



# 1997 Air Quality Report

A summary of the New Jersey air quality data for 1997. Contains information on the Pollutant Standards Index (PSI), concentrations of individual pollutants - sulfur dioxide, total suspended particulates and inhalable particulates, carbon monoxide, ozone, nitrogen oxides, lead, other metals, smoke shade, toxic pollutants and acid precipitation - and a monthly summary of meteorological information. A trend comparison with previous years is also provided.

October, 1998

New Jersey Department of Environmental Protection  
Bureau of Air Monitoring

## 1997 AIR QUALITY REPORT

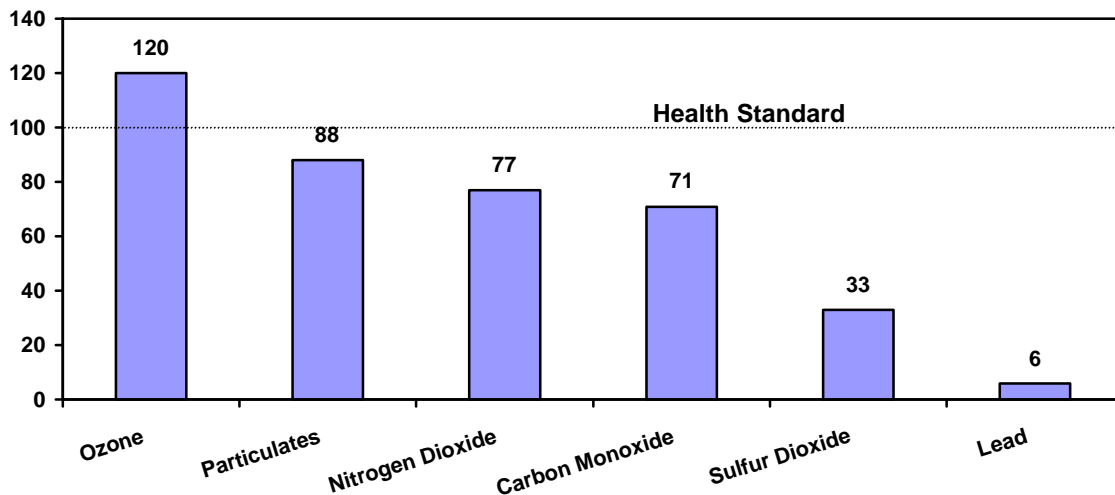
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1997 AIR QUALITY REPORT  
EXECUTIVE SUMMARY

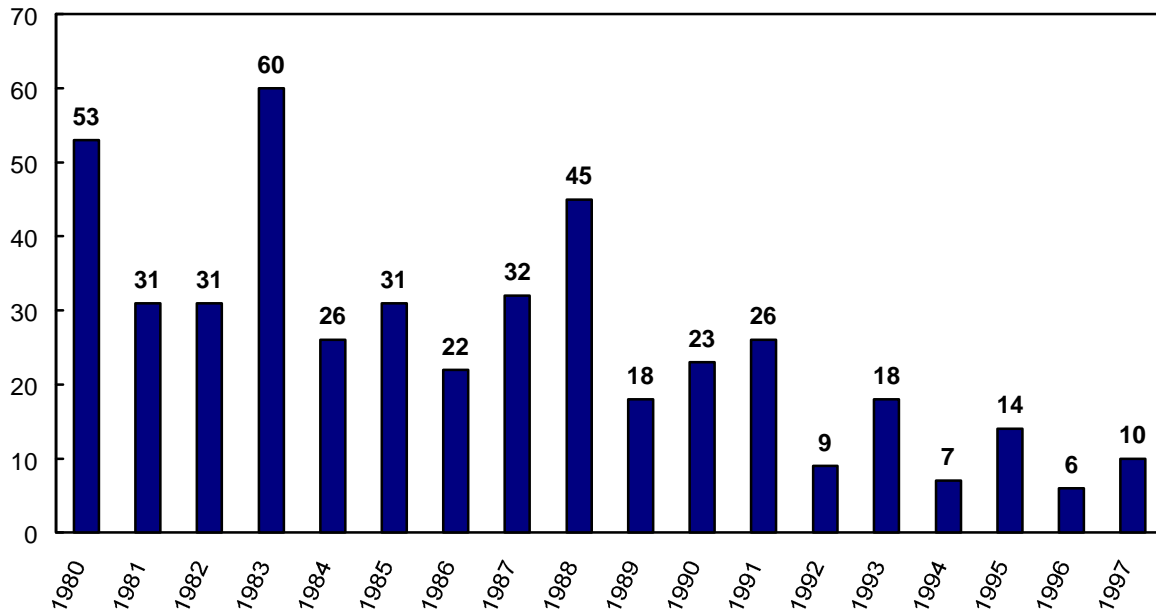
Based on indicators monitored by the Department of Environmental Protection, air quality in New Jersey has improved significantly since the passage of the original Clean Air Act in 1970. There are National Ambient Air Quality Standards (NAAQS) for six specific air pollutants ("criteria pollutants") and these are the indicators of overall air quality that are used. The NAAQS are based both on health effects (for the primary standards) and welfare effects (for the secondary standards). A bar chart comparing the maximum criteria pollutant concentrations recorded in 1997 with the health NAQQS can be seen below. In 1997, all pollutants except ozone were well below the standards. Even carbon monoxide, which was responsible for unhealthy air quality on 44 days as recently as 1984, has declined significantly in recent years and did not reach unhealthy levels in 1997.

**Maximum 1997 Pollutant Concentrations  
as Percent of Federal Standards**



The health standard for ozone was exceeded on ten days in 1997 which was slightly higher than in 1996. In July, 1997 more stringent NAAQS for ozone and particulates were promulgated. Based on the new ozone standard, New Jersey would have had 36 exceedance days as compared to 10 days with the old standard. Sampling data is not yet available for the new particulate standard, however, it is estimated that most of the state would exceed that standard. Ozone and particulates are New Jersey's two most pervasive air quality problems and more measures need to be taken to ensure that those health standards are attained in future years.

## Number of Days the Ozone Health Standard Was Exceeded in New Jersey, 1980-1997



Pollutants other than the six criteria pollutants, and parameters such as meteorology and acid precipitation are also routinely monitored by the department. Acid precipitation remains a persistent environmental problem in New Jersey. Measured pH levels ten times more acidic than the naturally occurring pH of rainwater (5.0 to 5.6) are recorded regularly. The acidity of precipitation measured in New Jersey has improved since 1994 as a result of implementation of the first phase of acid rain controls required by the 1990 Clean Air Act Amendments. Summaries of the acid precipitation data as well as all other pollutant and weather data collected by the department are also contained in this report. Summaries of the data by year from 1975 to 1997 are reported in Appendix A, and Appendix B provides maps illustrating designated nonattainment areas within the state as defined by the U.S. Environmental Protection Agency in the Code of Federal Regulations (40 CFR Part 81). Nonattainment designations are based on evaluations of air monitoring data, emissions inventories, dispersion modeling and other analyses performed for specific "base year(s)". Thus they may not appear consistent with direct comparisons of the 1997 data to the air quality standards.

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to preserve the layout of the original printed report)

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Note: Supplementary Information Available:

1. Annual Quality Assurance Report - 1997
2. Annual Air Quality Brochure - 1998

The above supplementary information is available for public inspection.  
Please contact Andy Mikula at 609-984-5512 to make arrangements.



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AIR QUALITY

MONITORING

REPORT

1997



## MONITORING AIR QUALITY IN NEW JERSEY

The major objectives of monitoring air pollutant levels are: 1) to provide an early warning system for pollutant levels which may have the potential to endanger public health; 2) to assess air quality in light of established public health and welfare standards; and 3) to track air pollution trends and changes in ambient air quality due to changes in the amount of pollutants emitted.

Continuous air pollution monitoring provides critical information needed in the event of an air pollution episode. When meteorological conditions develop which may lead to an increase in airborne pollutants for extended periods of time, a threat to the public health, welfare, and safety may exist. When an air pollution episode occurs pollutant levels are carefully watched around-the-clock to ascertain if air quality has deteriorated sufficiently to warrant emergency actions. A daily reporting system known as the Pollutant Standards Index (see pages 9-13) has been developed for disseminating air quality information daily and during emergency situations.

An air quality standard defines a limit for the atmospheric concentration of airborne contaminants and is established for the purpose of protecting the public health and welfare. Air quality standards are derived from scientific studies of the effects produced by various exposures to specific pollutants. The New Jersey and National Ambient Air Quality Standards are divided into primary and secondary standards. The primary standards define air quality levels intended to protect the public health with an adequate margin of safety. The secondary standards define levels of air quality intended to protect the public welfare from any known or anticipated adverse effects of a pollutant (e.g. soiling, vegetation damage, material corrosion). Both the State and National Ambient Air Quality Standards are listed in Table 1. This report compares the 1997 air quality with these standards.

Ambient air quality standards cover relatively few air pollutants. For example, no ambient air quality standards exist for acid deposition, metals (except lead), or toxic air pollutants. Yet these pollutants are significant. Consequently, acid deposition data collected by the precipitation sampling network are included in this report. In addition, arithmetic means and maximums of the results of metal analyses on samples collected at selected sites of the particulate sampling network are included in this report.

Finally, ambient air quality data are used as the baseline for evaluating the effect of the construction of new emission sources or of modifications to existing ones. Tracking ambient air quality is necessary to ensure that air quality standards will be achieved and maintained. Air quality data are also used as a baseline in the development of air pollution control regulations contained in the New Jersey State Implementation Plan.

TABLE 1

## AMBIENT AIR QUALITY STANDARDS

<u>Pollutant</u>	<u>Standard</u>	<u>Averaging Period</u>	<u>New Jersey (a)</u>	<u>National (b)</u>
Sulfur Dioxide	Primary	12-month arith. mean	80 ug/m <sup>3</sup> (.03 ppm)	.030 ppm
	Primary	24-hour average	365 ug/m <sup>3</sup> (.14 ppm)	.14 ppm <sup>c</sup>
	Secondary	12-month arith. mean	60 ug/m <sup>3</sup> (.02 ppm)	---
	Secondary	24-hour average	260 ug/m <sup>3</sup> (.10 ppm)	---
	Secondary	3-hour average	1300 ug/m <sup>3</sup> (0.5 ppm)	0.5 ppm <sup>c</sup>
Total Suspended Particulates	Primary	12-month geom. mean	75 ug/m <sup>3</sup>	---
	Primary	24-hour average	260 ug/m <sup>3</sup>	---
	Secondary	12-month geom. mean (d)	60 ug/m <sup>3</sup>	---
	Secondary	24-hour average	150 ug/m <sup>3</sup>	---
Inhalable Particulates (PM10)	Prim. & Sec.	Annual arith. mean	---	50 ug/m <sup>3</sup>
	Prim. & Sec.	24-hour average	---	150 ug/m <sup>3</sup>
Fine Particulates (PM2.5)	Prim. & Sec.	Annual arith. mean	---	15 ug/m <sup>3</sup>
	Prim. & Sec.	24-Hour Average	---	65 ug/m <sup>3</sup>
Carbon Monoxide	Prim. & Sec.	8-hour average	10 mg/m <sup>3</sup> (9 ppm)	9 ppm (10 mg/m <sup>3</sup> ) (e)
	Prim. & Sec.	1-hour average	40 mg/m <sup>3</sup> (35 ppm)	35 ppm (40 mg/m <sup>3</sup> ) (e)
Ozone	Primary	Max. Daily 1-Hr. Avg.	.12 ppm (235 ug/m <sup>3</sup> )	.12 ppm (235 ug/m <sup>3</sup> ) (f)
	Secondary	1-hour average	.08 ppm (160 ug/m <sup>3</sup> )	.12 ppm (235 ug/m <sup>3</sup> ) (f)
	Prim. & Sec.	8-hour average	---	.08 ppm (160 ug/m <sup>3</sup> ) (f)
Nitrogen Dioxide	Prim. & Sec.	12-month arith. mean	100 ug/m <sup>3</sup> (.05 ppm)	.053 ppm (100 ug/m <sup>3</sup> )
Lead	Prim. & Sec.	3-month average	1.5 ug/m <sup>3</sup>	---
		Quarterly Mean	---	1.5 ug/m <sup>3</sup>

a) New Jersey short-term standards are not to be exceeded more than once in any 12-month period.

b) National short-term standards are not to be exceeded more than once in a calendar year.

c) National standards are block averages rather than moving averages.

d) Intended as a guideline for achieving short-term standard.

e) National secondary standards for carbon monoxide have been dropped.

f) Maximum daily 1-hour averages: averaged over a three year period the expected number of days above the standard must be less than or equal to one. This standard was replaced by an 8-hour average standard on September 18, 1997.

g) Standard is met when the 3-year average of the fourth highest daily maximum 8-hour average is less than or equal to .08 ppm. This new standard became effective September 18, 1997.

## NEW JERSEY AIR MONITORING NETWORKS

A listing of monitoring locations in operation during 1997 along with addresses and parameters measured is shown in Table 2. The monitoring results contained in this report were provided by three separate networks: 1) Continuous Air Monitoring, 2) Particulate Sampling and 3) Precipitation Sampling.

The Continuous Air Monitoring Network consisted of 30 automated remote locations which transmitted data around-the-clock to a centralized computer facility located in Trenton. The computer interrogates the field monitors once each minute to retrieve the data. Pollutants monitored by the Continuous Air Monitoring Network include: sulfur dioxide, carbon monoxide, ozone, nitrogen oxides, smoke shade, and meteorological parameters such as wind speed/direction, temperature, relative humidity, solar radiation, and barometric pressure.

The Particulate Sampling Network consisted of 21 remote locations. Each sampler collected a 24-hour sample at least once every six days. Sampling data, however, are not available on a real-time basis. A field technician must retrieve the sample for laboratory work. A total of 5 samplers were operated for total suspended particulates and 23 samplers for inhalable particulates. In addition, 4 continuous monitoring instruments for inhalable particulates were in operation during 1997. Subsequent laboratory analyses for selected samples included determinations of the concentrations of lead and other trace metals. Changes were made to the particulate sampling network in 1997 based on an evaluation of historical data. TSP sites were reduced by 9, lead by 7 and PM10 by 7. These reductions were based on years of data showing low readings and in anticipation of new monitoring requirements for particulate matter that were promulgated on July 18, 1997.

The Photochemical Assessment Monitoring Stations (PAMS) program is a major new monitoring effort being implemented to measure levels of ozone precursors. This network will provide hourly data on some 60 individual organics known to be important in ozone formation. PAMS sites will also measure Nitrogen Oxides, Ozone and specific weather parameters. The first PAMS site in New Jersey went on line on June 1, 1995 at Rider University. A second location at Rutgers University was put into operation in 1996. A third location in Camden was started in 1997. PAMS data will be reported separately and is not included in this report.

The Precipitation Sampling Network consisted of three locations. Similar to the Particulate Sampling Network, this network does not provide continuous real-time data. Rain water samples are retrieved either on a weekly basis or after each storm event. Laboratory analyses provide information on the observed pH and conductivity along with the concentrations of sulfate, nitrate, chloride, calcium, magnesium, potassium, sodium and ammonium ions.

Additional information provided in this report includes: 1) 6-9 a.m. non-methane organic compounds and nitrogen oxides from an EPA summer study of ozone precursors at Newark, and 2) lead and other trace metals data from sampling done at Cookson Pigments (formerly Heubach).

For federal reporting purposes some parameters were further subdivided by the following site coding:

1) State and Local Air Monitoring Sites (SLAMS) - These sites fulfill the federal monitoring requirements for the State.

2) National Air Monitoring Sites (NAMS) - These sites are a subset of the SLAMS which must comply with stricter siting criteria and reporting requirements.

3) Special Purpose Monitors (SPM) - These monitors fulfill a specific need or purpose and are not federally required. SPM's are used for a number of reasons: a) to collect data for research projects; b) to monitor around major point sources; or c) to collect data concerning pollutants for which National Ambient Air Quality Standards have not been established.



TABLE 2

## NEW JERSEY AIR MONITORING PROGRAM -- 1997

## PARAMETER CODING

SO2	-	SULFUR DIOXIDE	PB	-	LEAD
TSP	-	TOTAL SUSPENDED PARTICULATES	TM	-	TRACE METALS
CO	-	CARBON MONOXIDE	IP	-	INHALABLE PARTICULATES
O3	-	OZONE	AP	-	ACID PRECIPITATION
NOX	-	NITROGEN OXIDES	MET	-	METEOROLOGICAL PARAMETERS
SS	-	SMOKE SHADE	NMOC	-	NON-METHANE ORGANIC COMPOUNDS

<u>COUNTY</u>	<u>LOCATION</u>	<u>SAMPLER #</u>	<u>PARAMETERS</u>	<u>ADDRESS</u>
ATLANTIC	Atlantic City		CO	2100 Pacific Avenue
	Atlantic City	IP36	IP	
	Nacote Creek R.S.		SO2,O3	Brigantine Wildlife Refuge
	Somers Point		SO2	Marina, Woodlawn Avenue
BERGEN	Cliffside Park		SO2,O3,NOX	Accomando Place & Cedar St.
	Fort Lee	IP14	CO,IP	Lemoine Avenue Overpass
	Fort Lee	IP15	IP	Library, Center Avnue
	Hackensack		SO2,CO,SS	133 River Street
BURLINGTON	Burlington		SO2,CO,SS	1 East Broad Street
	Lebanon State Forest		AP	Route 70
CAMDEN	Ancora State Hospital		SO2,CO,O3,SS	N.J. Psychiatric Hospital
	Camden Lab	IP02	SO2,CO,O3,SS,IP	Institute for Medical
			NOX,MET	Research, Copewood & Davis
	Camden - RRF	IP33, IP34	IP	Streets Camden Resource Recovery
			Facility	
	Camden - Rutgers	IP32	IP	Library, 4 <sup>th</sup> & Penn Streets
	Pennsauken	071,IP10	IP,TSP,PB,TM	Morris-Delair Water Plant
CUMBERLAND	Millville		SO2,O3,NOX	Lincoln Ave. & Highway 55
ESSEX	East Orange		CO,NOX,MET	Main Street & Greenwood
	Newark	IP29	SS,NOX,SO2	Ave. St. Charles & Berlin Sts.
	Newark-Police Booth	IP31	CO,O3,NMOC,IP	
			IP	Broad and Market Sts.
GLOUCESTER	Clarksboro		SO2,O3	Shady Lane Rest Home
	Westville	IP27	IP	Birch & High Sts.

TABLE 2 (CONT.)

<u>COUNTY</u>	<u>LOCATION</u>	<u>SAMPLER #</u>	<u>PARAMETERS</u>	<u>ADDRESS</u>
HUDSON	Bayonne		SO <sub>2</sub> ,O <sub>3</sub> ,NOX	Veteran's Park
	Jersey City		SO <sub>2</sub> ,CO,SS	2828 Kennedy Blvd.
	Jersey City	IP08/09/17	IP	355 Newark Avenue
	Jersey City	IP12,IP22	IP	555 Duncan Avenue
	North Bergen	IP35	CO,IP	3401 Tonnele Avenue
HUNTERDON	Flemington		O <sub>3</sub> ,SS,MET	Rartian Sewage Plant
MERCER	Rider Universtiy		O <sub>3</sub> ,MET,NOX	Rider University, Route 206
	Trenton-Library	IP06	IP	120 Academy Street
	Washington Crossing State Park		AP	Pennington-Titusville Road
MIDDLESEX	Middlesex New Brunswick	057,068	CO TSP,PB,TM	Route 1 & Georges Road Delco-Remy, 12 <sup>th</sup> St. & Livingston Ave.
	Perth Amboy Rutgers University		SO <sub>2</sub> ,CO,SS O <sub>3</sub> ,NOX	130 Smith Street Horticultural Farm #3 Ryders Lane
	Freehold Monmouth University		CO,SS O <sub>3</sub>	5 W. Main Street Edison Science Building
MORRIS	Chester Morristown		SO <sub>2</sub> ,O <sub>3</sub> ,NOX,MET CO,SS	Bell Labs, Route 513 11 Washington Street
OCEAN	Colliers Mills		O <sub>3</sub>	Fish & Wildlife Management Area
	Toms River		CO,SS	201 Main Street
PASSAIC	Clifton	IP13	IP	Route 3
	Ringwood S.P.	IP05	IP	Skylands Manor
SALEM	Deepwater	062	TSP,PB,TM	Pump Station, Chester Ave.
UNION	Elizabeth Elizabeth Lab	IP28	SO <sub>2</sub> ,CO,SS SO <sub>2</sub> ,CO,SS NOX,MET,IP	7 Broad Street New Jersey Turnpike Interchange 13
	Linden Plainfield #2	IP18	IP O <sub>3</sub> ,NOX	5001 S. Wood Avenue 40 Rock Avenue
	Phillipsburg	IP30,070	IP,TSP,TM,PB	Walter's Park Swimming Pool, Meyner Road



## DAILY AIR QUALITY REPORTING

A daily air quality summary for the previous day and a forecast, known as the Pollutant Standards Index (PSI), is provided each morning to the Associated Press wire service, the New York Times, and to various radio and television stations. Each afternoon an air quality update which includes current air quality information and a forecast is issued to various newspapers. The State is divided into 9 PSI reporting regions as illustrated in Figure 1. Each pollutant monitored in the reporting region (Table 3) is given a numerical PSI rating based on the concentration recorded for the previous day. The daily numerical PSI rating for the reporting region is equal to the highest rating achieved by any pollutant within that region. A PSI rating of 100 (or greater) indicates that at least one pollutant in the reporting region has reached (or exceeded) a primary ambient air quality standard. A descriptive rating based on the numerical rating is also reported with a PSI of 0-50 being rated good; 51-80 moderate; 81-100 approaching unhealthful, 101-200 unhealthful and 201-300 very unhealthful. A summary of the number of days with each descriptor rating is listed in Table 4. Table 5 lists the dates when the Pollutant Standards Index exceeded the approaching unhealthful or unhealthful thresholds at any individual continuous monitoring location. A forecast consisting of the expected descriptor ratings over the next 72-hour period is also provided for each reporting region on weekdays. A telephone recording of the PSI forecast is taped by 11 a.m., Monday through Friday, and can be heard by dialing **1-800-782-0160**. Along with the forecast, cautionary statements are provided for days when the air quality is expected to be unhealthful.

In July 1987, procedures were initiated in cooperation with the New Jersey Department of Health to disseminate information about the health effects of ozone and to notify the public on high ozone days. If high ozone levels are anticipated, an ozone forecast press release, which includes precautionary statements, is issued to the New Jersey Health Department, Associated Press, United Press International, and to various newspapers, radio and television stations. An hourly watch of ozone levels is also initiated. If levels above the primary ozone standard (PSI = 100) are observed, a subsequent ozone health advisory press release is issued. In March 1988, the watch procedures were expanded to include sulfur dioxide, particulates, carbon monoxide, and nitrogen dioxide.

A weekday "ozone map" introduced during the 1996 ozone season was televised on the New Jersey Network's (NJN) TV News Broadcast. After the ozone season an air quality forecast map was substituted. A worldwide web page was also created in 1996 to show current air quality levels. This web page can be accessed at the following internet address:  
**<http://www.state.nj.us/dep/airmon>**.

