Ambient Air Monitoring Network Plan 2016

This document, a description of the New Jersey Ambient Air Monitoring Network for 2016, is available for public comment. Please email comments by June 30, 2016 to bamweb@dep.nj.gov, or write to:

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NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Monitoring
www.NJAQINOW.net

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EXECUTIVE SUMMARY

New Jersey's Ambient Air Monitoring Network Plan provides a complete description of the monitoring network, and summarizes any changes made in the previous year and any planned within the next year. The New Jersey Department of Environmental Protection (NJDEP) is required to submit a Network Plan to the U.S. Environmental Protection Agency (USEPA) each year.

Here is a list of network changes that occurred from March 2015 to March 31, 2016:

1. Installed a real-time $PM_{2.5}$ sampler at Rider University;
2. Moved the real-time $PM_{2.5}$ and toxics samplers from New Brunswick to the Rutgers University site;
3. Moved the $PM_{2.5}$ sampler at the Union City monitoring site because of safety concerns to a new site at Union City High School;
4. Replaced the real-time $PM_{2.5}$ Tapered Element Oscillating Microbalance (TEOM) sampler at Flemington with a real-time $PM_{2.5}$ Beta Attenuation sampler;
5. Replaced the real-time $PM_{2.5}$ TEOM sampler at Jersey City Firehouse with a real-time $PM_{2.5}$ Beta Attenuation sampler;
6. Discontinued $PM_{2.5}$ sampling at Washington Crossing because of the establishment of a new $PM_{2.5}$ sampler at the nearby Rider University site;
7. Shut down the Ewing monitoring site ($PM_{2.5}$) because this effort is being duplicated by the new $PM_{2.5}$ sampler at the nearby Rider University site;
8. Shut down the South Camden site ($PM_{2.5}$) because this effort is being duplicated by a new $PM_{2.5}$ sampler at the nearby Camden Spruce Street site.

The following monitor start-up will be implemented for the network in the next 12 months:

1. Finish consolidation of the New Brunswick monitoring station with the Rutgers University monitoring station by moving the $PM_{2.5}$ speciation and mercury sampling.

Due to duplicated monitoring efforts the following are expected to be discontinued in the next 12 months:

1. East Orange continuous monitoring site (NO_2 & CO);
2. Mercury monitoring at the Brigantine and Chester sites.

Due to duplicated monitoring efforts and obsolete instrumentation, the following are proposed to be discontinued in the next 12 months:

1. Jersey City smoke shade;
2. Elizabeth smoke shade;
3. Elizabeth Lab smoke shade.

The reduction of effort at these sites will provide noteworthy manpower savings without compromising the capability of the network to meet current monitoring objectives. The manpower savings will also allow the Bureau to dedicate resources toward implementing urban monitoring initiatives. Starting in 2016, the Bureau will submit to the USEPA the data collected from these urban initiatives, including hourly concentrations of volatile organic compounds and black carbon measured at the Bayonne, Camden Spruce Street, Elizabeth Lab, Fort Lee Near Road and Newark Firehouse monitoring stations. Additional information may be found in the Changes to the Network section of this Plan.

REGULATORY REQUIREMENTS

The NJDEP is required by 40 CFR Part 58 to submit an Annual Monitoring Network Plan to the USEPA Region 2 Regional Administrator by July 1 of each year, and to have the Plan available for public inspection for at least 30 days prior to its submittal to the USEPA. The Plan describes 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).

This 2016 Network Plan contains all the information required by the regulations, descriptions of the air monitoring sites, large and small scale maps of the monitoring stations, a summary of the changes to the Air Monitoring Network that NJDEP expects to implement during the year, comments received following the 30-day public comment period, and the NJDEP's responses to these comments. It is available for download from the Bureau of Air Monitoring's website, www.njaqinow.net, or as a hard copy by calling 609-292-0138.

The Brigantine station located at the Edwin B. Forsythe National Wildlife Refuge in Atlantic County

THE NEW JERSEY AIR MONITORING NETWORK

USEPA-approved manual $PM_{2.5}$ sampler on the roof of the Atlantic Cape Community College building in Atlantic City

The NJDEP currently operates 35 air monitoring sites throughout the state. Table 1 lists all the current 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.

Data used for comparison to the National Ambient Air Quality Standards (NAAQS) must be measured by USEPA-approved real-time analyzers or USEPA-approved manual samplers. The real-time data is also used to generate a rating of air quality called the Air Quality Index (AQI), which is updated hourly on the Bureau of Air Monitoring's webpage.

Real-time sampling instruments automatically collect and analyze data continuously, and transmit the data to a centralized computer system once every minute. Several parameters, including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter, and meteorological parameters are measured this way.

The NJDEP also uses USEPA-approved manual particulate matter samplers for comparison to the NAAQS. Three different types of airborne particles are collected on filter over a 24-hour period: fine particles (particles smaller than 2.5 micrometers in diameter or $PM_{2.5}$); inhalable particles (particles smaller than 10 micrometers in diameter or PM_{10}); and PM_{coarse} (particles between 2.5 micrometers in diameter and 10 micrometers in diameter). After the completion of the collection period, the samples are manually retrieved and then analyzed in a laboratory.

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 ozone precursors (pollutants that affect ozone formation in the atmosphere) are part of the national Photochemical Assessment Monitoring Station (PAMS) program. Ozone precursors are frequently referred to as PAMS pollutants. Pollutants in the $PM_{2.5}$-Speciation category include trace elements, heavy metals, and carbon compounds; they are analyzed using $PM_{2.5}$ particles. Volatile Organic Compounds (VOCs) and Carbonyls refer to selected carbon-based air pollutants that are analyzed using whole air samples or adsorbent media. The $PM_{2.5}$-speciation, VOC, and carbonyl samples are collected by the NJDEP and are sent to USEPA-approved contract laboratories for analysis. NJDEP also uses a BTEX analyzer to measure near real-time benzene, toluene, ethylbenzene, m-xylene, p-xylene and o-xylene, and an aethalometer to collect near real-time black carbon particles data at several urban sites. Finally, the NJDEP also measures acid deposition, mercury, and two surrogates for particle pollution: smoke shade, and visibility as measured by a nephelometer.

