2005 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

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Ecosystems Assessment Unit
http://www.epa.gov/region01/lab/reportsdocuments.html

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with
Map Data Source: USGS Earth Resources Observation Systems (EROS) Data Center, for elevation data.

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2005 ANNUAL REPORT ON AIR QUALITY

IN NEW ENGLAND

This report provides a summary of 2005 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 2006. 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 PM2.5 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 potential 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 and PM2.5, 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, PM2.5, SO2, and NO2. For hourly ozone, there is a graph of the number of days ozone exceeded 0.125ppm.

The State maps display the location of the monitoring sites.

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

Additional maps are provided to show the current areas in New England designated non-attainment by EPA. This is followed by a summary of information from the Performance Evaluation Program Audits.

The last section provides 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

Pollutant	Averaging Time	Primary Standards[b]	Secondary Standards[c]
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)
$PM_{2.5}$[fg]	Annual (3-year average)	15.0 ug/m^3	Same as Primary
	24 hours	3-year average of 98th percentile values $\leq$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]	8 hour	0.08 ppm	Same as Primary
NO_2	Annual Arithmetic	(0.05 ppm)	Same as Primary
	Mean	100 ug/m^3	
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] PM_{10} replaced TSP as the ambient particulate standard effective July 31, 1987, and includes only those particles with an aerodynamic diameter of $\leq$ 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] 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 40CRF 50.

[f] Measurement of PM10 is at Standard Temperature and Pressure (STP). Measurement of PM2.5 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 PM2.5 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 (O_3)

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 (SO_2)

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 watershed and freshwater ecosytems. Major sources include power plants and industrial boilers.

Nitrogen Dioxide (NO_2)

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. It also combines with water in the atmosphere to form acid aerosols and contributes to acid rain causing watershed acidification and damage to material structures. 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 carbon and hydrocarbon in fuels do not completely burn. Motor vehicles are the most significant source.

Particulate Matter ($PM_{2.5}$ and PM_{10})

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 would normally, and they may experience coughing and shortness of breath symptoms. 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.

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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

POC Parameter Occurrence Code - differentiates between monitors for a given pollutant

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

YR Year

REP ORG Reporting Organization

#OBS Number of Observations

MAX 24-HR:
- 1st Highest 24-hour value recorded in the year
- 2nd Second highest 24-hour value for the year
- 3rd Third highest 24-hour value for the year.
- 4th Fourth highest 24-hour value for the year.

ARITH MEAN Arithmetic mean

WTD ARITH MEAN Weighted arithmetic mean

GEO MEAN Geometric mean

GEO STD Geometric standard deviation

QUARTERLY ARITH MEANS:
- 1ST First quarter arithmetic mean
- 2ND Second quarter arithmetic mean
- 3RD Third quarter arithmetic mean
- 4TH Fourth quarter arithmetic mean

MEANS > 1.5 Number of quarterly means greater than 1.5 ug/m^3 for lead

MAX VALUES:
- 1st Highest 24-hour value recorded for the year
- 2nd Second highest 24-hour value in the year.

METH Method

MAX 1-HR:
- 1st Highest 1-hour value recorded in the year
- 2nd Second highest 1-hour value recorded in the year

OBS > 35 Number of observations greater than 35 ppm for CO

MAX 8-HR:
- 1st Highest 8-hour value recorded in the year
- 2nd Second highest 8-hour value recorded in the year

OBS > 9 Number of 8-hour ave. greater than 9 ppm for CO

OBS > 365 Number of 24-hour ave. greater than 365 ug/m^3 for SO_2

MAX 3-HR:
- 1st Highest 3-hour value recorded in the year
- 2nd Second highest 3-hour value recorded in the year

Obs > 1300 Number of 3-hour ave. greater than 1300 ug/m^3 for SO_2

NUM MEAS The valid number of days measured

NUM REQ The valid number of days in the ozone season

NUM OBS Number of Observations

SCHEDULED NUM OBS Number of observations scheduled

% OBS Percent completed of number of observations scheduled

VALID DAILY 1-HR MAXIMUM:
Maximum hourly values for
- 1ST the highest day
- 2ND the second highest day
- 3RD the third highest day
- 4TH the fourth highest day

VALS > .125: MEAS Number of measured daily maximum $\geq$ 0.125 ppm

VALS > .125: **EST** Number of expected violations

MISS DAYS ASSUMED < STANDARD
Number of missing days assumed to be less than the standard

THE DATA IN THE FOLLOWING SECTION CONSISTS OF BOTH STATE AND PRIVATE NETWORKS.

2005 Summary of New England Ambient Air Quality

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 2005 was one of the warmest summers on record. Northern New England was somewhat wetter than normal, while Southern New England was drier than normal. The warmer and drier summer in Southern New England led to an increase in the number of days over the 8-hr National Ambient Air Quality Standard in 2005 (26 days over the standard) versus 2004 (13 days over the standard). There were 17 days over the standard in 2003.

The maximum 8-hr ozone concentrations for each state in 2005 were: Connecticut (110 ppb ozone), Maine (102 ppb ozone), Rhode Island (98 ppb ozone), New Hampshire (96 ppb ozone), Massachusetts (106 ppb ozone) and Vermont (83 ppb ozone). Twenty-two ozone monitoring sites in New England recorded violations of the 8-hr ozone standard (the fourth highest 8-hr average ozone concentration $\geq$85 ppb ozone). In 2004, 2 ozone monitoring sites recorded violations to the 8-hr standard and in 2003 14 sites exceeded the standard. Maine, New Hampshire, and Vermont had no ozone monitoring sites that exceeded the 8-hr ozone standard in 2005.

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 2005 regional PAMS data for ambient concentrations of hydrocarbon pollutants (total non-methane hydrocarbons-TNMOC) indicate that many of the PAMS Type 2 core sites and downwind Type 3 and Type 4 sites are experiencing a continued decline in TNMOC ambient concentrations from the mid-1990's.

For particulate matter, the highest annual average concentrations of fine particulate matter (PM2.5) were measured in Bridgeport, Connecticut (14.37 ug/m3) and in Boston, Massachusetts (13.71 ug/m3). The highest annual average concentration of PM10 was recorded in New Haven, Connecticut (31.7 ug/m3). None of the PM10 monitoring sites approached the primary or secondary NAAQS for PM10. The primary annual and acute (24-hr) exposure standards for fine particulate matter (PM2.5) are based on a three year annual average and a three year average of the 98th percentile 24-hour concentration, respectively. In 2005, there were no sites in New England that measured 24-hr PM2.5 concentrations exceeding the acute (98th Percentile) fine particulate standard. The data for 2002 – 2005 shows attainment of the annual fine particulate standard in the New England Region.

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Air Quality Summary – Connecticut

Four carbon monoxide (CO) ambient monitoring sites operated in 2005. The highest recorded maximum 8-hour concentration (5.4 ppm) was recorded at the Hartford Courthouse site. This contrasts with previous 8-hour maximum measurements in 2004, 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 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 three ambient air monitoring sites that measured nitrogen dioxide (NO2) measured a violation of the NAAQS during 2005. 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.

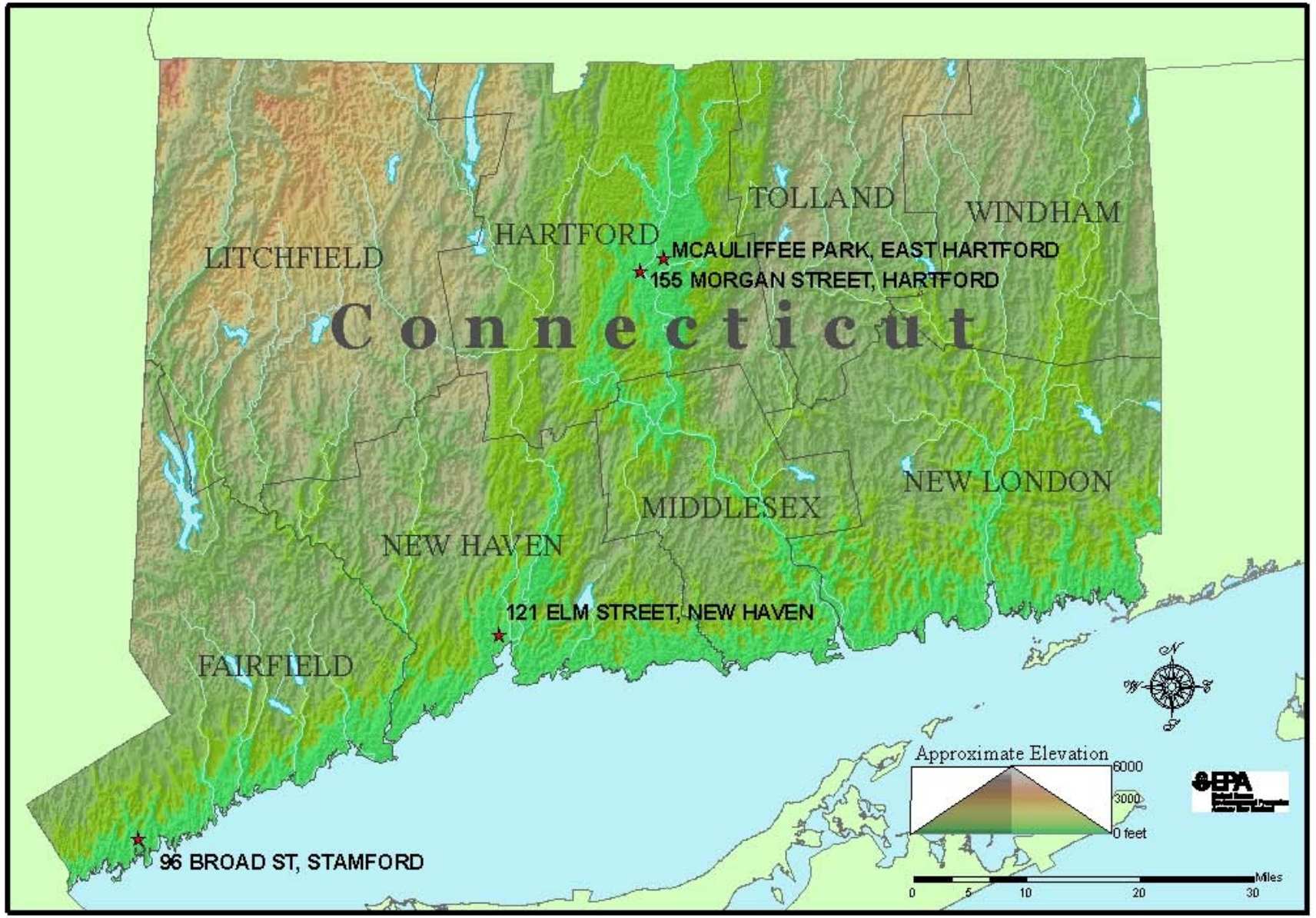
In 2005, four of the eleven ozone (O3) monitoring sites recorded a violation frequency above 1.0 (the level of the former 1-hour ozone standard). In 2004, only 2 sites exceeded this standard. In 2003, seven of the eleven ozone exceeded the 1-hr NAAQS while in 2002 all eleven exceeded the 1-hour standard. In 2001, ten of the eleven sites exceeded this standard. 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 Danbury ozone monitoring site measured the highest 1-hour maximum ozone concentration (158 ppb) and the highest second highest 1-hour maximum ozone concentration (146 ppb) was also recorded in Danbury.

During 2005, ten 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 2004 only 1 site recorded a value above the standard . In 2003, ten of the eleven ozone monitoring sites recorded values above the 8-hour NAAQS. In 2005 the highest 8-hr ozone concentration of 110 ppb was measured at three sites – Greenwich, Danbury, and Middletown. The highest 2004 8-hour ozone concentration was 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.

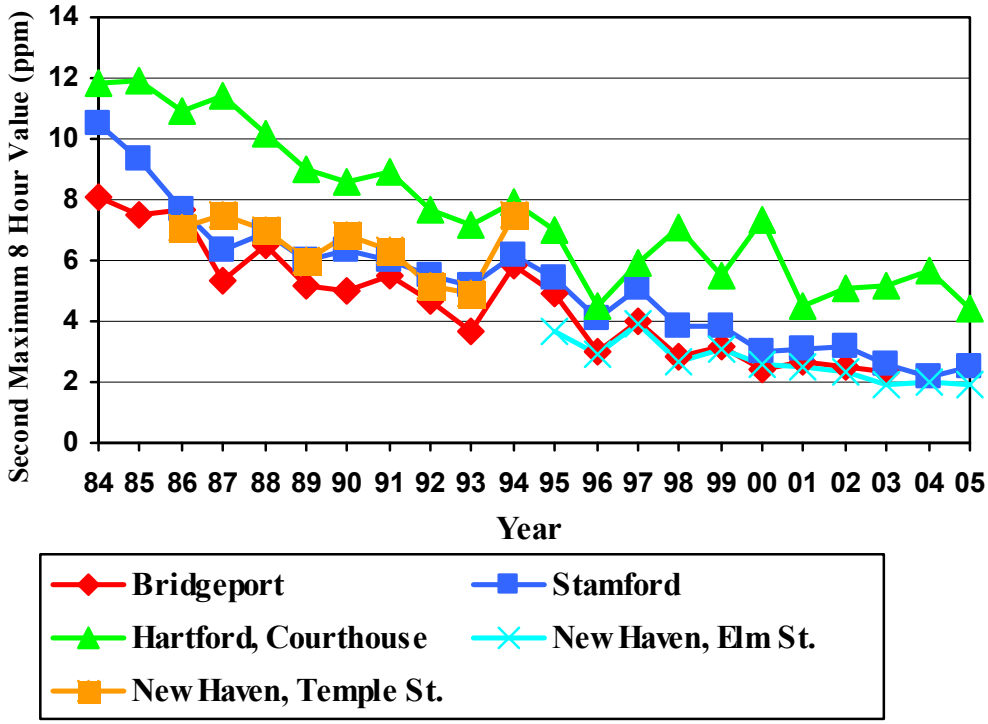
None of the monitoring sites that collected particulate matter of less than 10 microns (PM10) recorded exceedances of either the 24-hour or the annual NAAQS for PM10. As in previous years, the Stiles Street site in New Haven recorded the single highest 24-hour measurement (70 ug/m3). Similarly, the Stiles Street fine particulate (PM2.5) monitoring site also recorded the highest weighted arithmetic average concentration (37.7 ug/m3). Of the fourteen PM2.5 monitoring sites in Connecticut that measured particulate matter in 2005, the Bridgeport site reported the highest annual average (14.37 ug/m3). None of the sites recorded exceedences to either of the PM2.5 NAAQS.

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 (6.3 ppb). New Haven also measured the highest 24-hour concentration (25 ppb) which was roughly 20% of the NAAQS. The twenty-year trend graphs for SO2 show decreasing SO2 concentrations with some year-to-year variability.

Connecticut Sites - 2005 - Carbon Monoxide

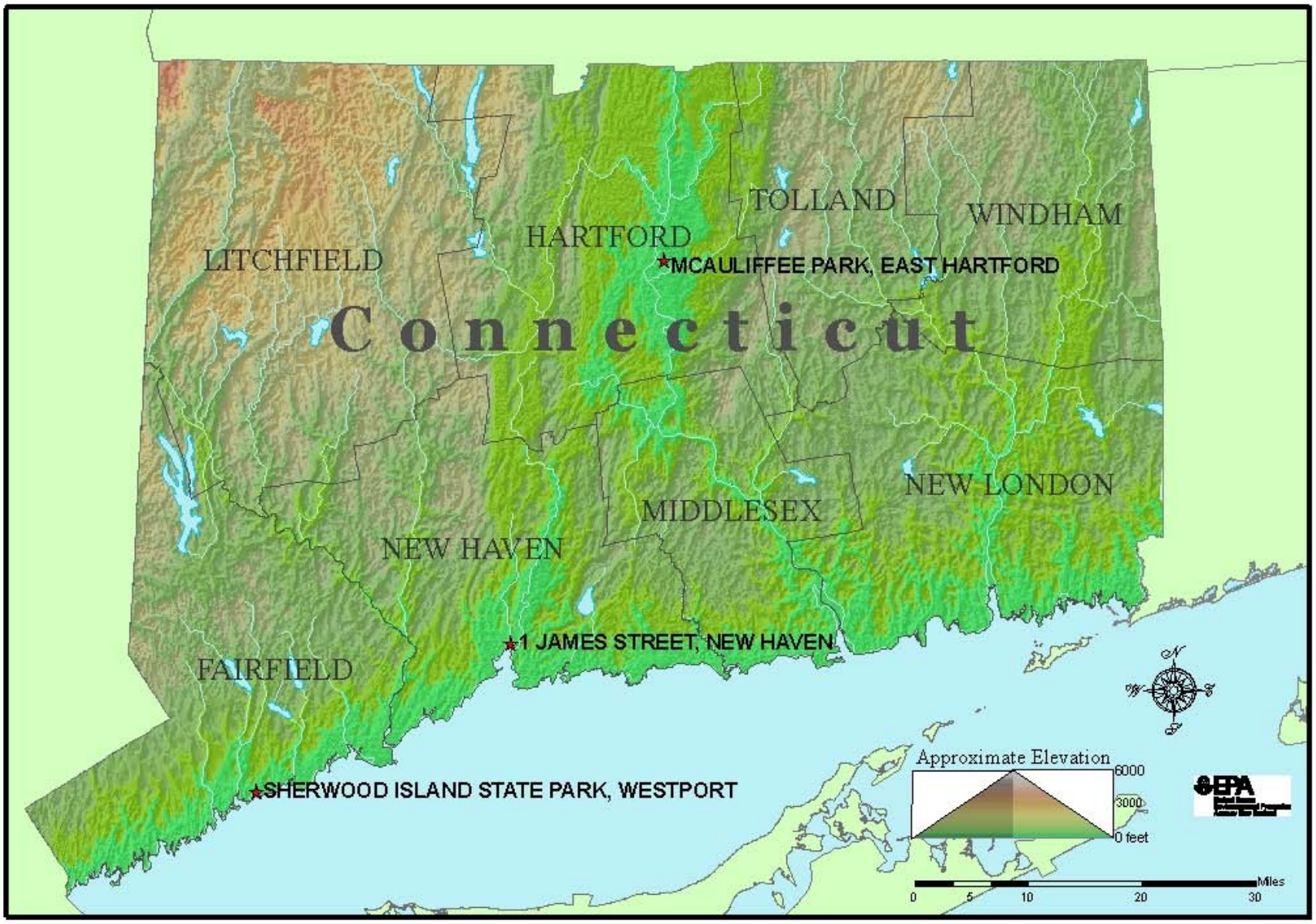


Connecticut Carbon Monoxide Data

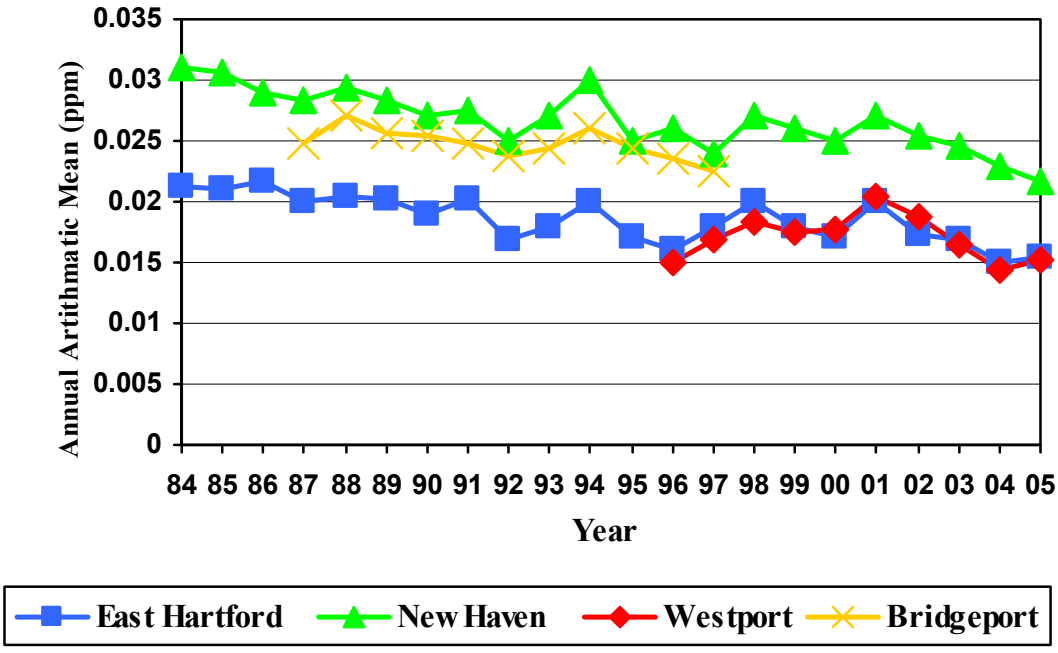


Connecticut													
2005 Carbon Monoxide													
All Values are in Units of Parts Per Million													
							1-hour	1-hour		8-hour	8-hour		
	P							2nd			2nd		
	O	Org				#	Highest	Highest		Highest	Highest		Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
09-001-0020	1	0251	Stamford	Fairfield	LIBRARY 96	8679	3.4	3.4	0	2.6	2.5	0	54
09-003-0017	1	0251	Hartford	Hartford	COURTHOUSE, 155	8704	11.1	9.9	0	5.4	4.4	0	54
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	8647	2.7	2.7	0	2	1.9	0	54
09-009-0025	1	0251	New Haven	New Haven	121 ELM STREET	440	2.6	2.6	0	1.9	1.9	0	54

Connecticut Sites - 2005 - Nitrogen Dioxide

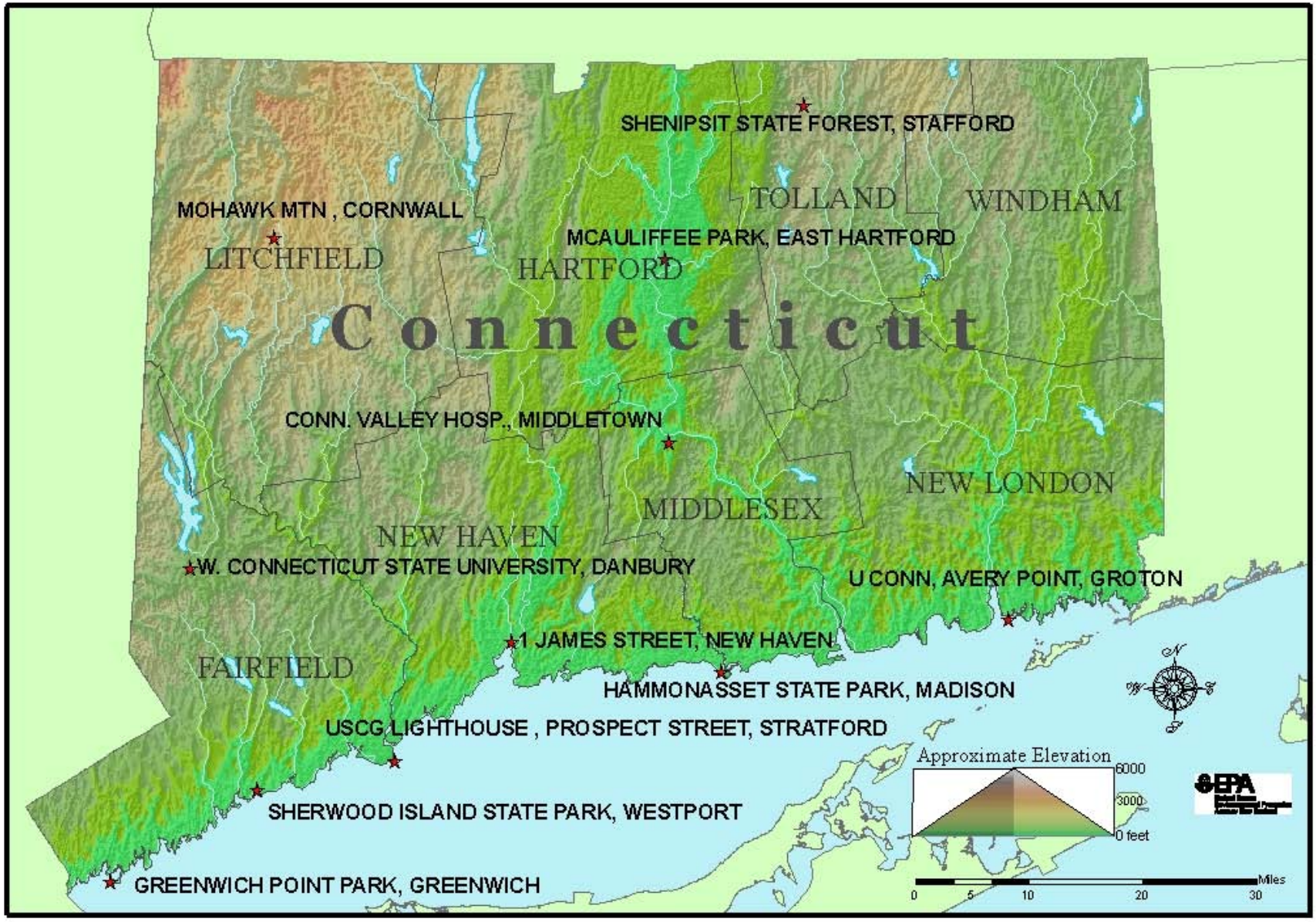


Connecticut Nitrogen Dioxide Data

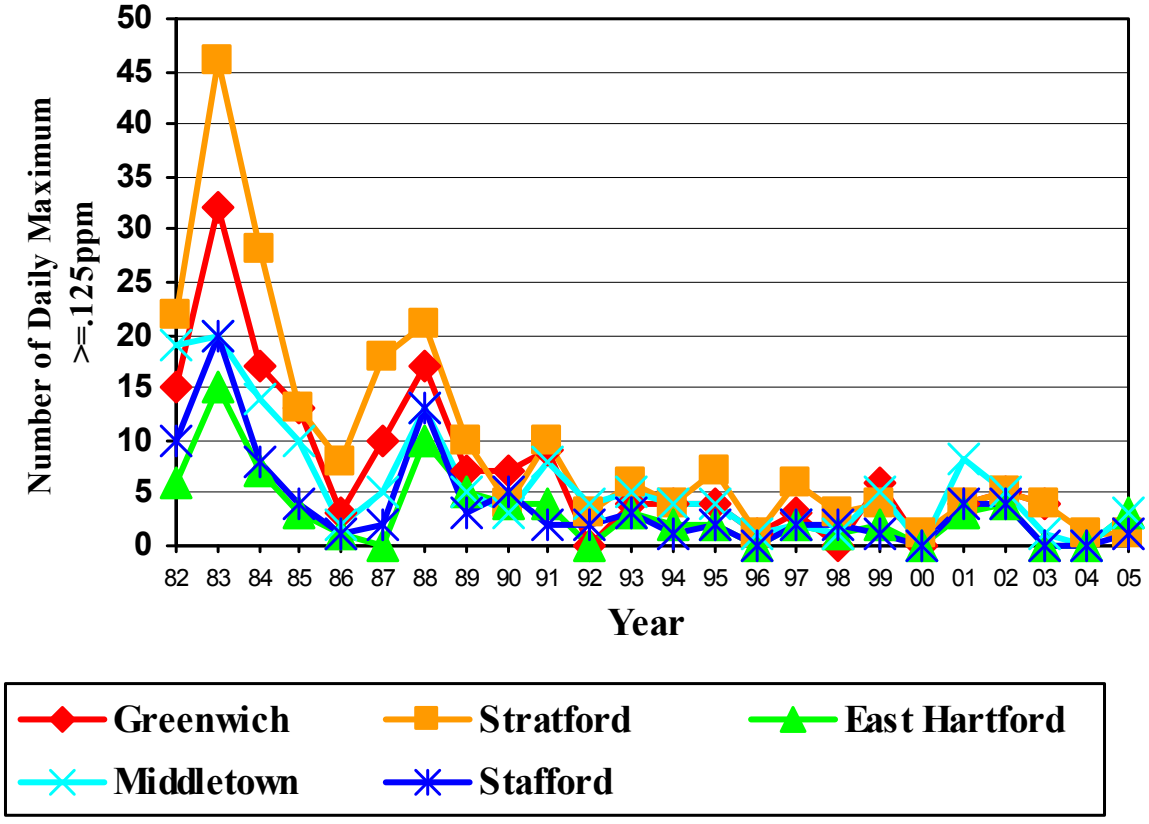


NO2										
Connecticut										
2005 Nitrogen Dioxide										
All Values are in Units of Parts Per Million										
								1-hour	1-hour	
	P								2nd	Annual
	O	Rept.					#	Highest	Highest	Arith.
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Mean
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	074	8186	0.095	0.079	0.0153
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	074	8377	0.072	0.072	0.0155
09-009-0027	1	0251	New Haven	New Haven	1JAMES STREET	074	8412	0.101	0.101	0.0217

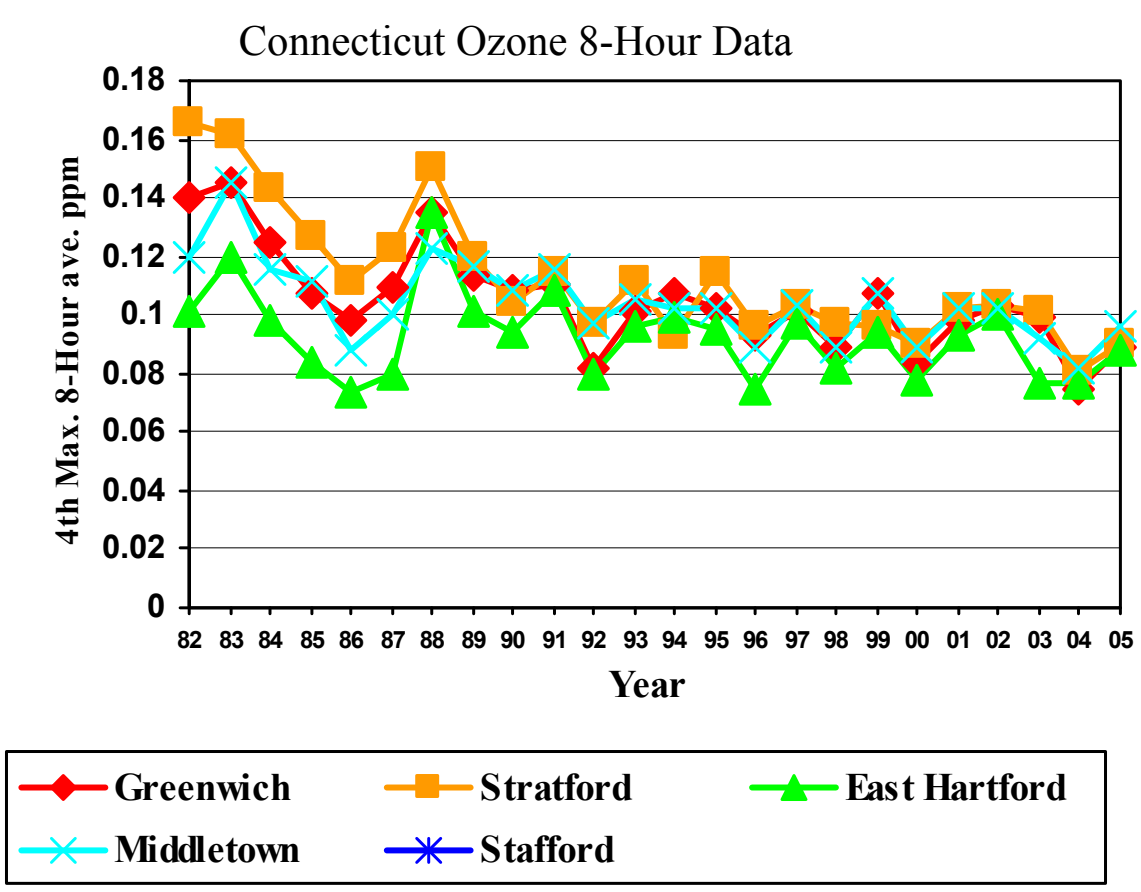
Connecticut Sites - 2005 - Ozone



Connecticut Ozone 1-Hour Data



O3 1 hour														
Connecticut														
2005 Ozone (1-Hour)														
All Values are in Units of Parts Per Million														
	P									2nd	3rd	4th			Missing
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125
09-001-0017	1	0251	Greenwich	Fairfield	GREENWICH POINT	181	183	0.153	0.124	0.118	0.115	1	1	0
09-001-1123	1	0251	Danbury	Fairfield	W. CONN	183	183	0.158	0.146	0.145	0.135	5	5	0
09-001-3007	1	0251	Stratford	Fairfield	USCG LIGHTHOUSE	175	183	0.136	0.111	0.111	0.109	1	1	3
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	182	183	0.146	0.119	0.119	0.115	1	1	1
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	178	183	0.144	0.139	0.130	0.108	3	3.1	2
09-005-0005	1	0251	Cornwall	Litchfield	MOHAWK MTN MICROWAVE TOWER	178	183	0.128	0.119	0.117	0.107	1	1	1
09-007-0007	1	0251	Middletown	Middlesex	CONN. VALLEY HOSPITAL	182	183	0.136	0.134	0.130	0.122	3	3	1
09-009-0027	1	0251	New Haven	New Haven	1 JAMES STREET	179	183	0.149	0.119	0.112	0.105	1	1	1
09-009-3002	1	0251	Madison	New Haven	HAMMONASSET STATE PARK	175	183	0.145	0.141	0.128	0.116	3	3.1	3
09-011-0008	1	0251	Groton	New London	UNIVERSITY OF CONN	179	183	0.104	0.102	0.100	0.100	0	0	1
09-013-1001	1	0251	Stafford	Tolland	ROUTE 190, SHENIPSIT STATE PARK	180	183	0.134	0.124	0.119	0.117	1	1	2



O3 8hour														
Connecticut														
2005 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 ≥	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	Reported
09-001-0017	1	0251	Greenwich	Fairfield	GREENWICH POINT	98	180	183	0.110	0.099	0.093	0.089	8	47
09-001-1123	1	0251	Danbury	Fairfield	TRAILER, W. CONN	99	181	183	0.110	0.109	0.106	0.104	11	47
09-001-3007	1	0251	Stratford	Fairfield	USCG LIGHTHOUSE	91	167	183	0.096	0.096	0.092	0.090	8	47
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	97	177	183	0.100	0.092	0.091	0.091	10	47
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	96	176	183	0.103	0.095	0.091	0.088	5	47
09-005-0005	1	0251	Cornwall	Litchfield	MOHAWK MTN MICROWAVE	95	174	183	0.099	0.096	0.095	0.094	8	47
09-007-0007	1	0251	Middletown	Middlesex	CONN. VALLEY HOSPITAL	99	181	183	0.110	0.106	0.099	0.096	7	47
09-009-0027	1	0251	New Haven	New Haven	1 JAMES STREET	97	177	183	0.108	0.085	0.084	0.080	2	47
09-009-3002	1	0251	Madison	New Haven	HAMMONASSET STATE PARK	96	175	183	0.099	0.096	0.093	0.092	8	47
09-011-0008	1	0251	Groton	New London	UNIVERSITY OF CONN	97	178	183	0.093	0.088	0.086	0.085	4	47
09-013-1001	1	0251	Stafford	Tolland	ROUTE 190, SHENIPSIT	97	178	183	0.106	0.101	0.099	0.097	8	47

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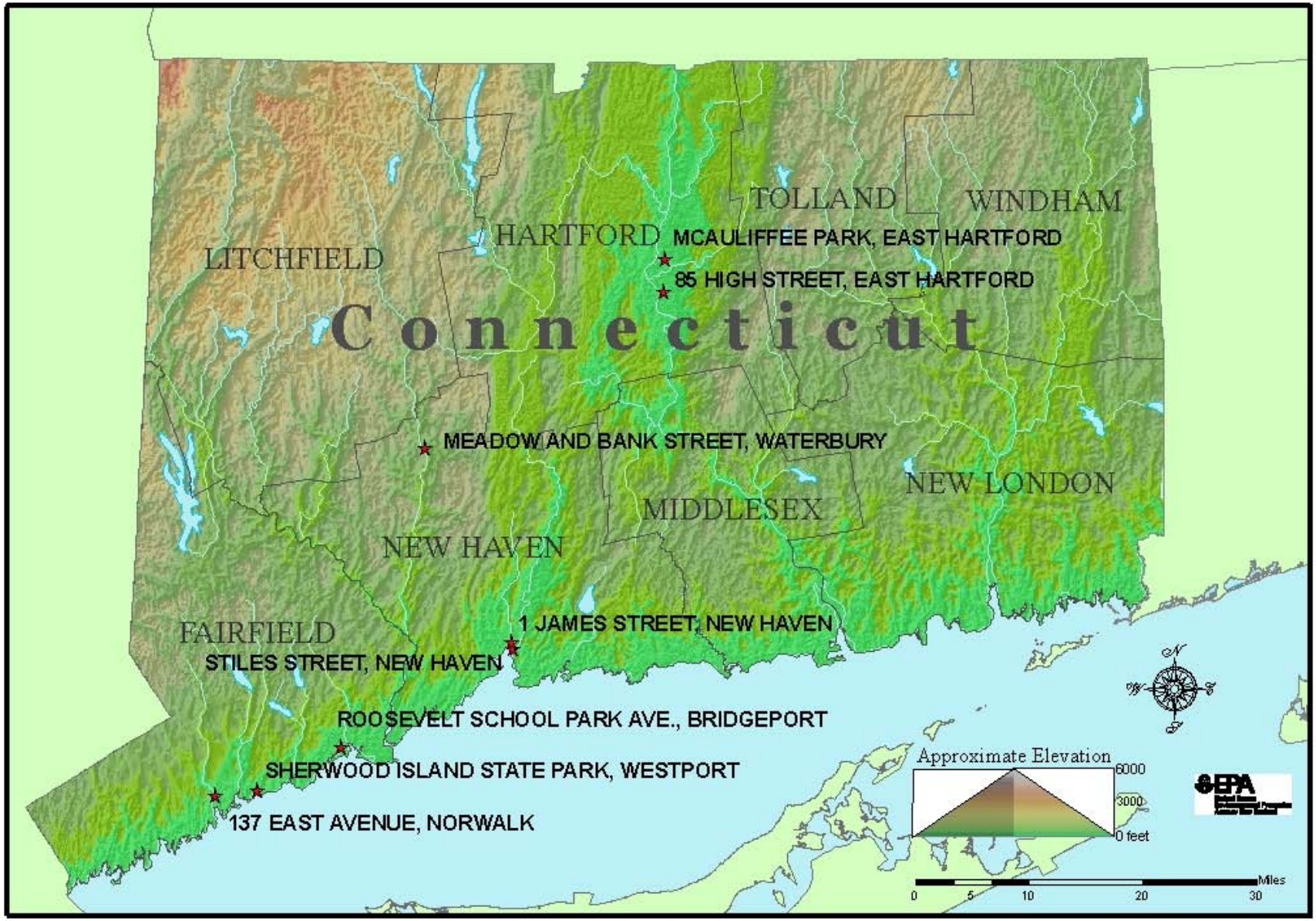
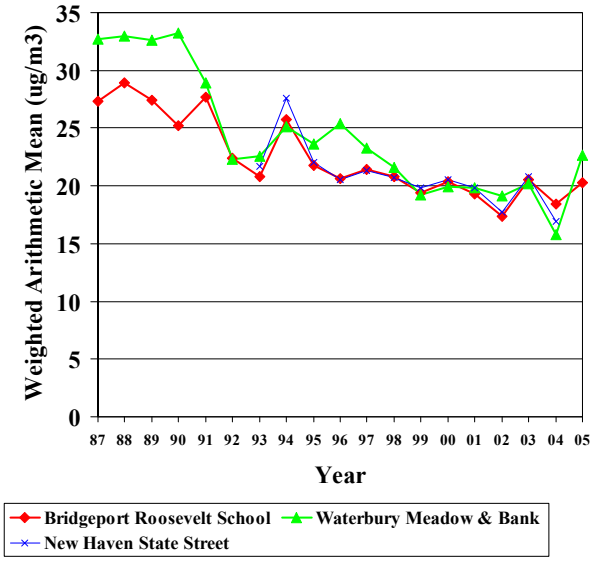
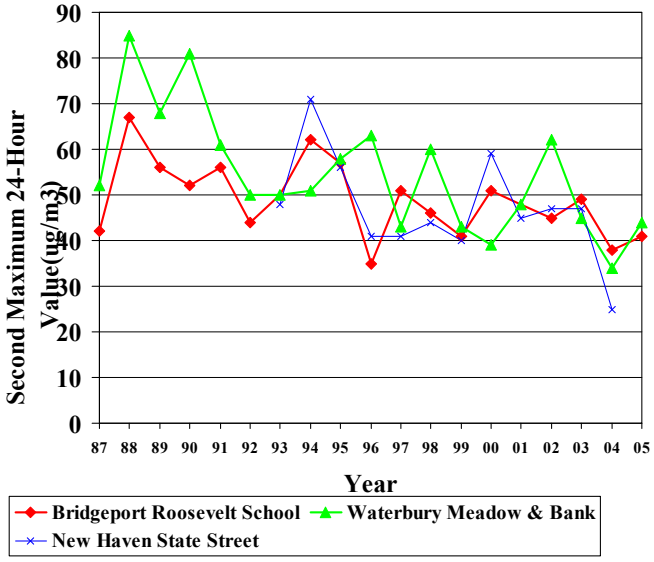
Connecticut Sites - 2005 - Particulate Matter < 10 Microns