Figure 1. State of New Jersey  
Pollutant Standards Index Reporting Regions

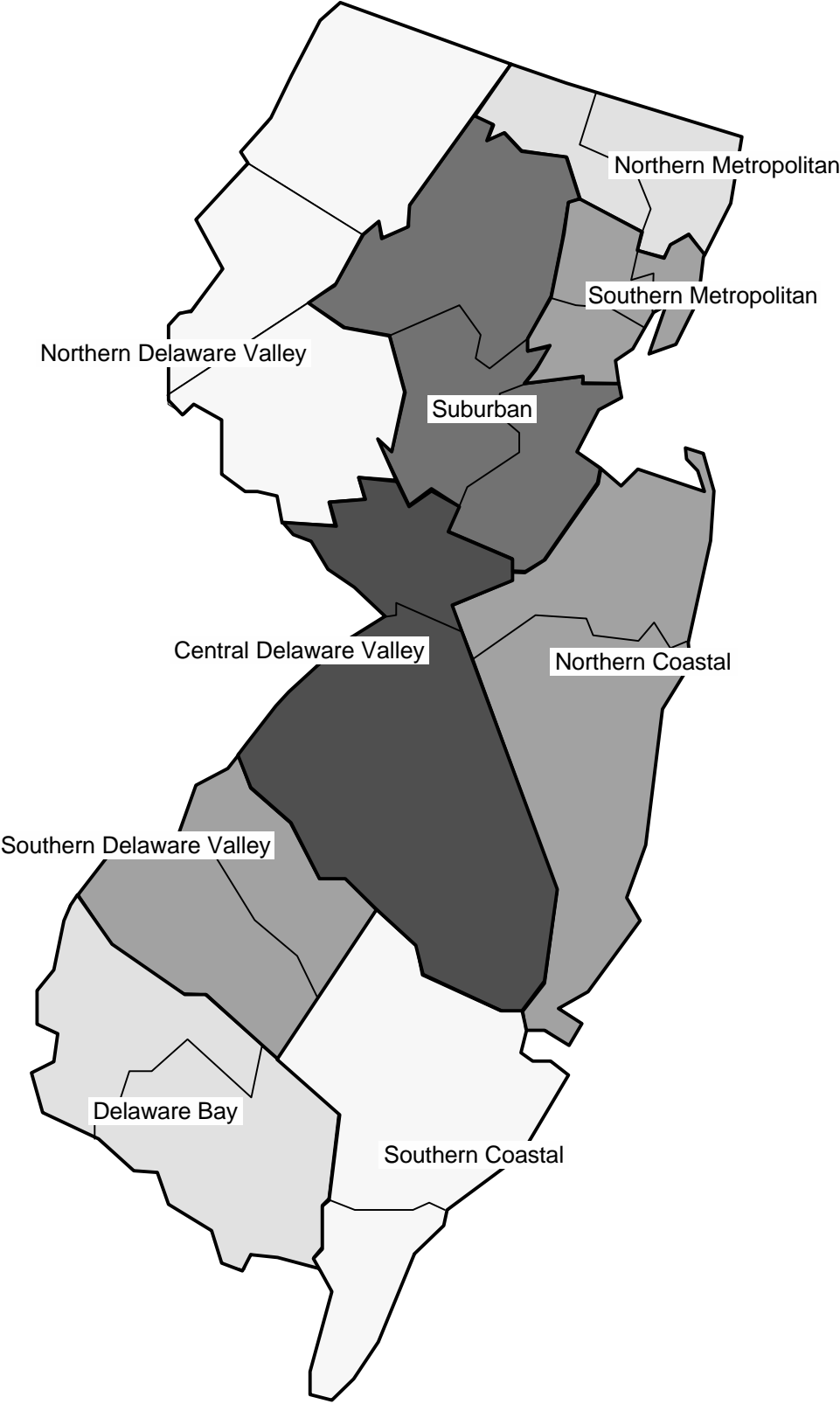


TABLE 3

## POLLUTANTS MONITORED ACCORDING TO POLLUTANT STANDARD INDEX REGION

<u>REPORTING REGION</u>	<u>MONITORING SITE</u>	<u>POLLUANTS MONITORED</u>				
		<u>CO</u>	<u>SO2</u>	<u>SS</u>	<u>O3</u>	<u>NO2</u>
NORTHERN METROPOLITAN	Cliffside Park	-	X	-	X	X
	Fort Lee	X	-	X	-	-
	Hackensack	X	X	X	-	-
SOUTHERN METROPOLITAN	Bayonne	-	X	-	X	X
	East Orange	X	-	-	-	X
	Elizabeth	X	X	X	-	-
	Elizabeth Lab	X	X	X	-	X
	Jersey City	X	X	X	-	-
	Newark	X	X	X	X	X
	North Bergen	X	-	-	-	-
Plainfield	-	-	-	X	X	
SUBURBAN	Chester	-	X	-	X	X
	Middlesex	X	-	-	-	-
	Morristown	X	-	X	-	-
	Rutgers University	-	-	-	X	X
	Perth Amboy	X	X	X	-	-
NORTHERN DELAWARE VALLEY	Flemington	-	-	X	X	-
CENTRAL DELAWARE VALLEY	Burlington	X	X	X	-	-
	Colliers Mills	-	-	-	X	-
	Rider University	-	-	-	X	X
NORTHERN COASTAL	Freehold	X	-	X	-	-
	Monmouth University	-	-	-	X	-
	Toms River	X	-	X	-	-
SOUTHERN COASTAL	Atlantic City	X	-	-	-	-
	Nacote Creek R.S.	-	X	-	X	-
SOUTHERN DELAWARE VALLEY	Ancora S.H.	X	X	X	X	-
	Camden Lab	X	X	X	X	X
	Clarksboro	-	X	-	X	-
DELAWARE	Millville	-	X	-	X	X

POLLUTANT CODING

CO - Carbon Monoxide

SO2 - Sulfur Dioxide

SS - Smoke Shade

O3 - Ozone

NO2 - Nitrogen Dioxide

TABLE 4

POLLUTANT STANDARDS INDEX (PSI)  
ANNUAL SUMMARY - 1997

## NUMBER OF DAYS

PSI REPORTING REGION	DESCRIPTOR RATINGS				
	GOOD	MODERATE	APPROACHING UNHEALTHFUL	UNHEALTHFUL	NOT AVAILABLE
Northern Metropolitan	293	64	6	1	1
Southern Metropolitan	146	198	17	4	0
Suburban	243	106	12	4	0
Northern Delaware Valley	292	58	14	0	1
Central Delaware Valley	282	69	12	2	0
Northern Coastal	264	82	15	4	0
Southern Coastal	268	84	9	3	1
Southern Coastal Valley	262	87	11	5	0
Delaware Bay	282	72	8	0	3
-----	-----	-----	-----	-----	-----
Statewide	126	192	36	11	0





TABLE 5 (CONT.)

RECORD OF DAYS WHEN THE POLLUTANT STANDARDS INDEX (PSI)EXCEEDED OR APPROACHED THE HEALTH STANDARD - 1997

\*THE HIGHEST PSI VALUE, RATING, POLLUTANT, AND LOCATION  
ARE SHOWN FOR THE PARTICULAR DAY

<u>RATINGS</u>		<u>POLLUTANTS</u>		
AUH - APPROACHING UNHEALTHFUL		TSP - PARTICULATES MEASURED AS SMOKE SHADE		
UH - UNHEALTHFUL		CO - CARBON MONOXIDE		
		O3 - OZONE		
<u>DATE</u>	<u>PSI*</u>	<u>RATINGS*</u>	<u>POLLUTANT*</u>	<u>LOCATION(S)*</u>
September 7	88	AUH	O3	Colliers Mills
October 6	81	AUH	O3	Colliers Mills
October 9	82	AUH	TSP	Jersey City
November 19	97	AUH	TSP	Jersey City
November 21	136	UH	TSP	Jersey City
November 26	88	AUH	TSP	Jersey City
November 30	93	AUH	TSP	Jersey City
December 4	92	AUH	TSP	Jersey City
December 9	82	AUH	TSP	Jersey City
December 10	81	AUH	TSP	Jersey City
December 16	97	AUH	TSP	Jersey City
December 17	85	AUH	TSP	Jersey City
December 29	88	AUH	TSP	Jersey City

AIR QUALITY SUMMARY  
AND TREND ANALYSIS  
REPORT  
1997

## Air Quality Summary 1997

In 1997, 7 of 15 monitoring locations for ozone recorded violations of the New Jersey (NJ) primary (health) ambient air quality standard (AAQS) as compared to 1 of 15 locations in 1996. None of the 17 monitoring locations for carbon monoxide recorded violations of the NJ 8-hour primary AAQS the same in 1996. In 1997, 2 co-located samplers in New Brunswick recorded violations of the NJ 24-hour secondary AAQS for total suspended particulates as compared to the same two samplers violating the 24-hour primary and secondary AAQS in 1996. In 1997, none of the 21 sampling locations recorded violations of national AAQS for inhalable particulates (PM-10). Also, in 1997 no contraventions of the New Jersey primary AAQS for nitrogen dioxide, lead, or sulfur dioxide were recorded at any monitoring locations for those pollutants. The following sections provide a brief summary of the monitoring information collected along with comparisons to the applicable AAQS:

Sulfur Dioxide (SO<sub>2</sub>) - Sulfur dioxide was continuously monitored at 16 locations (see Figure 2) during 1997. Monitoring results for SO<sub>2</sub> are listed in Table 6. Neither the primary nor the secondary (public welfare) AAQS were violated in 1997. The maximum 24-hour average recorded in 1997 was 0.039 parts per million (ppm) at the Somers Point monitoring site. The maximum 3-hour average recorded at Somers Point was 0.122 ppm. The highest annual average of 0.010 ppm was calculated for the Jersey City location. Trends in SO<sub>2</sub> levels from 1987-1997 are illustrated in Figure 3a. SO<sub>2</sub> emissions primarily result from the combustion of fossil fuels containing sulfur.

Total Suspended Particulates (TSP) - Total Suspended Particulates were sampled at 4 locations (see Figure 4) during 1997. Sampling results for TSP for 1997 are listed in Table 7. Two co-located samplers (New Brunswick 057 & 068) violated the secondary 24-hour AAQS in 1997. The highest annual geometric mean was calculated at 43.6 micrograms per cubic meter (ug/m<sup>3</sup>) for the Pennsauken sampling location. The maximum 24-hour average of 331 ug/m<sup>3</sup> was recorded at the New Brunswick-068 sampling location.

Inhalable Particulates (PM-10) - Inhalable particulates were collected by 23 samplers operating at 19 locations (see Figure 5) during 1997. Multiple samplers were operated at the Jersey City-Newark Avenue location to permit more frequent sampling and two samplers were co-located at Jersey City-Duncan Avenue and the Camden Resource Recovery Facility (RRF) to provide data for precision calculations. At this time, New Jersey has not adopted AAQS for inhalable particulates, however, the federal Environmental Protection Agency (EPA) promulgated AAQS for PM-10 in July, 1987. No sampling locations violated the national primary and secondary annual arithmetic mean AAQS or the national primary and secondary 24-hour AAQS during 1997. Sampling results for PM-10 are listed in Table 8. The highest annual arithmetic mean of 43.8 ug/m<sup>3</sup> was calculated for the North Bergen sampler and the maximum 24-hour average of 107 ug/m<sup>3</sup> was recorded at the Jersey City-Newark Avenue location. Trends in inhalable particulate levels from 1987-1997 are illustrated in Figure 6a. A continuous monitoring methodology known as tapered element oscillating microbalance (TEOM) was utilized at 3 locations in 1997. Results are shown on Table 8.

Carbon Monoxide (CO) - Carbon monoxide was measured at 17 locations (see Figure 7) during 1997. Monitoring results for carbon monoxide are listed in Table 9. No monitoring locations violated the 1-hour or 8-hour primary and secondary AAQS during 1997. The maximum observed 8-hour average of 8.5 ppm was recorded at the North Bergen monitoring location. The maximum observed 1-hour average of 14.3 ppm was recorded by the Atlantic City monitoring location. Trends in CO levels from 1987-1997 are illustrated in Figure 8a. The predominant source of CO emissions is gasoline fueled automobiles and trucks.

Ozone (O3) - Ozone was monitored at 15 locations (see Figure 9) during 1997 and monitoring results are listed in Table 10. Seven of fifteen monitoring locations violated the New Jersey primary 1-hour average AAQS during 1997. The maximum 1-hour average for ozone of 0.176 ppm was recorded at the Colliers Mills monitoring location. All fifteen monitoring locations in operation during the summer violated New Jersey's secondary 1-hour average AAQS in 1997 with Ancora S.H. having the most occurrences (215 hours) above the secondary 1-hour average AAQS. Trends in ozone levels from 1987-1997 are illustrated in Figure 10a. Ozone is caused by various photochemical reactions of volatile organics substances (hydrocarbons) with oxides of nitrogen on days with bright sunshine and warm temperatures. Thus ozone is only a potential problem in the late spring, summer, and early fall months. A special study to determine concentrations of ozone reactants at the Newark continuous monitoring site measured non-methane organic compound (NMOC) concentrations during the 6-9 a.m. period on weekdays from June thru September. Results of this study are listed in Table 11. The ratio of NMOC to nitrogen oxide from 6-9 a.m. is believed to be an important factor in ozone formation and build-up during the afternoon hours. Trends in NMOC levels from 1987-1997 are illustrated in Figure 11.

Nitrogen Oxides (NOX) - Nitrogen oxides were monitored at 11 locations (see Figure 12) during 1997. Monitoring results for the two major constituents of NOX, namely nitric oxide (NO) and nitrogen dioxide (NO2), are listed in Table 12. Nitrogen dioxide primary and secondary AAQS were not violated at any of the monitoring sites in 1997. No ambient air quality standards have been promulgated for nitric oxide. The highest NO2 12-month average of 0.041 ppm was calculated for the Elizabeth Lab monitoring location. The highest annual average for nitric oxide (0.046 ppm) was also recorded by the Elizabeth Lab monitoring instrument. Trends in NO2 levels from 1987-1997 are illustrated in Figure 13a. Nitrogen oxides are products of combustion which are emitted in approximately equal amounts from industrial boilers and motor vehicles.

Lead (Pb) - Lead levels were determined by analysis of filters obtained from 6 samplers in 5 cities (see Figure 14). Results of the laboratory analyses for lead are listed in Table 13. The highest 3-month average of 0.092 ug/m3 was calculated for samples from the Cookson Pigments sampling location for the 3 months ending June, 1997. Trends for lead from 1987-1997 are illustrated in Figure 15a. Lead as well as other trace metals are emitted in various proportions from motor vehicles, certain metal processing industries, and incinerators.

Other Trace Metals - In addition to analyzing for lead, concentrations of other trace metals were determined at various locations during 1997. The other metals, as reported in Table 14, included: cadmium, chromium, copper, nickel, and zinc.

Smoke Shade (SS) - Smoke shade was monitored at 13 locations (see Figure 16) during 1997. Monitoring results for smoke shade are listed in Table 15. No AAQS have been established for this parameter although a rough correlation exists with 2.1 COHS (Coefficient of Haze) for a daily average approximately equivalent to the New Jersey primary 24-hour TSP AAQS of 260 ug/m<sup>3</sup>. The highest daily average of 2.41 COHS was recorded by the Jersey City monitoring location. The highest annual average of 0.77 COHS was calculated for the Jersey City location. Figures 17a & 17b show by monitoring location the highest and 2nd highest 24-hour daily averages and annual averages respectively.

Acid Precipitation (AP) - The New Jersey Precipitation Sampling Network consisted of three locations in 1997 (see Figure 18). Acid precipitation, more accurately described as acid deposition, has been implicated in the destruction of vegetation and aquatic life, the contamination of potable water supplies due to leaching of heavy metals, the accelerated weathering of materials, the aggravation of respiratory ailments, and the reduction of visibility.

Acid deposition results mainly from various chemical reactions involving sulfur dioxide and nitrogen oxide gases released into the atmosphere during fuel combustion. The compounds formed by these reactions can be deposited as dry particulate matter or wet precipitation.

When acidity is reported on the pH scale, neutral is considered as 7 with decreasing pH values corresponding to increasing acidity. Normal rainfall has a pH of approximately 5.6 due to the natural presence of carbonic acid in the atmosphere. The mean pH value recorded by the Washington Crossing Park weekly sampler was 4.44. The Ancora State Hospital sampler reported a mean pH of 4.47 and the Lebanon State Forest sampler recorded a mean pH of 4.44 during 1997. In addition to pH, analyses for conductivity and various anions and cations were performed. Analytical results for 1997 are presented in Table 16. Acid precipitation results from the Washington Crossing State Park event sampler are segregated by season, precipitation amounts, and meteorological regimes in Table 17. Figure 19 illustrates the recent trend in wet sulfate deposition.

Meteorological Parameters (MET) - Meteorological parameters monitored on a continuous basis during 1997 were wind direction/speed, temperature, relative humidity, barometric pressure, and solar radiation (see Figure 20). Tables 18 and 19 summarize the 1997 meteorological monitoring results on a monthly basis.



Figure 2. State of New Jersey  
Sulfur Dioxide Monitoring Network, 1997

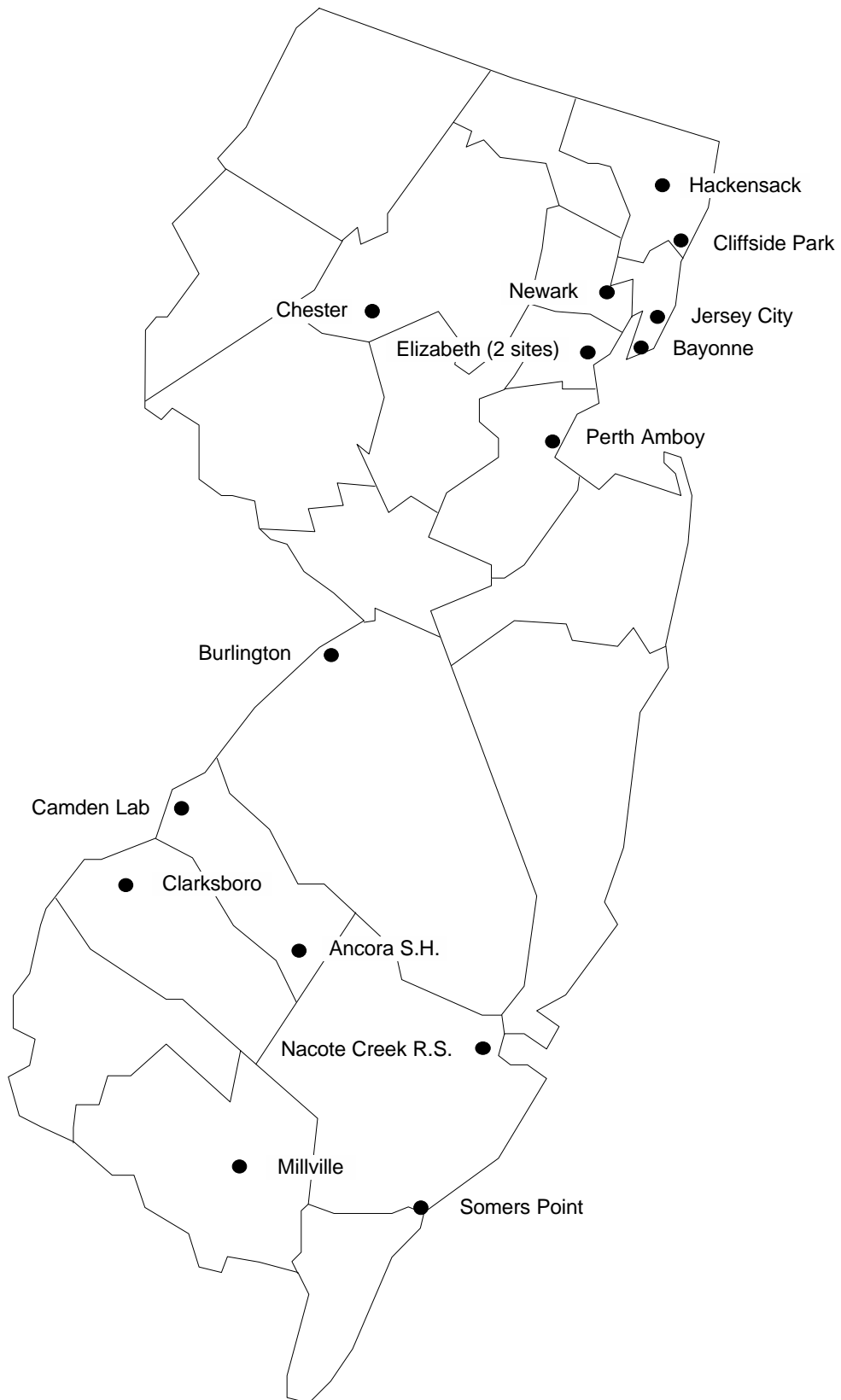


TABLE 6

## AIR QUALITY IN NEW JERSEY COMPARED WITH AIR QUALITY STANDARDS - 1997

## SULFUR DIOXIDE

3-HOUR AND ANNUAL AVERAGES  
PARTS PER MILLION (PPM)

## AMBIENT AIR QUALITY STANDARDS FOR SULFUR DIOXIDE

3-HOUR AVERAGE SECONDARY STANDARD: 1300 ug/m<sup>3</sup> (0.5 ppm)<sup>a</sup>  
 12-MONTH AVERAGE PRIMARY STANDARD: 80 ug/m<sup>3</sup> (0.03 ppm)  
 12-MONTH AVERAGE SECONDARY STANDARD: 60 ug/m<sup>3</sup> (0.02 ppm)<sup>b</sup>

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

VIOLATION CODES: XXX = NEW JERSEY & NATIONAL (PS) = PRIMARY STANDARD  
 XX = NEW JERSEY (SS) = SECONDARY STANDARD  
 -- = NO VIOLATION

<u>Monitoring Site</u>	<u>Site Code</u>	<u>3-Hour Avg. Maximum</u>	<u>Avg. (ppm)<sup>c</sup> 2<sup>nd</sup> Highest</u>	<u># Above 0.5 ppm</u>	<u>Viol. Code</u>	<u>12-Month Average Maximum</u>	<u>Year</u>	<u>Viol. Code</u>
Ancora S.H.	S	.033	.027	0	--	.003	.003	--
Bayonne	N	.039	.038	0	--	.006	.006	--
Burlington	S	.049	.041	0	--	.005	.005	--
Camden Lab	N	.059	.058	0	--	.007	.006	--
Chester	S	.049	.048	0	--	.005	.005	--
Clarksboro	S	.046	.040	0	--	.006	.006	--
Cliffside Park <sup>d</sup>	S	.060	.050	0	--	.006	---	--
Elizabeth	S	.035	.034	0	--	.006	.005	--
Elizabeth Lab	N	.082	.064	0	--	.007	.007	--
Hackensack	S	.028	.027	0	--	.005	.004	--
Jersey City	N	.056	.047	0	--	.010	.010	--
Millville	S	.047	.040	0	--	.005	.004	--
Nacote Creek R.S.	S	.025	.022	0	--	.003	.003	--
Newark	S	.065	.051	0	--	.007	.007	--
Perth Amboy	N	.040	.032	0	--	.004	.004	--
Somers Point	SPM	.122	.082	0	--	.006	.004	--

- a) New Jersey and National Ambient Air Quality Standard not be exceeded more than once in any 12-month period.  
 b) New Jersey Ambient Air Quality Standard.  
 c) Based on non-overlapping 3-hour moving averages.  
 d) Data not available: August-December.



TABLE 6 (Cont.)

## AIR QUALITY IN NEW JERSEY COMPARED WITH AIR QUALITY STANDARDS - 1997

## SULFUR DIOXIDE

3-HOUR AND ANNUAL AVERAGES  
PARTS PER MILLION (PPM)

AMBIENT AIR QUALITY STANDARDS FOR SULFUR DIOXIDE  
 24-HOUR AVERAGE PRIMARY STANDARD: 365 ug/m<sup>3</sup> (0.14 ppm)<sup>a</sup>  
 24-HOUR AVERAGE SECONDARY STANDARD: 260 ug/m<sup>3</sup> (0.10 ppm)<sup>a</sup>  
 DAILY AVERAGE PRIMARY STANDARD: 0.14 ppm (365 ug/m<sup>3</sup>)

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

VIOLATION CODES: XXX = NEW JERSEY & NATIONAL (PS) = PRIMARY STANDARD  
 XX = NEW JERSEY (SS) = SECONDARY STANDARD  
 -- = NO VIOLATION

Monitoring Site	Site Code	24-Hour Maximum	Avg. (ppm) <sup>c</sup> 2 <sup>nd</sup> Highest	# Above		Viol. Code	Daily Average		Viol. Code
				0.14	0.10		Maximum	2 <sup>nd</sup> Highest	
Ancora S.H.	S	.017	.017	0	0	--	.016	.014	--
Bayonne	N	.022	.021	0	0	--	.020	.019	--
Burlington	S	.027	.024	0	0	--	.026	.022	--
Camden Lab	N	.034	.034	0	0	--	.033	.029	--
Chester	S	.031	.027	0	0	--	.029	.027	--
Clarksboro	S	.027	.020	0	0	--	.026	.019	--
Cliffside Park <sup>d</sup>	S	.029	.024	0	0	--	.029	.024	--
Elizabeth	S	.023	.022	0	0	--	.020	.019	--
Elizabeth Lab	N	.024	.024	0	0	--	.022	.022	--
Hackensack	S	.022	.018	0	0	--	.021	.018	--
Jersey City	N	.035	.031	0	0	--	.031	.030	--
Millville	S	.025	.020	0	0	--	.021	.017	--
Nacote Creek R.S.	S	.014	.012	0	0	--	.014	.011	--
Newark	S	.029	.025	0	0	--	.026	.023	--
Perth Amboy	N	.022	.021	0	0	--	.019	.019	--
Somers Point	SPM	.039	.034	0	0	--	.030	.027	--

- a) Ambient Air Quality Standard not be exceeded more than once in any 12-month period.  
 b) National Ambient Air Quality Standard not to be exceeded more than once a year.  
 c) Based on non-overlapping 24-hour moving averages.  
 d) Data not available: August-December.