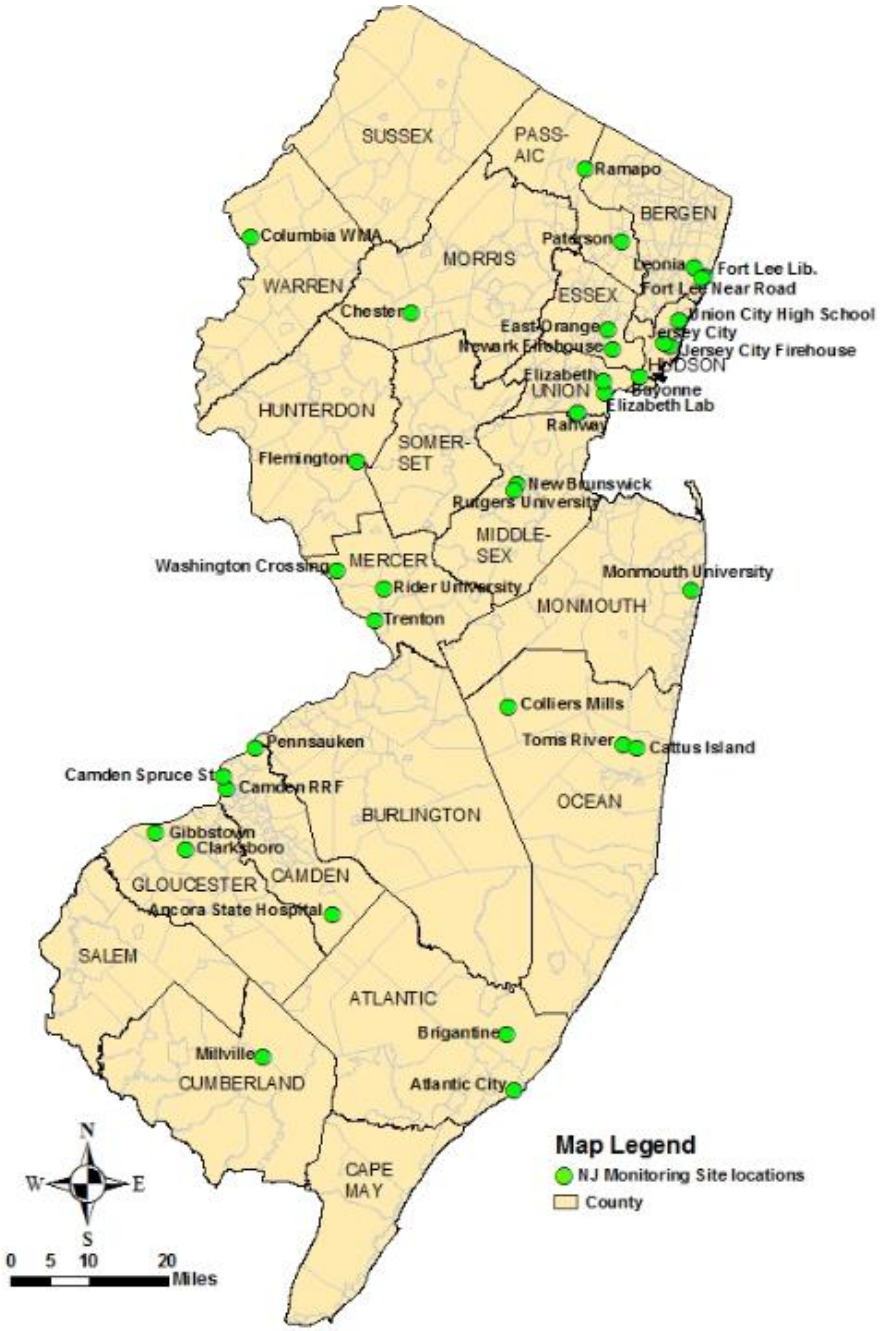
TABLE 1: SUMMARY OF CURRENT AND PROPOSED NEW JERSEY AIR MONITORING SITES

	Monitoring Parameters	CO	NO_2	NO_y	O_3	SO_2	$PM_{2.5}$	$PM_{2.5}$-Speciation	Real-Time $PM_{2.5}$	Nephelometer	PM_{10}	O_3 Precursors	Toxics	Urban Pollutants*	Acid Deposition	Mercury	Barometric Press	Relative Humidity	Solar Radiation	Temperature	Wind Direction	Wind Speed
1	Ancora State Hospital				1																	
2	Atlantic City						1															
3	Bayonne		1		1	1								1			1	1		1	1	1
4	Brigantine				1	1	1		1	1						1						
5	Camden RRF										1											
6	Camden Spruce St	1	1		1	1	1	1	1				1	1			1	1		1	1	1
7	Cattus Island														1							
8	Chester		1		1	1	1	1					1			1			1			
9	Clarksboro				1																	
10	Colliers Mills				1																	
11	Columbia WMA		1		1	1	1		1								1	1		1	1	1
12	East Orange	1	1														1	1		1	1	1
13	Elizabeth	1				1																
14	Elizabeth Lab	1	1			1	2	1	1				1	1		1	1	1		1	1	1
15	Flemington				1				1								1	1	1	1	1	1
16	Fort Lee Library						1															
17	Fort Lee Near Road	1	1						1					1			1	1		1	1	1
18	Gibbstown						1															
19	Jersey City	1	1			1																
20	Jersey City Firehouse						2		1		2											
21	Leonia				1																	
22	Millville				1				1													
23	Monmouth University				1																	
24	New Brunswick							2								1						
25	Newark Firehouse	1	1	1	1	1	1	1	1					1			1	1	1	1	1	1
26	Paterson						1															
27	Pennsauken						1															
28	Rahway						1		1													
29	Ramapo				1																	
30	Rider University				1				1								1	1	1	1	1	1
31	Rutgers University		1		1		1		1			1	1									
32	Toms River						1															
33	Trenton						1															
34	Union City High School						1															
35	Washington Crossing														1							
	CURRENT TOTAL	7	10	1	16	9	19	6	12	1	3	1	4	5	2	4	9	9	4	9	9	9

Shaded sites or parameters are to be shut down in 2016.

* Urban pollutants include black carbon and select volatile organic compounds.

FIGURE 1: MAP OF CURRENT NEW JERSEY AIR MONITORING NETWORK



CHANGES TO THE NETWORK

Table 2: Network Changes, March 2015 – March 2016

Monitoring Site	Parameter(s)	Action	Date
Ancora	Ozone	Moved from trailer to building	3/1/2016
Ewing	$PM_{2.5}$ TEOM	Discontinued	1/15/2016
Flemington	$PM_{2.5}$ TEOM	Discontinued	12/31/2015
Flemington	$PM_{2.5}$ Beta	Startup	2/19/16
Jersey City	NO_2, NO, NO_x	Startup	1/1/2016
Jersey City Firehouse	$PM_{2.5}$ TEOM	Discontinued	3/17/15
Jersey City Firehouse	$PM_{2.5}$ Beta	Startup	3/26/15
New Brunswick	$PM_{2.5}$ Beta	Relocated to Rutgers	8/6/2015
New Brunswick	$PM_{2.5}$	Relocated to Rutgers	2/15/2016
New Brunswick	Toxics	Relocated to Rutgers	12/31/2015
Rider University	$PM_{2.5}$ Beta	Startup	5/30/2015
Rutgers University	$PM_{2.5}$ Beta	Startup	8/26/2015
Rutgers University	$PM_{2.5}$	Startup	1/1/2016
Rutgers University	Toxics	Startup	1/1/2016
South Camden	$PM_{2.5}$ TEOM	Discontinued	1/14/2016
Union City	$PM_{2.5}$	Discontinued	12/31/2015
Union City High School	$PM_{2.5}$	Startup	1/1/2016
Washington Crossing	$PM_{2.5}$	Discontinued	1/14/2016

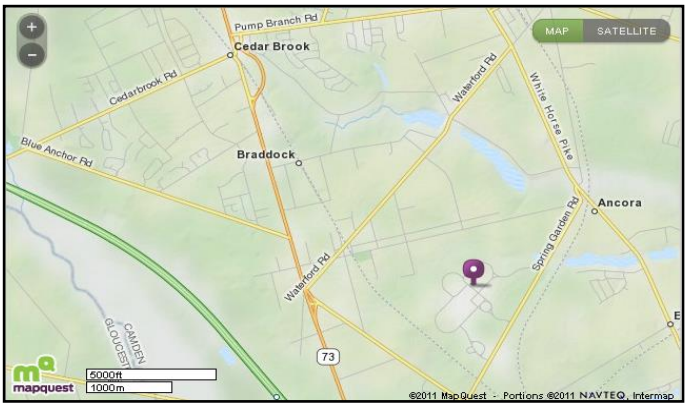
In addition, the following data not previously sent to the USEPA's Air Quality Subsystem (AQS) database will be submitted beginning in 2016:

1. BTEX and black carbon data from the Bayonne, Camden Spruce Street, Elizabeth Lab, Fort Lee Near Road, and Newark Firehouse;
2. Meteorological data (temperature, barometric pressure, relative humidity, wind speed and wind direction) from Bayonne, Camden Spruce Street, East Orange, Elizabeth Lab, and Flemington;
3. Rain data from Bayonne, Camden Spruce Street, Columbia, East Orange, Elizabeth Lab, Flemington, Fort Lee Near Road, and Newark Firehouse;
4. NO_2, NO and NO_x data from Jersey City and Millville;
5. NO_x data from Bayonne, Chester and Elizabeth Lab;
6. NO data from Bayonne and Elizabeth Lab;

NEW JERSEY AIR MONITORING SITE DESCRIPTIONS

SITE INFORMATION

Site Name	Ancora State Hospital
Address	301 Spring Garden Road, Ancora State Hospital
City, State, Zip	Hammonton, NJ 08037
AQS Code	34 007 1001
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.684250
Longtitude	-74.861491
Date Established	1/1/1966
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



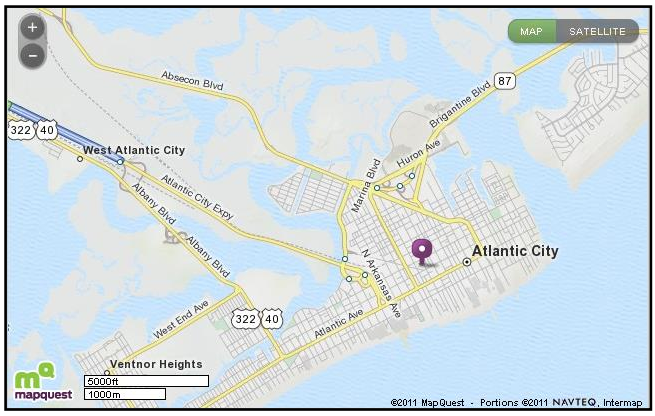
PARAMETER SUMMARY

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	Thermo 49C	Ultraviolet	047	Continuous	Urban	Population Exposure

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	O_3 monitor was moved from a trailer to a nearby building on March 1, 2016.

SITE INFORMATION

Site Name	Atlantic City
Address	1535 Bacharach Boulevard, Atlantic Cape Community College, Worthington Campus
City, State, Zip	Atlantic City, NJ 08401
AQS Code	34 001 1006
NJ County	Atlantic
MSA/CSA	Atlantic City MSA
Latitude	39.363260
Longtitude	-74.431000
Date Established	7/27/2001
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



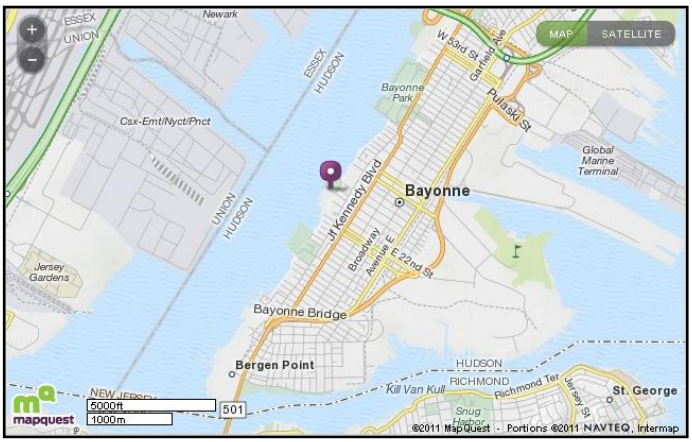
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 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	25th Street near Park Road, Veterans Park on Newark Bay
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
Longtitude	-74.126081
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