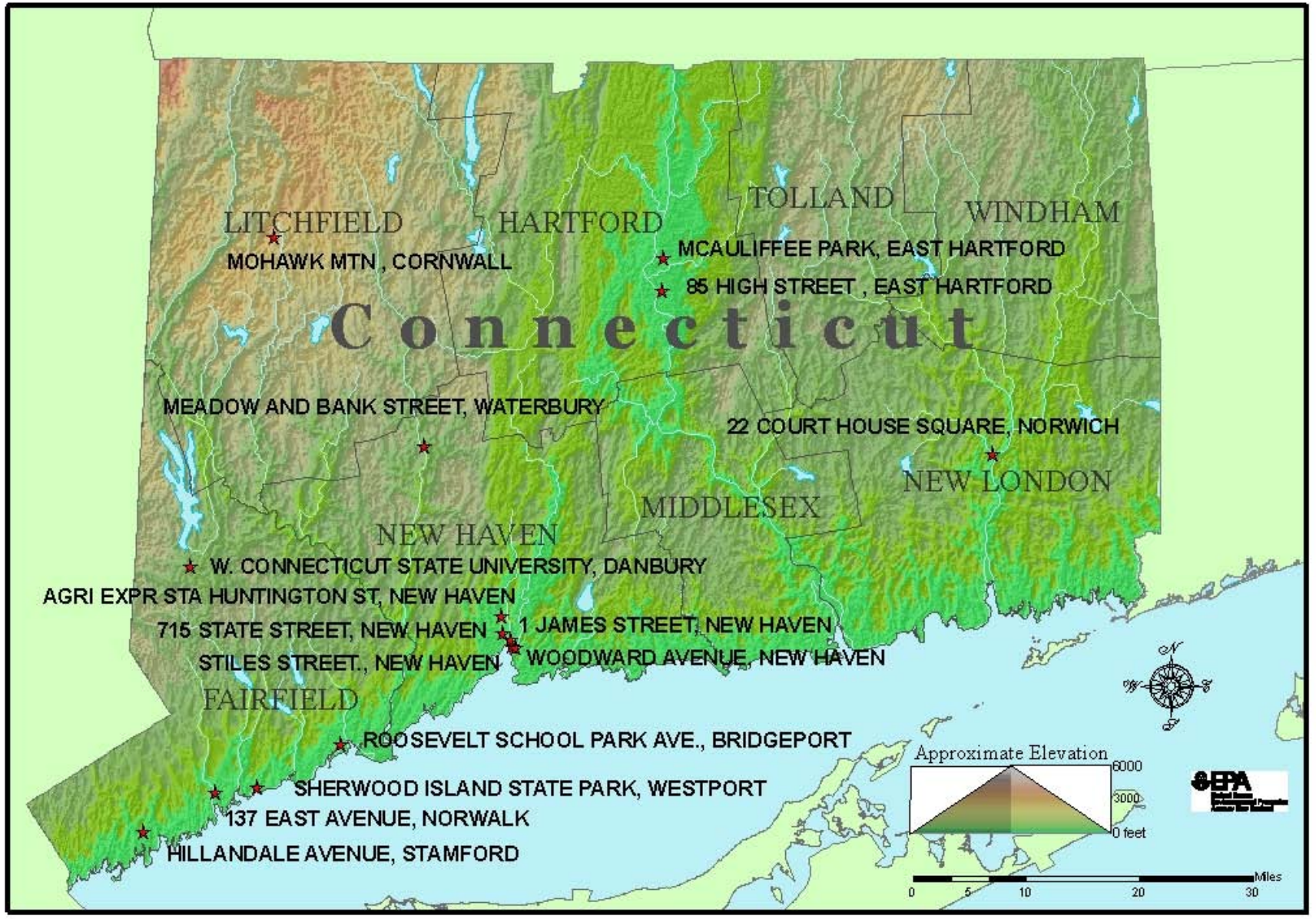
Connecticut Particulate Matter < 10 Microns (PM10) Data



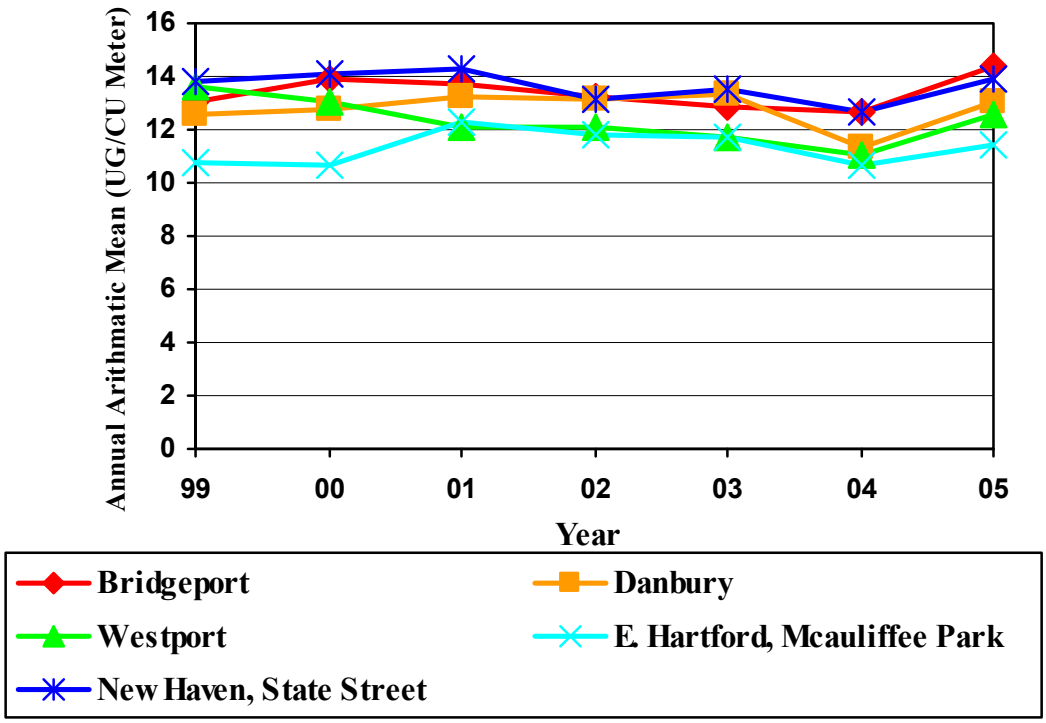


PM10																	
Connecticut																	
2005Particulate Matter < 10 Microns																	
ug/m3																	
											2nd	3rd	4th	Days	Est. Days	Wtd.	
		Rep.							Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.	
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean	
09-001-0010	1	0251	Bridgeport	Fairfield	ROOSEVELT SCHOOL	55	61	55	90	43	41	40	38	0	0	20.3	
09-001-3005	1	0251	Norwalk	Fairfield	NORWALK HEALTH DEP	51	61	51	84	41	36	35	34	0	0	18.5	*
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	57	61	57	93	38	33	32	30	0	0	14.1	
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	41	46	41	89	35	31	30	30	0	0	15.1	*
09-003-2006	1	0251	East Hartford	Hartford	85 HIGH STREET	14	15	14	93	33	31	29	21	0	0	18.7	*
09-009-0018	1	0251	New Haven	New Haven	STILES STREET	40	45	40	89	70	51	47	45	0	0	31.7	*
09-009-0018	2	0251	New Haven	New Haven	STILES STREET	29	30	29	97	61	55	45	44	0	0	28.6	*
09-009-0027	1	0251	New Haven	New Haven	1 JAMES STREET	57	61	56	92	42	42	41	38	0	0	18.7	
09-009-2123	1	0251	Waterbury	New Haven	MEADOW AND BANKS	58	61	58	95	51	42	40	39	0	0	21.6	
09-009-2123	2	0251	Waterbury	New Haven	MEADOW AND BANKS	57	61	57	93	46	44	43	43	0	0	22.7	
*Indicates that the mean does not satisfy summary criteria																	

Connecticut Sites - 2005 - Particulate Matter <2.5 Microns



Connecticut Particulate Matter < 2.5 Microns (PM2.5) Data



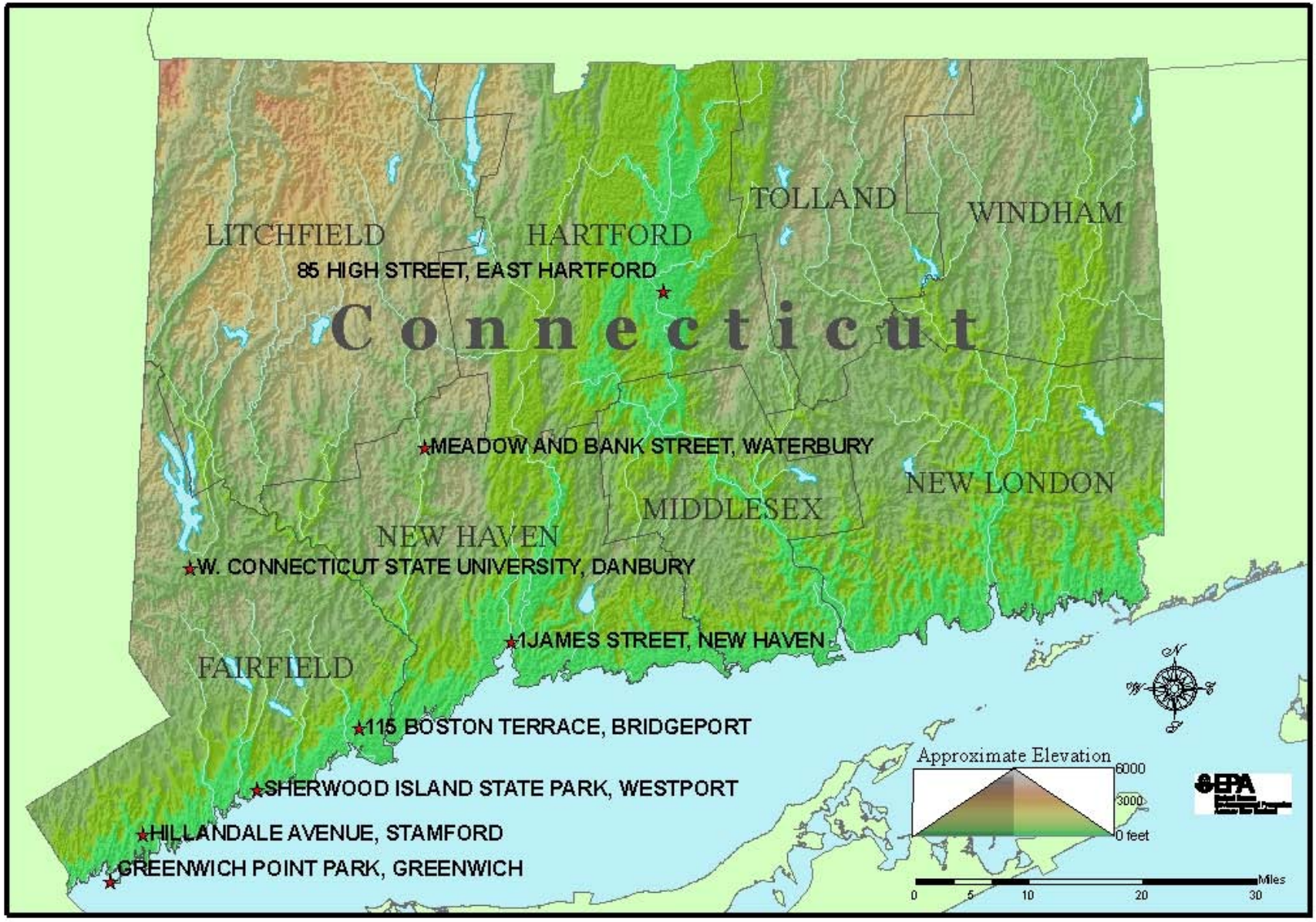
PM 2.5

Connecticut
2005 PM 2.5
All Values are in UG/CU Meters Local Conditions

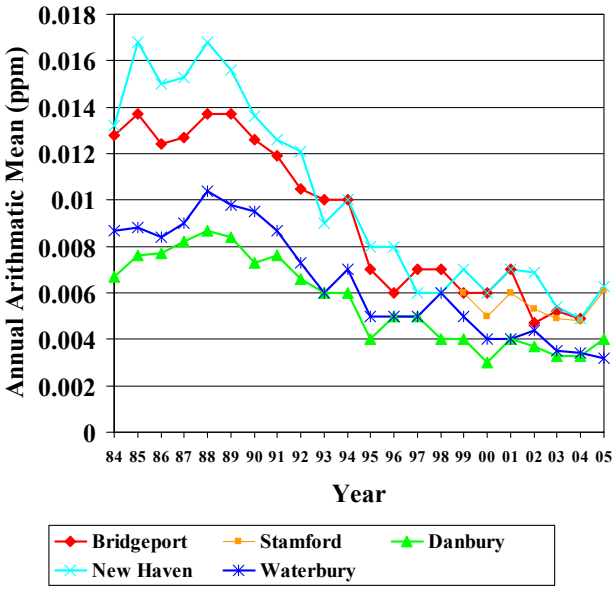
Site ID	POC	Rept. Org.	City	County	Address	Method	# Obs	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	98th Percentile	Wtd. Arith. Mean	
09-001-0010	1	0251	Bridgeport	Fairfield	ROOSEVELT SCHOOL	145	116	48.2	39.9	38.3	37.4	38.3	14.37	
09-001-0010	3	0251	Bridgeport	Fairfield	ROOSEVELT SCHOOL	731	8356	49.3	46.8	41.6	41.5	37.5	13.59	
09-001-1123	1	0251	Danbury	Fairfield	W. CONN. STATE U.	145	105	57.7	43.8	33.4	32.3	33.4	13.43	
09-001-3005	1	0251	Norwalk	Fairfield	NORWALK HEALTH DEPT.	145	109	47.0	37.2	34.9	34.8	34.9	13.21	
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	145	118	43.1	36.2	35.2	33.4	35.2	12.24	
09-003-1003	1	0251	East Hartford	Hartford	MCAULIFFEE PARK	145	312	42.3	39.0	38.0	38.0	34.0	11.46	
09-003-2006	3	0251	East Hartford	Hartford	85 HIGH STREET	731	8578	51.5	50.3	46.3	45.7	43.1	15.8	
09-005-0005	1	0251	Cornwall	Litchfield	MOHAWK MTN MICRO.	145	105	41.0	29.8	25.4	24.5	25.4	8.76	
09-005-0005	3	0251	Cornwall	Litchfield	MOHAWK MTN MICRO.	731	7859	53.4	46.3	44.0	39.8	29.5	9.09	
09-009-0018	1	0251	New Haven	New Haven	STILES STREET	145	66	47.0	43.9	42.4	41.0	43.9	18.94	*
09-009-0026	1	0251	New Haven	New Haven	WOODWARD AVENUE	145	110	47.0	44.8	36.7	36.4	36.7	13.44	
09-009-0027	1	0251	New Haven	New Haven	1 JAMES STREET	145	285	49.3	46.7	44.6	43.3	38.2	13.39	*
09-009-0027	2	0251	New Haven	New Haven	1 JAMES STREET	145	54	42.6	39.1	36.6	32.4	39.1	13.72	
09-009-0027	3	0251	New Haven	New Haven	1 JAMES STREET	731	8635	51.8	46.9	46.7	45.8	40.6	14.68	
09-009-0027	5	1217	New Haven	New Haven	1 JAMES STREET	810	84	44.9	41.8	37.8	34.8	41.8	12.96	*
09-009-1123	1	0251	New Haven	New Haven	715 STATE STRET	145	104	44.3	42.1	40.8	37.9	40.8	13.86	
09-009-1123	2	0251	New Haven	New Haven	715 STATE STRET	145	5	18.5	17.4	15.2	8.9	18.5	13.36	*
09-009-2008	1	0251	New Haven	New Haven	AGRI EXPR STATION	145	103	42.7	38.2	32.8	31.1	32.8	11.79	
09-009-2123	1	0251	Waterbury	New Haven	MEADOW AND BANK ST.	145	106	44.4	36.9	34.1	33.5	34.1	14.01	
09-009-2123	2	0251	Waterbury	New Haven	MEADOW AND BANK ST.	145	59	44.4	35.9	32.4	29.2	35.9	14.2	
09-009-2123	3	0251	Waterbury	New Haven	MEADOW AND BANK ST.	731	8535	42.2	41.3	38.0	36.9	34.2	12.71	
09-011-3002	1	0251	Norwich	New London	22 COURT HOUSE SQ.	145	110	36.1	35.7	34.8	29.1	34.8	11.74	

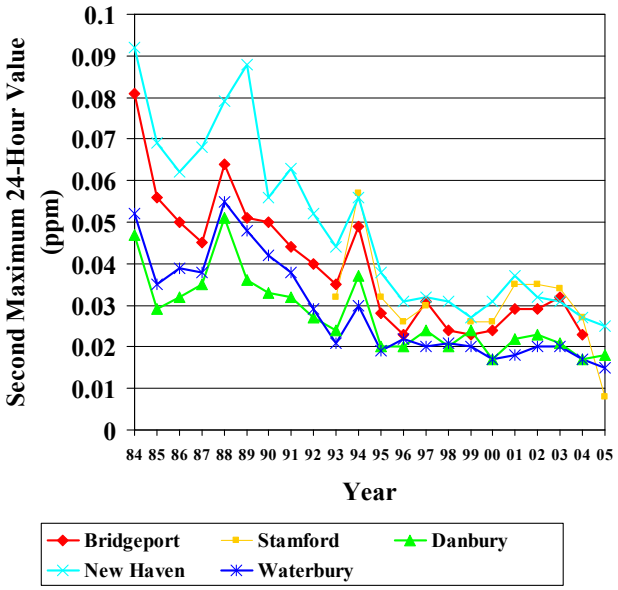
*Indicates that the mean does not meet summary criteria

Connecticut Sites - 2005 - Sulfur Dioxide



Connecticut Sulfur Dioxide Data





SO2																	
Connecticut																	
2005 Sulfur Dioxide																	
All Values are in Units of Parts Per Million																	
								24-	24-		3-hour	3-hour		1-hour	1-hour		
	P							hour	hour			2nd			2nd		
	O	Org					#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used
09-001-0012	1	0251	Bridgeport	Fairfield	115 BOSTON TERRACE	8523	0.027	0.023	0	0.039	0.037	0	0.045	0.044	0.0059	060
09-001-0017	1	0251	Greenwich	Fairfield	GREENWICH PO	7931	0.018	0.016	0	0.035	0.031	0	0.039	0.039	0.0034	060
09-001-1123	1	0251	Danbury	Fairfield	W. CONN. STATE U.	8666	0.018	0.018	0	0.027	0.027	0	0.036	0.032	0.0040	060
09-001-2124	1	0251	Stamford	Fairfield	HILLANDALE AVE	419	0.010	0.008	0	0.017	0.014	0	0.022	0.019	0.0061	060
09-001-9003	1	0251	Westport	Fairfield	SHERWOOD ISLAND	8416	0.019	0.019	0	0.034	0.031	0	0.039	0.036	0.0040	060
09-003-2006	1	0251	East Hartford	Hartford	85 HIGH STREET	8408	0.025	0.019	0	0.037	0.036	0	0.044	0.040	0.0037	060
09-009-0027	1	0251	New Haven	New Haven	1 JAMES STREET	8323	0.037	0.025	0	0.111	0.079	0	0.134	0.105	0.0063	060
09-009-2123	1	0251	Waterbury	New Haven	MEADOW & BANK ST.	8497	0.019	0.015	0	0.031	0.030	0	0.041	0.038	0.0032	060

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Ambient Air Quality Summary - Maine Summary

In 2005, the state of Maine operated two low-level, highly sensitive carbon monoxide (CO) monitors – one at the Cape Elizabeth – Two Lights State Park Photochemical Assessment Monitoring Station (PAMS) site, and the other at the Bar Harbor - McFarland Hill Acadia National Park site. CO measurements were made at these sites 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 Maine's air has been well below the NAAQS for many years.

Three nitrogen dioxide (NO2) monitoring sites were operated during 2005 (Portland – Marginal Way site, Bar Harbor – Cadillac Mountain Acadia National Park PAMS site, and Kittery – Frisbee School site). None of these sites measured any exceedances or violations of the NAAQS. In addition, Maine continued to operate a long-path Ultra Violet Differential Optical Absorption Spectroscopy (UV-DOAS) monitor which measured NO2 as part of the Breathing Easier Through Air Monitoring (BEAM) monitoring effort in Portland. The McFarland Hill Acadia National Park site and the Cape Elizabeth site measured trace and ambient concentrations of reactive nitrogen compounds as part of a program to help understand the photochemistry and the transport of airborne pollutants along the coast.

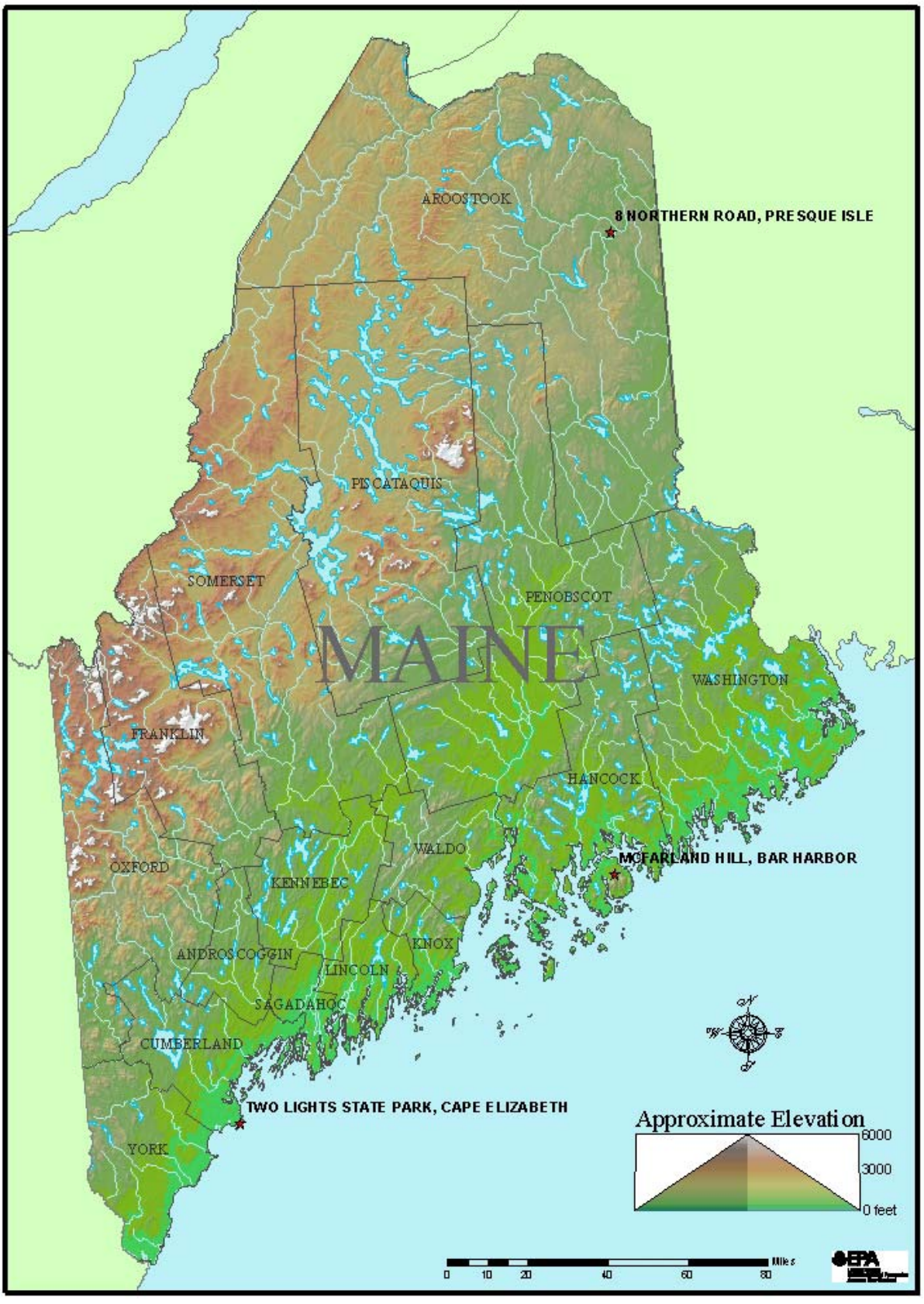
During 2005, none of Maine's ozone (O3) monitoring sites measured 1-hour ozone levels over 124 ppb. The highest 1-hour ozone concentration was recorded at the Port Clyde - Marshall Point Lighthouse site at 115 ppb. None of the O3 sites recorded a fourth highest 8-hour average ozone concentration above the level of the 8-hour NAAQS. The Port Clyde - Marshall Point Lighthouse site recorded the highest 8-hour average ozone concentration at 102 ppb. O3 levels in 2005 were similar to those in 2004.

None of Maine's particulate matter sites which measured particles of 10 microns or less (PM10) reported either 24-hour or annual exceedances or violations of the NAAQS during 2005. The highest 24-hour PM10 concentration was recorded at the Portland - Tukey's Bridge site at 98 ug/m3. This site also recorded the highest annual weighted arithmetic mean PM10 concentration at 28.9 ug/m3.

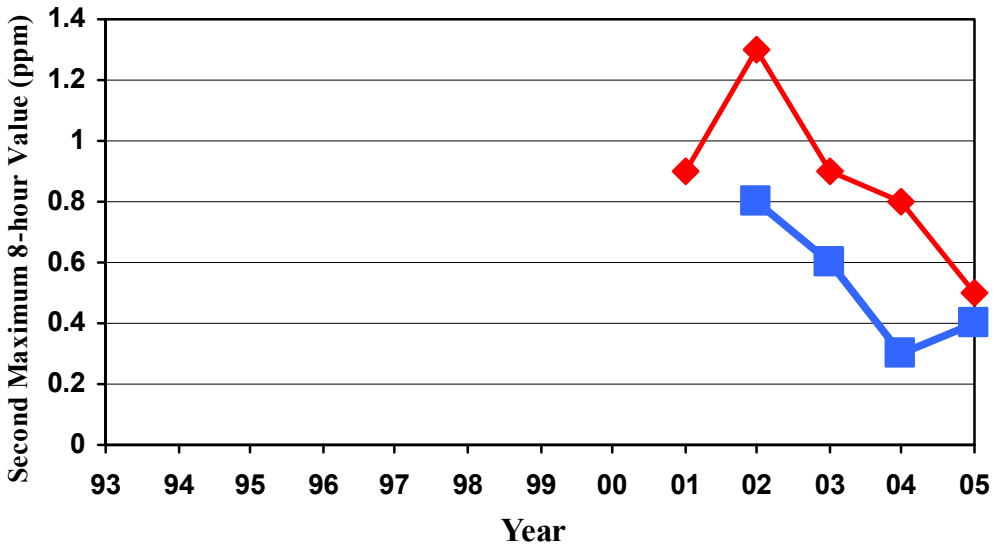
Maine began monitoring for fine particulate matter (PM2.5) in 1999. During 2005, there were eleven PM2.5 monitoring sites; however, the Waterville site was discontinued early in the year. Data from the sites indicate that none of the sites have recorded PM2.5 concentrations that would result in an exceedance or violation of either the 24-hour or the annual NAAQS for PM2.5. The Portland - Marginal Way site recorded the highest weighted arithmetic mean at 11.88 ug/m3. The Bangor - Pump Station site recorded the highest 24-hour value at 37.3 ug/m3. The PM2.5 graph remains unremarkable.

In 2005, there were no exceedances or violations of the sulfur dioxide (SO2) NAAQS at any of the three monitoring sites. The Portland - Marginal Way site recorded the highest 3-hour, 24-hour, and arithmetic mean SO2 concentrations at 50 ppb, 22 ppb, and 3.9 ppb respectively, all well below the standards. The trend for SO2 concentrations is well below NAAQS and shows small year-to-year changes.

Maine Sites 2005 - Carbon Monoxide

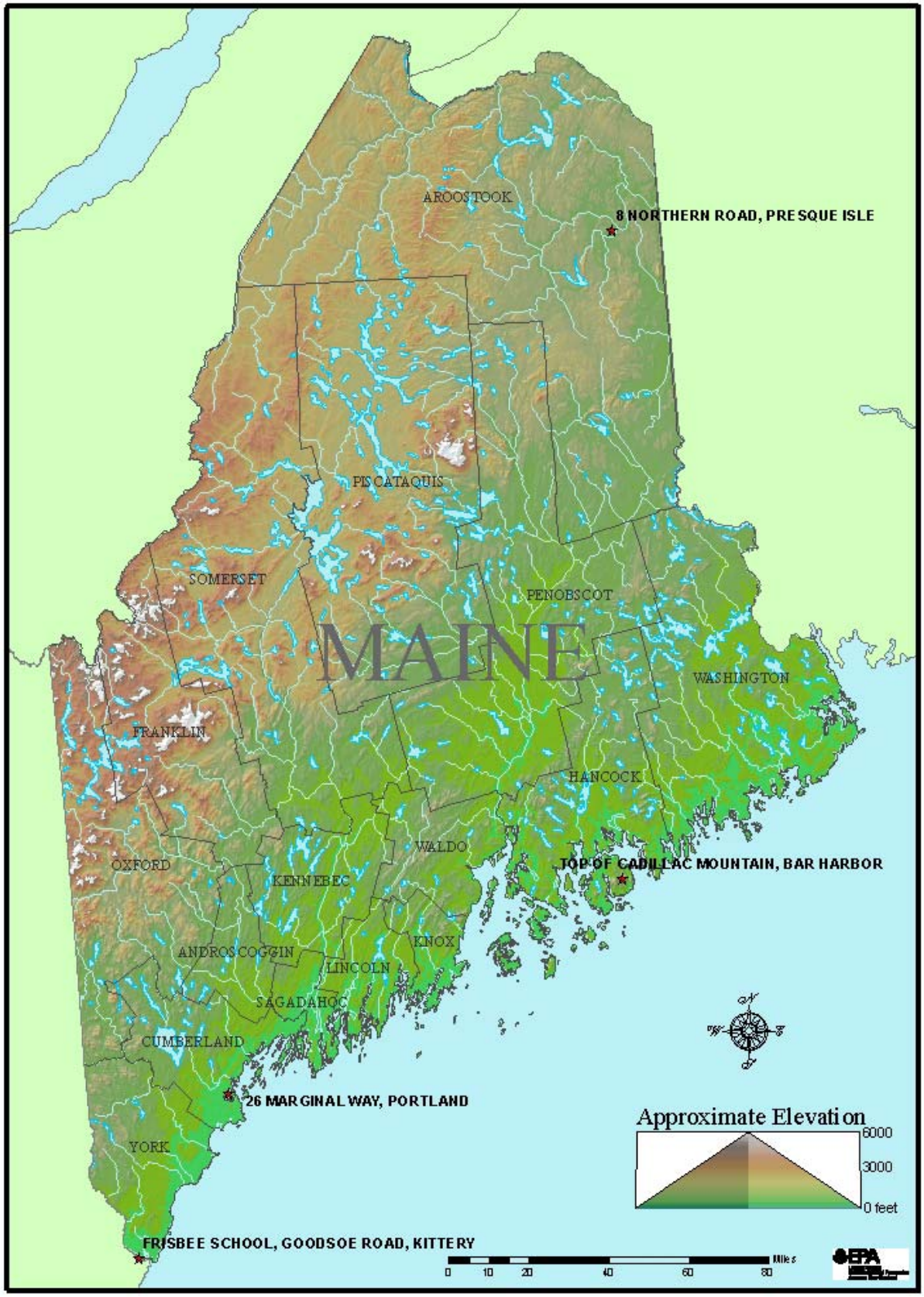


Maine Carbon Monoxide Data

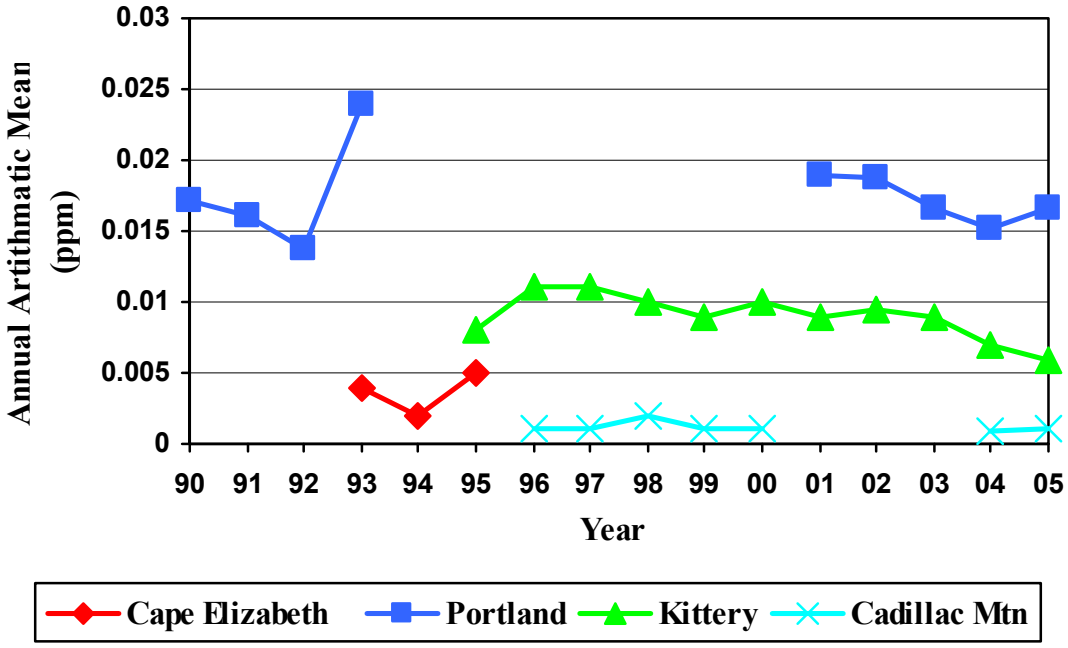


Maine													
2005Carbon Monoxide													
All Values are in Units of Parts Per Million													
							1-hour	1-hour		8-hour	8-hour		
	P							2nd			2nd		
	O	Org				#	Highest	Highest		Highest	Highest		Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
23-005-2003	1	0635	Cape Elizabeth	Cumberland	TWO LIGHTS STATE PARK	3433	0.6	0.6	0	0.5	0.5	0	93
23-009-0103	1	0635	Bar Harbor	Hancock	MCFARLAND HILL	8254	0.6	0.6	0	0.5	0.4	0	54

Maine Sites 2005 - Nitrogen Dioxide

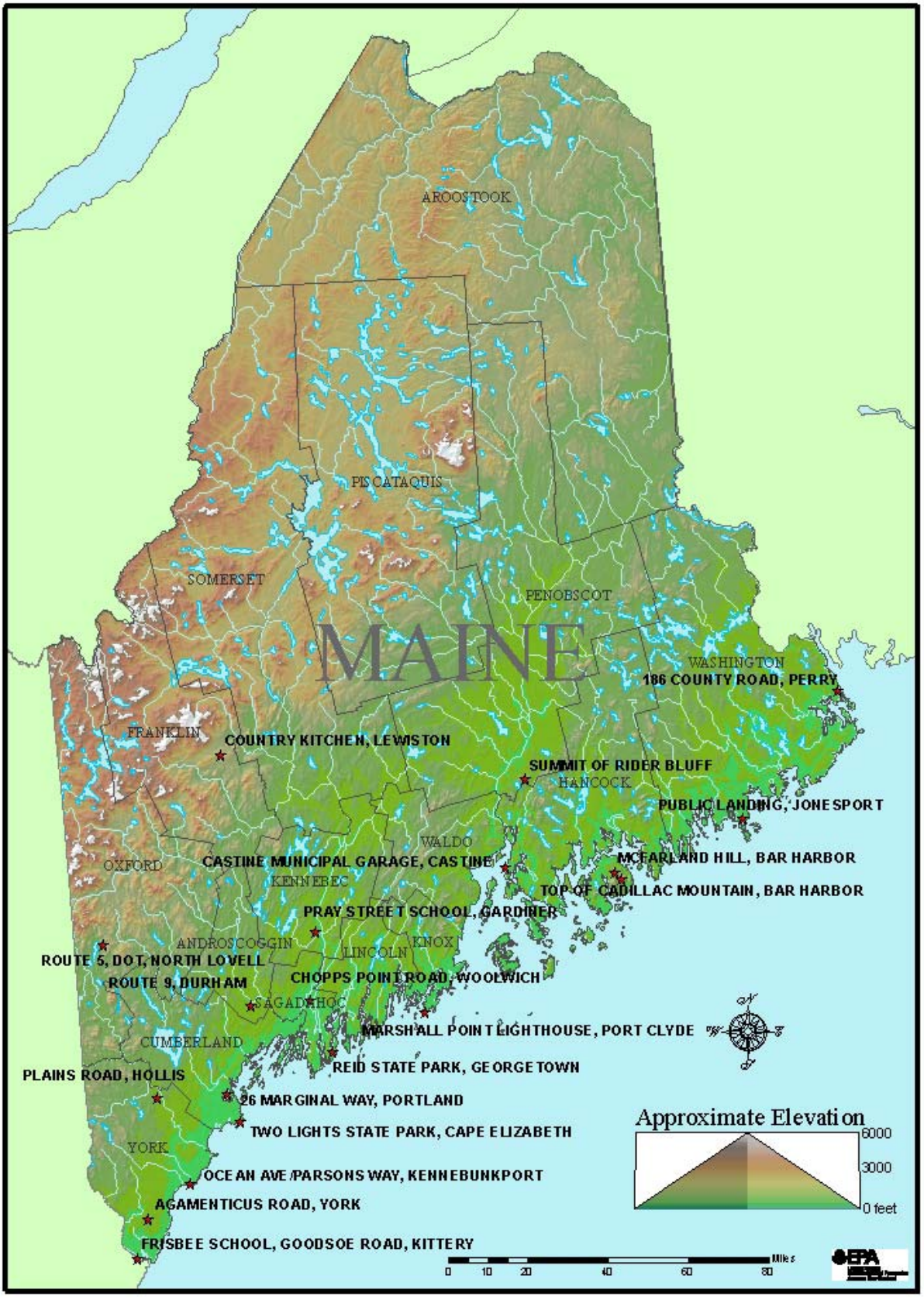


Maine Nitrogen Dioxide Data

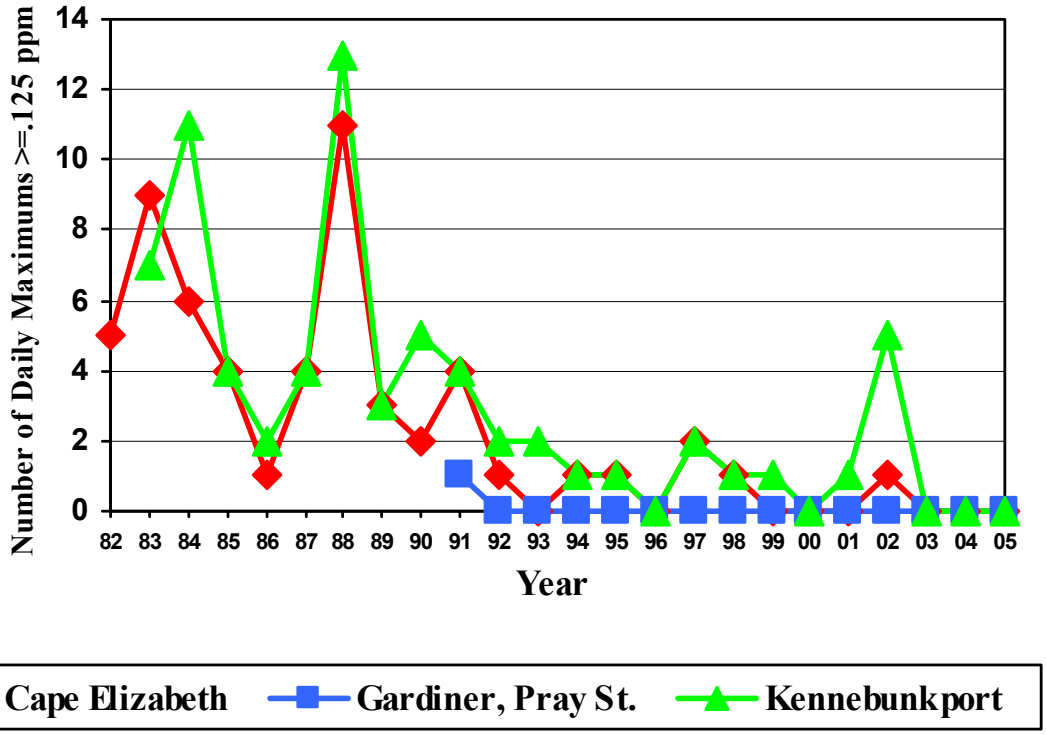


Maine											
2005 Nitrogen Dioxide											
All Values are in Units of Parts Per Million											
								1-hour	1-hour		
	P								2nd	Annual	
	O	Rept.					#	Highest	Highest	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Mean	
23-005-0027	1	0635	Portland	Cumberland	26 MARGINAL WAY	075	8458	0.108	0.079	0.01658	
23-009-0102	1	0635	Bar Harbor	Hancock	TOP OF CADILLAC	075	3882	0.0065	0.0062	0.00105	*
23-031-3002	1	0635	Kittery	York	FRISBEE SCHOOL	074	4323	0.054	0.053	0.0059	*
*Indicates that the mean does not meet summary criteria											

