

Ambient Air Monitoring Network Plan 2009



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Monitoring
WWW.STATE.NJ.US/DEP/AIRMON

June 2009

Table of Contents

INTRODUCTION	3
NETWORK DESIGN	3
THE NEW JERSEY AIR MONITORING NETWORK	4
CHANGES TO THE NETWORK	7
NEW JERSEY AIR MONITORING SITE DESCRIPTIONS	8
GLOSSARY OF ABBREVIATIONS AND TERMS	53
REFERENCES	55
APPENDIX A: VOLATILE ORGANIC COMPOUNDS	56
APPENDIX B: CARBONYLS	58
APPENDIX C: PM _{2.5} SPECIATION	59
APPENDIX D: OZONE PRECURSORS	61

DISCLAIMER

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INTRODUCTION

In the Federal Register of October 17, 2006, the U.S. Environmental Protection Agency (USEPA) revised “Subpart B – Monitoring Network” of Part 58 – Ambient Surveillance Networks of *Title 40* of the Code of Federal Regulations. Specifically, the New Jersey Department of Environmental Protection (NJDEP) is required by the revised regulations to submit an Annual Monitoring Network Plan to the USEPA Region 2 Regional Administrator by July 1 of every year starting in 2007, and to have the Plan available for public inspection for at least 30 days prior to its submittal to the USEPA. The Plan should describe State and Local Air Monitoring Stations (SLAMS), National Core (NCore) stations, Speciation Trends Network (STN) stations, State speciation stations, Special Purpose Monitor (SPM) stations, and Photochemical Assessment Monitoring Stations (PAMS).

In addition, the new regulations provide three other deadlines: the NJDEP is required to submit a plan for establishing NCore multi-pollutant stations by July 1, 2009; the NJDEP is required to submit an assessment of its Air Monitoring Network every 5 years starting July 1, 2010; and the NJDEP is required to have all NCore multi-pollutant stations operational by January 1, 2011.

This 2009 Network Plan contains all the information required by the regulations, along with an overview of air monitoring network concepts, descriptions of the air monitoring sites, large and small scale maps of the monitoring stations, and a summary of the changes to the Air Monitoring Network that the NJDEP expects to implement in the next two years. It is available for download from the Bureau of Air Monitoring’s website, www.state.nj.us/dep/airmon/reports.htm, or as a hardcopy by calling 609-292-0138.

NETWORK DESIGN

Air monitoring sites are designed to meet one or more of the following objectives: to measure maximum pollutant concentrations, to assess population exposure, to determine the impact of major pollution sources, to measure background levels, to determine the extent of regional pollutant transport, and to measure secondary impacts in rural areas. In addition, summary monitoring data are provided to various public and media outlets, and real-time data is used to update a graphic on the Bureau’s webpage that rates the current air quality in the various regions of the state. The real-time data is also supplied to the USEPA which displays current air quality data from throughout the nation on the webpage, www.airnow.gov.



Brigantine air monitoring site located in the Edwin B. Forsythe National Wildlife Refuge near Atlantic City

The USEPA developed the concept of spatial scales of representativeness in order to standardize the process of connecting pollutant characteristics, monitoring objectives and site selection. This concept also allows the comparison of air quality data to the National Ambient Air Quality Standards (NAAQS) and among various networks throughout the country. The spatial scales define prospective monitoring sites in terms of the area surrounding a monitor where the pollutant concentrations are relatively similar. The USEPA has defined five spatial scales of representativeness: Micro Scale, Middle Scale, Neighborhood Scale, Urban Scale and Regional Scale. Air quality concentrations from a Micro Scale monitoring site are generally the same in a small radius of 10 to 100 meters surrounding the site. This area of homogenous air quality expands to 100 to 1000 meters for a Middle Scale site, to 1 to 10 kilometers for a Neighborhood Scale site, and to 10 to 100 kilometers for an Urban Scale site. The largest spatial scale, Regional Scale, is reserved for monitoring sites located in large rural areas that range from 100 to 1000 kilometers.

For each monitoring objective, appropriate spatial scales are used to identify the general physical location of a suitable monitoring site. Some pollutants have characteristics that define the spatial scale of the monitoring site depending on the monitoring objective. For example, carbon monoxide is a pollutant that is generated by local sources and may vary highly from one city block to another. If the objective of a particular monitor is to measure the highest concentrations of carbon monoxide, the monitoring site must meet the spatial criteria of a Micro Scale site. Conversely, concentrations of fine particles are generally the same over a large area. If the objective of a monitor is to measure the background concentrations of fine particles, then the appropriate spatial scale for such a monitoring site is Urban or Regional Scale. The spatial scales of monitoring sites in New Jersey range from Micro to Urban Scale with most sites being Neighborhood Scale sites.

THE NEW JERSEY AIR MONITORING NETWORK

The NJDEP is currently operating 42 air monitoring sites and is proposing the establishment of two new sites by the end of 2010. Table 1 lists all the current and proposed monitoring sites along with the pollutants, categories of pollutants or meteorological parameters that are measured at each site. Figure 1 shows the locations of the monitoring sites across New Jersey.

Several parameters, carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), particulate matter, and meteorological parameters, are measured by instruments that automatically collect and analyze data instantaneously and continuously. The data is transmitted to a centralized computer system in Trenton, New Jersey, once every minute, thus providing near real-time data. For fine particles (particles smaller than 2.5 micrometers in diameter or PM_{2.5}) and inhalable particles (particles smaller than 10 micrometers in diameter or PM₁₀), their respective instruments collect a sample over a 24-hour period. These samples are subsequently manually retrieved and then analyzed in a laboratory several days to a few weeks following their sample collection.



USEPA-approved manual PM_{2.5} sampler on the roof of the Union City Health Department building in Hudson County

PM_{2.5} concentrations are determined by both continuous or real-time analyzers and manual samplers. The real-time PM_{2.5} analyzer measures PM_{2.5} levels every minute, and the data is used, along with data from the other continuous pollutants, to generate a rating of air quality called the Air Quality Index, which is updated hourly on the Bureau of Air Monitoring's webpage. The manual PM_{2.5} sampler collects particles on a filter over a 24-hour period. The filter is retrieved following the completion of the sampling period and weighed in a laboratory. Data used for comparison to the NAAQS must be measured by USEPA-approved manual samplers or USEPA-approved real-time analyzers. The NJDEP uses USEPA-approved manual samplers for comparison to the NAAQS.

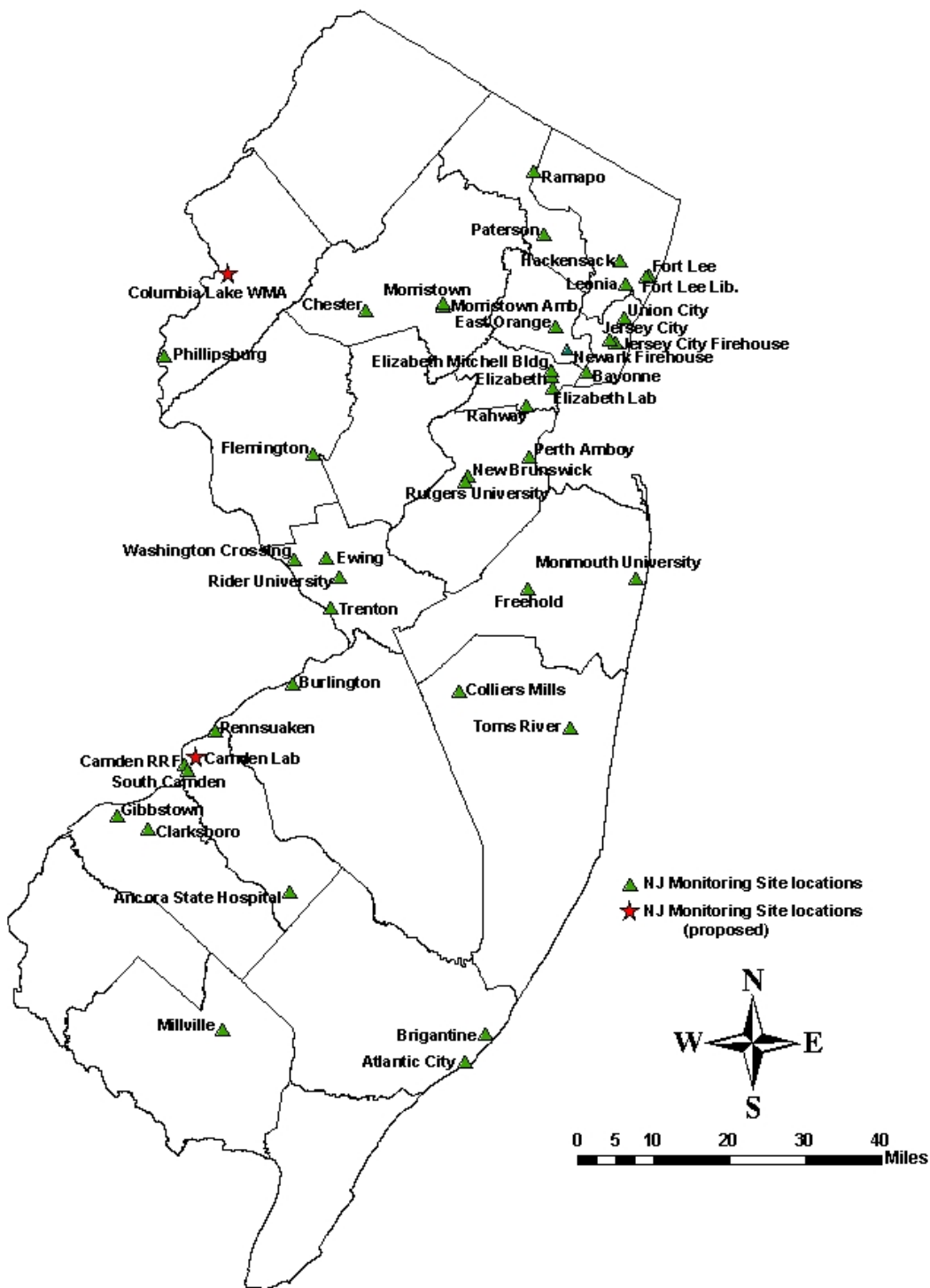
The NJDEP also monitors many other pollutants which are grouped together into categories by their method of sampling or analysis. These categories are listed in the headings of Table 1. Sites that monitor for O₃ Precursors, pollutants that affect O₃ formation and destruction in the atmosphere, are part of the national Photochemical Assessment Monitoring Station (PAMS) program. O₃ precursors are frequently referred to as PAMS pollutants. Pollutants in the PM_{2.5}-Speciation category include trace elements, heavy metals, and carbon compounds that are analyzed from PM_{2.5} particles. VOCs and Carbonyls refer to selected carbon-based air pollutants that are analyzed from whole air samples or adsorbent media. The PM_{2.5}-Speciation, VOC, and Carbonyls samples are collected by the NJDEP and are sent to USEPA-approved contract laboratories for analysis. Finally, the NJDEP also measures acid deposition and mercury.

TABLE 1: SUMMARY OF CURRENT AND PROPOSED NEW JERSEY AIR MONITORING SITES

	CO	NO ₂	NO _y	O ₃	SO ₂	Smoke Shade	PM2.5	PM2.5-Speciation	Real-Time PM2.5	Nephelometer	PM10	PM-coarse	O ₃ Precursors	VOCs	Carbonyls	Acid Deposition	Mercury	Barometric Press	Relative Humidity	Solar Radiation	Temperature	Wind Direction	Wind Speed
Ancora State Hospital	✓			✓	✓											✓							
Atlantic City							✓				✓												
Bayonne		✓		✓	✓																		
Brigantine				✓	✓		✓		✓	✓							✓						
Burlington	✓				✓	✓																	
Camden	P	P		P	P	P	P	P	P		P		P	P	P			P	P	P	P	P	P
Camden RRF											✓												
Chester		✓		✓	✓		✓	✓						✓	✓		✓			✓			
Clarksboro				✓	✓																		
Colliers Mills				✓																			
Columbia Lake WMA					P		P																
East Orange	✓	✓																	✓		✓		
Elizabeth	✓				✓	✓																	
Elizabeth Lab	✓	✓			✓	✓	✓	✓	✓					✓	✓		✓					✓	✓
Elizabeth Mitchell Bldg							✓																
Ewing									✓														
Flemington				✓					✓									✓	✓	✓	✓	✓	✓
Fort Lee	✓								✓		✓												
Fort Lee Library							✓																
Freehold	✓					✓																	
Gibbstown							✓																
Hackensack	✓				✓	✓																	
Jersey City	✓				✓	✓																	
Jersey City Firehouse							✓		✓		✓												
Leonia		✓		✓																			
Millville		✓		✓	✓				✓														
Monmouth University				✓																			
Morristown	✓					✓																	
Morristown Amb Squad							✓																
New Brunswick							✓	✓						✓	✓		✓						
Newark Firehouse	✓		P	✓	✓		✓	P	P			P						P	P	P	P	P	P
Paterson							✓																
Pennsauken							✓																
Perth Amboy	✓				✓	✓																	
Phillipsburg							✓																
Rahway							✓		✓														
Ramapo				✓																			
Rider University		✓		✓									✓					✓	✓	✓	✓	✓	✓
Rutgers University		✓		✓									✓										
South Camden									✓														
Toms River							✓																
Trenton							✓				✓												
Union City							✓																
Washington Crossing							✓									✓							
TOTAL (Current only)	12	8	0	14	13	8	19	3	9	1	5	0	2	3	3	2	4	2	3	3	3	3	3

✓ - Current Site and Parameter
P - Proposed Site and Parameter

FIGURE 1: MAP OF THE CURRENT AND PROPOSED NEW JERSEY AIR MONITORING SITES



CHANGES TO THE NETWORK, 2008-2009

Since the publication of the New Jersey Ambient Air Monitoring Plan 2008 in July 2008, the Newark Willis Center station that measured PM_{2.5} was discontinued on July 24, 2008 because of an unexpected loss of access to the Newark Willis Center property. The Newark Firehouse air monitoring station, which was established on May 13, 2009, is within a few miles of the discontinued Newark Willis Center station. Upon the final installation of all the proposed parameters, the Newark Firehouse site will be designated as New Jersey's sole NCore site and will measure PM_{2.5}, real-time PM_{2.5}, O₃, trace-level SO₂, trace-level CO, total reactive oxides of nitrogen (NO_x), wind speed, wind direction, relative humidity, barometric pressure, solar radiation and ambient temperature.

