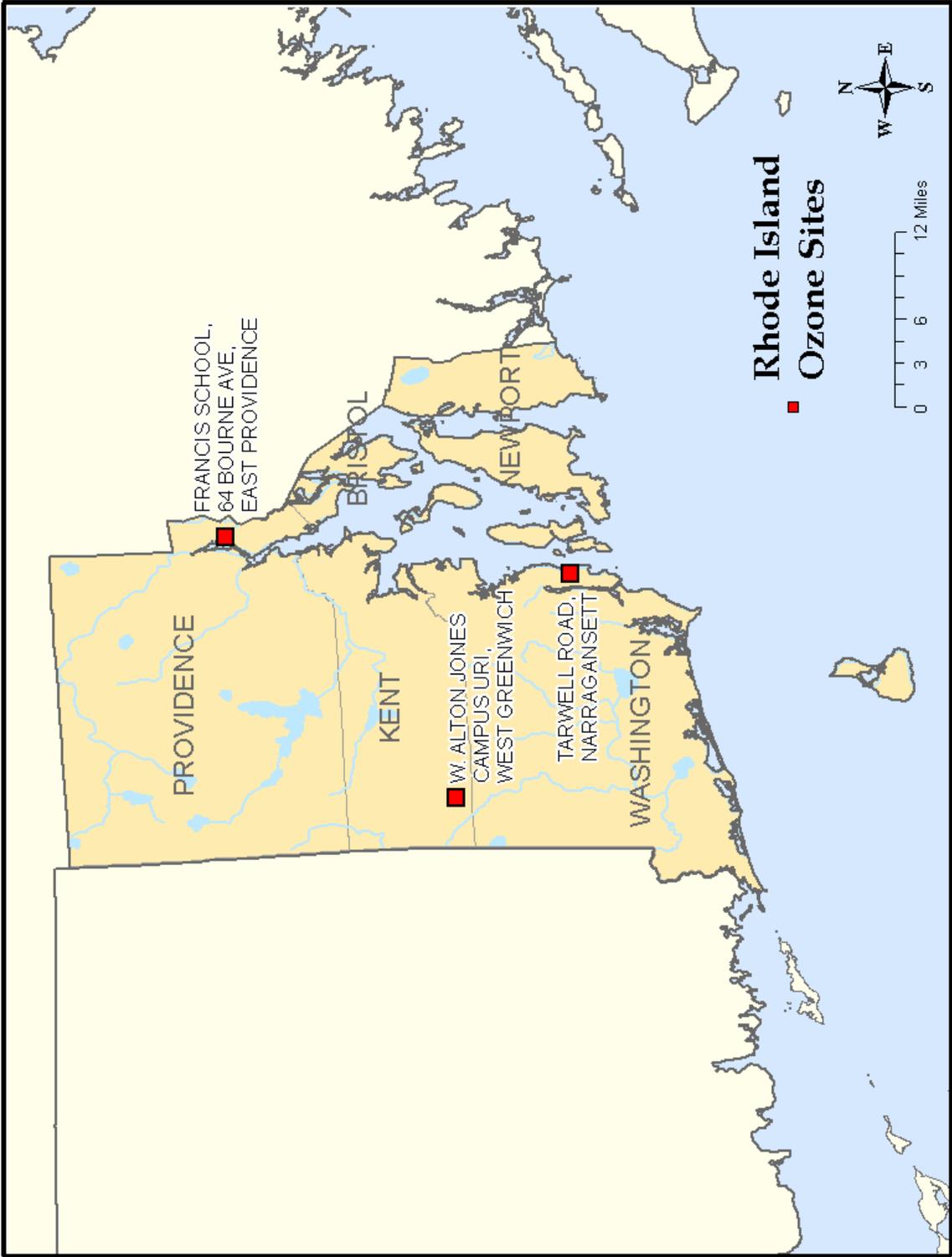


Rhode Island Nitrogen Dioxide

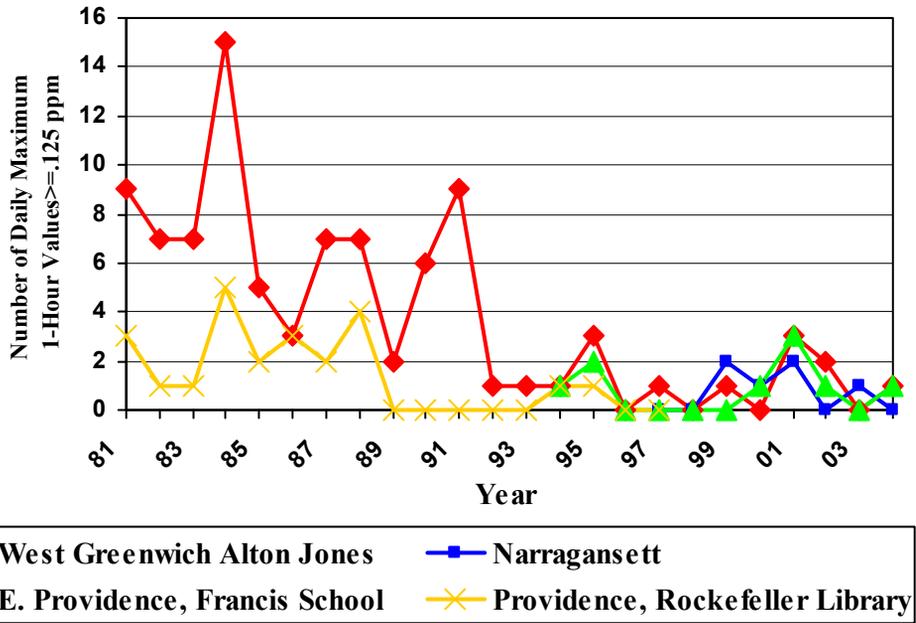


Rhode Island									
Parameter: Nitrogen Dioxide									
All Values are in Units of Parts Per Million									
							1-hour	1-hour	
	P						Highest	2nd	Annual
Site ID	C	Org. City	County	Address	Method	# Obs	Value	Highest Value	Arith. Mean
44-003-0002	1	907 West Greenwich	Kent	W. ALTON JONES	74	819	0.0100	0.0090	0.00240 *
44-007-0012	2	907 Providence	Providence	ROCKEFELLER LIBRARY	74	7602	0.0580	0.0540	0.01780
44-007-1010	1	907 East Providence	Providence	FRANCIS SCHOOL	74	1872	0.0350	0.0350	0.00780 *

* Indicates that the mean does not satisfy summary criteria

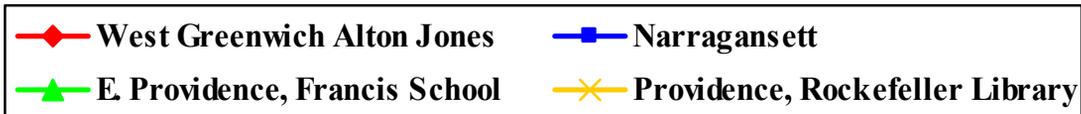
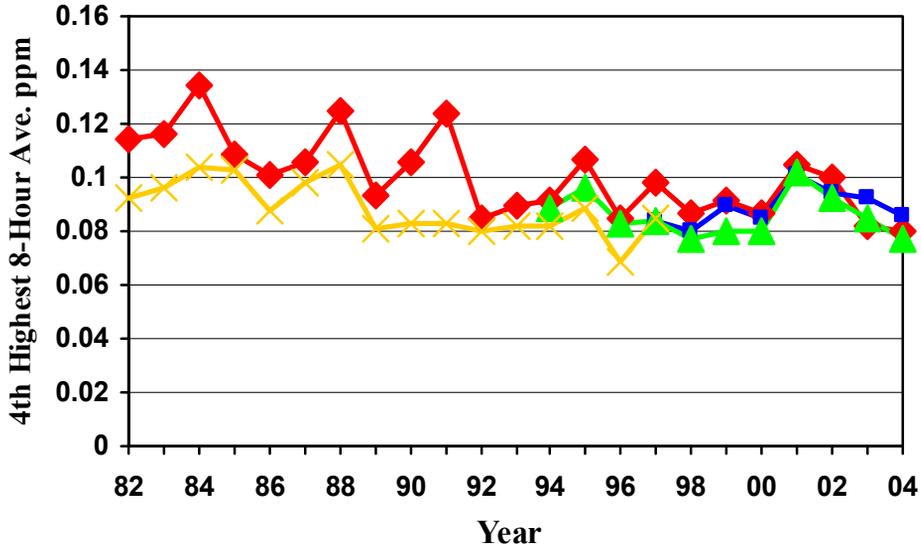


Rhode Island 1-Hour Ozone Average



Rhode Island															
Parameter: Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P							2nd	3rd	4th		Missing			
Site ID	Q Rep.	C Org.	City	County	Address	Num Meas	Num Req	Highest Value	Highest Value	Highest Value	Highest Value	Day Max ≥ 0.125	Est. Day ≥ 0.125	Days < 0.125	Method used
44-003-0002	1	907	West Greenwich	Kent	W. ALTON JONES CAMPUS URI	177	183	0.131	0.118	0.103	0.093	1	1	0	47
44-007-1010	1	907	East Providence	Providence	FRANCIS SCH., 64 BOURNE AVE	176	183	0.115	0.113	0.092	0.091	0	0	3	47
44-009-0007	1	907	Narragansett	Washington	TARWELL ROAD	181	183	0.136	0.111	0.110	0.100	1	1	2	47

Rhode Island 8-Hour Ozone Average

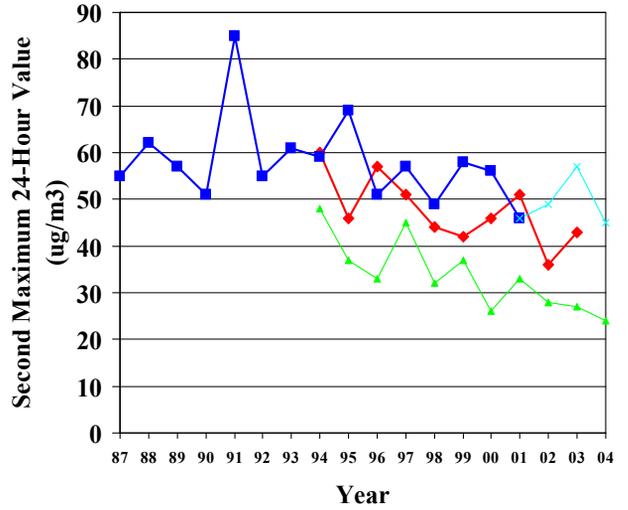
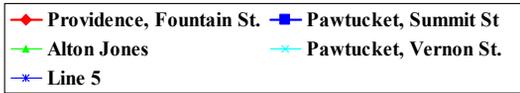
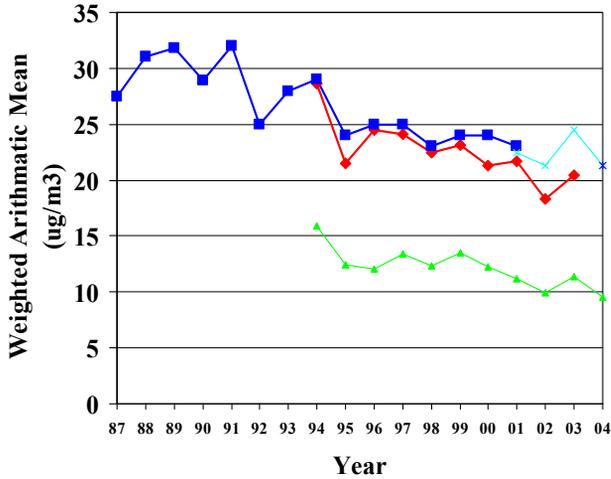


Rhode Island													
Parameter: Ozone (8-Hour)													
All Values are in Units of Parts Per Million													
	P												
	O Rept.				#	Valid Days	Num Required	Highest	2nd Highest	3rd Highest	4th Highest	Days Max ≥	Method
Site ID	C Org.	City	County	Address	Obs	Meas.	Days	8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Reporte
44-003-0002	1	907 West Greenwich	Kent	W. ALTON JONES	95	174	183	0.103	0.095	0.081	0.080	2	47
44-007-1010	1	907 East Providence	Providence	FRANCIS SCHOOL	92	168	183	0.094	0.093	0.080	0.077	2	47
44-009-0007	1	907 Narragansett	Washington	TARWELL ROAD	98	180	183	0.110	0.097	0.095	0.086	4	47

This page intentionally left blank.