Maine Sites 2005 - Ozone

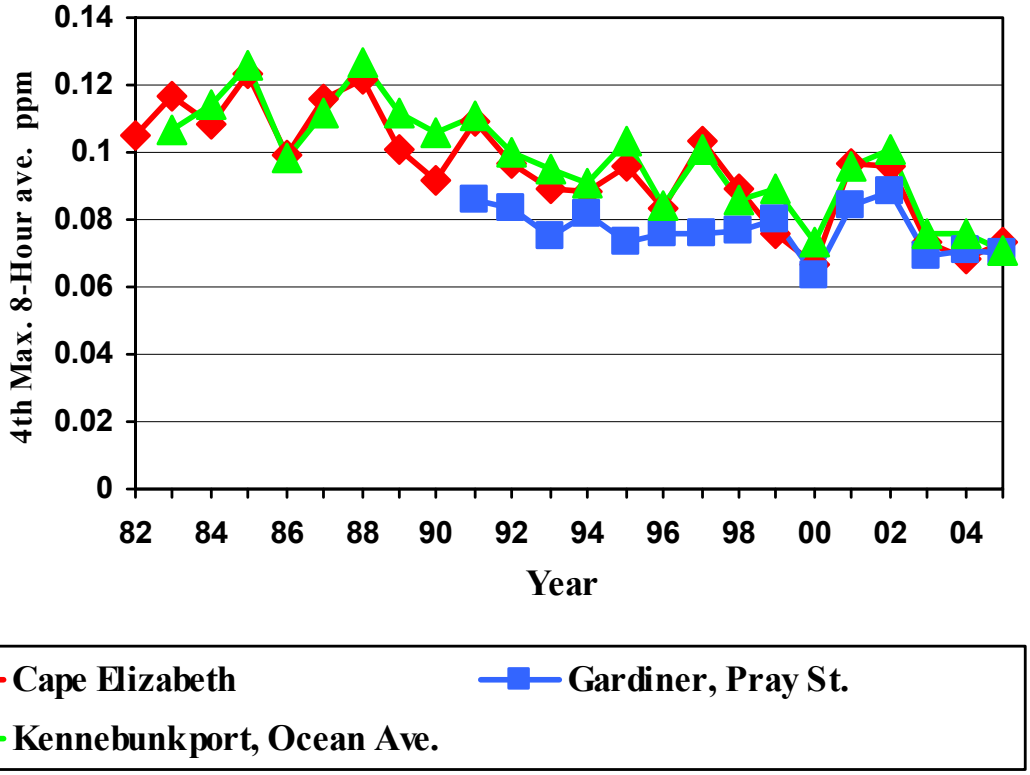


Maine Ozone 1-Hour Data



Maine															
2005 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days	Method
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125	used
23-001-0014	1	0635	Durham	Androscoggin	ROUTE 9	134	183	0.098	0.096	0.081	0.081	0	0	0	47
23-005-0027	1	0635	Portland	Cumberland	26 MARGINAL WAY	180	183	0.088	0.084	0.079	0.070	0	0	0	47
23-005-2003	1	0635	Cape Elizabeth	Cumberland	TWO LIGHTS STATE	181	183	0.096	0.090	0.089	0.087	0	0	2	47
23-009-0102	1	0635	Bar Harbor	Hancock	TOP OF CADILLAC MTN	180	183	0.104	0.101	0.099	0.094	0	0	2	47
23-009-0103	1	0635	Bar Harbor	Hancock	MCFARLAND HILL	182	183	0.088	0.086	0.084	0.083	0	0	1	47
23-009-0301	1	0635	Not in a city	Hancock	CASTINE MUNICIPAL	183	183	0.087	0.082	0.082	0.080	0	0	0	47
23-011-2005	1	0635	Gardiner	Kennebec	PRAY STREET SCHOOL	183	183	0.099	0.097	0.085	0.080	0	0	0	47
23-013-0004	2	0635	Not in a city	Knox	PORT CLYDE	163	183	0.115	0.096	0.085	0.085	0	0	0	47
23-017-3001	1	0635	Not in a city	Oxford	ROUTE 5, NORTH	183	183	0.085	0.075	0.075	0.073	0	0	0	47
23-019-4008	1	0635	Not in a city	Penobscot	SUMMIT OF RIDERS BLUFF	183	183	0.080	0.075	0.074	0.073	0	0	0	47
23-023-0004	1	0635	Not in a city	Sagadahoc	REID STATE PARK	154	183	0.090	0.086	0.081	0.080	0	0	1	47
23-023-0005	1	0635	Not in a city	Sagadahoc	CHOPPS POINT ROAD	123	183	0.108	0.107	0.091	0.090	0	0	0	47
23-029-0019	1	0635	Jonesport	Washington	JONESPORT - PUBL	136	183	0.103	0.079	0.071	0.070	0	0	0	47
23-029-0031	1	0635	Not in a city	Washington	186 COUNTY ROAD	182	183	0.071	0.070	0.068	0.064	0	0	1	47
23-031-0038	1	0635	Not in a city	York	PLAINS ROAD	180	183	0.094	0.094	0.093	0.085	0	0	0	47
23-031-0039	1	0635	York	York	AGAMENTICUS ROAD	135	183	0.097	0.094	0.092	0.090	0	0	0	47
23-031-2002	1	0635	Not in a city	York	OCEAN AVE/PARSONS AVE	148	183	0.092	0.090	0.088	0.087	0	0	0	47
23-031-3002	1	0762	Kittery	York	FRISBEE SCHOOL	181	183	0.092	0.091	0.089	0.089	0	0	2	47

Maine Ozone 8-Hour Data



Maine
2005 Ozone (8-Hour)
All Values are in Units of Parts Per Million

Site ID	P O C	Rept. Org.	City	County	Address	# Obs	Valid Days Meas.	Num Required Days	Highest 8-Hr Value	2nd Highest 8-Hr Value	3rd Highest 8-Hr Value	4th Highest 8-Hr Value	Days Max ≥ 0.085	Methods Reported
23-001-0014	1	0635	Durham	Androscoggin	ROUTE 9	73	133	183	0.085	0.076	0.07	0.068	1	47
23-005-0027	1	0635	Portland	Cumberland	26 MARGINAL WAY	98	179	183	0.074	0.066	0.062	0.061	0	47
23-005-2003	1	0635	Cape Elizabeth	Cumberland	TWO LIGHTS STATE	99	181	183	0.083	0.078	0.077	0.073	0	47
23-009-0102	1	0635	Bar Harbor	Hancock	TOP OF CADILLAC MTN	98	179	183	0.094	0.094	0.088	0.083	3	47
23-009-0103	1	0635	Bar Harbor	Hancock	MCFARLAND HILL	97	178	183	0.083	0.075	0.075	0.074	0	47
23-009-0301	1	0635	Castine	Hancock	CASTINE MUNICIPAL GARAGE	100	183	183	0.081	0.07	0.069	0.068	0	47
23-011-2005	1	0635	Gardiner	Kennebec	PRAY STREET SCHOOL	100	183	183	0.083	0.079	0.073	0.07	0	47
23-013-0004	2	0635	Port Clyde	Knox	MARSHALL POINT LIGHTHOUSE	88	161	183	0.102	0.08	0.076	0.075	1	47
23-017-3001	1	0635	North Lovell	Oxford	ROUTE 5	100	183	183	0.071	0.07	0.067	0.061	0	47
23-019-4008	1	0635	Holden	Penobscot	SUMMIT OF RIDER BLUFF	100	183	183	0.073	0.069	0.068	0.067	0	47
23-023-0004	1	0635	Georgetown	Sagadahoc	REID STATE PARK	83	152	183	0.079	0.074	0.072	0.068	0	47
23-023-0005	1	0635	Woolwich	Sagadahoc	CHOPPS POINT ROAD	67	123	183	0.089	0.085	0.084	0.076	2	47
23-029-0019	1	0635	Jonesport	Washington	JONESPORT	74	136	183	0.089	0.073	0.067	0.062	1	47
23-029-0031	1	0635	Perry	Washington	186 COUNTY ROAD	99	181	183	0.066	0.063	0.061	0.06	0	47
23-031-0038	1	0635	Hollis	York	PLAINS ROAD, HOLDEN	98	179	183	0.082	0.08	0.079	0.076	0	47
23-031-0039	1	0635	York	York	AGAMENTICUS ROAD	73	134	183	0.082	0.081	0.076	0.074	0	47
23-031-2002	1	0635	Kennebunkport	York	OCEAN AVE/PARSONS AVE	79	145	183	0.084	0.076	0.075	0.071	0	47
23-031-3002	1	0762	Kittery	York	FRISBEE SCHOOL	98	180	183	0.077	0.077	0.072	0.072	0	47

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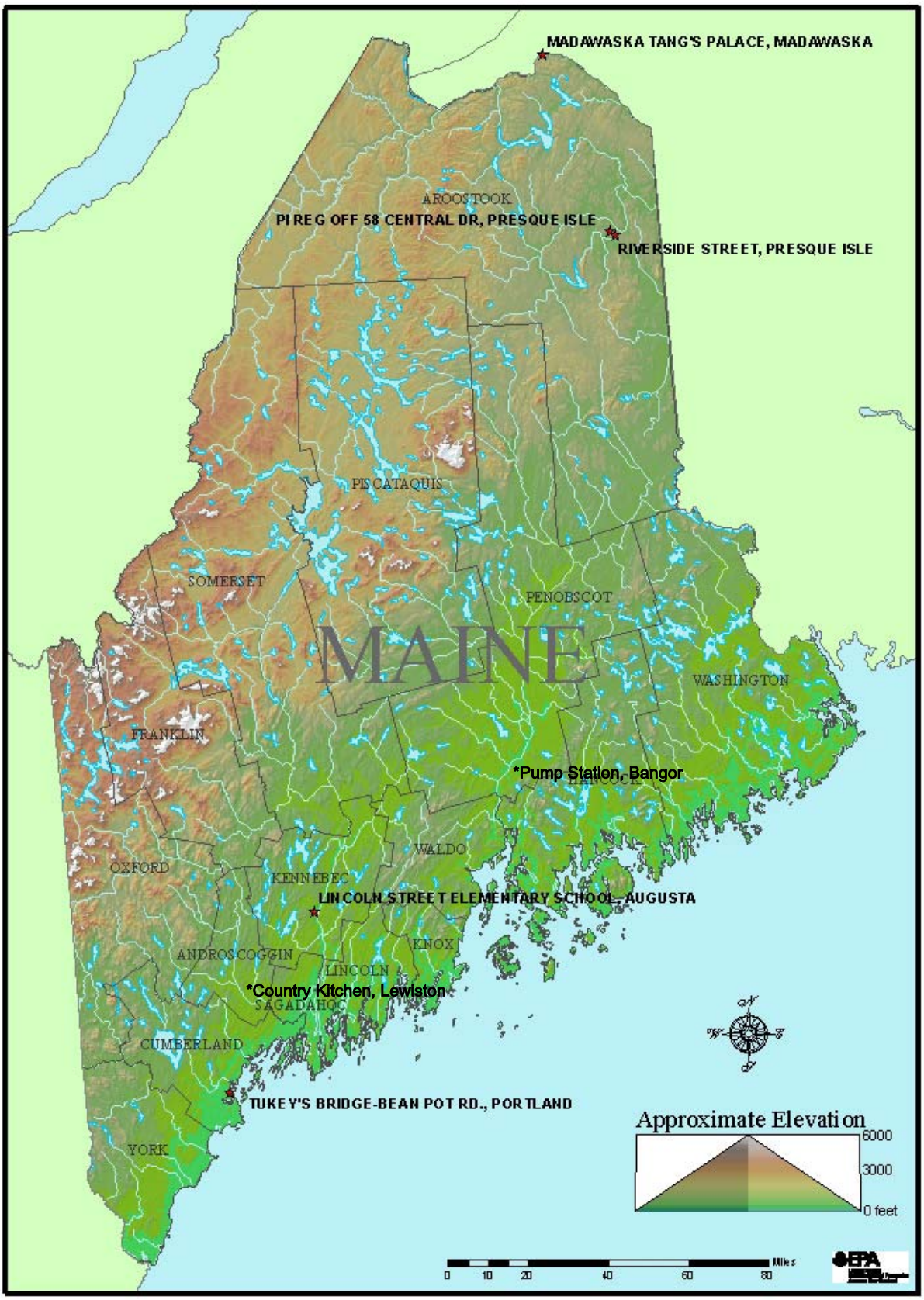
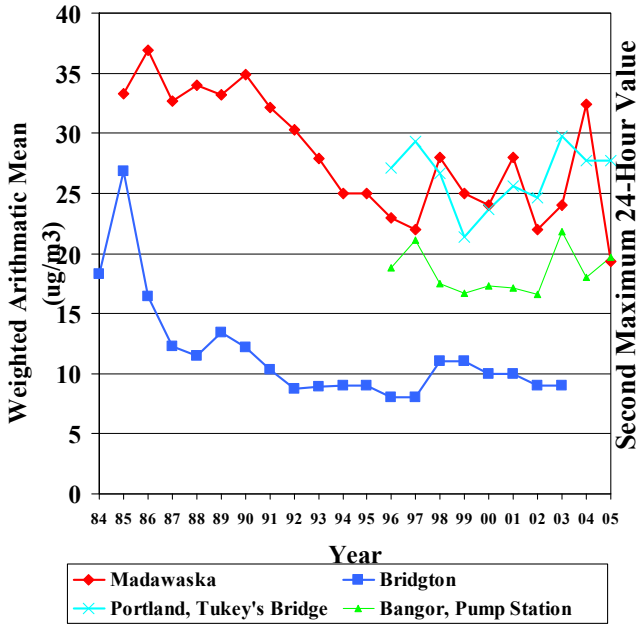
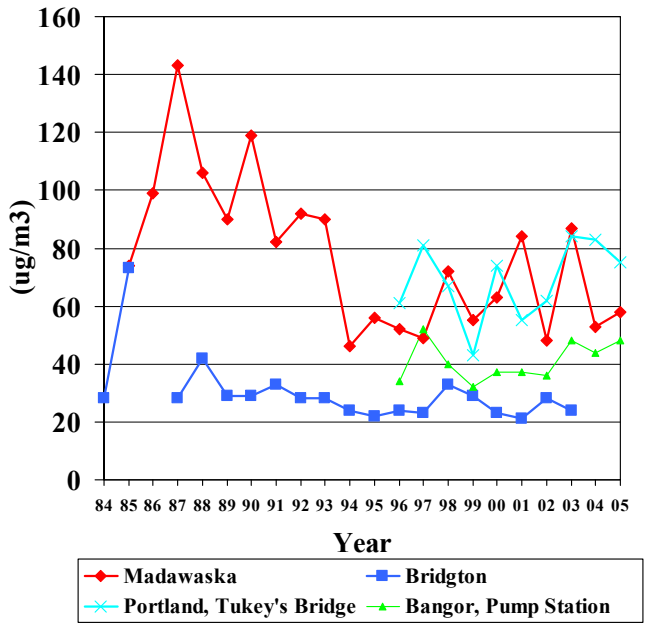
Maine Sites 2005 - Particulate Matter < 10 Microns



Maine Particulate Matter < 10 Microns (PM10) Data

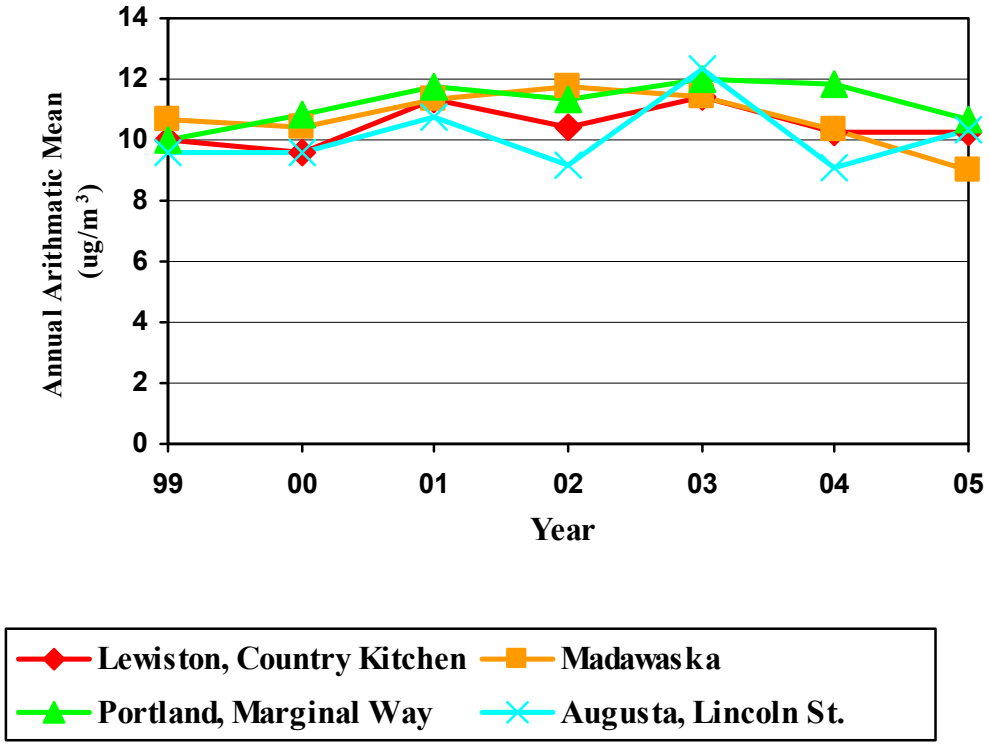




Maine																		
2005 Particulate Matter < 10 Microns																		
ug/m3																		
											2nd	3rd	4th	Days	Est. Days	Wtd.		
		Rep.						Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.		Method
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean		Used
23-001-0011	2	0635	Lewiston	Androscoggin	COUNTRY KITCHEN	52	61	52	85	71	48	45	37	0	0	20.8	*	126
23-003-0013	3	0635	Madawaska	Aroostook	TANGS PALACE	113	122	112	92	78	58	52	51	0	0	19.3		127
23-003-1008	3	0635	Presque Isle	Aroostook	PI REG OFF 58	57	61	56	92	31	29	27	25	0	0	11.4		127
23-003-1011	2	0635	Presque Isle	Aroostook	RIVERSIDE STRERT	8721	365	363	99	57	51	51	48	0	0	14.5		079
23-005-0015	2	0635	Portland	Cumberland	TUKEY'S BRIDGE	55	61	55	90	89	75	64	60	0	0	27.7		126
23-005-0015	3	0635	Portland	Cumberland	TUKEY'S BRIDGE	54	61	54	89	98	81	76	67	0	0	28.9	*	126
23-011-0016	2	0635	Augusta	Kennebec	LINCOLN STREET	60	61	60	98	55	35	33	30	0	0	15.6		126
23-019-0002	3	0635	Bangor	Penobscot	PUMP STATION	56	61	56	92	58	48	48	43	0	0	19.7		126
*Indicates that the mean does not satisfy summary criteria																		

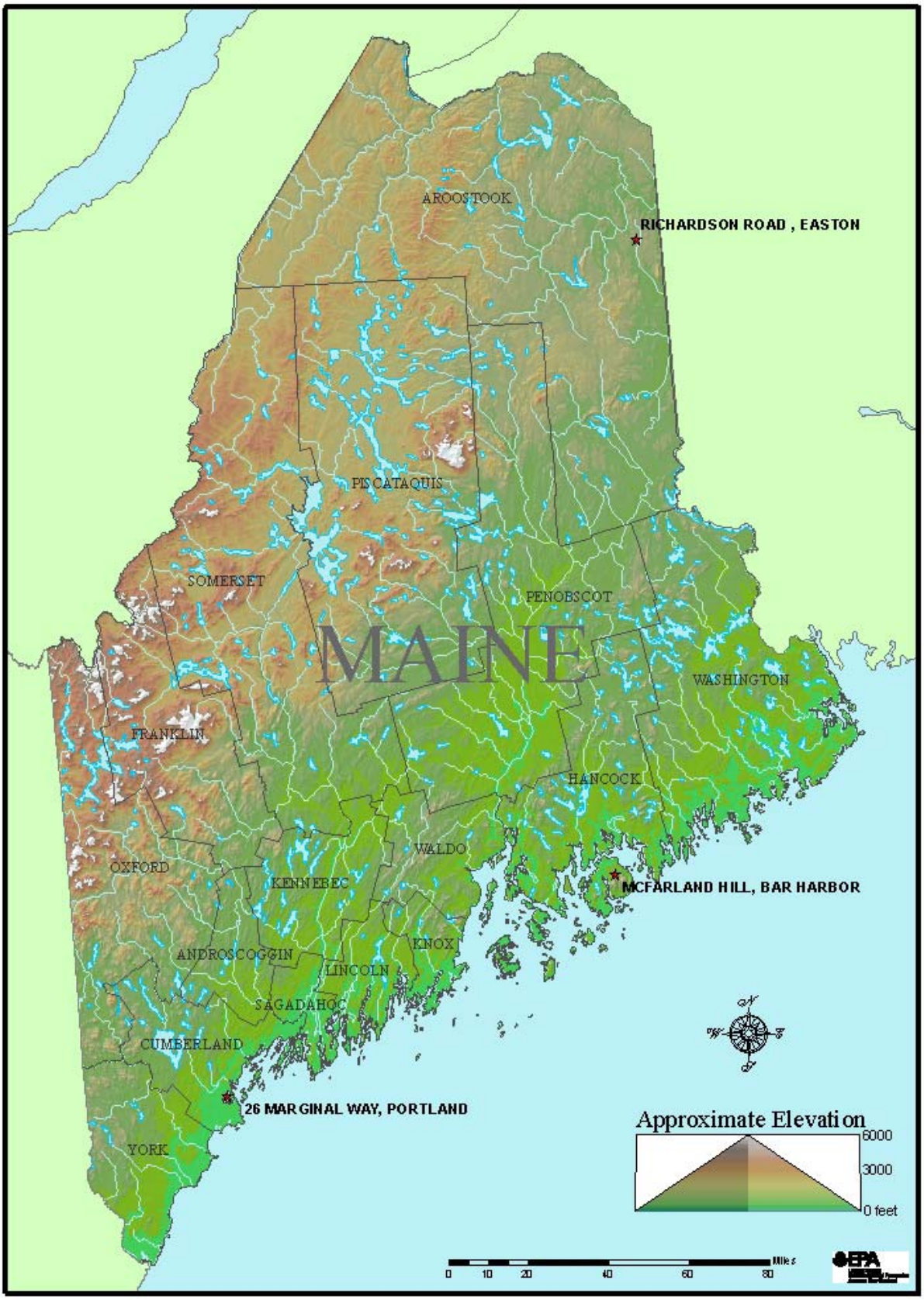
Maine Sites 2005 - Particulate Matter < 2.5 Microns

Maine Particulate Matter < 2.5 Microns (PM2.5) Data

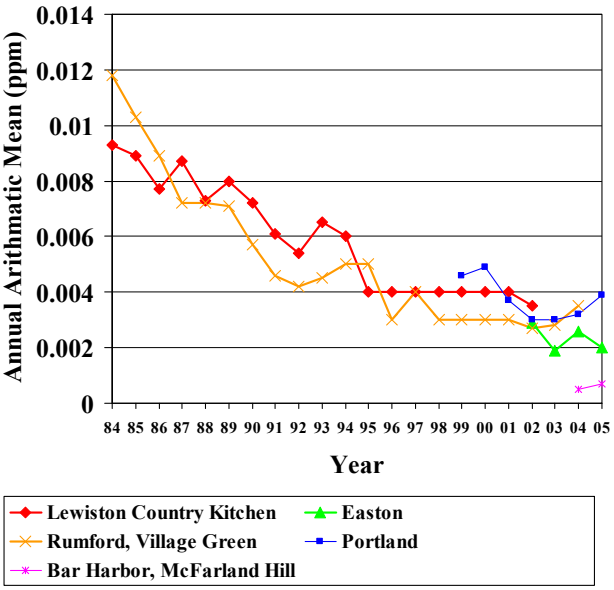


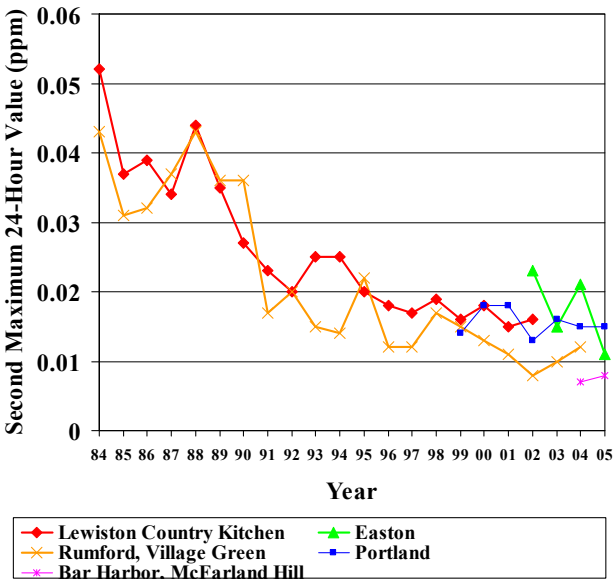
Maine														
2005 PM 2.5														
All Values are in UG/CU Meters Local Conditions														
	P								2nd	3rd	4th	98th	Wtd.	
	O	Rept.					#	Highest	Highest	Highest	Highest	Percentile	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Value	Value	Value	Mean	
23-001-0011	1	0635	Lewiston	Androscoggin	COUNTRY KITCHEN	118	113	30.8	27.4	26.8	25.7	26.8	10.22	
23-001-0011	3	0635	Lewiston	Androscoggin	COUNTRY KITCHEN	701	8225	25.1	24.8	24.7	23.4	18.6	6.34	
23-003-0013	1	0635	Madawaska	Aroostook	TANGS PALACE	118	111	23.7	22	21.9	20.5	21.9	9.04	
23-003-1011	1	0635	Presque Isle	Aroostook	RIVERSIDE STREET	118	118	24.7	23.7	22.5	21.2	22.5	7.94	
23-005-0015	1	0635	Portland	Cumberland	TUKEY'S BRIDGE	118	52	28.5	26.5	24.9	21.5	26.5	10.66	*
23-005-0027	1	0635	Portland	Cumberland	26 MARGINAL WAY	118	109	28.3	27.8	25.6	24.3	25.6	10.65	*
23-005-0027	2	0635	Portland	Cumberland	26 MARGINAL WAY	118	59	29.4	29.1	28.8	26.9	29.1	11.88	
23-005-0027	3	0635	Portland	Cumberland	26 MARGINAL WAY	701	8734	35.2	33.4	27.8	26.6	23.1	7.57	
23-009-0103	1	0635	Bar Harbor	Hancock	MCFARLAND HILL	118	89	25.6	24.2	18.7	17.3	18.7	5.92	*
23-009-0103	3	0635	Bar Harbor	Hancock	MCFARLAND HILL	701	8415	28.8	26.8	24.1	22.5	18.9	4.82	
23-011-0016	1	0635	Augusta	Kennebec	LINCOLN STREET	117	59	28.7	28.5	25	23.4	28.5	10.32	
23-011-0016	2	0635	Augusta	Kennebec	LINCOLN STREET	117	59	27.3	25.7	23.7	22.1	25.7	9.72	
23-011-2002	1	0635	Waterville	Kennebec	COREY'S MUSIC	117	12	27.6	22.2	19.7	17.1	27.6	14.18	*
23-011-2006	1	0635	Waterville	Kennebec	25 STURTEVANT	118	110	31.6	27.2	26.1	25.1	26.1	10.05	*
23-017-2011	1	0635	Rumford	Oxford	RUMFORD AVENUE	117	59	34.7	25.5	25.3	22.9	25.5	9.58	
23-019-0002	1	0635	Bangor	Penobscot	PUMP STATION	118	106	37.3	30.2	20.4	20.3	20.4	9.38	*
23-019-0002	3	0635	Bangor	Penobscot	PUMP STATION	701	8539	35.3	30.6	25	24.5	20.8	6.42	
*Indicates that the mean does not meet summary criteria														

Maine Sites 2005 - Sulfur Dioxide



Maine Sulfur Dioxide Data





Maine																	
2005 Sulfur Dioxide																	
All Values are in Units of Parts Per Million																	
								24-	24-		3-hour	3-hour		1-hour	1-hour		
	P							hour	hour			2nd			2nd		
	O	Org				#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method	
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used	
23-003-1018	1	0635	Easton	Aroostook	RICHARDSON ROAD	2858	0.011	0.01	0	0.024	0.023	0	0.035	0.033	0.002	060	
23-005-0027	1	0635	Portland	Cumberland	26 MARGINAL WAY	8531	0.022	0.015	0	0.05	0.045	0	0.066	0.062	0.0039	060	
23-009-0103	1	0635	Bar Harbor	Hancock	MCFARLAND HILL	8052	0.007	0.006	0	0.011	0.008	0	0.012	0.012	0.0007	060	

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Ambient Air Quality Summary – Massachusetts

Massachusetts has reduced their carbon monoxide (CO) monitoring network from nine sites in 2002 to five sites in 2005 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 2005.

In 1996, Massachusetts discontinued monitoring of lead (Pb) at all but one site in Boston because the statewide levels were typically well below the NAAQS and at or near the minimum detection level for the measurement method. The 2005 maximum quarterly average concentration of lead at the Kenmore Square (Boston) site (0.02 ug/m3) was well below (~1%) the NAAQS for lead.

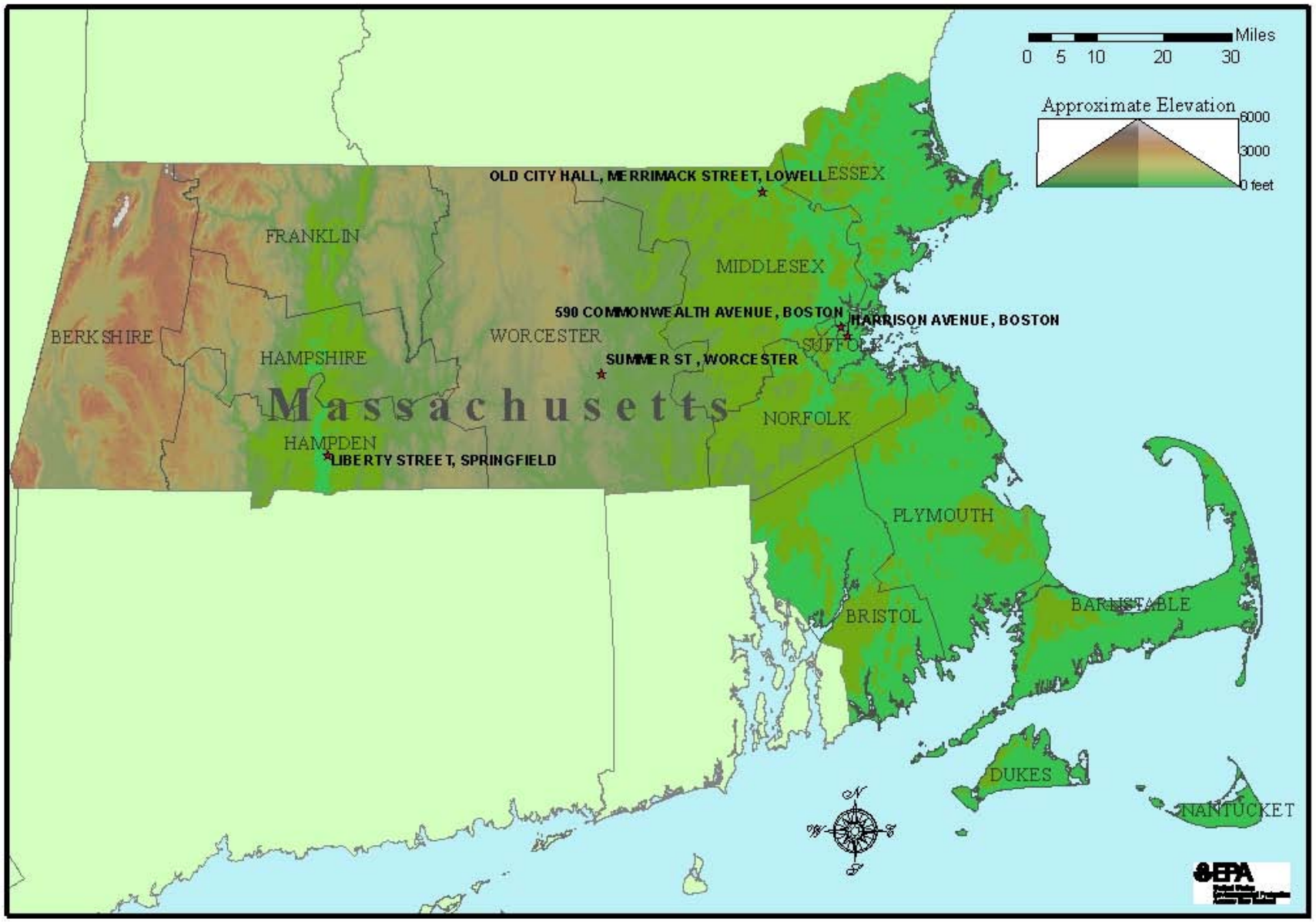
Nitrogen dioxide (NO2) measurements were made at 13 monitoring sites in Massachusetts during 2005. The highest one-hour concentrations of NO2 were recorded at monitors in Boston, Springfield, Worcester and Chicopee. The lowest one-hour concentrations were measured at the Truro site. The highest annual mean NO2 concentrations were recorded at Kenmore Square (23 ppb or 23% of the NAAQS) and the lowest concentrations were at Truro (3 ppb), Newbury (4 ppb) and the Quabbin Summit (5 ppb). A generally downward trend in NO2 concentration can be detected in the 20-year trend data.

During 2005, only four out fifteen monitoring sites in Massachusetts measured 1-hour ozone levels over 124 ppb. The highest 1-hour concentration of ozone was recorded at the Chicopee (128 ppb). Only one site recorded levels above 125 ppb in 2004. In 2005, nine of the sixteen ozone monitoring sites recorded a fourth highest 8-hour average ozone concentration above the level of the 8-hour NAAQS. In 2004, none of the fifteen operating monitoring sites recorded a fourth highest 8-hour average above 85 ppb. Generally, years that have many days with temperatures above 90ºF as in 1988, 1993 and 2002 have higher ozone levels while years that are cool and/or wet as in 2003, 2004 and 2005 tend to have lower ozone levels.

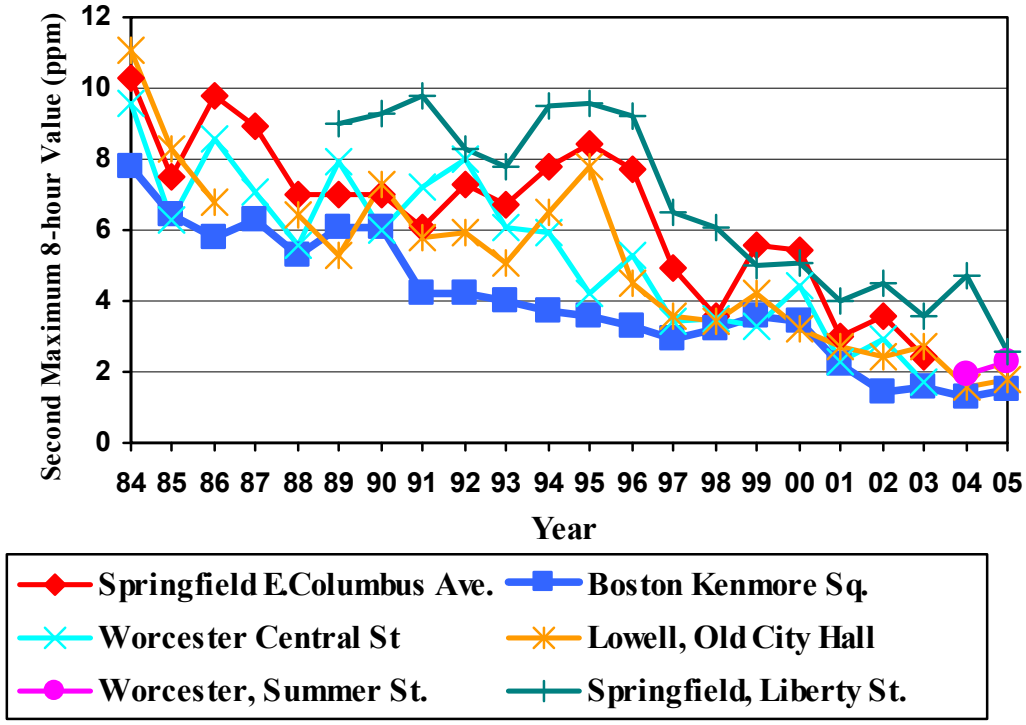
In 2005, Massachusetts monitored for PM10 using the traditional Selective Size Inlet High Volume method at only the Roxbury site, while the modified Federal Reference Method for PM2.5 (without the particle size separator) was deployed at six locations including the Roxbury site. The highest annual average concentration of PM10 was recorded at the Kenmore Square monitoring site in Boston (28.9 ug/m3). The highest 24-hour PM10 concentration was recorded at the Roxbury site (76 ug/m3). Over the past 20 years PM10 levels have shown significant year to year variability especially for the twenty four hour sampling period. However overall PM10 levels at each site do not appear to trend up or down during the time period. Since 1999, 26 PM2.5 monitoring sites have been deployed in Massachusetts. Nineteen PM2.5 sites were operated in 2005. The highest PM2.5 concentrations have typically been measured in the urban areas of Boston and Springfield. In 2005, the Kenmore Square, Charlestown and North Street sites measured annual average PM2.5 concentrations of 12.87 ug/m3, 11.78 ug/m3 and 13.71 ug/m3, respectively. These values are similar to 2004, where the Kenmore Square, Charlestown and North Street sites measured annual average PM2.5 concentrations of 13.4 ug/m3, 13.9 ug/m3 and 14.4 ug/m3, respectively. No apparent trend is evident for PM2.5 levels since 1999.