Figure 3a. Trend in Sulfur Dioxide Concentrations in New Jersey, 1987 - 1997:  
Second Highest Daily Averages

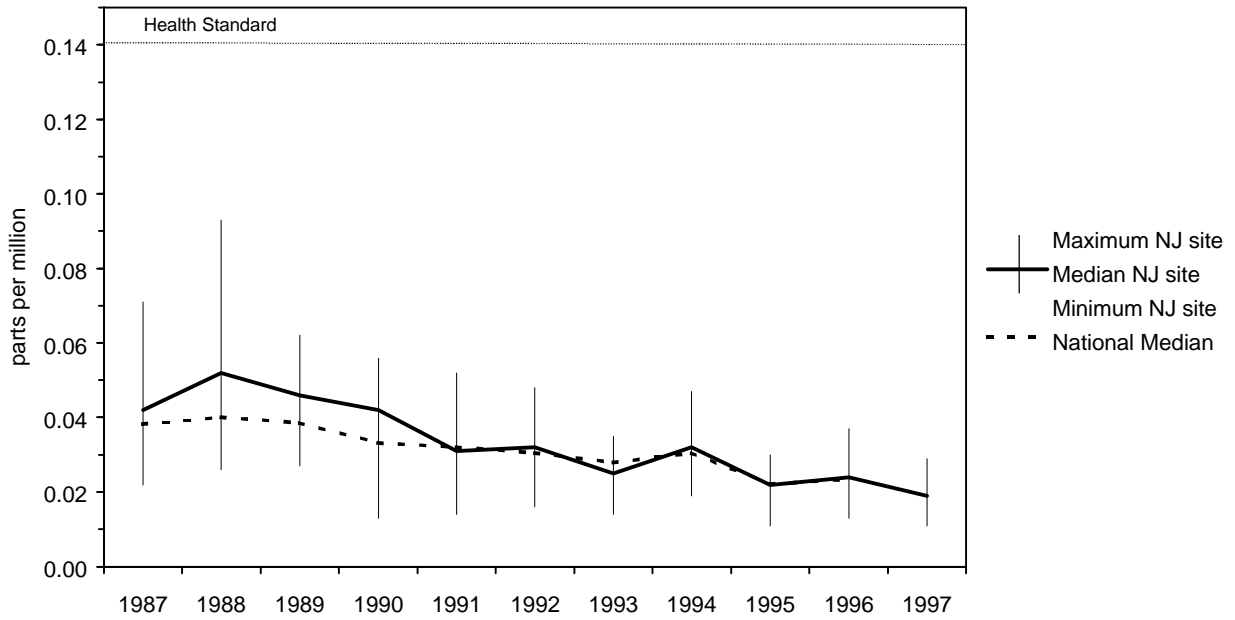


Figure 3b. 1997 Sulfur Dioxide Concentrations in New Jersey:  
Highest and Second Highest Daily Averages

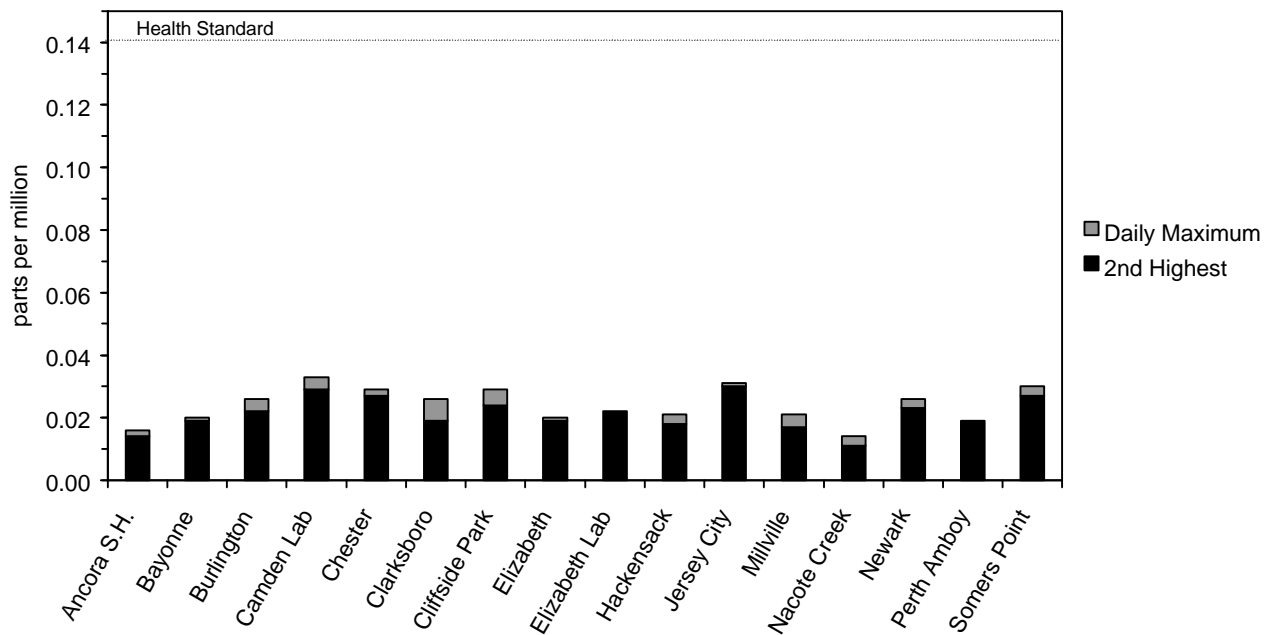


Figure 4. State of New Jersey  
Total Suspended Particulates Monitoring Network, 1997

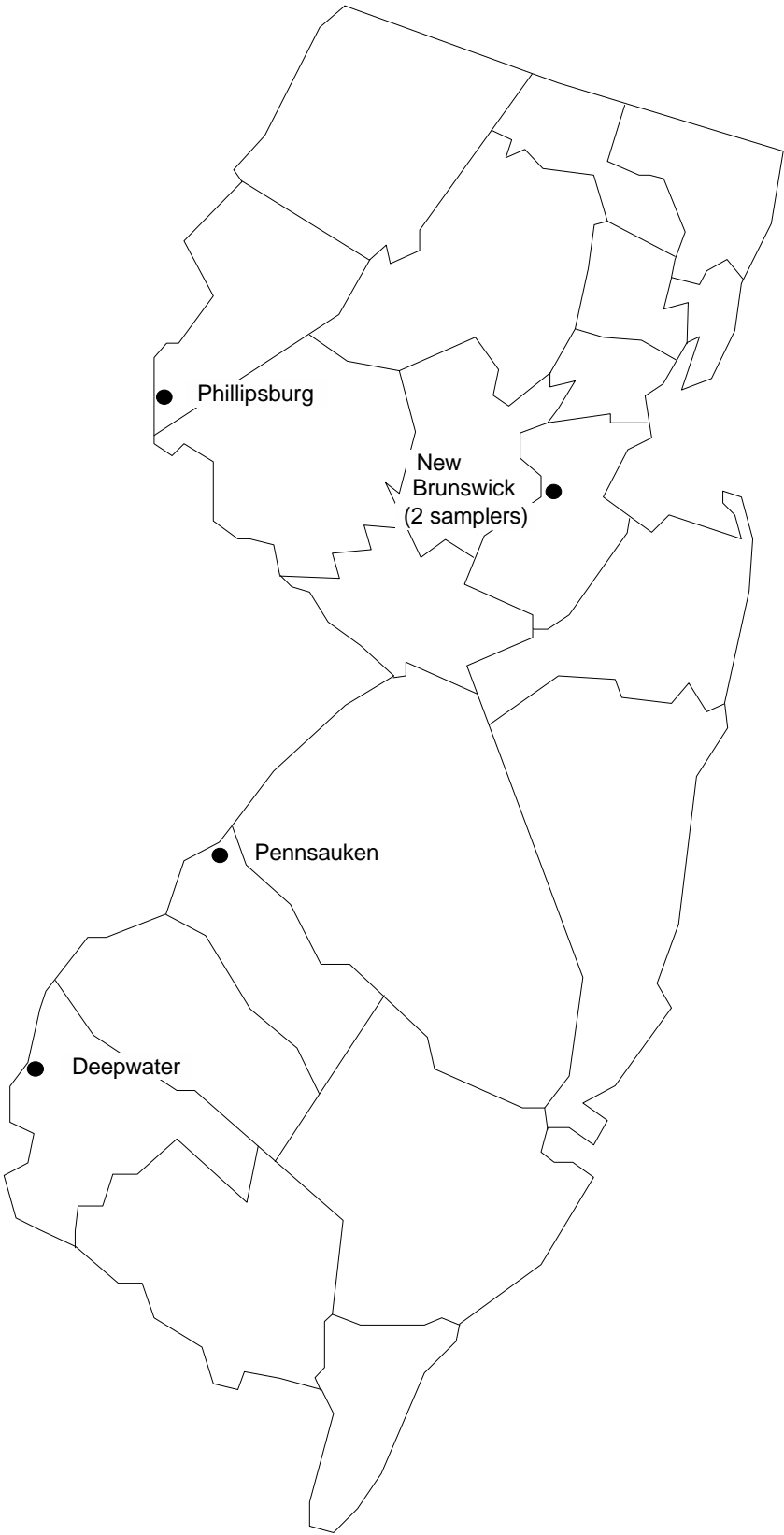


TABLE 7

AIR QUALITY IN NEW JERSEY  
COMPARED WITH AIR QUALITY STANDARDS -- 1997

TOTAL SUSPENDED PARTICULATES  
MICROGRAMS PER CUBIC METER ( $\mu\text{g}/\text{m}^3$ )

AMBIENT AIR QUALITY STANDARDS FOR TOTAL SUSPENDED PARTICULATES

12-MONTH GEOMETRIC MEAN PRIMARY STANDARD:  $75 \mu\text{g}/\text{m}^{3\text{a}}$

12-MONTH AVERAGE SECONDARY STANDARD:  $60 \mu\text{g}/\text{m}^{3\text{b}}$

24-HOUR AVERAGE PRIMARY STANDARD:  $260 \mu\text{g}/\text{m}^{3\text{c}}$

24-HOUR AVERAGE SECONDARY STANDARD:  $150 \mu\text{g}/\text{m}^{3\text{c}}$

SITE CODE: SPM = SPECIAL PURPOSE MONITORING      PB = LEAD MONITORING SITE

VIOLATION CODES:    XX = NEW JERSEY                      (PS) = PRIMARY STANDARD  
                          -- = NO VIOLATION                      (SS) = SECONDARY STANDARD  
                          \*\*\* = INSUFFICIENT DATA AVAILABLE FOR VALID GEOMETRIC MEAN

Monitoring Location	Sampler No.	Site Code	# of Samples	Geom.	Mean	Viol Code	24-Hr. Avg. Max.	2 <sup>nd</sup> Hgst.	# Above		Viol. Code
				Max.	Cal.				260	150	
<u>Camden County</u>											
Pennsauken	071	PB	59	43.6	40.9	--	92	90	0	0	--
<u>Middlesex County</u>											
New Brunswick	057	PB	95	38.7	37.8	--	224	159	0	2	XX(SS)
New Brunswick	068	PB	96	43.3	43.3	--	331	210	1	5	XX(SS)
<u>Salem County</u>											
Deepwater	062	SPM	61	35.2	34.4	--	100	70	0	0	--
<u>Warren County</u>											
Phillipsburg	070	SPM	54	35.4	34.5	--	94	85	0	0	--

- a) New Jersey Ambient Air Quality Standard.  
 b) Intended as a guideline for achieving short term standard.  
 c) Standard not to be exceeded more than once in any 12-month period.

Figure 5. State of New Jersey  
Inhalable Particulates Monitoring Network, 1997

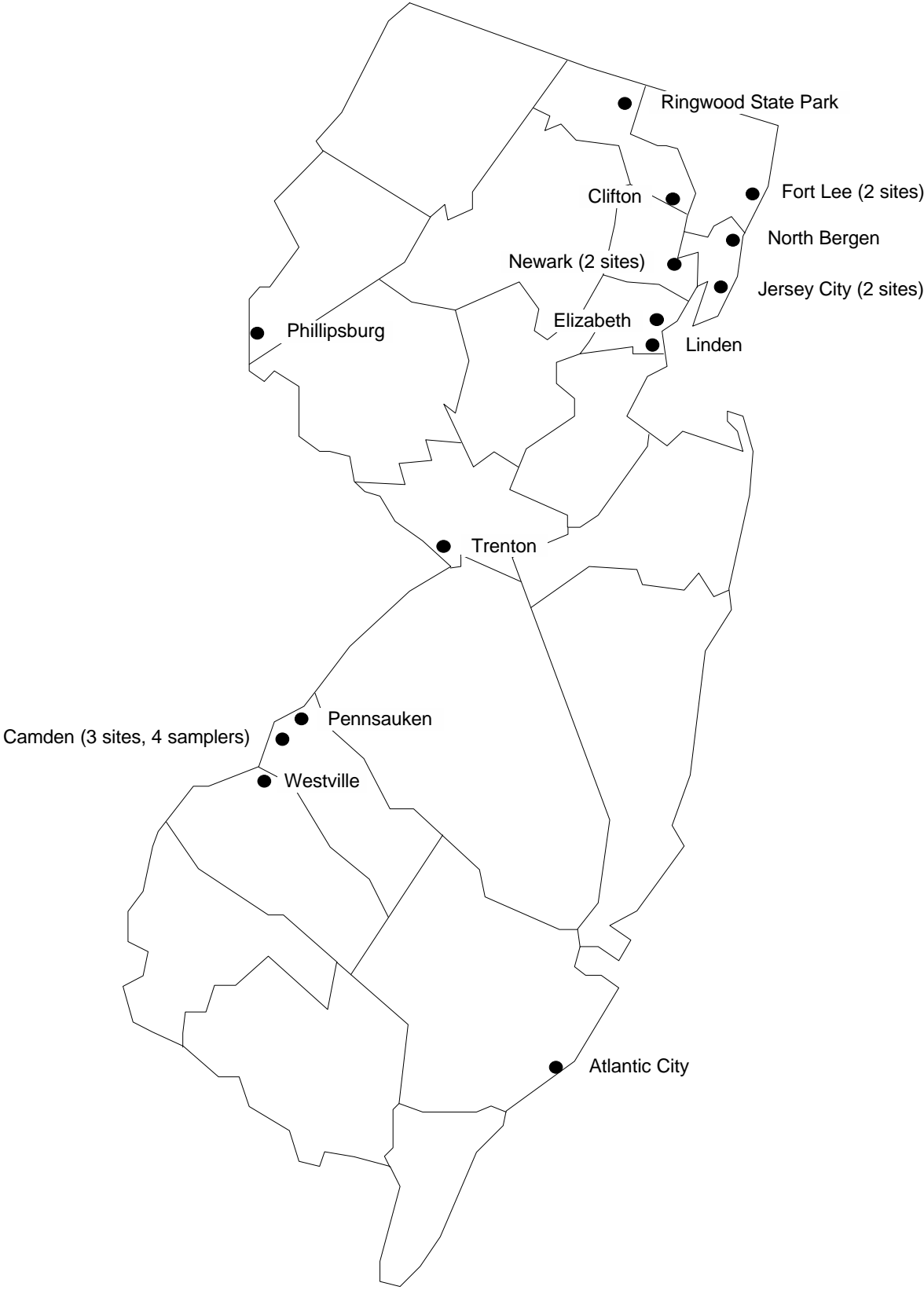


TABLE 8  
 AIR QUALITY IN NEW JERSEY  
 COMPARED WITH AIR QUALITY STANDARDS -- 1997  
 INHALABLE PARTICULATES (PM-10)  
 ANNUAL STATISTICS  
 MICROGRAMS PER CUBIC METER (ug/m<sup>3</sup>)

NATIONAL AMBIENT AIR QUALITY STANDARDS FOR INHALABLE PARTICULATES:  
 ANNUAL ARITHMETIC MEAN PRIMARY & SECONDARY STANDARD: 50 ug/m<sup>3</sup>  
 24-HOUR AVERAGE PRIMARY & SECONDARY STANDARD: 150 ug/m<sup>3</sup>

SITE CODES: N = NAMS, S = SLAMS, PM = SPECIAL PURPOSE MONITORING  
 \*\*\*\* = INSUFFICIENT DATA FOR VALID ANNUAL ARITHMETIC MEAN

<u>Monitoring Site</u>	<u>Sampler No.</u>	<u>Site Code</u>	<u># of Samples</u>	<u>Annual Airth. Mean</u>	<u>24-Hour Average Maximum</u>	<u>2<sup>nd</sup> Highest</u>
Atlantic City	IP36	S	40	****	71	46
Camden Lab	IP02	N	60	25.7	88	54
Camden RRF #1	IP33	SPM	61	38.8	92	68
Camden RRF #2	IP34	SPM	58	37.9	90	65
Camden Rutgers	IP32	N	60	26.8	85	58
Clifton	IP13	N	47	28.9	76	65
Elizabeth Lab	IP28	S	58	32.1	91	61
Fort Lee	IP14	N	20	****	55	55
Fort Lee Library	IP15	S	46	****	78	53
Jersey City-Newark Ave.	IP08/09/17	N	149	30.5	107	77
Jersey City-Duncan Ave.	IP12	S	54	22.6	48	47
Jersey City-Duncan Ave.	IP22	SPM	53	22.9	76	48
Linden	IP18	S	52	25.5	79	53
Newark-Police Booth	IP31	S	44	36.8	89	65
Newark	IP29	S	61	35.2	90	81
North Bergen	IP35	S	53	43.8	103	75
Pennsauken-WTP	IP10	SPM	60	28.8	89	58
Phillipsburg	IP30	S	56	25.6	83	54
Ringwood S.P.	IP05	S	44	16.0	53	46
Trenton	IP06	S	56	24.2	87	59
Westville	IP27	S	60	19.5	69	45

CONTINUOUS MONITORING METHODOLOGY  
 TAPERED ELEMENT OSCILLATING MICROBALANCE (TEOM)  
 JUNE-DECEMBER: 2.5 MICRON FRACTION

Camden Lab	SPM	67	56
Elizabeth Lab	SPM	64	57
Newark	SPM	77	72

Figure 6a. Trend in Inhalable Particulate Concentrations in New Jersey, 1987 - 1997:  
Annual Averages

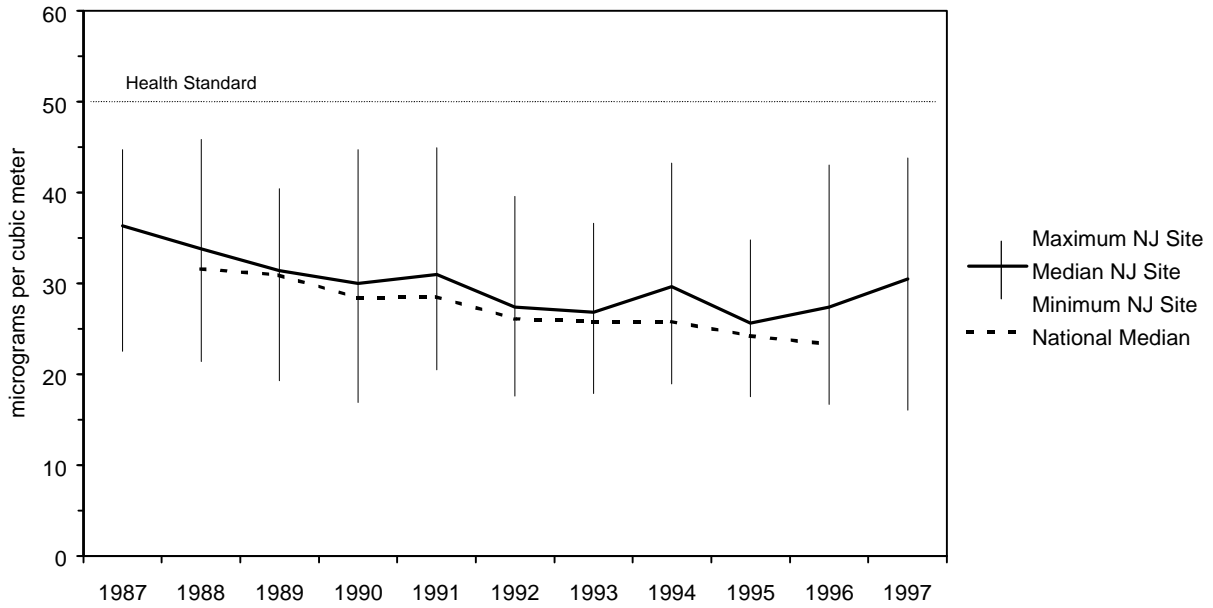


Figure 6b. 1997 Inhalable Particulate Concentrations in New Jersey:  
Annual Averages

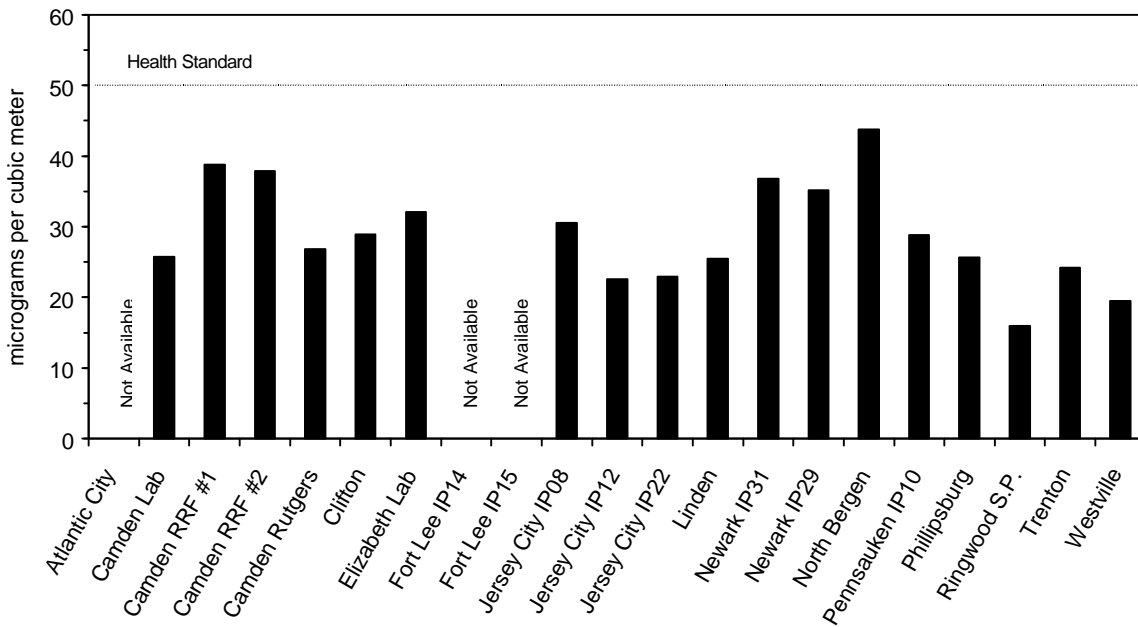






Figure 7. State of New Jersey  
Carbon Monoxide Monitoring Network, 1997

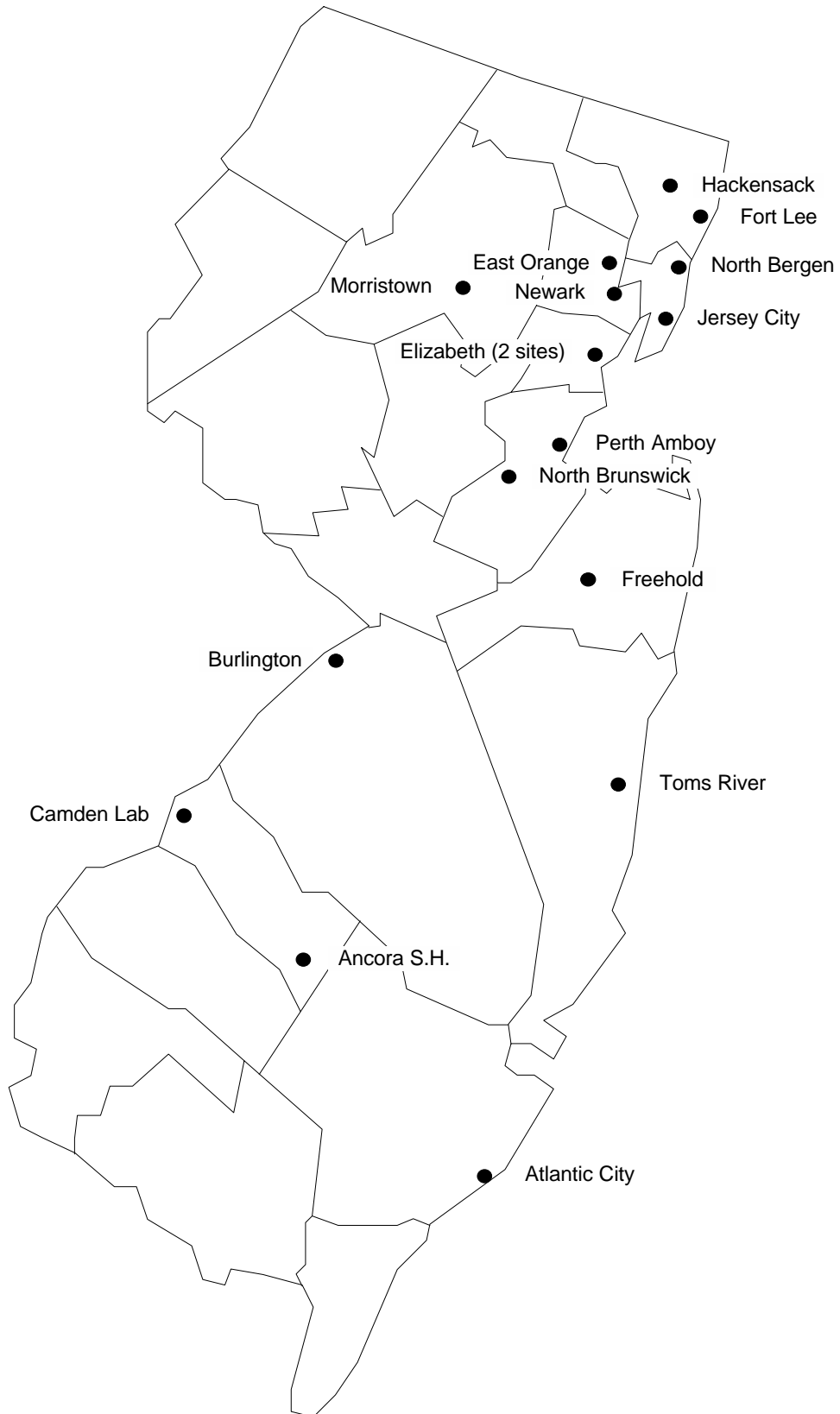


TABLE 9  
AIR QUALITY IN NEW JERSEY  
COMPARED WITH AIR QUALITY STANDARDS -- 1997

CARBON MONOXIDE  
PARTS PER MILLION (PPM)

AMBIENT AIR QUALITY STANDARDS FOR CARBON MONOXIDE:  
1-HOUR AVERAGE PRIMARY & SECONDARY STANDARD: 40 mg/m<sup>3</sup> (35 ppm)<sup>a</sup>  
1-HOUR AVERAGE NATIONAL PRIMARY STANDARD: 35 ppm  
8-HOUR AVERAGE PRIMARY & SECONDARY: 10 mg/m<sup>3</sup> (9 ppm)<sup>a</sup>  
8-HOUR AVERAGE NATIONAL PRIMARY STANDARD: 9 ppm

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING  
VIOLATION CODES: XXX = NEW JERSEY & NATIONAL, -- = NO VIOLATION  
XX = NEW JERSEY

Monitoring Site	Site Code	1-Hour Max.	Avg. (ppm) 2 <sup>nd</sup> Highest	# Above 35 ppm	Viol. Code	8-Hour Max.	Avg. (ppm) <sup>b</sup> 2 <sup>nd</sup> Highest	# Above 9.0 ppm	Viol. Code
Ancora S.H.	S	1.9	1.8	0	--	1.0	0.9	0	--
Atlantic City <sup>c</sup>	S	14.3	9.0	0	--	4.9	3.5	0	--
Burlington	S	8.4	6.9	0	--	5.6	4.3	0	--
Camden Lab	S	5.8	5.6	0	--	3.5	3.3	0	--
East Orange	SPM	10.6	7.7	0	--	5.4	4.7	0	--
Elizabeth	S	10.3	10.2	0	--	5.5	5.1	0	--
Elizabeth Lab	SPM	5.1	5.0	0	--	3.4	3.3	0	--
Fort Lee <sup>d</sup>	S	6.3	4.6	0	--	3.9	3.4	0	--
Freehold	S	6.6	6.6	0	--	4.0	3.2	0	--
Hackensack	N	8.8	8.2	0	--	7.6	6.1	0	--
Jersey City	N	7.4	7.2	0	--	4.5	4.3	0	--
Middlesex <sup>e</sup>	SPM	5.9	5.4	0	--	3.4	3.3	0	--
Morristown	S	9.1	8.8	0	--	5.7	4.9	0	--
Newark	S	8.0	7.8	0	--	4.3	3.8	0	--
North Bergen	S	13.8	12.7	0	--	8.5	6.7	0	--
Perth Amboy	S	6.7	6.5	0	--	4.2	3.8	0	--
Toms River	S	11.3	7.9	0	--	4.6	4.1	0	--

mg/m<sup>3</sup> - milligrams per cubic meter

- a) New Jersey Ambient Air Quality Standard not to be exceeded more than once in any 12-month period.
- b) Based on non-overlapping 8-hour moving averages.
- c) Data not available: July-December.
- d) Data not available: June-December.
- e) Data not available: January-February.