Rhode Island Particulate Matter < 10 Microns (PM10)

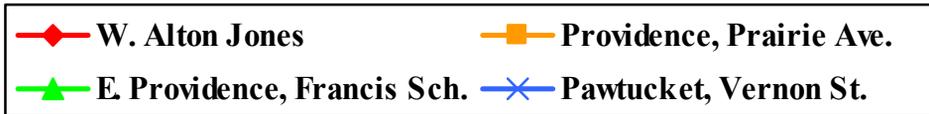
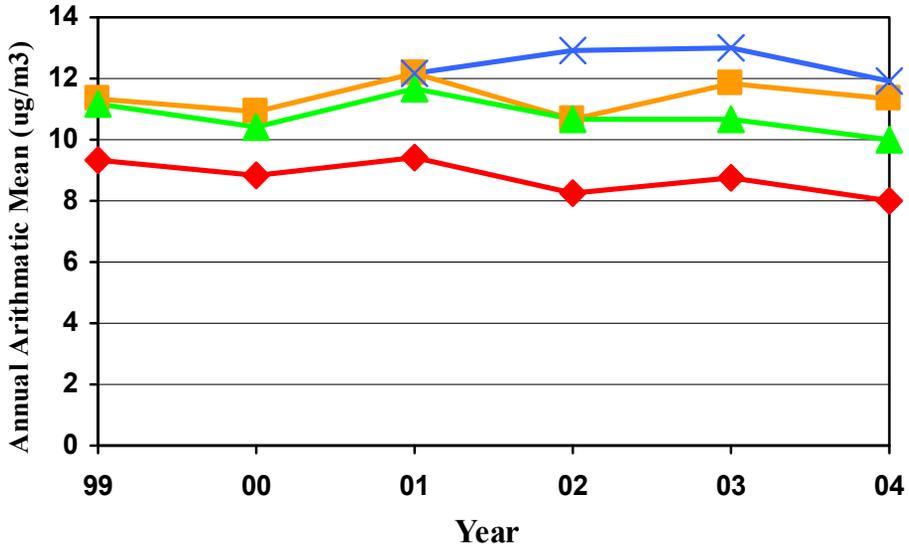


Rhode Island																
Particulate Matter < 10 Microns																
ug/m3																
SITE ID	Rep. P	City	County	Address	# Obs	# Req.	Days	% Obs	Highest Value	2nd	3rd	4th	Days	Est. Da	Wtd.	Methods Used
										Highest Value	Highest Value	Highest Value	Max >150	Max >150	Arith. Mean	
44-003-0002	1	907 West Greenwich	Kent	W. ALTON JONES CAMPUS	59	61	59	97	38	24	24	23	0	0	9.5	63
44-007-0022	1	907 Providence	Providence	212 PRAIRIE AVE	60	61	60	98	53	37	30	30	0	0	16.5	63
44-007-0026	1	907 Pawtucket	Providence	VERNON STREET	61	61	61	100	50	45	43	41	0	0	21.3	63
44-007-0027	1	907 Providence	Providence	111 DORRANCE STREET	56	61	56	92	50	37	35	31	0	0	18.0	63
44-007-0027	2	907 Providence	Providence	111 DORRANCE STREET	44	61	44	72	40	36	30	30	0	0	17.1 *	63
44-007-0029	1	907 Providence	Providence	1655 WESTMINSTER ST.	48	50	48	96	50	42	31	29	0	0	16.8	63

*Indicates that the mean does not satisfy summary criteria

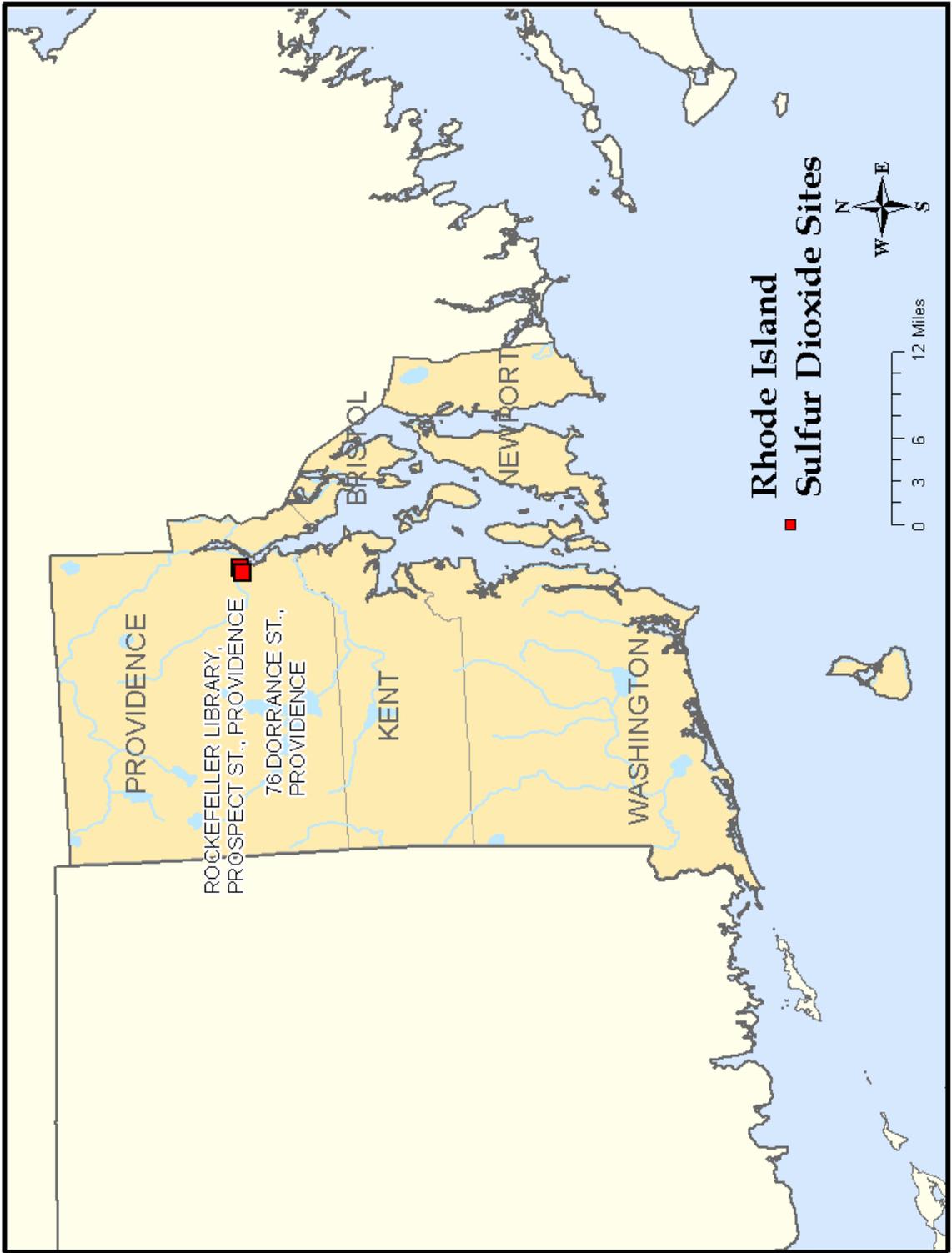


Rhode Island Particulate Matter < 2.5 Microns (PM2.5)

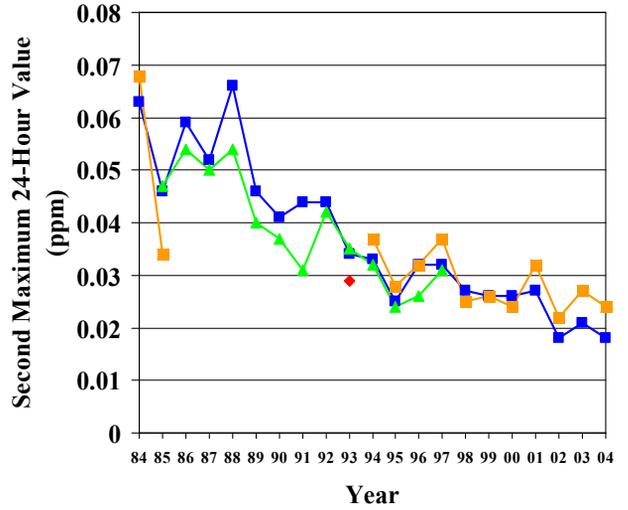
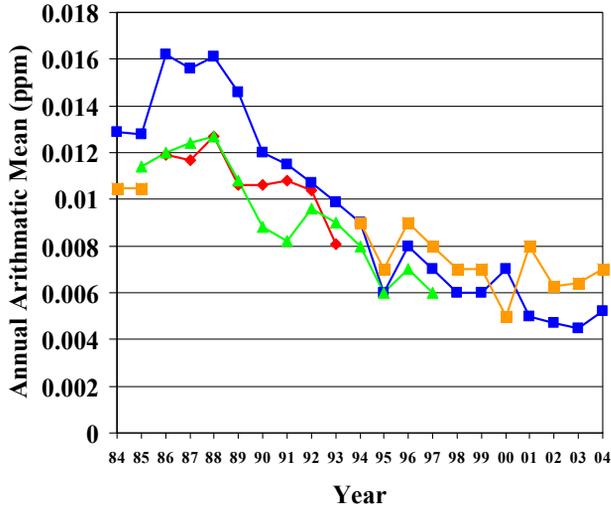


Site ID	P	O Rept.	C Org.	City	County	Address	# Obs	Highest Value	2nd Value	3rd Value	4th Value	98th Percentile Value	Wtd. Arith. Mean	Method Used
44-003-0002	1	907	West Greenwich	Kent	W. ALTON JONES	97	30.7	28.3	26.0	21.6	28.3	7.99	*	120
44-007-0022	1	907	Providence	Providence	212 PRAIRIE AVE	294	37.4	33.5	32.7	31.3	30.6	11.31	*	120
44-007-0022	2	907	Providence	Providence	212 PRAIRIE AVE	44	23.4	22.4	21.9	20.7	23.4	10.73	*	120
44-007-0022	5	1217	Providence	Providence	212 PRAIRIE AVE	78	32.5	24.4	23.8	22.6	24.4	9.95	*	820
44-007-0026	1	907	Pawtucket	Providence	VERNON STREET	110	33.8	32.4	28.9	26.8	28.9	11.90		120
44-007-0028	1	907	Providence	Providence	695 EDDY STREET	102	41.0	33.5	27.3	26.8	27.3	12.19	*	120
44-007-1010	1	907	East Providence	Providence	FRANCIS SCHOOL	293	35.0	31.7	29.8	29.6	27.7	10.03	*	120
44-007-1010	2	907	East Providence	Providence	FRANCIS SCHOOL	17	21.8	19.5	16.8	15.1	21.8	9.34	*	120
44-007-1010	5	1217	East Providence	Providence	FRANCIS SCHOOL	19	21.9	19.6	18.6	16.0	21.9	9.74	*	820

*Indicates that the mean does not satisfy summary criteria



Rhode Island Sulfur Dioxide



Rhode Island																
Parameter: Sulfur Dioxide																
All Values are in Units of Parts Per Million																
Site ID	P	O	C	Type	City	County	Address	#	24-hour		3-hour		1-hour		Arith. Mean	Method Used
									Obs	Highest	Obs	Highest	Obs	Highest		
44-007-0012	2	907	Providence	Providence	ROCKEFELLER ST.	8083	0.024	0.024	0	0.041	0.037	0	0.060	0.047	0.0070	039
44-007-1009	1	907	Providence	Providence	76 DORRANCE ST	8436	0.021	0.018	0	0.035	0.034	0	0.061	0.044	0.0052	039

This page intentionally left blank

Air Quality Summary – Vermont

The state of Vermont operated two carbon monoxide (CO) monitoring sites during 2004, in Rutland and Burlington. The highest first and second 8-hour concentrations of CO, recorded at the Rutland site, were 3.6 ppm and 3.2 ppm respectively.