Ten sulfur dioxide (SO2) monitoring sites were operated in Massachusetts during 2005. No exceedance or violation of the annual or 24-hour (primary) or the 3-hour (secondary) NAAQS for SO2 was recorded in 2005. The highest 3-hour and the highest 24-hour SO2 concentrations were recorded at the East First Street site in Boston at 89 ppb and 55 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 Sites - 2005 - Carbon Monoxide

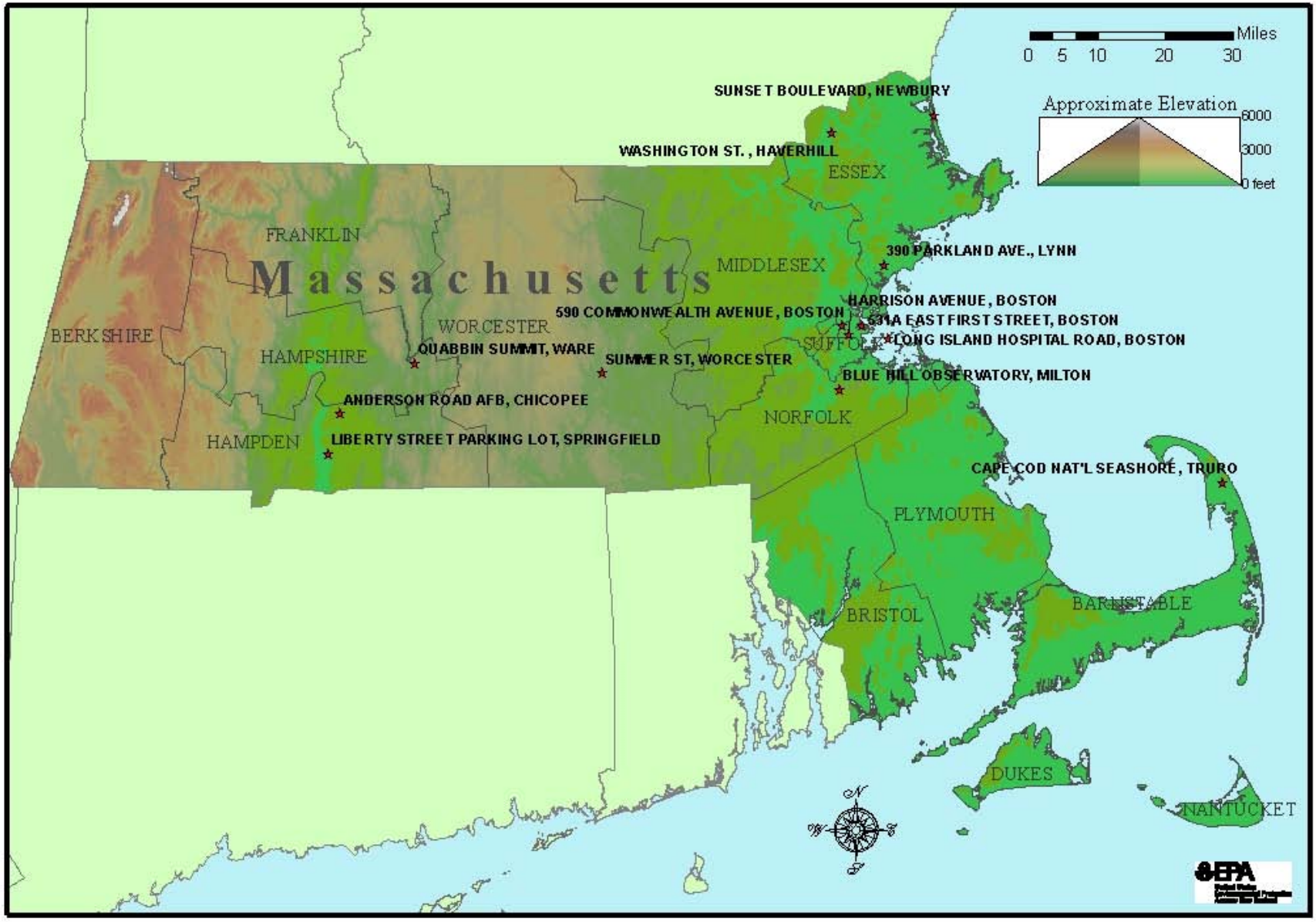


Massachusetts Carbon Monoxide Data

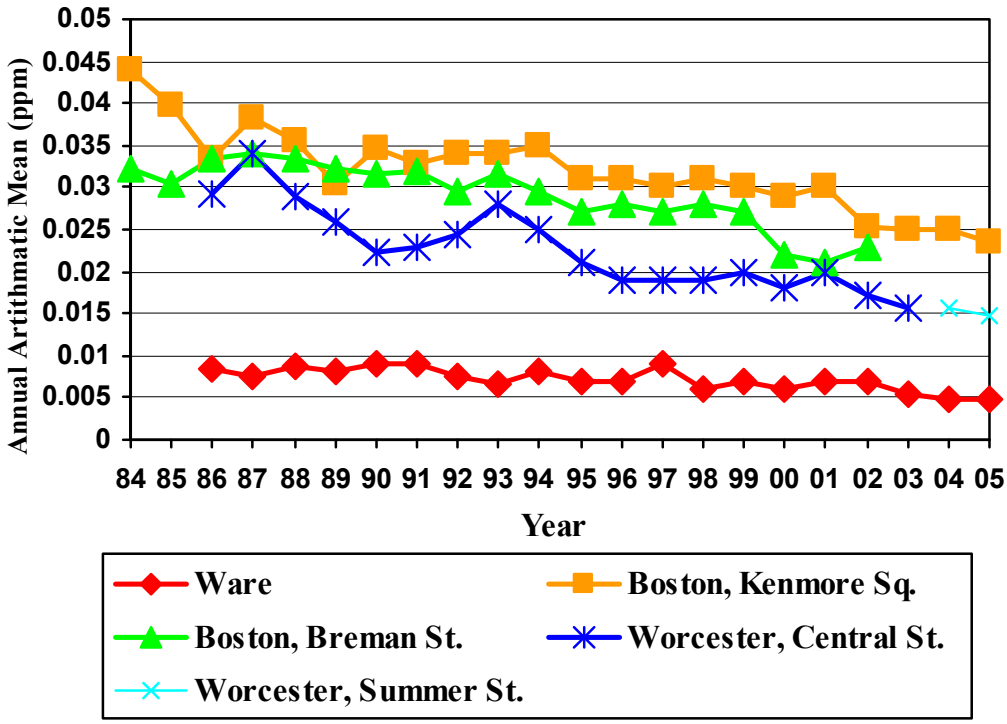


Massachusetts													
2005 Carbon Monoxide													
All Values are in Units of Parts Per Million													
							1-hour	1-hour		8-hour	8-hour		
	P							2nd			2nd		
	O	Org				#	Highest	Highest		Highest	Highest		Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
25-013-0016	1	0660	Springfield	Hampden	LIBERTY STREET	8025	3.6	3.3	0	2.9	2.6	0	93
25-017-0007	1	0660	Lowell	Middlesex	OLD CITY HALL	8207	2.8	2.6	0	2.1	1.8	0	93
25-025-0002	1	0660	Boston	Suffolk	KENMORE SQUARE	8047	2.4	2	0	1.6	1.5	0	93
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	8006	4.3	3.6	0	2.4	2.3	0	93
25-027-0023	1	0660	Worcester	Worcester	SUMMER ST	8188	4	3.3	0	2.7	2.3	0	67

Massachusetts Sites - 2005 - Nitrogen Dioxide

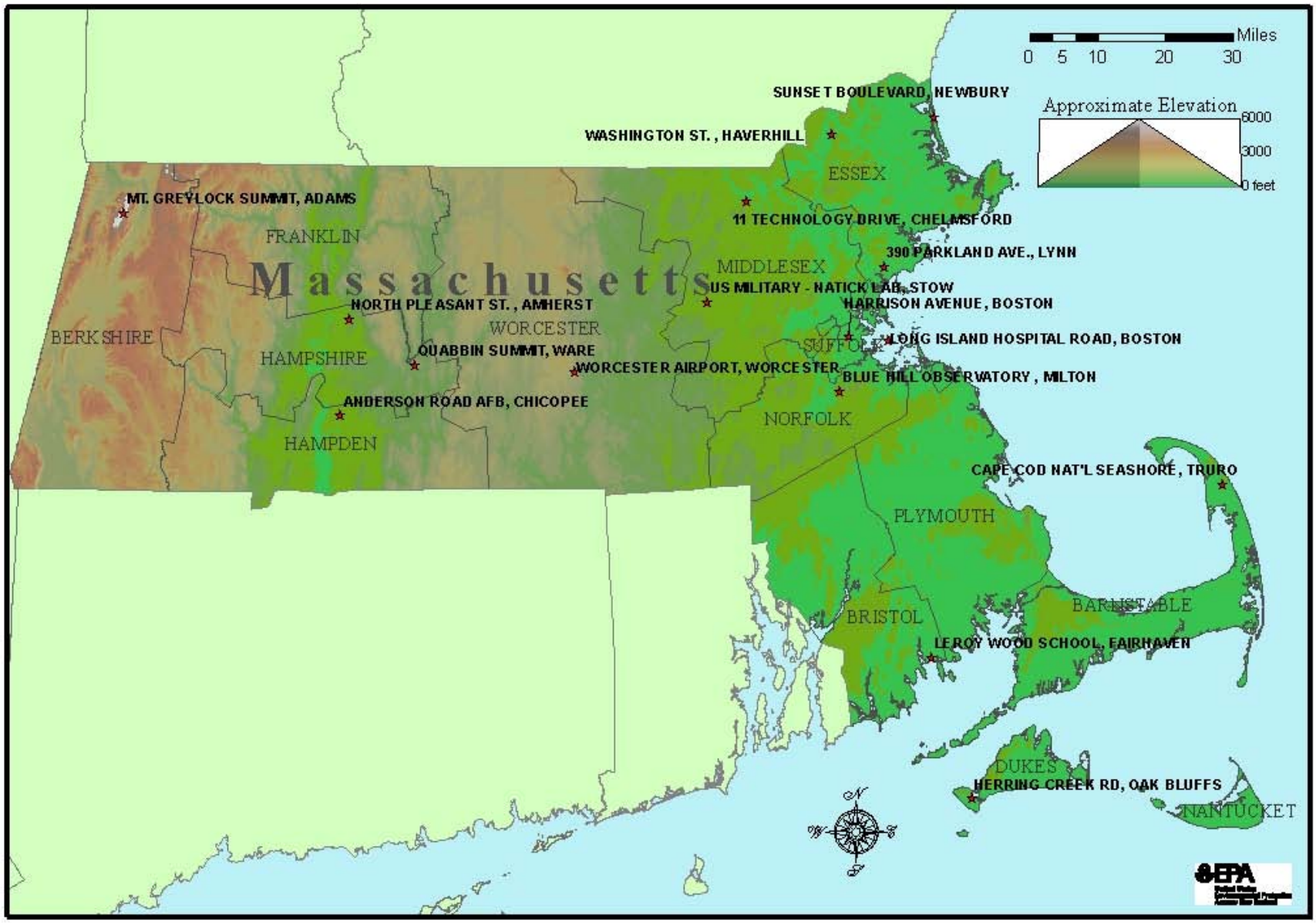


Massachusetts Nitrogen Dioxide Data

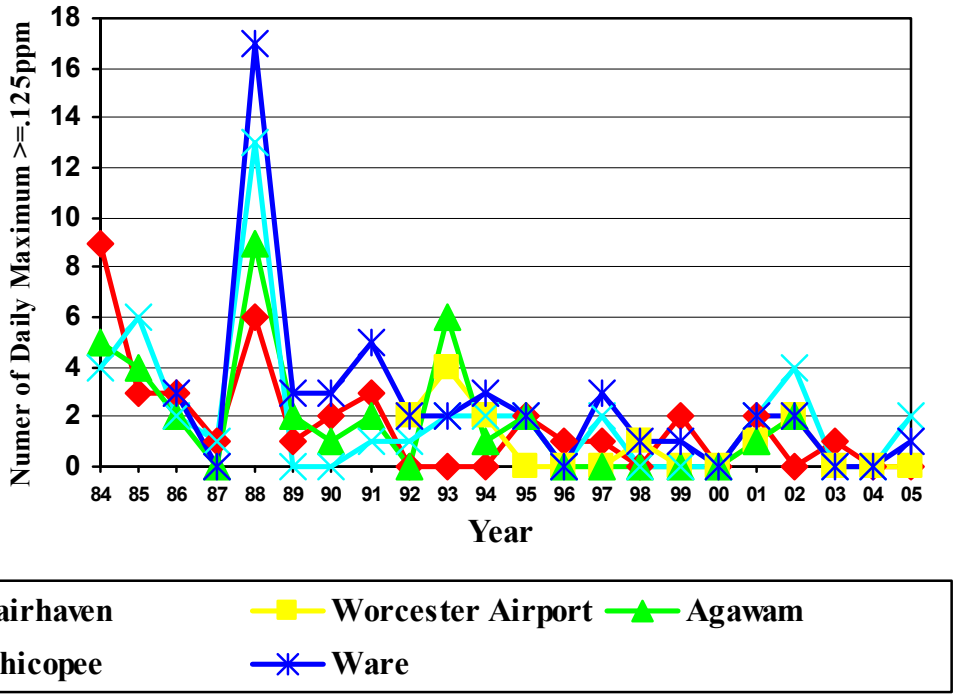


Massachusetts										
2005 Nitrogen Dioxide										
All Values are in Units of Parts Per Million										
								1-hour	1-hour	
	P								2nd	Annual
	O	Rept.					#	Highest	Highest	Arith.
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Mean
25-001-0002	1	0660	Truro	Barnstable	FOX BOTTOM AREA	099	3944	0.009	0.009	0.0027
25-009-2006	1	0660	Lynn	Essex	390 PARKLAND AVE	099	8301	0.053	0.053	0.0099
25-009-4004	1	0660	Newbury	Essex	SUNSET BOULEVAR	099	4035	0.026	0.026	0.0036
25-009-5005	1	0660	Haverhill	Essex	WASHINGTON ST.	099	8014	0.051	0.051	0.0096
25-013-0008	1	0660	Chicopee	Hampden	ANDERSON ROAD	099	7714	0.072	0.05	0.0095
25-013-0016	1	0660	Springfield	Hampden	LIBERTY STREET	099	8120	0.054	0.053	0.0171
25-015-4002	1	0660	Ware	Hampshire	QUABBIN SUMMIT	099	8229	0.059	0.059	0.0049
25-021-3003	1	0660	Milton	Norfolk	MILTON MA,BLUE	099	2937	0.025	0.023	0.0049
25-025-0002	1	0660	Boston	Suffolk	KENMORE SQUARE	099	8337	0.072	0.072	0.0234
25-025-0040	1	0660	Boston	Suffolk	531A EAST FIRST	000	8168	0.113	0.089	0.018
25-025-0041	1	0660	Boston	Suffolk	LONG ISLAND HOPITAL	099	4091	0.08	0.045	0.0073
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	074	8343	0.061	0.056	0.0187
25-027-0023	1	0660	Worcester	Worcester	SUMMER ST	074	8332	0.07	0.066	0.0148

Massachusetts Sites - 2005 - Ozone

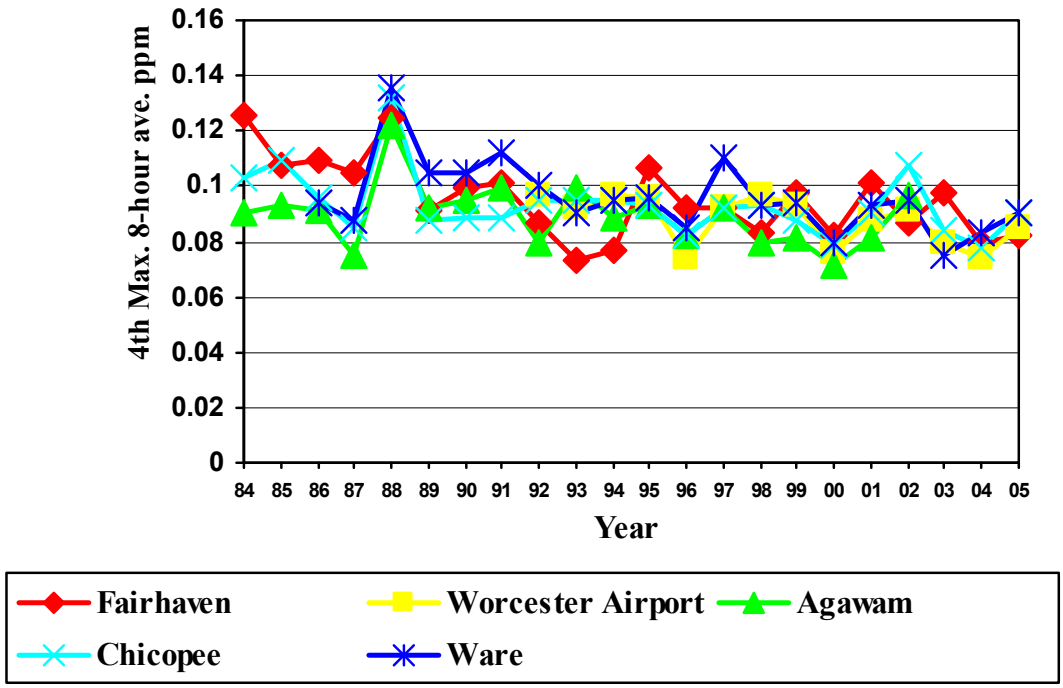


Massachusetts Ozone 1-Hour Data



Massachusetts															
2005 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days	Method
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125	used
25-001-0002	1	0660	Truro	Barnstable	FOX BOTTOM AREA	180	183	0.103	0.102	0.096	0.095	0	0	2	87
25-003-4002	1	0660	Adams	Berkshire	MT. GREYLOCK SUMMIT	156	183	0.127	0.097	0.096	0.096	1	1.2	1	87
25-005-1002	1	0660	Fairhaven	Bristol	LEROY WOOD SCHOOL	175	183	0.100	0.095	0.093	0.090	0	0	3	87
25-007-0001	1	0030	Oak Bluffs	Dukes	HERRING CREEK RD	167	183	0.122	0.113	0.102	0.097	0	0	4	87
25-009-2006	1	0660	Lynn	Essex	390 PARKLAND AVE	180	183	0.115	0.115	0.107	0.105	0	0	1	87
25-009-4004	1	0660	Newbury	Essex	SUNSET BOULEVARD	183	183	0.098	0.096	0.096	0.094	0	0	0	87
25-009-5005	1	0660	Haverhill	Essex	WASHINGTON ST	183	183	0.096	0.091	0.089	0.089	0	0	0	87
25-013-0008	1	0660	Chicopee	Hampden	ANDERSON ROAD	178	183	0.128	0.127	0.118	0.115	2	2	1	87
25-015-0103	1	0660	Amherst	Hampshire	NORTH PLEASANT ST	177	183	0.110	0.092	0.092	0.090	0	0	1	87
25-015-4002	1	0660	Ware	Hampshire	QUABBIN SUMMIT	176	183	0.127	0.123	0.112	0.110	1	1	1	87
25-017-0009	1	1096	Chelmsford	Middlesex	11 TECHNOLOGY DRIVE	177	183	0.117	0.097	0.091	0.090	0	0	5	47
25-017-1102	1	0660	Stow	Middlesex	US MILITARY	182	183	0.111	0.108	0.105	0.090	0	0	1	87
25-021-3003	1	0660	Milton	Norfolk	BLUE HILLS	180	183	0.127	0.107	0.099	0.097	1	1	3	87
25-025-0041	1	0660	Boston	Suffolk	LONG ISLAND HOSPITAL	181	183	0.118	0.110	0.106	0.102	0	0	2	87
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	182	183	0.110	0.098	0.088	0.086	0	0	0	87
25-027-0015	1	0660	Worcester	Worcester	WORCESTER AIRPORT	180	183	0.113	0.106	0.103	0.095	0	0	0	87

Massachusetts Ozone 8-Hour Data



Massachusetts														
2005 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 ≥	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	Reported
25-001-0002	1	0660	Truro	Barnstable	FOX BOTTOM AREA	98	179	183	0.095	0.094	0.088	0.088	7	87
25-003-4002	1	0660	Adams	Berkshire	MT. GREYLOCK SUMMIT	85	156	183	0.091	0.089	0.087	0.087	6	87
25-005-1002	1	0660	Fairhaven	Bristol	LEROY WOOD SCHOOL	95	173	183	0.086	0.084	0.084	0.082	1	87
25-007-0001	1	0030	Oak Bluffs	Dukes	HERRING CREEK RD	87	160	183	0.106	0.104	0.088	0.087	4	87
25-009-2006	1	0660	Lynn	Essex	390 PARKLAND AVE	98	180	183	0.099	0.096	0.094	0.088	6	87
25-009-4004	1	0660	Newbury	Essex	SUNSET BOULEVARD	99	182	183	0.083	0.082	0.079	0.078	0	87
25-009-5005	1	0660	Haverhill	Essex	WASHINGTON ST.	99	181	183	0.084	0.079	0.079	0.078	0	87
25-013-0008	1	0660	Chicopee	Hampden	ANDERSON ROAD	96	176	183	0.104	0.098	0.095	0.09	8	87
25-015-0103	1	0660	Amherst	Hampshire	NORTH PLEASANT	96	175	183	0.092	0.079	0.078	0.078	1	87
25-015-4002	1	0660	Ware	Hampshire	QUABBIN SUMMIT	93	171	183	0.101	0.096	0.091	0.09	8	87
25-017-0009	1	1096	Chelmsford	Middlesex	11 TECHNOLOGY DRIVE	97	177	183	0.095	0.085	0.08	0.079	2	47
25-017-1102	1	0660	Stow	Middlesex	US MILITARY RESERVE	98	180	183	0.091	0.087	0.084	0.083	2	87
25-021-3003	1	0660	Milton	Norfolk	MILTON MA,BLUE HILLS	97	178	183	0.103	0.091	0.09	0.089	4	87
25-025-0041	1	0660	Boston	Suffolk	LONG ISLAND HOSPITAL	98	180	183	0.095	0.091	0.089	0.086	5	87
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	98	180	183	0.088	0.076	0.073	0.066	1	87
25-027-0015	1	0660	Worcester	Worcester	WORCESTER AIRPORT	98	179	183	0.092	0.09	0.087	0.085	5	87

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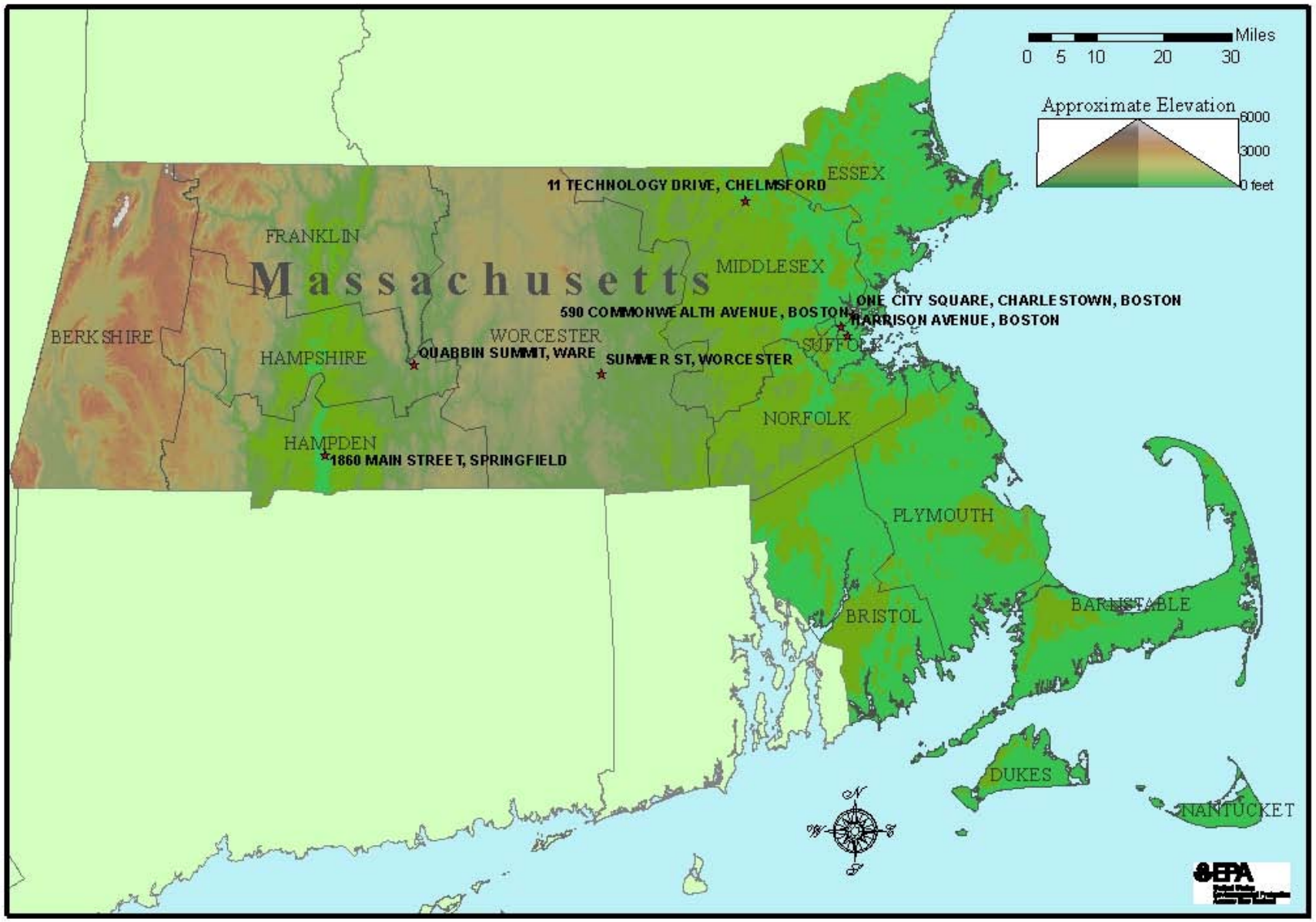
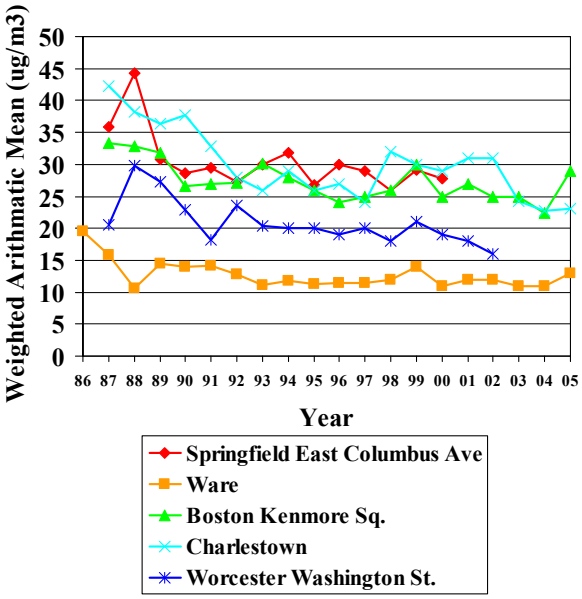
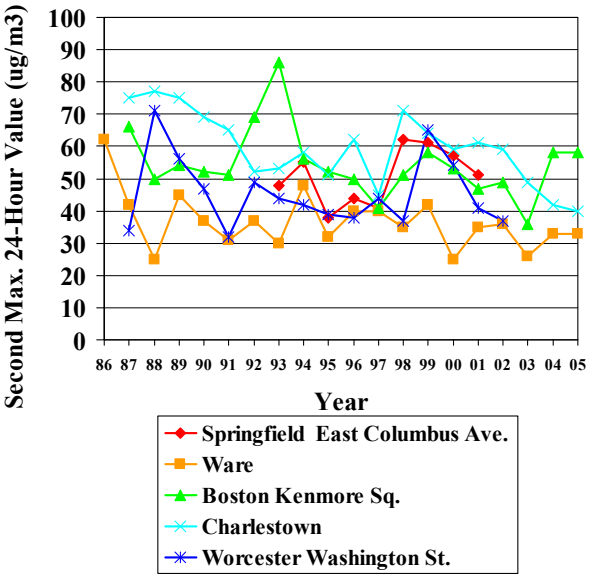
Massachusetts Sites - 2005 - Particulate Matter < 10 Microns



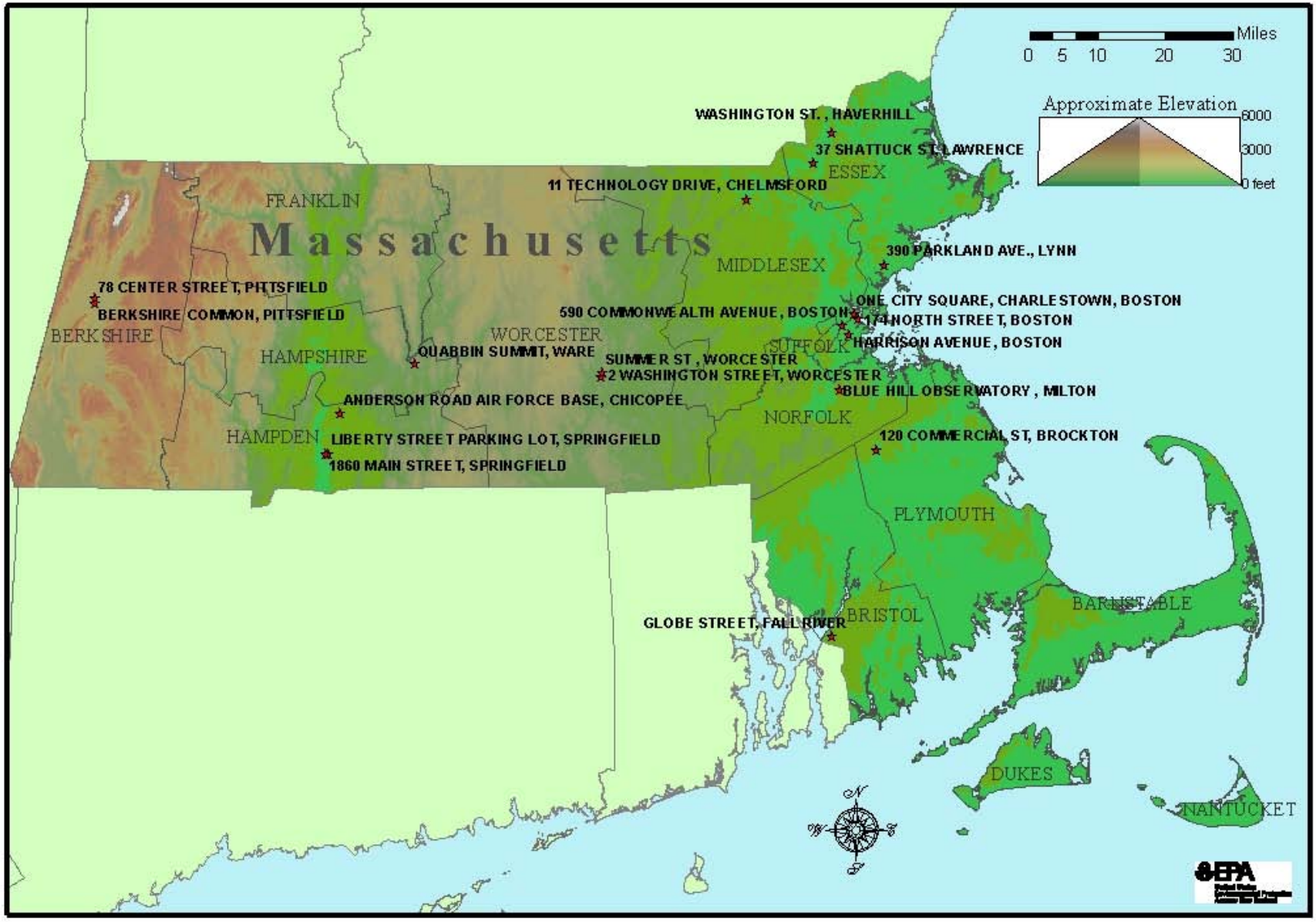
Massachusetts Particulate Matter < 10 Microns (PM10) Data



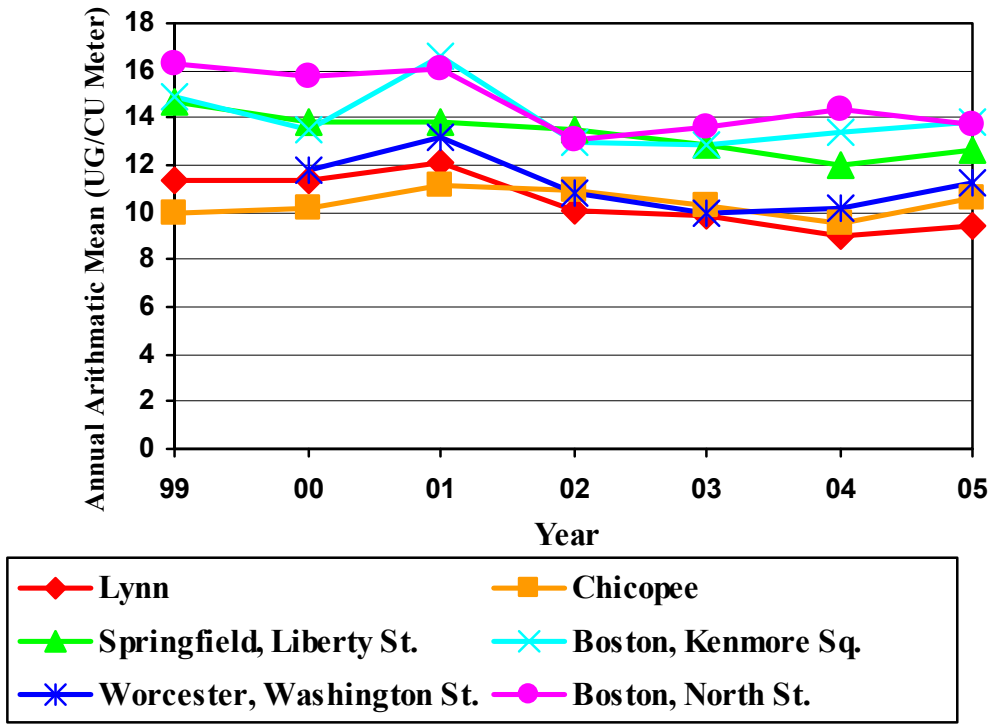


Massachusetts																	
2005 Particulate Matter < 10 Microns																	
ug/m3																	
												2nd	3rd	4th	Days	Est. Days	Wtd.
		Rep.							Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean	
25-013-2009	4	0660	Springfield	Hampden	1860 MAIN STREET	48	61	48	79	61	53	47	40	0	0	23.6	*
25-015-4002	4	0660	Ware (census	Hampshire	QUABBIN SUMMIT	54	61	54	89	47	33	31	31	0	0	12.9	*
25-017-0009	1	0660	Chelmsford	Middlesex	11 TECHNOLOGY DRIVE	42	36	32	89	37	34	31	31	0	0	17.3	*
25-025-0002	4	0660	Boston	Suffolk	KENMORE SQUARE	48	61	48	79	63	58	53	51	0	0	28.9	*
25-025-0027	4	0660	Boston	Suffolk	ONE CITY SQUARE	51	61	51	84	48	40	39	39	0	0	23	*
25-025-0027	5	0660	Boston	Suffolk	ONE CITY SQUARE	15	17	15	88	40	31	29	28	0	0	22.3	*
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	57	61	57	93	76	38	36	35	0	0	20.1	
25-025-0042	2	0660	Boston	Suffolk	HARRISON AVENUE	54	61	54	89	42	37	34	34	0	0	18.6	
25-025-0042	4	0660	Boston	Suffolk	HARRISON AVENUE	55	61	55	90	40	39	39	37	0	0	20.5	*
25-025-0042	5	0660	Boston	Suffolk	HARRISON AVENUE	29	36	29	81	41	40	39	36	0	0	21.4	*
25-027-0023	4	0660	Worcester	Worcester	SUMMER ST	53	61	52	85	58	53	50	50	0	0	25.6	*
*Indicates that the mean does not satisfy summary criteria																	