Figure 8a. Trend in Carbon Monoxide Concentrations in New Jersey, 1987 - 1997:  
Second Highest 8-Hour Averages

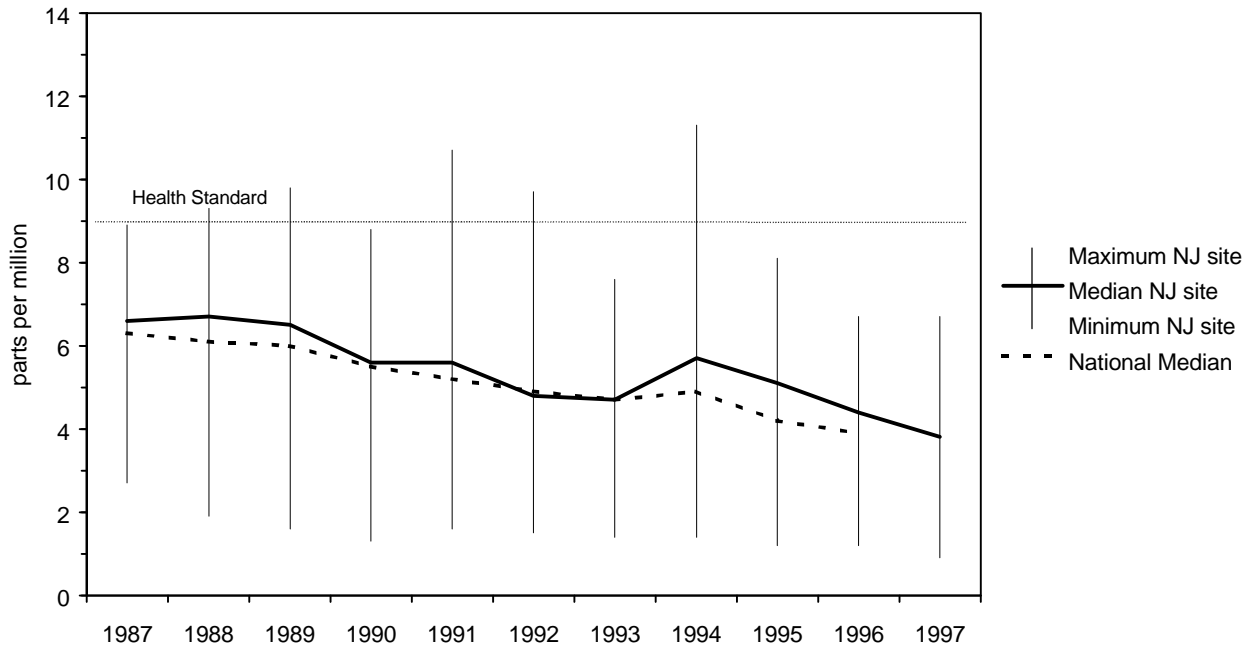


Figure 8b. 1997 Carbon Monoxide Concentrations in New Jersey:  
Highest and Second Highest 8-Hour Averages

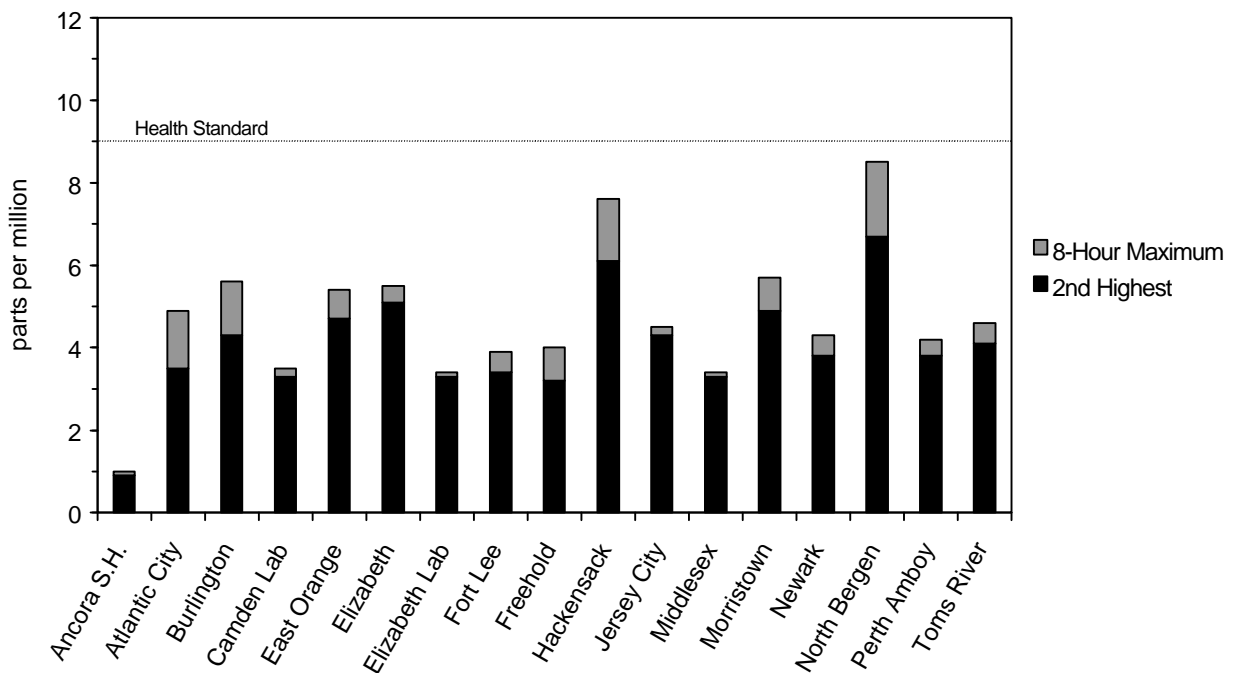




Figure 9. State of New Jersey  
Ozone Monitoring Network, 1997

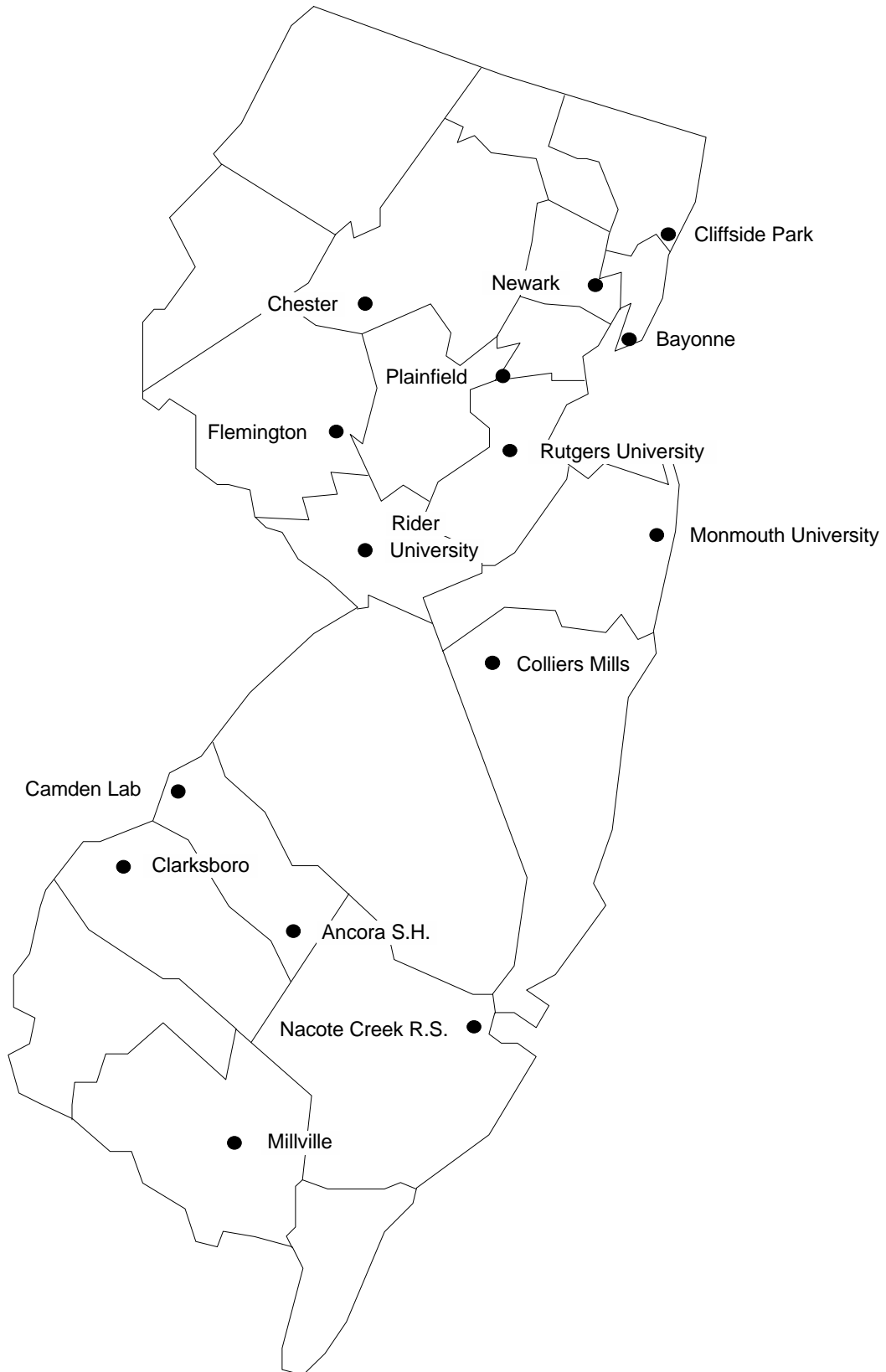


TABLE 10

AIR QUALITY IN NEW JERSEY  
COMPARED WITH AIR QUALITY STANDARDS -- 1997

OZONE  
1-HOUR AVERAGES  
PARTS PER MILLION (ppm)

AMBIENT AIR QUALITY STANDARDS FOR OZONE  
MAXIMUM DAILY 1-HOUR AVG. PRIMARY STANDARD: 0.12 ppm (235 ug/m<sup>3</sup>)<sup>ab</sup>  
1-HOUR AVERAGE SECONDARY STANDARD: 0.08 ppm (160 ug/m<sup>3</sup>)<sup>b</sup>

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

VIOLATION CODES: XXX = NEW JERSEY AND NATIONAL (PS) = PRIMARY STANDARD  
XX = NEW JERSEY (SS) = SECONDARY STANDARD  
X = NATIONAL -- = NO VIOLATION

Monitoring Site	Site Code	Daily Max.		# of Days with Hrs. Above .12	Viol. Code	1-Hour Averages		# of Hrs. Above .08	Viol. Code
		Hgst.	2 <sup>nd</sup> Hgst.			Max.	2 <sup>nd</sup> Hgst.		
Ancora S.H.	S	.142	.137	4	XXX(PS)	.142	.139	215	XX(SS)
Bayonne	N	.127	.119	1	---	.127	.119	99	XX(SS)
Camden Lab	N	.131	.119	1	XX(PS)	.131	.131	98	XX(SS)
Chester	S	.116	.115	0	---	.116	.115	136	XX(SS)
Clarksboro	N	.139	.128	3	XXX(PS)	.139	.133	168	XX(SS)
Cliffside Park	S	.137	.120	1	---	.137	.126	71	XX(SS)
Colliers Mills	S	.176	.150	4	XXX(PS)	.176	.167	178	XX(SS)
Flemington	S	.124	.119	0	---	.124	.124	154	XX(SS)
Millville	S	.122	.115	0	---	.122	.119	145	XX(SS)
Monmouth University	S	.147	.131	2	---	.147	.134	115	XX(SS)
Nacote Creek R.S.	S	.144	.130	3	XXX(PS)	.144	.136	169	XX(SS)
Newark	S	.111	.109	0	---	.111	.109	63	XX(SS)
Plainfield #2 <sup>c</sup>	S	.118	.108	0	---	.118	.108	47	XX(SS)
Rider University	N	.126	.126	2	XXX(PS)	.126	.126	160	XX(SS)
Rutgers University	S	.145	.139	4	XXX(PS)	.145	.139	149	XX(SS)
Statewide	-	.176	.150	10					

Ug/m<sup>3</sup> - micrograms per cubic meter

- a) National Ambient Air Quality Standard - averaged over a three period the expected number of days above the standards must be less than or equal to one.  
b) New Jersey Ambient Air Quality Standard not to be exceeded more than once in any 12-month period.  
c) Data not available: December.

Table 10 (Cont.)  
 AIR QUALITY IN NEW JERSEY COMPARED WITH AIR QUALITY STANDARDS -- 1997

OZONE  
 8-HOUR AVERAGES  
 PARTS PER MILLION (PPM)

AMBIENT AIR QUALITY STANDARD FOR OZONE:  
 8-HOUR AVERAGE PRIMARY & SECONDARY STANDARD: 0.08 PPM<sup>a</sup>

SITE CODES: N= NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

VIOLATION CODES: X = NATIONAL (PS) = PRIMARY STANDARD  
 --- = NO VIOLATION

Monitoring Site	Site Code	Daily Maximum 8-hour Average Highest (PPM)				Average of 4 <sup>th</sup> Highest 8- Hour Average 1995 - 1997	Viol. Code	# of Days with 8-Hour Averages Above .08 (PPM)
		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>			
Ancora S.H.	S	.128	.120	.119	.117	.107	X(PS)	23
Bayonne	N	.111	.110	.106	.105	.099	X(PS)	9
Camden Lab	N	.116	.108	.103	.099	.098	X(PS)	12
Chester	N	.105	.102	.101	.097	.100	X(PS)	13
Clarksboro	N	.120	.120	.108	.106	.106	X(PS)	19
Cliffside Park	S	.115	.106	.101	.097	.095	X(PS)	5
Colliers Mills	S	.150	.131	.117	.113	.109	X(PS)	21
Flemington	S	.108	.107	.107	.103	.098	X(PS)	18
Millville	S	.113	.108	.105	.104	.094	X(PS)	14
Monmouth Univ.	S	.123	.111	.111	.095	.101	X(PS)	12
Nacote Creek R.S.	S	.125	.120	.116	.106	.100	X(PS)	18
Newark	S	.106	.100	.098	.097	.092	X(PS)	7
Plainfield #2	S	.100	.095	.092	.089	.084	----	5
Rider Universtiy	N	.115	.107	.107	.106	.101	X(PS)	16
Rutgers Universtiy	S	.117	.115	.114	.107	.103	X(PS)	16
Statewide		.150	.131	.120	.120	.117		36

a) National Ambient Air Quality Standard - The average of the 4<sup>th</sup> highest daily maximum 8-hour average over a 3 year period must be less than or equal to 0.08 ppm

Figure 10a. Trend in Ozone Concentrations in New Jersey, 1987 - 1997:  
Second Highest 1-Hour Averages

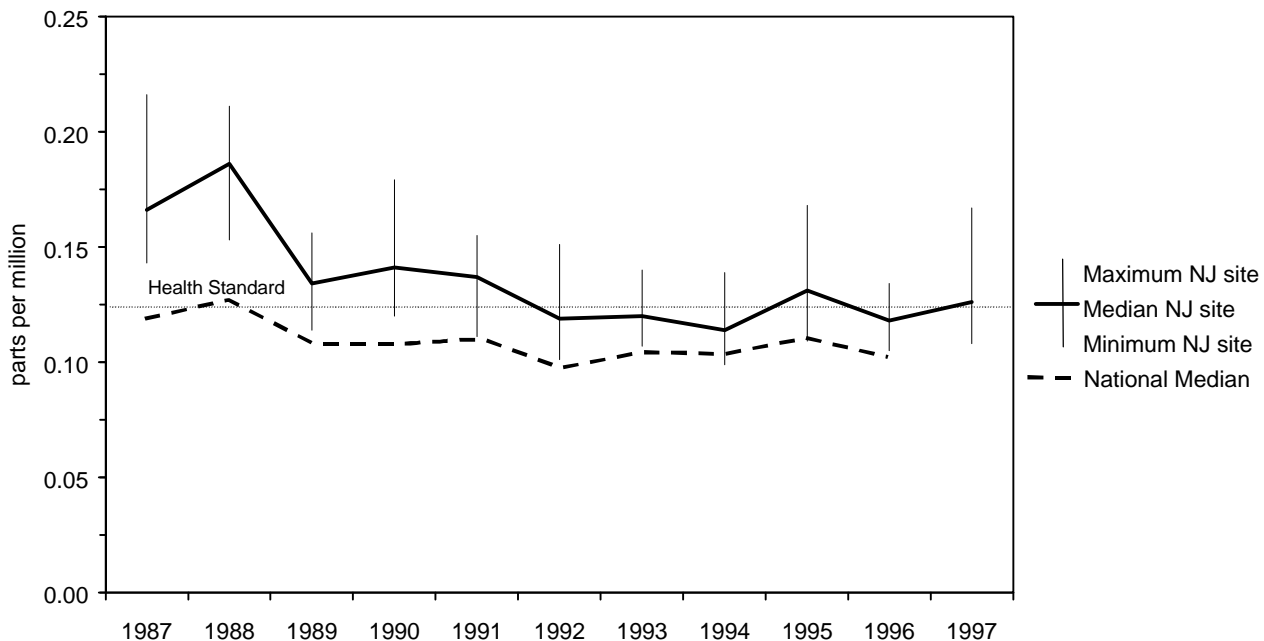


Figure 10b. 1997 Ozone Concentrations in New Jersey:  
Highest and Second Highest Daily 1-Hour Averages

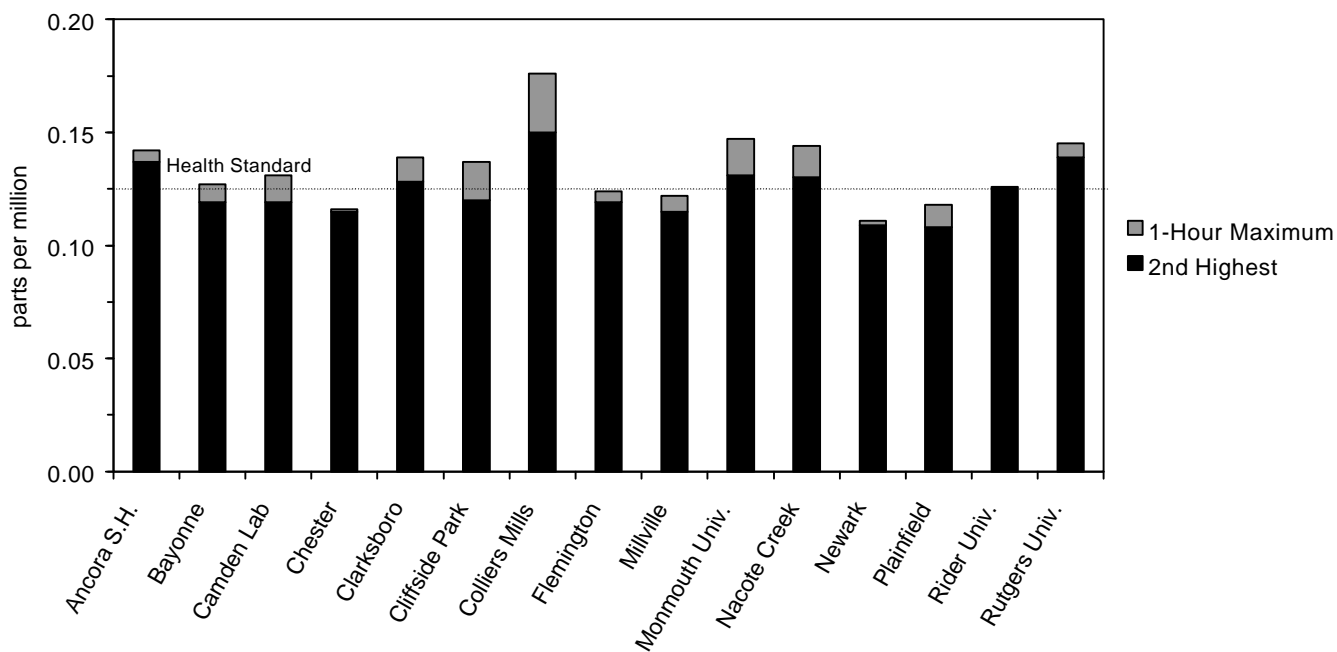




TABLE 11

## AIR QUALITY IN NEW JERSEY COMPARED WITH AIR QUALITY STANDARDS - 1997

OZONE PRECURSORS  
NON-METHANE ORGANIC COMPOUNDS AND NITROGEN OXIDES  
6-9 AM STATISTICS  
ON SELECTED SAMPLING DATES

NON-METHANE ORGANIC COMPOUNDS (NMOC)  
PARTS PER MILLION

Newark				
<u>Month</u>	<u># of Samples</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>
June	20	.401	.098	1.404
July	21	.368	.154	.781
August	21	.496	.086	2.139
<u>September</u>	<u>19</u>	<u>.456</u>	<u>.138</u>	<u>1.054</u>
Season	81	.430	.086	2.139

NITROGEN OXIDES (NOX)<sup>a</sup>  
PARTS PER MILLION

Newark				
<u>Month</u>	<u># of Samples</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>
June	20	.092	.031	.287
July	21	.075	.023	.140
August	21	.081	.023	.169
<u>September</u>	<u>19</u>	<u>.101</u>	<u>.027</u>	<u>.260</u>
Season	81	.087	.023	.287

a) Nitrogen Oxides concentrations were estimated by summing the nitric oxide (NO) and nitrogen dioxide (NO<sup>2</sup>) observed levels.