During 2004, Vermont did not conduct ambient air lead monitoring. Historical ambient air concentrations of lead in Vermont have been extremely low and ambient monitoring for this pollutant has not been warranted.

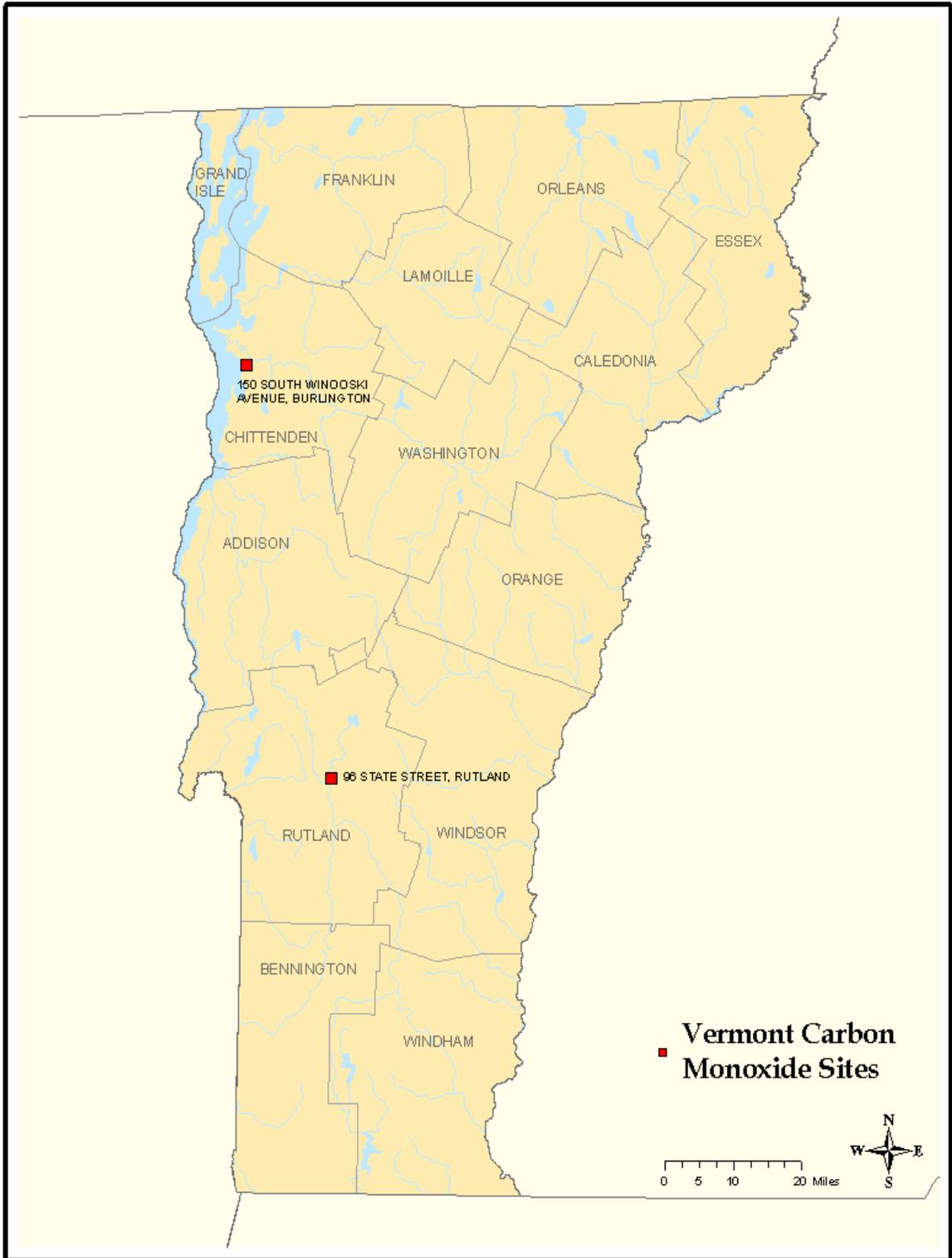
Two nitrogen dioxide (NO₂) monitoring sites (Rutland and Burlington) operated in 2004. No exceedances of the NAAQS for NO₂ were recorded for either site. The last 20 years of NO₂ data indicate that the concentrations of NO₂ have remained relatively steady and low in comparison with the NAAQS. The maximum annual arithmetic mean concentration of NO₂ (0.014ppm) was measured at the Burlington site. The NAAQS is 0.05 ppm.

Neither of the two ozone monitoring sites in Vermont recorded 1-hour concentrations of ozone in excess of the NAAQS. The highest 1-hour concentration of ozone (106 ppb) was recorded at the Bennington site. The highest 1-hour ozone concentration recorded at the Underhill site was 93 ppb. Neither of the ozone sites in Vermont recorded a fourth highest 8-hour average ozone concentration above the level of the 8-hour ozone NAAQS. The highest 8-hour average ozone concentration (0.091 ppm) in Vermont was recorded at the Bennington site.

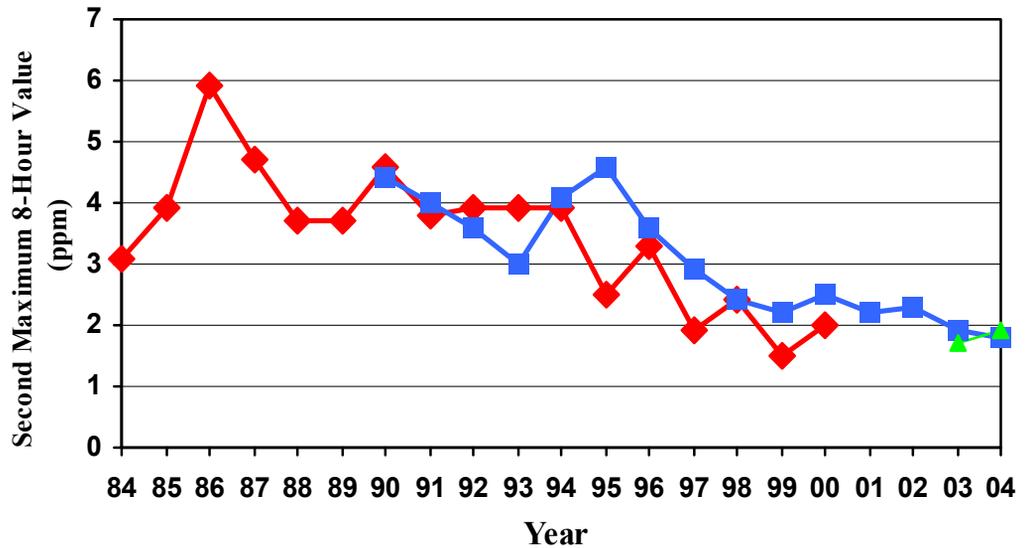
During 2004 Vermont maintained six monitoring sites measuring particulate matter less than 10 microns (PM₁₀). Data for 2004 continue the ten-year trend of low PM₁₀ concentrations recorded by Vermont monitoring sites. The highest 24-hour PM₁₀ concentration was recorded at the Rutland monitoring site (45 ug/m³). Brattleboro recorded the highest annual weighted arithmetic mean PM₁₀ concentration (17.9 ug/m³). These concentrations are well below the NAAQS. The lowest PM₁₀ concentrations were recorded at the Underhill site. The annual weighted arithmetic mean PM₁₀ concentration at this site was 9 ug/m³, and the maximum 24-hour concentration was 36 ug/m³.

Vermont has established a network of six fine particulate matter (PM_{2.5}) monitoring sites. PM_{2.5} concentrations for these sites have historically been below the NAAQS. The highest Annual weighted arithmetic mean for a POC 1 monitor was recorded at the Rutland site (11.23 ug/m³).

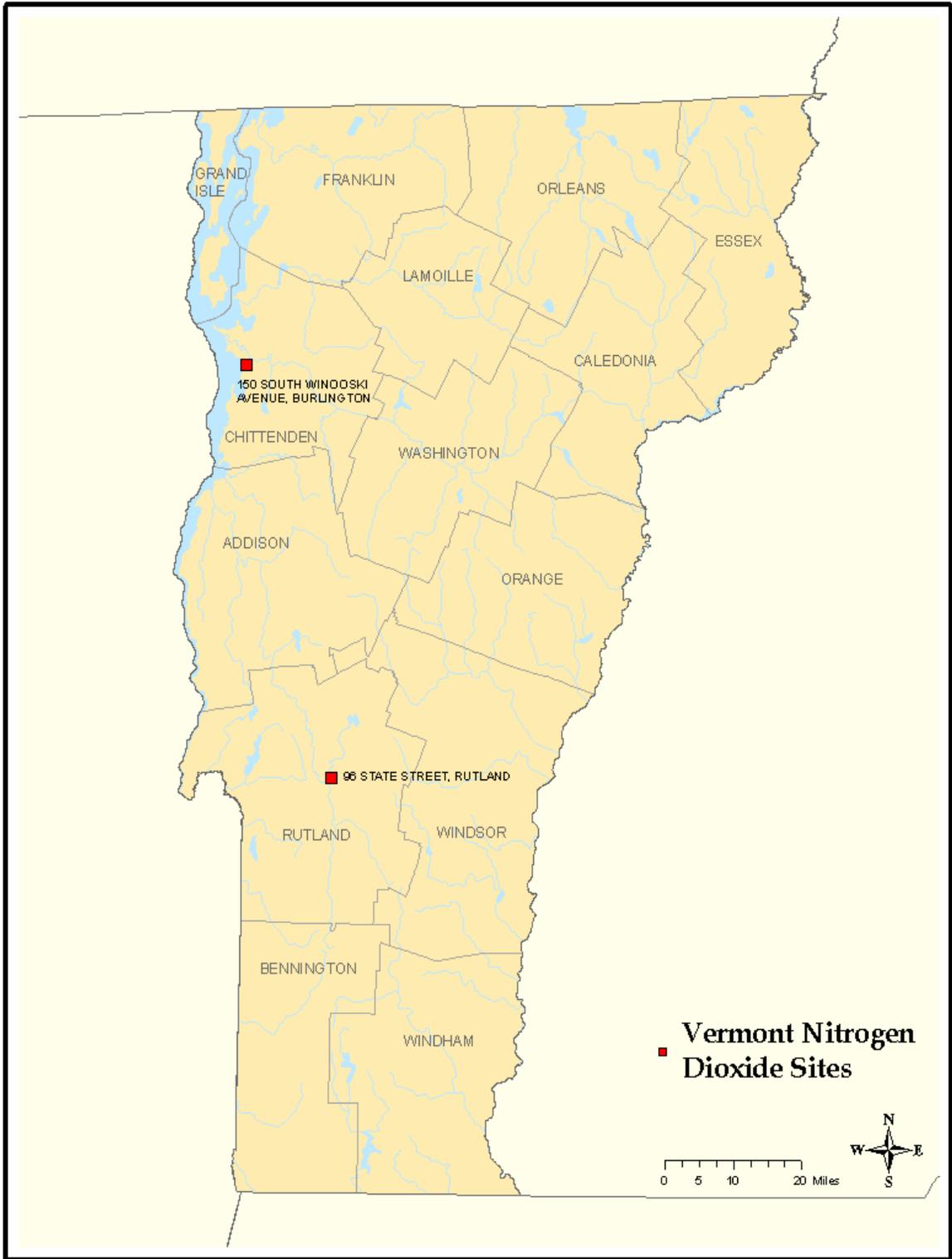
Vermont operated two sulfur dioxide (SO₂) monitoring sites during 2004. The Rutland site recorded the highest 3-hour SO₂ concentration of 65 ppb. This site also recorded the highest 24-hour average SO₂ concentration of 76 ppb, and the highest annual arithmetic mean was 4.5 ppb. The historical data indicates a general decline in the concentration of SO₂, with the exception of 1994.