Massachusetts Sites - 2005 - Particulate Matter < 2.5 Microns

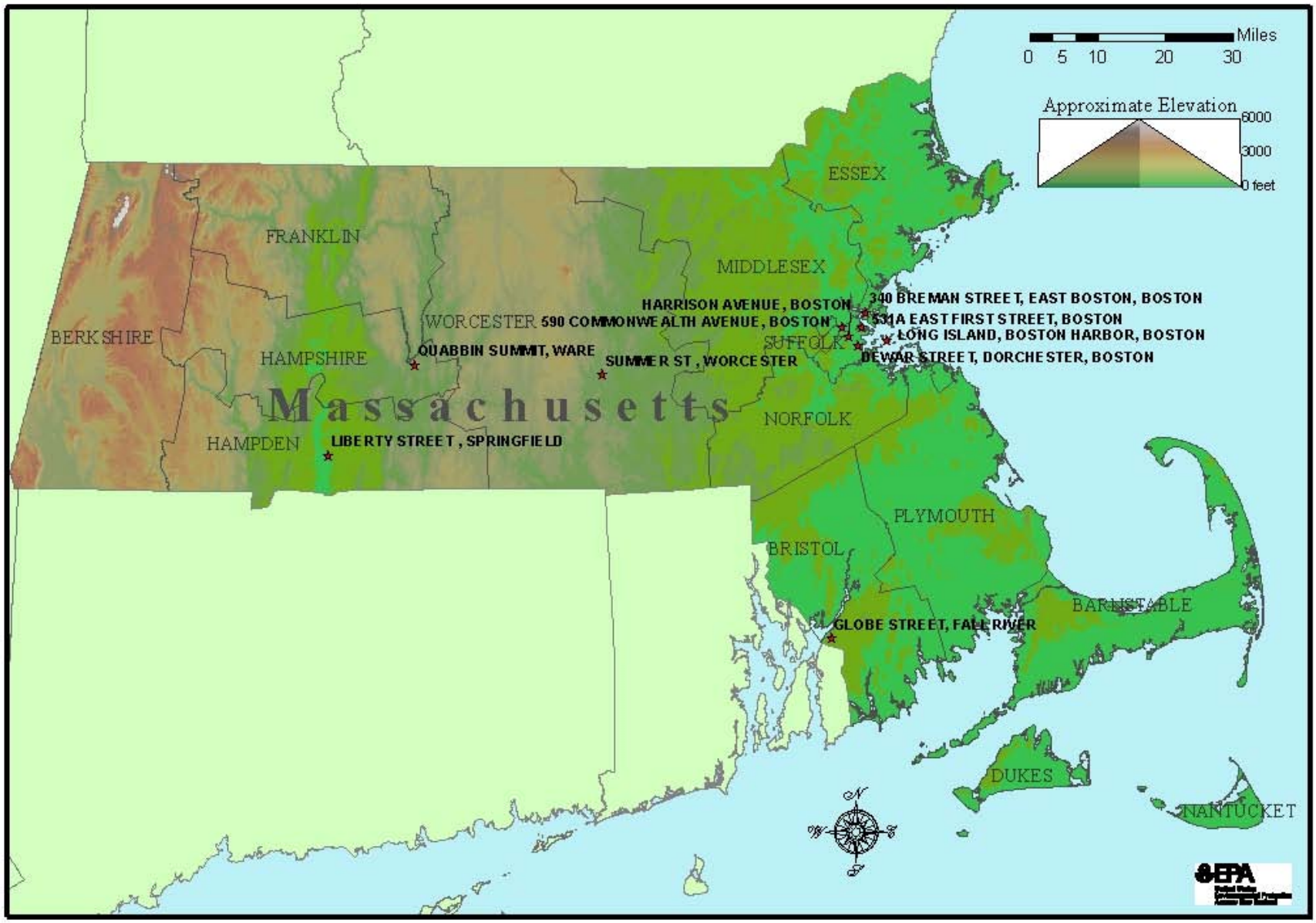


Massachusetts Particulate Matter < 2.5 Microns (PM2.5) Data

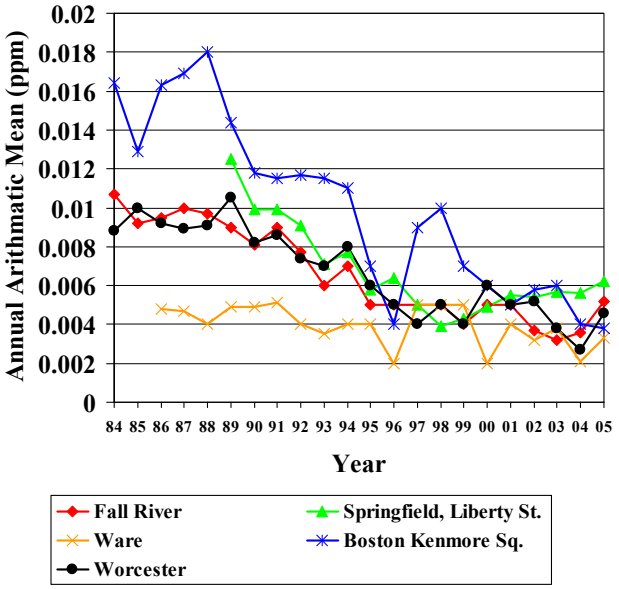


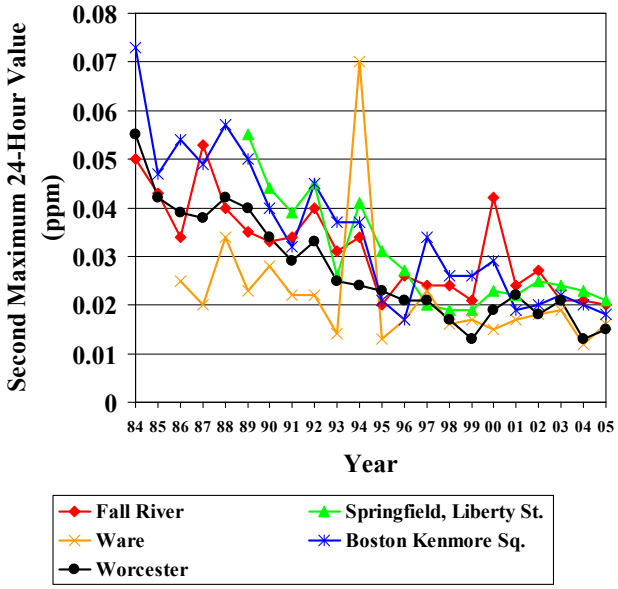
Massachusetts														
2005 PM 2.5														
All Values are in UG/CU Meters Local Conditions														
	P								2nd	3rd	4th	98th	Wtd.	
	O	Rept.					#	Highest	Highest	Highest	Highest	Percentile	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Value	Value	Value	Mean	
25-003-0006	3	0660	Pittsfield	Berkshire	BERKSHIRE COMM	731	395	25	24.8	24.1	17.7	25	11.92	*
25-003-5001	1	0660	Pittsfield	Berkshire	78 CENTER STREET	120	113	39.7	36.9	33.5	32.7	33.5	11.84	
25-005-1004	1	0660	Fall River	Bristol	GLOBE STREET	000	108	30.3	25.7	21.9	21.9	21.9	10.05	*
25-005-1004	3	0660	Fall River	Bristol	GLOBE STREET	731	8482	43.5	37.6	35.3	34.8	29.5	10.21	
25-009-2006	1	0660	Lynn	Essex	390 PARKLAND	000	118	32.6	30.5	27.1	25.7	27.1	9.48	
25-009-2006	3	0660	Lynn	Essex	390 PARKLAND	731	1893	23	20.6	19.8	17.6	20.6	6.08	*
25-009-5005	1	0660	Haverhill	Essex	WASHINGTON ST	000	118	35	27.7	27.3	24.7	27.3	9.44	
25-009-5005	3	0660	Haverhill	Essex	WASHINGTON ST	731	8630	39.1	37.2	32.5	32.5	26.1	8.66	
25-009-6001	1	0660	Lawrence	Essex	WALL EXPERIMENT STN.	000	123	36.3	33.6	27.5	24.9	27.5	9.87	
25-009-6001	2	0660	Lawrence	Essex	WALL EXPERIMENT STN.	000	84	34.4	27.5	26	24.1	27.5	10.28	*
25-013-0008	1	0660	Chicopee	Hampden	ANDERSON ROAD	000	112	38.2	28.2	26.1	25.2	26.1	10.63	
25-013-0008	5	1217	Chicopee	Hampden	ANDERSON ROAD	810	95	51.5	45.5	40.3	30	45.5	11.12	*
25-013-0016	1	0660	Springfield	Hampden	LIBERTY STREET	120	119	44	38.1	29.9	28.8	29.9	12.69	
25-013-0016	2	0660	Springfield	Hampden	LIBERTY STREET	120	85	29.5	28.9	28.1	26.4	28.9	11.28	*
25-013-0016	3	0660	Springfield	Hampden	LIBERTY STREET	731	8684	49.9	48.9	46.1	46	36.9	10.86	
25-013-2009	1	0660	Springfield	Hampden	1860 MAIN STREET	000	96	44.2	43.4	29.9	27.9	43.4	12.81	*
25-015-4002	3	0660	Ware	nHampshire	QUABBIN SUMMIT	731	4532	37	37	33.9	27.3	27.3	8.64	*
25-017-0009	1	1096	Chelmsford	Middlesex	11 TECHNOLOGY DRIVE	116	44	27	25.6	22.7	21.8	27	10.46	*
25-017-0009	2	1096	Chelmsford	Middlesex	11 TECHNOLOGY DRIVE	116	43	31.9	24.9	22.7	22.7	31.9	11.72	*
25-021-3003	3	0660	Milton	Norfolk	BLUE HILLS	731	6698	46.6	40.6	37.3	33.5	28.2	7.4	*
25-023-0004	1	0660	Brockton	Plymouth	120 COMMERCIAL ST.	000	118	37	32.6	27.4	27.3	27.4	10.49	
25-023-0004	2	0660	Brockton	Plymouth	120 COMMERCIAL ST.	000	93	37.2	32.5	31.5	26.9	32.5	11.11	*
25-025-0002	1	0660	Boston	Suffolk	KENMORE SQUARE	000	119	32	31.1	28.9	28.6	28.9	12.87	
25-025-0027	1	0660	Boston	Suffolk	ONE CITY SQUARE	000	173	34.1	33.8	31.6	29.5	31.6	11.78	
25-025-0027	2	0660	Boston	Suffolk	ONE CITY SQUARE	120	55	33.4	24.3	23	22.4	33.4	13.38	*
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVENUE	000	114	33.4	32.9	28.6	28.2	28.6	11.33	
25-025-0042	3	0660	Boston	Suffolk	HARRISON AVENUE	731	8446	45.5	40.9	40.8	38.2	32.1	11.67	
25-025-0042	5	1217	Boston	Suffolk	HARRISON AVENUE	810	122	78	33	32.3	30.7	32.3	12.4	
25-025-0042	6	1217	Boston	Suffolk	HARRISON AVENUE	810	61	33.5	28.9	27	24	28.9	11.67	*
25-025-0043	1	0660	Boston	Suffolk	174 NORTH STREET	120	286	42.1	40.6	38.7	38	38.7	13.71	
25-025-0043	2	0660	Boston	Suffolk	174 NORTH STREET	120	178	46.9	38.2	36.1	34.1	38.2	13.33	*
25-025-0043	3	0660	Boston	Suffolk	174 NORTH STREET	731	8634	46.5	40.6	37.8	34.9	32.4	13.38	
25-027-0016	1	0660	Worcester	Worcester	2 WASHINGTON ST.	000	117	35.9	33.5	30.6	27.9	30.6	11.3	
25-027-0023	1	0660	Worcester	Worcester	SUMMER ST	000	119	36.3	35.5	30.7	29.1	30.7	12.22	
25-027-0023	3	0660	Worcester	Worcester	SUMMER ST	731	8664	37.6	35.4	35.3	35.1	32.3	9.82	
*Indicates that the mean does not meet summary criteria														

Massachusetts Sites - 2005 - Sulfur Dioxide



Massachusetts Sulfur Dioxide Data





Massachusetts																
2005 Sulfur Dioxide																
All Values are in Units of Parts Per Million																
							24-	24-		3-hour	3-hour		1-hour	1-hour		
	P						hour	hour			2nd			2nd		
	O	Org				#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used
25-005-1004	1	0660	Fall River	Bristol	GLOBE STREET	8518	0.031	0.02	0	0.073	0.06	0	0.085	0.084	0.0052	100
25-013-0016	1	0660	Springfield	Hampden	LIBERTY STRET	8536	0.024	0.021	0	0.049	0.037	0	0.104	0.057	0.0062	060
25-015-4002	1	0660	Ware	Hampshire	QUABBIN SUMMIT	8408	0.016	0.016	0	0.021	0.021	0	0.024	0.023	0.0033	100
25-025-0002	1	0660	Boston	Suffolk	KENMORE SQUARE	8363	0.019	0.018	0	0.033	0.032	0	0.037	0.037	0.0038	060
25-025-0019	1	0345	Boston	Suffolk	LONG ISLAND HOSPITAL	8699	0.018	0.014	0	0.033	0.031	0	0.034	0.033	0.0042	060
25-025-0020	1	0345	Boston	Suffolk	DEWAR STREET	8726	0.015	0.014	0	0.028	0.026	0	0.029	0.028	0.0039	060
25-025-0021	2	0345	Boston	Suffolk	340 BREMAN STREET	8722	0.023	0.022	0	0.043	0.041	0	0.046	0.045	0.0058	060
25-025-0040	1	0345	Boston	Suffolk	531A EAST FIRST ST.	8379	0.055	0.04	0	0.089	0.085	0	0.105	0.095	0.0056	060
25-025-0042	1	0660	Boston	Suffolk	HARRISON AVE	8336	0.019	0.019	0	0.044	0.032	0	0.049	0.044	0.0026	100
25-027-0023	1	0660	Worcester	Worcester	SUMMER STREET	8478	0.019	0.015	0	0.026	0.025	0	0.035	0.034	0.0046	060

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Ambient air Quality Summary - New Hampshire

During the last several years, New Hampshire has streamlined and improved 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). 2005 was the last year of PAMS (Photochemical Assessment Monitoring Station) measurements at the PAMS Type 2 monitoring site in Kittery (ME). This site will be moved to the summit of Pac Monadnock (Peterborough), and will provide very valuable information about the transport of ozone precursors aloft (at 2,300 ft above mean sea level)

The accompanying charts indicate that substantial improvements in air quality continue, 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 (PM2.5) do not show improvements that are as large as those of the other pollutants. This is partly because the concentrations of ozone and fine particulate matter are more sensitive to atmospheric conditions that promote transport, transformation and accumulation.

In 1999, New Hampshire established a network of fine particulate monitors (PM2.5). By 2003, eleven monitoring sites provided data on the concentration of PM2.5 in the state. Over the past several years the highest concentrations of PM2.5 have been in the Portsmouth, Nashua, Manchester, and Keene urban areas. The lowest PM2.5 levels were recorded at Grants Green (near the base of Mount Washington) and at the Laconia and Peterborough sites. During 2005, relatively high concentrations of fine particulate matter (PM2.5 – [FRM – Federal Reference Method] annual weighted arithmetic mean) were recorded at the Railroad Street site in Keene (11.97 ug/m*3) and Pearl Street in Manchester (11.53 ug/m*3), compared with the other eight New Hampshire monitoring sites. These concentrations were well below the primary standard for PM2.5 which is 15 ug/m*3.

None of the two coarse particulate matter (PM10) monitoring sites in New Hampshire exceeded or violated the annual or 24-hr NAAQS for PM10 over the past nine years (1997-2005). The highest 24-hour concentration in 2005 was recorded in Manchester, with a highest second maximum of 47 ug/m3 (less than 30% of the NAAQS). The highest maximum annual average PM10 was also recorded in Manchester (18.2 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, due to differences in weather and local PM10 emissions.

None of the thirteen ozone monitors in New Hampshire violated the 1-hour NAAQS in 2005. The Seacoast Science Center site in Rye and the Pac Monadnock Summit site reported the highest 1-hour daily maximum ozone concentrations (106 ppb and 111 ppb, respectively). During 2003 and 2004 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. No sites 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 0.08ppm NAAQS. This is the third year in a row where no sites exceeded the standard. In 2005, the maximum 8-hour average ozone concentration occurred at the Gilson Road PAMS site (96 ppb)

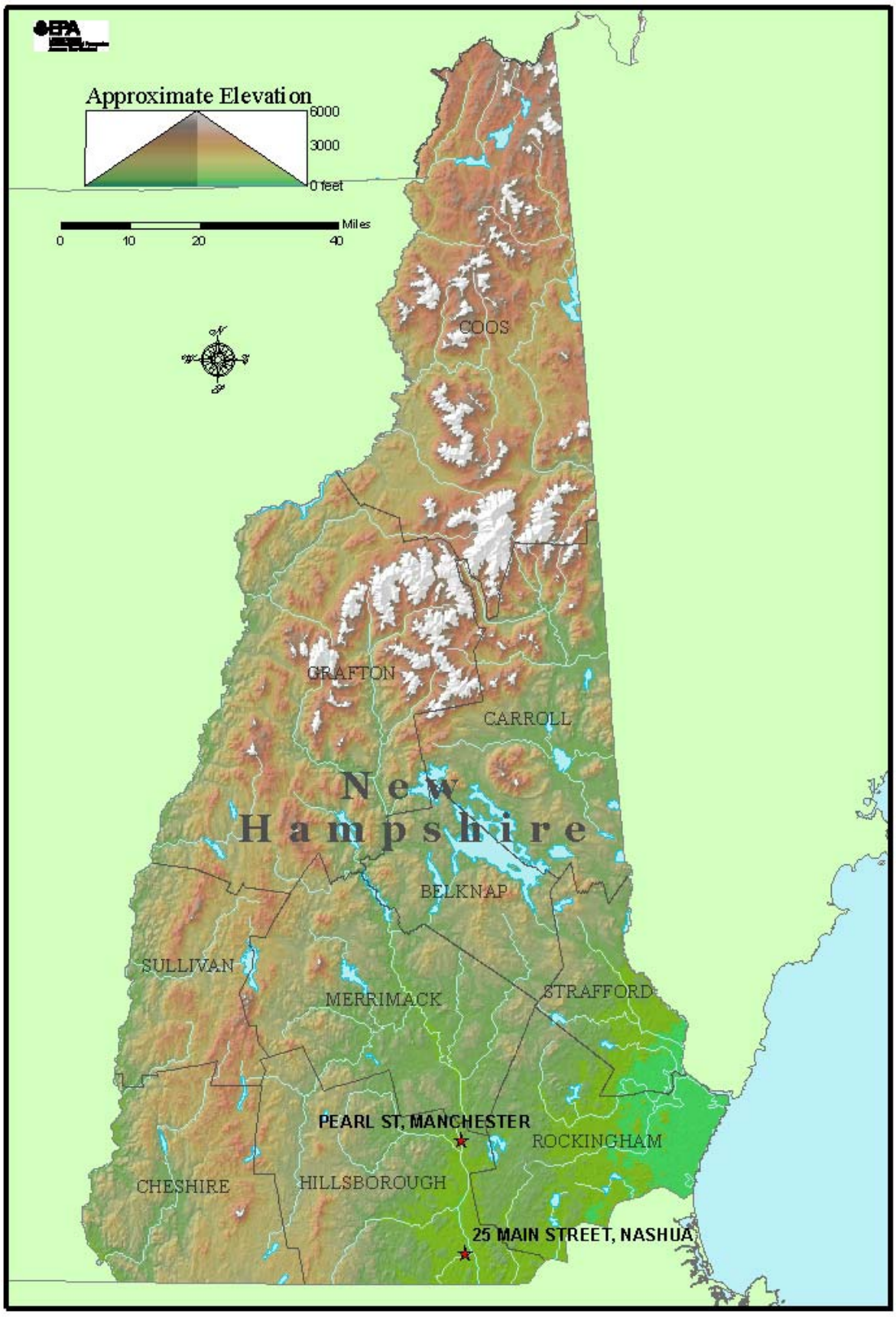
During 2005, no exceedance or violation of the sulfur dioxide NAAQS occurred at any of the monitoring sites in New Hampshire. The highest annual SO2 concentration was recorded in Pembroke (0.0072 ppm). The Pembroke site also reported the highest 24-hour second maximum SO2 concentration (0.053 ppm), and reported the highest 3-hour SO2 second maximum concentration (0.117 ppm).

In 2005, 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.

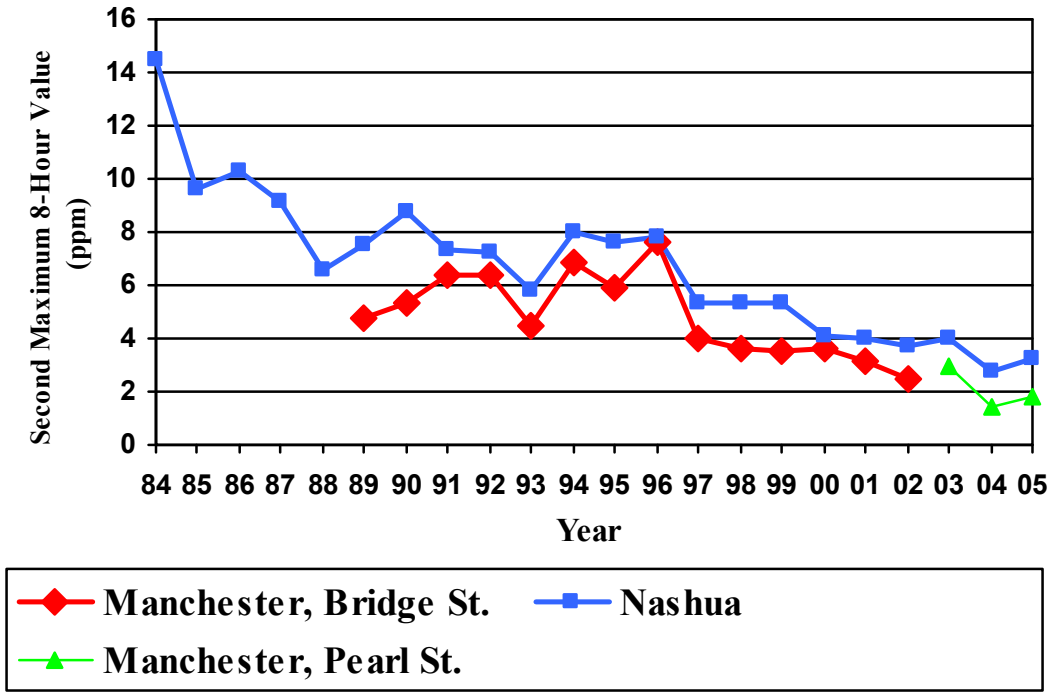
As has been the case for almost a decade, in 2005 there were no violations of either the 8-hour or 1-hour National Ambient Air Quality Standard (NAAQS) for carbon monoxide (CO) at the two CO monitoring sites in New Hampshire. This is the seventh year in a row during which no exceedances occurred. The last exceedances of the 8-hour CO NAAQS occurred in Manchester (13.5 ppm) during the winter of 1996. In 2005, Manchester reported a second maximum 8-hour average CO concentration of 2.8 ppm, which was roughly 25-30% of the standard. The Nashua site recorded a second maximum 8-hour average CO concentration of 6.1 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 Sites 2005 - Carbon Monoxide

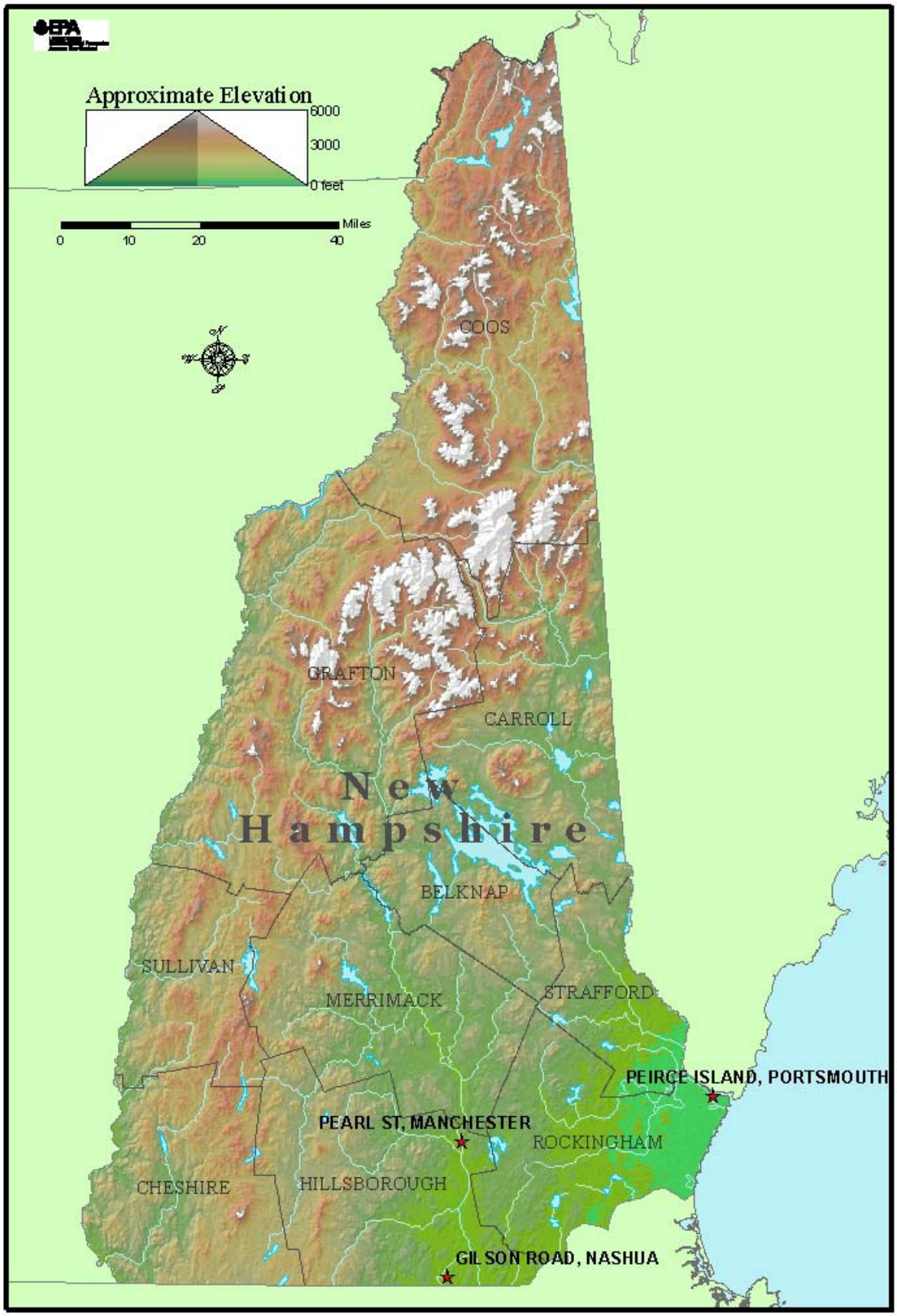


New Hampshire Carbon Monoxide Data

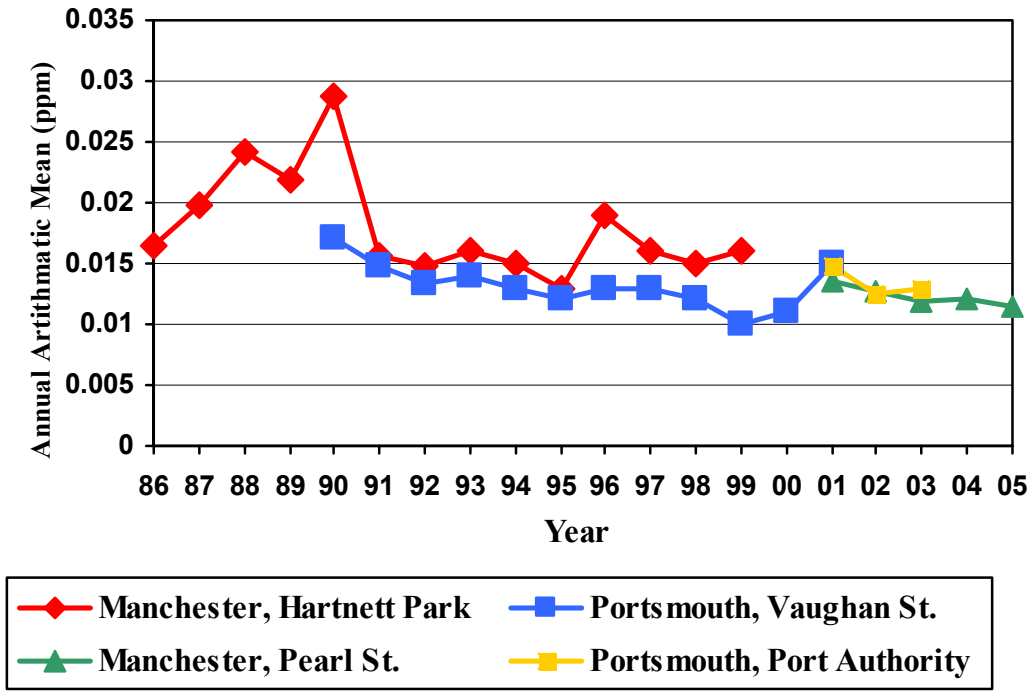


New Hampshire													
2005 Carbon Monoxide													
All Values are in Units of Parts Per Million													
							1-hour	1-hour		8-hour	8-hour		
	P							2nd			2nd		
	O	Org				#	Highest	Highest		Highest	Highest		Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	8228	3.1	2.8	0	1.9	1.8	0	54
33-011-1009	1	0762	Nashua	Hillsborough	25 MAIN STREET	8673	10	6.1	0	3.3	3.2	0	54

New Hampshire Sites 2005 - Nitrogen Dioxide

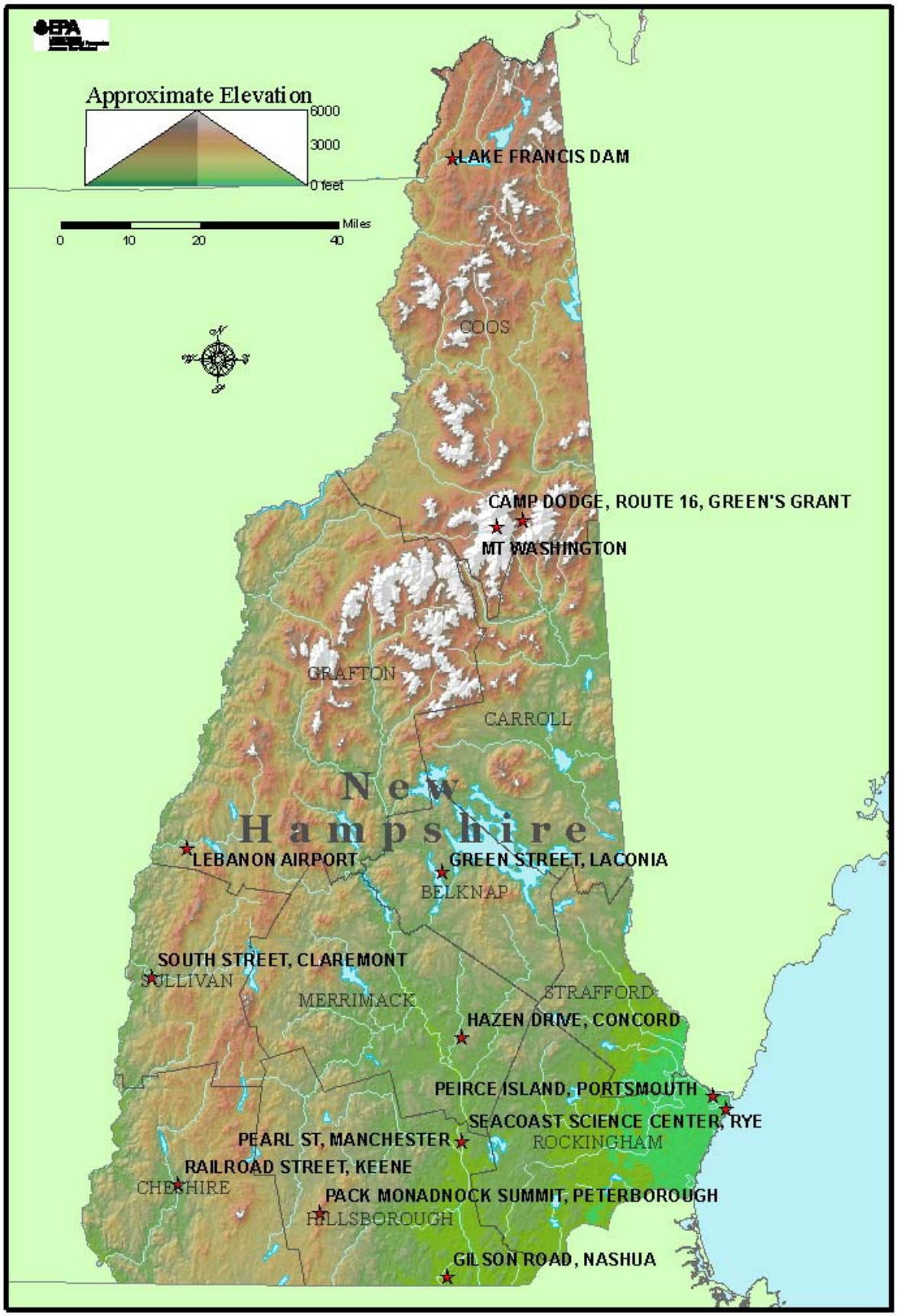


New Hampshire Nitrogen Dioxide Data

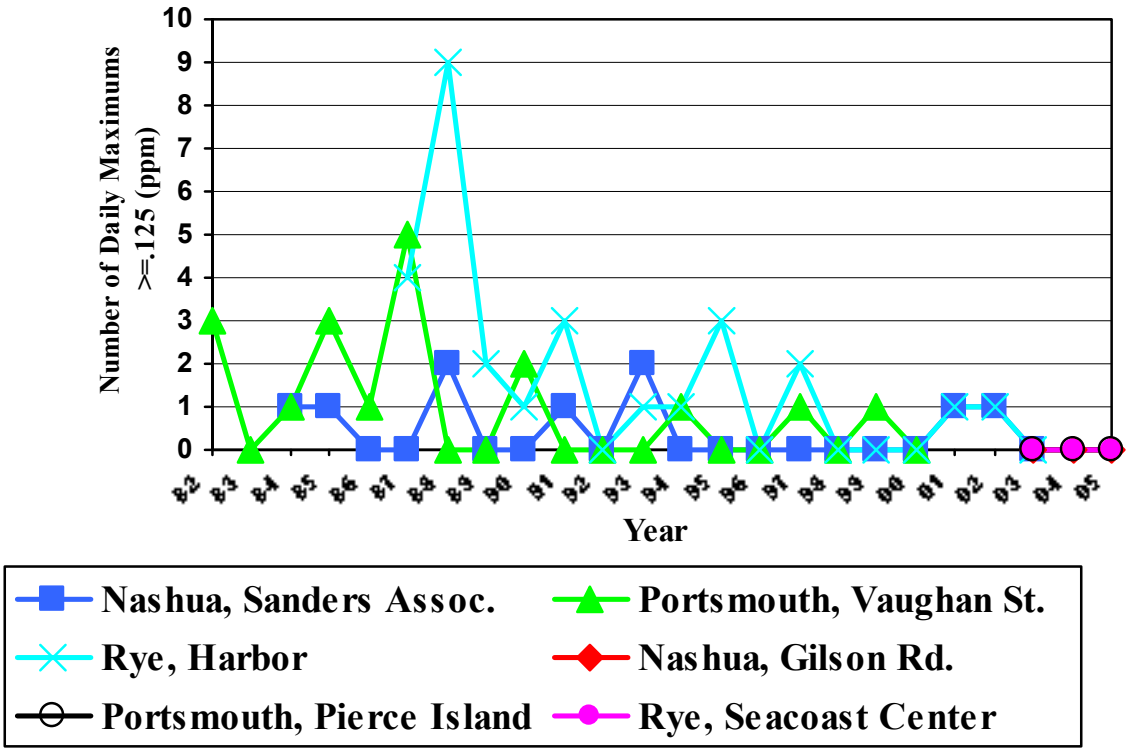


New Hampshire											
2005 Nitrogen Dioxide											
All Values are in Units of Parts Per Million											
								1-hour	1-hour		
	P								2nd	Annual	
	O	Rept.					#	Highest	Highest	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Mean	
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	074	8128	0.056	0.052	0.0114	
33-011-1011	1	0762	Nashua	Hillsborough	GILSON ROAD (PAMS Site	074	4297	0.023	0.021	0.002	*
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	074	8621	0.043	0.042	0.0074	
*Indicates that the mean does not meet summary criteria											

New Hampshire Sites 2005 - Ozone



New Hampshire Ozone 1-Hour Data



New Hampshire															
2005 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days	Method
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125	used
33-001-2004	1	0762	Laconia	Belknap	GREEN STREET	181	183	0.098	0.088	0.085	0.083	0	0	2	47
33-005-0007	1	0762	Keene	Cheshire	RAILROAD STREET	181	183	0.103	0.088	0.082	0.081	0	0	2	0
33-007-4001	1	0762	Not in a city	Coos	MT. WASHINGTON	122	183	0.091	0.091	0.090	0.088	0	0	3	47
33-007-4002	1	0762	Not in a city	Coos	CAMP DODGE	179	183	0.081	0.078	0.078	0.075	0	0	2	47
33-007-4003	1	0762	Not in a city	Coos	LAKE FRANCES DAM	179	183	0.072	0.069	0.068	0.067	0	0	2	47
33-009-0010	1	0762	Lebanon	Grafton	LEABNON AIRPORT	182	183	0.085	0.083	0.081	0.080	0	0	1	47
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	177	183	0.101	0.089	0.088	0.083	0	0	6	47
33-011-1011	1	0762	Nashua	Hillsborough	GILSON ROAD	174	183	0.105	0.104	0.102	0.100	0	0	4	47
33-011-5001	1	0762	Peterborough	Hillsborough	PACK MONADNOCK	182	183	0.111	0.105	0.098	0.095	0	0	1	47
33-013-1007	1	0762	Concord	Merrimack	HAZEN DRIVE	179	183	0.092	0.087	0.084	0.084	0	0	2	47
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	170	183	0.097	0.095	0.088	0.087	0	0	8	47
33-015-0016	1	0762	Rye	Rockingham	SEACOAST	172	183	0.106	0.092	0.088	0.085	0	0	7	47
33-019-0003	1	0762	Claremont	Sullivan	SOUTH STREET	179	183	0.085	0.084	0.080	0.075	0	0	2	47

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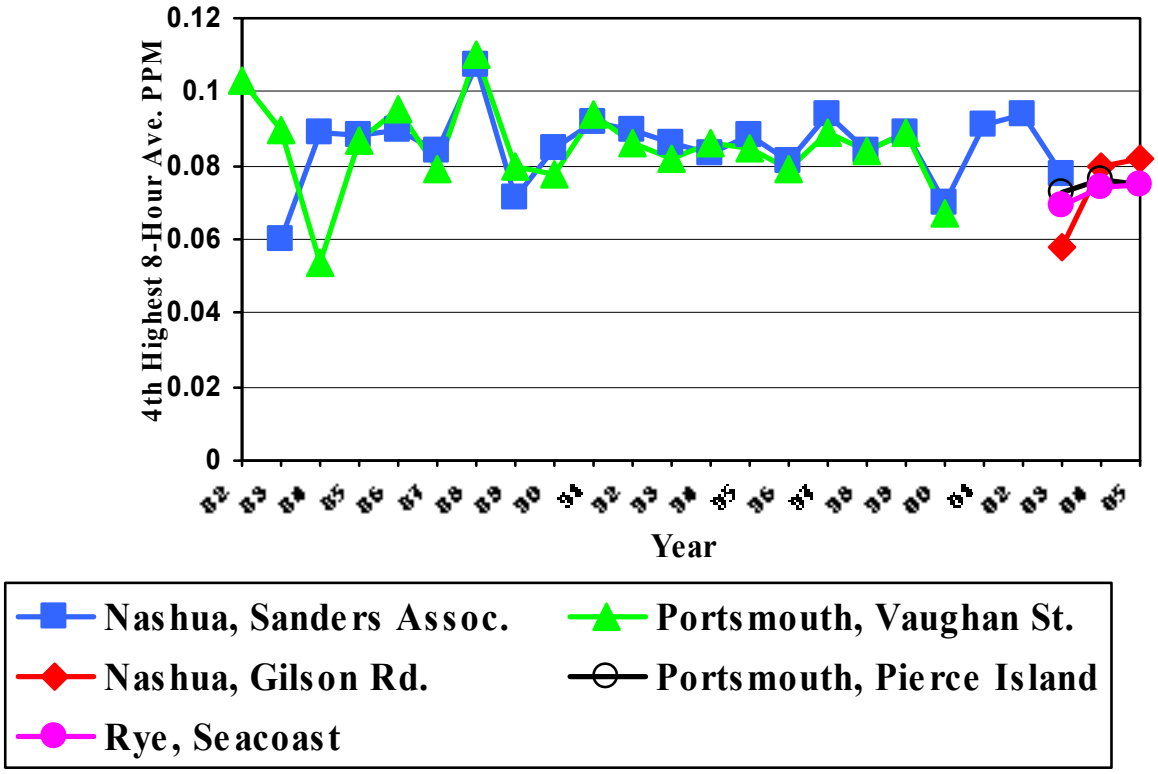
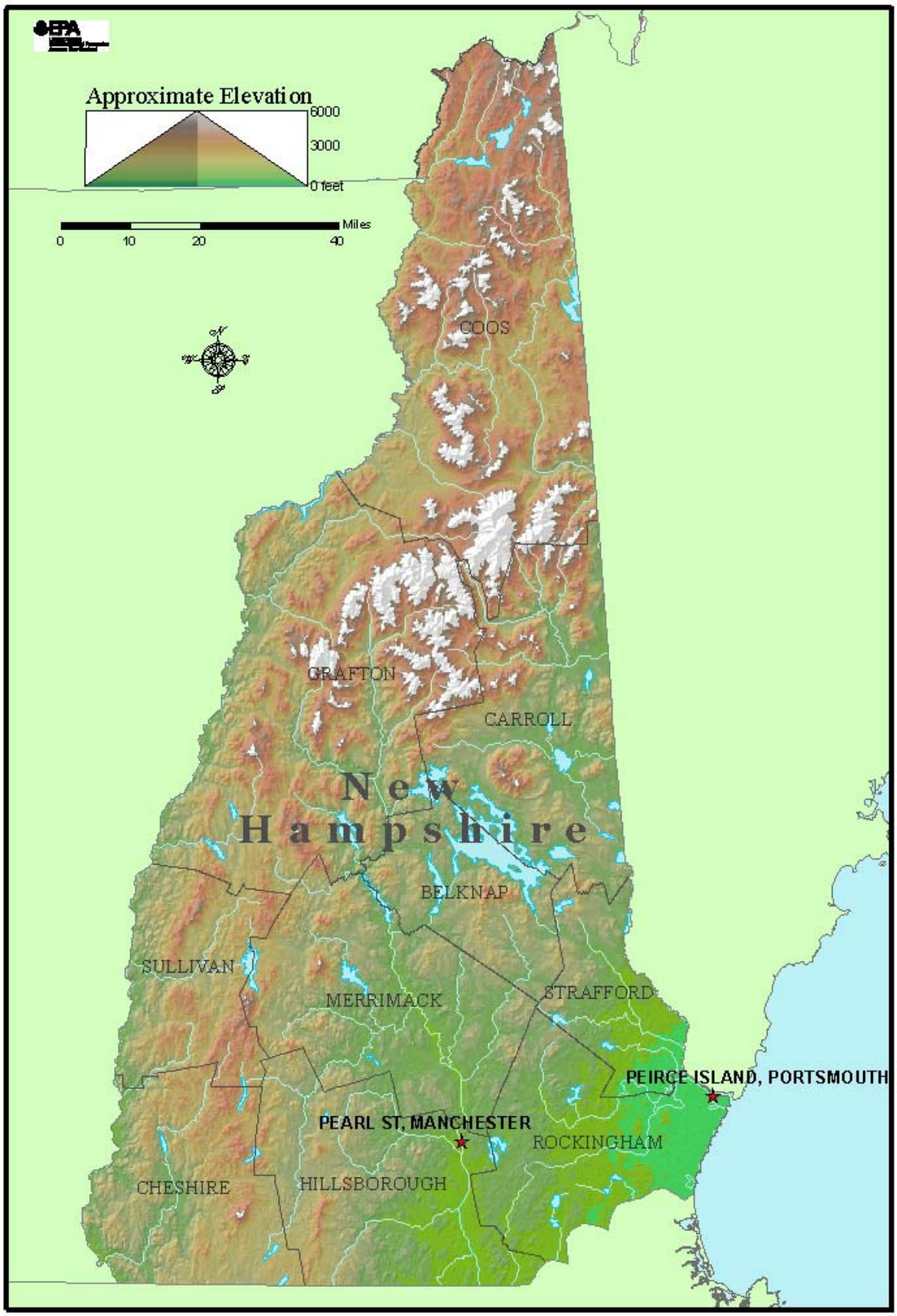
New Hampshire Ozone 8-Hour Data