The Camden Lab station, which had been in operation since 1968, was also unexpectedly discontinued on September 29, 2008 due to lack of security at the station. The NJDEP is actively pursuing the establishment of a new station in Camden. The collocated PM₁₀ sampler at Camden RRF was discontinued in October 20, 2008. Collocated PM₁₀ samplers for measuring precision statistics continue to operate at the Jersey City Firehouse. After being temporarily discontinued on March 8, 2007 for major site renovations, the Elizabeth station resumed operation on July 1, 2008. At the end of December 2008, the PM_{2.5} sampler at the Pennsauken site was relocated about 100 yards in order to meet siting criteria. A mercury analyzer was installed at the Brigantine station on May 15, 2009. In addition to the proposed station to replace Camden Lab, the NJDEP is proposing to establish a PM_{2.5} and SO₂ monitoring station in the Columbia Lake Wildlife Management Area (WMA) in Warren County.

On November 12, 2008, the USEPA revised the NAAQS for lead by lowering the primary standard to 0.15 micrograms per cubic meter, and by including new network design requirements for source-oriented and non-source-oriented lead monitoring stations. Since the regulation requires the establishment of source-oriented lead monitors for each lead source that emits one or more tons per year of lead, the NJDEP is not required to establish source-oriented lead monitors because there are no such lead sources in New Jersey. In the case of non-source-oriented lead monitors, the regulation requires at least one lead monitor for each Core Based Statistical Area (CBSA) that has a population of 500,000 or more. There are two CBSAs that encompass several states and include multiple New Jersey counties: one that represents the greater New York metropolitan area, and the other represents the greater Philadelphia metropolitan area. Since only one non-source-oriented lead monitor is required by the regulations in each CBSA, the NJDEP will discuss with the USEPA whether a non-source-oriented lead monitor will be established in New Jersey and this decision will be included in the network plan that will be submitted to the USEPA on July 1, 2010.

As stated in the Introduction, the NJDEP is required to perform a comprehensive assessment of the air monitoring network to determine if it meets federal and state monitoring objectives, if new sites are needed, if existing sites can be shut down, and whether new technologies can be utilized in the network. According to Section 4 - Pollutant-Specific Design Criteria for SLAMS Sites, of Appendix D to Part 58 of Title 40 of the Code of Federal Regulations, there are no minimum network design requirements for CO, NO₂ and SO₂ monitoring. However, the regulations still require the NJDEP to continue operating all existing SLAMS monitors, and any plans to discontinue CO, NO₂ and SO₂ monitors have to be approved by the USEPA. Since most of these monitors measure significantly less than the NAAQS, and current budgetary considerations may compel the NJDEP to cut back on its monitoring efforts, the network assessment will probably include the discontinuation of some monitoring stations. The general public and interested parties will be invited to provide input in this assessment through public meetings and other venues. A report summarizing the first assessment is required to be submitted to the USEPA by July 1, 2010, and this comprehensive network assessment process will be repeated every 5 years.

NEW JERSEY AIR MONITORING SITE DESCRIPTIONS

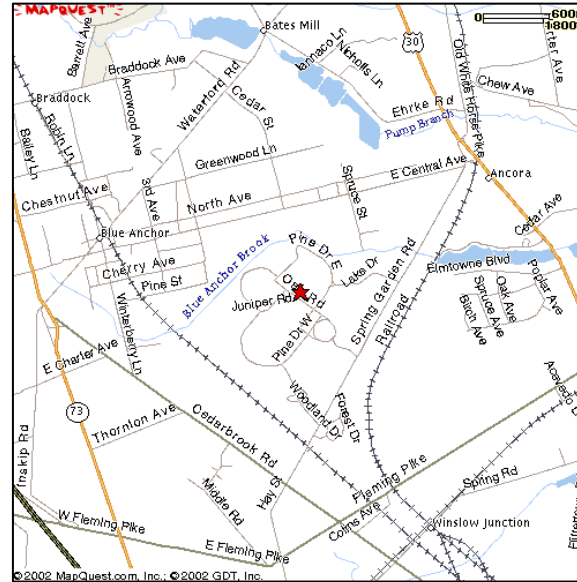
According to 40 CFR 58.10, the following elements for each existing and proposed air monitoring station must be included in New Jersey's Network Plan:

1. the Air Quality Subsystem (AQS) site identification number,
2. the location, including street address and geographical coordinates,
3. the sampling and analysis methods for each measured parameter,
4. the operating schedules for each monitor,
5. any proposals to remove or move a monitoring station within a period of 18 months following Plan submittal,
6. the monitoring objective and spatial scale of representativeness for each monitor as defined in Appendix D to Part 58,
7. the identification of any sites that are suitable and sites that are not suitable for comparison against the annual fine particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS) as described in 40 CFR Part 58.30, and
8. the Metropolitan Statistical Area (MSA), Core-Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by this monitor.

The next pages supply the above information for current and proposed New Jersey air monitoring sites. All abbreviations and terms are defined and explained in the Glossary following this section, and Appendices A through D provide additional information on Volatile Organic Compounds, Carbonyls, PM_{2.5} Speciation and O₃ Precursors.

SITE INFORMATION

Site Name	Ancora
Address	Ancora State Hospital, 202 Spring Garden Road
City, State, Zip	Hammonton, NJ 08037
AQS Code	34 007 1001
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.684250
Longitude	-74.861491
Date Established	1/1/1966
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



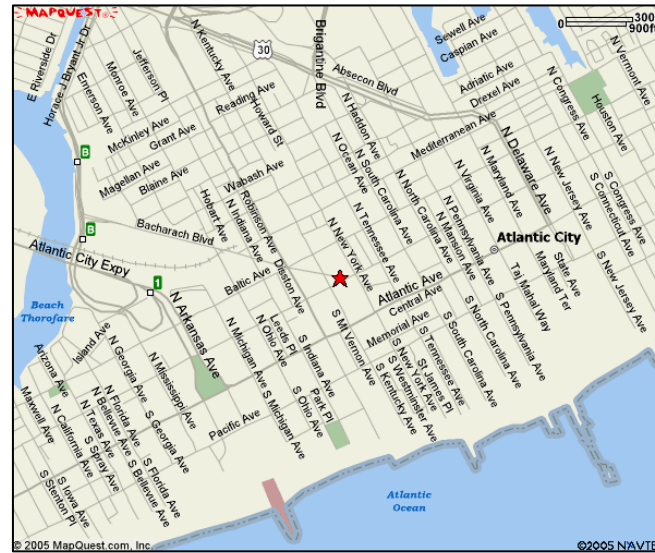
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Urban	Background
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Urban	Population Exposure
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Urban	Background
Acid Deposition		Bucket	Ion Chromatography		Weekly	Urban	Background

Site Purpose	To measure background concentrations for the southern part of New Jersey. May also measure maximum ozone concentrations downwind from the Philadelphia metropolitan area.
Plans for the next 18 months	No changes
Other Comment	Acid Deposition data not submitted to USPEA's AQS database

SITE INFORMATION

Site Name	Atlantic City
Address	1535 Bacharach Blvd
City, State, Zip	Atlantic City, NJ 08401
AQS Code	34 001 1006
NJ County	Atlantic
MSA/CSA	Atlantic City MSA
Latitude	39.363528
Longitude	-74.431219
Date Established	7/27/2001
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure
Inhalable Particles (PM10)	81102	SierraAnderson High-volume sampler	Gravimetric	063	Every 6 days	Neighborhood	Population Exposure

Site Purpose	To measure fine particle concentrations in the commercial area of Atlantic City
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Bayonne
Address	Veterans Park on Newark Bay, 25th St. near Park Road
City, State, Zip	Bayonne, NJ 07002
AQS Code	34 017 0006
NJ County	Hudson
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.670250
Longitude	-74.126081
Date Established	1/1/1983
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)		TECO 42	Chemiluminescence		Continuous	Urban	Population Exposure
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Urban	Population Exposure
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Hudson County area
Plans for the next 18 months	No changes
Other Comment	Nitric Oxide data (NO) is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Brigantine
Address	Edwin Forsythe National Wildlife Refuge Visitor Center, Great Creek Road
City, State, Zip	Oceanville, NJ 08231
AQS Code	34 001 0006
NJ County	Atlantic
MSA/CSA	Atlantic City MSA
Latitude	39.464872
Longitude	-74.448736
Date Established	1/1/2007
Suitable for Comparison to PM2.5 NAAQS?	Yes



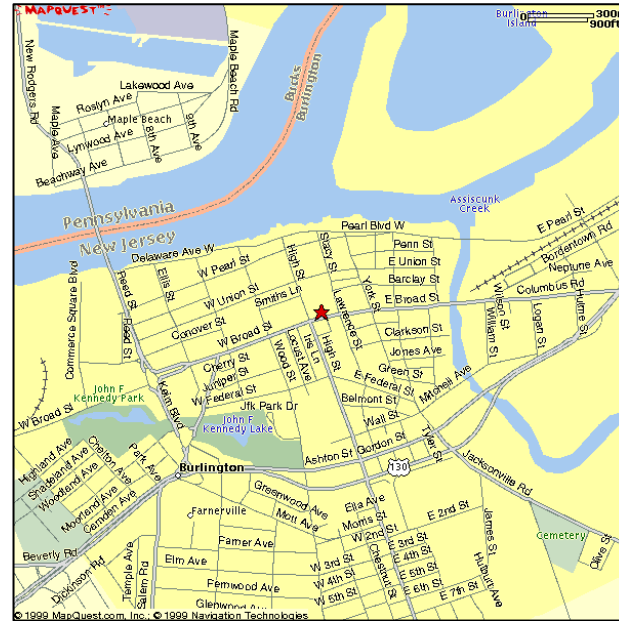
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	TECO 49i	Ultraviolet	047	Continuous	Urban	Background
Sulfur Dioxide (SO ₂)	42401	TECO 43iTLE	Pulsed fluorescence	060	Continuous	Urban	Background
Fine Particles (PM _{2.5})	88101	R&P 2025 Lov-volume sequential sampler	Gravimetric	118	Every 3 days	Urban	Background
Real-time PM _{2.5}	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Urban	Background
Real-time PM _{2.5}	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Urban	Background
Real-time PM _{2.5}		Nephelometer	Light-scattering		Continuous	Urban	Background
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Urban	Background

Site Purpose	To measure pollutant concentrations and visibility in Class I areas
Plans for the next 18 months	Add real-time sulfate analyzer
Other Comment	Also an IMPROVE station, part of NESCAUM visibility network, Real-time PM _{2.5} data by Nephelometer and Mercury data not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Burlington
Address	1 East Broad St.
City, State, Zip	Burlington, NJ 08016
AQS Code	34 005 1001
NJ County	Burlington
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	40.078062
Longitude	-74.857717
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



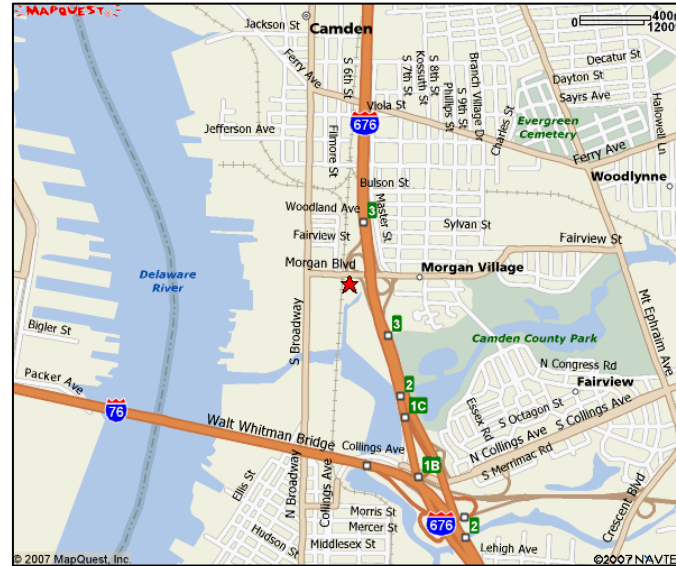
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Neighborhood	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the commercial district of Burlington City
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Camden RRF (Resource Recovery Facility)
Address	Morgan Blvd., & I-676 entrance ramp
City, State, Zip	Camden, NJ 08104
AQS Code	34 007 0009
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.912431
Longitude	-75.116864
Date Established	5/8/1994
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