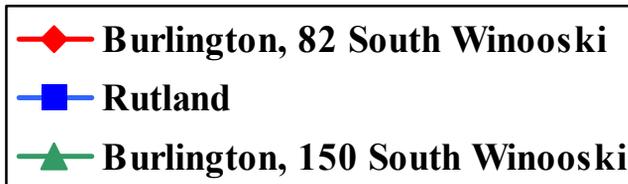
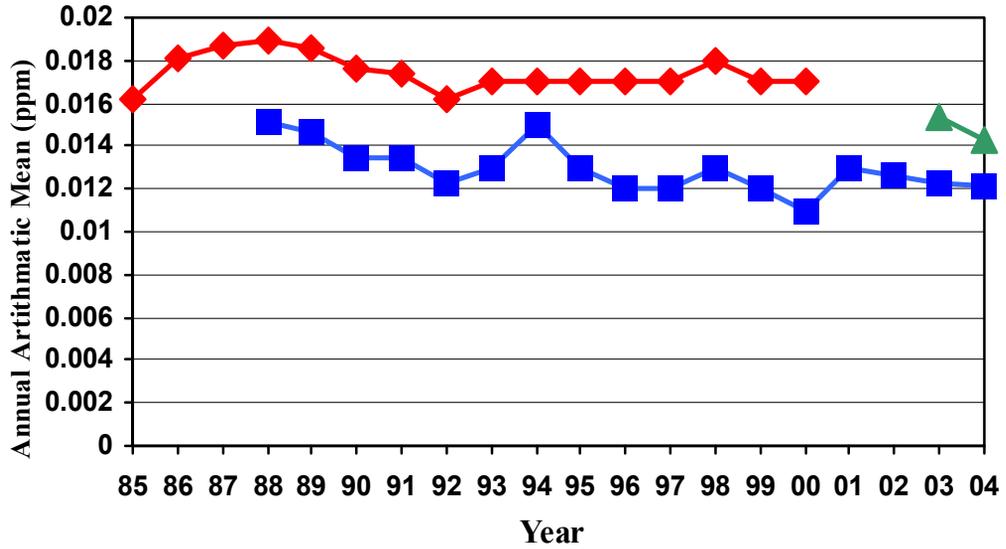
Vermont Carbon Monoxide



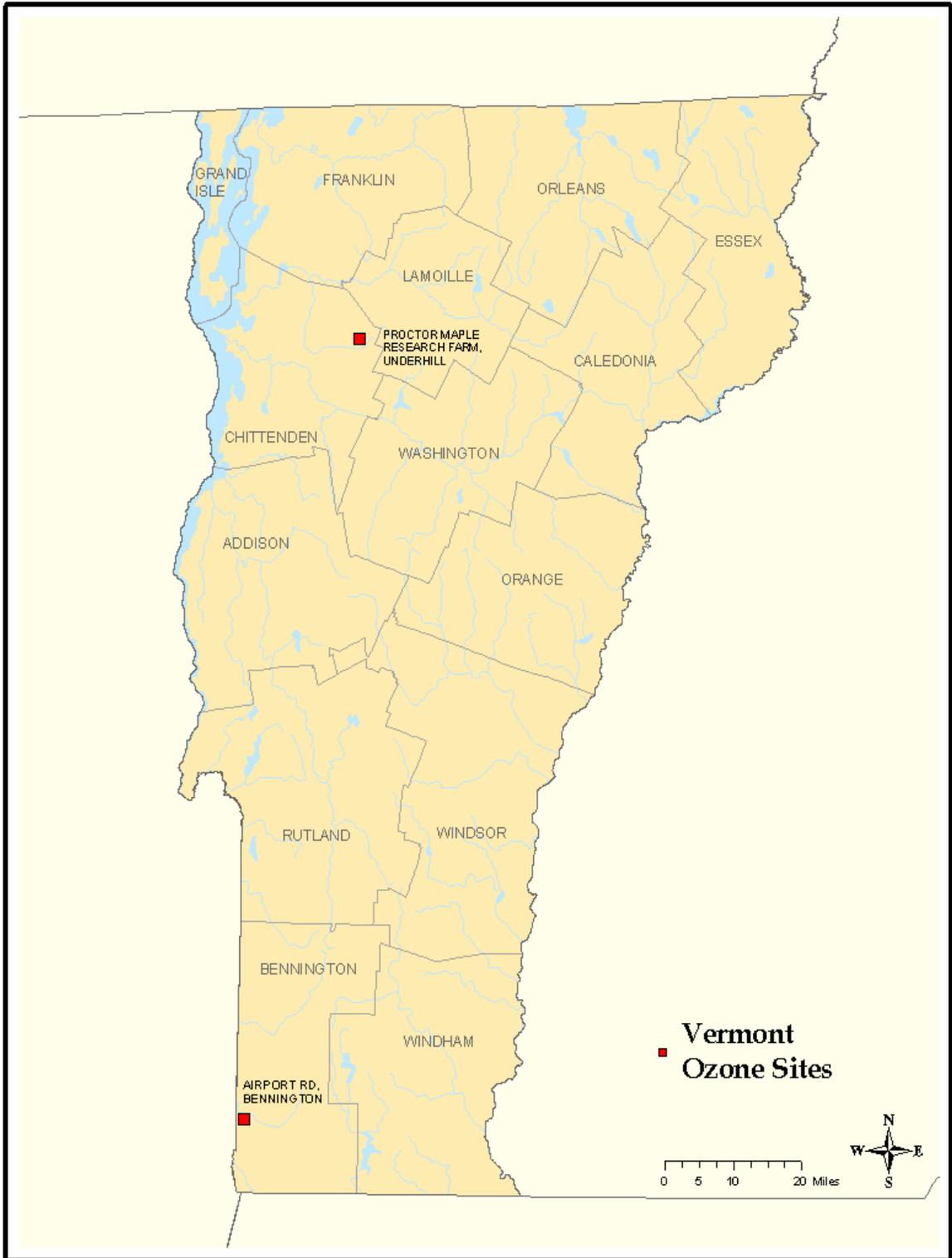
Vermont													
Carbon Monoxide													
All Values are in Units of Parts Per Million													
	P					1-hour	1-hour		8-hour	8-hour			
Site ID	C	Type	City	County	Address	# Obs	Highest Value	Highest Value	# > 35	Highest Value	Highest Value	# > 9	Methods Used
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	8248	3.2	3	0	2.2	1.9	0	54
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	7437	3.6	3.2	0	2.1	1.8	0	54



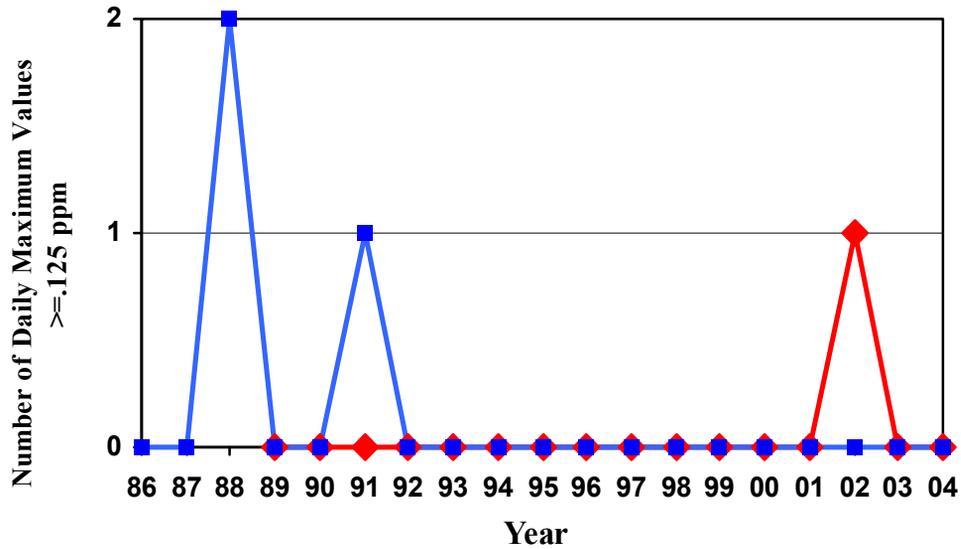
Vermont Nitrogen Dioxide



Vermont									
Parameter: Nitrogen Dioxide									
All Values are in Units of Parts Per Million									
							1-hour	1-hour	Annual
	P							2nd	Arith.
Site ID	O Rept.	City	County	Address	Method	#	Highest Value	Highest Value	Mean
C Org.									
50-007-0014	1	1119 Burlington	Chittenden	150 SOUTH STREET	74	8274	0.0670	0.0640	0.01430
50-021-0002	1	1119 Rutland	Rutland	96 STATE STREET	74	7185	0.0590	0.0560	0.01210



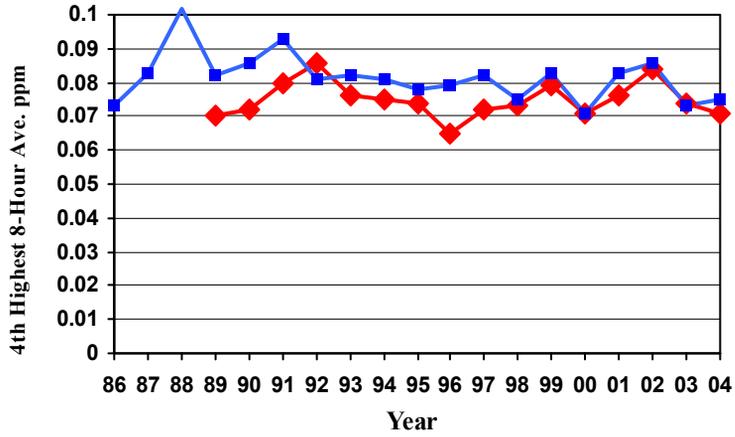
Vermont 1-Hour Ozone Average



◆ Chittenden, Proctor Maple Barn
 ■ Bennington

Vermont															
Parameter: Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P							2nd	3rd	4th			Missing		
Site ID	Q Rep.	C Org.	City	County	Address	Num Meas	Num Req	Highest Value	Highest Value	Highest Value	Highest Value	Day Max ≥ 0.125	Est. Day ≥ 0.125	Days < 0.125	Method used
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD	176	183	0.106	0.095	0.092	0.090	0	0	2	87
50-007-0007	1	1119	Underhill	Chittenden	PROCTOR MAPLE FARM	182	183	0.093	0.088	0.081	0.076	0	0	1	87