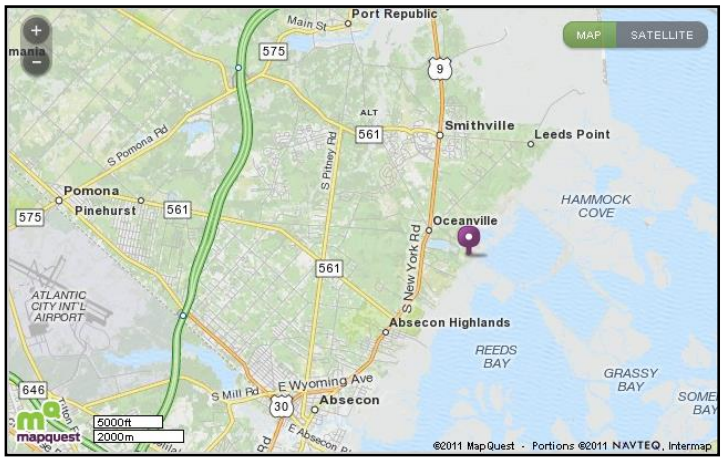
PARAMETER SUMMARY

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	Thermo 42i	Chemiluminescence	074	Continuous	Urban	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Urban	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Urban	Population Exposure
Ozone (O_3)	44201	Thermo 49i	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Thermo 43i	Pulsed fluorescence	060	Continuous	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	861	Continuous	Neighborhood	Population Exposure
BTEX	Appendix F	Syntech Spectras GC 955 BTEX analyzer	Auto GC-PID	132	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

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

SITE INFORMATION

Site Name	Brigantine
Address	800 Great Creek Road, Edwin B. Forsythe National Wildlife Refuge Visitor Center
City, State, Zip	Oceanville, NJ 08231
AQS Code	34 001 0006
NJ County	Atlantic
MSA/CSA	Atlantic City MSA
Latitude	39.464872
Longtitude	-74.448736
Date Established	1/1/2007
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



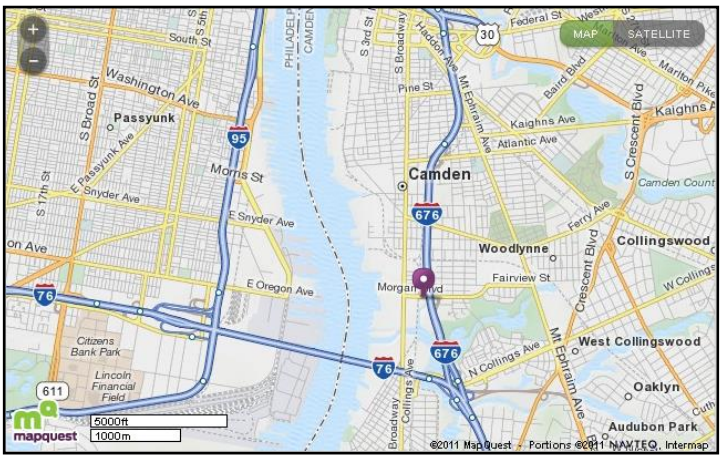
PARAMETER SUMMARY

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	Teledyne T400	Ultraviolet	087	Continuous	Urban	Background
Sulfur Dioxide (SO_2)	42401	Thermo 43iTLE	Pulsed fluorescence	560	Continuous	Urban	Background
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Urban	Background
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Urban	Background
Real-time $PM_{2.5}$	88347	Nephelometer	Light-scattering	011	Continuous	Urban	Background
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Urban	Background

Site Purpose	To measure pollutant concentrations and visibility in Class I protected areas.
Plans for the next 18 months	No changes.
Other Comment	SO_2 is measured by a "trace-level" analyzer. Also an IMPROVE station, part of NESCAUM visibility network. Real-time $PM_{2.5}$ data by nephelometer and mercury data not submitted to EPA's AQS database. The US Fish & Wildlife Service collects a weekly acid deposition sample which is sent to the National Atmospheric Deposition Program (NADP) for analysis.

SITE INFORMATION

Site Name	Camden RRF (Resource Recovery Facility)
Address	600 Morgan Street, Covanta Camden Energy Recovery Center
City, State, Zip	Camden, NJ 08104
AQS Code	34 007 0009
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.912431
Longtitude	-75.116864
Date Established	5/8/1994
Suitable for Comparison to $PM_{2.5}$ 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 (PM_{10})	81102	Thermo 2000 Low-volume single sampler	Gravimetric	126	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	

SITE INFORMATION

Site Name	Camden Spruce Street
Address	200 Block of Spruce Street
City, State, Zip	Camden, NJ
AQS Code	34 007 0002
NJ County	Camden
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.934446
Longtitude	-75.125291
Date Established	4/11/2012
Suitable for Comparison to $PM_{2.5}$ 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	Thermo 48C	Nondispersive-infrared	054	Continuous	Neighborhood	Population Exposure
Nitric Oxide (NO)	42601	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Thermo 49i	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Thermo 43iTLE	Pulsed fluorescence	060	Continuous	Neighborhood	Population Exposure
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
$PM_{2.5}$-Speciation	Appendix	Met One	XRF, IC, TOA	Appendix	Every 6 days	Neighborhood	Population Exposure
Volatile Organic Compounds	Appendix	Canister	TO-15	Appendix	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix	DNPH cartridge	TO-11A	Appendix	Every 6 days	Neighborhood	Population Exposure

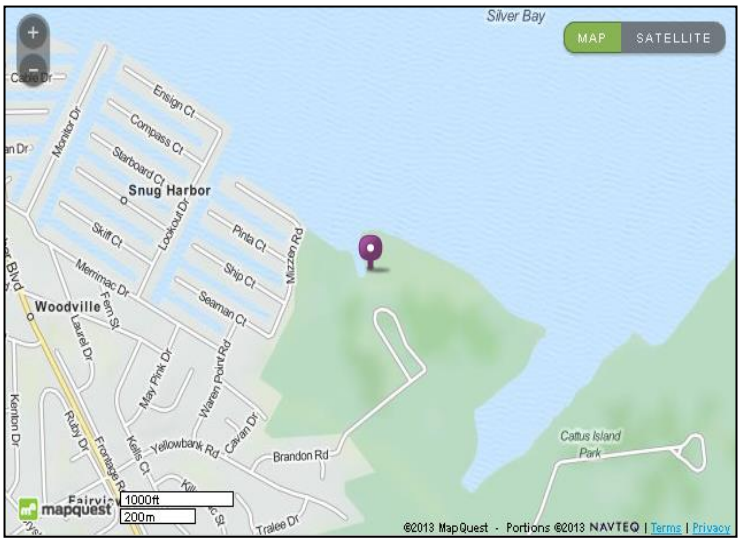
PARAMETER SUMMARY (Camden Spruce Street, continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	861	Continuous	Neighborhood	Population Exposure
BTEX	Appendix	Syntech Spectras GC 955 BTEX analyzer	Auto GC-PID	132	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

Site Purpose	Comprehensive air monitoring station in the Philadelphia-Camden metro area of southern New Jersey.
Plans for the next 18 months	Install a collocated $PM_{2.5}$ sampler.
Other Comment	

SITE INFORMATION

Site Name	Cattus Island
Address	1170 Cattus Island Blvd
Municipality	Toms River
AQS Code	None
NJ County	Ocean
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	39.9894
Longitude	-74.1344
Date Established	10/23/2012
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable



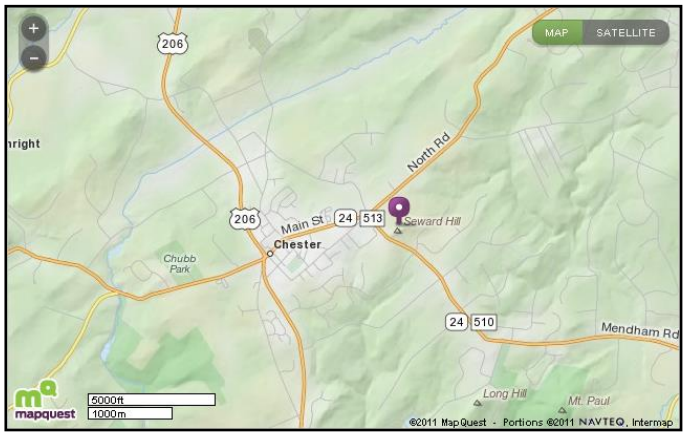
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Acid Deposition		Wet Deposition Collector	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 samples are sent to the National Atmospheric Deposition Program (NADP) for analysis. Acid deposition data are not submitted by NJDEP or NADP to EPA's AQS database.

SITE INFORMATION

Site Name	Chester
Address	50 North Road, Department of Public Works Building # 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
Longtitude	-74.676301
Date Established	1/1/1978
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



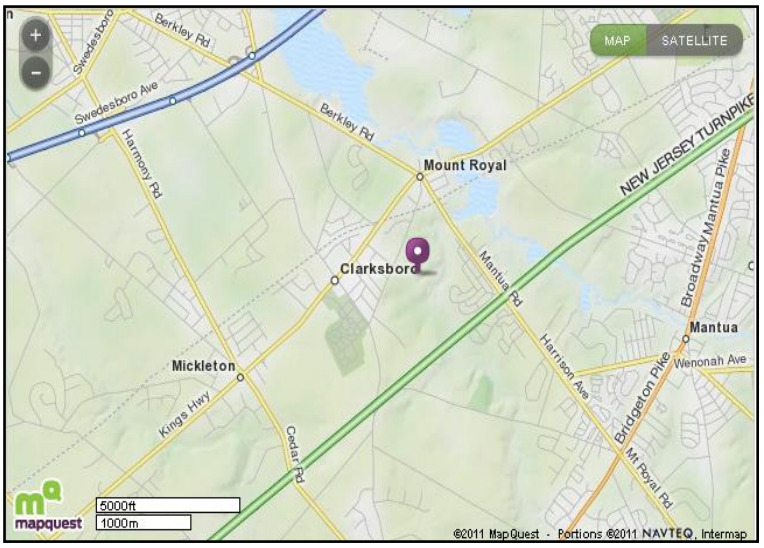
PARAMETER SUMMARY

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	Teledyne T200	Chemiluminescence	099	Continuous	Urban	Background
Nitrogen Dioxide (NO_2)	42602	Teledyne T200	Chemiluminescence	099	Continuous	Urban	Background
Oxides of Nitrogen (NO_x)	42603	Teledyne T200	Chemiluminescence	099	Continuous	Urban	Background
Ozone (O_3)	44201	Thermo 49C	Ultraviolet	047	Continuous	Urban	Background
Sulfur Dioxide (SO_2)	44201	Thermo 43A	Pulsed fluorescence	060	Continuous	Urban	Background
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Urban	Population Exposure
$PM_{2.5}$ Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 6 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	
Other Comment	Mercury data are not submitted to EPA's AQS database. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