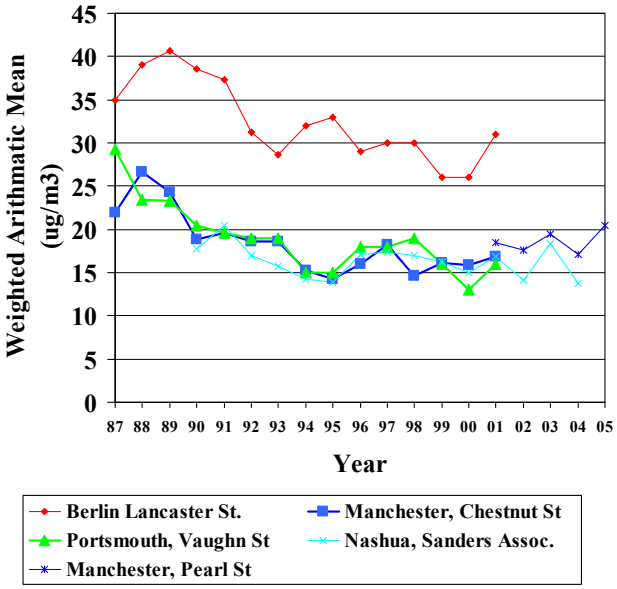


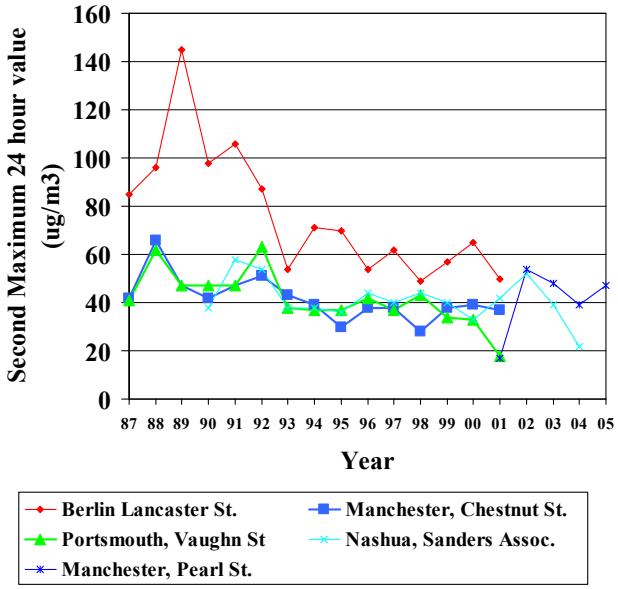
New Hampshire														
2005 Ozone (8-Hour)														
All Values are in Units of Parts Per Million														
	P						Valid	Num		2nd	3rd	4th	Days	
	O	Rept.				#	Days	Required	Highest	Highest	Highest	Highest	Max ≥	Methods
Site ID	C	Org.	City	County	Address	Obs	Meas.	Days	8-Hr Value	8-Hr Value	8-Hr Value	8-Hr Value	0.085	Reported
33-001-2004	1	0762	Laconia	Belknap	GREEN STREET	98	180	183	0.079	0.078	0.076	0.073	0	47
33-005-0007	1	0762	Keene	Cheshire	RAILROAD STREET	99	181	183	0.083	0.077	0.075	0.074	0	0
33-007-4001	1	0762		Coos	MT. WASHINGTON	63	116	183	0.082	0.078	0.077	0.077	0	47
33-007-4002	1	0762	Grant's Green	Coos	CAMP DODGE	98	180	183	0.071	0.07	0.07	0.07	0	47
33-007-4003	1	0762		Coos	LAKE FRANCES DAM	97	178	183	0.07	0.065	0.059	0.055	0	47
33-009-0010	1	0762	Lebanon	Grafton	LEABNON AIRPORT	99	181	183	0.08	0.072	0.069	0.068	0	47
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	97	177	183	0.081	0.073	0.072	0.071	0	47
33-011-1011	1	0762	Nashua	Hillsborough	GILSON ROAD	95	174	183	0.096	0.084	0.083	0.082	1	47
33-011-5001	1	0762	Peterborough	Hillsborough	PACK MONADNOCK	99	182	183	0.087	0.086	0.086	0.081	3	47
33-013-1007	1	0762	Concord	Merrimack	HAZEN DRIVE	97	178	183	0.078	0.078	0.077	0.075	0	47
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	92	168	183	0.078	0.077	0.075	0.075	0	47
33-015-0016	1	0762	Rye	Rockingham	SEACOAST SCIENCE CENTER	92	169	183	0.082	0.079	0.076	0.075	0	47
33-019-0003	1	0762	Claremont	Sullivan	SOUTH STREET	97	178	183	0.08	0.076	0.068	0.067	0	47

New Hampshire Sites 2005 - Particulate Matter < 10 Microns



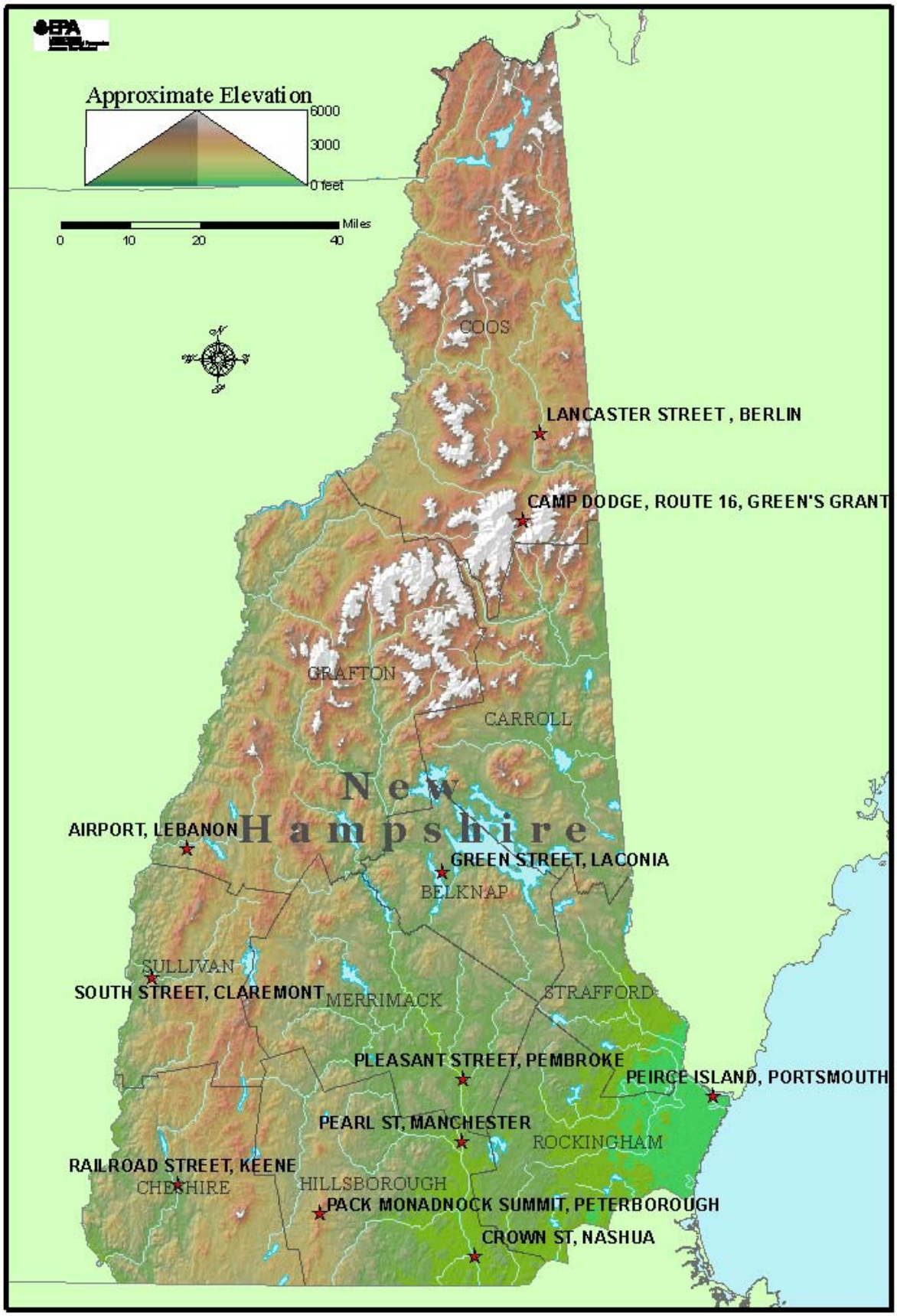
New Hampshire Particulate Matter < 10 Microns (PM10) Data



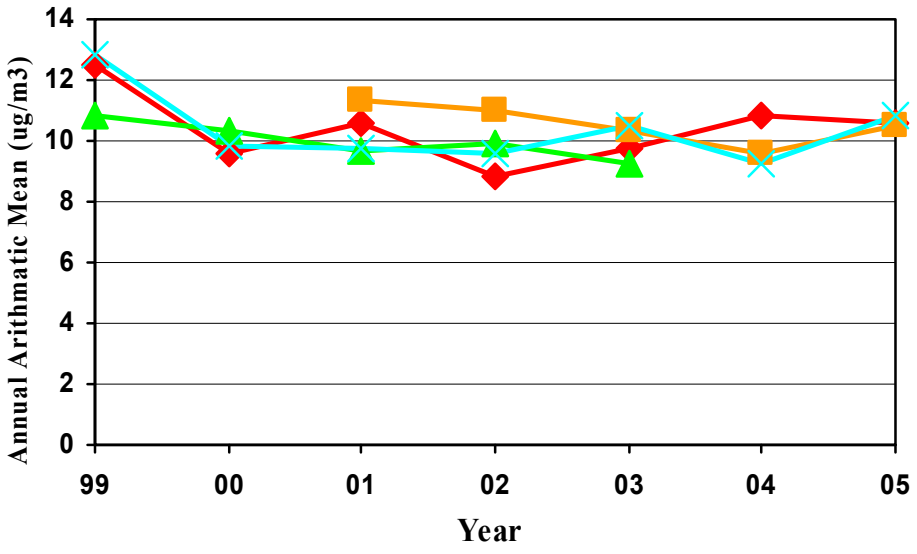


New Hampshire																
2005Particulate Matter < 10 Microns																
ug/m3																
											2nd	3rd	4th	Days	Est. Days	Wtd.
		Rep.						Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	56	61	56	92	49	47	45	38	0	0	20.4
33-011-0020	2	0762	Manchester	Hillsborough	PEARL ST	58	61	58	95	57	45	37	35	0	0	18.8
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	56	61	56	92	39	38	37	35	0	0	16.4

New Hampshire Sites 2005 - Particulate Matter < 2.5 Microns



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



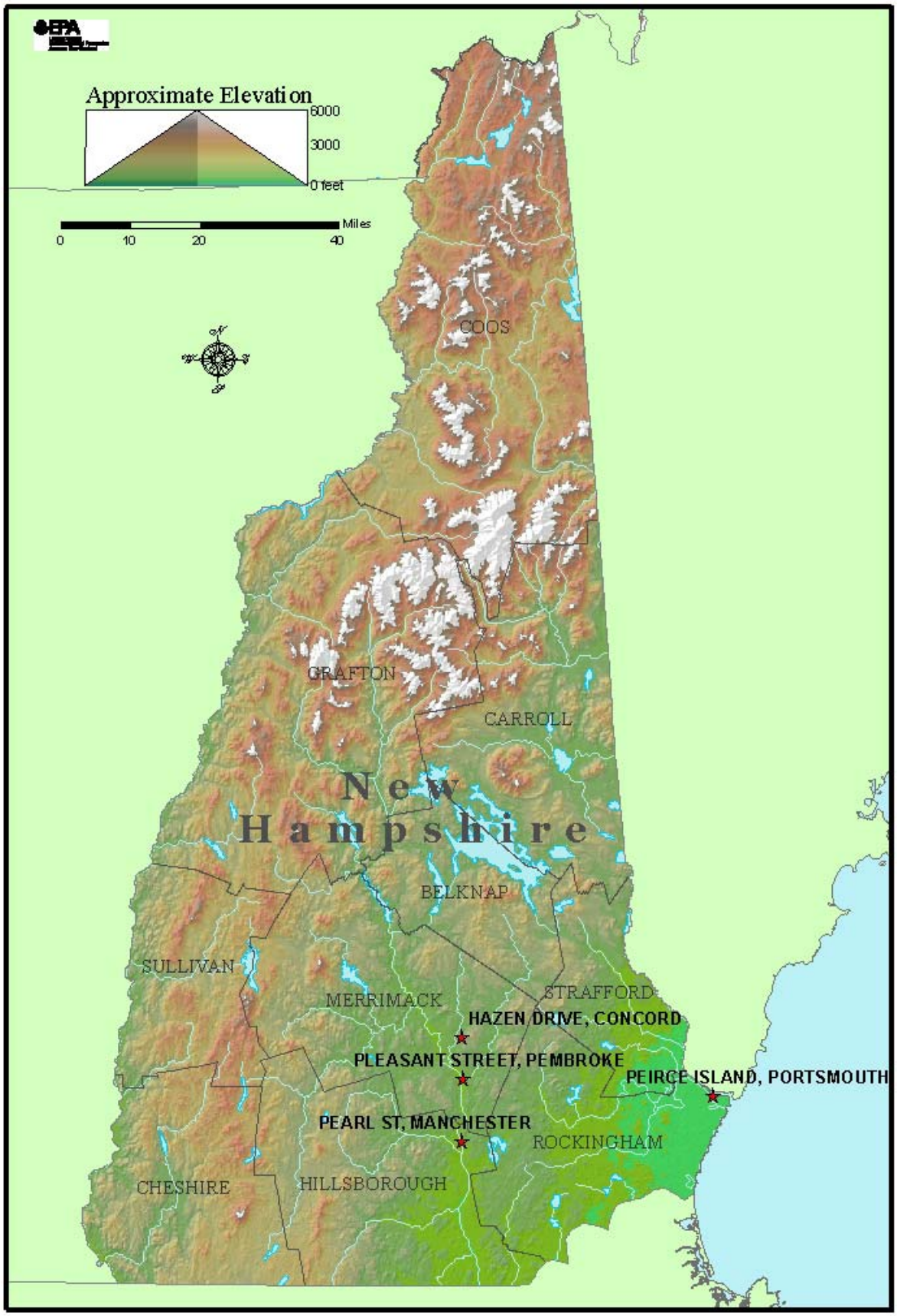
Site ID	POC	Rept. Org.	City	County	Address	Method	# Obs	Highest Value	2nd Highest Value	3rd Highest Value	4th Highest Value	98th Percentile Value	Wtd. Arith. Mean	
33-001-2004	1	0762	Laconia	Belknap	GREEN STREET	116	59	36.9	19.2	17	16.9	19.2	7.78	
33-001-2004	2	0762	Laconia	Belknap	GREEN STREET	116	60	34.7	18.8	16.7	16.6	18.8	7.28	
33-005-0007	1	0762	Keene	Cheshire	RAILROAD STREET	116	60	31.4	29.2	27.2	25.2	29.2	11.97	
33-007-0014	1	0762	Berlin	Coos	LANCASTER STREET	116	123	31.2	27.1	26.2	24.2	26.2	10.61	
33-007-4002	3	0762	Grant's Green	Coos	CAMP DODGE	711	8504	22.6	20.8	20	19.9	17	3.57	
33-009-0010	1	0762	Lebanon	Grafton	LEABNON AIRPORT	116	60	32.3	31.4	25.5	25.3	31.4	9.23	
33-009-0010	3	0762	Lebanon	Grafton	LEABNON AIRPORT	703	7917	39.9	38.6	34.4	33.5	28.6	10.83	
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	116	122	39.6	29.5	27	23.8	27	10.46	
33-011-0020	2	0762	Manchester	Hillsborough	PEARL ST	116	59	40.4	27.1	23.7	22.7	27.1	10.5	
33-011-0020	3	0762	Manchester	Hillsborough	PEARL ST	703	7826	35.6	34.5	33.8	26.7	24.9	9.44	
33-011-0020	5	1217	Manchester	Hillsborough	PEARL ST	820	58	41	32.9	26.3	25.6	32.9	11.53	
33-011-1015	1	0762	Nashua	Hillsborough	CROWN ST	000	121	34.7	32.1	24.8	24.2	24.8	10.53	
33-011-5001	1	0762	Peterborough	Hillsborough	PACK MONADNOCK	116	58	28.5	27.4	22.5	20.7	27.4	6.4	
33-011-5001	3	0762	Peterborough	Hillsborough	PACK MONADNOCK	711	8539	31.8	28.7	28	26.8	17.6	4.4	
33-013-1006	1	0762	Pembroke	Merrimack	PLEASANT STREET	116	121	37.7	24.9	23.6	23.3	23.6	10.09	
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	116	120	35.8	25.5	24.5	24.5	24.5	9.01	
33-015-0014	3	0762	Portsmouth	Rockingham	PIERCE ISLAND	703	8191	30	28.6	28.5	27.9	26.7	10.9	*
33-015-0014	5	1217	Portsmouth	Rockingham	PIERCE ISLAND	820	117	34.5	25.2	22.7	21.9	22.7	8.95	
33-019-0003	1	0762	Claremont	Sullivan	SOUTH STREET	116	61	38.8	34.9	26.1	24.6	34.9	10.81	

*Indicates that the mean does not meet summary criteria

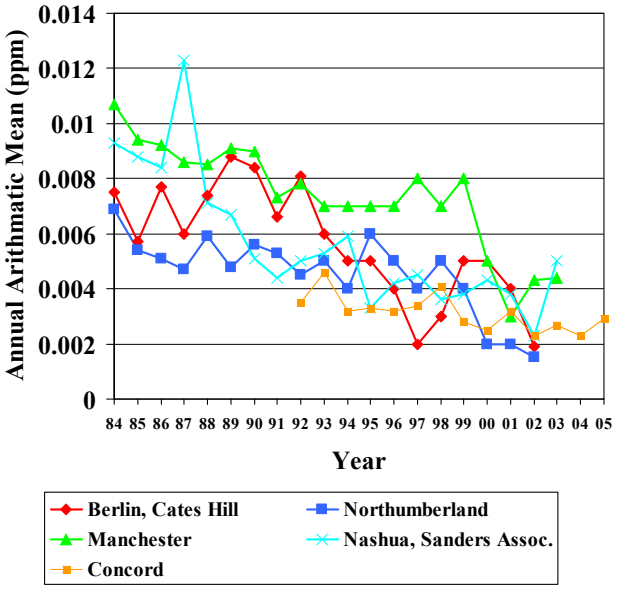
Rhode Island

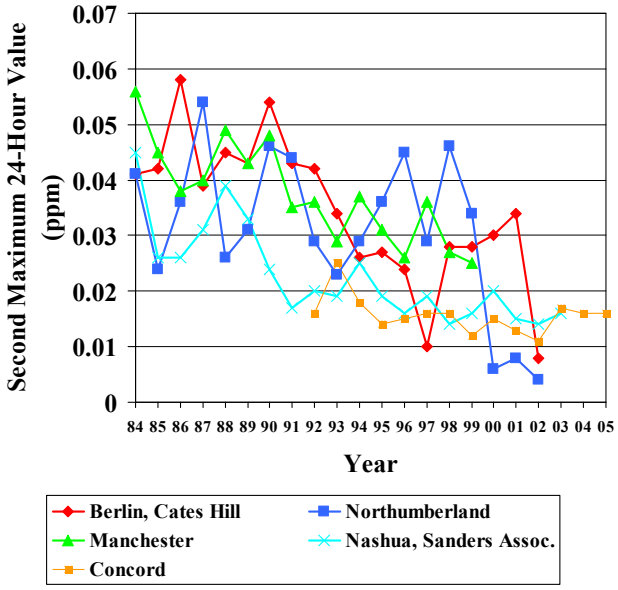
Parameter: PM 2.5

New Hampshire Sites 2005 - Sulfur Dioxide



New Hampshire Sulfur Dioxide Data





New Hampshire																
2005 Sulfur Dioxide																
All Values are in Units of Parts Per Million																
								24-	24-		3-hour	3-hour		1-hour	1-hour		
	P							hour	hour			2nd			2nd		
	O	Org					#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used
33-011-0020	1	0762	Manchester	Hillsborough	PEARL ST	8669	0.022	0.021	0	0.054	0.042	0	0.084	0.066	0.0046	060
33-013-1006	1	0762	Pembroke	Merrimack	PLEASANT STREET	8601	0.057	0.053	0	0.148	0.117	0	0.217	0.182	0.0072	060
33-013-1007	1	0762	Concord	Merrimack	HAZEN DRIVE	8496	0.018	0.016	0	0.077	0.058	0	0.108	0.089	0.0029	060
33-015-0014	1	0762	Portsmouth	Rockingham	PIERCE ISLAND	8547	0.028	0.017	0	0.072	0.06	0	0.097	0.082	0.0035	060

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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 2005. The Dorrance Street site in Providence reported the highest 8-hour second maximum CO level of 2.5 ppm, which was the same as the previous year. Over the past five years the highest 8-hour second maximum concentration of CO at this site was 3.8 ppm in 2001. Lower concentrations of CO were recorded at the East Providence site with the highest 8-hour second maximum concentration within the past five years of 2.7 ppm occurring in 2001. The 22 year trend of CO concentrations shows a downward trend with a slight leveling off between 2003 and 2005.

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

Rhode Island operated three nitrogen dioxide (NO_2) monitoring sites during 2005. NO_2 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 NO_2 concentration of 0.017 ppm, which was slightly lower than the previous year of 0.018 ppm and 34 % of the NAAQS. The 22 year NO_2 concentration trend at the Rockefeller Library Site has remained relatively flat with a slight decreasing trend. Each year, over the past five years, the mean NO_2 concentration during the PAMS season has been approximately three times higher at the Francis School Site (0.009 ppm) compared to the Alton Jones Site (0.003 ppm).

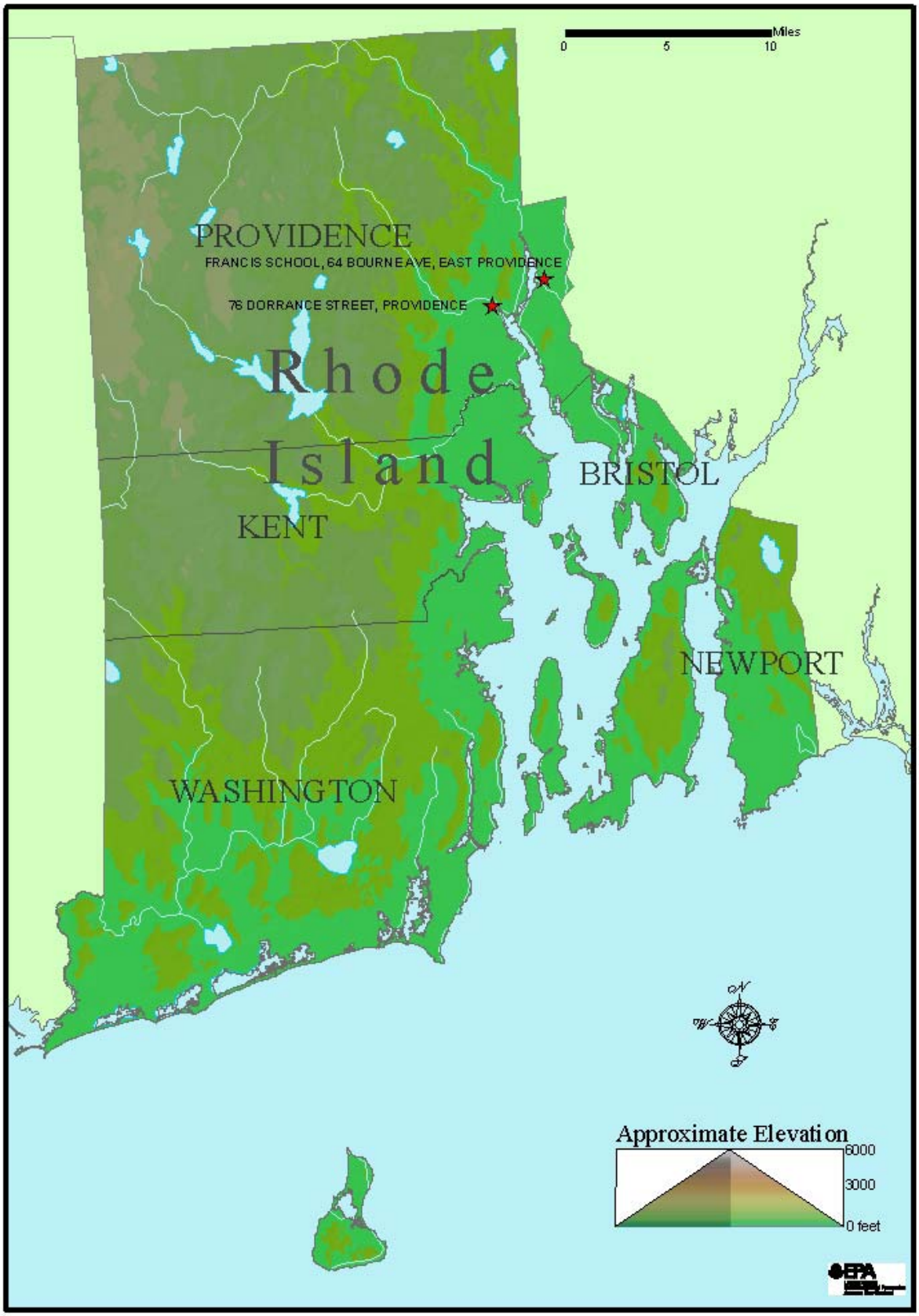
The Alton Jones site was the only site of the three ozone (O_3) monitoring sites in Rhode Island that reported one exceedance of the 1-hour O_3 NAAQS during 2005. Looking back over the past twelve years there were more exceedances of the 1-hr standard in 2001 compared to other years. All three O_3 sites reported a fourth highest 8-hr average O_3 concentration of at least 0.085 ppm. Over the past nine years, 2001 recorded more days above 0.085 ppm at each of the three monitoring sites compared to other years. The Alton Jones site recorded the highest 1-hour O_3 concentration of 0.128 ppm and the highest 8-hour average concentration of 0.098 ppm during 2005.

None of the particulate matter (PM_{10}) sites in Rhode Island had any exceedances or violations of the annual or 24-hour standards over the past five years. Of the four PM_{10} monitoring sites, the Vernon Street site in Pawtucket reported both the highest 24-hour second maximum value of 54 ug/m^3 and the highest annual arithmetic mean of 24 ug/m^3 during 2005. The long range graphs for PM_{10} show values varied up and down from year-to-year with no signs of an upwind or downwind trend.

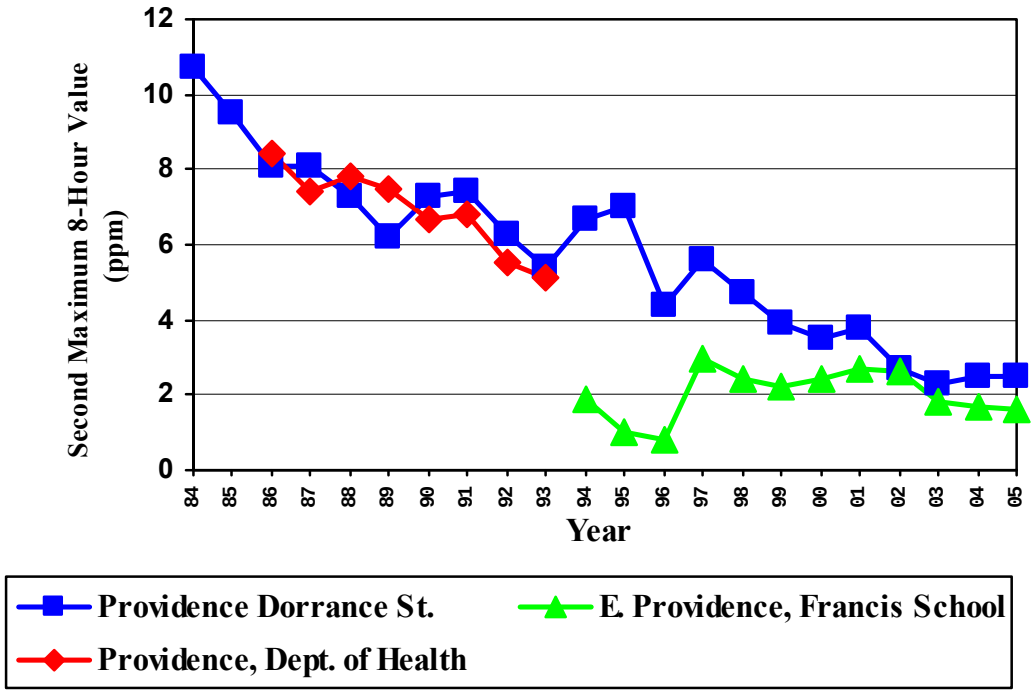
In 2005, Rhode Island operated a network of five fine particulate matter ($PM_{2.5}$) sites. During 2005, the annual arithmetic mean concentrations of $PM_{2.5}$ were highest at the Providence area sites (i.e. Francis School, Prairie Ave., Vernon St., and Eddy St.) compared to the rural site at Alton Jones. The seven year concentration trends for the Alton Jones, Francis School, Prairie Ave., and Vernon Street sites have remained relatively flat, except for a slight increase at the Vernon St. site during 2005.

Two air quality monitoring sites measured sulfur dioxide (SO_2) in Rhode Island during 2005. 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 SO_2 at 0.006 ppm, which is 20% of the NAAQS, the highest 24-hour second maximum concentration of 0.023 ppm, and the highest 3-hour second maximum concentration of 0.048 ppm. The long range trend for SO_2 concentrations in Rhode Island continually shows a slight downward trend.

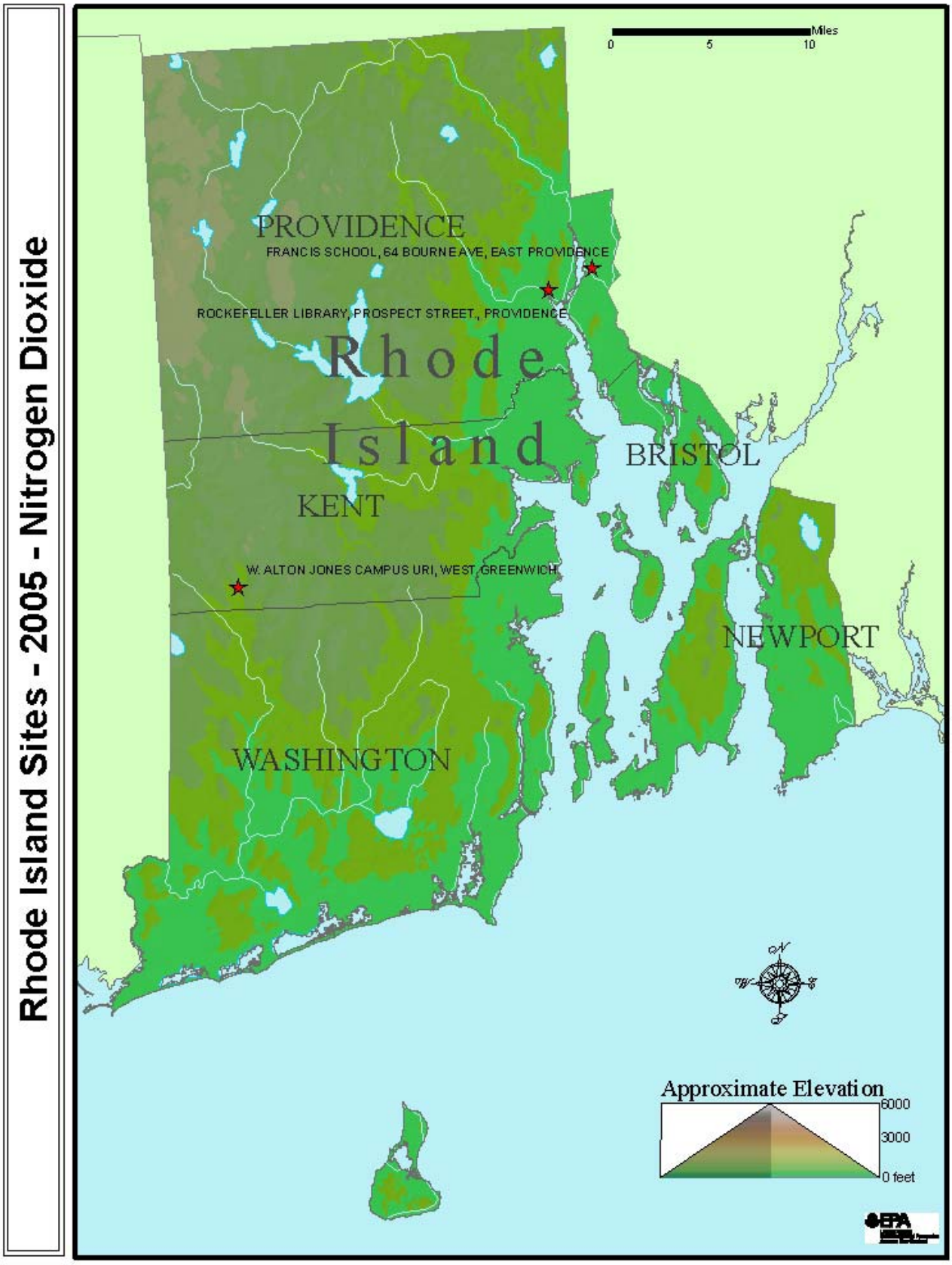
Rhode Island Sites - 2005 - Carbon Monoxide



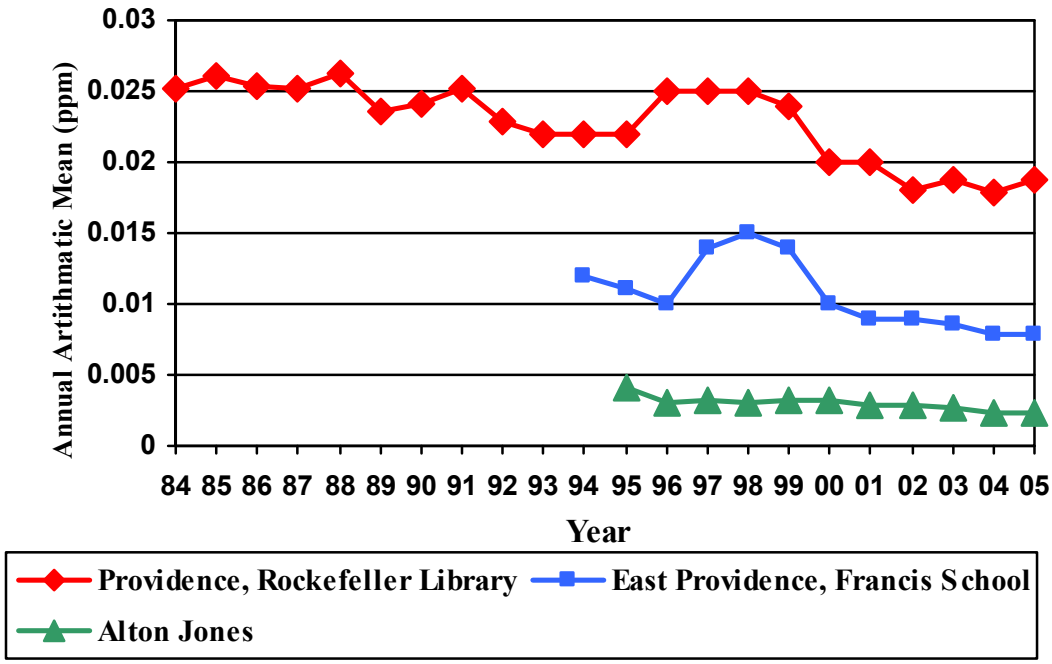
Rhode Island Carbon Monoxide Data



Rhode Island														
2005Carbon Monoxide														
All Values are in Units of Parts Per Million														
								1-hour	1-hour		8-hour	8-hour		
	P								2nd			2nd		
	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	0907	Providence	Providence	76 DORRANCE STREET		8272	10.1	7.9	0	3.4	2.5	0	54
44-007-1010	1	0907	East Providence	Providence	FRANCIS SCHOOL		7153	2.9	2.8	0	1.8	1.6	0	54

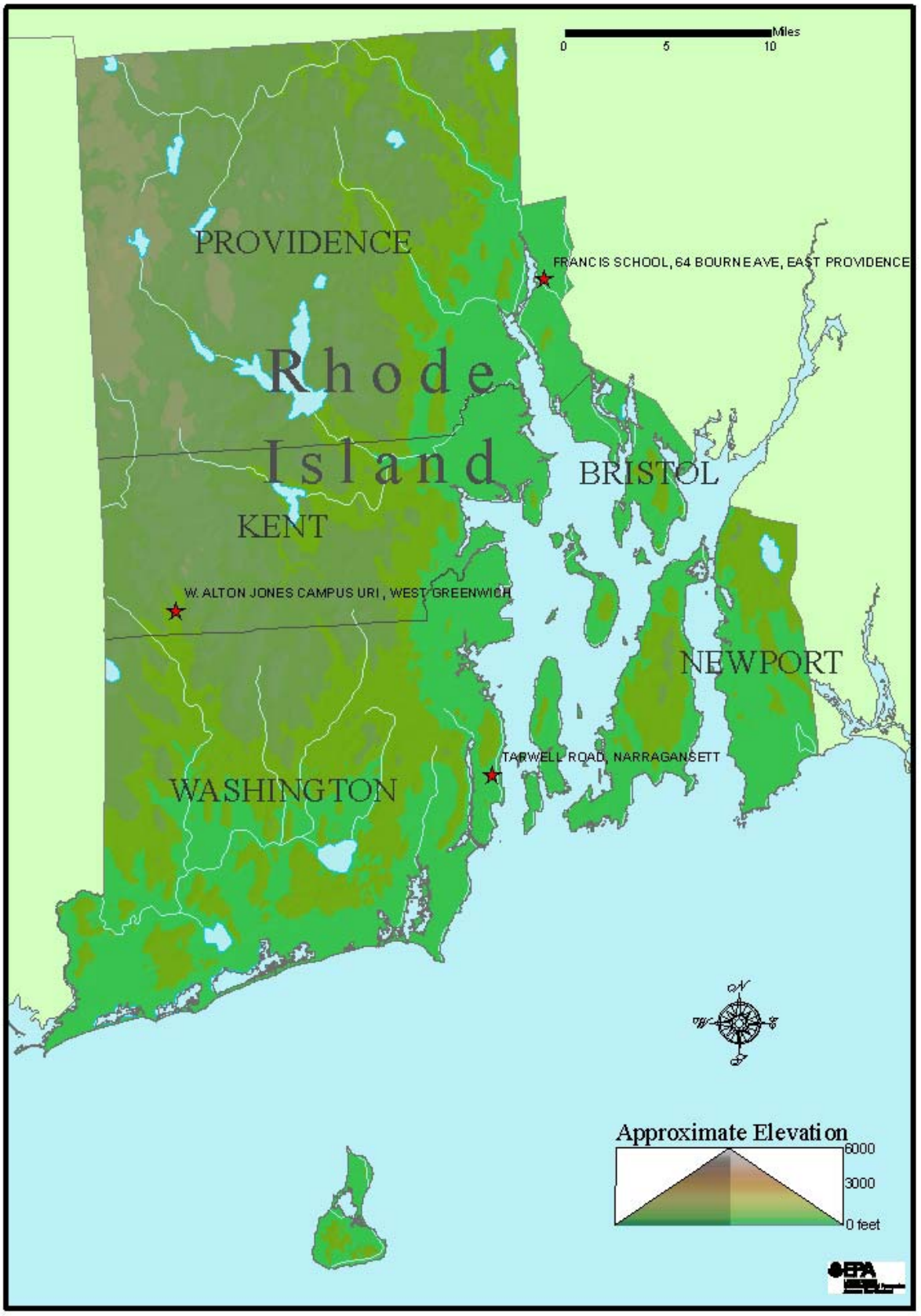

Rhode Island Sites - 2005 - Nitrogen Dioxide
Miles
0
5
10
PROVIDENCE
FRANCIS SCHOOL, 64 BOURNE AVE, EAST PROVIDENCE
ROCKEFELLER LIBRARY, PROSPECT STREET., PROVIDENCE
Rhode Island
BRISTOL
KENT
W. ALTON JONES CAMPUS URI, WEST GREENWICH
NEWPORT
WASHINGTON
Approximate Elevation
6000
3000
0 feet
EPA