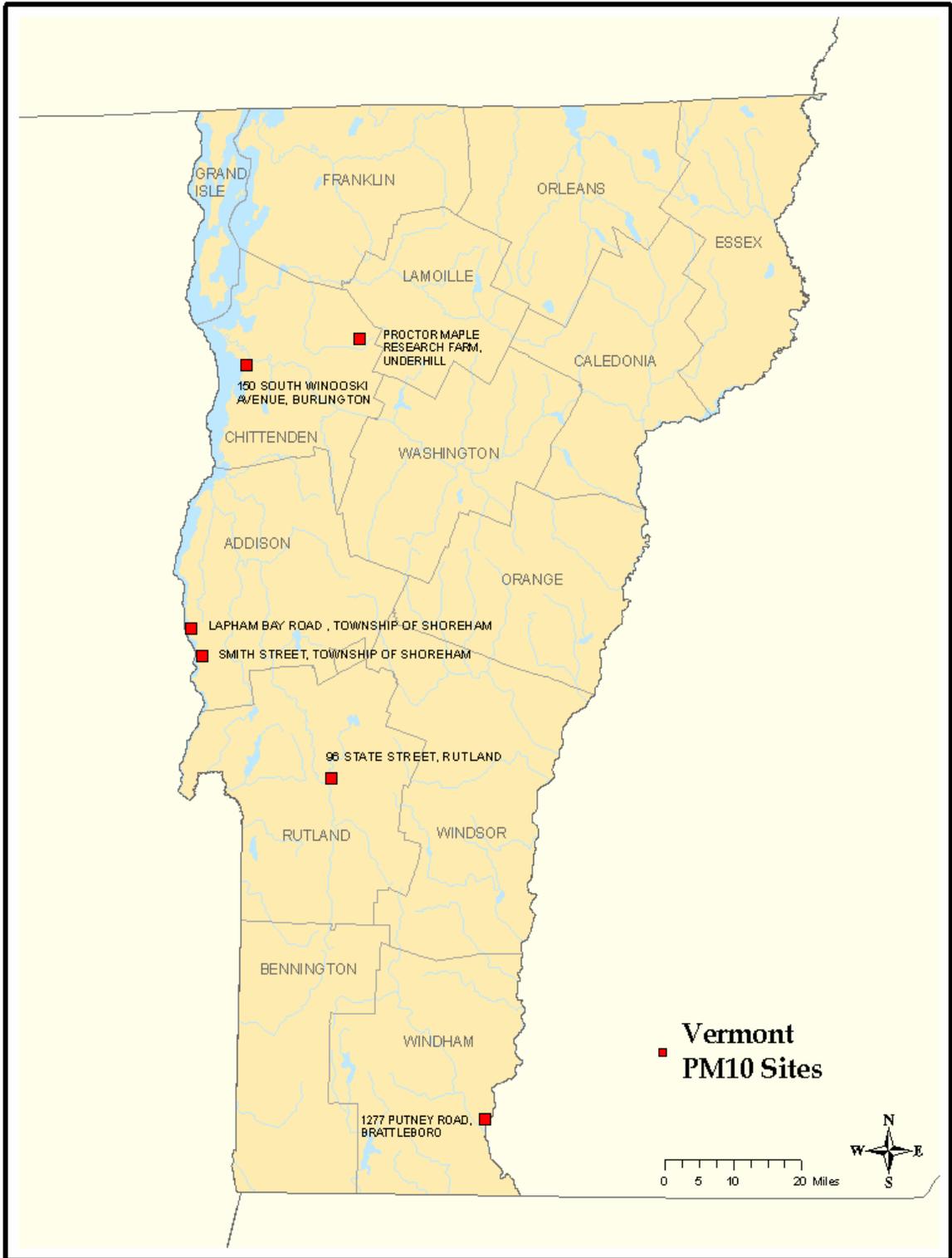
Vermont 8-Hour Ozone Average



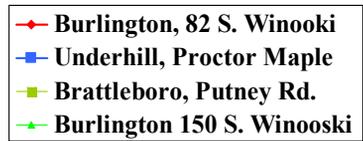
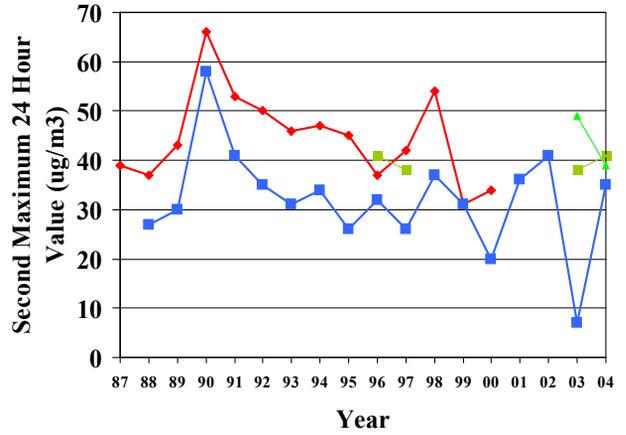
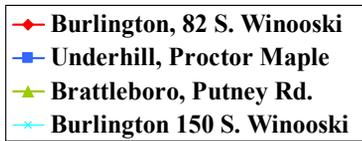
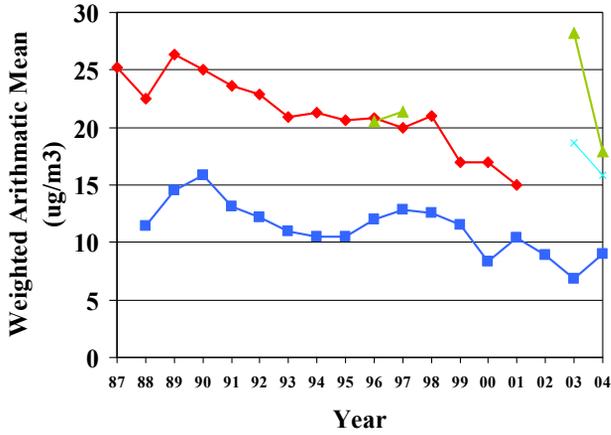
◆ Chittenden, Proctor Maple Barn ■ Bennington

Vermont														
Parameter: Ozone (8-Hour)														
All Values are in Units of Parts Per Million														
	P					Valid	Num		2nd	3rd	4th	Days		
	O Rept.					#	Days	Required	Highest	Highest	Highest	Max >	Methods	
Site ID	C Org.	City	County	Address		Obs	Meas.	Days	8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Reporte
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD,	95	174	183	0.091	0.085	0.077	0.075	2	87
50-007-0007	1	1119	Underhill	Chittenden	PROCTOR MAPLE FARM	99	182	183	0.079	0.078	0.071	0.071	0	87

This page intentionally left blank.

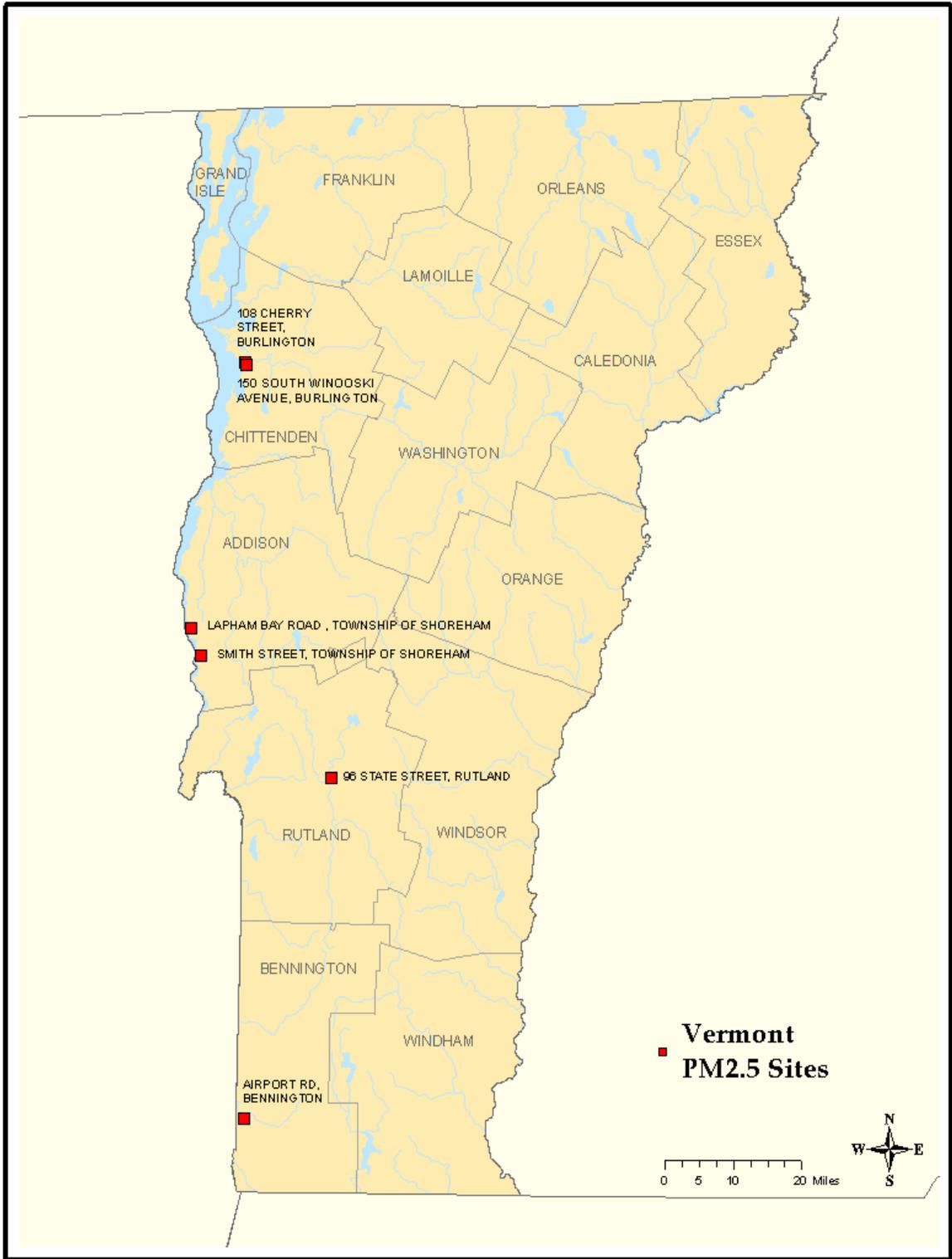


Vermont Particulate Matter < 10 Microns (PM10)