SITE INFORMATION

Site Name	Clarksboro
Address	256 County House Road, Gloucester County Shady Lane Complex
City, State, Zip	Clarksboro, NJ 08020
AQS Code	34 015 0002
NJ County	Gloucester
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.800294
Longtitude	-75.212115
Date Established	1/1/1981
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



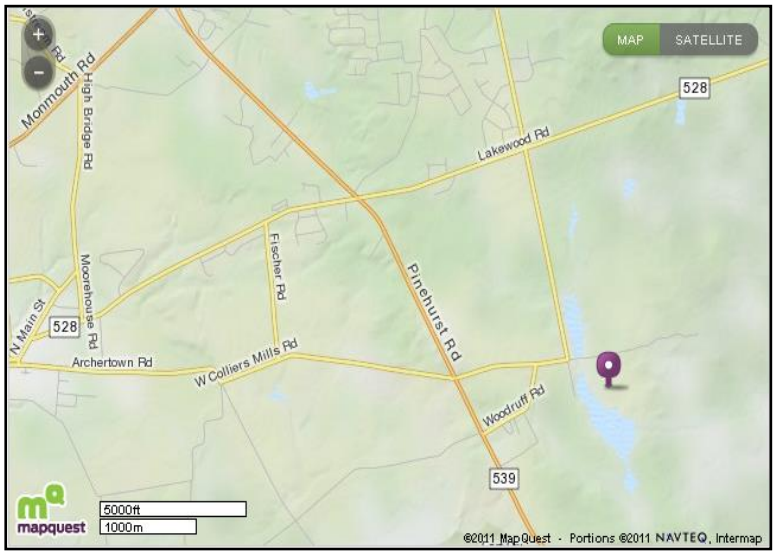
PARAMETER SUMMARY

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	Thermo 49i	Ultraviolet	047	Continuous	Urban	Highest Concentration

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	Hawkin Road and Success Road, Colliers Mills Wildlife Management Area
City, State, Zip	Jackson, NJ 08527
AQS Code	34 029 0006
NJ County	Ocean
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.064830
Longtitude	-74.444050
Date Established	1/1/1985
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



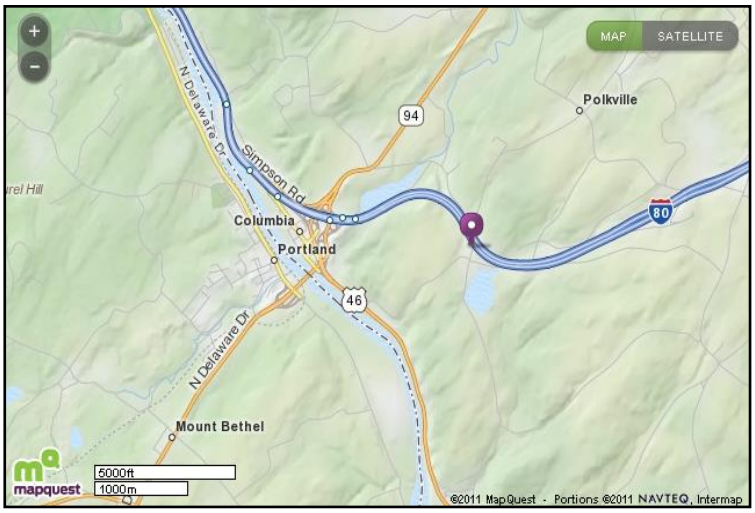
PARAMETER SUMMARY

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	Teledyne T400	Ultraviolet	087	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	Columbia WMA
Address	106 Delaware Avenue, Columbia Wildlife Management Area
City, State, Zip	Knowlton Township, NJ 07832
AQS Code	34 041 0007
NJ County	Warren
MSA/CSA	Allentown-Bethlehem-Easton-PA-NJ MSA
Latitude	40.924580
Longtitude	-75.067815
Date Established	9/23/2010
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



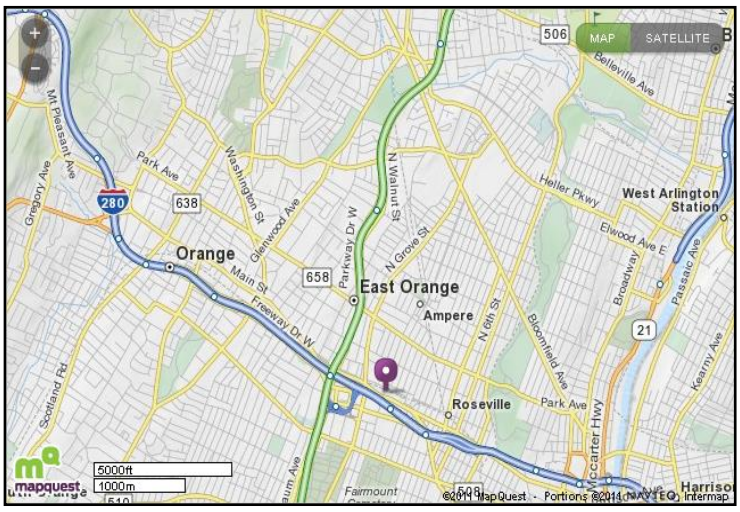
PARAMETER SUMMARY

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	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Thermo 49i	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Thermo 43iTLE	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

Site Purpose	To measure population exposure for NO_2, O_3 and $PM_{2.5}$; and highest concentrations for SO_2.
Plans for the next 18 months	No changes.
Other Comment	

SITE INFORMATION

Site Name	East Orange
Address	Main Street & Greenwood Avenue, East Orange Ambulance Squad
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
Longtitude	-74.200500
Date Established	1/1/1980
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



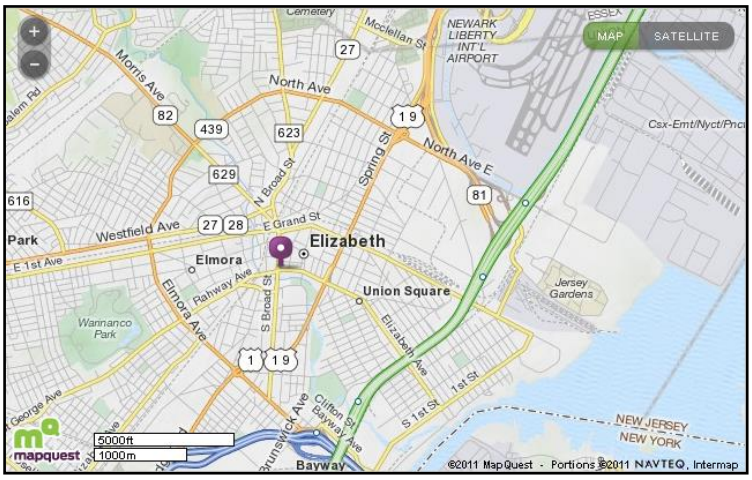
PARAMETER SUMMARY

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	Thermo 48	Nondispersive-infrared	054	Continuous	Neighborhood	Highest Concentration
Nitric Oxide (NO)	42601	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Nitrogen Dioxide (NO_2)	42602	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Oxides of Nitrogen (NO_x)	42603	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

Site Purpose	To measure population exposure in the East Orange and Newark areas.
Plans for the next 18 months	Shut down site.
Other Comment	The CO, NO, NO_x measured are near the lowest in the network as seen in individual rankings.

SITE INFORMATION

Site Name	Elizabeth
Address	7 Broad Street, Retail building
City, State, Zip	Elizabeth, NJ 07201
AQS Code	34 039 0003
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.662493
Longtitude	-74.214800
Date Established	1/1/1970
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



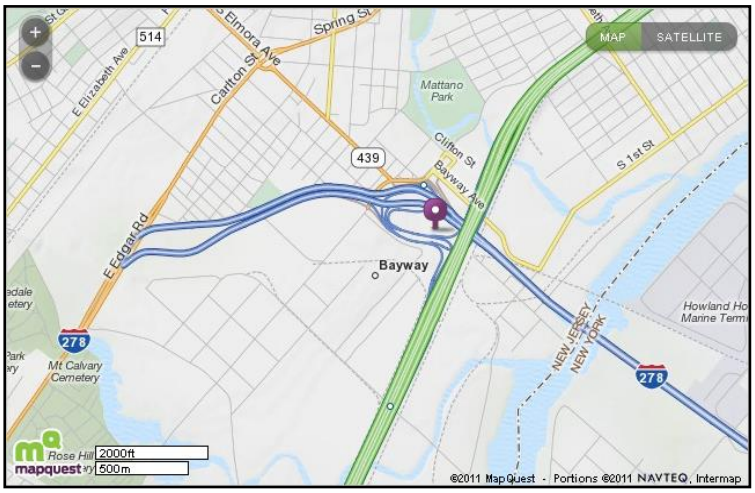
PARAMETER SUMMARY

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	Thermo 48	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Smoke Shade	11201	Wallace Fisher	Tape sampler	081	Hourly	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Thermo 43A	Pulsed fluorescence	060	Continuous	Middle	Population Exposure

Site Purpose	To measure the highest concentrations in the central commercial area of Elizabeth.
Plans for the next 18 months	Smoke shade instrument is proposed to be removed.
Other Comment	Smoke shade instrument is obsolete and no longer functional. Smoke shade data are not submitted to EPA's AQS database.