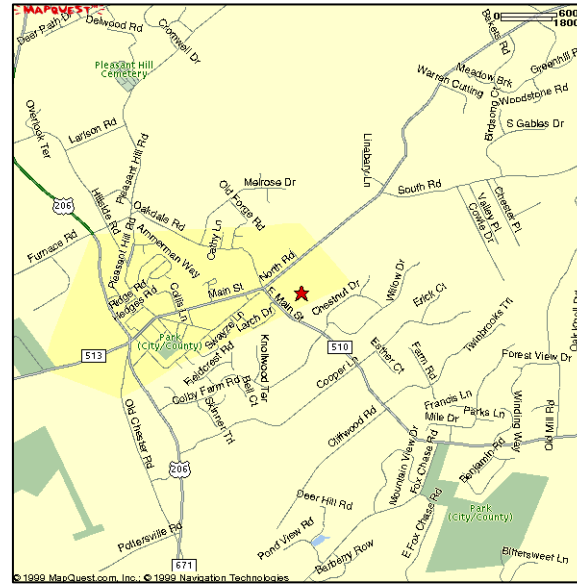
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Inhalable Particles (PM10)	81102	SierraAnderson High-volume sampler	Gravimetric	063	Every 6 days	Middle	Source Oriented

Site Purpose	To measure the impact of mobile sources in heavily used roadways in southern Camden
Plans for the next 18 months	No changes
Other Comment	Collocated PM10 sampler discontinued on October 20, 2008

SITE INFORMATION

Site Name	Chester
Address	Bldg # 1, Bell Labs off Route 513
City, State, Zip	Chester, NJ 07930
AQS Code	34 027 3001
NJ County	Morris
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.787628
Longitude	-74.676301
Date Established	1/1/1978
Suitable for Comparison to PM2.5 NAAQS?	Yes



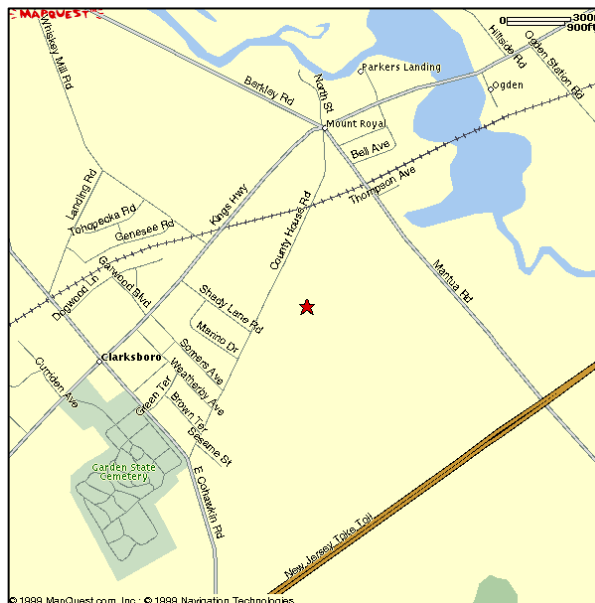
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)	42601	TECO 42	Chemiluminescence	074	Continuous	Urban	Background
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Urban	Background
Ozone (O ₃)	44201	Dasibi 1008RS	Ultraviolet	047	Continuous	Urban	Background
Sulfur Dioxide (SO ₂)	44201	TECO 43A	Pulsed fluorescence	060	Continuous	Urban	Background
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Urban	Population Exposure
PM2.5 Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Population Exposure
Volatile Organic Compounds	Appendix B	Canister	TO-15	App. B	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix C	DNPH cartridge	TO-11A	App. C	Every 6 days	Neighborhood	Population Exposure
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure
Solar Radiation	63301	Qualimetrics	Pyrometer	011	Continuous	Neighborhood	

Site Purpose	To measure background concentrations in northern New Jersey
Plans for the next 18 months	No changes
Other Comment	Mercury data not submitted to USEPA's AQS database, See Appendices A, B and C for more information on PM2.5 Speciation, Volatile Organic Compounds and Carbonyls

SITE INFORMATION

Site Name	Clarksboro
Address	Clarksboro Shady Rest Home, Shady Lane and County House Road
City, State, Zip	Clarksboro, NJ 08020
AQS Code	34 015 0002
NJ County	Gloucester
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.800339
Longitude	-75.212119
Date Established	1/1/1981
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



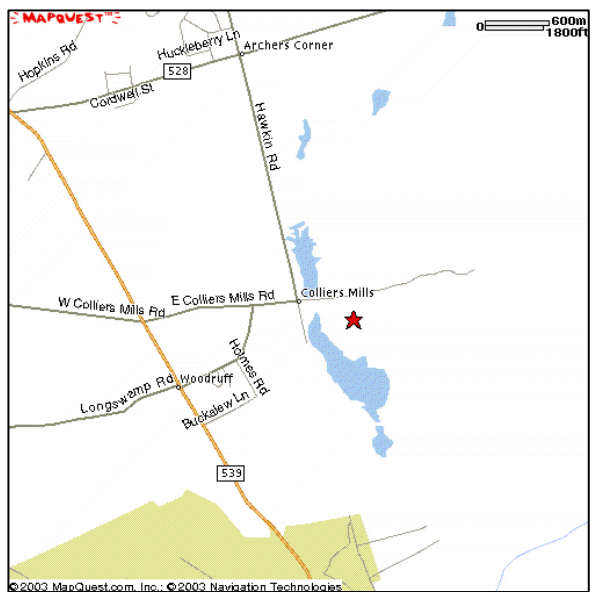
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	TECO 49	Ultraviolet	047	Continuous	Urban	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Urban	Population Exposure

Site Purpose	To measure highest concentrations of ozone downwind from Philadelphia metropolitan area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Colliers Mills
Address	Colliers Mills Wildlife Management Area
City, State, Zip	Colliers Mills, NJ
AQS Code	34 029 0006
NJ County	Ocean
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.064847
Longitude	-74.444058
Date Established	1/1/1985
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



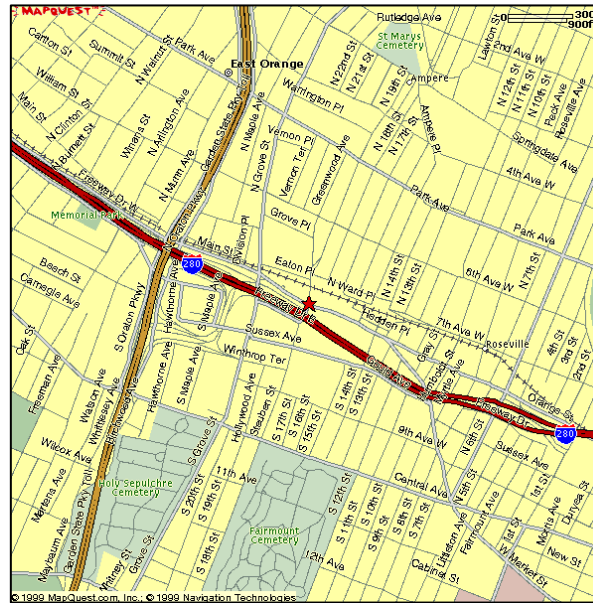
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	TECO 49	Ultraviolet	047	Continuous	Urban	Highest Concentration

Site Purpose	To measure highest concentrations for ozone downwind from the Philadelphia metropolitan area and central New Jersey
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	East Orange
Address	Engine No. 2, Main Street & Greenwood Avenue
City, State, Zip	East Orange, NJ 07018
AQS Code	34 013 1003
NJ County	Essex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.757501
Longitude	-74.200500
Date Established	1/1/1980
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



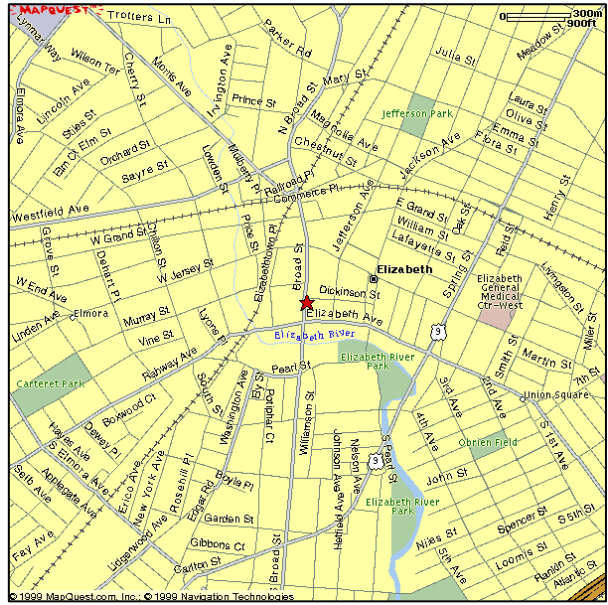
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)		TECO 48	Nondispersive-infrared		Continuous	Neighborhood	Highest Concentration
Nitric Oxide (NO)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Highest Concentration
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Oxides of Nitrogen (NO _x)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Highest Concentration
Relative Humidity		Qualimetrics	Capacitive sensor		Continuous	Neighborhood	
Temperature		Qualimetrics	Thermistor		Continuous	Neighborhood	

Site Purpose	To measure population exposure in the East Orange and Newark areas
Plans for the next 18 months	No changes
Other Comment	The CO, NO, NO _x , Relative Humidity and Temperature data are not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Elizabeth
Address	7 Broad St.
City, State, Zip	Elizabeth, NJ 07201
AQS Code	34 039 0003
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.662451
Longitude	-74.214745
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



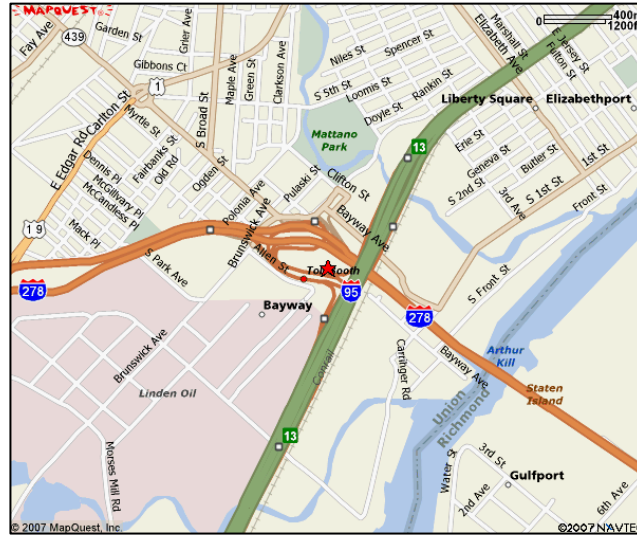
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Middle	Population Exposure
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure the highest concentrations in the central commercial area of Elizabeth
Plans for the next 18 months	All analyzers were temporarily discontinued from Mar 8, 2007 to July 1, 2008 to conduct major renovations to the site
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Elizabeth Lab
Address	Interchange 13, NJ Turnpike
City, State, Zip	Elizabeth, NJ 07206
AQS Code	34 039 0004
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.641440
Longitude	-74.208365
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)		TECO 48	Nondispersive-infrared		Continuous		
Nitric Oxide (NO)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Highest Concentration
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Oxides of Nitrogen (NO _x)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure
Fine Particles (PM _{2.5})	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure
Real-time PM _{2.5}	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total atmospheric	702	Continuous	Middle Scale	Highest Concentration
Real-time PM _{2.5}	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Middle Scale	Highest Concentration
PM _{2.5} Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Highest Concentration
Volatile Organic Compounds	Appendix B	Canister	TO-15	App. B	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix C	DNPH cartridge	TO-11A	App. C	Every 6 days	Neighborhood	Population Exposure

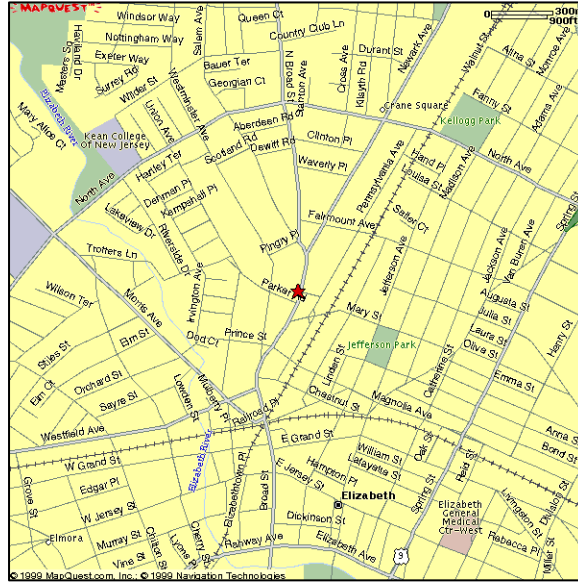
PARAMETER SUMMARY (Elizabeth Lab, continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure
Wind Direction		Qualimetrics	Wind vane		Continuous	Neighborhood	
Wind Speed		Qualimetrics	Anemometer		Continuous	Neighborhood	

Site Purpose	The comprehensive air monitoring site in the northeast metropolitan region of New Jersey
Plans for the next 18 months	No changes
Other Comment	PM2.5 is collocated for precision; CO, Nitric Oxide (NO), Oxides of Nitrogen (NO _x), Smoke Shade, Wind Direction and Wind Speed data are not submitted to USEPA's AQS database; See Appendices A, B and C for more information on PM2.5 Speciation, Volatile Organic Compounds and Carbonyls