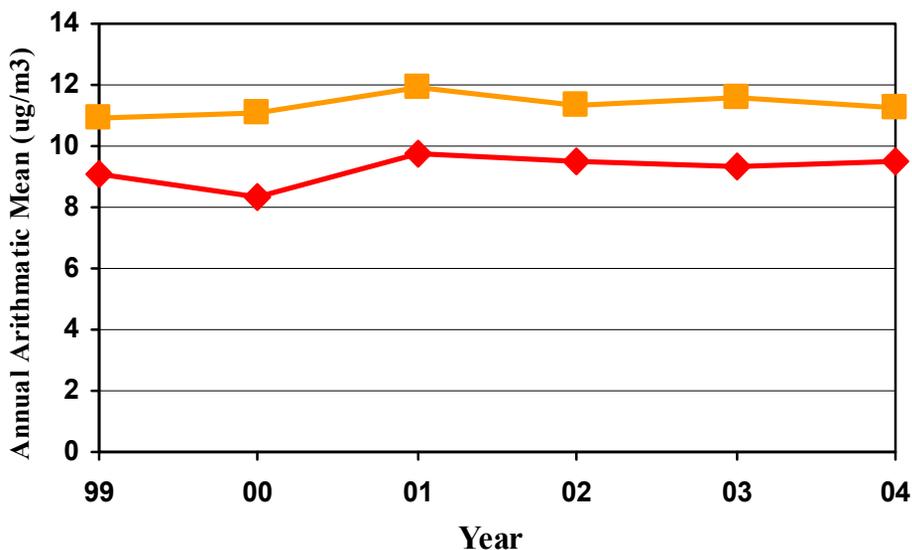


Vermont																
Particulate Matter < 10 Microns																
ug/m3																
SITE ID	Rep.		County	Address	# Obs	# Req	Number/Valid Days	% Obs	Highest Value	2nd	3rd	4th	Days Est.		IWtd. Arith.	
	P	Org								City	Value	Value	Value	Max		Max
50-001-0002	1	1119	Shoreham Township	Addison	LAPHAM BAY ROAD	50	61	49	80	26	25	24	23	0	0	11.6 *
50-001-0003	1	1119	Shoreham Township	Addison	SMITH STREET	57	61	57	93	42	35	23	21	0	0	12.8
50-007-0007	1	1119	Underhill	Chittenden	PROCTOR MAPLE FARM	58	61	58	95	36	35	22	18	0	0	9.0
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI AVE.	56	61	56	92	42	39	32	28	0	0	15.8
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	52	59	51	86	45	44	41	37	0	0	16.0 *
50-025-0004	1	1119	Brattleboro	Windham	1277 PUTNEY ROAD	53	61	53	87	42	41	35	33	0	0	17.9
50-025-0004	2	1119	Brattleboro	Windham	1277 PUTNEY ROAD	53	61	53	87	43	41	37	32	0	0	17.8 *

*Indicates that the mean does not satisfy summary criteria



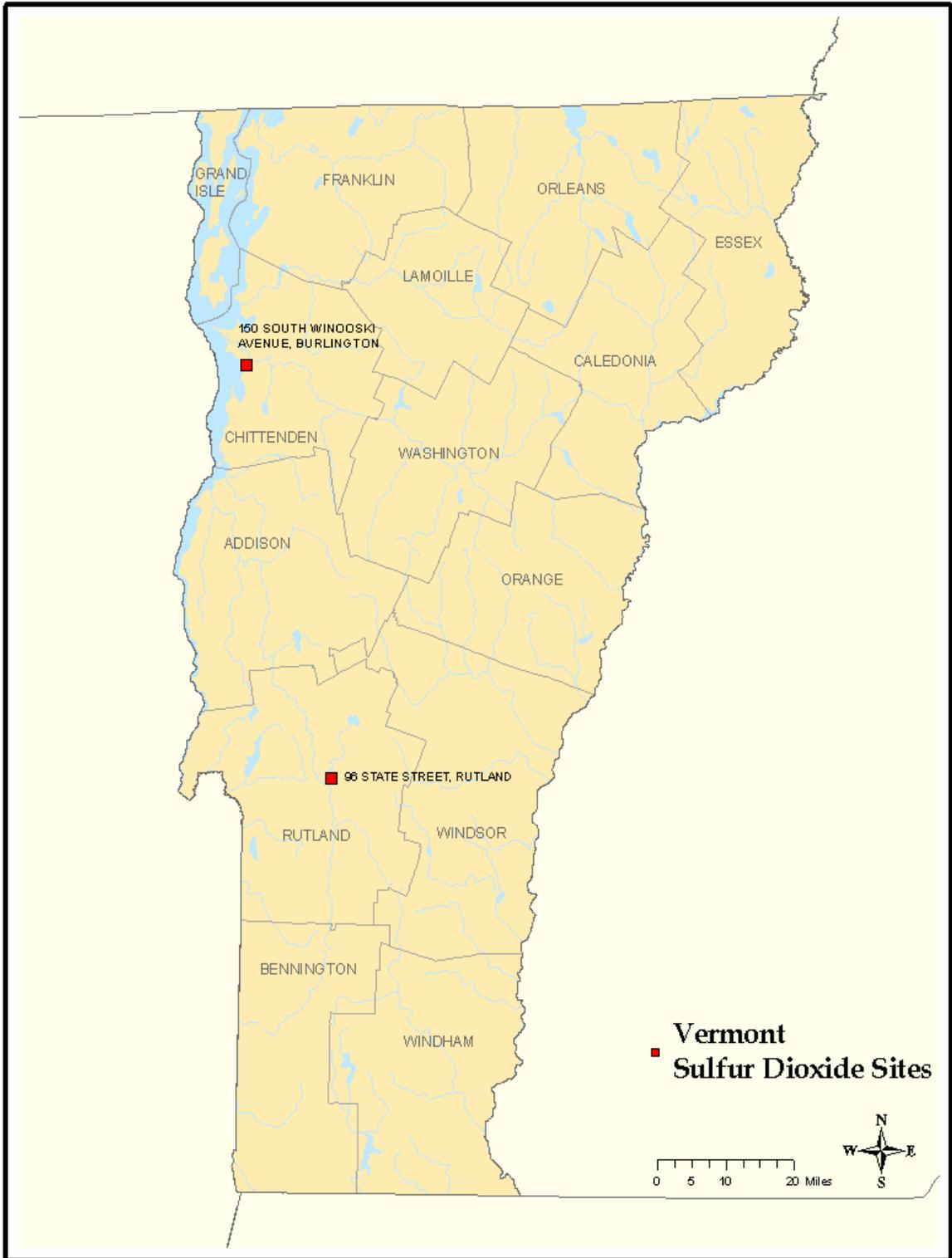
Vermont Particulate Matter < 2.5 Microns (PM2.5)



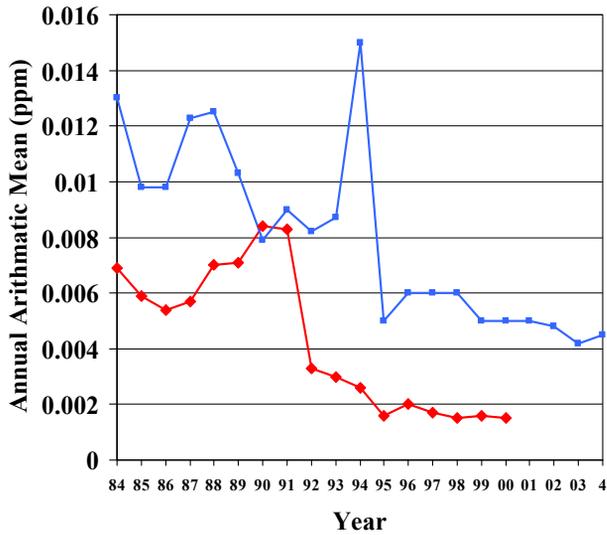
◆ Burlington, Cherry St. ■ Rutland

Vermont													
Parameter: PM 2.5													
All Values are in UG/CU Meters Local Conditions													
	P					2nd	3rd	4th	98th	Wtd.			
Site ID	O Rept.			#	Highest	Highest	Highest	Highest	Percentile	Arith.	Methods		
	C Org.	City	County	Address	Obs	Value	Value	Value	Value	Mean	Used		
50-001-0002	1	1119	Not in a city	Addison	LAPHAM BAY ROAD	115	35.5	32.3	31.9	31.3	31.9	9.25	145
50-001-0003	1	1119	Not in a city	Addison	SMITH STREET	109	35.4	33.6	32.3	31.2	32.3	9.57	145
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD	104	38.5	31.0	29.6	27.9	29.6	8.76 *	145
50-003-0004	3	1119	Bennington	Bennington	AIRPORT RD	7310	41.6	40.1	34.3	34.0	29.6	11.18 *	761
50-007-0012	1	1119	Burlington	Chittenden	108 CHERRY STREET	116	38.4	36.4	31.5	29.8	31.5	9.54	145
50-007-0012	2	1119	Burlington	Chittenden	108 CHERRY STREET	117	38.1	36.1	31.4	30.1	36.1	9.49	118
50-007-0012	5	1217	Burlington	Chittenden	108 CHERRY STREET	108	37.8	35.6	32.6	30.7	32.6	9.53	810
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	118	40.7	36.5	31.8	30.4	31.8	10.06	145
50-007-0014	3	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	7905	49.2	46.5	43.5	42.6	32.6	11.67	761
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	107	36.1	35.1	32.1	31.8	32.1	11.23	145
50-021-0002	3	1119	Rutland	Rutland	96 STATE STREET	8156	52.5	40.4	36.7	35.6	33.4	11.84	761

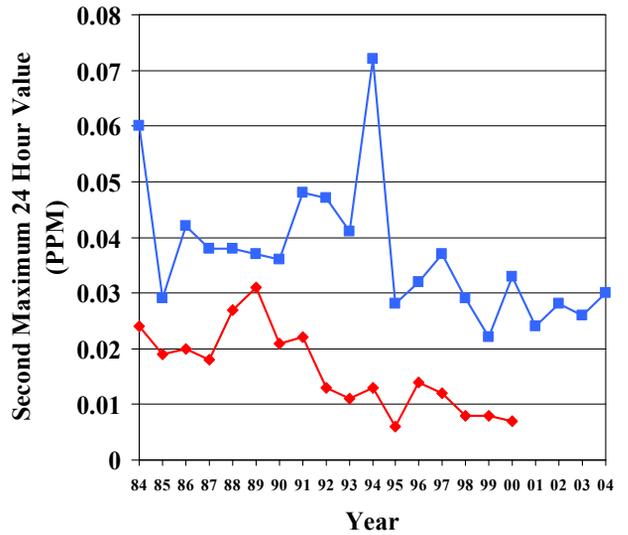
*Indicates that the mean does not satisfy summary criteria



Vermont Sulfur Dioxide



◆ Burlington ■ Rutland



◆ Burlington ■ Rutland

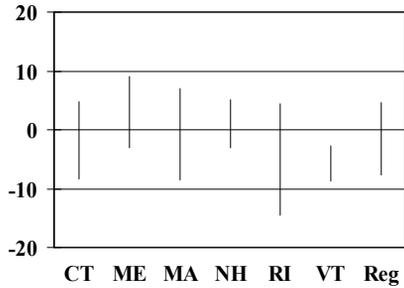
Vermont																
Parameter: Sulfur Dioxide																
All Values are in Units of Parts Per Million																
	P				24-hour	24-hour		3-hour	3-hour		1-hour	1-hour				
	O	Org			#	2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method		
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14 Value	Highest	> 0.5 Value	Highest	Mean	Used		
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	8284	0.013	0.008	0	0.015	0.014	0	0.016	0.015	0.0025	060
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	7586	0.044	0.030	0	0.065	0.063	0	0.076	0.073	0.0045	060

Accuracy Data

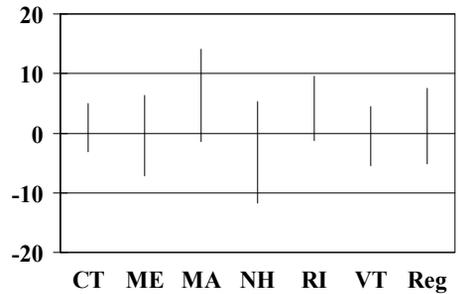
Acceptable 95% probability limits as established by the QA Division of EPA.