SITE INFORMATION

Site Name	Elizabeth Lab
Address	Interchange 13, NJ Turnpike
City, State, Zip	Elizabeth, NJ 07202
AQS Code	34 039 0004
NJ County	Union
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.641440
Longtitude	-74.208365
Date Established	1/1/1972
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



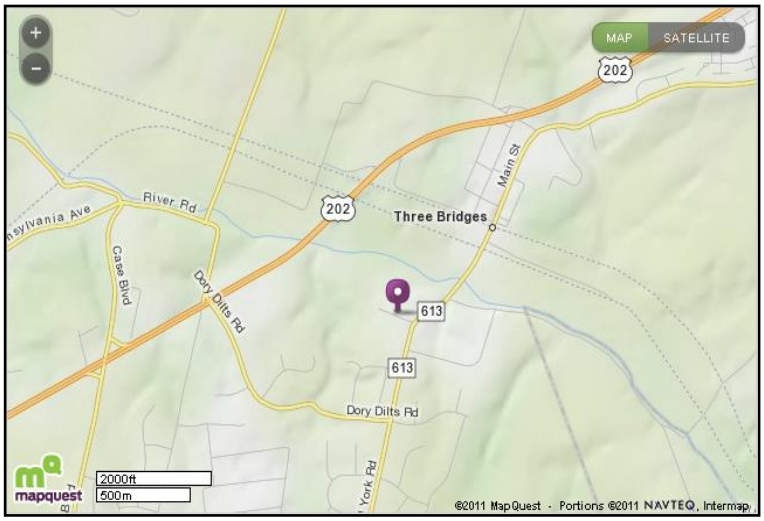
PARAMETER SUMMARY

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	Thermo 48	Nondispersive-infrared	054	Continuous	Neighborhood	Highest Concentration
Nitric Oxide (NO)	42601	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Highest Concentration
Sulfur Dioxide (SO_2)	42401	Thermo 43A	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Smoke Shade	11201	Wallace Fisher	Tape sampler	081	Hourly	Neighborhood	Population Exposure
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Daily	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
$PM_{2.5}$ Speciation	Appen-dix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Highest Concentration
Volatile Organic Compounds	Appen-dix B	Canister	TO-15	App. B	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appen-dix C	DNPH cartridge	TO-11A	App. C	Every 6 days	Neighborhood	Population Exposure
Mercury (Hg)		Tekran 2537A	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	861	Continuous	Neighborhood	Population Exposure
BTEX	Appen-dix E	Syntech Spectras GC 955 BTEX analyzer	Auto-GC PID	132	Continuous	Neighborhood	Population Exposure
Wind Direction	61102	Qualimetrics	Wind vane	020	Continuous	Neighborhood	
Wind Speed	61101	Qualimetrics	Anemometer	020	Continuous	Neighborhood	

Site Purpose	The comprehensive air monitoring site in the northeast metropolitan region of New Jersey.
Plans for the next 18 months	Smoke shade instrument is obsolete and is proposed to be removed.
Other Comment	$PM_{2.5}$ gravimetric sampler is collocated for precision. Smoke shade data are not submitted to EPA's AQS database.

SITE INFORMATION

Site Name	Flemington
Address	365 Old York Road, Raritan Township Municipal Utilities Authority
City, State, Zip	Flemington, NJ 08822
AQS Code	34 019 0001
NJ County	Hunterdon
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.515262
Longtitude	-74.806671
Date Established	1/1/1980
Suitable for Comparison to $PM_{2.5}$ 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 $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Solar Radiation	63301	Qualimetrics	Pyrometer	011	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	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	Trailer replaced during the period 12/30/15-1/7/16. Replaced real-time $PM_{2.5}$ TEOM sampler with real-time $PM_{2.5}$ Beta Attenuation sampler (2/19/16).

SITE INFORMATION

Site Name	Fort Lee Library
Address	320 Main Street, Fort Lee Public Library
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
Longtitude	-73.973314
Date Established	1/23/1986
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

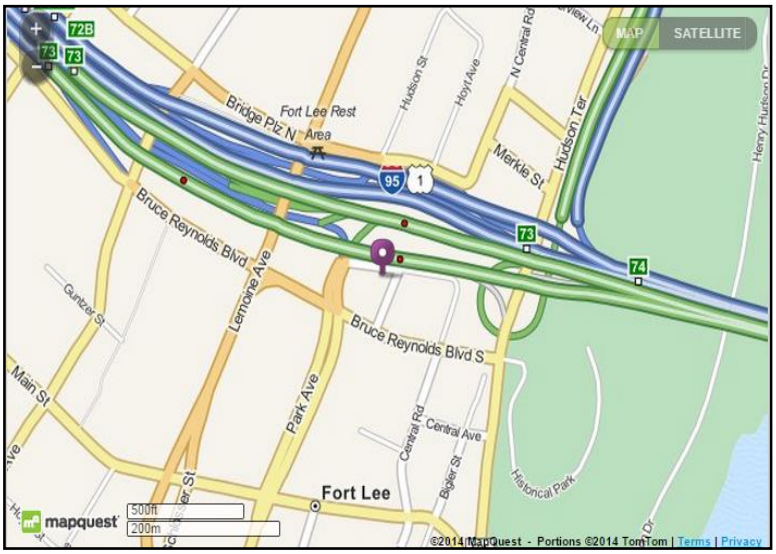
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	Fort Lee Near Road
Address	2047 Central Avenue, adjacent to George Washington Bridge Toll Plaza
City, State, Zip	Fort Lee, NJ 07024
AQS Code	34 003 0010
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.853579
Longtitude	-73.966212
Date Established	4/1/2014
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



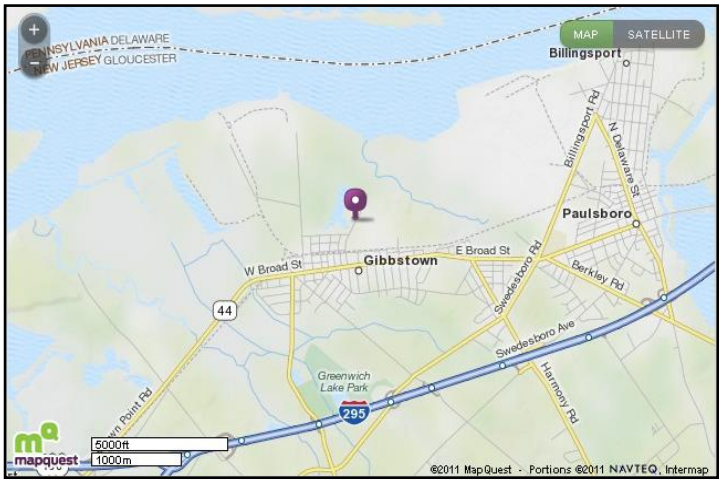
PARAMETER SUMMARY

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	Thermo 42i	Chemiluminescence	074	Continuous	Microscale	Near-Road Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Microscale	Near-Road Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Microscale	Near-Road Exposure
Carbon Monoxide (CO)	42101	Thermo 48i	Nondispersive infrared	054	Continuous	Microscale	Near-Road Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Microscale	Near-Road Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	861	Continuous	Neighborhood	Population Exposure
BTEX	Appendix	Syntech Spectras GC 955 BTEX analyzer	Auto-GC PID	132	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Temperature	62101	Vaisala WXT	Capacitive sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

Site Purpose	To measure near-road exposure for NO_2, CO and $PM_{2.5}$.
Plans for the next 18 months	No changes.
Other Comment	

SITE INFORMATION

Site Name	Gibbstown
Address	61 North School Street, Greenwich Township Sewer Treatment Plant
City, State, Zip	Gibbstown, NJ 08027
AQS Code	34 015 0004
NJ County	Gloucester
MSA/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.830837
Longtitude	-75.284682
Date Established	2/2/2007
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



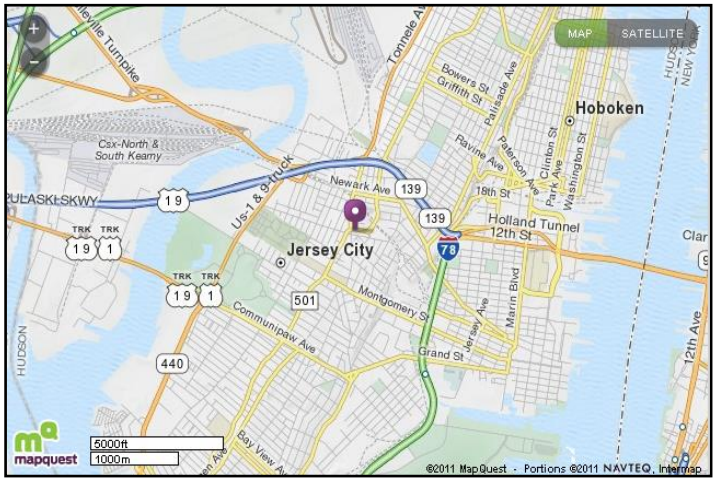
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	Jersey City
Address	2828 John F. Kennedy Boulevard West, Retail Building
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	40.731645
Longtitude	-74.066308
Date Established	1/1/1970
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