SITE INFORMATION

Site Name	Elizabeth Mitchell Bldg
Address	Mitchell Bldg., 500 N. Broad St.
City, State, Zip	Elizabeth, NJ 07208
AQS Code	34 039 0006
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.673406
Longitude	-74.213889
Date Established	1/1/1983
Suitable for Comparison to PM2.5 NAAQS?	Yes



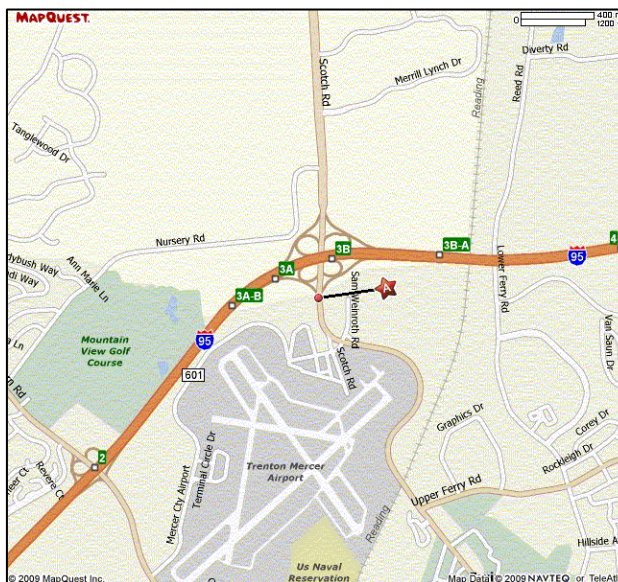
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Elizabeth area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Ewing
Address	Bureau of Air Monitoring Technical Center, 380 Scotch Road
City, State, Zip	West Trenton, NJ 08628
AQS Code	34 021 0010
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.28753
Longitude	-74.80777
Date Established	1/1/2009
Suitable for Comparison to PM2.5 NAAQS?	No



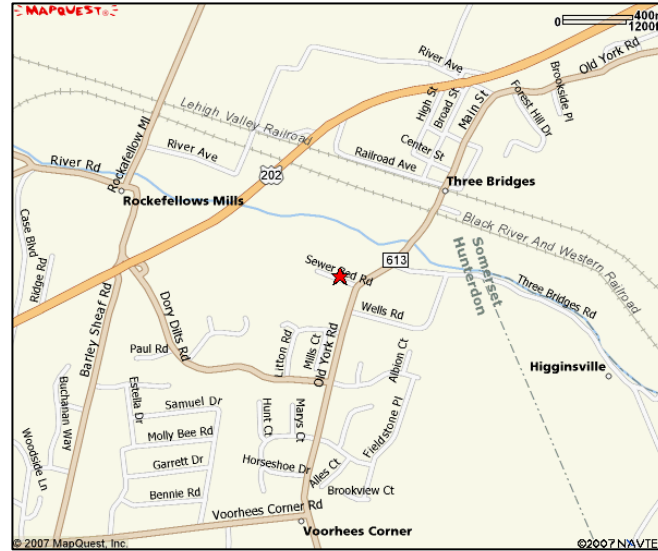
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Mercer County area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Flemington
Address	Raritan Township Municipal Utilities Authority, 365 Old York Rd
City, State, Zip	Flemington, NJ 08822
AQS Code	34 019 0001
NJ County	Hunterdon
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.515253
Longitude	-74.806753
Date Established	1/1/1980
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



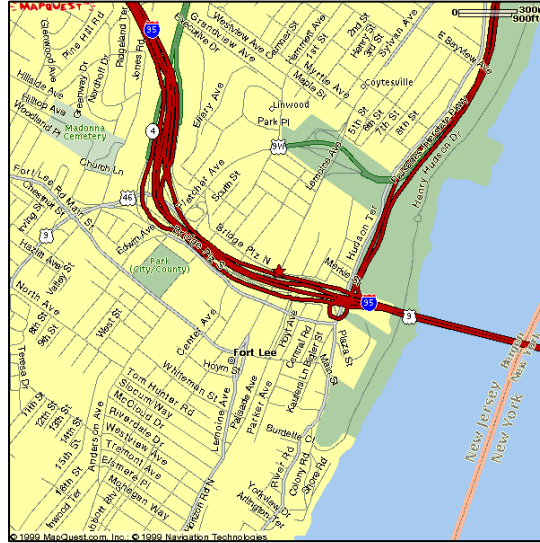
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	Dasibi 1008RS	Ultraviolet	056	Continuous	Urban	Highest Concentration
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure
Barometric Pressure		Qualimetrics	Pressure transducer		Continuous	Neighborhood	
Relative Humidity		Qualimetrics	Capacitive sensor		Continuous	Neighborhood	
Solar Radiation		Qualimetrics	Pyrometer		Continuous	Neighborhood	
Temperature		Qualimetrics	Thermistor		Continuous	Neighborhood	
Wind Direction		Qualimetrics	Wind vane		Continuous	Neighborhood	
Wind Speed		Qualimetrics	Anemometer		Continuous	Neighborhood	

Site Purpose	To measure ozone concentrations in the northwestern region of New Jersey
Plans for the next 18 months	No changes
Other Comment	Barometric Pressure, Relative Humidity, Solar Radiation, Temperature, Wind Direction, and Wind Speed data are not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Fort Lee
Address	Bridge Plaza North & Lemoine Ave.
City, State, Zip	Fort Lee, NJ 07024
AQS Code	34 003 0004
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.854583
Longitude	-73.967772
Date Established	12/9/1985
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Middle	Highest Concentration
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Middle	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Middle	Population Exposure
Inhalable Particles (PM10)	81102	SierraAnderson High-Volume Sampler	Gravimetric	063	Every 6 days	Middle	Highest Concentration

Site Purpose	To measure the impact of I-95 on CO, PM2.5 and PM10 concentrations in Fort Lee
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Fort Lee Library
Address	Fort Lee Library, 320 Main St.
City, State, Zip	Fort Lee, NJ 07024
AQS Code	34 003 0003
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.852256
Longitude	-73.973314
Date Established	1/23/1986
Suitable for Comparison to PM2.5 NAAQS?	Yes



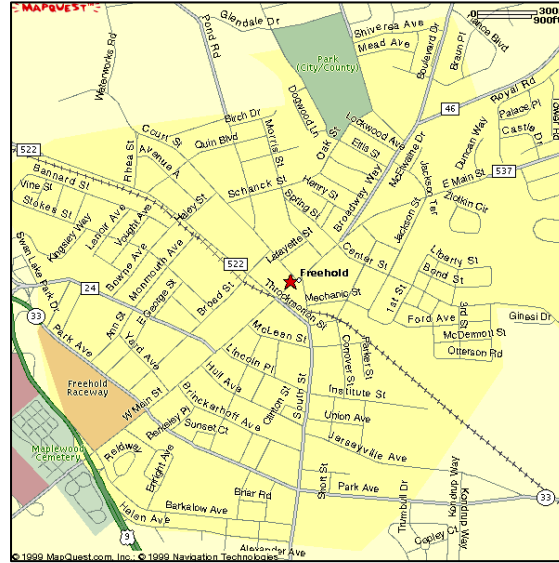
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure the population exposure in the Fort Lee area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Freehold
Address	5 West Main St.
City, State, Zip	Freehold, NJ 07728
AQS Code	34 025 2001
NJ County	Monmouth
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.259895
Longitude	-74.274689
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure highest concentrations in the commercial district of Freehold
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Gibbstown2
Address	Municipal Maintenance Yard, North School St., North of Morse Ave.
City, State, Zip	Gibbstown, NJ 08027
AQS Code	34 015 0004
NJ County	Gloucester
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.830809
Longitude	-75.284720
Date Established	2/2/2007
Suitable for Comparison to PM2.5 NAAQS?	Yes



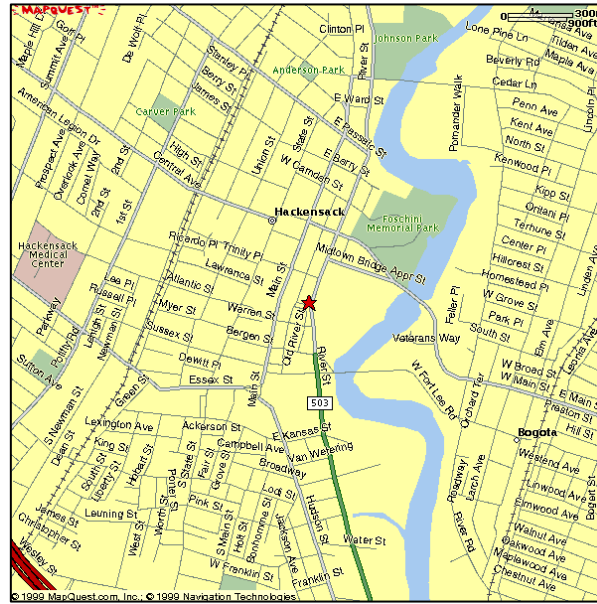
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Gibbstown area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Hackensack
Address	Bergen County Probation Services, 133 River St.
City, State, Zip	Hackensack, NJ 07601
AQS Code	34 003 5001
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey- Connecticut CSA
Latitude	40.882373
Longitude	-74.042172
Date Established	1/1/1968
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



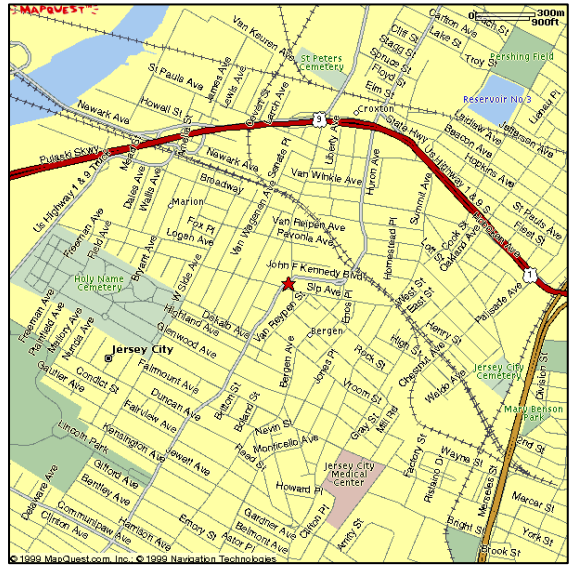
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Population Exposure
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Hackensack area
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Jersey City
Address	2828 Kennedy Blvd.
City, State, Zip	Jersey City, NJ 07306
AQS Code	34 017 1002
NJ County	Hudson
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.731690
Longitude	-74.066566
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



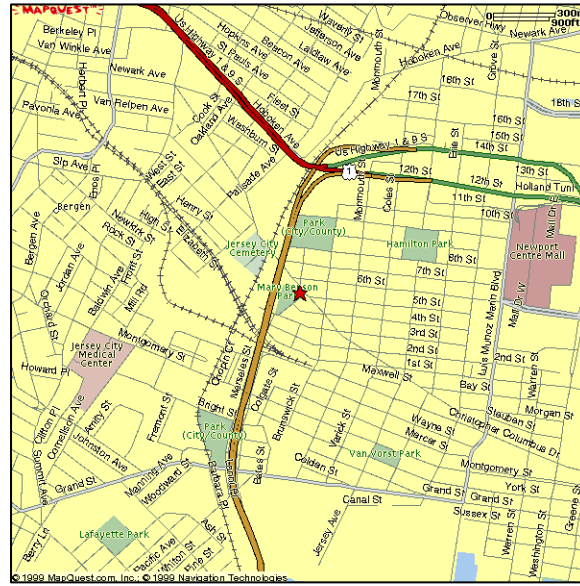
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure highest concentrations in the central commercial area of Jersey City
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Jersey City Firehouse
Address	Consolidated Firehouse, 355 Newark Ave.
City, State, Zip	Jersey City, NJ 07302
AQS Code	34 017 1003
NJ County	Hudson
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.725454
Longitude	-74.052290
Date Established	1/1/1967
Suitable for Comparison to PM2.5 NAAQS?	Yes



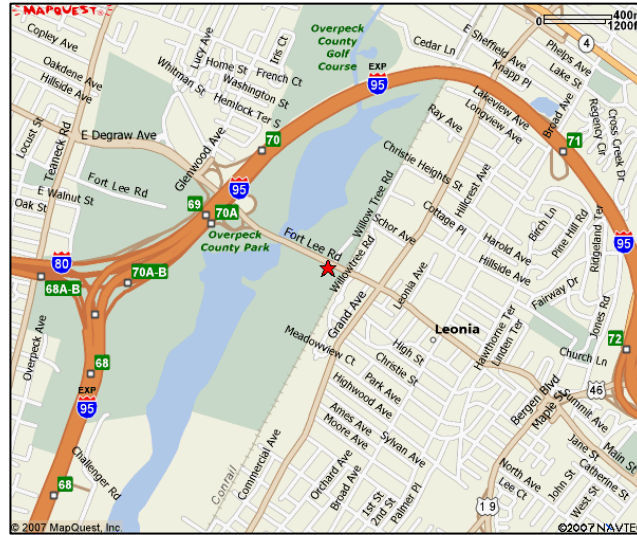
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure
Inhalable Particles (PM10)	81102	SierraAnderson High-Volume Sampler	Gravimetric	063	Every 6 days	Neighborhood	Highest Concentration