NMOC/NOX RATIOS

Newark				
<u>Month</u>	<u># of Samples</u>	<u>Mean</u>	<u>Minimum</u>	<u>Maximum</u>
June	20	4.47	2.84	6.34
July	21	5.32	3.09	10.65
August	21	6.69	3.17	35.07
<u>September</u>	<u>19</u>	<u>4.75</u>	<u>2.03</u>	<u>13.18</u>
Season	81	5.33	2.03	35.07

TABLE 11 (CONT.)  
 AIR QUALITY IN NEW JERSEY COMPARED WITH AIR QUALITY STANDARDS - 1997

OZONE PRECURSORS  
 NON-METHANE ORGANIC COMPOUNDS (NMOC) AND NITROGEN OXIDES (NOX)

6-9 A.M. STATISTICS  
 PARTS PER MILLION

NEWARK

1997 Date	NMOC PPMC	NOX PPM	NMOC/ NOX	1997 Date	NMOC PPMC	NOX PPM	NMOC/ NOX	1997 Date	NMOC PPMC	NOX PPM	NMOC/ NOX
6/2	.195	.064	3.05	7/11	.390	.068	5.74	8/20	.673	.144	4.67
6/3	.197	.045	4.38	7/14	.474	.065	7.29	8/21	.355	.094	3.78
6/4	.098	.031	3.16	7/15	.412	.109	3.78	8/22	.871	.082	10.62
6/6	.388	.073	5.32	7/16	.176	.050	3.52	8/25	.834	.121	6.89
6/9	.401	.141	2.84	7/17	.701	.121	5.79	8/26	.793	.169	4.69
6/10	.738	.188	3.93	7/18	.350	.071	4.93	8/27	.600	.144	4.17
6/11	.230	.043	5.35	7/21	.390	.119	3.28	8/28	.282	.089	3.17
6/12	.408	.092	4.43	7/22	.194	.030	6.47	8/29	.359	.063	5.70
6/13	.357	.067	5.33	7/24	.213	.069	3.09	9/3	.143	.027	5.30
6/16	.468	.120	3.90	7/25	.154	.044	3.50	9/4	.138	.034	4.06
6/17	.423	.103	4.11	7/28	.369	.040	9.23	9/5	.425	.112	3.79
6/18	.260	.078	3.33	7/29	.245	.023	10.65	9/9	.253	.068	3.72
6/19	.487	.117	4.16	7/30	.208	.065	3.20	9/10	.290	.063	4.60
6/20	.317	.050	6.34	7/31	.325	.079	4.11	9/11	.259	.068	3.81
6/23	.200	.041	4.88	8/1	.458	.069	6.64	9/12	.363	.077	4.71
6/24	.361	.080	4.51	8/4	.203	.034	5.97	9/15	.487	.101	4.82
6/25	1.404	.287	4.89	8/5	.203	.046	4.41	9/16	.745	.139	5.36
6/26	.425	.068	6.25	8/6	.237	.048	4.94	9/17	1.054	.080	13.18
6/27	.182	.034	5.35	8/7	.407	.085	4.79	9/18	.205	.101	2.03
6/30	.475	.121	3.93	8/8	.515	.124	4.15	9/19	.633	.150	4.22
7/1	.426	.125	3.41	8/11	.312	.089	3.51	9/22	.540	.142	3.80
7/2	.365	.098	3.72	8/12	.086	.025	3.44	9/23	.469	.105	4.47
7/3	.548	.096	5.71	8/13	.288	.072	4.00	9/24	.214	.058	3.69
7/7	.427	.078	5.47	8/14	.259	.027	9.59	9/25	.879	.260	3.38
7/8	.781	.140	5.58	8/15	.429	.082	5.23	9/26	.605	.159	3.81
7/9	.415	.068	6.10	8/18	.117	.023	5.09	9/29	.660	.084	7.86
7/10	.165	.023	7.17	8/19	2.139	.061	35.07	9/30	.305	.082	3.72

Figure 11. Trend in Nonmethane Organic Compounds in New Jersey, 1987 - 1997:  
Seasonal Average 6 a.m. - 9 a.m. Concentrations

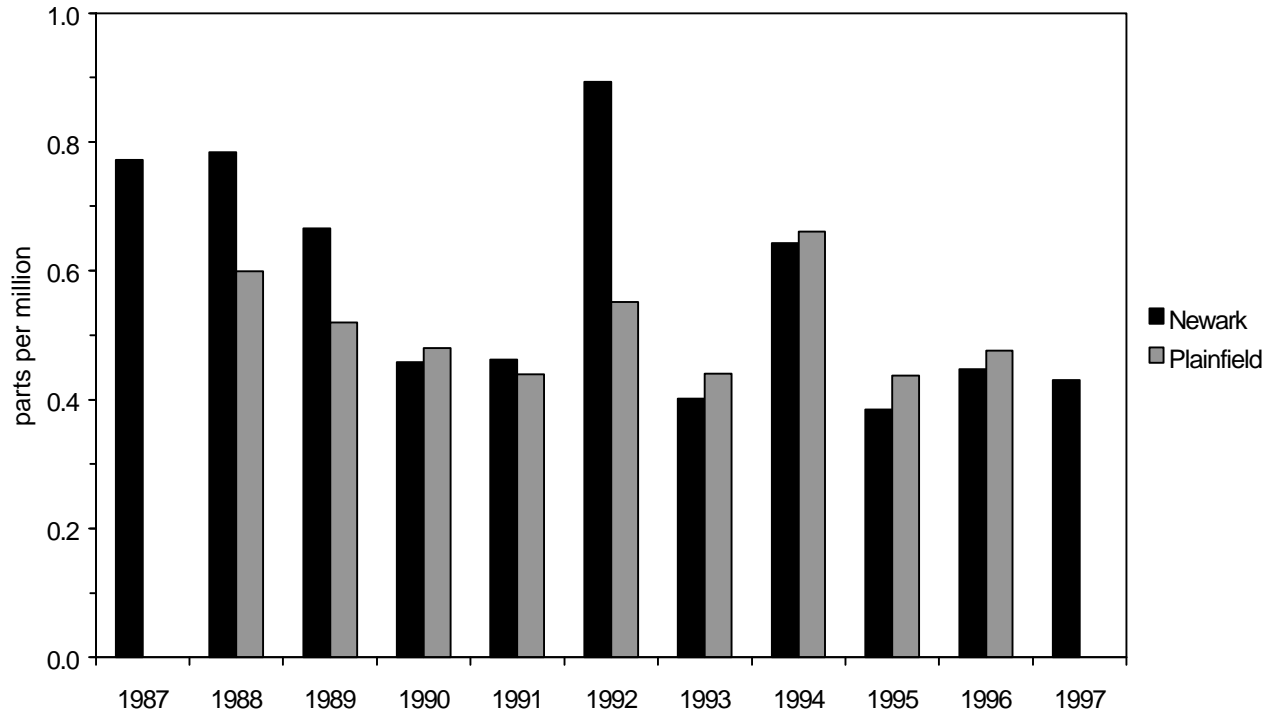




Figure 12. State of New Jersey  
Nitrogen Oxides Monitoring Network, 1997

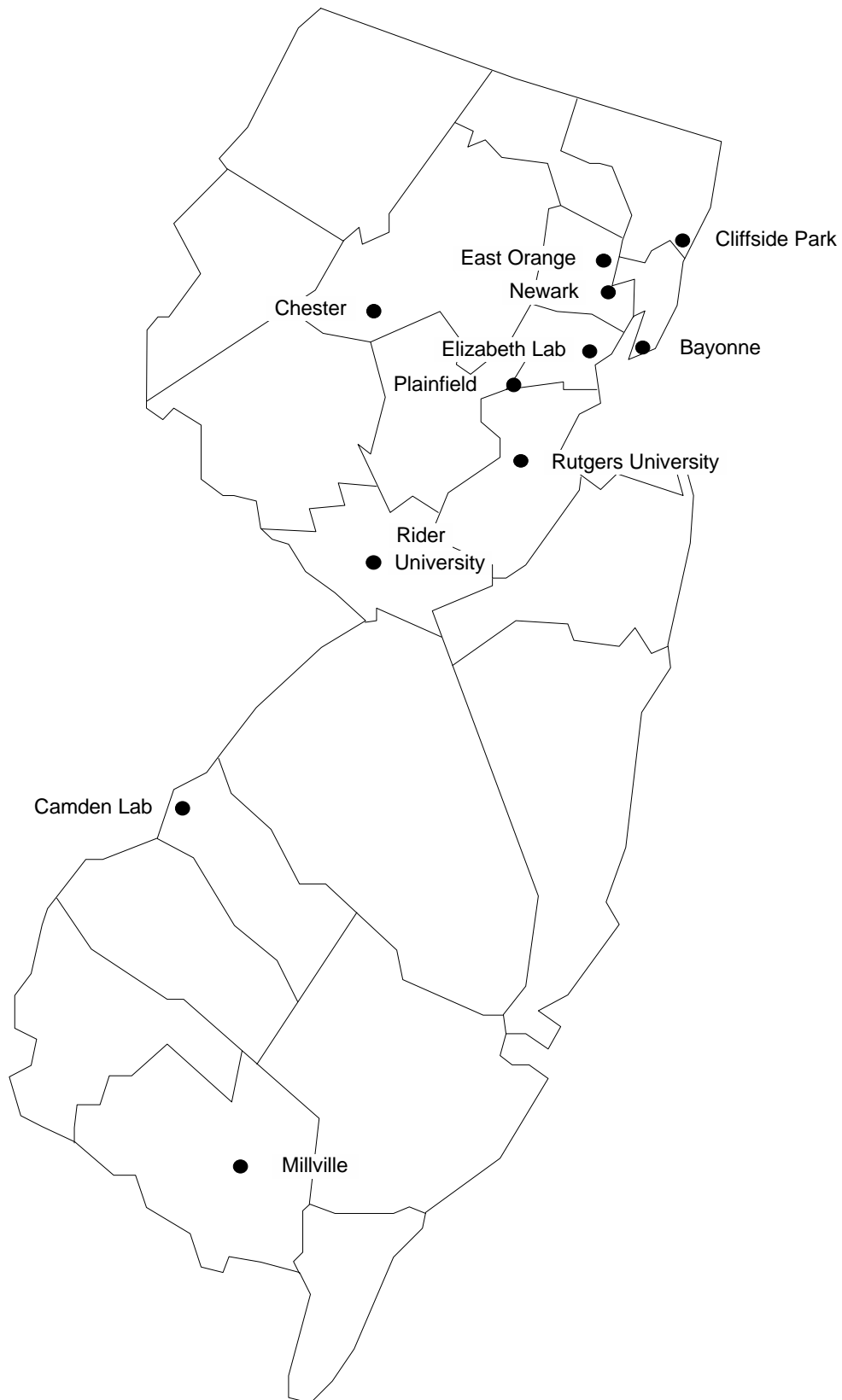


TABLE 12

AIR QUALITY IN NEW JERSEY  
 COMPARED WITH AIR QUALITY STANDARDS -- 1997

NITROGEN DIOXIDE & NITRIC OXIDE  
 PARTS PER MILLION

AMBIENT AIR QUALITY STANDARDS FOR NITROGEN DIOXIDE:  
 12-MONTH AVERAGE PRIMARY STANDARD: 100 ug/m<sup>3</sup> (.05 ppm)<sup>a</sup>  
 ANNUAL AVERAGE PRIMARY STANDARD: .053 ppm (100 ug/m<sup>3</sup>)<sup>b</sup>  
 12-MONTH AVERAGE SECONDARY STANDARD: 100 ug/m<sup>3</sup> (.05 ppm)<sup>a</sup>  
 ANNUAL AVERAGE SECONDARY STANDARD: .053 ppm (100 ug/m<sup>3</sup>)<sup>b</sup>  
 1-HOUR AVERAGE GUIDELINE: 470 ug/m<sup>3</sup> (.25 ppm)<sup>c</sup>

NO AMBIENT AIR QUALITY STANDARDS HAVE  
 BEEN ESTABLISHED FOR NITRIC OXIDE

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

VIOLATION CODES: XXX = NEW JERSEY AND NATIONAL, XX = NEW JERSEY  
 -- = NO VIOLATION

Monitoring Site	Site Code	Nitrogen Dioxide		Nitrogen Dioxide		Viol. Code	Nitric Oxide Annual Avg. (ppm)
		1-Hour Average (ppm) Maximum	2 <sup>nd</sup> Highest	12-Month Average (ppm) Maximum	Cal. Year		
Bayonne	N	.113	.091	.027	.026	--	.020
Camden Lab	S	.084	.078	.023	.022	--	.016
Chester	S	.060	.060	.011	.011	--	.003
Cliffside Park	S	.118	.114	.028	.028	--	.023
East Orange	N	.103	.097	.030	.028	--	.034
Elizabeth Lab	S	.151	.145	.041	.041	--	.046
Millville	SPM	.077	.074	.016	.016	--	.015
Newark	S	.143	.139	.032	.030	--	.032
Plainfield #2 <sup>d</sup>	S	.112	.086	.027	.026	--	.030
Rider Univ.	SPM	.066	.065	.017	.017	--	.015
Rutgers Univ.	S	.068	.067	.020	.018	--	.013

a) New Jersey Ambient Air Quality Standard.

b) National Ambient Air Quality Standard.

c) California State Primary Standard used by New Jersey for analysis of short-term impacts in dispersion modeling studies.

d) Data not available: December.

Figure 13a. Trend in Nitrogen Dioxide Concentrations in New Jersey, 1987 - 1997: Annual Averages

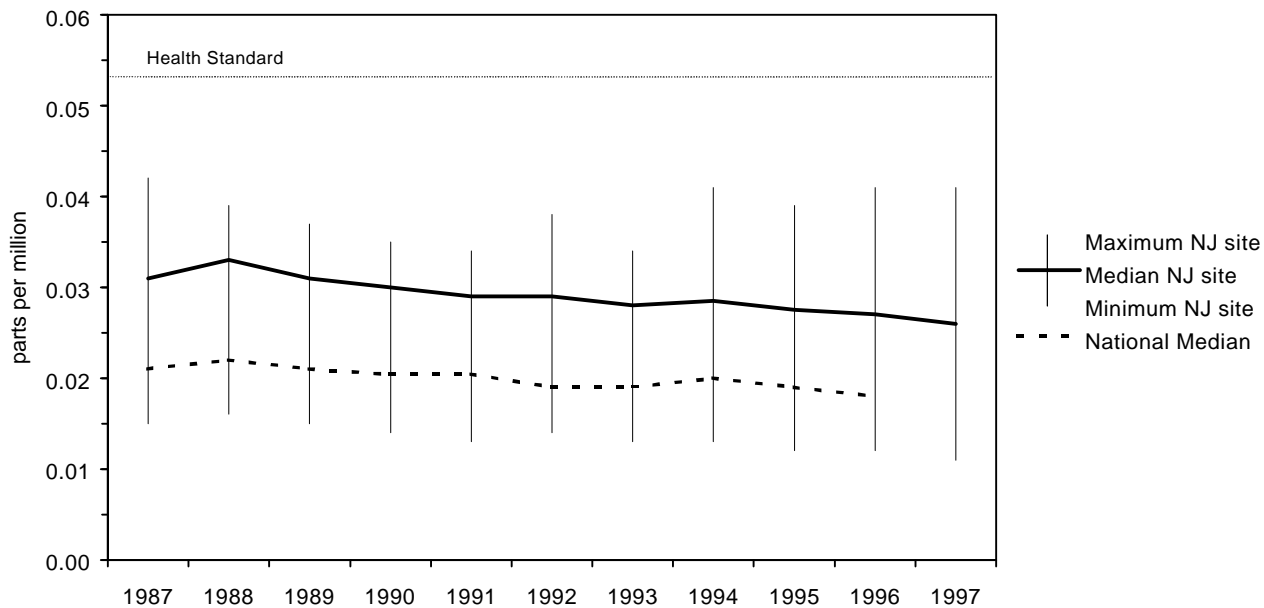


Figure 13b. 1997 Nitrogen Dioxide and Nitric Oxide Concentrations in New Jersey: Annual Averages

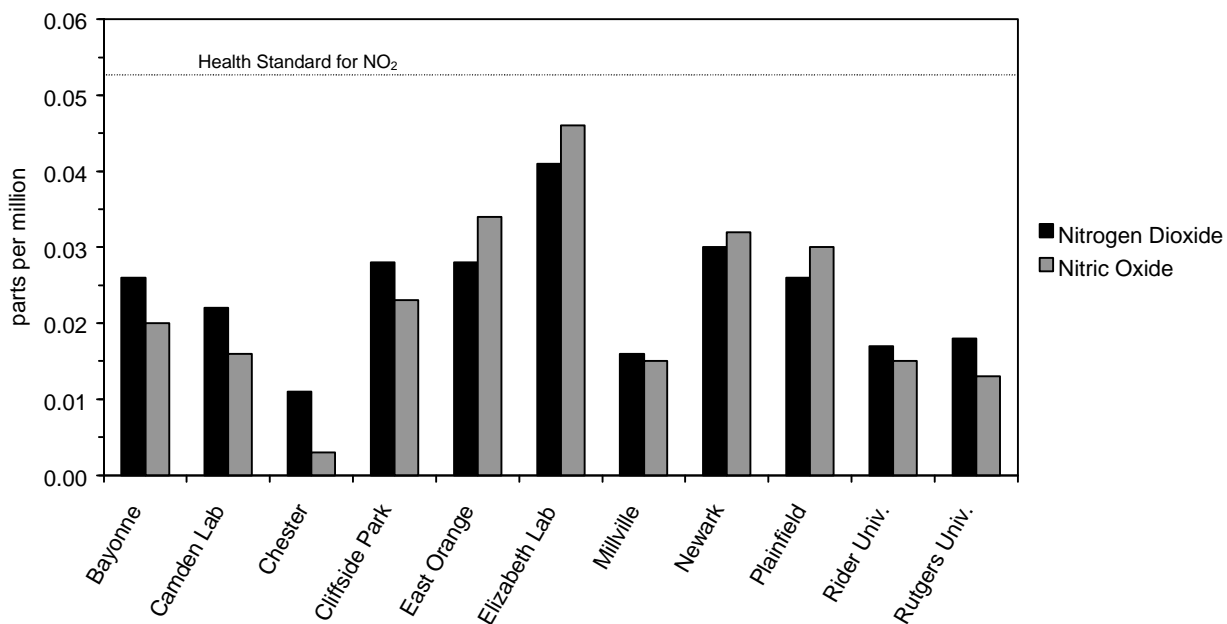
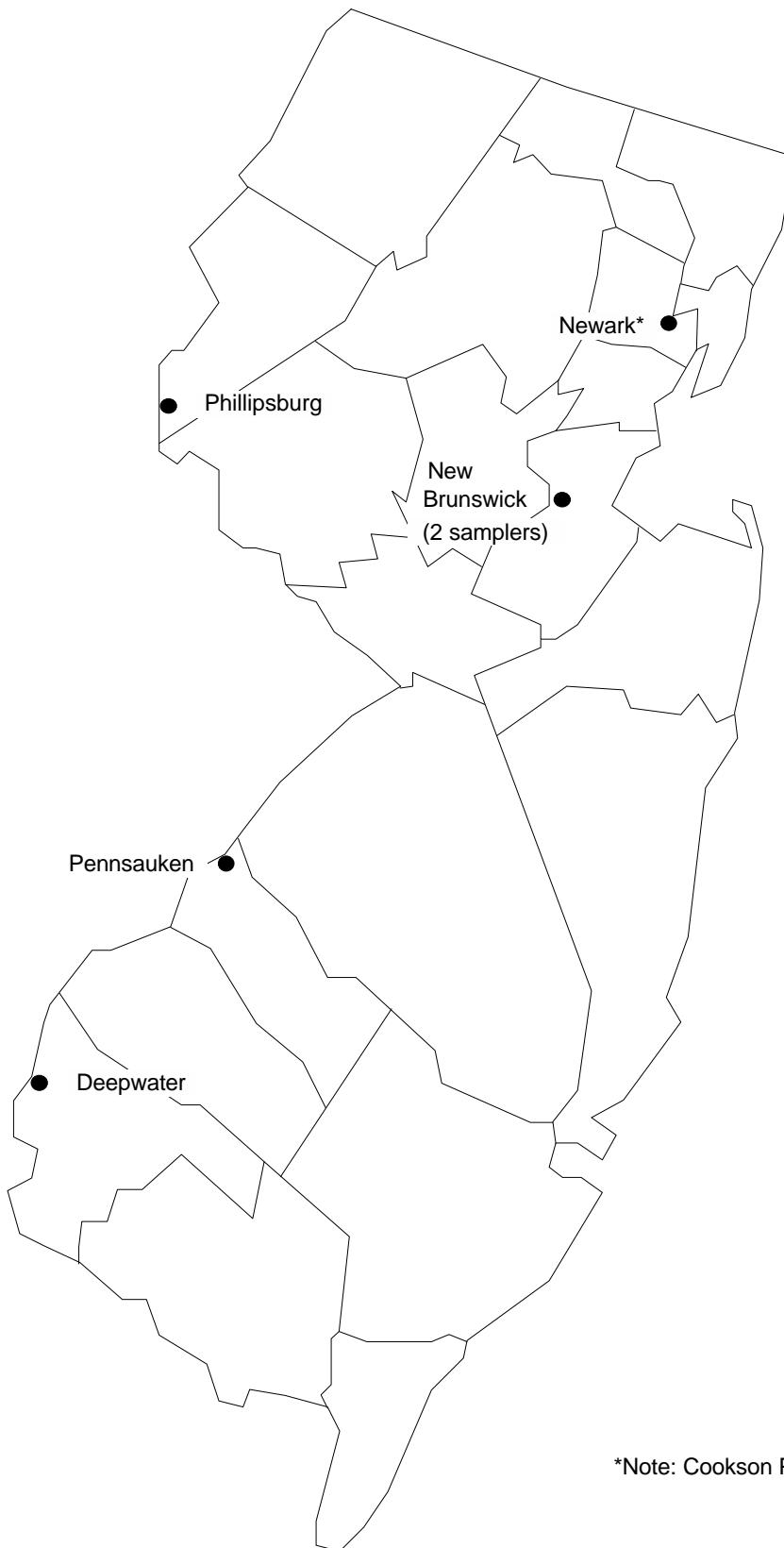






Figure 14. State of New Jersey  
Trace Metals Monitoring Network, 1997



\*Note: Cookson Pigments is in Newark

TABLE 13

AIR QUALITY IN NEW JERSEY  
COMPARED WITH AIR QUALITY STANDARDS -- 1997

LEAD  
3-MONTH AVERAGES  
MICROGRAMS PER CUBIC METER  
HIGH VOLUME PARTICULATE SAMPLERS

AMBIENT AIR QUALITY STANDARDS FOR LEAD:  
3-MONTH ARITH. MEAN PRIMARY & SECONDARY STANDARDS: 1.5  $\mu\text{g}/\text{m}^3$ <sup>a</sup>  
CALENDAR QUARTER ARITH. MEAN PRIMARY & SECONDARY STANDARD: 1.5  $\mu\text{g}/\text{m}^3$ <sup>b</sup>

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING IND = INDUSTRIAL FACILITY

VIOLATION CODES: XXX = NEW JERSEY AND NATIONAL, XX = NEW JERSEY, -- = NO VIOLATION

Monitoring Site	Sampler No.	Site Code	3-Month Average Maximum	Average Month	Viol. Code	Arithmetic Means				Viol. Code
						1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	
Cookson Pigments	1HB	IND	.092	Jun.	--	.076	.092	.031	.035	--
Deepwater <sup>c</sup>	062	S	.027	Mar.	--	.027	.027	.012	.011	--
New Brunswick	057	S	.079	Jun.	--	.072	.079	.029	.020	--
New Brunswick	068	SPM	.081	May	--	.072	.078	.046	.033	--
Pennsauken	071	S	.071	Jan.	--	.063	.063	.024	.013	--
Phillipsburg <sup>c</sup>	070	SPM	.043	Mar.	--	.043	.039	.014	.016	--

a) New Jersey Ambient Air Quality Standard

b) National Ambient Air Quality Standard

c) Less than 50 percent of samples above minimum detection limits

Figure 15a. Trend in Lead Concentrations in New Jersey, 1987 - 1997:  
Maximum Quarterly Averages

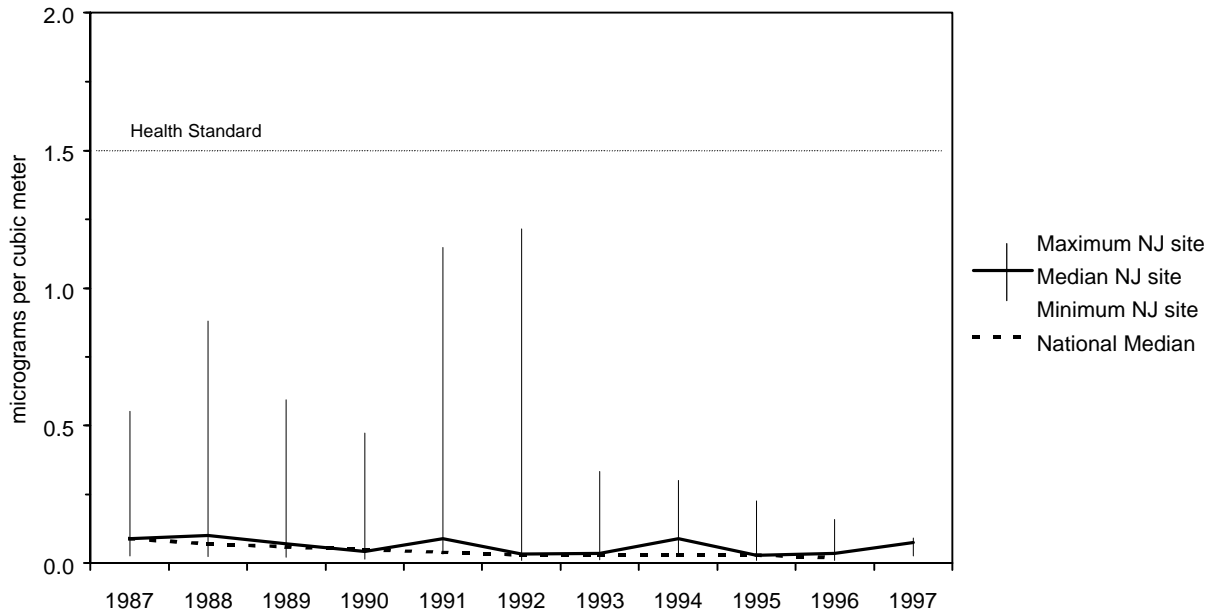


Figure 15b. 1997 Lead Concentrations in New Jersey:  
Maximum Quarterly Averages

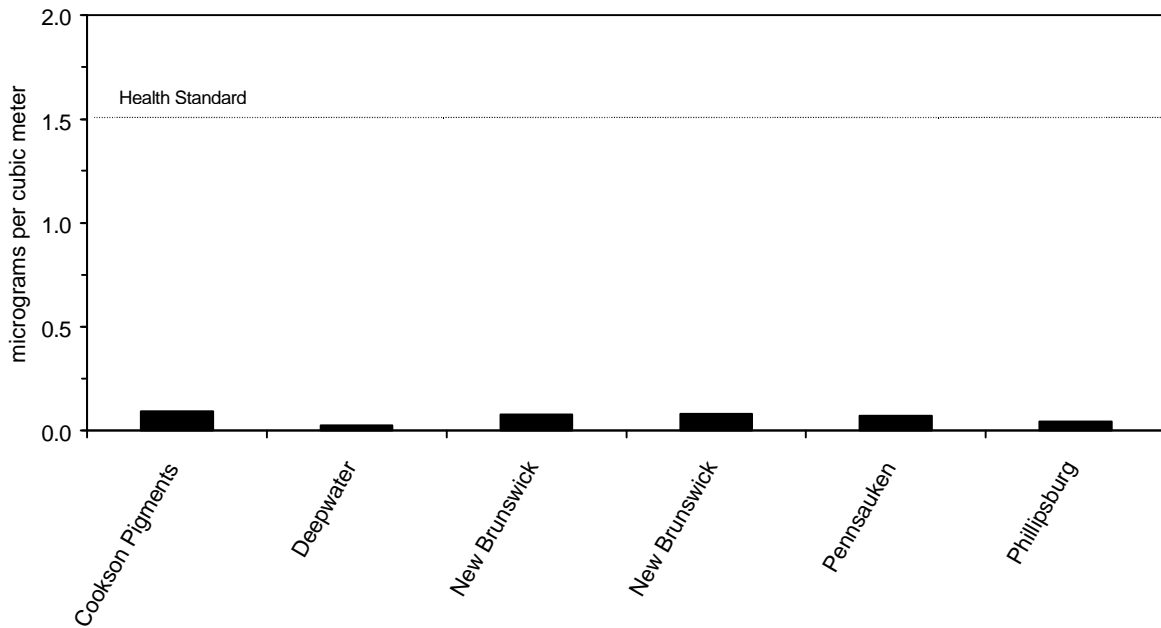


TABLE 14

AIR QUALITY IN NEW JERSEY  
COMPARED WITH AIR QUALITY STANDARDS 1997

TRACE METALS  
ANNUAL MEANS AND MAXIMUM DAILY AVERAGES  
MICROGRAMS PER CUBIC METER

NO AMBIENT AIR QUALITY STANDARDS HAVE  
BEEN ESTABLISHED FOR THESE TRACE METALS

HIGH VOLUME PARTICULATE SAMPLERS

Monitoring Location	Sampler No.	Cadmium		Chromium		Copper		Nickel		Zinc	
		Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
Cookson Pigments <sup>b</sup>	1HB	.003 <sup>a</sup>	.007	.009 <sup>a</sup>	.197	.109	.398	.007 <sup>a</sup>	.039	.111	.666
Deepwater	062	.002 <sup>a</sup>	.005	.004 <sup>a</sup>	.015	.051	.094	.006 <sup>a</sup>	.030	.033	.191
New Brunswick	057	.003	.005	.002 <sup>a</sup>	.005	.194	2.028	.005 <sup>a</sup>	.058	.064	.278
Pennsauken	071	.003	.005	.003 <sup>a</sup>	.010	.265	.849	.006 <sup>a</sup>	.020	.077	.510
Phillipsburg <sup>c</sup>	070	.003	.005	.003 <sup>a</sup>	.005	.041	.067	.007 <sup>a</sup>	.054	.229	1.925

a) Less than 50 percent of samples above minimum detection limits.

b) Data not available for 3<sup>rd</sup> quarter.

c) Data not available for 4<sup>th</sup> quarter.