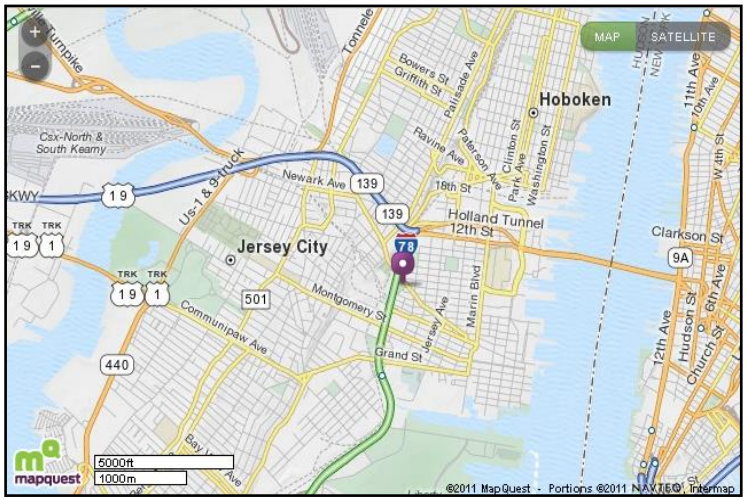
PARAMETER SUMMARY

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	Thermo 48*i*TLE	Nondispersive-infrared	054	Continuous	Micro	Highest Concentration
Smoke Shade	11201	Wallace Fisher	Tape sampler	081	Hourly	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Teledyne T100	Pulsed fluorescence	100	Continuous	Neighborhood	Highest Concentration
Nitric Oxide (NO)	42601	Teledyne T200	Chemiluminescence	099	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Teledyne T200	Chemiluminescence	099	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Teledyne T200	Chemiluminescence	099	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure highest concentrations in the central commercial area of Jersey City.
Plans for the next 18 months	Smoke shade instrument is proposed to be removed.
Other Comment	Smoke shade instrument is obsolete and no longer functional. Smoke shade data are not submitted to EPA's AQS database.

SITE INFORMATION

Site Name	Jersey City Firehouse
Address	355 Newark Avenue, Jersey City Fire Department Engine 6
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
Longtitude	-74.052290
Date Established	1/1/1967
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



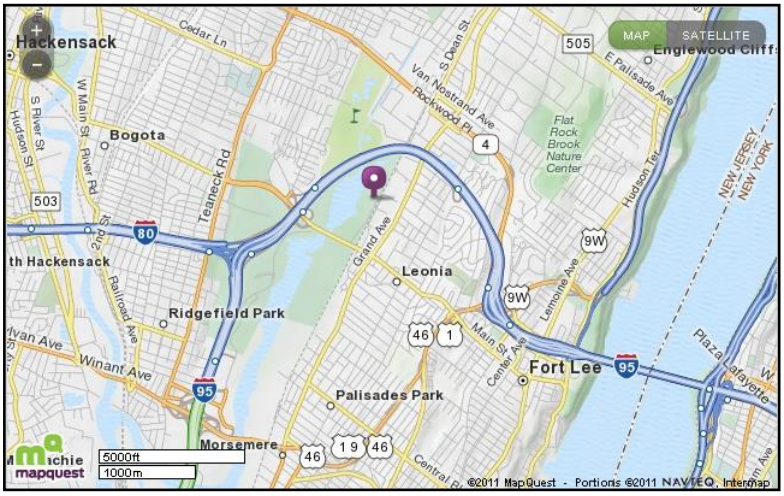
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Daily	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
Inhalable Particles (PM_{10})	81102	Thermo 2000 Low-volume single sampler	Gravimetric	126	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	Replaced real-time $PM_{2.5}$ TEOM sampler with real-time $PM_{2.5}$ Beta Attenuation sampler in March 2015. Gravimetric $PM_{2.5}$ and PM_{10} are collocated for precision measurements..

SITE INFORMATION

Site Name	Leonia
Address	40 Fort Lee Road, Overpeck Park
City, State, Zip	Leonia, NJ, 07605
AQS Code	34 003 0006
NJ County	Bergen
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.870436
Longtitude	-73.991994
Date Established	12/7/2007
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



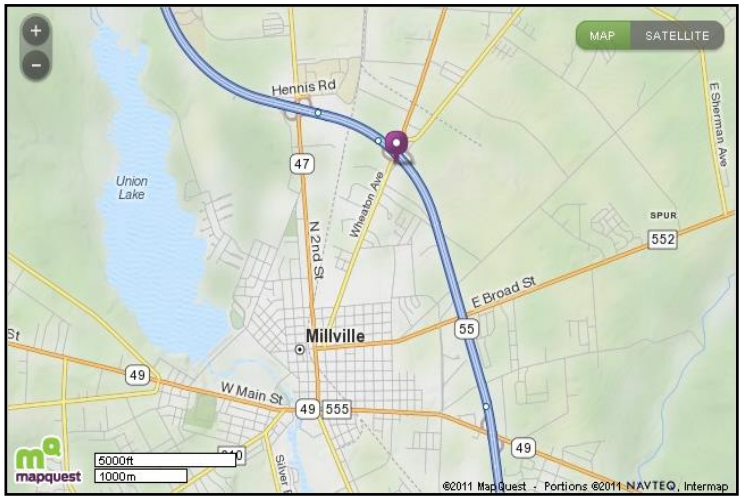
PARAMETER SUMMARY

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	Thermo 49C	Ultraviolet	047	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	Main Road (CR 555) & Route 55, adjacent to Interchange 26 on-ramp
City, State, Zip	Millville, NJ 08332
AQS Code	34 011 0007
NJ County	Cumberland
MSA/CSA	Vineland-Millville-Bridgeton MSA
Latitude	39.422273
Longtitude	-75.025204
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



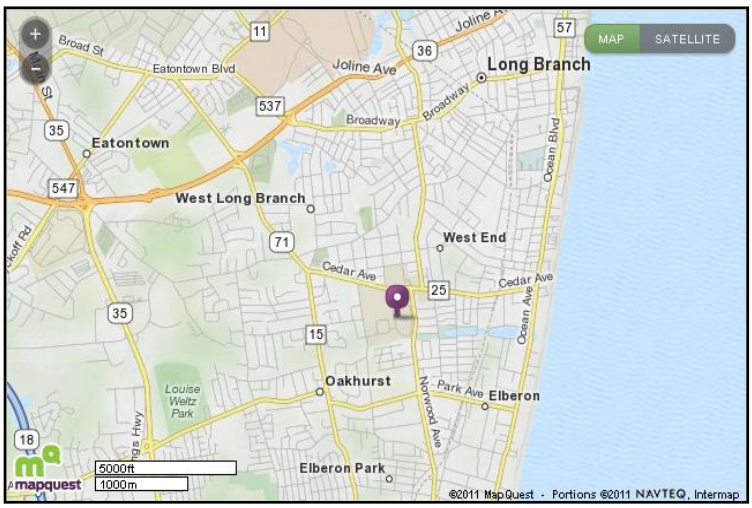
PARAMETER SUMMARY

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	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Thermo 49C	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	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_2, NO and NO_x data will be sent to EPA's AQS database beginning July 2016.

SITE INFORMATION

Site Name	Monmouth University
Address	400 Cedar Avenue, Howard Hall, Building 24
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	40.277647
Longtitude	-74.005100
Date Established	5/13/1989
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



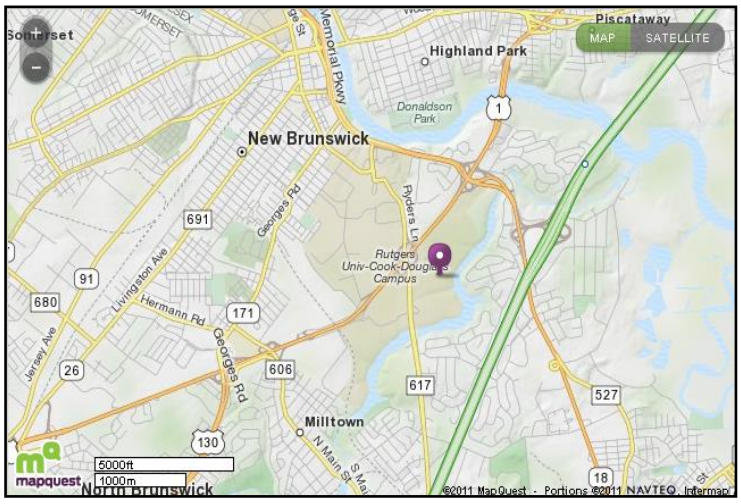
PARAMETER SUMMARY

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	Thermo 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	New Brunswick
Address	Log Cabin Road, Cook College 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	40.472785
Longtitude	-74.422403
Date Established	1/1/1981
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



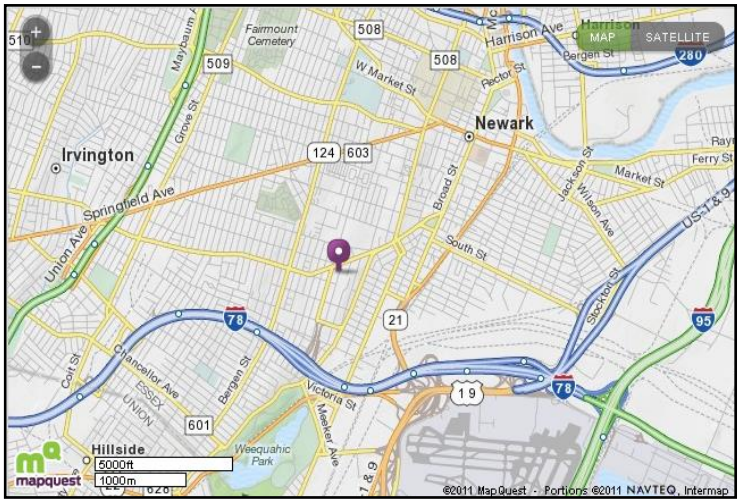
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
$PM_{2.5}$ Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 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	Shut down site and relocate all samplers to Rutgers University. Speciation sampler move to Rutgers awaiting OAQPS approval.
Other Comment	$PM_{2.5}$ Speciation is collocated for precision. See Appendix C for more information on $PM_{2.5}$ speciation. Mercury data not submitted to EPA's AQS database.