<u>Limits</u>	<u>Accuracy</u>
Satisfactory	$< \pm 20\%$
High	$\pm 21\%$ to $\pm 25\%$
Excessive	$> \pm 25\%$

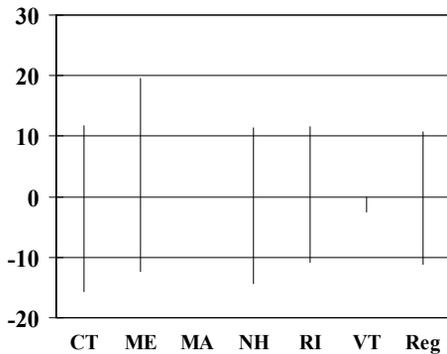
SO2 Accuracy Data



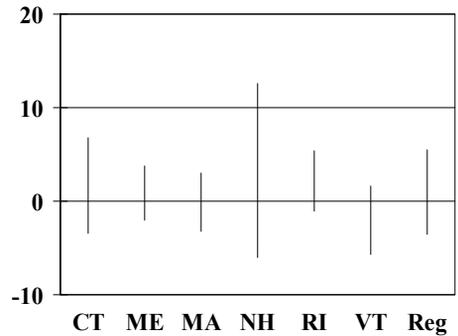
O3 Accuracy Data



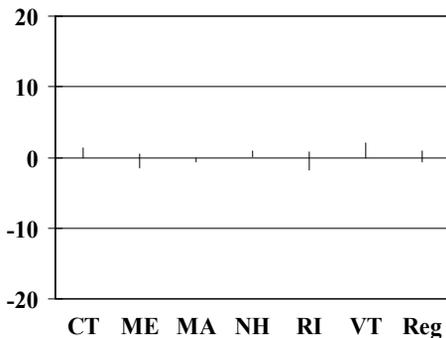
NO2 Accuracy Data



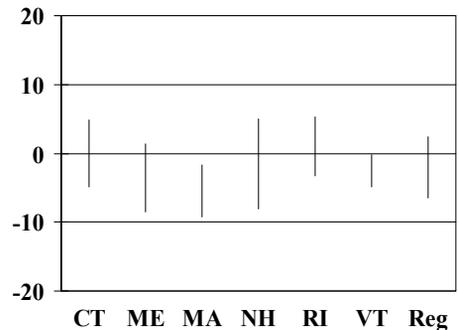
PM10 Accuracy Data



PM2.5 Accuracy Data



CO Accuracy Data

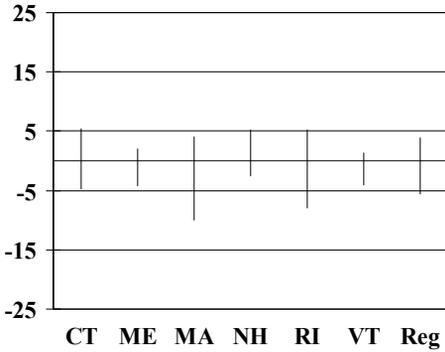


Precision Data

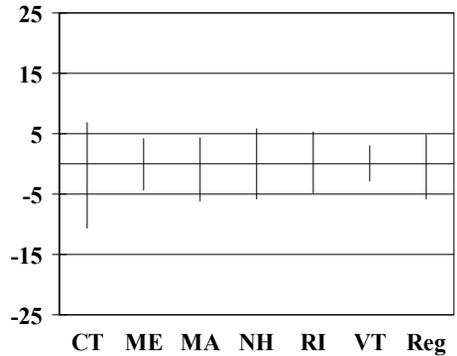
Acceptable 95% probability limits as established by the QA Division of EPA.

<u>Limits</u>	<u>Precision</u>
Satisfactory	<± 15%
High	± 16% to ±20%
Excessive	>±20%

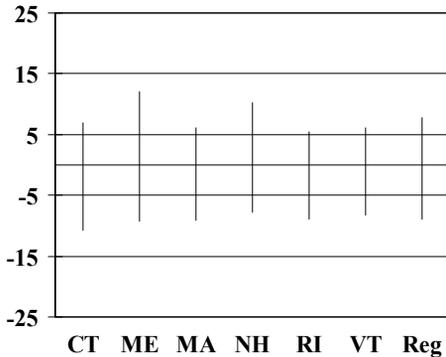
SO2 Precision Data



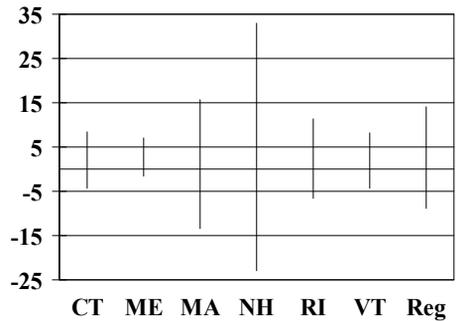
O3 Precision Data



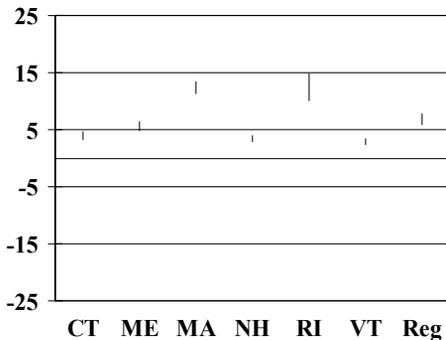
NO2 Precision Data



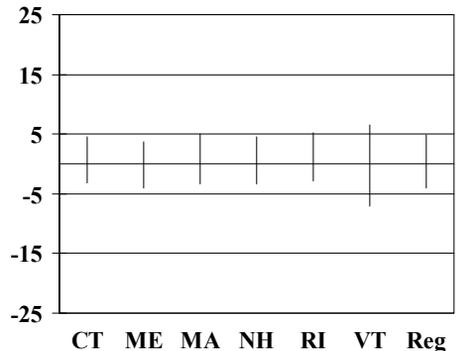
PM10 Precision Data Collocated



PM2.5 Precision Data



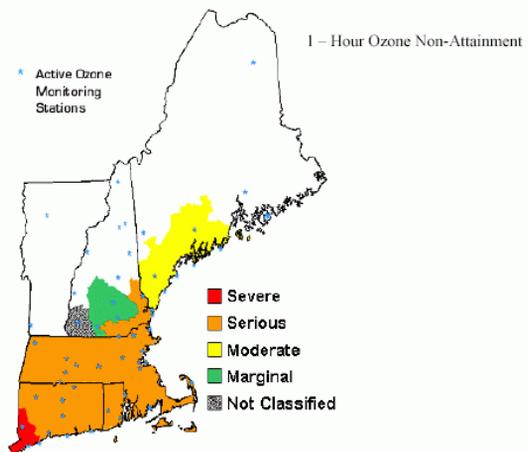
CO Precision Data



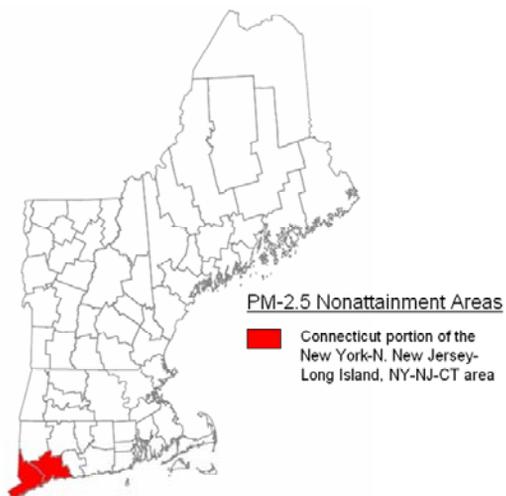
RI Precision Data is below limit.

Non-Attainment Areas for 1-Hour Ozone, PM 2.5 and PM 10

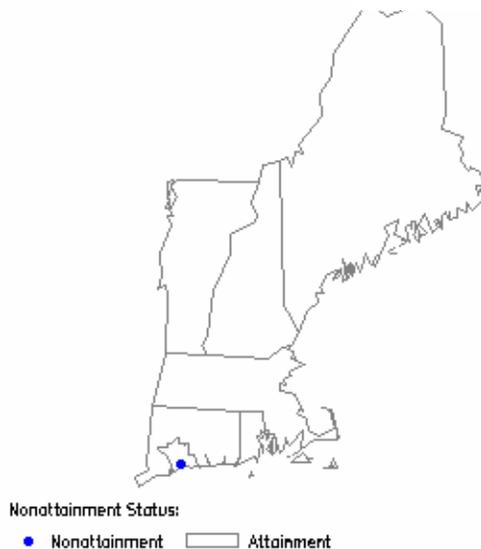
EPA has revoked the 1-hour ozone standard,
effective June 15, 2005