Figure 16. State of New Jersey  
Smoke Shade Monitoring Network, 1997

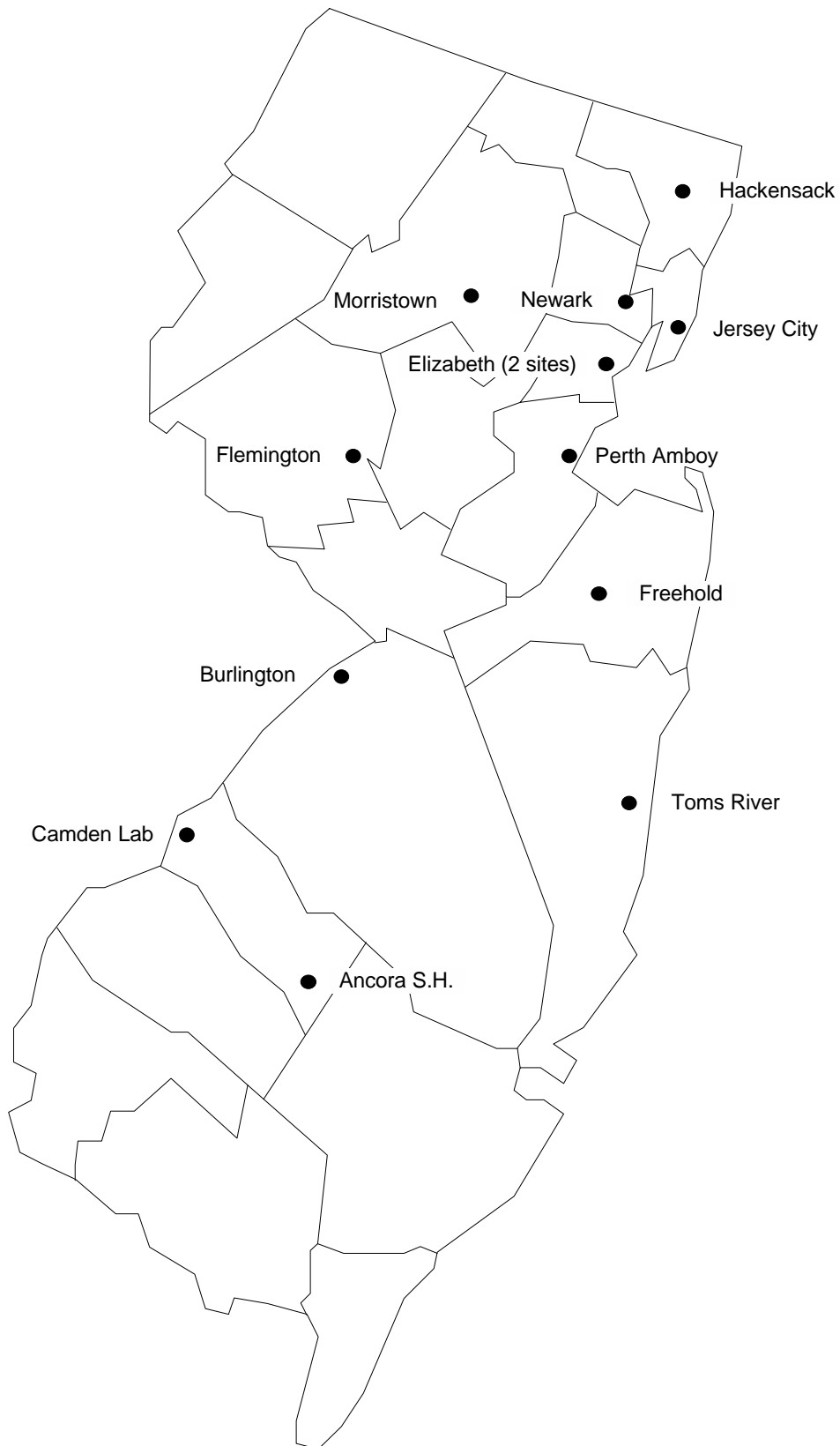


TABLE 15

AIR QUALITY IN NEW JERSEY  
 COMPARED WITH AIR QUALITY STANDARDS -- 1997

SMOKE SHADE  
 DAILY AND ANNUAL AVERAGES  
 COEFFICIENT OF HAZE (COHS)

NO AMBIENT AIR QUALITY STANDARDS HAVE  
 BEEN ESTABLISHED FOR SMOKE SHADE

SITE CODES: N = NAMS, S = SLAMS, SPM = SPECIAL PURPOSE MONITORING

<u>Monitoring Site</u>	<u>Site Code</u>	<u>Daily Average (COHS)</u>		<u>Annual Average (COHS)</u>
		<u>Maximum</u>	<u>2<sup>nd</sup> Highest</u>	
Ancora S.H.	SPM	0.37	0.36	0.14
Burlington	SPM	0.78	0.78	0.25
Camden Lab	SPM	0.78	0.65	0.19
Elizabeth	SPM	1.46	1.26	0.41
Elizabeth Lab	SPM	1.05	1.00	0.35
Flemington	SPM	0.60	0.54	0.19
Freehold	SPM	0.79	0.74	0.28
Hackensack	SPM	1.09	1.05	0.27
Jersey City	SPM	2.41	2.00	0.77
Morristown	SPM	1.43	1.19	0.40
Newark	SPM	1.35	1.14	0.40
Perth Amboy	SPM	1.07	0.76	0.30
Toms River	SPM	0.79	0.72	0.28

Figure 17a. 1997 Smoke Shade Measurements in New Jersey  
Highest and Second Highest Daily Averages

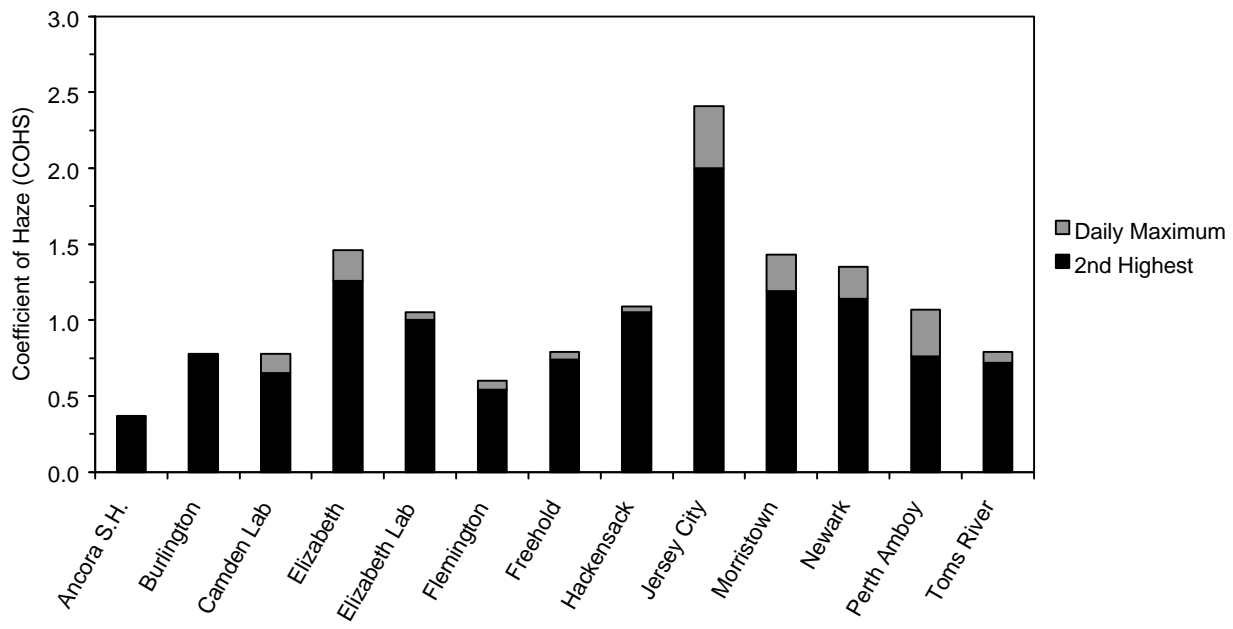


Figure 17b. 1997 Smoke Shade Measurements in New Jersey  
Annual Averages

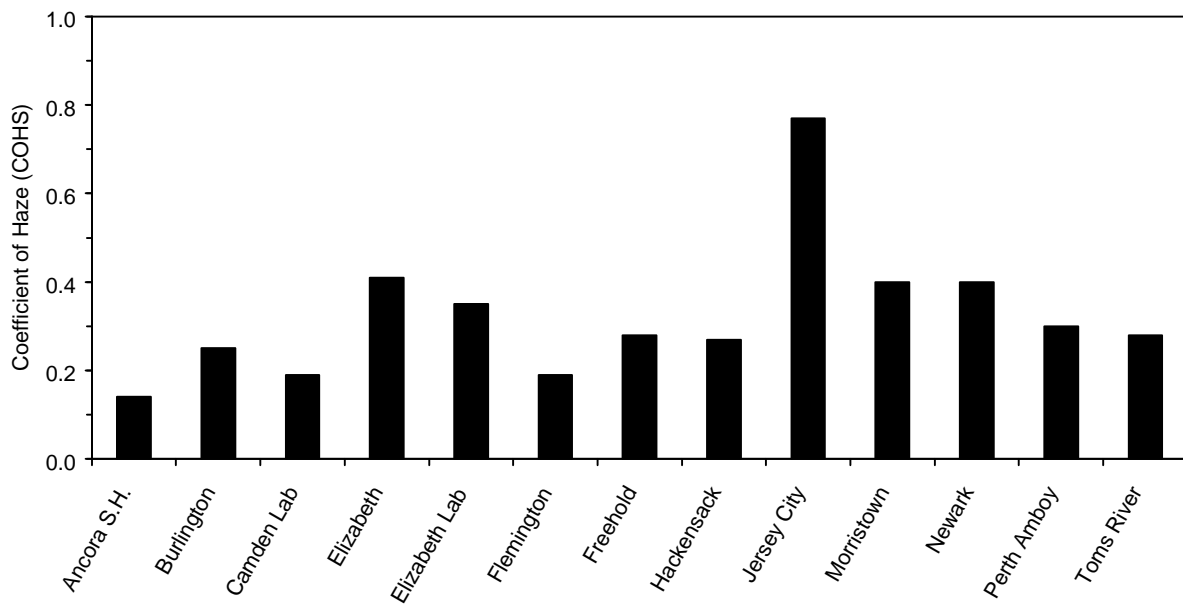






Figure 18. State of New Jersey  
Acid Precipitation Monitoring Network, 1997

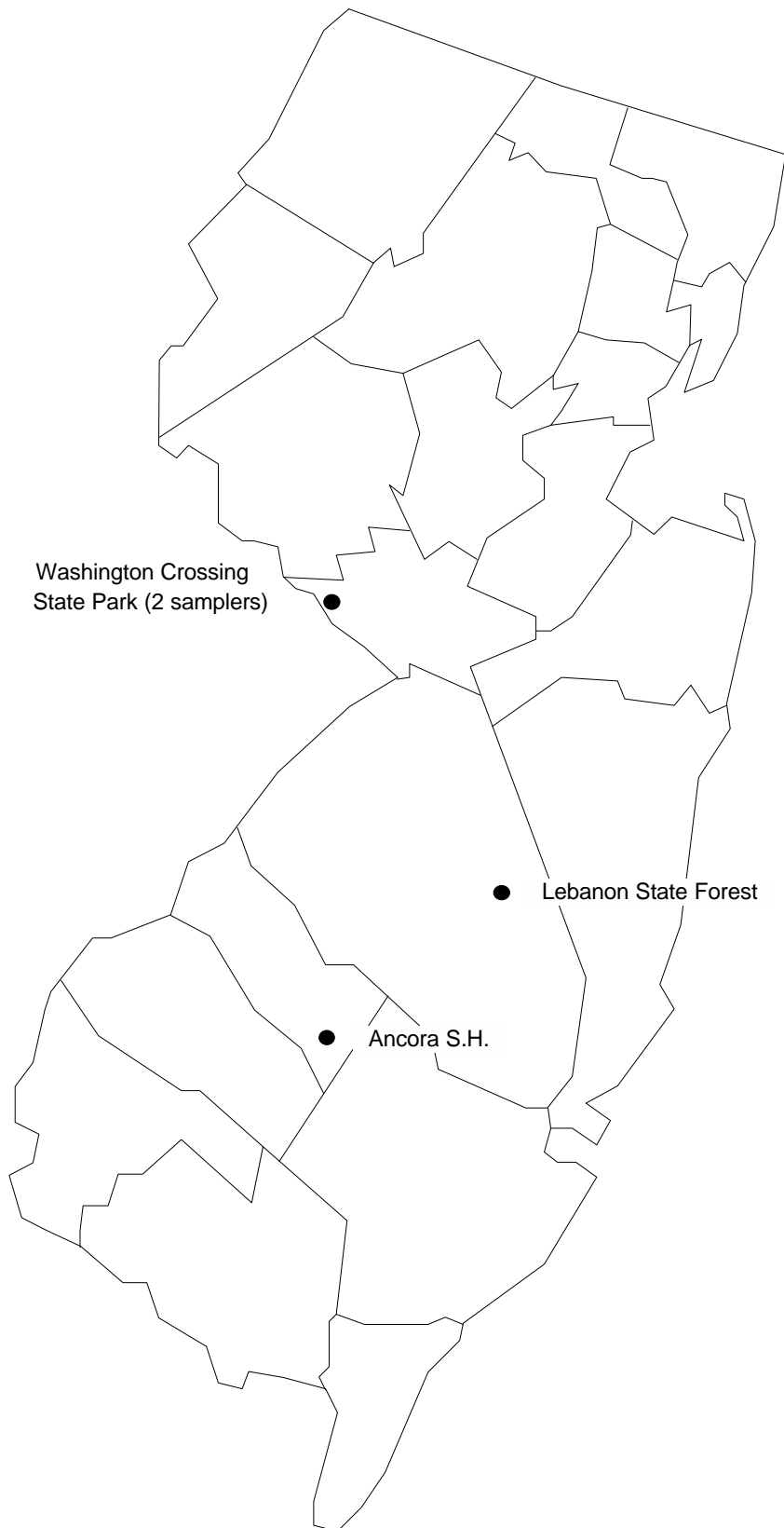


Table 16

1997 ACID PRECIPITATION MONITORING NETWORK  
ANNUAL AND SEASONAL AVERAGES  
WEIGHTED BY PRECIPITATION AMOUNT

Ancora State Hospital - Weekly

	Precip. Inches	pH	Cond. us/cm
Winter	9.47	4.47	23.0
Spring	9.85	4.56	18.5
Summer	13.14	4.37	23.5
Fall	9.59	4.56	15.3
Annual	42.05	4.47	20.3

Lebanon State Forest - Weekly

	Precip. Inches	pH	Cond. us/cm
Winter	11.16	4.45	23.2
Spring	11.04	4.47	23.0
Summer	8.93	4.40	23.6
Fall	7.70	4.46	23.1
Annual	38.83	4.44	23.2

Washington Crossing State Park - Weekly

	Precip. Inches	pH	Cond. us/cm	Ca <sup>2+</sup> mg/l	Mg <sup>+</sup> mg/l	K <sup>+</sup> mg/l	Na <sup>+</sup> mg/l	NH <sub>4</sub> <sup>-</sup> mg/l	NO <sub>3</sub> <sup>-</sup> mg/l	Cl <sup>-</sup> mg/l	SO <sub>4</sub> <sup>2-</sup> mg/l	PO <sub>4</sub> <sup>3-</sup> mg/l
Winter	7.70	4.36	26.4	0.061	0.060	0.021	0.465	0.182	1.497	0.872	1.756	0.002
Spring	11.90	4.41	24.6	0.096	0.024	0.018	0.092	0.342	1.667	0.195	2.026	0.002
Summer	8.49	4.48	22.4	0.094	0.025	0.009	0.113	0.159	1.328	0.213	1.792	0.002
Fall	8.77	4.56	15.6	0.030	0.013	0.008	0.093	0.088	0.961	0.185	1.046	0.002
Annual	36.86	4.44	22.3	0.072	0.029	0.014	0.175	0.206	1.385	0.338	1.682	0.002

Washington Crossing State Park - Event

	Precip. Inches	pH	Cond. us/cm
Winter	7.40	4.34	29.0
Spring	10.86	4.42	23.8
Summer	9.57	4.37	25.4
Fall	8.65	4.53	15.4
Annual	36.48	4.41	23.3

LEGEND: Cond. = Specific conductance, Ca<sup>2+</sup> = Calcium, Mg<sup>+</sup> = Magnesium, K<sup>+</sup> = Potassium,  
Na<sup>+</sup> = Sodium, NH<sub>4</sub> = Ammonium, NO<sub>3</sub><sup>-</sup> = Nitrate, Cl<sup>-</sup> = Chloride, SO<sub>4</sub><sup>2-</sup> = Sulfate,  
PO<sub>4</sub><sup>3-</sup> = Phosphate.  
us/cm = mcicroSiemens per centimeter, mg/l = milligrams per liter.  
Winter = Jan. - Mar.; Spring = Apr. - June; Summer = Jul. - Sept.; Fall = Oct. - Dec.

TABLE 17

ACID PRECIPITATION - COMPARISON WITH METEOROLOGY  
SUMMARY OF 1997 ACID PRECIPITATION MONITORING BY THE  
WASHINGTON CROSSING STATE PARK PRECIPITATION EVENT SAMPLER

ACID PRECIPITATION EVENTS BY SEASON<sup>1</sup>

	Winter	Spring	Summer	Fall
Number of storm events	12	12	13	12
Total precipitation (inches)	7.40	10.86	9.57	8.65
Average acidity (pH)	4.34	4.42	4.37	4.53

## ACID PRECIPITATION EVENTS BY PRECIPITATION AMOUNT

	Trace-.5"	0.51-1.0"	1.0-1.5"	1.51-2.0"	>2.0"
Number of storm events	22	13	6	4	4
Total precip. (inches)	3.77	9.41	6.63	6.72	9.95
Average acidity (pH)	4.23	4.31	4.40	4.38	4.68

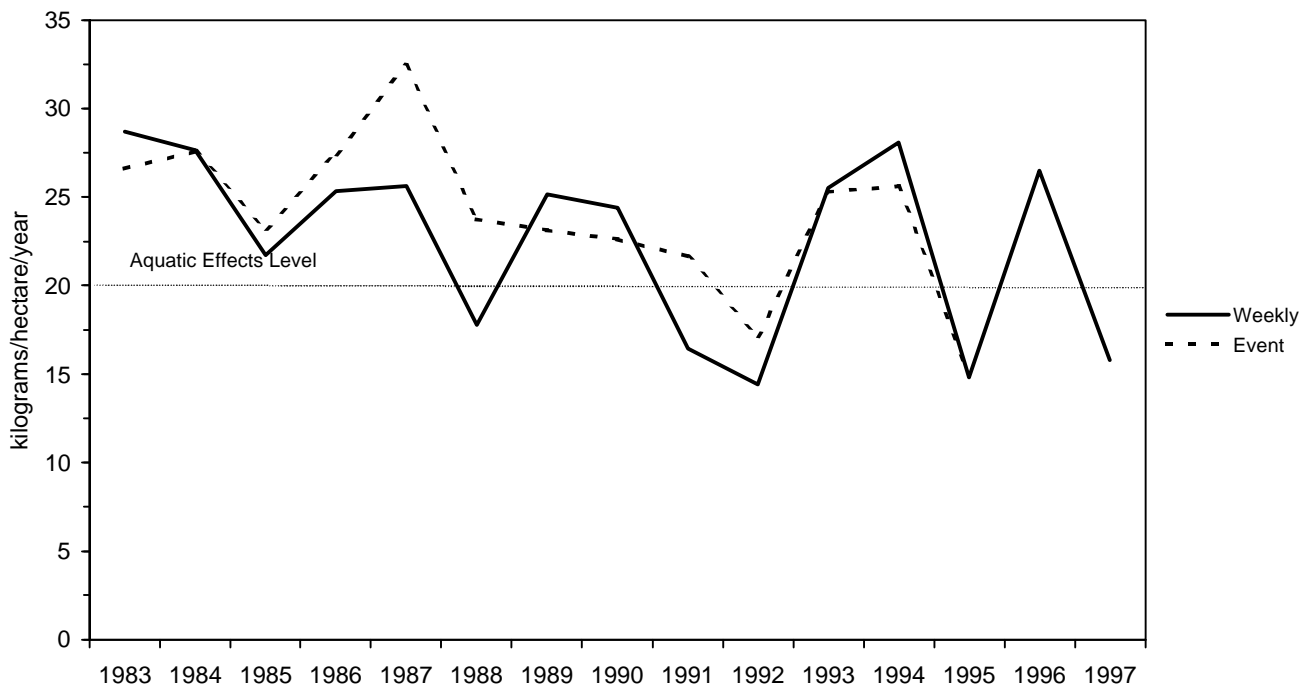
ACID PRECIPITATION EVENTS BY METEOROLOGICAL REGIME<sup>2</sup>

	Midwest	South Central	Coastal	Local	Combination
Number of storm events	18	6	10	5	10
Average inches of Precip. per storm	0.46	0.55	1.04	0.69	1.11
Total precip. (inches)	8.19	3.27	10.44	3.44	11.14
Average acidity (pH)	4.32	4.65	4.53	4.10	4.47

Notes: <sup>1</sup>Seasons correspond to the following months: Winter = January through March; Spring = April through June; Summer = July through September; Fall = October through December.

<sup>2</sup>Meteorological regimes refer to general storm type and the direction from which storms originate or pass over before reaching New Jersey. The "Combination" regime refers to those events that could not be clearly classified and are considered to fall into one or more of the other categories.

Figure 19. Trend in Sulfate Deposition in Precipitation at Washington Crossing State Park, New Jersey, 1983 - 1997: Annual Loading



This figure shows that change in the amount of sulfate ion deposited over the last fifteen years at the acid precipitation monitoring site in Washington Crossing State Park, New Jersey. The figure shows "wet deposition" only; that is, it does not include dry particulate sulfate that was deposited when no precipitation was occurring. Therefore, total deposition is higher than what is shown.