SITE INFORMATION

Site Name	Newark Firehouse
Address	360 Clinton Avenue, Newark Fire Department Engine 10
City, State, Zip	Newark, NJ 07108
AQS Code	34 013 0003
NJ County	Essex
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.720989
Longtitude	-74.192892
Date Established	5/1/2009
Suitable for Comparison to $PM_{2.5}$ 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	Thermo 48iTLE	Nondispersive-infrared	554	Continuous	Neighborhood	Population Exposure
Nitric Oxide (NO)	42601	Thermo 42*i*-Y	Chemiluminescence	574	Continuous	Neighborhood	Population Exposure
NO_y-NO Difference	42612	Thermo 42*i*-Y	Chemiluminescence	574	Continuous	Neighborhood	Population Exposure
Total Reactive Oxides of Nitrogen (NO_y)	42600	Thermo 42*i*-Y	Chemiluminescence	574	Continuous	Neighborhood	Population Exposure
Nitric Oxide (NO)	42601	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Thermo 49i	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Sulfur Dioxide (SO_2)	42401	Thermo 43iTLE	Pulsed fluorescence	560	Continuous	Neighborhood	Highest Concentration
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Neighborhood	Population Exposure
Lead (Pb)	85129	Thermo 2025 Low-volume sequential sampler	XRF with PM_{10}	811	Every 6 days	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
PM coarse	86101	Thermo 2025 Sequential Sampler	Paired Gravimetric Difference	176	Every 3 days	Neighborhood	Population Exposure
$PM_{2.5}$ Speciation	Appendix A	Met One	XRF, IC, TOA	App. A	Every 3 days	Neighborhood	Population Exposure

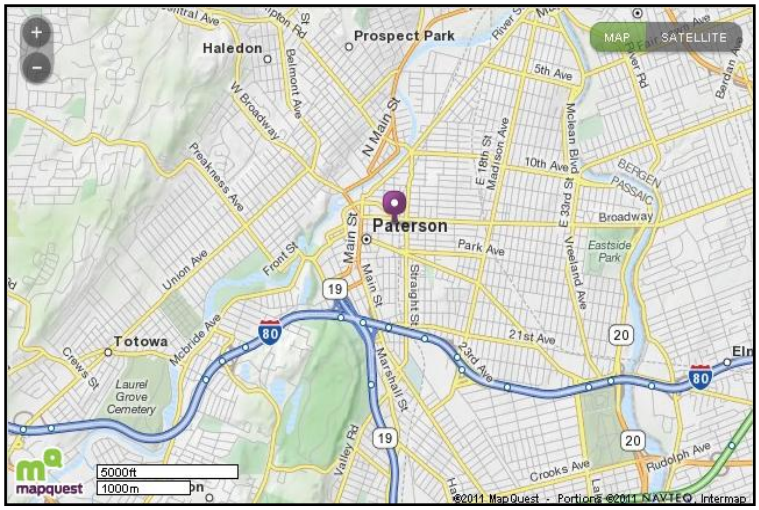
PARAMETER SUMMARY (Newark Firehouse, continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
BTEX	Appendix	Syntech Spectras BTEX analyzer GC 955	Auto-GC PID	132	Continuous	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	861	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Qualimetrics	Pressure Transducer	011	Continuous	Neighborhood	
Relative Humidity	62201	Qualimetrics	Capacitive sensor	011	Continuous	Neighborhood	
Solar Radiation	63301	Qualimetrics	Pyrometer	011	Continuous	Neighborhood	
Temperature	62101	Qualimetrics	Thermistor	020	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Resultant Wind Direction	61104	Qualimetrics	Wind vane	020	Continuous	Neighborhood	
Resultant Wind Speed	61103	Qualimetrics	Anemometer	020	Continuous	Neighborhood	

Site Purpose	New Jersey's NCore site
Plans for the next 18 months	No changes.
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	176 Broadway Avenue, Paterson City Board of Health
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
Longtitude	-74.168092
Date Established	1/1/1978
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



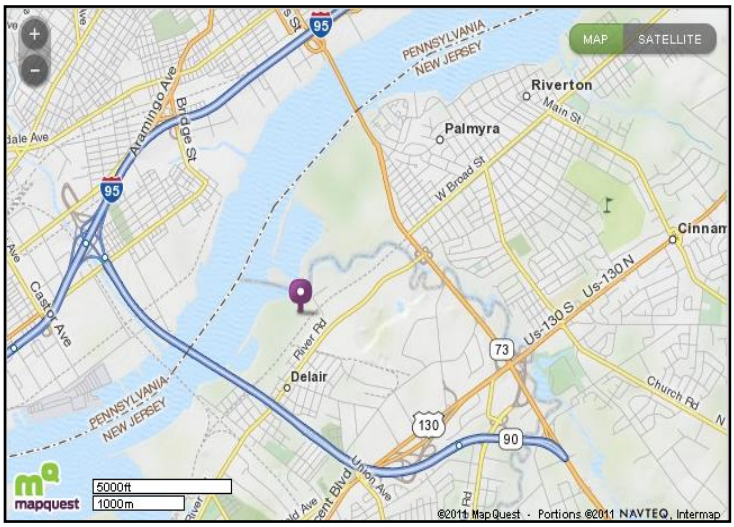
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	8998 Zimmerman Avenue, 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
Longtitude	-75.050008
Date Established	9/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



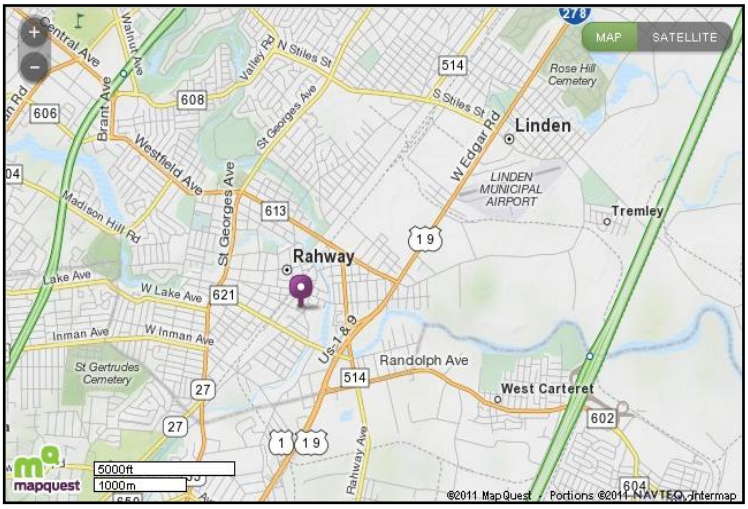
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	Rahway
Address	1300 Main Street, Rahway Fire Department Headquarters
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
Longtitude	-74.276174
Date Established	12/11/1999
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



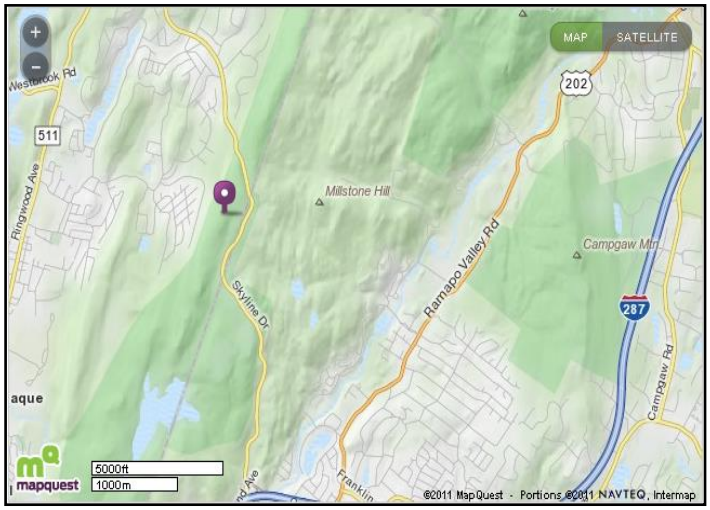
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Daily	Neighborhood	Population Exposure
Real-time $PM_{2.5}$	88502	Thermo 1400 TEOM	Gravimetric, Acceptable $PM_{2.5}$	711	Continuous	Neighborhood	Population Exposure

Site Purpose	To measure population exposure in the Rahway area.
Plans for the next 18 months	No changes.
Other Comment	Real-time $PM_{2.5}$ TEOM sampler is operating without the FDMS at 50° Celsius.