Site Purpose	To measure population exposure in the Jersey City area
Plans for the next 18 months	No changes
Other Comment	PM2.5 and PM10 are collocated for precision measurements; daily sampling began in 2007 for Fine Particles (AQS code 88101); prior to 2007, every 3 day sampling

SITE INFORMATION

Site Name	Leonia
Address	Overpeck Park, 40 Fort Lee Road
City, State, Zip	Leonia, NJ, 07605
AQS Code	34 003 0006
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.870422
Longitude	-73.992053
Date Established	12/7/2007
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



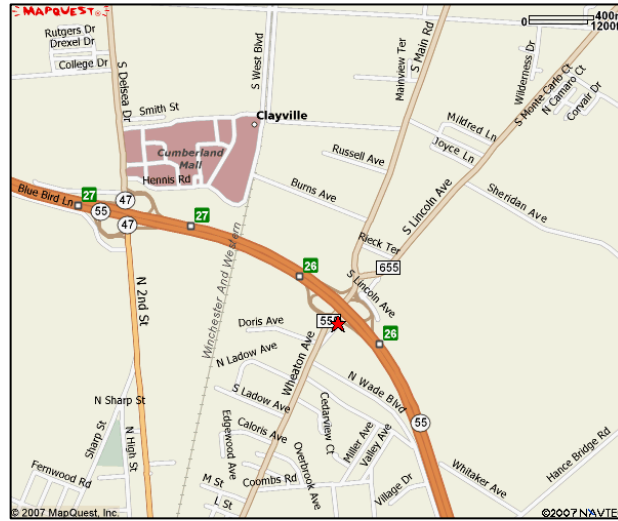
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)	42601	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO _x)	42603	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Leonia and Teaneck areas
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Millville
Address	Lincoln Ave. & Route 55, Northeast of Millville
City, State, Zip	Millville, NJ 08332
AQS Code	34 011 0007
NJ County	Cumberland
MSA/CSA	Vineland-Millville-Bridgeton MSA
Latitude	39.422273
Longitude	-75.025204
Date Established	1/1/1983
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



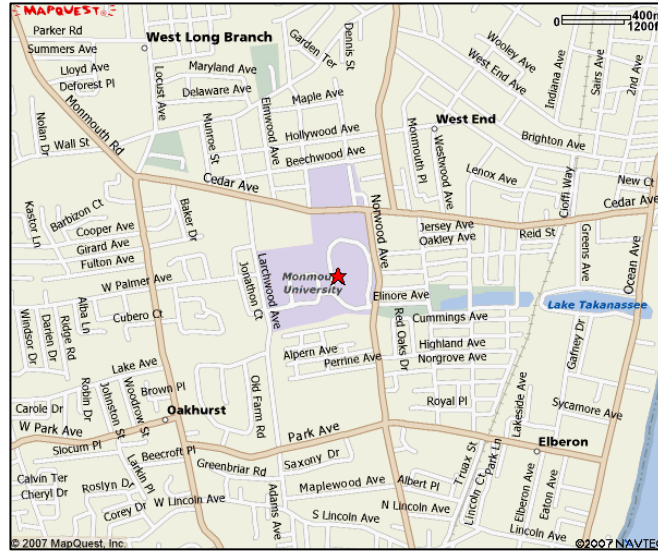
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO ₂)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO _x)		TECO 42	Chemiluminescence		Continuous	Neighborhood	Population Exposure
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Vineland and Millville areas
Plans for the next 18 months	No changes
Other Comment	NO, NO ₂ , and NO _x data are not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Monmouth University
Address	Edison Science Bldg., 400 Cedar Ave.
City, State, Zip	West Long Branch, NJ 07764
AQS Code	34 025 0005
NJ County	Monmouth
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.278461
Longitude	-74.005343
Date Established	5/13/1989
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



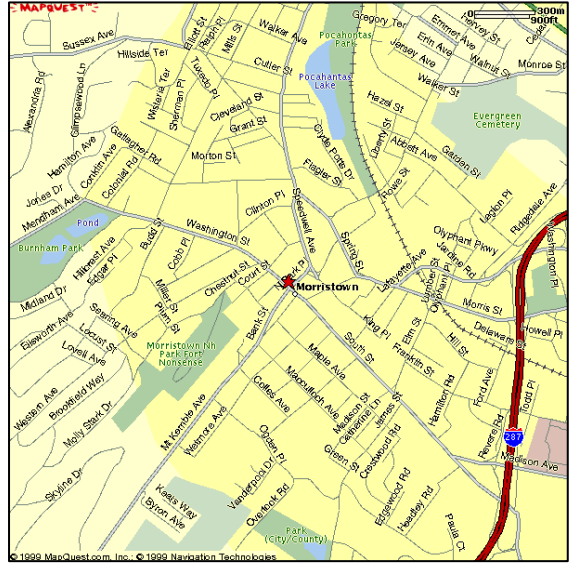
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	TECO 49	Ultraviolet	047	Continuous	Neighborhood	Highest Concentration

Site Purpose	To measure highest concentrations of ozone in the eastern Monmouth County area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Morristown
Address	11 Washington St.
City, State, Zip	Morristown, NJ 07960
AQS Code	34 027 0003
NJ County	Morris
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.797342
Longitude	-74.482494
Date Established	1/1/1973
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure highest concentrations in the commercial district of Morristown
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Morristown Ambulance Squad
Address	16 Early St.
City, State, Zip	Morristown, NJ 07960
AQS Code	34 027 0004
NJ County	Morris
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.801584
Longitude	-74.483817
Date Established	5/30/1989
Suitable for Comparison to PM2.5 NAAQS?	Yes



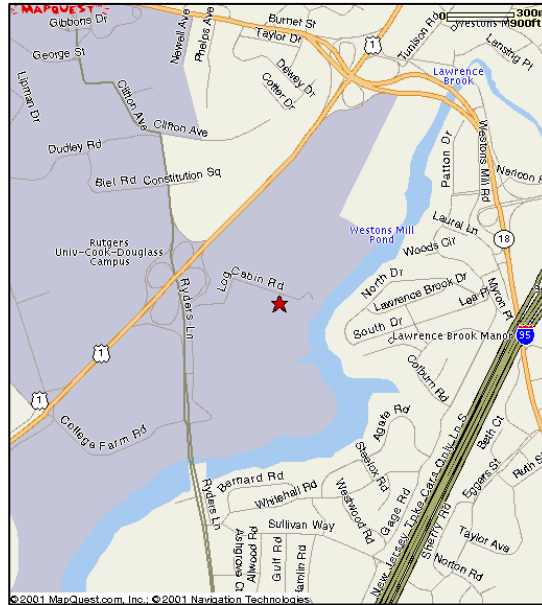
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Morristown area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	New Brunswick
Address	Cook College, Log Cabin Rd. near Horticulture Lab
City, State, Zip	New Brunswick, NJ 08901
AQS Code	34 023 0006
NJ County	Middlesex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.472786
Longitude	-74.422515
Date Established	1/1/1981
Suitable for Comparison to PM2.5 NAAQS?	Yes



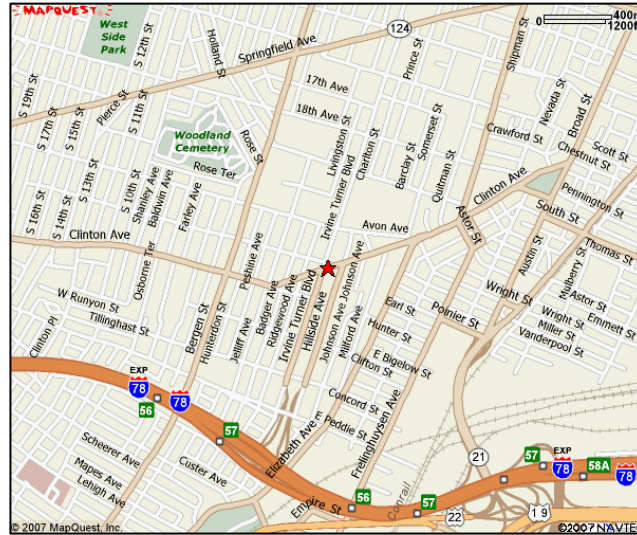
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure
Real-time PM2.5	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure
PM2.5 Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Population Exposure
Volatile Organic Compounds	Appendix B	Canister	TO-15	App. B	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix C	DNPH cartridge	TO-11A	App. C	Every 6 days	Neighborhood	Population Exposure
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the New Brunswick area
Plans for the next 18 months	No changes
Other Comment	PM2.5 Speciation is collocated for precision. See Appendices A, B and C for more information on PM2.5 Speciation, Volatile Organic Compounds and Carbonyls. Mercury data not submitted to EPA's AQS database

SITE INFORMATION

Site Name	Newark Firehouse
Address	360 Clinton Avenue
City, State, Zip	Newark, NJ 07108
AQS Code	34 013 0003
NJ County	Essex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.72102
Longitude	-74.1928
Date Established	5/1/2009
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48iTLE	Nondispersive-infrared	054	Continuous	Neighborhood	Population Exposure
Nitric Oxide (NO)	42601	TECO 42CY	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO ₂)	42602	TECO 42CY	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Total Reactive Oxides of Nitrogen (NO _x)	42603	TECO 42CY	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O ₃)	44201	TECO 49i	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO ₂)	42401	TECO 43iTLE	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Fine Particles (PM _{2.5})	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure
Real-time PM _{2.5}	88500	R&P 1400 TEOM-FDMS	Gravimetric, Total atmospheric	702	Continuous	Neighborhood	Population Exposure
Real-time PM _{2.5}	88502	R&P 1400 TEOM-FDMS	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure
PM _{2.5} Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Population Exposure

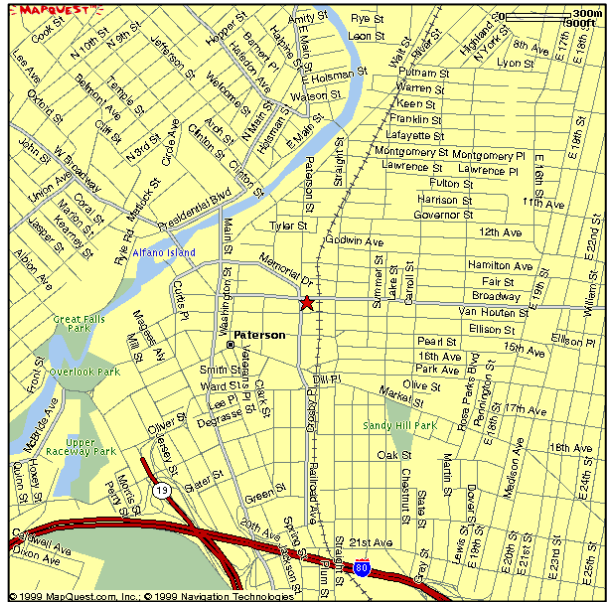
PARAMETER SUMMARY (Newark Firehouse, continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Barometric Pressure	64101	Qualimetrics	Pressure transducer		Continuous	Neighborhood	
Relative Humidity	68110	Qualimetrics	Capacitive sensor		Continuous	Neighborhood	
Solar Radiation	63301	Qualimetrics	Pyrometer		Continuous	Neighborhood	
Temperature	68105	Qualimetrics	Thermistor		Continuous	Neighborhood	
Wind Direction	61102	Qualimetrics	Wind vane		Continuous	Neighborhood	
Wind Speed	61101	Qualimetrics	Anemometer		Continuous	Neighborhood	

Site Purpose	New Jersey's NCore site
Plans for the next 18 months	O ₃ established on May 13, 2009, PM _{2.5} established on May 16, 2009, and trace SO ₂ and trace CO established on May 19, 2009. Real-time PM _{2.5} , Real-time PM coarse (PM _{10-2.5}), total oxides of nitrogen (NO _y), speciated PM _{2.5} , wind speed, wind direction, relative humidity and ambient temperature are expected to be installed later in 2009
Other Comment	CO and SO ₂ data are measured by "trace-level" analyzers. See Appendix A for more information on PM _{2.5} Speciation

SITE INFORMATION

Site Name	Paterson
Address	Health Department, 176 Broadway Ave.
City, State, Zip	Paterson, NJ 07505
AQS Code	34 031 0005
NJ County	Passaic
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.918381
Longitude	-74.168092
Date Established	1/1/1978
Suitable for Comparison to PM2.5 NAAQS?	Yes



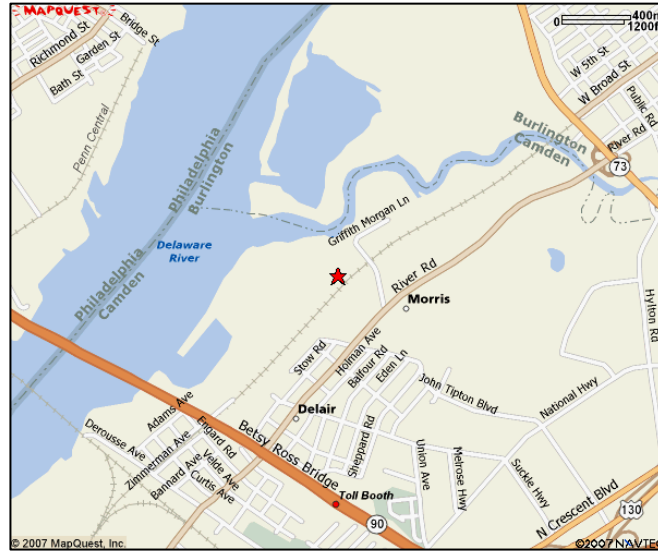
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Paterson area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Pennsauken
Address	Morris Delair Water Treatment Plant, off Griffith-Morgan Lane
City, State, Zip	Pennsauken, NJ 08110
AQS Code	34 007 1007
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.989036
Longitude	-75.050008
Date Established	9/1/1983
Suitable for Comparison to PM2.5 NAAQS?	Yes