The factors controlling the trend are the sulfate concentration in air and cloud droplets, and the total amount of precipitation in a given year. In particular, in 1991 and 1992, both the sulfate concentrations and the total precipitation were below normal, while these values rebounded in 1993 and 1994. Since the values shown here are annual totals, they are sensitive to exclusion or loss of samples due to contamination.

Sulfate can alter soil and water chemistry, and a deposition level of 20 kilograms per hectare per year has been generally accepted as the limit above which damage to sensitive natural resources is likely to occur. However, there are no national or New Jersey standards for sulfate deposition.

Sulfate deposition in rain and snow is expressed as mass per unit land area. To convert the values shown above to pounds per acre per year, multiply by 0.89 (since one kilogram equals 2.21 pounds and one hectare equals 2.47 acres; a hectare has an area equivalent to a square that is 100 meters on a side).

Figure 20. State of New Jersey  
Meteorological Monitoring Network, 1997

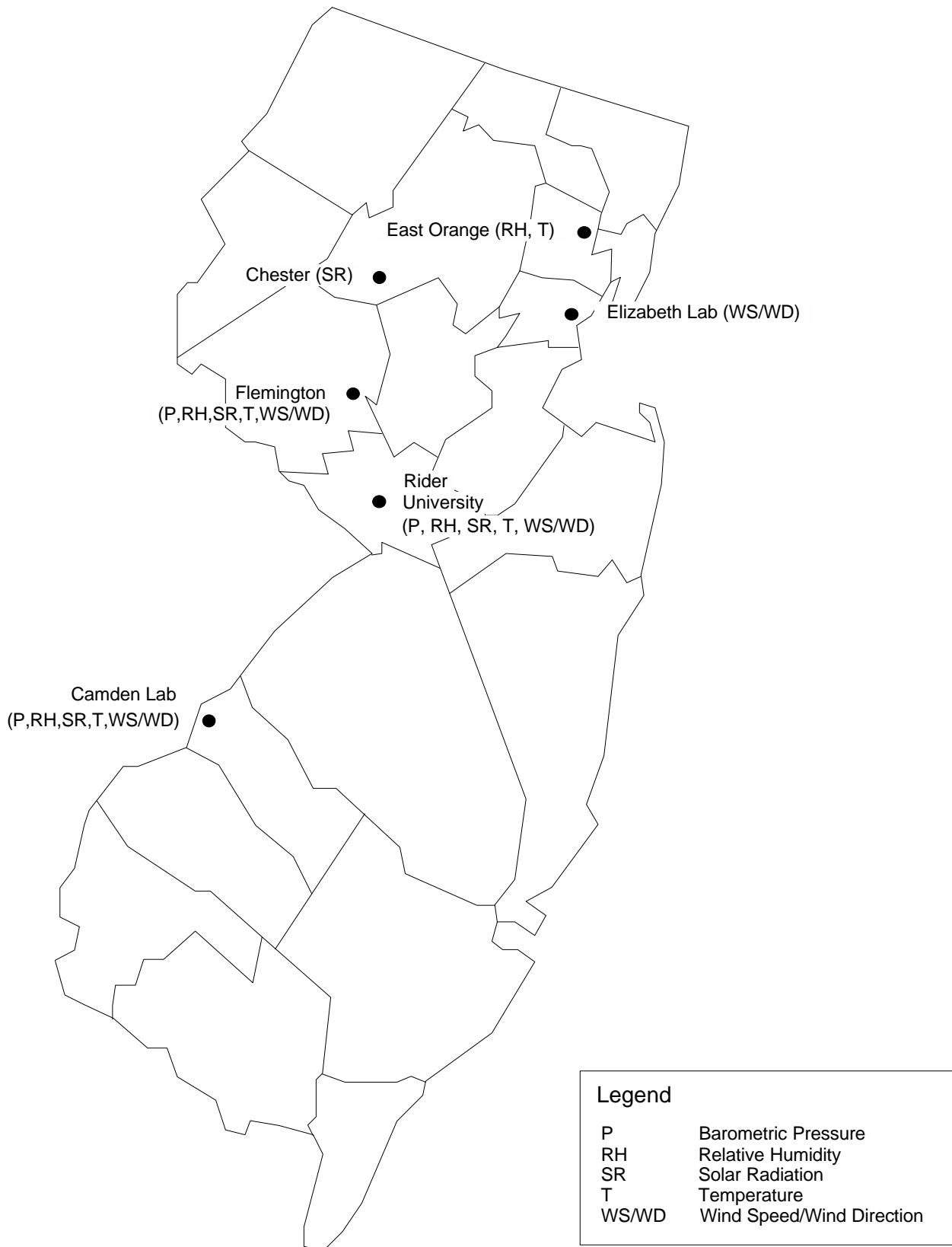


TABLE 18

SUMMARY OF METEOROLOGICAL MONITORING DATA - 1997  
NORTHERN NEW JERSEY

MONITORING SITES		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR
<u>East Orange/Elizabeth Lab And Chester</u>														
Temperature: Mean <sup>1</sup> (°F)	Min	31/31	40/33	42/41	51/52	60/63	72/72	78/77	74/76	67/66	56/57	48/47	37/36	54/54
	Max	2	17	21	26	41	47	56	54	40	31	24	16	2
		64	73	71	79	88	99	104	99	91	91	69	59	104
Mean Wind: (mph, deg)	Speed	3.6	3.6	3.5	3.5	3.4	2.7	2.6	2.0	2.7	2.3	3.1	2.9	3.0
	Direction	217	227	211	237	221	186	218	223	216	198	192	226	214
Relative Humidity: (%)	Mean	64	61	62	54	59	64	76	70	71	69	71	68	66
	Min	22	19	19	14	22	29	36	34	34	29	31	31	14
	Max	96	96	96	96	96	96	99	96	96	96	96	96	99
Solar Radiation: (Langleys)	Mean	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.1	0.1
	Max	0.8	1.0	1.3	1.4	1.5	1.5	1.4	1.4	1.3	1.1	0.8	0.7	1.5
<hr/>														
<u>Flemington</u>														
Temperature: Mean <sup>2</sup> (°F)	Min	29/27	38/29	40/38	49/50	58/60	69/69	75/74	71/72	63/65	53/53	41/43	35/32	52/51
	Max	1	11	14	25	32	43	48	50	32	23	16	13	1
		63	74	71	75	86	95	98	95	86	87	65	58	98
Mean Wind: (mph, deg)	Speed	4.7	4.3	4.4	4.3	4.4	2.3	2.5	1.9	2.2	2.3	3.3	3.6	3.4
	Direction	206	216	205	227	213	180	218	219	214	218	190	221	211
Relative Humidity: (%)	Mean	67	67	66	61	65	75	73	80	81	77	77	74	72
	Min	31	28	23	21	31	36	35	44	41	35	38	30	21
	Max	99	99	99	99	99	99	99	99	99	99	99	99	99
Solar Radiation: (Langleys)	Mean	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1
	Max	0.8	1.0	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.1	0.8	0.8	1.4
Barometric Pressure (in of Hg)	Mean	30.12	30.25	30.10	29.98	30.00	30.06	30.07	30.09	30.07	30.16	30.04	29.97	30.08
	Min	29.37	29.60	29.40	29.40	29.50	29.60	29.60	29.80	29.30	29.60	29.40	29.00	29.00
	Max	30.80	30.70	30.76	30.50	30.50	30.30	30.40	30.30	30.50	30.50	30.60	30.50	30.80

- 1) Newark Airport 30-year mean shown to the right of the slash  
2) Allentown, PA 30-year mean shown to the right of the slash

TABLE 19

SUMMARY OF METEOROLOGICAL MONITORING DATA - 1997  
CENTRAL AND SOTHERN NEW JERSEY

MONITORING SITES		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	YEAR
<u>Trenton (Rider Universtiy)</u>														
Temperature: (°F)	Mean <sup>3</sup>	31/31	40/33	42/42	50/53	58/63	68/72	74/77	71/75	64/68	54/57	43/46	37/36	53/54
	Min	4	15	20	28	34	45	51	54	36	28	21	19	4
	Max	64	73	69	72	85	92	94	94	84	85	65	56	94
Mean Wind: (mph, deg)	Speed	2.2	--	--	4.8	4.1	2.3	2.5	2.0	2.7	2.7	3.5	3.4	3.0
	Direction	206	--	--	244	237	201	231	233	237	242	206	238	228
Relative Humidity: (%)	Mean	73	70	70	64	68	77	76	82	82	80	80	78	75
	Min	30	31	29	22	33	38	36	45	42	42	40	32	22
	Max	99	99	99	99	99	99	99	99	99	99	99	99	99
Barometric Pressure: (in of Hg)	Mean	30.14	30.27	30.13	30.01	30.02	30.08	30.09	30.11	30.08	30.20	30.05	29.99	30.10
	Min	29.40	29.69	29.38	29.39	29.50	29.68	29.70	29.80	29.41	29.60	29.40	29.00	29.00
	Max	30.80	30.80	30.80	30.50	30.60	30.30	30.40	30.40	30.50	30.50	30.60	30.51	30.80
Solar Radiation (Langleys)	Mean	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1
	Max	0.8	1.0	1.2	1.4	1.4	1.4	1.4	1.3	1.2	1.1	0.8	0.7	1.4
<hr/>														
<u>Camden Lab</u>														
Temperature: (°F)	Mean <sup>3</sup>	33/31	41/33	44/42	52/53	60/63	72/72	78/77	74/75	68/68	58/57	46/46	39/36	55/54
	Min	9	23	28	31	45	50	60	61	45	36	28	22	9
	Max	64	73	73	72	87	95	97	95	85	87	64	58	97
Mean Wind: (mph, deg)	Speed	5.3	4.7	5.1	4.4	4.9	3.8	3.6	3.0	3.7	3.4	4.4	4.5	4.2
	Direction	192	190	193	205	215	170	201	191	206	183	173	203	194
Relative Humidity (%)	Mean	72	71	69	63	63	70	68	75	77	76	79	76	72
	Min	32	34	28	23	29	34	29	38	41	42	45	34	23
	Max	99	99	99	99	99	99	99	99	99	99	99	99	99
Barometric Pressure: (in of Hg)	Mean	30.28	30.42	30.28	30.16	30.18	30.24	30.25	30.27	30.24	30.34	30.23	30.16	30.25
	Min	29.50	29.80	29.50	29.56	29.65	29.80	29.90	29.64	29.50	29.72	29.60	29.20	29.20
	Max	30.90	30.90	30.90	30.60	30.70	30.50	30.50	30.50	30.60	30.65	30.80	30.70	30.90
Solar Radiation: (Langleys)	Mean	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.1	0.1
	Max	0.8	1.0	1.2	1.3	1.4	1.3	1.4	1.3	1.2	1.0	0.8	0.7	1.4

3) Philadelphia 30 year mean shown to the right of the slash

APPENDIX A

ANNUAL AIR QUALITY COMPARISON

1975 - 1997



# SUMMARY OF 1975 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 5

Bayonne (14)                      Somerville (10)  
Camden Lab (14)                  Asbury Park (8)  
Ancora S.H. (12)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 16

Morristown (267)                  Somerville (19)  
Jersey City (172)                  Newark (16)  
Elizabeth (126)                  Camden Lab (14)  
Toms River (73)                  Paterson (12)  
Burlington (48)                  Paulsboro (7)  
Freehold (40)                      Asbury Park (3)  
Atlantic City (30)                  Camden Lab (2)  
Perth Amboy (30)                  Hackensack (2)

\* No. of sites in compliance with the 8-hour standard: 6

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 5<sup>b</sup>

Carteret (8)                      Roselle (3)  
014 Jersey City (4)                  Middlesex (2)  
Hackensack (3)

\* No. of sites in compliance with the 24-hour standard: 64<sup>a</sup> 59<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 2

Carteret  
014 Jersey City

\* No. of sites in compliance with the annual standard: 62

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 4

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 0

\* No. of sites in compliance with the quarterly standard: 0

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 22

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 22

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) In violation of a New Jersey standard (if different)  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1976 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 6

Camden Lab (31)	Somerville (11)
Bayonne (25)	Asbury Park (10)
Ancora S.H. (15)	Trenton (6)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 15

Jersey City (195)	Burlington (15)
Morristown (136)	Newark (12)
Elizabeth (100)	Paterson (11)
Toms River (73)	Camden Lab (7)
Perth Amboy (40)	Asbury Park (4)
Freehold (36)	Hackensack (4)
Atlantic City (24)	Elizabeth Lab (2)
Somerville (20)	

\* No. of sites in compliance with the 8-hour standard: 7

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 7<sup>b</sup>

014 Jersey City (4)	Hoboken (2)
South Brunswick (3)	Jersey City (2)
Bayonne (2)	Roselle (2)
Carteret (2)	

\* No. of sites in compliance with the 24-hour standard: 73<sup>a</sup> 66<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 1

014 Jersey City

\* No. of sites in compliance with the annual standard: 72

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 5

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 0

\* No. of sites in compliance with the quarterly standard: 0

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 22

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 22

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1977 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 7

Sandy Hook (13)	Bayonne (6)
Somerville (13)	Chester (6)
Ancora S.H. (12)	Asbury Park (5)
Camden Lab (9)	

\* No. of sites in compliance with the 1-hour standard: 2

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 14

Morristown (102)	Paterson (7)
Elizabeth (78)	Perth Amboy (7)
Jersey City (72)	Newark (4)
Toms River (34)	Camden Lab (3)
Burlington (17)	Hackensack (3)
Freehold (12)	Asbury Park (2)
Somerville (9)	Atlantic City (2)

\* No. of sites in compliance with the 8-hour standard: 8

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>

Camden (2)  
Sayreville (2)

\* No. of sites in compliance with the 24-hour standard: 85<sup>a</sup> 83<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 2

014 Jersey City  
Camden

\* No. of sites in compliance with the annual standard: 83

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 5

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 3

S57 Pedricktown (3)  
N08 Paterson (2)  
N04 Elizabeth (1)

\* No. of sites in compliance with the quarterly standard: 9

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 22

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 22

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1978 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 8

Sandy Hook (21)	Ancora S.H. (7)
Camden Lab (13)	Trenton (6)
Bayonne (12)	Chester (5)
Bivalve (11)	Somerville (4)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 11

Morristown (81)	Freehold (6)
Jersey City (36)	Paterson (6)
Elizabeth (35)	Paulsboro (3)
Toms River (29)	Somerville (3)
Atlantic City (10)	Hackensack (2)
Burlington (8)	

\* No. of sites in compliance with the 8-hour standard: 11

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 11<sup>b</sup>

014 Jersey City (3)	015 Jersey City (2)
Newark (3)	Kean College (2)
Bayonne (2)	Perth Amboy (2)
Camden (2)	Sayreville (2)
Carteret (2)	Sewaren (2)
Hoboken (2)	

\* No. of sites in compliance with the 24-hour standard: 89<sup>a</sup> 78<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 1

014 Jersey City

\* No. of sites in compliance with the annual standard: 88

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 5

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 4

S57 Pedricktown (4)  
014 Jersey City (1)  
S41 Newark (1)  
S45 Trenton (1)

\* No. of sites in compliance with the quarterly standard: 6

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 22

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 20

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1979 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 10

Sandy Hook (14)	Nacote Creek (4)
Camden Lab (8)	Somerville (4)
Bayonne (6)	Trenton (4)
Ancora S.H. (4)	Chester (3)
Asbury Park (4)	Vineland (3)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 14

Morristown (81)	Perth Amboy (8)
Jersey City (34)	Hackensack (7)
Elizabeth (29)	Toms River (7)
Freehold (13)	Atlantic City (6)
Paterson (13)	Camden Lab (5)
Somerville (10)	Asbury Park (3)
Burlington (9)	Newark (3)

\* No. of sites in compliance with the 8-hour standard: 10

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 8<sup>b</sup>

Bridgeton (4)	Sewaren (3)
Carteret (3)	West Orange (3)
023 Perth Amboy (3)	Bayonne (2)
N09 Perth Amboy (3)	Camden (2)

\* No. of sites in compliance with the 24-hour standard: 92<sup>a</sup> 84<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 2

N08 Paterson  
023 Perth Amboy

\* No. of sites in compliance with the annual standard: 90

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 5

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 3

S57 Pedricktown (4)  
S58 Pedricktown (1)  
S41 Newark (1)

\* No. of sites in compliance with the quarterly standard: 9

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 22

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 22

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1980 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 16

McGuire AFB (23)	Plainfield (11)
Trenton (19)	Bayonne (8)
Camden Lab (16)	East Orange (7)
Dumont (13)	Nacote Creek (6)
Sandy Hook (13)	Ancora S.H. (5)
New Brunswick (12)	Newark (5)
Chester (11)	Cape May (3)
Flemington (11)	Somerville (2)

\* No. of sites in compliance with the 1-hour standard: 1

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 5<sup>b</sup>

Jersey City - Newark Ave. (9)<sup>b</sup>  
 Bordentown (2)<sup>b</sup>  
 Fieldsboro (2)<sup>b</sup>  
 Camden - Riverview Towers (2)<sup>b</sup>  
 Jersey City - Collocated (2)<sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 96

\* No. of sites not in compliance with the annual standard: 4

Jersey City - Newark Ave.	Linden
Paterson - Broadway	Carteret

\* No. of sites in compliance with the annual standard: 81

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 1

S57 Pedricktown

\* No. of sites in compliance with the quarterly standard: 10

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 10

Morristown (40)	Paterson (4)
Jersey City (12)	Burlington (2)
Atlantic City (10)	Freehold (2)
Elizabeth (8)	Perth Amboy (2)
Hackensack (4)	Toms River (2)

\* No. of sites in compliance with the 8-hour standard: 12

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 10

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 31

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 27

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1981 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 13

Nacote Creek (10)	Dumont (4)
Cape May (7)	Newark (4)
McGuire AFB (7)	Ancora S.H. (3)
Trenton (7)	Plainfield (3)
Camden Lab (6)	Chester (2)
Bayonne (5)	New Brunswick (2)
Flemington (5)	

\* No. of sites in compliance with the 1-hour standard: 2

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 4

Morristown (25)  
 Jersey City (5)  
 Camden Lab (2)  
 Freehold (2)

\* No. of sites in compliance with the 8-hour standard: 19

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 4<sup>b</sup>

Newark - Doremus Ave. (8)<sup>b</sup>  
 Camden - Riverview Towers (4)<sup>b</sup>  
 Bayonne - Hudson Co. Park (2)<sup>b</sup>  
 Sewaren (2)<sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 93

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 83

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 11

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 1

Pedricktown (1)

\* No. of sites in compliance with the quarterly standard: 10

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 29

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 25

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) In violation of a New Jersey standard (if different)  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1982 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 13

Trenton (10)	Plainfield (7)
Flemington (9)	Bayonne (5)
New Brunswick (9)	Camden Lab (4)
Chester (8)	Nacote Creek (4)
Clarksboro (8)	Newark (4)
Dumont (8)	East Orange (2)
McGuire AFB (7)	

\* No. of sites in compliance with the 1-hour standard: 3

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 6

Jersey City (15)  
Elizabeth (9)  
Morristown (9)  
Camden Lab (3)  
East Orange (3)  
Newark (3)

\* No. of sites in compliance with the 8-hour standard: 17

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 3<sup>b</sup>

Jersey City - Liberty Park (3)<sup>b</sup>  
Newark - Boy's Club (3)<sup>b</sup>  
Newark - Military Park (2)<sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 88

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 56

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 10

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 0

\* No. of sites in compliance with the quarterly standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 29

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 29

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) In violation of a New Jersey standard (if different)  
Number in parentheses ( ) indicates number of violations



# SUMMARY OF 1983 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 15

McGuire AFB (20) Newark (13)  
Camden Lab (19) Chester (11)  
Trenton (16) Bayonne (10)  
Clarksboro (15) Flemington (9)  
Nacote Creek (15) Ancora S.H. (8)  
Plainfield (15) East Orange (7)  
Cliffside Park (13) Millville (6)  
New Brunswick (13)

- \* No. of sites in compliance with the 1-hour standard: 0

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 1<sup>b</sup>

Jersey City - Duncan Ave. (3)<sup>bc</sup>

- \* No. of sites in compliance with the 24-hour standard: 48

- \* No. of sites not in compliance with the annual standard: 1

Jersey City - Duncan Ave.<sup>c</sup>

- \* No. of sites in compliance with the annual standard: 48

### Lead (Pb)

- \* No. of sites not in compliance with the quarterly standard: 2

New Brunswick (1)  
S57 Pedricktown (1)

- \* No. of sites in compliance with the quarterly standard: 9

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 4

Elizabeth (14)  
Jersey City (11)  
Morristown (10)  
Hackensack (3)

- \* No. of sites in compliance with the 8-hour standard: 12

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

- \* No. of sites in compliance with the 3-hour or 24-hour standard: 22

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 22

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) In violation of a New Jersey standard (if different)  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1984 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 13

McGuire AFB (11)	Trenton (5)
Camden Lab (10)	Ancora S.H. (4)
Nacote Creek (9)	Plainfield (4)
New Brunswick (8)	Cliffside Park (3)
Bayonne (6)	Flemington (2)
Clarksboro (6)	Millville (2)
Newark (6)	

- \* No. of sites in compliance with the 1-hour standard: 2

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 7

Jersey City (43)  
 Elizabeth (16)  
 East Orange (6)  
 Hackensack (6)  
 Morristown (5)  
 Elizabeth (3)  
 Trenton (2)

- \* No. of sites in compliance with the 8-hour standard: 10

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 1<sup>a</sup> 5<sup>b</sup>

Pennsauken (3)<sup>ab</sup>  
 Linden (4)<sup>bc</sup>  
 015 Jersey City (3)<sup>bd</sup>  
 044 Newark (2)<sup>b</sup>  
 060 Newark (2)<sup>b</sup>

- \* No. of sites in compliance with the 24-hour standard: 56<sup>a</sup> 52<sup>b</sup>

- \* No. of sites not in compliance with the annual standard: 1

015 Jersey City<sup>d</sup>

- \* No. of sites in compliance with the annual standard: 47

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 10

### Lead (Pb)

- \* No. of sites not in compliance with the quarterly standard: 1

New Brunswick (1)

- \* No. of sites in compliance with the quarterly standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

- \* No. of sites in compliance with the 3-hour or 24-hour standard: 23

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 21

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) Construction activity in vicinity of sampler  
 d) Abnormal burning in vicinity of sampler  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1985 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 13

Bayonne (11)	Nacote Creek (6)
Camden Lab (11)	Cliffside Park (5)
Ancora S.H. (10)	Clarksboro (4)
New Brunswick (10)	Newark (4)
Colliers Mills (9)	Plainfield (4)
McGuire AFB (8)	Flemington (3)
Rider College (8)	

- \* No. of sites in compliance with the 1-hour standard: 2

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 3

Elizabeth (11)  
Jersey City (9)  
Morristown (2)

- \* No. of sites in compliance with the 8-hour standard: 13

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 8<sup>b</sup>

Linden (6) <sup>bc</sup>	Clifton (2) <sup>b</sup>
Newark-Ave.C (4) <sup>bd</sup>	Jersey City (2) <sup>be</sup>
New Brunswick (3) <sup>bd</sup>	Pennsauken (2) <sup>b</sup>
Sewaren (3) <sup>b</sup>	Perth Amboy (2) <sup>b</sup>

- \* No. of sites in compliance with the 24-hour standard: 45<sup>a</sup> 37<sup>b</sup>

- \* No. of sites not in compliance with the annual standard: 3

Jersey City (81.0 ug/m<sup>3</sup>)<sup>e</sup>  
Linden (81.2 ug/m<sup>3</sup>)<sup>c</sup>  
Newark-Ave.C (82.1 ug/m<sup>3</sup>)<sup>d</sup>

- \* No. of sites in compliance with the annual standard: 37

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 8

### Lead (Pb)

- \* No. of sites not in compliance with the quarterly standard: 0

- \* No. of sites in compliance with the quarterly standard: 15

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

- \* No. of sites in compliance with the 3-hour or 24-hour standard: 22

- \* No. of sites not in compliance with the annual standard: 0

- \* No. of sites in compliance with the annual standard: 20

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) Construction activity in vicinity of sampler  
d) Lead (Pb) monitoring site  
e) Abnormal burning in vicinity of sampler  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1986 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 11

Ancora S.H. (6)	Flemington (4)
Camden Lab (6)	McGuire AFB (4)
Chester (6)	Plainfield (4)
Rider College (5)	Bayonne (3)
Clarksboro (4)	New Brunswick (3)
Colliers Mills (4)	

\* No. of sites in compliance with the 1-hour standard: 3

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 5

Morristown (5)  
Elizabeth (4)  
Jersey City (4)  
Fort Lee (2)  
Hackensack (2)

\* No. of sites in compliance with the 8-hour standard: 12

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 1<sup>a</sup> 4<sup>b</sup>

Perth Amboy (8) <sup>abc</sup>	Newark (4) <sup>bc</sup>
New Brunswick (4) <sup>bc</sup>	Pennsauken (2) <sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 46<sup>a</sup> 43<sup>b</sup>

\* No. of sites not in compliance with the annual standard: 2

Newark (83.5 ug/m<sup>3</sup>)<sup>c</sup>  
Perth Amboy (77.5 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the annual standard: 39

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 8

### Lead (Pb)

\* No. of sites not in compliance with the quarterly standard: 1

USMR-Smelter Dock (2)