Rhode Island Nitrogen Dioxide Data

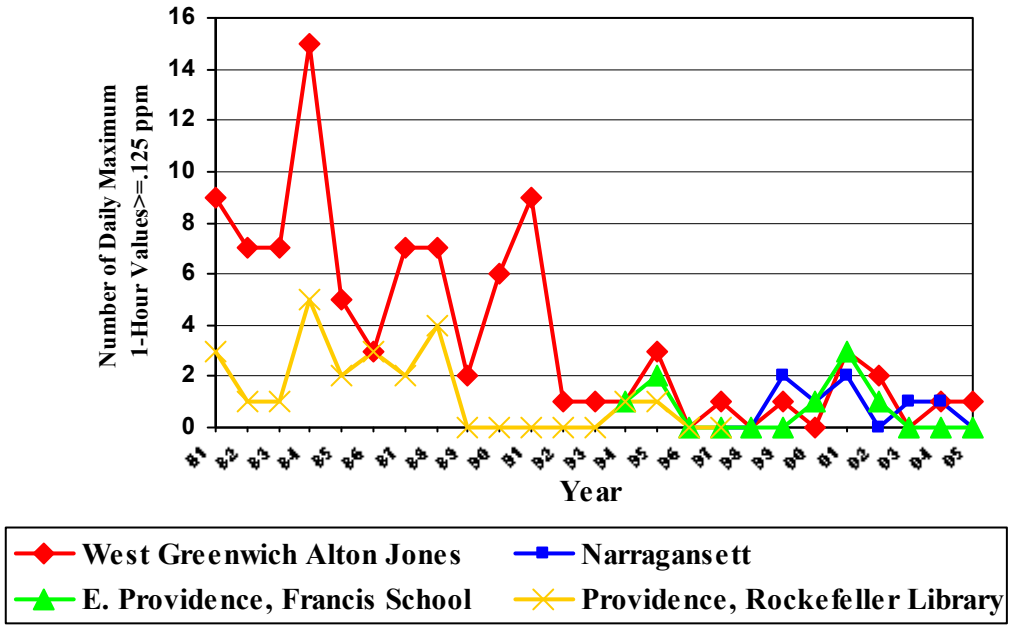


Rhode Island											
2005 Nitrogen Dioxide											
All Values are in Units of Parts Per Million											
								1-hour	1-hour		
	P								2nd	Annual	
	O	Rept.					#	Highest	Highest	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Mean	
44-003-0002	1	0907	Not in a city	Kent	W. ALTON JONES	074	2104	0.013	0.012	0.0024	*
44-007-0012	2	0907	Providence	Providence	ROCKEFELLER LIBRARY	074	8166	0.073	0.07	0.0173	
44-007-1010	1	0907	East Providence	Providence	FRANCIS SCHOOL	074	2078	0.035	0.031	0.0078	*
*Indicates that the mean does not meet summary criteria											

Rhode Island Sites - 2005 - Ozone

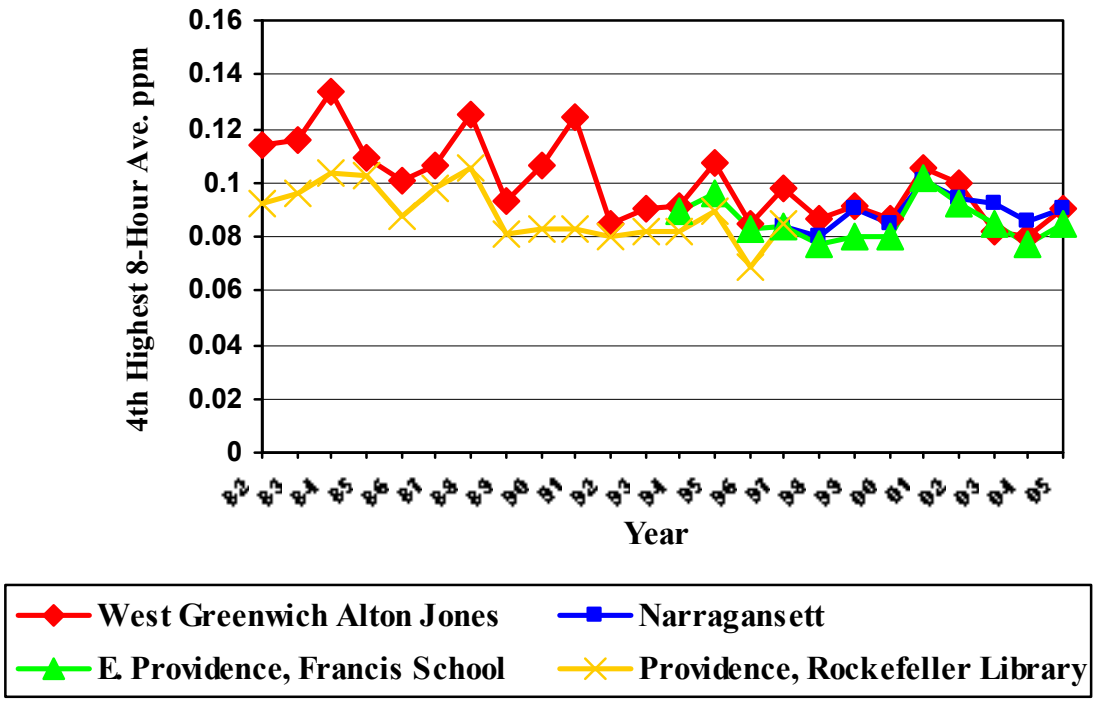


Rhode Island 1-Hour Ozone Data



Rhode Island															
2005 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days	Method
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125	used
44-003-0002	1	0907	Not in a city	Kent	W. ALTON JONES	181	183	0.128	0.118	0.116	0.102	1	1	1	47
44-007-1010	1	0907	East Providence	Providence	FRANCIS SCHOOL	172	183	0.116	0.112	0.101	0.094	0	0	2	47
44-009-0007	1	0907	Narragansett	Washington	TARWELL ROAD	179	183	0.112	0.102	0.100	0.099	0	0	1	47

Rhode Island 8-Hour Ozone Data



Rhode Island														
2005 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 ≥	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	Reported
44-003-0002	1	0907	West Greenwich	Kent	W. ALTON JONES	95	174	183	0.098	0.097	0.096	0.09	5	47
44-007-1010	1	0907	East Providence	Providence	FRANCIS SCHOOL	89	163	183	0.095	0.086	0.086	0.085	4	47
44-009-0007	1	0907	Narragansett	Washington	TARWELL ROAD	97	177	183	0.093	0.093	0.09	0.09	5	47

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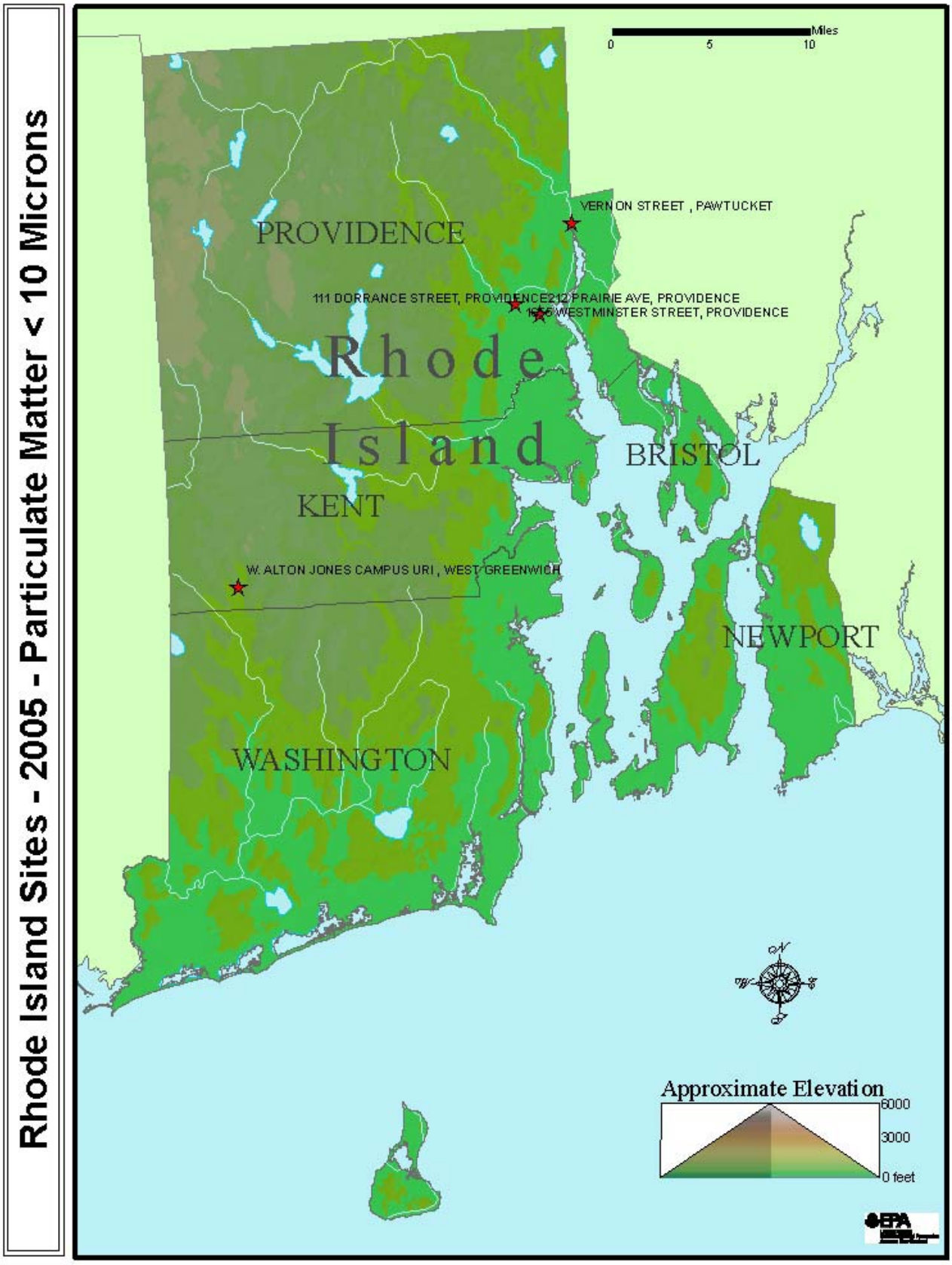
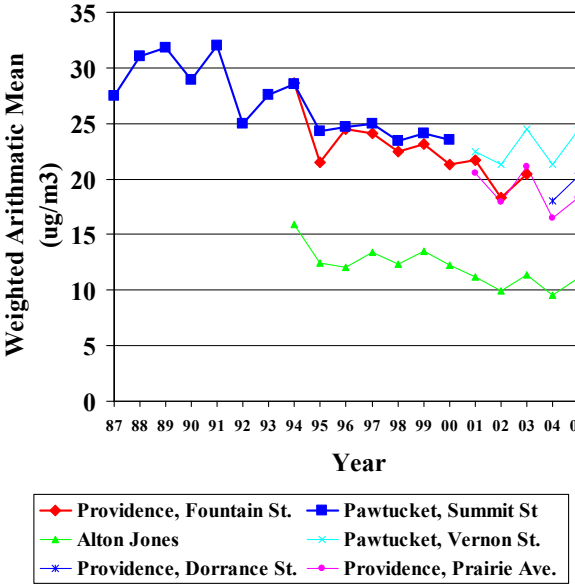
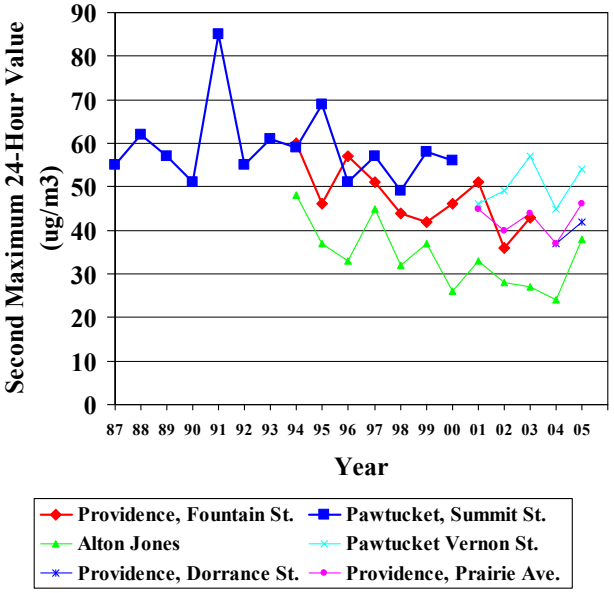
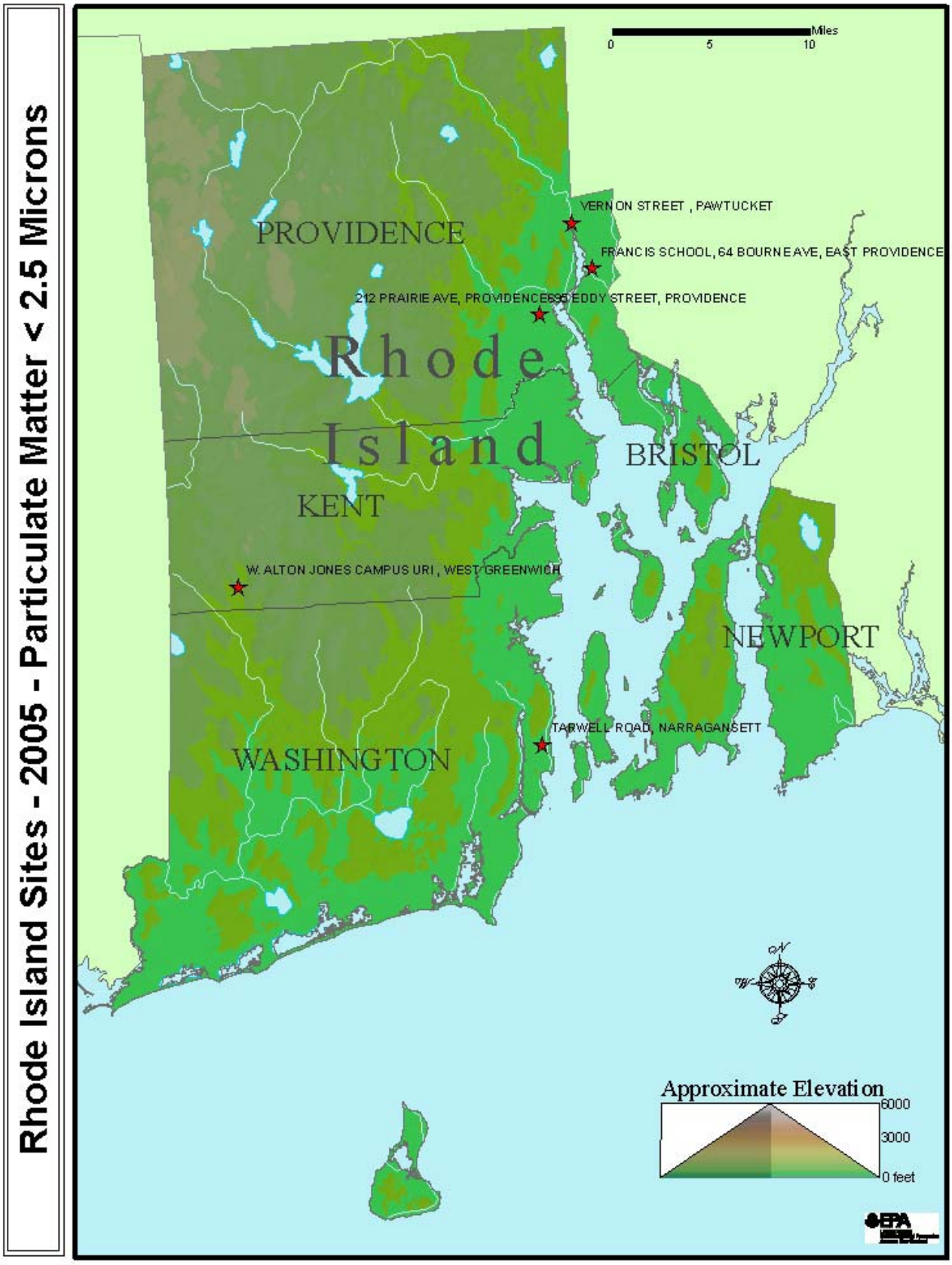

Rhode Island Sites - 2005 - Particulate Matter < 10 Microns
Miles
0
5
10
PROVIDENCE
VERNON STREET , PAWTUCKET
111 DORRANCE STREET, PROVIDENCE
212 PRAIRIE AVE, PROVIDENCE
1526 WESTMINSTER STREET, PROVIDENCE
Rhode Island
BRISTOL
KENT
W. ALTON JONES CAMPUS URI , WEST GREENWICH
NEWPORT
WASHINGTON
Approximate Elevation
6000
3000
0 feet
EPA

Rhode Island Particulate Matter < 10 Microns (PM10) Data

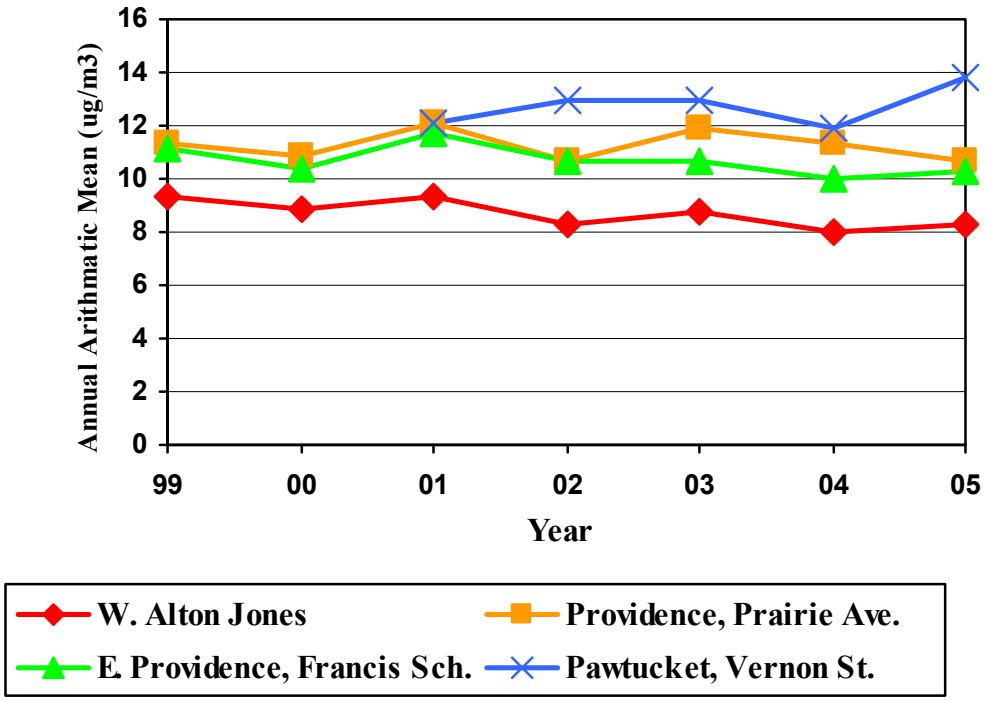




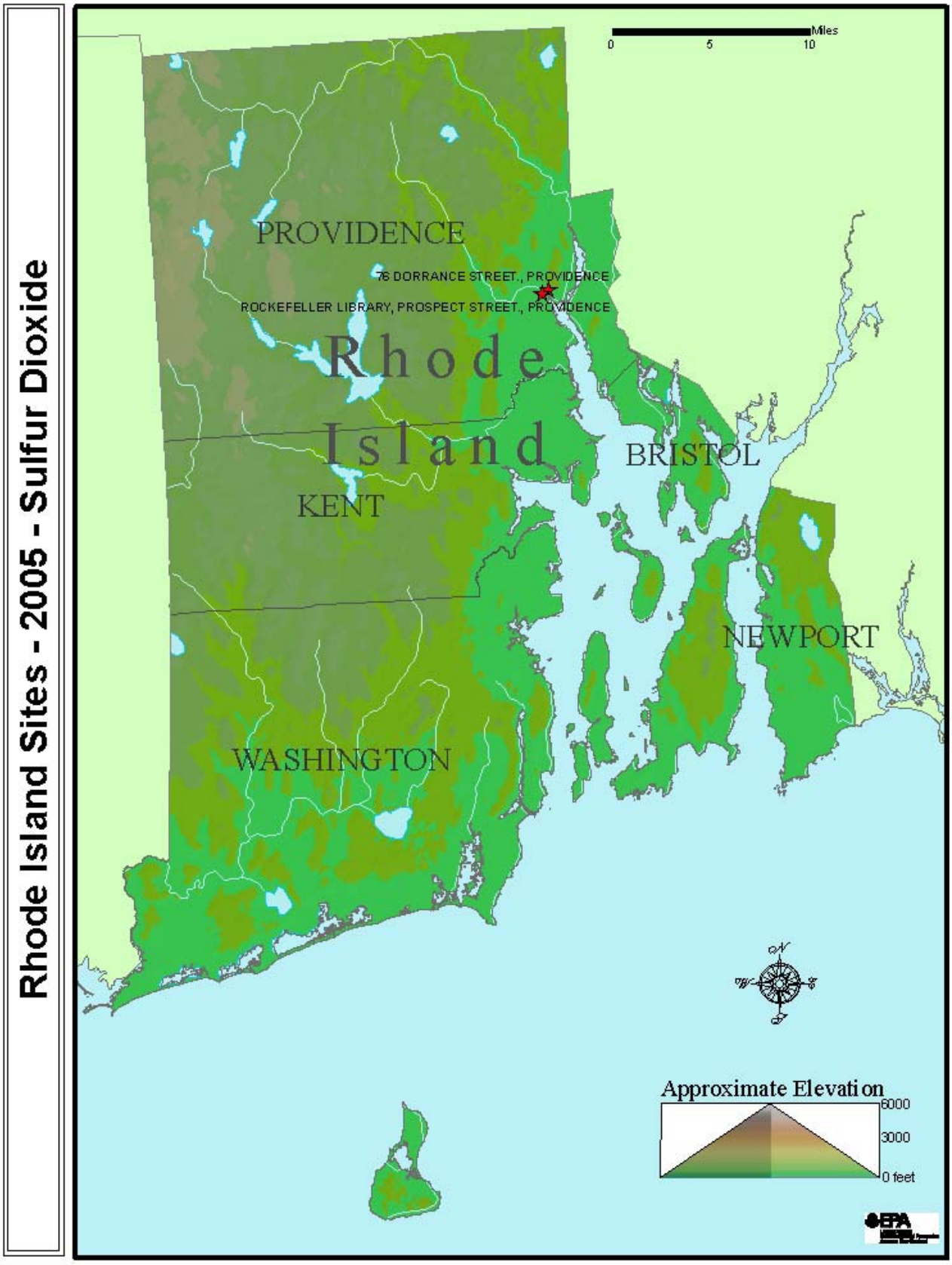
Rhode Island																	
2005Particulate Matter < 10 Microns																	
ug/m3																	
											2nd	3rd	4th	Days	Est. Days	Wtd.	
		Rep.						Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.	
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean	
44-003-0002	1	0907	Not in a city	Kent	W. ALTON JONES	56	61	56	92	40	38	34	27	0	0	11.1	
44-007-0022	1	0907	Providence	Providence	212 PRAIRIE AVE	61	61	61	100	48	46	39	36	0	0	18.3	
44-007-0022	2	0907	Providence	Providence	212 PRAIRIE AVE	48	55	48	87	48	46	39	35	0	0	19.4	
44-007-0026	1	0907	Pawtucket	Providence	VERNON STREET	57	61	57	93	55	54	46	46	0	0	24.4	
44-007-0027	1	0907	Providence	Providence	111 DORRANCE ST	55	61	55	90	49	42	36	35	0	0	20.2	*
44-007-0027	2	0907	Providence	Providence	111 DORRANCE ST	3	6	3	50	24	21	19		0	0	21.3	*
44-007-0029	1	0907	Providence	Providence	1655 WESTMINSTER ST	14	15	14	93	31	26	24	22	0	0	19.4	*
*Indicates that the mean does not satisfy summary criteria																	


Rhode Island Sites - 2005 - Particulate Matter < 2.5 Microns
Miles
0
5
10
PROVIDENCE
VERNON STREET , PAWTUCKET
FRANCIS SCHOOL, 64 BOURNE AVE, EAST PROVIDENCE
212 PRAIRIE AVE, PROVIDENCE
95 EDDY STREET, PROVIDENCE
Rhode Island
BRISTOL
KENT
W. ALTON JONES CAMPUS URI , WEST GREENWICH
NEWPORT
TARWELL ROAD, NARRAGANSETT
WASHINGTON
Approximate Elevation
6000
3000
0 feet
EPA

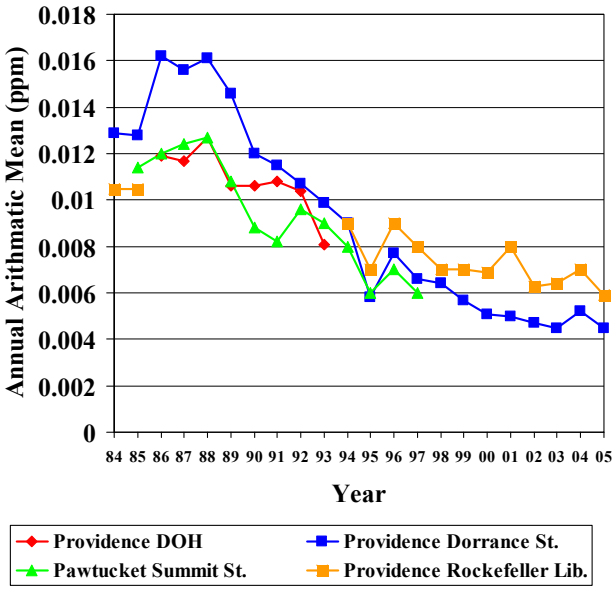
Rhode Island Particulate Matter < 2.5 Microns (PM2.5) Data

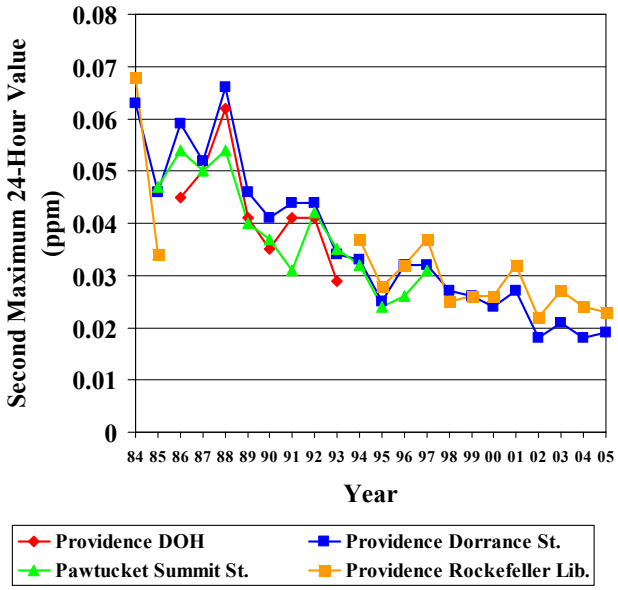


Rhode Island														
2005 PM 2.5														
All Values are in UG/CU Meters Local Conditions														
	P									2nd	3rd	4th	98th	Wtd.	
	O	Rept.						#	Highest	Highest	Highest	Highest	Percentile	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Value	Value	Value	Mean	
44-003-0002	1	0907	West Greenwich	Kent	W. ALTON JONES	120	85	36.6	32.4	31.9	22.7	32.4	8.32	*
44-003-0002	4	0907	West Greenwich	Kent	W. ALTON JONES	731	5117	46.4	43	38	37	36.2	11.02	*
44-007-0022	1	0907	Providence	Providence	212 PRAIRIE AVE	120	332	42.4	40	35.7	34.7	31.6	10.67	
44-007-0022	2	0907	Providence	Providence	212 PRAIRIE AVE	120	61	38.7	32.8	31.2	25.5	32.8	12.05	*
44-007-0022	4	0907	Providence	Providence	212 PRAIRIE AVE	731	6204	51.1	45.7	45.3	40.1	37.3	13.02	*
44-007-0022	5	1217	Providence	Providence	212 PRAIRIE AVE	820	91	32.9	30.9	24.3	22	30.9	10	*
44-007-0026	1	0907	Pawtucket	Providence	VERNON STREET	120	110	67.9	48.8	42.1	35.1	42.1	13.78	*
44-007-0028	1	0907	Providence	Providence	695 EDDY STREET	120	81	37.5	32.2	28.2	26	32.2	11.3	*
44-007-1010	1	0907	East	Providence	FRANCIS SCHOOL	120	323	38.5	38.5	36.3	34.2	29.9	10.26	*
44-009-0007	4	0907	Narragansett	Washington	TARWELL ROAD	731	4445	35.4	30	30	28.2	28.2	9.58	*
*Indicates that the mean does not meet summary criteria														


Rhode Island Sites - 2005 - Sulfur Dioxide
Miles
0
5
10
PROVIDENCE
76 DORRANCE STREET., PROVIDENCE
ROCKEFELLER LIBRARY, PROSPECT STREET., PROVIDENCE
Rhode
Island
BRISTOL
KENT
NEWPORT
WASHINGTON
Approximate Elevation
6000
3000
0 feet
EPA

Rhode Island Sulfur Dioxide Data





Rhode Island																	
2005 Sulfur Dioxide																	
All Values are in Units of Parts Per Million																	
								24-	24-		3-hour	3-hour		1-hour	1-hour		
	P							hour	hour			2nd			2nd		
	O	Org					#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method
Site ID	C	Type	City	County	Address		Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used
44-007-0012	2	0907	Providence	Providence	ROCKEFELLER LIBRARY		8173	0.026	0.023	0	0.051	0.048	0	0.066	0.064	0.0059	000
44-007-1009	1	0907	Providence	Providence	76 DORRANCE STREET		8014	0.027	0.019	0	0.051	0.036	0	0.064	0.052	0.0045	000

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Air Quality Summary – Vermont

The state of Vermont operated two carbon monoxide (CO) monitoring sites during 2005, in Rutland and Burlington. No exceedance or violation of the 1-hour or 8-hour CO National Ambient Air Quality Standards (NAAQS) was recorded at the two monitoring sites during 2005. The highest first and second 8-hour concentrations of CO were recorded at the Rutland site and were 1.8 ppm and 1.8 ppm, respectively. The 22 year trend of CO concentrations shows a general decline.

During 2005, 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 during 2005. No exceedance of the NAAQS for NO2 were recorded for either site. The last 21 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 in Vermont during 2005 was measured at the Burlington site. The mean was 0.0125 ppm, which is 25% of the NAAQS.

Neither of the two ozone monitoring sites in Vermont recorded 1-hour concentrations of ozone in excess of the NAAQS during 2005. The highest 1-hour concentration of ozone recorded in the state was 0.109 ppm and occurred at the Bennington site. The Underhill site's highest 1-hour concentration was 0.089 ppm. 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 in Vermont during 2005 was recorded at the Underhill site and was 0.083 ppm.

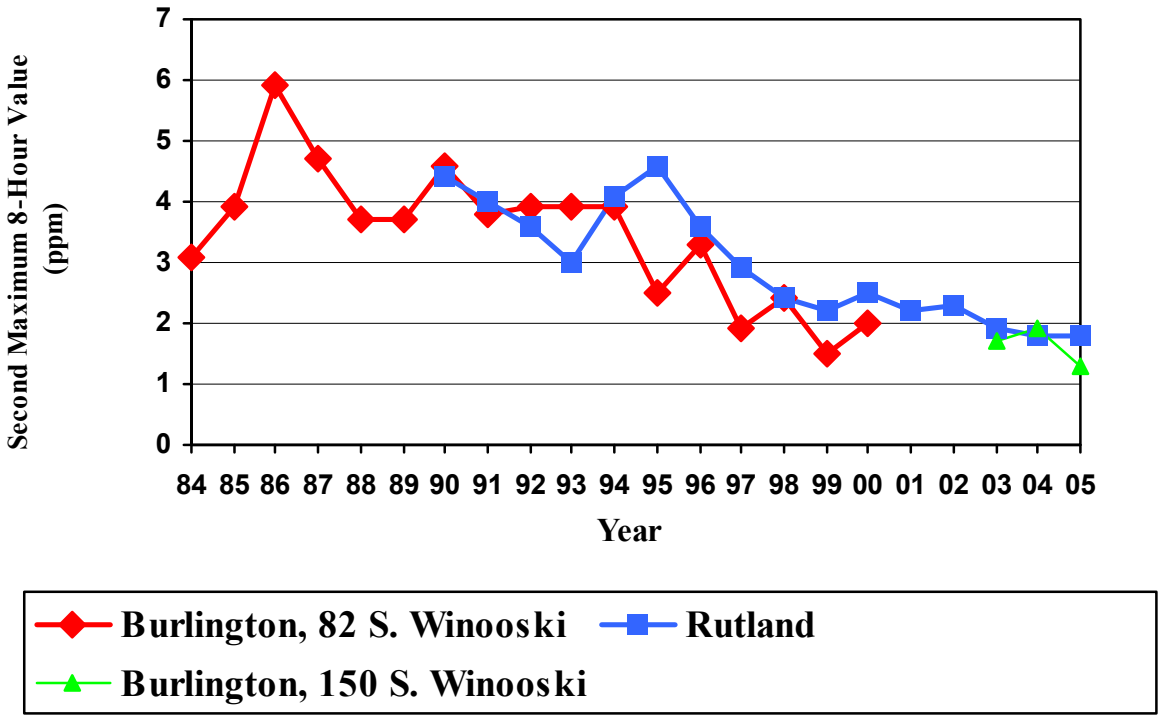
During 2005 Vermont maintained six monitoring sites measuring particulate matter less than 10 microns (PM10). Data for 2005 continued the ten-year trend of low PM10 concentrations recorded by Vermont monitoring sites. The highest 24-hour PM10 concentration in the state was recorded at the Shoreham North special purpose monitoring site and measured 67 ug/m3. Burlington recorded the highest annual weighted arithmetic mean PM10 concentration of 20.0 ug/m3. These concentrations were well below the NAAQS. The lowest PM10 concentrations were recorded at the Underhill site. The PM10 annual weighted arithmetic mean concentration at this site was 9.7 ug/m3, and the maximum 24-hour concentration was 48 ug/m3.

Vermont continued to operate a network of six fine particulate matter (PM2.5) monitoring sites in 2005. PM2.5 concentrations for these sites have historically been below the NAAQS. The Rutland site recorded the highest annual weighted arithmetic mean for a POC 1 monitor. This value was 11.84 ug/m3.

The state operated one sulfur dioxide (SO2) monitoring site in Rutland during 2005. The highest 3-hour SO2 concentration at the site was 0.059 ppm. The highest 24-hour average SO2 concentration was 0.041 ppm, and the highest annual arithmetic mean was 0.0051 ppm. The historical data indicates a general decline in the concentration of SO2, with the exception of 1994.