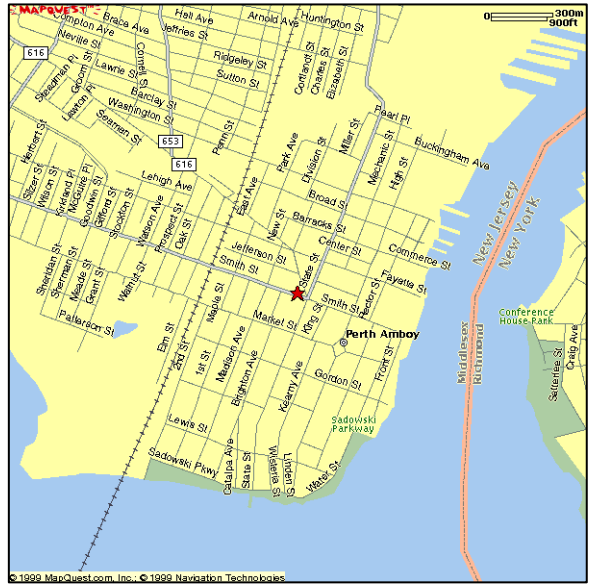
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Pennsauken area
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Perth Amboy
Address	130 Smith St.
City, State, Zip	Perth Amboy, NJ 08861
AQS Code	34 023 2003
NJ County	Middlesex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.508764
Longitude	-74.268083
Date Established	1/1/1970
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



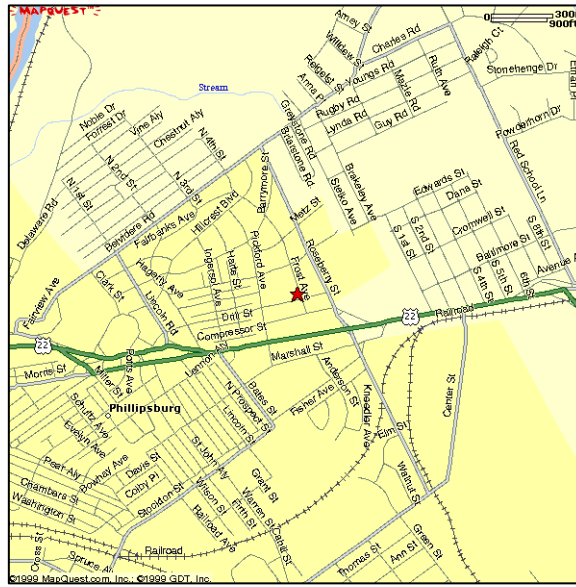
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Carbon Monoxide (CO)	42101	TECO 48	Nondispersive-infrared	054	Continuous	Neighborhood	Highest Concentration
Sulfur Dioxide (SO ₂)	42401	TECO 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Smoke Shade		Wallace Fisher	Tape sampler		Hourly	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Perth Amboy area
Plans for the next 18 months	No changes
Other Comment	Smoke Shade data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Phillipsburg
Address	Municipal Bldg., 675 Corliss Ave.
City, State, Zip	Phillipsburg, NJ 08865
AQS Code	34 041 0006
NJ County	Warren
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.699207
Longitude	-75.180525
Date Established	8/10/1999
Suitable for Comparison to PM2.5 NAAQS?	Yes



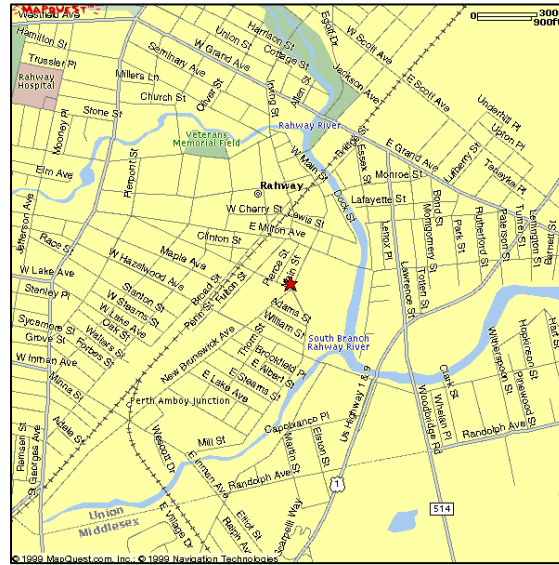
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Phillipsburg area, and to measure transported fine particle concentrations
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Rahway
Address	Fire Dept. Bldg., 1300 Main St.
City, State, Zip	Rahway, NJ 07065
AQS Code	34 039 2003
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.603943
Longitude	-74.276174
Date Established	12/11/1999
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure
Real-time PM2.5	88502	R&P 1400 TEOM	Gravimetric without correction factor	702	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Rahway area
Plans for the next 18 months	No changes
Other Comment	TEOM analyzer is operating without the FDMS

SITE INFORMATION

Site Name	Ramapo
Address	Ramapo Mountain State Forest, Access Rd., off Skyline Drive, Wanaque Borough
City, State, Zip	Wanaque, NJ 07465
AQS Code	34 031 5001
NJ County	Passaic
MSA/CSA	New York-Northeast New Jersey- Connecticut CSA
Latitude	41.052195
Longitude	-74.256338
Date Established	6/5/1998
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



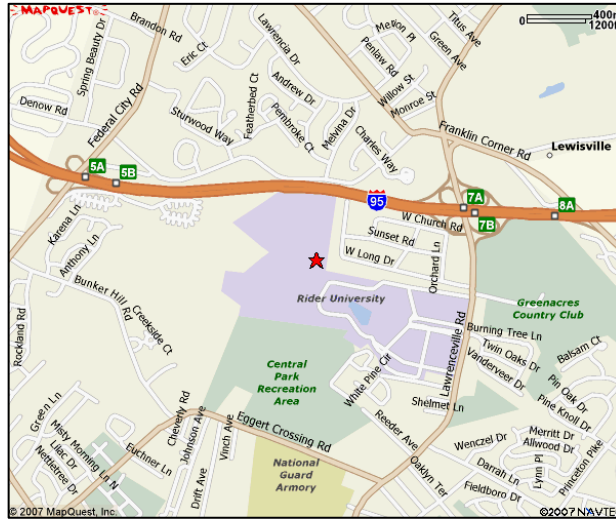
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Urban	Background

Site Purpose	To measure background, transport and upwind concentrations of ozone
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Rider University
Address	Athletic Fields, Route 206 South, Lawrence Township
City, State, Zip	Lawrenceville, NJ 08648
AQS Code	34 021 0005
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.283092
Longitude	-74.742644
Date Established	6/1/1981
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



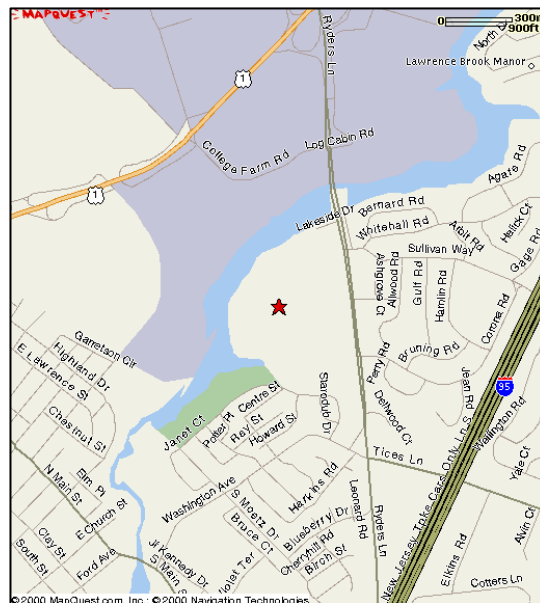
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)	42601	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO _x)	42603	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Neighborhood	Population Exposure
Ozone Precursors	Appendix D	Perkin Elmer	Auto GC-FID	App. D	Hourly	Urban	Population Exposure
Barometric Pressure	64101	Qualimetrics	Instrumental aneroid		Continuous	Neighborhood	
Relative Humidity	68110	Qualimetrics	Hydrothermograph		Continuous	Neighborhood	
Solar Radiation	63301	Qualimetrics	Pyrometer		Continuous	Neighborhood	
Temperature	68105	Qualimetrics	Thermistor, spot rdg.		Continuous	Neighborhood	
Wind Direction	61102	Qualimetrics	Wind vane, spot rdg.		Continuous	Neighborhood	
Wind Speed	61101	Qualimetrics	Anemometer, spot rdg.		Continuous	Neighborhood	

Site Purpose	To measure population exposure and ozone precursors
Plans for the next 18 months	No changes
Other Comment	See Appendix D for more information on Ozone Precursors, also known as PAMS

SITE INFORMATION

Site Name	Rutgers University
Address	Horticultural Farm #3, off Ryder's Lane
City, State, Zip	New Brunswick, NJ 08901
AQS Code	34 023 0011
NJ County	Middlesex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.462182
Longitude	-74.429439
Date Established	10/1/1994
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



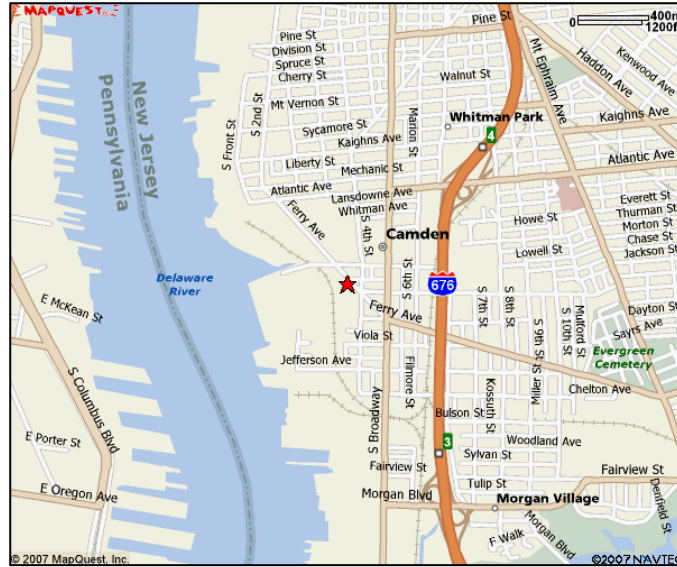
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Nitric Oxide (NO)	42601	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO ₂)	42602	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO _x)	42603	TECO 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O ₃)	44201	Dasibi 1008	Ultraviolet	056	Continuous	Neighborhood	Population Exposure
Ozone Precursors	Appendix D	Perkin Elmer	Auto GC-FID	App. D	Hourly	Urban	Background

Site Purpose	To measure population exposure and ozone precursors – downwind for Philadelphia metropolitan area and upwind for New York metropolitan area
Plans for the next 18 months	No changes
Other Comment	Upper air and lower air meteorological measurements are collected at this site by Rutgers University; see Appendix D for more information on Ozone Precursors, also known as PAMS

SITE INFORMATION

Site Name	South Camden
Address	Camden County Municipal Utilities Authority, 1645 Ferry Ave
City, State, Zip	Camden, NJ 08104
AQS Code	34 007 0010
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.923969
Longitude	-75.122317
Date Established	11/20/2003
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



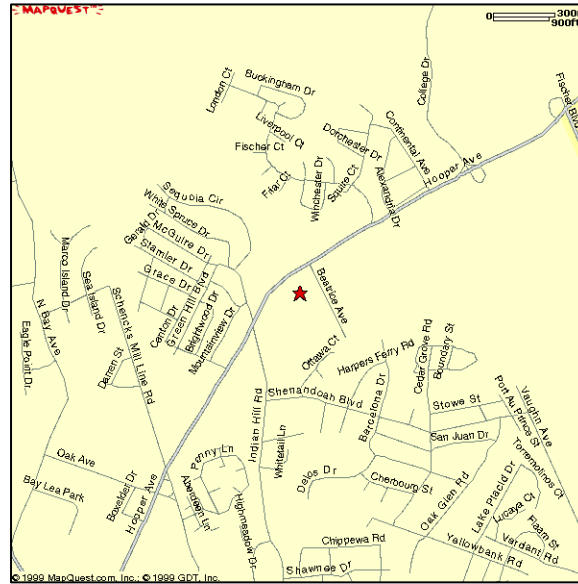
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Real-time PM2.5		R&P 1400 TEOM-FDMS	Gravimetric, Total Atmospheric		Continuous	Neighborhood	Highest Concentration
Real-time PM2.5		R&P 1400 TEOM-FDMS	Gravimetric without correction factor		Continuous	Neighborhood	Highest Concentration

Site Purpose	To measure population exposure in the South Camden area
Plans for the next 18 months	No changes
Other Comment	Real-time PM2.5 data is not submitted to USEPA's AQS database