\* No. of sites in compliance with the quarterly standard: 29

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 18

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 18

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) Lead (Pb) monitoring site  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1987 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 14

Camden Lab (23)	Millville (7)
Rider College (16)	New Brunswick (6)
Plainfield (14)	McGuire AFB (5)
Bayonne (10)	Chester (4)
Clarksboro (10)	Flemington (4)
Ancora S.H. (9)	Nacote Creek (4)
Cliffside Park (9)	Newark (3)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 0

\* No. of sites in compliance with the 8-hour standard: 15

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>

Newark (5)<sup>c</sup>                  New Brunswick (2)<sup>c</sup>

\* No. of sites in compliance with the 24-hour standard: 28<sup>a</sup> 26<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 2<sup>a</sup>

Newark (92.7 ug/m<sup>3</sup>)<sup>c</sup>  
Perth Amboy (77.0 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 26

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the annual standard: 0

\* No. of sites in compliance with the annual standard: 8

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 30

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 17

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 17

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) Lead (Pb) monitoring site  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1988 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 14

Ancora S.H. (23)	Plainfield (15)
Camden Lab (20)	Bayonne (14)
Clarksboro (20)	Flemington (14)
Chester (18)	McGuire AFB (13)
Rider College (18)	Millville (11)
Cliffside Park (16)	Newark (8)
New Brunswick (15)	Nacote Creek (6)

\* No. of sites in compliance with the 1-hour standard: 0

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 1

Elizabeth (2)

\* No. of sites in compliance with the 8-hour standard: 14

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 7<sup>b</sup>

060 Newark (8)	061 Atlantic City (2)
063 Perth Amboy (4)	014 Jersey City (2)
005 Carteret (3)	052 Union City (2)
044 Newark (3)	

\* No. of sites in compliance with the 24-hour standard: 28<sup>a</sup> 21<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 1

060 Newark (96.4 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 27

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 9

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 30

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 17

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 17

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) Lead (Pb) monitoring site  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1989 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 9
  - Monmouth College (10)
  - Ancora S.H. (5)
  - McGuire AFB (4)
  - Camden Lab (3)
  - Clarksboro (3)
- Flemington (3)
- Rider College (3)
- Chester (2)
- Millville (2)
- \* No. of sites in compliance with the 1-hour standard: 6

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 2
  - Camden Lab (2)
  - East Orange (2)
- \* No. of sites in compliance with the 8-hour standard: 13

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 1<sup>b</sup>
  - 060 Newark (4)
- \* No. of sites in compliance with the 24-hour standard: 15<sup>a</sup> 14<sup>b</sup>
- \* No. of sites not in compliance with the 12-month standard: 1
  - 060 Newark (80.0 ug/m<sup>3</sup>)<sup>c</sup>
- \* No. of sites in compliance with the 12-month standard: 14

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the 12-month standard: 0
- \* No. of sites in compliance with the 12-month standard: 9

### Lead (Pb)

- \* No. of sites not in compliance with the 3-month standard: 0
- \* No. of sites in compliance with the 3-month standard: 16

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0
- \* No. of sites in compliance with the 3-hour or 24-hour standard: 17
- \* No. of sites not in compliance with the 12-month standard: 0
- \* No. of sites in compliance with the 12-month standard: 17

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) Lead (Pb) monitoring site  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1990 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 14

New Brunswick (7)	Clarksboro (4)
Flemington (6)	McGuire AFB (4)
Monmouth Coll. (6)	Chester (3)
Ancora S.H. (5)	Camden Lab (2)
Bayonne (5)	Cliffside Park (2)
Nacote Creek (5)	Millville (2)
Rider College (5)	Newark (2)

\* No. of sites in compliance with the 1-hour standard: 1

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 0

\* No. of sites in compliance with the 8-hour standard: 16

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 1<sup>b</sup>

060 Newark (2)

\* No. of sites in compliance with the 24-hour standard: 15<sup>a</sup> 14<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 1<sup>a</sup> 5<sup>b</sup>

060 Newark (80.2 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 13<sup>a</sup> 9<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 9

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 15

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 17

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 17

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)

b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)

c) Lead (Pb) monitoring site

Number in parentheses ( ) indicates number of violations



# SUMMARY OF 1991 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 11

Rider College (16) Bayonne (5)  
Clarksboro (12) Chester (5)  
McGuire AFB (10) New Brunswick (3)  
Camden Lab (6) Cliffside Park (2)  
Monmouth Coll. (6) Nacote Creek (2)  
Ancora S.H. (5)

- \* No. of sites in compliance with the 1-hour standard: 4

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 1

Elizabeth (2)

- \* No. of sites in compliance with the 8-hour standard: 16

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>

057 New Brunswick (3)  
068 New Brunswick (7)

- \* No. of sites in compliance with the 24-hour standard: 14<sup>a</sup> 12<sup>b</sup>

- \* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 3<sup>b</sup>

060 Newark (73.5 ug/m<sup>3</sup>)<sup>c</sup>  
069 Newark (72.0 ug/m<sup>3</sup>)<sup>c</sup>  
068 New Brunswick (67.3 ug/m<sup>3</sup>)<sup>c</sup>

- \* No. of sites in compliance with the 12-month standard: 14<sup>a</sup> 11<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the 12-month standard: 0

- \* No. of sites in compliance with the 12-month standard: 8

### Lead (Pb)

- \* No. of sites not in compliance with the 3-month standard: 0

- \* No. of sites in compliance with the 3-month standard: 19

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

- \* No. of sites in compliance with the 3-hour or 24-hour standard: 17

- \* No. of sites not in compliance with the 12-month standard: 0

- \* No. of sites in compliance with the 12-month standard: 17

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) Lead (Pb) monitoring site  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1992 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 6

Rider College (4)  
Clarksboro (2)  
Colliers Mills (2)  
Monmouth College (2)  
New Brunswick (2)  
Plainfield (2)

- \* No. of sites in compliance with the 1-hour standard: 9

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 1

North Bergen (2)

- \* No. of sites in compliance with the 8-hour standard: 15

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 1<sup>b</sup>

- \* No. of sites in compliance with the 24-hour standard: 12<sup>a</sup> 11<sup>b</sup>

- \* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 3<sup>b</sup>

060 Newark (73.5 ug/m<sup>3</sup>)<sup>c</sup>  
069 Newark (72.0 ug/m<sup>3</sup>)<sup>c</sup>  
068 New Brunswick (66.0 ug/m<sup>3</sup>)<sup>c</sup>

- \* No. of sites in compliance with the 12-month standard: 11<sup>a</sup> 8<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the 12-month standard: 0

- \* No. of sites in compliance with the 12-month standard: 8

### Lead (Pb)

- \* No. of sites not in compliance with the 3-month standard: 3

057 New Brunswick  
068 New Brunswick  
1DR New Brunswick

- \* No. of sites in compliance with the 3-month standard: 8

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

- \* No. of sites in compliance with the 3-hour or 24-hour standard: 16

- \* No. of sites not in compliance with the 12-month standard: 0

- \* No. of sites in compliance with the 12-month standard: 16

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) Lead (Pb) monitoring site  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1993 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 5

Ancora S.H. (9)  
Monmouth College (5)  
Bayonne (3)  
Clarksboro (3)  
Rider University (3)

\* No. of sites in compliance with the 1-hour standard: 10

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 0

\* No. of sites in compliance with the 8-hour standard: 16

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 0<sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 13<sup>a</sup> 13<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 2<sup>b</sup>

060 Newark (61.1 ug/m<sup>3</sup>)<sup>c</sup>  
069 Newark (60.5 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 13<sup>a</sup> 11<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 8

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 16

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 16

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)

b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)

c) Lead (Pb) monitoring site

Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1994 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 3

New Brunswick (4)  
Rider University (4)  
Plainfield (2)

\* No. of sites in compliance with the 1-hour standard: 12

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 3

North Bergen (4)  
East Orange (3)  
Elizabeth (2)

\* No. of sites in compliance with the 8-hour standard: 13

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>

057 New Brunswick (3)  
068 New Brunswick (3)

\* No. of sites in compliance with the 24-hour standard: 13<sup>a</sup> 11<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 2<sup>b</sup>

060 Newark (71.0 ug/m<sup>3</sup>)<sup>c</sup>  
069 Newark (69.1 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 13<sup>a</sup> 11<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 9

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 16

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 16

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
c) Lead (Pb) monitoring site  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1995 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 11

Colliers Mills (6) Camden (3)  
 Monmouth Univ. (5) Ancora S.H. (2)  
 New Brunswick (5) Bayonne (2)  
 Rider Univ. (5) Chester (2)  
 Rutgers Univ. (5) Millville (2)  
 Clarksboro (4)

\* No. of sites in compliance with the 1-hour standard: 5

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 0

\* No. of sites in compliance with the 8-hour standard: 16

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 2<sup>a</sup> 2<sup>b</sup>

057 New Brunswick<sup>c</sup> (2)<sup>a</sup> (8)<sup>b</sup>  
 068 New Brunswick<sup>c</sup> (5)<sup>a</sup> (12)<sup>b</sup>

\* No. of sites in compliance with the 24-hour standard: 11<sup>a</sup> 11<sup>b</sup>

\* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 2<sup>b</sup>

060 Newark (69.1 ug/m<sup>3</sup>)<sup>c</sup>  
 069 Newark (68.9 ug/m<sup>3</sup>)<sup>c</sup>

\* No. of sites in compliance with the 12-month standard: 13<sup>a</sup> 11<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 10

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 12

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 16

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 16

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)  
 b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)  
 c) Lead (Pb) monitoring site  
 Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1996 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

- \* No. of sites not in compliance with the 1-hour standard: 1  
  
Camden (2)
- \* No. of sites in compliance with the 1-hour standard: 14

### Carbon Monoxide (CO)

- \* No. of sites not in compliance with the 8-hour standard: 0
- \* No. of sites in compliance with the 8-hour standard: 16

### Total Suspended Particulates (TSP)

- \* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>  
  
057 New Brunswick (2)<sup>c</sup>  
068 New Brunswick<sup>c</sup> (2)<sup>c</sup>
- \* No. of sites in compliance with the 24-hour standard: 14<sup>a</sup> 12<sup>b</sup>
- \* No. of sites not in compliance with the 12-month standard: 0<sup>a</sup> 2<sup>b</sup>  
  
060 Newark (67.8 ug/m<sup>3</sup>)<sup>c</sup>  
069 Newark (68.1 ug/m<sup>3</sup>)<sup>c</sup>
- \* No. of sites in compliance with the 12-month standard: 13<sup>a</sup> 11<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

- \* No. of sites not in compliance with the 12-month standard: 0
- \* No. of sites in compliance with the 12-month standard: 11

### Lead (Pb)

- \* No. of sites not in compliance with the 3-month standard: 0
- \* No. of sites in compliance with the 3-month standard: 13

### Sulfur Dioxide (SO<sub>2</sub>)

- \* No. of sites not in compliance with the 3-hour or 24-hour standard: 0
- \* No. of sites in compliance with the 3-hour or 24-hour standard: 16
- \* No. of sites not in compliance with the 12-month standard: 0
- \* No. of sites in compliance with the 12-month standard: 16

- a) In violation of a primary National Ambient Air Quality Standard (Health Standard)
- b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)
- c) Lead (Pb) monitoring site  
Number in parentheses ( ) indicates number of violations

# SUMMARY OF 1997 AIR QUALITY IN NEW JERSEY

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

\* No. of sites not in compliance with the 1-hour standard: 7

Ancora S.H. (4)      Nacote Creek (3)  
Colliers Mills (4)      Monmouth Univ. (2)  
Rutgers Univ. (4)      Rider Univ. (2)  
Clarksboro (3)

\* No. of sites in compliance with the 1-hour standard: 8

### Carbon Monoxide (CO)

\* No. of sites not in compliance with the 8-hour standard: 0

\* No. of sites in compliance with the 8-hour standard: 17

### Total Suspended Particulates (TSP)

\* No. of sites not in compliance with the 24-hour standard: 0<sup>a</sup> 2<sup>b</sup>

057 New Brunswick (2)<sup>c</sup>  
068 New Brunswick (5)<sup>c</sup>

\* No. of sites in compliance with the 24-hour standard: 5<sup>a</sup> 3<sup>b</sup>

\* No. of sites not in compliance with the annual TSP standard: 0<sup>a</sup> 0<sup>b</sup>

\* No. of sites in compliance with the 12-month standard: 5<sup>a</sup> 5<sup>b</sup>

### Nitrogen Dioxide (NO<sub>2</sub>)

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 11

### Lead (Pb)

\* No. of sites not in compliance with the 3-month standard: 0

\* No. of sites in compliance with the 3-month standard: 6

### Sulfur Dioxide (SO<sub>2</sub>)

\* No. of sites not in compliance with the 3-hour or 24-hour standard: 0

\* No. of sites in compliance with the 3-hour or 24-hour standard: 16

\* No. of sites not in compliance with the 12-month standard: 0

\* No. of sites in compliance with the 12-month standard: 16

a) In violation of a primary National Ambient Air Quality Standard (Health Standard)

b) In violation of a secondary National Ambient Air Quality Standard (Welfare Standard)

c) Lead (Pb) monitoring site

Number in parentheses ( ) indicates number of violations

APPENDIX B  
NEW JERSEY AIR QUALITY  
NON-ATTAINMENT AREAS



NEW JERSEY AIR QUALITY NON-ATTAINMENT AREAS

Sulfur Dioxide<sup>a</sup>

Warren County:

The Town of Belvidere  
The Township of Harmony  
Portion of Liberty Township (South of UTM coordinates N4522  
and West of coordinate E505)  
Portion of Mansfield Township (West of coordinate E505)  
The Township of Oxford  
The Township of White

Carbon Monoxide<sup>b</sup>

Bergen County  
Essex County  
Hudson County  
Union County

Passaic County:

The City of Clifton  
The City of Paterson  
The City of Passaic

Nitrogen Dioxide

No areas in the State are designated as non-attainment

Lead

No areas in the State are designated as non-attainment

PM-10

No areas in the State are designated as non-attainment

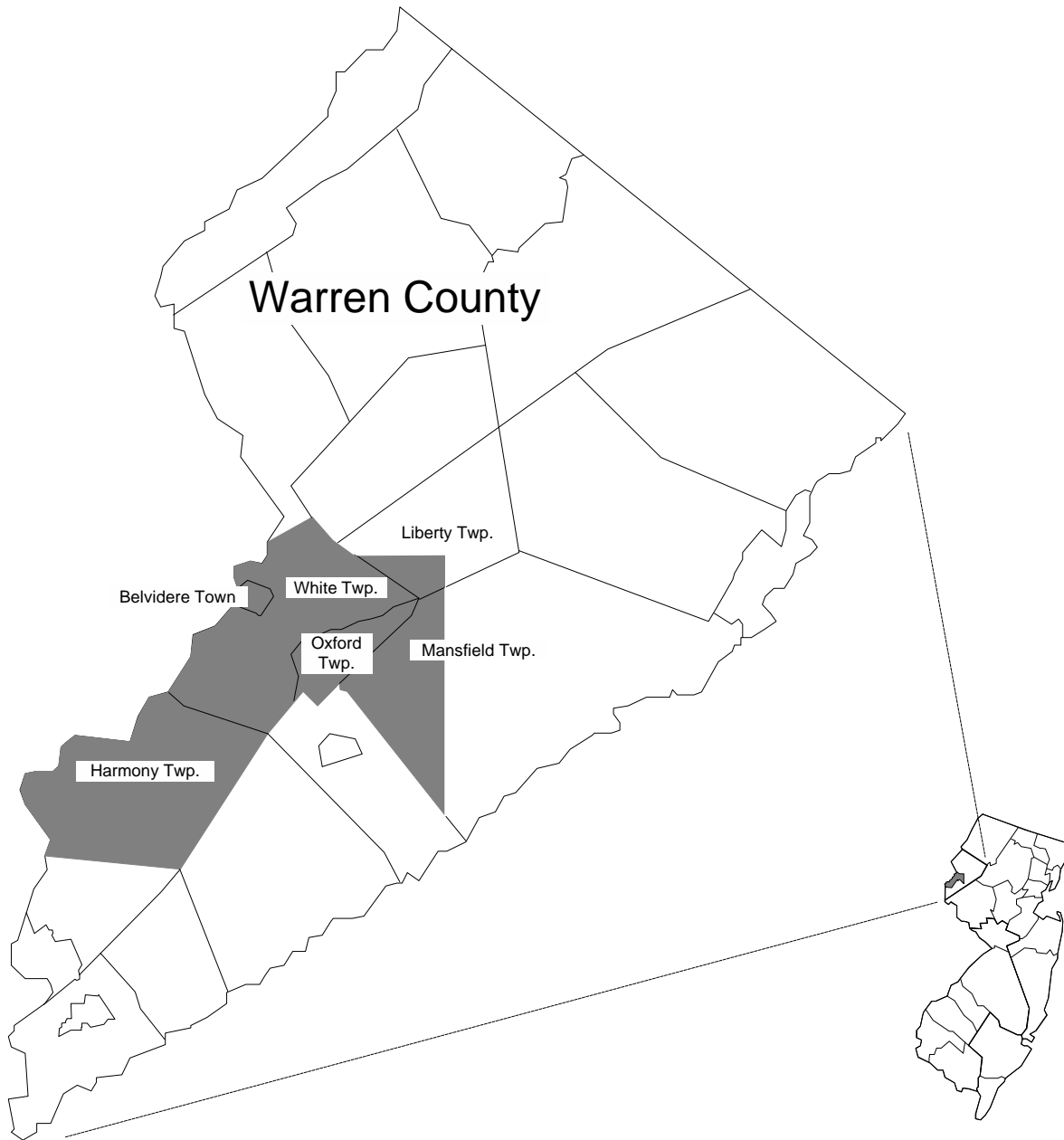
Ozone<sup>b</sup>

The entire State of New Jersey

a) Non-attainment of National Primary (Health) and Secondary (Welfare) Standards

b) Non-attainment of National Primary (Health) Standard

# Sulfur Dioxide Non-Attainment Areas\* in New Jersey

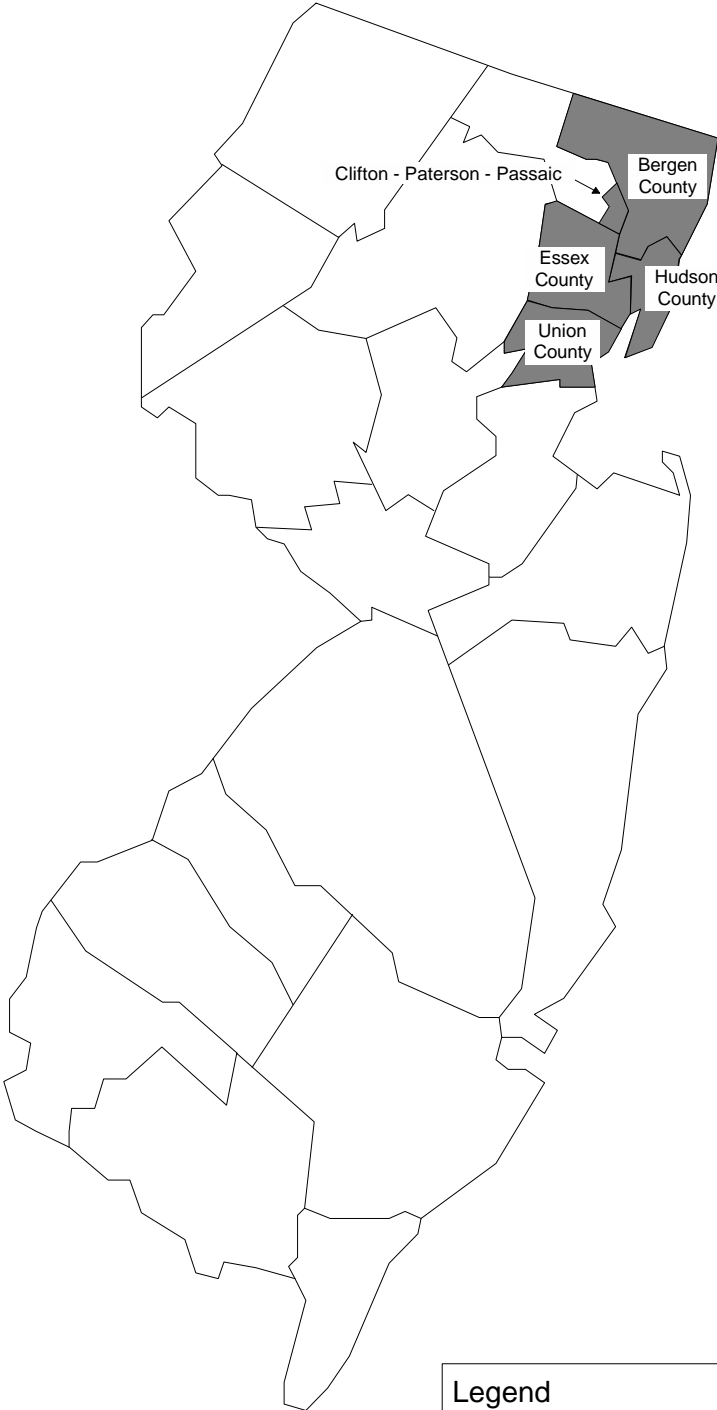


## Legend

- Sulfur Dioxide Nonattainment Area  
(includes Belvidere Town; Harmony Township; Oxford Township;  
White Township; the portion of Liberty Township south of  
UTM northing 4,255,000 and west of UTM easting 505,000;  
and the portion of Mansfield Township west of UTM easting 505,000).

\*Nonattainment of the National Primary (Health) and Secondary (Welfare) Standards

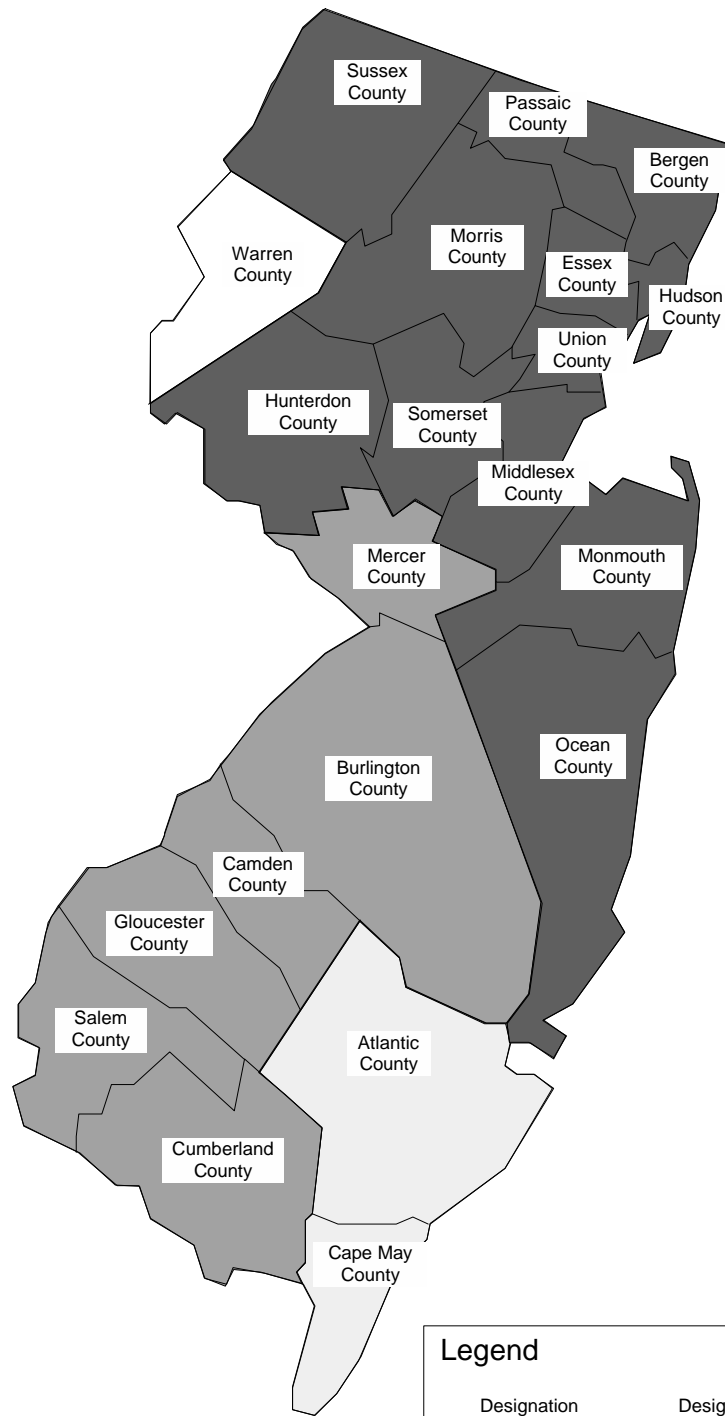
# Carbon Monoxide Non-Attainment Areas\* in New Jersey







Legend		
Designation	Design Value	Attainment Date
■ Moderate 2	12.8 - 16.4 ppm	Dec. 31, 1995

\*Nonattainment of the National Primary (Health) Standard

# Ozone Non-Attainment Areas\* in New Jersey



Legend		
Designation	Design Value	Attainment Date
 Marginal	.121 - .137 ppm	Nov. 15, 1993
 Moderate	.138 - .159 ppm	Nov. 15, 1996
 Severe 1	.180 - .190 ppm	Nov. 15, 2005
 Severe 2	.191 - .279 ppm	Nov. 15, 2007

\*Nonattainment of the National Primary (Health) Standard