Vermont Sites 2005 - Carbon Monoxide

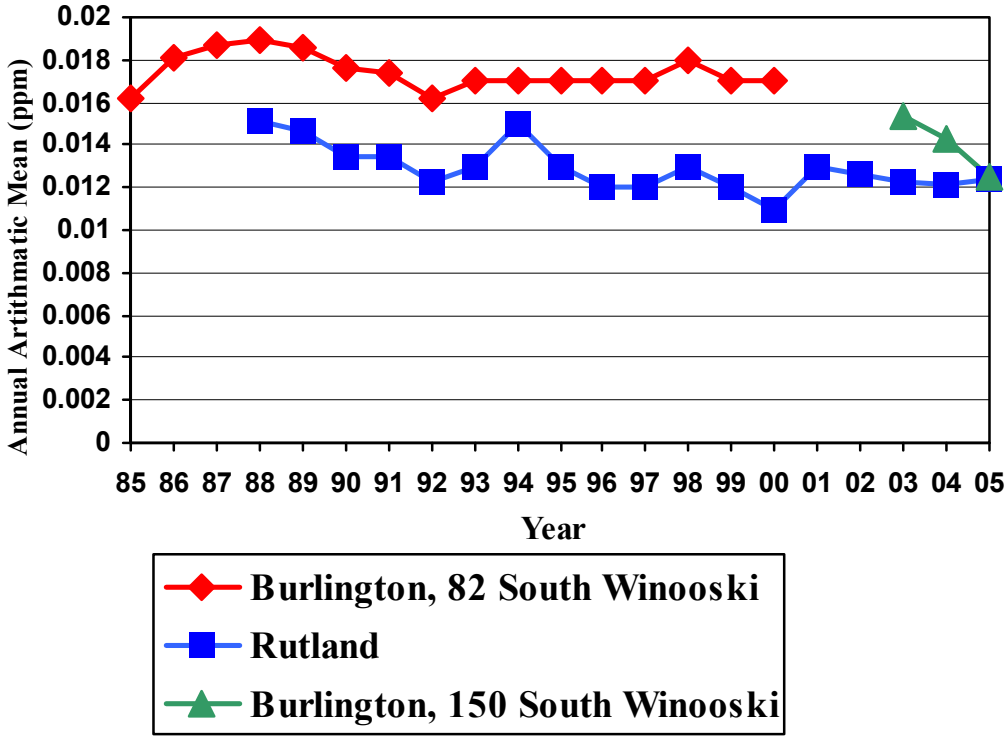
Vermont Carbon Monoxide Data



Vermont													
2005 Carbon Monoxide													
All Values are in Units of Parts Per Million													
							1-hour	1-hour		8-hour	8-hour		
	P							2nd			2nd		
	O	Org				#	Highest	Highest		Highest	Highest		Methods
Site ID	C	Type	City	County	Address	Obs	Value	Value	# > 35	Value	Value	# > 9	Used
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	7890	2.4	2.1	0	1.6	1.3	0	54
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	8117	2.9	2.8	0	1.8	1.8	0	54

Vermont Sites 2005 - Nitrogen Dioxide

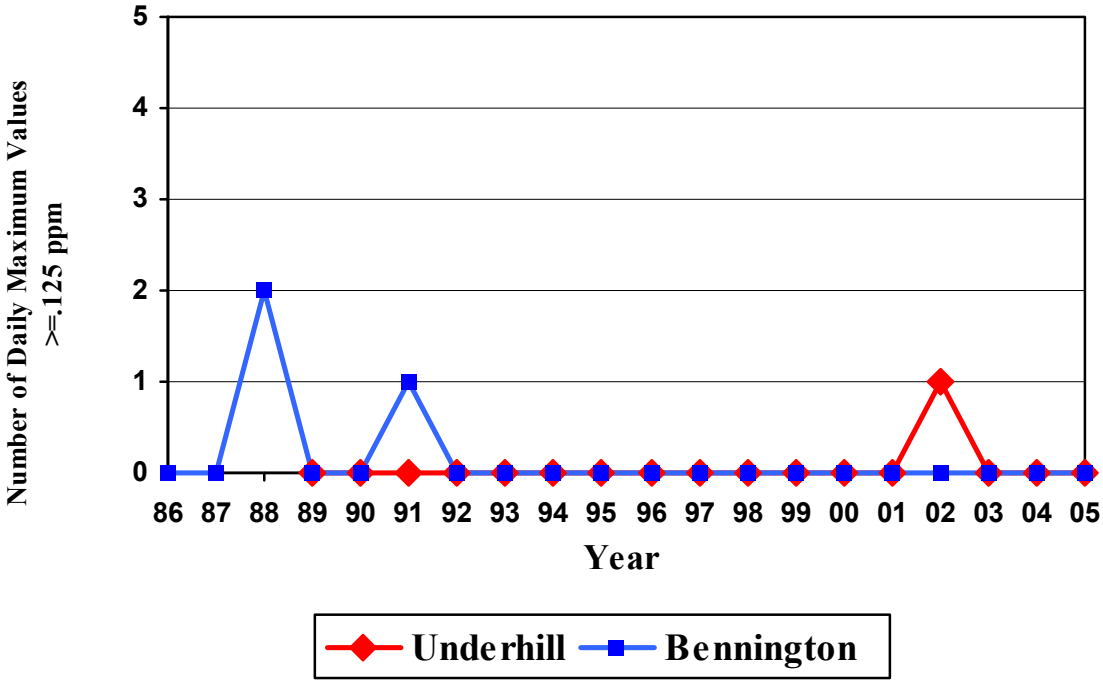
Vermont Nitrogen Dioxide Data



Vermont											
2005 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	
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	074	7795	0.057	0.054	0.0125	
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	074	8271	0.066	0.065	0.0124	

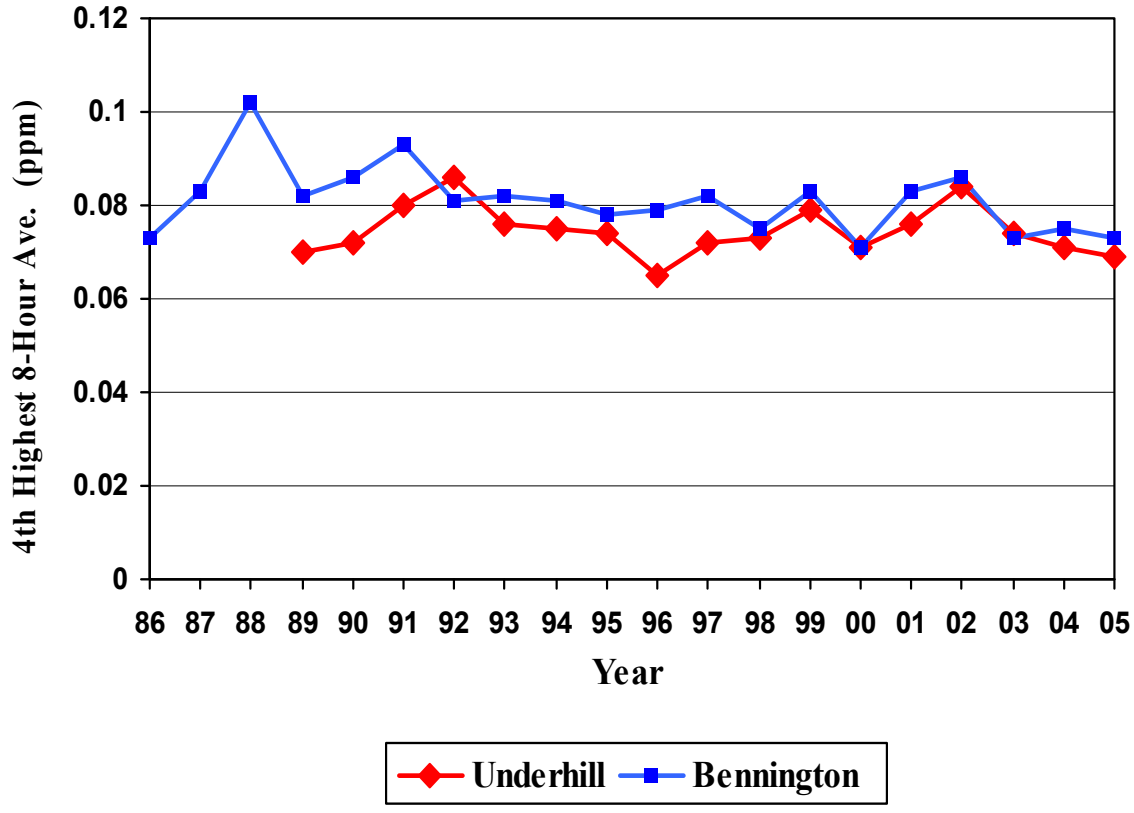
Vermont Sites 2005 - Ozone

Vermont 1-Hour Ozone Data



Vermont															
2005 Ozone (1-Hour)															
All Values are in Units of Parts Per Million															
	P								2nd	3rd	4th			Missing	
	O	Rep.				Num	Num	Highest	Highest	Highest	Highest	Day Max	Est. Day	Days	Method
Site ID	C	Org.	City	County	Address	Meas	Req	Value	Value	Value	Value	≥ 0.125	≥ 0.125	< 0.125	used
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD	169	183	0.109	0.092	0.086	0.085	0	0	2	87
50-007-0007	1	1119	Underhill	Chittenden	PROCTOR MAPLE RESEARCH	179	183	0.089	0.079	0.077	0.076	0	0	2	87

Vermont 8-Hour Ozone Data



Vermont														
2005 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 ≥	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	Reported
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD	92	169	183	0.081	0.081	0.077	0.073	0	87
50-007-0007	1	1119	Underhill	Chittenden	PROCTOR MAPLE RESEARCH	97	178	183	0.083	0.075	0.073	0.069	0	87

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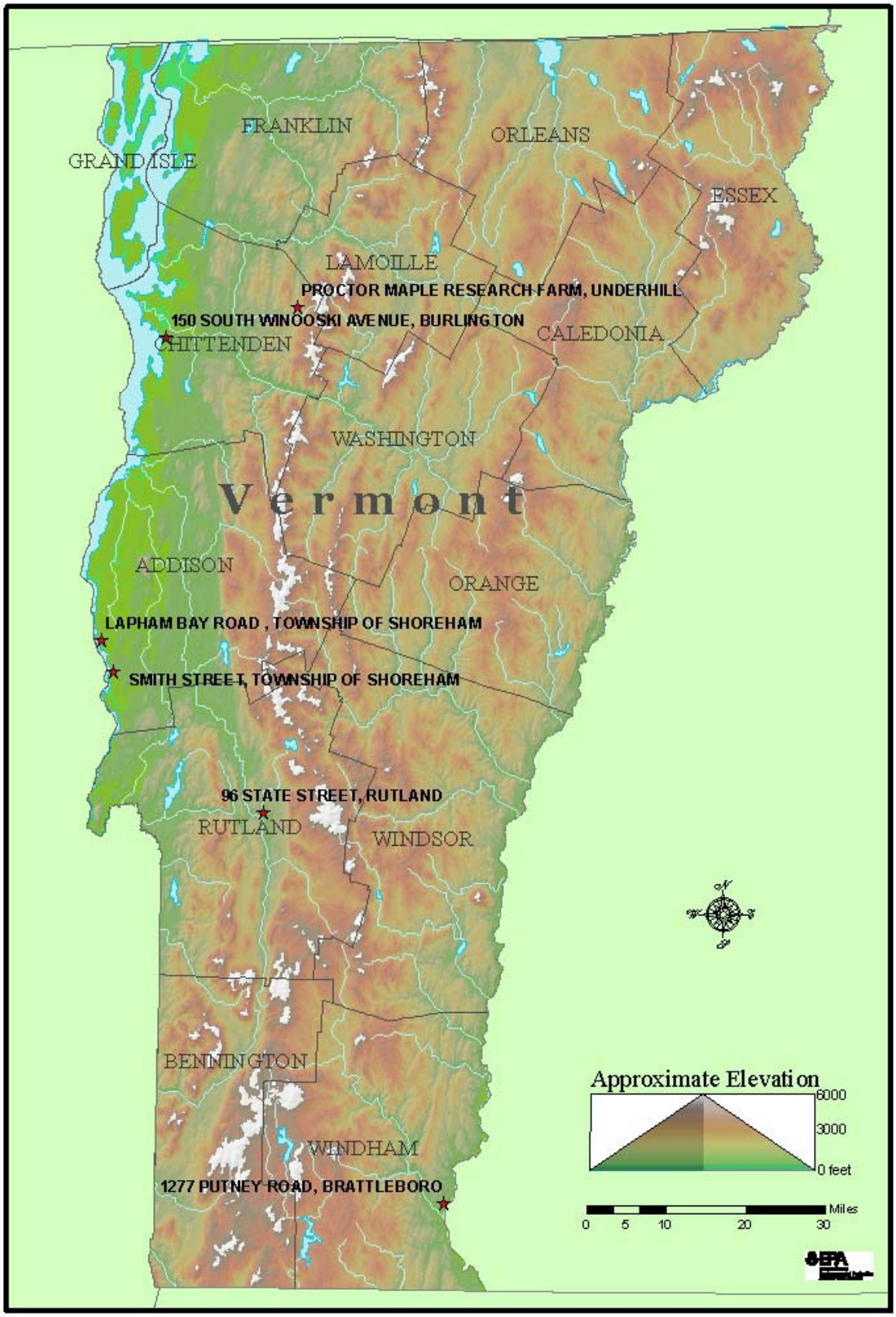
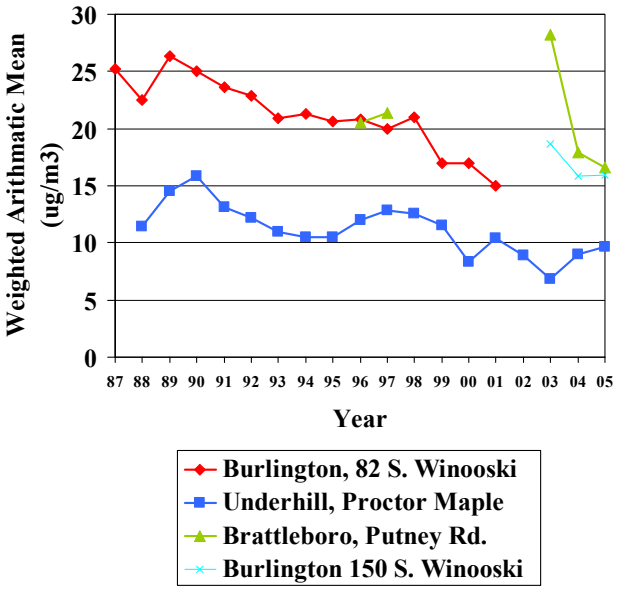
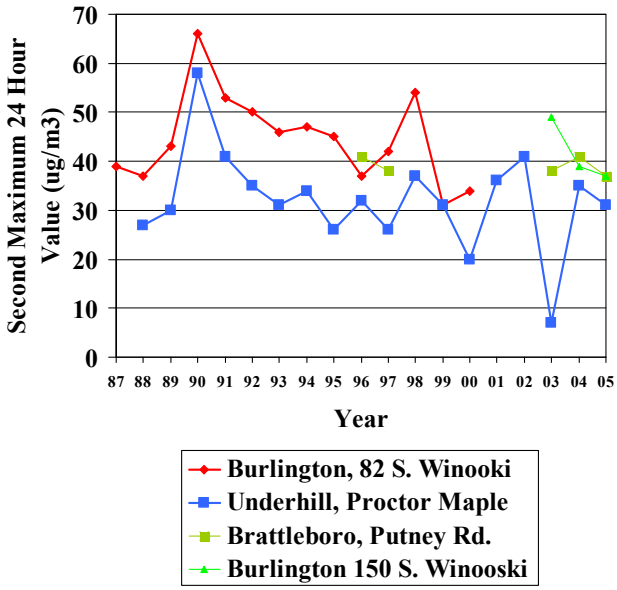
Vermont Sites 2005 - Particulate Matter < 10 Microns



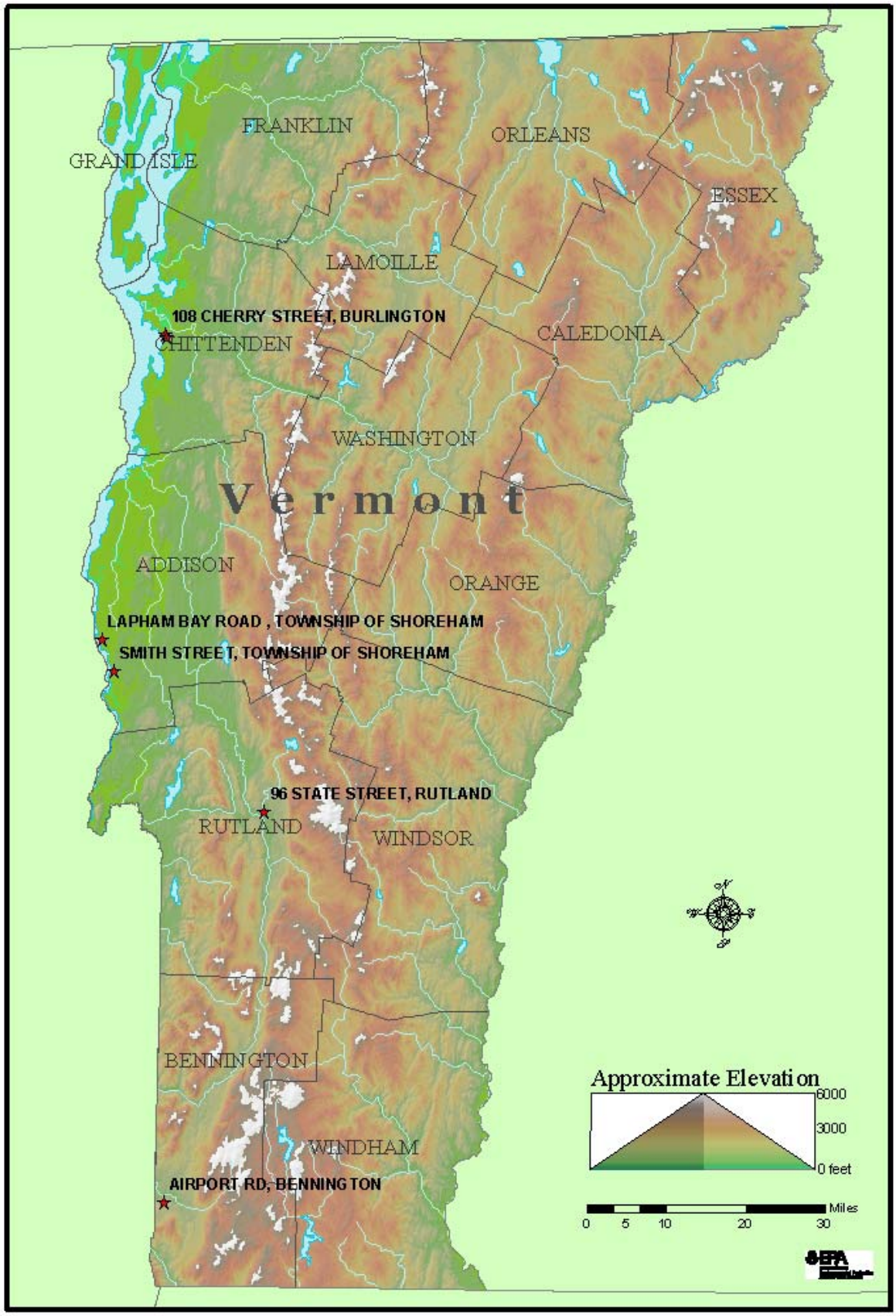
Vermont Particulate Matter < 10 Microns (PM10) Data



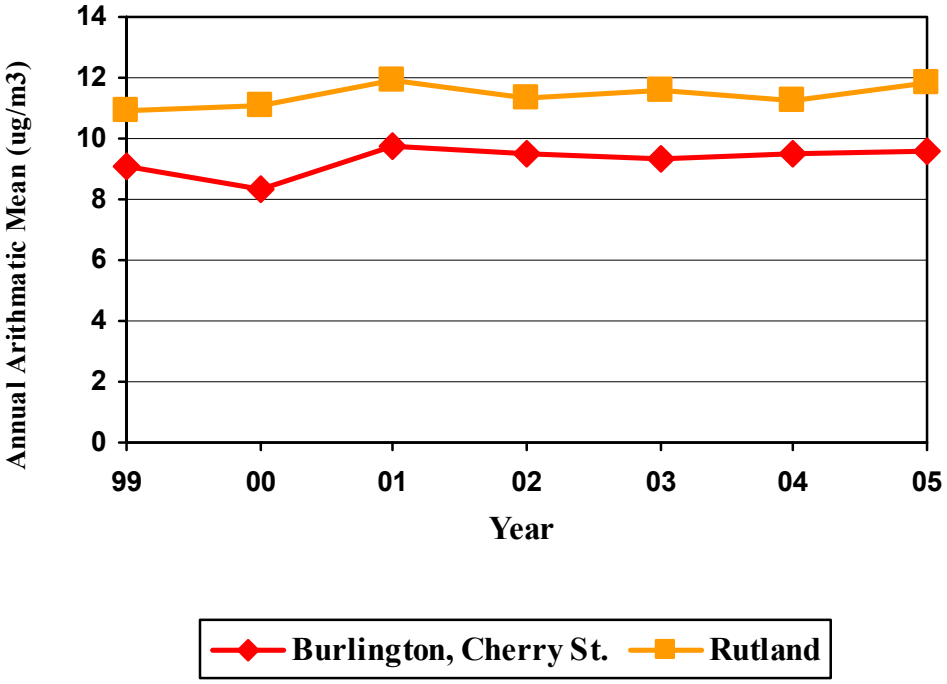


Vermont																	
2005 Particulate Matter < 10 Microns																	
ug/m3																	
											2nd	3rd	4th	Days	Est. Days	Wtd.	
		Rep.						Number	Valid	Highest	Highest	Highest	Highest	Max	Max	Arith.	
SITE ID	PO	Org	City	County	Address	# Obs	# Req.	Days	% Obs	Value	Value	Value	Value	>150	>150	Mean	
50-001-0002	1	1119	Not in a city	Addison	LAPHAM BAY ROAD	56	61	56	92	67	61	57	56	0	0	17.1	
50-001-0003	1	1119	Not in a city	Addison	SMITH STREET	58	61	58	95	51	38	36	28	0	0	13.2	
50-007-0007	1	1119	Underhill	(TowChittenden	PROCTOR MAPLE BARN	59	61	59	97	48	31	26	24	0	0	9.7	
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOSKI	57	59	57	97	49	37	37	29	0	0	15.9	
50-007-0014	3	1119	Burlington	Chittenden	150 SOUTH WINOSKI	113	119	113	95	60	53	51	46	0	0	20	
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	54	61	54	89	53	48	39	33	0	0	17.7	
50-025-0004	1	1119	Brattleboro	(TWindham	1277 PUTNEY ROAD	54	61	54	89	47	37	36	33	0	0	16.6	
50-025-0004	2	1119	Brattleboro	(TWindham	1277 PUTNEY ROAD	59	61	59	97	52	46	36	35	0	0	17.7	

Vermont Sites 2005 - Particulate Matter < 2.5 Microns



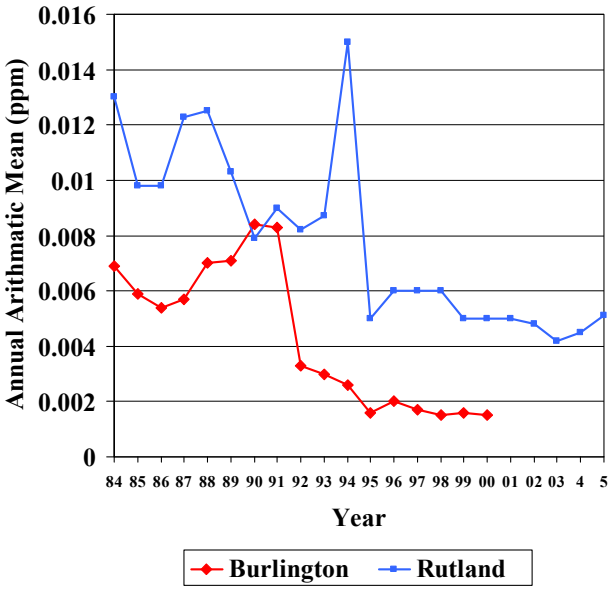
Vermont Particulate Matter < 2.5 Microns (PM2.5) Data

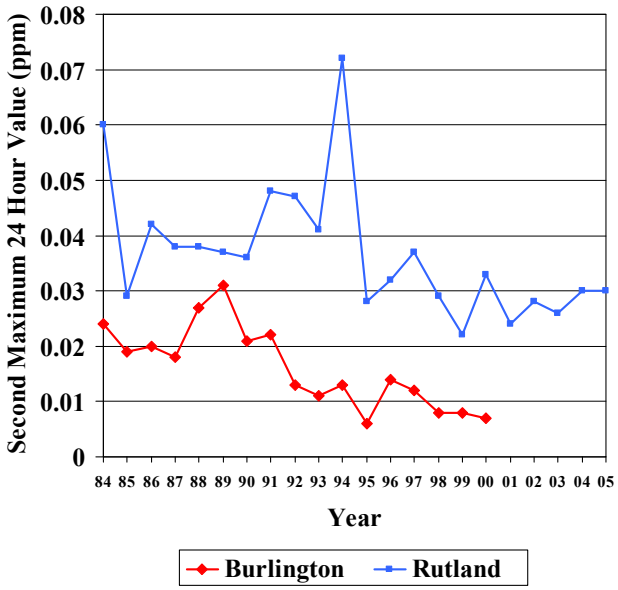


Vermont														
2005 PM 2.5														
All Values are in UG/CU Meters Local Conditions														
	P								2nd	3rd	4th	98th	Wtd.	
	O	Rept.						#	Highest	Highest	Highest	Highest	Percentile	Arith.	
Site ID	C	Org.	City	County	Address	Method	Obs	Value	Value	Value	Value	Value	Mean	
50-001-0002	1	1119	Shoreham North	Addison	LAPHAM BAY ROAD	145	121	46	33.1	31.4	25.9	31.4	9.74	
50-001-0003	1	1119	Shoreham South	Addison	SMITH STREET	145	113	44.8	35	28.6	26.3	28.6	9.37	
50-003-0004	1	1119	Bennington	Bennington	AIRPORT RD	145	114	41.7	31.9	27.7	24.9	27.7	9.52	
50-003-0004	3	1119	Bennington	Bennington	AIRPORT RD	761	7559	44.2	39.8	32.6	32.3	29.3	10.89	
50-007-0012	1	1119	Burlington	Chittenden	108 CHERRY ST	145	119	37.8	31.2	29.8	27.9	29.8	9.57	
50-007-0012	2	1119	Burlington	Chittenden	108 CHERRY ST	118	120	41.9	37.9	28.9	28.1	37.9	9.55	
50-007-0012	5	1217	Burlington	Chittenden	108 CHERRY ST	810	111	45.2	35.2	33.5	29.7	33.5	9.62	*
50-007-0014	1	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	145	112	42.3	31	29.2	27.9	29.2	9.89	
50-007-0014	3	1119	Burlington	Chittenden	150 SOUTH WINOOSKI	761	8008	44.5	44.4	40	35.8	29.4	10.72	
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	145	109	37.9	36	32.8	32.3	32.8	11.84	
50-021-0002	3	1119	Rutland	Rutland	96 STATE STREET	761	8190	46.5	41.1	40.5	39.7	38.3	12.86	
*Indicates that the mean does not meet summary criteria														

Vermont Sites 2005 - Sulfur Dioxide

Vermont Sulfur Dioxide Data





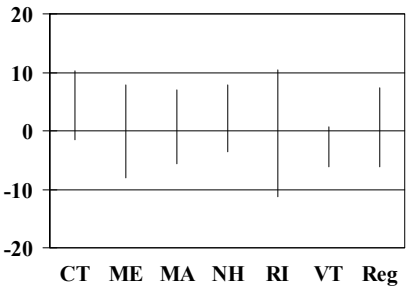
Vermont																
2005 Sulfur Dioxide																
All Values are in Units of Parts Per Million																
								24-	24-		3-hour	3-hour		1-hour	1-hour		
	P							hour	hour			2nd			2nd		
	O	Org				#		2nd	Obs	Highest	Highest	Obs	Highest	Highest	Arith.	Method
Site ID	C	Type	City	County	Address	Obs	Highest	Highest	> 0.14	Value	Value	> 0.5	Value	Value	Mean	Used
50-021-0002	1	1119	Rutland	Rutland	96 STATE STREET	8273	0.041	0.03	0	0.059	0.055	0	0.061	0.061	0.0051	060

Accuracy Data

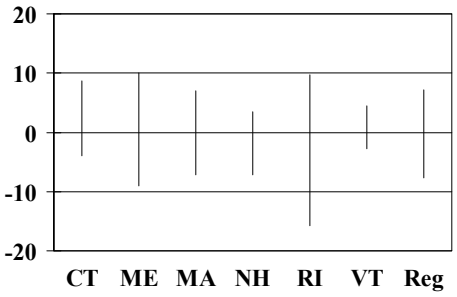
Acceptable 95% probability limits as established by the QA Division of EPA.

Limits	Accuracy
Satisfactory	<± 20%
High	± 21% to ±25%
Excessive	>±25%

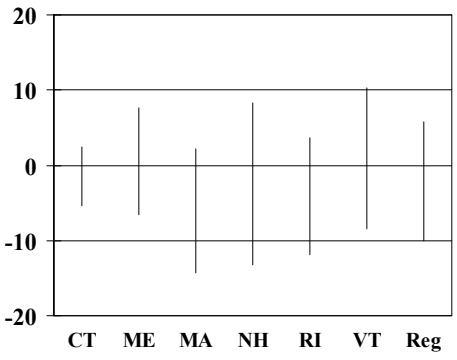
SO2 Accuracy Data



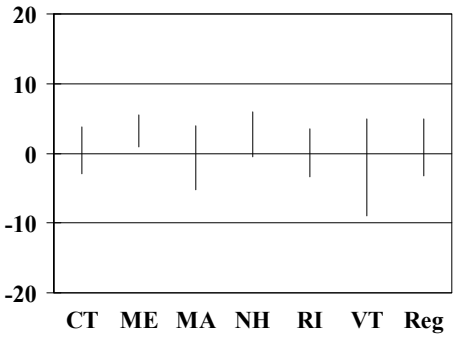
O3 Accuracy Data



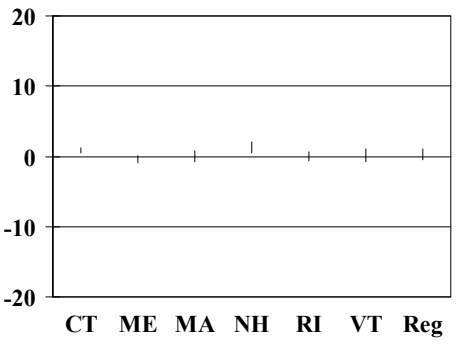
NO2 Accuracy Data



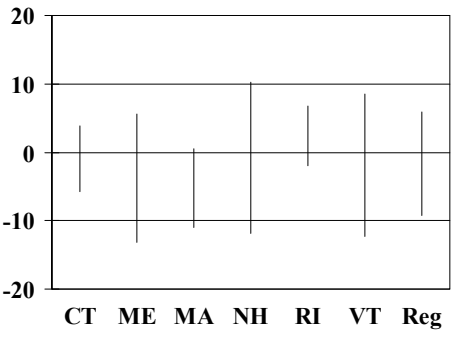
PM10 Accuracy Data



PM2.5 Accuracy Data



CO Accuracy Data

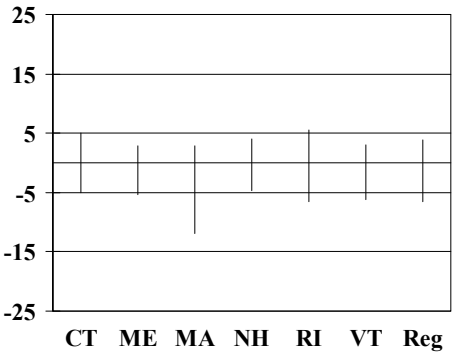


Precision Data

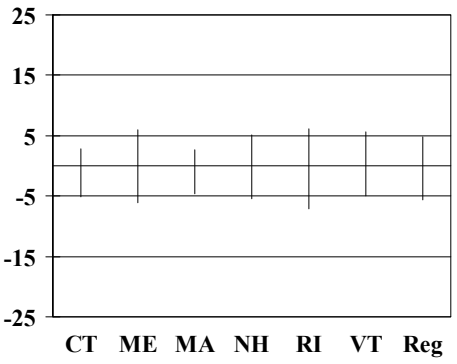
Acceptable 95% probability limits as established by the QA Division of EPA.

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

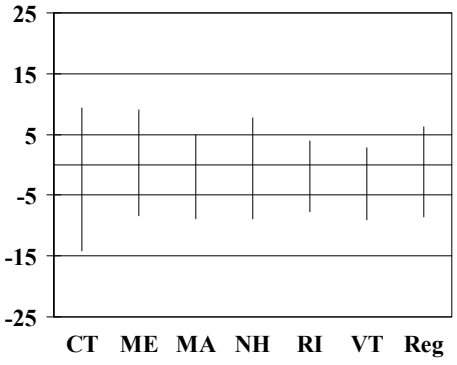
SO2Precision Data



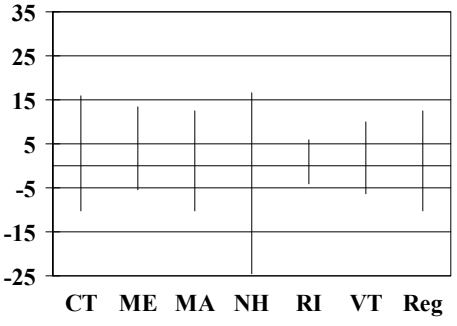
O3 Precision Data



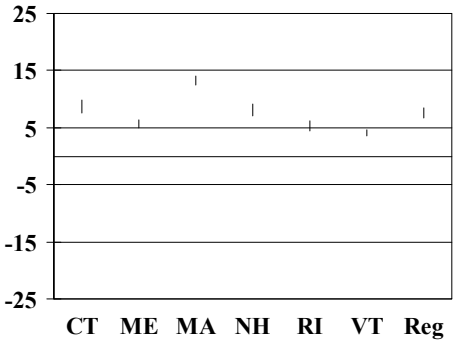
NO2 Precision Data



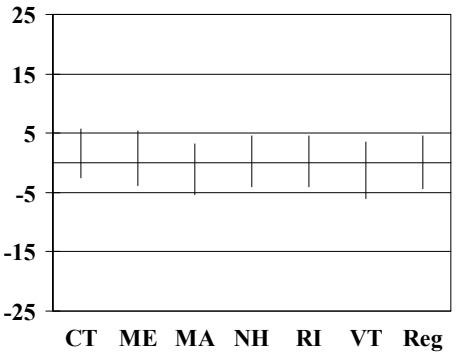
PM10 Precision Data Collocated



PM2.5 Precision Data



CO Precision Data



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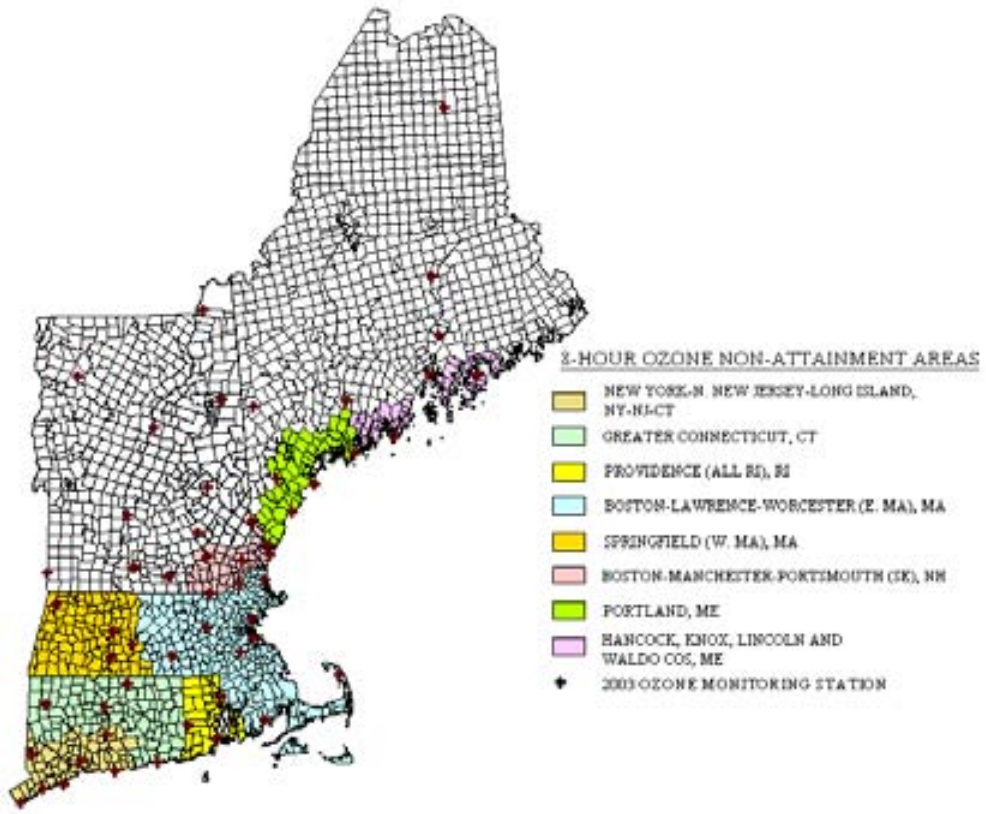
Non-Attainment Areas
for PM 2.5, and 8-Hour Ozone

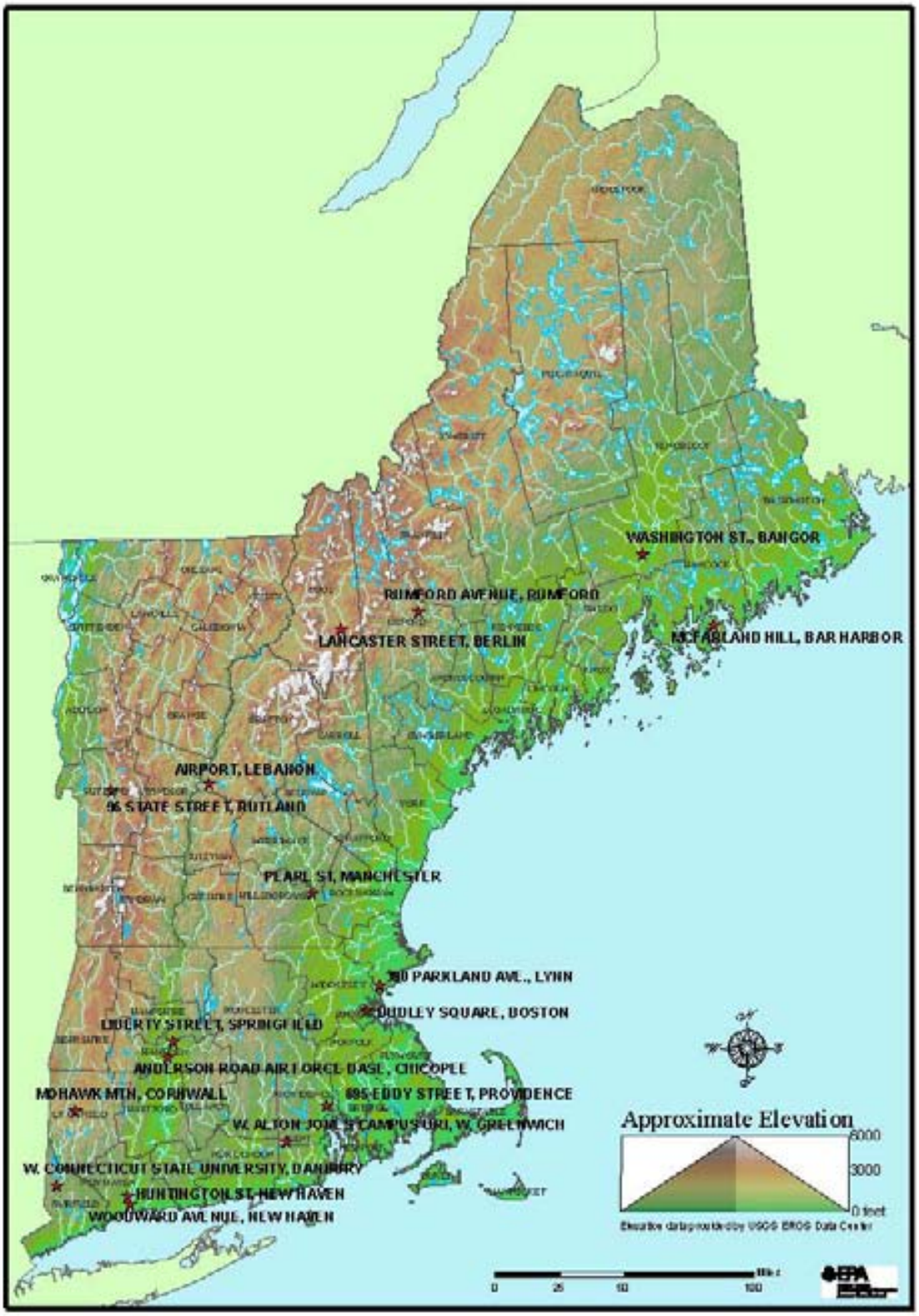
Non-Attainment Areas for $PM_{2.5}$

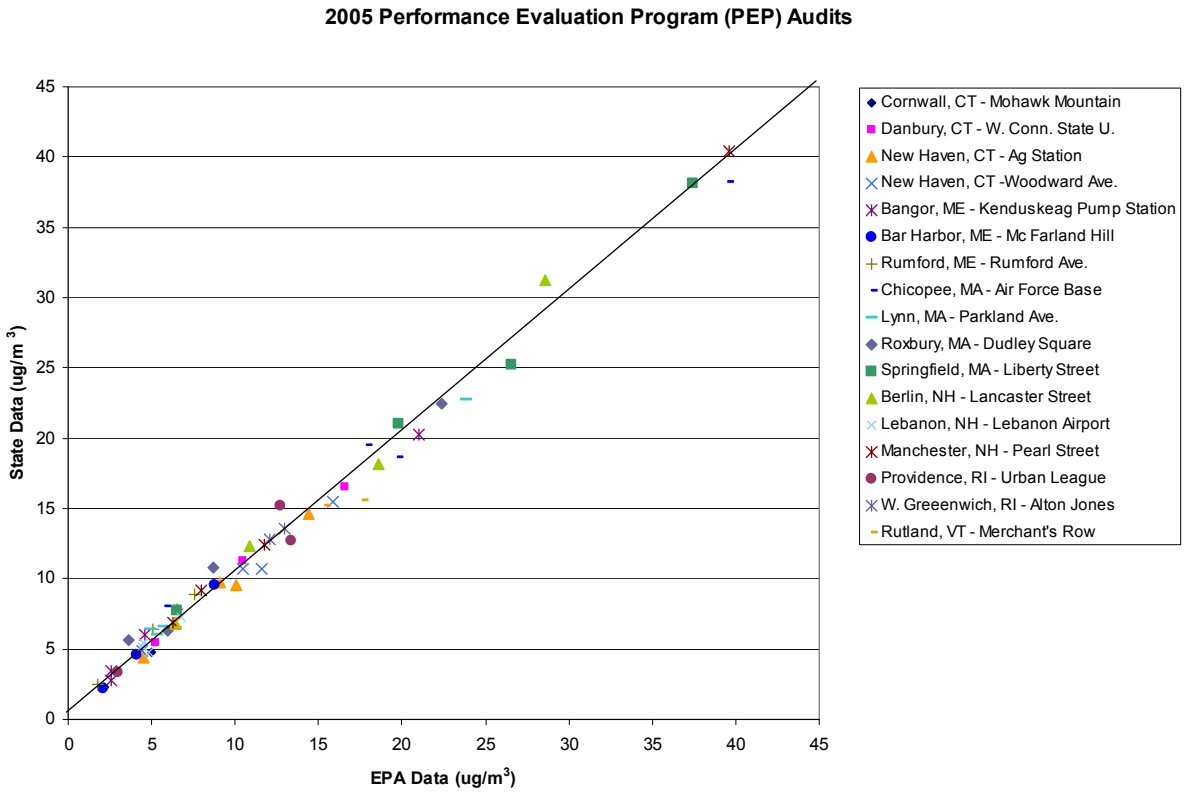
EPA has revoked the 1-hour ozone standard, effective June 15, 2005

Non-Attainment Areas for 8-Hour Ozone



Performance Evaluation Program (PEP) Sites - 2005





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 2005 PM 2.5 PEP graph shows that in general, all six states performed very well during the year.

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