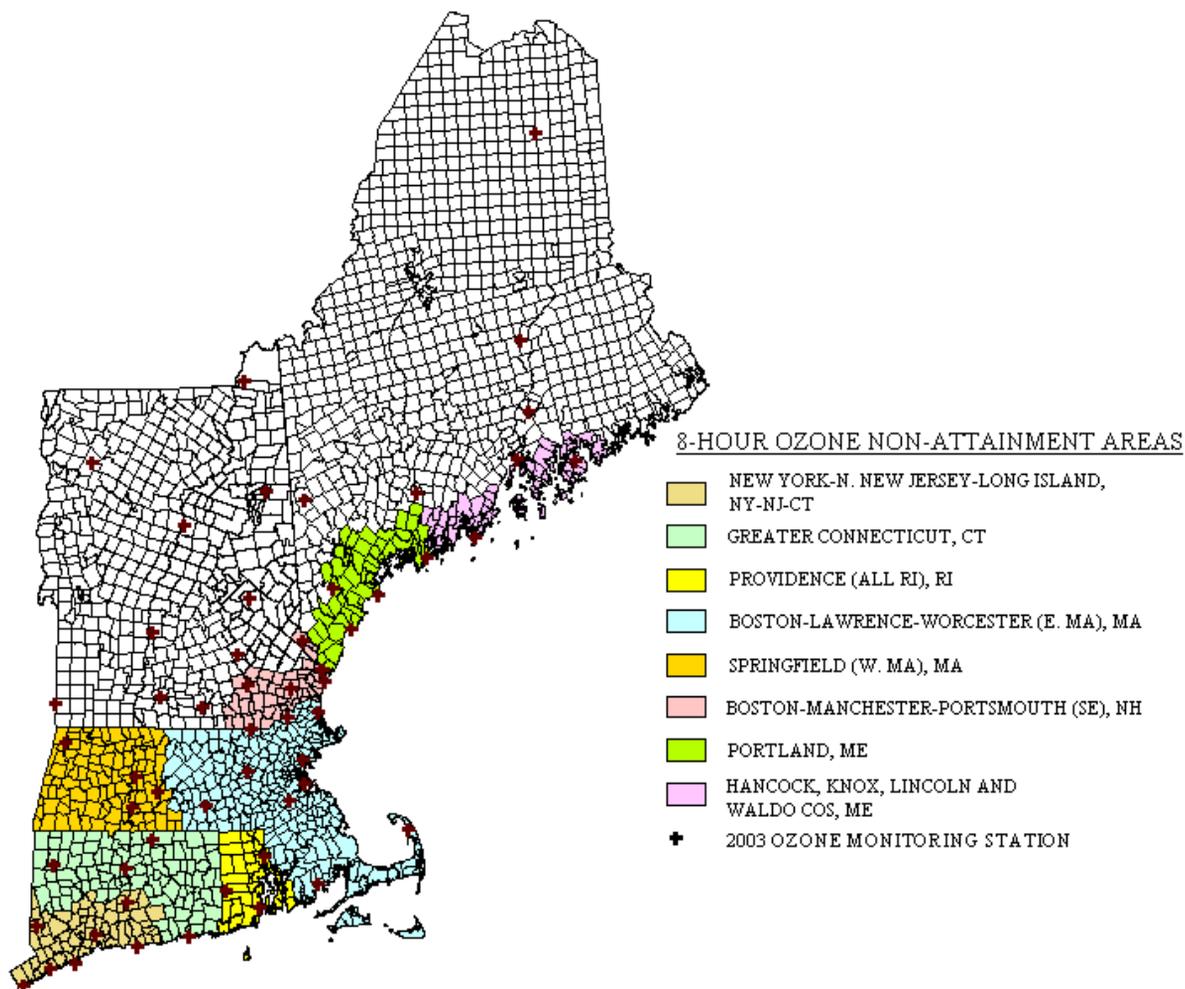
Non-Attainment Areas for PM_{2.5}



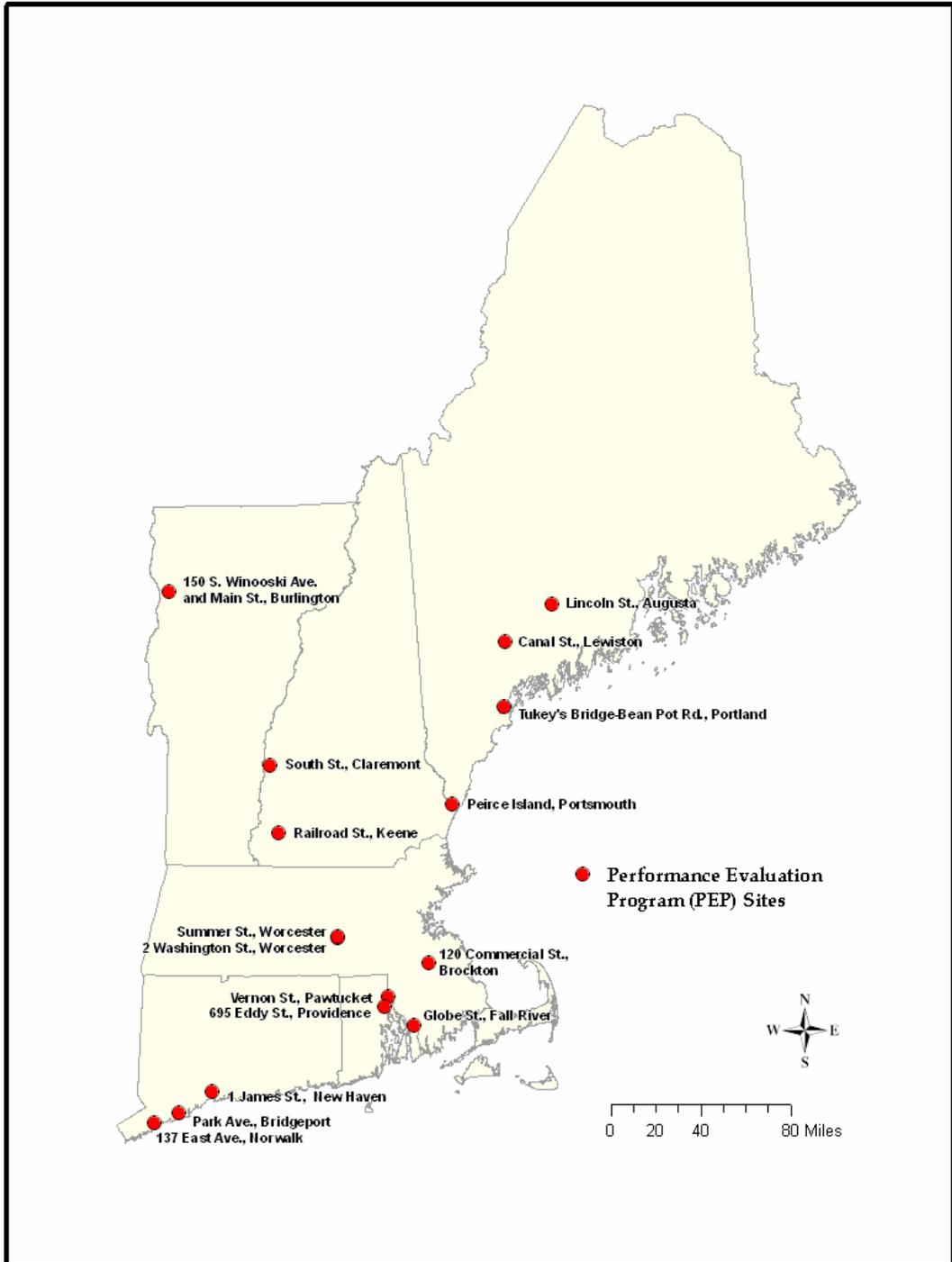
PM 10 Non-Attainment



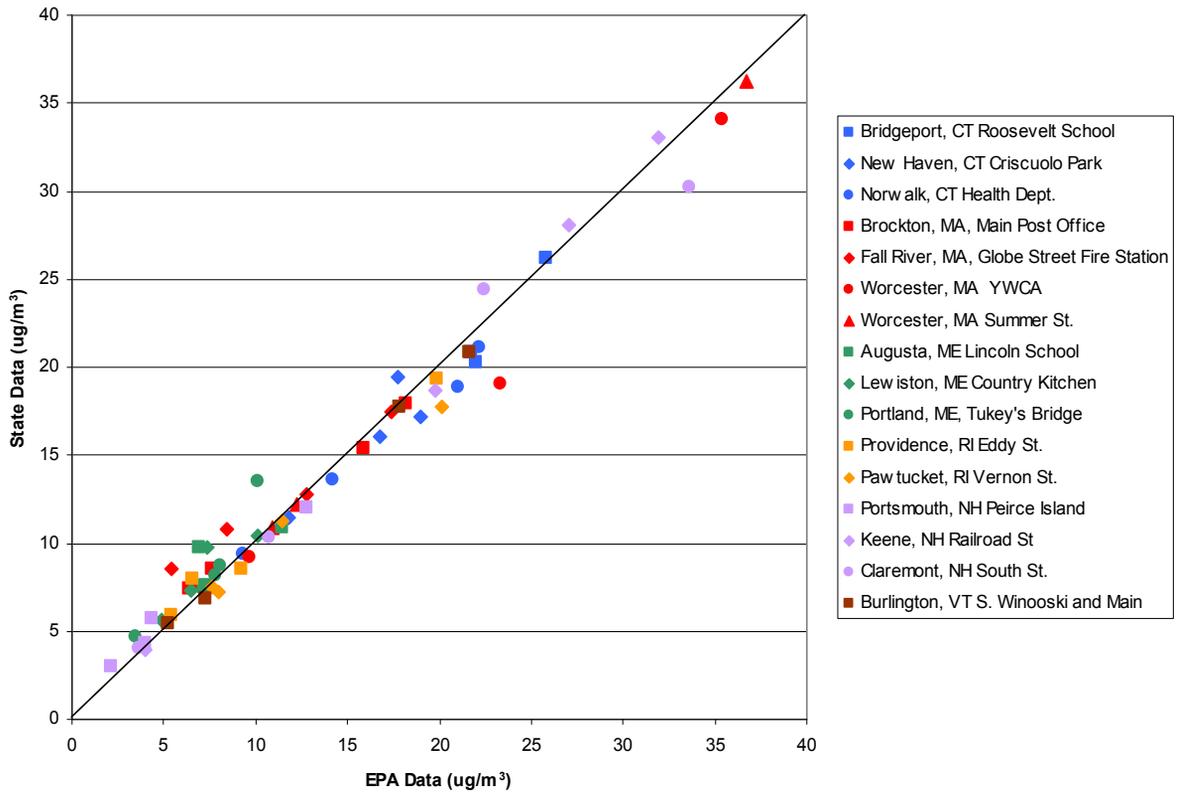
Non-Attainment Areas for 8-Hour Ozone



Performance Evaluation Program



2004 Performance Evaluation Program (PEP) Audits



The PM 2.5 Performance Evaluation Program (PEP) is part of a National Quality Assurance Program for PM 2.5. Its purpose is to determine total bias for the PM 2.5 sample collection and laboratory analysis processes. EPA contractors collocate portable federally referenced PM 2.5 samplers adjacent to states' routine PM 2.5 samplers. The instruments run for a 24-hour period at the states' monitoring sites. Once the run is completed in Region I, the PM 2.5 PEP filters are sent to the independent EPA East Coast Weighing Laboratory in Region IV where PM 2.5 concentrations are determined and compared in order to assess bias. Statistical analyses are conducted between EPA's data and the states' data in order to decide if bias exists.

The PM 2.5 PEP audits are conducted four times per year (once per quarter) at one-fourth (25%) of the states' PM 2.5 monitoring sites; therefore, all PM 2.5 sites in each state's monitoring network are audited in four years. If a PM 2.5 PEP audit isn't successfully completed (either because of problems with the states' or contractor's equipment, or other obstacles), make up audits are performed as soon as possible – usually within the same quarter. This allows for better data completeness. In addition, the EPA contractor in Region I also conducts quarterly collocation studies using all five EPA portable PM 2.5 samplers. The samplers are collocated for three 24-hour sampling periods at EPA's North Chelmsford, MA facility.

The 2004 PM 2.5 PEP graph shows that in general, all six states performed very well during the year.

Airs AQS Regional Contacts

Region I: Ms. Wendy McDougall
EPA, Region I
60 Westview Street
Lexington, MA 02421
(781) 860-4323
McDougall.Wendy@EPAMAIL.EPA.GOV

Connecticut: Mr. Randall Semagin
Department of Environmental Protection
Air Monitoring Section
79 Elm Street
Hartford, CT 06106
(860) 424-4063
semagin.randall@po.state.ct.us

Maine: Mr. Jeff Emery
Department of Environmental Protection
State House Station 17
Augusta, ME 04333
(207) 941-4570
Jeff.Emery@state.me.us

Massachusetts: Ms. Ann Sorensen
Department of Environmental Protection
Division of Air Quality Control
Lawrence Experiment Station
37 Shattuck Street
Lawrence, MA 01843
(978) 975-1138 x335
Ann.Sorensen@state.ma.us

New Hampshire: Mr. Dan Terrel
Department of Environmental Services
Air Resources Division
6 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
(603) 271-0913
dterrel@des.state.nh.us

Rhode Island: Mr. Jeanine Dougherty
Rhode Island Department of Health
Air Pollution Laboratory
Health Laboratory Building
50 Orms Street
Providence, RI 02904
(401) 222-5550

Vermont: Mr. George Apgar
Air Pollution Control Division
Agency of Environmental Conservation
103 S. Main St., Bldg. 3 South
Waterbury, VT 05676
(802) 241-3842
GeorgeA@qtm.anr.state.vt.us

Emission Contacts

Region I: Mr. Robert McConnell
EPA New England, Region 1,
1 Congress Street, Suite 1100
Boston MA 02114
(617) 918-1046
McConnell.Robert@EPAMAIL.EPA.GOV

Connecticut: Bill Simpson
Bureau of Air Management
Department of Environmental Protection
79 Elm Street
Hartford, Connecticut 06106
860-424-3419
william.simpson@po.state.ct.us

Rhode Island: Karen Slattery
Office of Air Resources
Department of Environmental Management
235 Promenade Street
Providence, RI 02908
401-222-2808 x 7030
kslatter@dem.state.ri.us

Massachusetts: Ken Santlal
Division of Air Quality Control
Department of Environmental Protection
One Winter Street, 8th Floor
Boston, MA 02108
617-292-5776
Kenneth.Santlal@state.ma.us

Maine: Ellen Doering
Bureau of Air Quality Control
Department of Environmental Protection
State House, Station No. 17
Augusta, ME 04333
207-287-6104
Ellen.Doering@state.me.us

New Hampshire: Mike Fitzgerald
Air Resources Division
Department of Environmental Services
P.O. Box 95
Concord, NH 03302
603-271-6390
mfitzgerald@des.state.nh.us

Vermont: Dan Riley
Air Pollution Control Division
Agency of Natural Resources
103 South Main Street - Bldg. 3 South
Waterbury, VT 05671
802-241-3858
danr@dec.anr.state.vt.us