SITE INFORMATION

Site Name	Toms River
Address	Hooper Avenue Elementary School, 1517 Hooper Avenue
City, State, Zip	Toms River, NJ 08753
AQS Code	34 029 2002
NJ County	Ocean
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	39.994908
Longitude	-74.170447
Date Established	2/11/1999
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Toms River area
Plans for the next 18 months	No changes
Other Comment	Daily sampling began in 2007; prior to 2007, every 3 day sampling

SITE INFORMATION

Site Name	Trenton
Address	Trenton Library, 120 Academy St.
City, State, Zip	Trenton, NJ 08608
AQS Code	34 021 0008
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.222411
Longitude	-74.763167
Date Established	9/1/1982
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Daily	Neighborhood	Population Exposure
Inhalable Particles (PM10)	81102	SierraAnderson High-Volume Sampler	Gravimetric	063	Every 6 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the downtown commercial district of Trenton
Plans for the next 18 months	No changes
Other Comment	Daily sampling began in 2007 for Fine Particles (AQS code 88101); prior to 2007, every 3 day sampling

SITE INFORMATION

Site Name	Union City
Address	Health Department, 714 31st St.
City, State, Zip	Union City, NJ 07087
AQS Code	34 017 2002
NJ County	Hudson
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.772793
Longitude	-74.031718
Date Established	1/1/1983
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Union City and Hudson County areas
Plans for the next 18 months	No changes
Other Comment	

SITE INFORMATION

Site Name	Washington Crossing
Address	Washington Crossing State Park, near 66 Church Rd.
City, State, Zip	Titusville, NJ 08560
AQS Code	34 021 8001
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.315350
Longitude	-74.853617
Date Established	1/1/1989
Suitable for Comparison to PM2.5 NAAQS?	Yes



PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles (PM2.5)	88101	R&P 2025 Low-volume sequential sampler	Gravimetric	118	Every 3 days	Neighborhood	Population Exposure
Acid Deposition		Bucket	Ion Chromatography		Weekly	Neighborhood	Population Exposure

Site Purpose	To measure population exposure and transported fine particle concentrations
Plans for the next 18 months	No changes
Other Comment	Acid Deposition data not submitted by NJDEP to EPA's AQS database

GLOSSARY OF ABBREVIATIONS AND TERMS

ABBREVIATIONS

AQI – Air Quality Index, a national air quality rating system based on the National Ambient Air Quality Standards

AQS – Air Quality Subsystem, USEPA's database for air quality data nationwide

CSA – Combined Statistical Area, defined by U.S. Office of Management and Budget as a geographic area having 2 or more Metropolitan Statistical Areas

CFR – Code of Federal Regulations

CO – Carbon monoxide

CVAF Spectrometry – Cold Vapor Atomic Fluorescence Spectrometry, method for analyzing Mercury

DNPH cartridge – Di-Nitro-Phenyl-Hydrazine, an adsorbent for trapping carbonyls in air

auto GC-FID – automated Gas Chromatograph Flame Ionization Detection

Hg – Mercury

IC – Ion Chromatography, a method for analyzing for ionic compounds from Fine Particles

IMPROVE – Interagency Monitoring of Protected Visual Environments

MSA – Metropolitan Statistical Area, 1 or more counties having a population greater than 50,000

NAAQS – National Ambient Air Quality Standard

NCORE – National Core, a monitoring site having a group of parameters specified by the USEPA

NJDEP – New Jersey Department of Environmental Protection

NO – Nitric Oxide

NO₂ – Nitrogen Dioxide

NO_x – Oxides of Nitrogen

NO_y – Total Reactive Oxides of Nitrogen

O₃ – Ozone

PAMS – Photochemical Assessment Monitoring Station, sites which measure ozone precursors

Pb – Lead

PM_{2.5} – Fine Particles, particles 2.5 micrometers in aerodynamic diameter or smaller

PM₁₀ – Inhalable Particles, particles 10 micrometer in aerodynamic diameter or smaller

PM_{10-2.5} – Coarse Particles, particles between 10 and 2.5 micrometers in aerodynamic diameter

PM_{2.5}-Speciation – a group of elements, ionic compounds and carbon compounds that are analyzed from Fine Particles

R&P 1400 – the instrument manufactured by Rupprecht and Pattashnik to measure real-time PM_{2.5}

R&P 2025 – the instrument manufactured by Rupprecht and Pattashnik to measure PM_{2.5}, data from this instrument can be used for comparison to the NAAQS

RRF – Resource Recovery Facility, trash incineration facility

SLAMS – State and Local Air Monitoring Station, designation for monitoring sites or samplers, the data from which can be used for comparison to the National Ambient Air Quality Standards

SO₂ – Sulfur Dioxide

SPM – Special Purpose Monitor, designation for monitoring sites or samplers, the data from which are not used for comparison to the National Ambient Air Quality Standards

STN – Speciation Trends Network

TEOM-FDMS – Tapered Element Oscillating Microbalance with Filter Dynamic Measurement System, the analytical method used by an R&P 1400 to measure real-time PM_{2.5}

TECO 42 – the instrument manufactured by Thermo Environmental Corp. to measure nitrogen dioxide, nitric oxide and oxides of nitrogen

TECO 43A – the instrument manufactured by Thermo Environmental Corp. to measure sulfur dioxide

TECO 48 – the instrument manufactured by Thermo Environmental Corp. to measure carbon monoxide

TECO 49 – the instrument manufactured by Thermo Environmental Corp. to measure ozone

TLE – Trace Level Enhanced, type of analyzer which measures very low concentrations

TO-11A – a standard method approved by the USEPA to analyze carbonyls

TO-15 – a standard method approved by the USEPA to analyze Volatile Organic Compounds

TOA – Thermal Optic Analysis, a method for analyzing carbon compounds from Fine Particles

TSP – Total Suspended Particles, all particles that are captured by a high-volume sampler

USEPA – United States Environmental Protection Agency

VOC – Volatile Organic Compound, a carbon-based chemical that is gaseous

XRF – X-ray Fluorescence, a method for analyzing elements from Fine Particles

TERMS

Acid Deposition – acid rain, the phenomenon where air pollutants raise the acidity of rain and snow

Ambient air – air in areas that are accessible to the general public

Anemometer – an instrument used for measuring wind speed

Atomic Absorption – the method used for analyzing for lead from Total Suspended Particles

Background – a monitoring site in an area which is not affected by air pollution sources

Canister – a stainless steel container used for collecting an air sample to be analyzed for VOCs

Capacitive Sensor – an instrument used for measuring relative humidity

Carbonyls – a group of aldehydes, or a carbon chain with an oxygen molecule at one end

Chemiluminescence – the method used for analyzing for NO, NO₂ and NO_x

Coarse Particles – also PM_{10-2.5}, particles between 10 and 2.5 micrometers in aerodynamic diameter

Collocated – operating two samplers side by side in order to collect data used for precision statistics

Continuous – an instrument that collects data instantaneously, without stopping, throughout the year, and transmits the data to a central data acquisition system every minute

Fine Particles – also PM_{2.5}, particles 2.5 micrometers in aerodynamic diameter or smaller

Gravimetric – weighing a filter in a controlled environment by a highly accurate balance

High-volume Sampler – an instrument used to collect Total Suspended Particles

Highest Concentration – a monitoring instrument or site which is designated to measure the maximum concentration of a pollutant in a given area

Inhalable Particles – also PM₁₀, particles 10 micrometers in aerodynamic diameter or smaller

Ion Chromatography – also IC, a method used for analyzing for ionic compounds

Manual – an instrument that collects an air sample over a 24-hour filter on a filter, adsorbent cartridge or canister which is then manually retrieved for subsequent analysis

Met One – a manufacturer of PM_{2.5} Speciation samplers

Micro Scale – the spatial scale of a monitoring site, from 10 – 100 meters around the monitor

Middle Scale – the spatial scale of a monitoring site, from 100 –1000 meters around the monitor

Neighborhood Scale – the spatial scale of a monitoring site, from 1 km to 10 kms around the monitor

Nephelometer – an instrument that measures fine particles by light scattering

Nondispersive-infrared – the method used for analyzing for carbon monoxide

Ozone Precursors – a group of 55 volatile organic compounds that affect ozone formation and destruction in the atmosphere, also called PAMS pollutants

PerkinElmer – the manufacturer of an automated GC-FID

Population Exposure – a monitoring instrument or site that is designated to measure the concentrations of a pollutant in a highly populated area

Pressure Transducer – an instrument used for measuring barometric pressure

Pulsed fluorescence – the method used for analyzing for sulfur dioxide

Pyrometer – the method used for measuring solar radiation

Qualimetrics – the manufacturer of meteorological instruments

Real-time PM_{2.5} – PM_{2.5} concentrations that are measured continuously

Regional Scale – the spatial scale of a monitoring site, from 100 kms to 1000 kms around the monitor

SierraAnderson – the manufacturer of PM₁₀ samplers

Smoke Shade – an index of TSP by the measurement of light diminishment due to particles

Solar Radiation – the intensity of energy from sunlight

Tape Sampler – an instrument that measures TSP by collecting particles on a roll of filter paper which is automatically forwarded hourly

Thermistor – an instrument that measures temperature

Ultraviolet – the method used for analyzing ozone

Urban Scale – the spatial scale of a monitoring site, from 10 kms to 100 kms around the monitor

Wallace Fisher – the manufacturer of smoke shade analyzers

REFERENCES

- "2005 Network Summary," 2005 Air Quality Report, URL: <http://www.state.nj.us/dep/airmon/NET05.pdf>.
- "About AIRNow," URL: <http://www.airnow.gov/>.
- "Combined Statistical Areas And Component Core Based Statistical Areas", November 2004, <http://www.census.gov/population/estimates/metro-city/List6.txt>.
- "Guidance for Network Design and Optimum Site Exposure for PM2.5 and PM10", EPA-454R-99-022, December 1997, URL: <http://www.epa.gov/ttn/amtic/files/ambient/pm25/network/r-99-022.pdf>.
- "Guideline on Ozone Monitoring Site Selection, EPA-454/R-98-002, August 1998, URL: <http://www.epa.gov/ttn/amtic/files/ambient/criteria/reldocs/r-98-002.pdf>.
- "IMPROVE Monitoring Program", URL: <http://vista.cira.colostate.edu/improve/Overview/Overview.htm>.
- "Lead Monitoring," URL: <http://www.epa.gov/ttn/amtic/pb-monitoring.html>.
- "Metropolitan Statistical Areas And Components", November 2004, URL: <http://www.census.gov/population/estimates/metro-city/List4.txt>.
- "National Ambient Air Quality Standards for Particulate Matter, Part 50", 71 Federal Register 61224, October 17, 2006, URL: <http://www.epa.gov/ttn/amtic/files/ambient/pm25/pt5006.pdf>.
- "Optimum Sampling Site Exposure Criteria for Lead", February 1984, URL: <http://www.epa.gov/ttn/amtic/files/ambient/criteria/reldocs/4-84-012.pdf>.
- "Optimum Site Exposure Criteria for SO2 Monitoring", April, 1977, URL: <http://www.epa.gov/ttn/amtic/files/ambient/criteria/reldocs/3-77-013.pdf>.
- "Revisions to Ambient Air Monitoring Regulations, Part 58", 71 Federal Register 61296, October 17, 2006. URL: <http://www.epa.gov/ttn/amtic/files/ambient/pm25/092706sign.pdf>.
- "Selecting Sites for Carbon Monoxide Monitoring", Sept. 1975, URL: <http://www.epa.gov/ttn/amtic/files/ambient/criteria/reldocs/3-75-077.pdf>.
- "Site Selection for the Monitoring of Photochemical Air Pollutants", April 1978, URL: <http://www.epa.gov/ttn/amtic/files/ambient/criteria/reldocs/3-78-013.pdf>.
- "Technical Assistance Document (TAD) for Sampling and Analysis of Ozone Precursors", EPA/600-R-98/161, September 1998, URL: <http://www.epa.gov/ttn/amtic/files/ambient/pams/newtad.pdf>.

APPENDIX A: VOLATILE ORGANIC COMPOUNDS

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
1,1,1-Trichloroethane	43814	Canister	TO-15	101
1,1,2,2-Tetrachloroethane	43818	Canister	TO-15	101
1,1,2-Trichloroethane	43820	Canister	TO-15	101
1,1-Dichloroethane	43813	Canister	TO-15	101
1,1-Dichloroethene	43826	Canister	TO-15	101
1,2,4-Trichlorobenzene	45810	Canister	TO-15	101
1,2,4-Trimethylbenzene	45208	Canister	TO-15	101
1,2-Dibromoethane	43843	Canister	TO-15	101
1,2-Dichloroethane	43815	Canister	TO-15	101
1,2-Dichloropropane	43829	Canister	TO-15	101
1,3,5-Trimethylbenzene	45207	Canister	TO-15	101
1,3-Butadiene	43218	Canister	TO-15	101
Acetonitrile	43702	Canister	TO-15	101
Acetylene	43206	Canister	TO-15	101
Acrolein	43505	Canister	TO-15	101
Acrylonitrile	43704	Canister	TO-15	101
Benzene	45201	Canister	TO-15	101
Bromochloromethane	43836	Canister	TO-15	101
Bromodichloromethane	43828	Canister	TO-15	101
Bromoform	43806	Canister	TO-15	101
Bromomethane	43819	Canister	TO-15	101
Carbon Disulfide	42153	Canister	TO-15	101
Carbon Tetrachloride	43804	Canister	TO-15	101
Chlorobenzene	45801	Canister	TO-15	101
Chloroethane	43812	Canister	TO-15	101
Chloroform	43803	Canister	TO-15	101
Chloromethane	43801	Canister	TO-15	101
Chloromethylbenzene	45809	Canister	TO-15	101
Chloroprene	43835	Canister	TO-15	101

APPENDIX A: VOLATILE ORGANIC COMPOUNDS (Continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
cis-1,2-Dichloroethylene	43839	Canister	TO-15	101
cis-1,3-Dichloropropene	43831	Canister	TO-15	101
Dibromochloromethane	43832	Canister	TO-15	101
Dichlorodifluoromethane	43823	Canister	TO-15	101
Dichloromethane	43802	Canister	TO-15	101
Dichlorotetrafluoroethane	43208	Canister	TO-15	101
Ethyl Acrylate	43438	Canister	TO-15	101
Ethyl tert-Butyl Ether	43396	Canister	TO-15	101
Ethylbenzene	45203	Canister	TO-15	101
Hexachloro-1,3- Butadiene	43844	Canister	TO-15	101
m,p-Xylene	45109	Canister	TO-15	101
m-Dichlorobenzene	45806	Canister	TO-15	101
Methyl Ethyl Ketone	43552	Canister	TO-15	101
Methyl Isobutyl Ketone	43560	Canister	TO-15	101
Methyl Methacrylate	43441	Canister	TO-15	101
Methyl tert-Butyl Ether	43372	Canister	TO-15	101
n-Octane	43233	Canister	TO-15	101
o-Dichlorobenzene	45805	Canister	TO-15	101
o-Xylene	45204	Canister	TO-15	101
p-Dichlorobenzene	45807	Canister	TO-15	101
Propylene	43205	Canister	TO-15	101
Styrene	45220	Canister	TO-15	101
tert-Amyl Methyl Ether	43373	Canister	TO-15	101
Tetrachloroethylene	43817	Canister	TO-15	101
Toluene	45202	Canister	TO-15	101
trans-1,2- Dichloroethylene	43838	Canister	TO-15	101
trans-1,3- Dichloropropene	43830	Canister	TO-15	101
Trichloroethylene	43824	Canister	TO-15	101
Trichlorofluoromethane	43811	Canister	TO-15	101
Trichlorotrifluoroethane	43821	Canister	TO-15	101
Vinyl Chloride	43860	Canister	TO-15	101

APPENDIX B: CARBONYLS

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
2,5-dimethyl- benzaldehyde	45503	DNPH Cartridge	TO-11A	202
Acetaldehyde	43503	DNPH Cartridge	TO-11A	202
Acetone	43551	DNPH Cartridge	TO-11A	202
Benzaldehyde	45501	DNPH Cartridge	TO-11A	202
Butyraldehyde	43329	DNPH Cartridge	TO-11A	202
Crotonaldehyde	43528	DNPH Cartridge	TO-11A	202
Formaldehyde	43502	DNPH Cartridge	TO-11A	202
Hexaldehyde	43517	DNPH Cartridge	TO-11A	202
Isovaleraldehyde	43513	DNPH Cartridge	TO-11A	202
Propionaldehyde	43504	DNPH Cartridge	TO-11A	202
Tolualdehydes	45504	DNPH Cartridge	TO-11A	202
Valeraldehyde	43518	DNPH Cartridge	TO-11A	202

APPENDIX C: PM2.5 SPECIATION

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
Ammonium	88301	Met One SASS	Ion Chromatography	812
Antimony	88102	Met One SASS	Energy Dispersive XRF	811
Antimony	88102	Met One SASS	Energy Dispersive XRF	811
Arsenic	88103	Met One SASS	Energy Dispersive XRF	811
Barium	88107	Met One SASS	Energy Dispersive XRF	811
Bromine	88109	Met One SASS	Energy Dispersive XRF	811
Cadmium	88110	Met One SASS	Energy Dispersive XRF	811
Calcium	88111	Met One SASS	Energy Dispersive XRF	811
Cerium	88117	Met One SASS	Energy Dispersive XRF	811
Cesium	88118	Met One SASS	Energy Dispersive XRF	811
Chlorine	88115	Met One SASS	Energy Dispersive XRF	811
Chromium	88112	Met One SASS	Energy Dispersive XRF	811
Cobalt	88113	Met One SASS	Energy Dispersive XRF	811
Copper	88114	Met One SASS	Energy Dispersive XRF	811
Elemental carbon	88307	Met One SASS	Thermal Optic Analysis	813
Europium	88121	Met One SASS	Energy Dispersive XRF	811
Gallium	88124	Met One SASS	Energy Dispersive XRF	811
Gold	88143	Met One SASS	Energy Dispersive XRF	811
Hafnium	88127	Met One SASS	Energy Dispersive XRF	811
Indium	88131	Met One SASS	Energy Dispersive XRF	811
Iridium	88133	Met One SASS	Energy Dispersive XRF	811
Iron	88126	Met One SASS	Energy Dispersive XRF	811
Lanthanum	88146	Met One SASS	Energy Dispersive XRF	811
Lead	88128	Met One SASS	Energy Dispersive XRF	811
Magnesium	88140	Met One SASS	Energy Dispersive XRF	811
Manganese	88132	Met One SASS	Energy Dispersive XRF	811
Mercury	88142	Met One SASS	Energy Dispersive XRF	811
Molybdenum	88134	Met One SASS	Energy Dispersive XRF	811
Nickel	88136	Met One SASS	Energy Dispersive XRF	811
Niobium	88147	Met One SASS	Energy Dispersive XRF	811

APPENDIX C: SPECIATED FINE PARTICLES (Continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
Nitrate	88306	Met One SASS	Ion Chromatography	812
Organic carbon	88305	Met One SASS	Thermal Optic Analysis	813
Particulate matter 2.5u	88502	Met One SASS	Energy Dispersive XRF	811
Phosphorus	88152	Met One SASS	Energy Dispersive XRF	811
Pk1_OC	88332	Met One SASS	Thermal Optic Analysis	813
Pk2_OC	88333	Met One SASS	Thermal Optic Analysis	813
Pk3_OC	88334	Met One SASS	Thermal Optic Analysis	813
Pk4_OC	88335	Met One SASS	Thermal Optic Analysis	813
Potassium	88180	Met One SASS	Energy Dispersive XRF	811
PyroC	88336	Met One SASS	Thermal Optic Analysis	813
Rubidium	88176	Met One SASS	Energy Dispersive XRF	811
Samarium	88162	Met One SASS	Energy Dispersive XRF	811
Scandium	88163	Met One SASS	Energy Dispersive XRF	811
Selenium	88154	Met One SASS	Energy Dispersive XRF	811
Silicon	88165	Met One SASS	Energy Dispersive XRF	811
Silver	88166	Met One SASS	Energy Dispersive XRF	811
Sodium	88184	Met One SASS	Energy Dispersive XRF	811
Sodium	88302	Met One SASS	Ion Chromatography	812
Strontium	88168	Met One SASS	Energy Dispersive XRF	811
Sulfate	88403	Met One SASS	Ion Chromatography	812
Sulfur	88169	Met One SASS	Energy Dispersive XRF	811
Tantalum	88170	Met One SASS	Energy Dispersive XRF	811
Terbium	88172	Met One SASS	Energy Dispersive XRF	811
Tin	88160	Met One SASS	Energy Dispersive XRF	811
Titanium	88161	Met One SASS	Energy Dispersive XRF	811
Total carbon	88312	Met One SASS	Thermal Optic Analysis	813
Vanadium	88164	Met One SASS	Energy Dispersive XRF	811
Wolfram	88186	Met One SASS	Energy Dispersive XRF	811
Yttrium	88183	Met One SASS	Energy Dispersive XRF	811
Zinc	88167	Met One SASS	Energy Dispersive XRF	811
Zirconium	88185	Met One SASS	Energy Dispersive XRF	811

APPENDIX D: OZONE PRECURSORS

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
Sum Of Pams	43000	PerkinElmer	Auto-GC-FID	078
Total Nmoc	43102	PerkinElmer	Auto-GC-FID	078
N-Dodecane	43141	PerkinElmer	Auto-GC-FID	078
Ethane	43202	PerkinElmer	Auto-GC-FID	078
Ethylene	43203	PerkinElmer	Auto-GC-FID	078
Propane	43204	PerkinElmer	Auto-GC-FID	078
Propylene	43205	PerkinElmer	Auto-GC-FID	078
Acetylene	43206	PerkinElmer	Auto-GC-FID	078
N-Butane	43212	PerkinElmer	Auto-GC-FID	078
Isobutane	43214	PerkinElmer	Auto-GC-FID	078
Trans-2-Butene	43216	PerkinElmer	Auto-GC-FID	078
Cis-2-Butene	43217	PerkinElmer	Auto-GC-FID	078
N-Pentane	43220	PerkinElmer	Auto-GC-FID	078
Isopentane	43221	PerkinElmer	Auto-GC-FID	078
1-Pentene	43224	PerkinElmer	Auto-GC-FID	078
Trans-2-Pentene	43226	PerkinElmer	Auto-GC-FID	078
Cis-2-Pentene	43227	PerkinElmer	Auto-GC-FID	078
2-Methyl-2-Butene	43228	PerkinElmer	Auto-GC-FID	078
3-Methylpentane	43230	PerkinElmer	Auto-GC-FID	078
N-Hexane	43231	PerkinElmer	Auto-GC-FID	078
N-Heptane	43232	PerkinElmer	Auto-GC-FID	078
N-Octane	43233	PerkinElmer	Auto-GC-FID	078
4-Methyl-1-Pentene	43234	PerkinElmer	Auto-GC-FID	078
N-Nonane	43235	PerkinElmer	Auto-GC-FID	078
N-Decane	43238	PerkinElmer	Auto-GC-FID	078
Cyclopentane	43242	PerkinElmer	Auto-GC-FID	078
Isoprene	43243	PerkinElmer	Auto-GC-FID	078
2,2-Dimethylbutane	43244	PerkinElmer	Auto-GC-FID	078
1-Hexene	43245	PerkinElmer	Auto-GC-FID	078
2-Methyl-1-Pentene	43246	PerkinElmer	Auto-GC-FID	078
2,4-Dimethylpentane	43247	PerkinElmer	Auto-GC-FID	078
Cyclohexane	43248	PerkinElmer	Auto-GC-FID	078
3-Methylhexane	43249	PerkinElmer	Auto-GC-FID	078
2,2,4-Trimethylpentane	43250	PerkinElmer	Auto-GC-FID	078
2,3,4-Trimethylpentane	43000	PerkinElmer	Auto-GC-FID	078

APPENDIX D: OZONE PRECURSORS (Continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
3-Methylheptane	43102	PerkinElmer	Auto-GC-FID	078
Alpha.-Pinene	43141	PerkinElmer	Auto-GC-FID	078
Beta.-Pinene	43202	PerkinElmer	Auto-GC-FID	078
Methylcyclohexane	43203	PerkinElmer	Auto-GC-FID	078
Methylcyclopentane	43204	PerkinElmer	Auto-GC-FID	078
2-Methylhexane	43205	PerkinElmer	Auto-GC-FID	078
1-Butene	43206	PerkinElmer	Auto-GC-FID	078
3-Methyl-1-Butene	43212	PerkinElmer	Auto-GC-FID	078
Cyclopentene	43214	PerkinElmer	Auto-GC-FID	078
2,3-Dimethylbutane	43216	PerkinElmer	Auto-GC-FID	078
2-Methylpentane	43217	PerkinElmer	Auto-GC-FID	078
Trans-2-Hexene	43220	PerkinElmer	Auto-GC-FID	078
Cis-2-Hexene	43221	PerkinElmer	Auto-GC-FID	078
2,3-Dimethylpentane	43224	PerkinElmer	Auto-GC-FID	078
N-Undecane	43226	PerkinElmer	Auto-GC-FID	078
2-Methylheptane	43227	PerkinElmer	Auto-GC-FID	078
Isomers Of Ethyltoluene	43228	PerkinElmer	Auto-GC-FID	078
M/P Xylene	43230	PerkinElmer	Auto-GC-FID	078
M/P Ethyltoluene	43231	PerkinElmer	Auto-GC-FID	078
Benzene	43232	PerkinElmer	Auto-GC-FID	078
Toluene	43233	PerkinElmer	Auto-GC-FID	078
Ethylbenzene	43234	PerkinElmer	Auto-GC-FID	078
O-Xylene	43235	PerkinElmer	Auto-GC-FID	078
1,3,5-Trimethylbenzene	43238	PerkinElmer	Auto-GC-FID	078
1,2,4-Trimethylbenzene	43242	PerkinElmer	Auto-GC-FID	078
N-Propylbenzene	43243	PerkinElmer	Auto-GC-FID	078
Isopropylbenzene	43244	PerkinElmer	Auto-GC-FID	078
O-Ethyltoluene	43245	PerkinElmer	Auto-GC-FID	078
M-Ethyltoluene	43246	PerkinElmer	Auto-GC-FID	078
P-Ethyltoluene	43247	PerkinElmer	Auto-GC-FID	078
M-Diethylbenzene	45218	PerkinElmer	Auto-GC-FID	078
P-Diethylbenzene	45219	PerkinElmer	Auto-GC-FID	078
Styrene	45220	PerkinElmer	Auto-GC-FID	078
1,2,3-Trimethylbenzene	45225	PerkinElmer	Auto-GC-FID	078