SITE INFORMATION

Site Name	Ramapo
Address	Skyline Drive, Ramapo Mountain State Forest Access Road, 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	41.058617
Longtitude	-74.255544
Date Established	6/5/1998
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



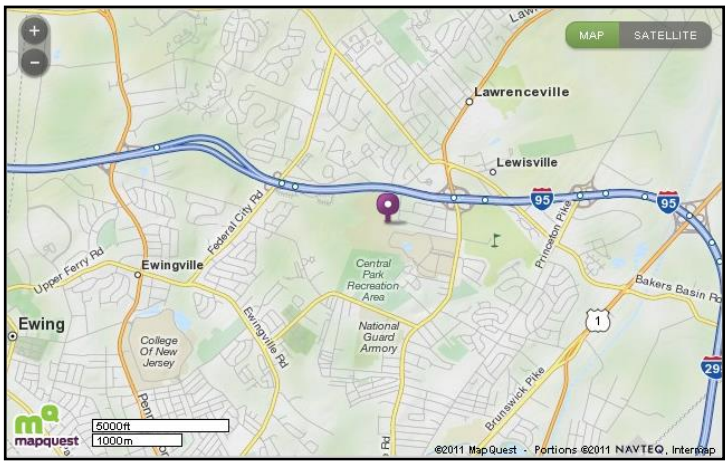
PARAMETER SUMMARY

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	Thermo 49i	Ultraviolet	047	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	2083 Lawrenceville Road, Athletic Fields
City, State, Zip	Lawrenceville, NJ 08648
AQS Code	34 021 0005
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.283106
Longtitude	-74.742588
Date Established	6/1/1981
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



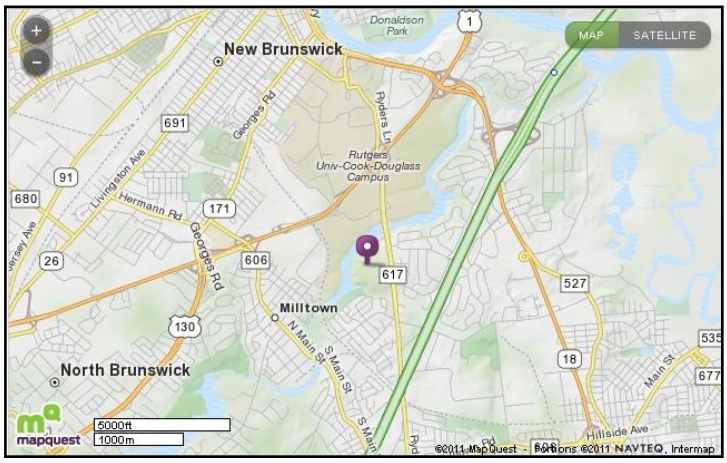
PARAMETER SUMMARY

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	Thermo 49C	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Barometric Pressure	64101	Qualimetrics	Instrumental aneroid	011	Continuous	Neighborhood	
Relative Humidity	62201	Qualimetrics	Hydrothermograph	013	Continuous	Neighborhood	
Solar Radiation	63301	Qualimetrics	Pyrometer	011	Continuous	Neighborhood	
Temperature	62101	Qualimetrics	Thermistor, spot rdg.	020	Continuous	Neighborhood	
Wind Direction	61102	Qualimetrics	Wind vane, spot rdg.	020	Continuous	Neighborhood	
Wind Speed	61101	Qualimetrics	Anemometer, spot rdg.	020	Continuous	Neighborhood	
Real-time PM2.5	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure

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

SITE INFORMATION

Site Name	Rutgers University
Address	Ryders Lane, Horticultural Farm #3
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
Longtitude	-74.429439
Date Established	10/1/1994
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



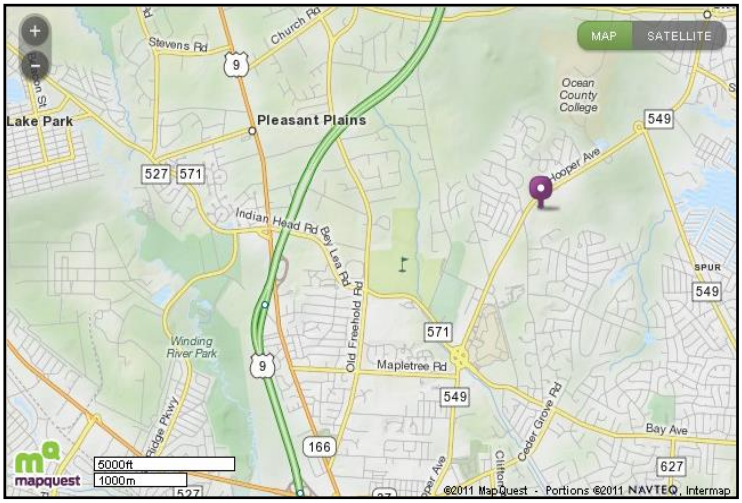
PARAMETER SUMMARY

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	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Nitrogen Dioxide (NO_2)	42602	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Oxides of Nitrogen (NO_x)	42603	Thermo 42	Chemiluminescence	074	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Teledyne T400	Ultraviolet	087	Continuous	Neighborhood	Population Exposure
Ozone Precursors (PAMS)	Appendix D	Perkin Elmer	Auto GC-FID	App. D	Hourly	Urban	Background
Real-time PM2.5	88101	Thermo 5014i	Beta Particle attenuation	183	Continuous	Neighborhood	Population Exposure
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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

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	Move speciation and mercury from New Brunswick site
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. See Appendices A and B for more information on volatile organic compounds and carbonyls.

SITE INFORMATION

Site Name	Toms River
Address	1517 Hooper Avenue, Hooper Avenue Elementary School
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
Longtitude	-74.170447
Date Established	2/11/1999
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



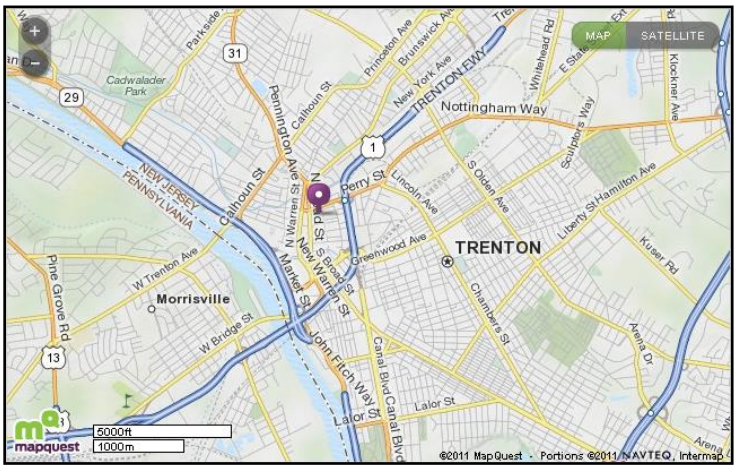
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	

SITE INFORMATION

Site Name	Trenton
Address	120 Academy Street, Trenton Public Library
City, State, Zip	Trenton, NJ 08608
AQS Code	34 021 0008
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.222411
Longtitude	-74.763167
Date Established	9/1/1982
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



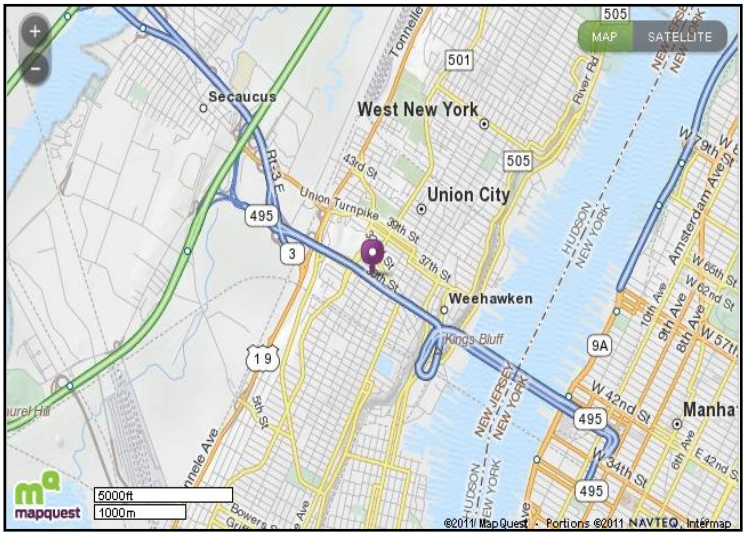
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Daily	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	

SITE INFORMATION

Site Name	Union City
Address	714 31st Street, North Hudson Community Action Corporation Health Center
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
Longtitude	-74.031718
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



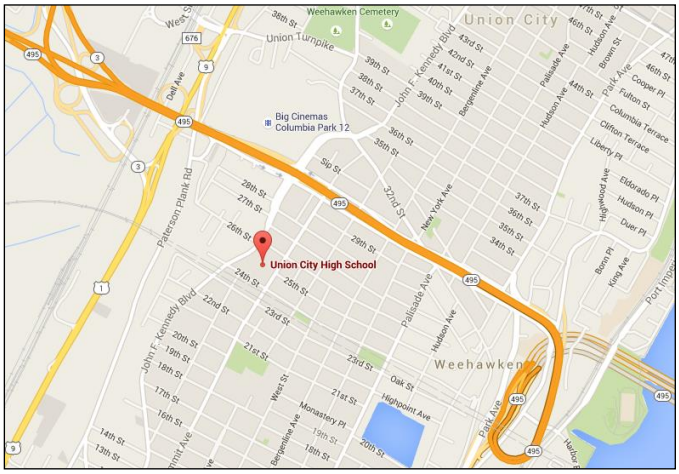
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	
Other Comment	Shut down 12/31/2015 because of safety concerns. Sampler moved to new Union City High School site.

SITE INFORMATION

Site Name	Union City High School
Address	2500 John F. Kennedy Blvd.
City, State, Zip	Union City, NJ 07087
AQS Code	34 017 0008
NJ County	Hudson
MSA/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.770908
Longtitude	-74.036218
Date Established	1/1/2016
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



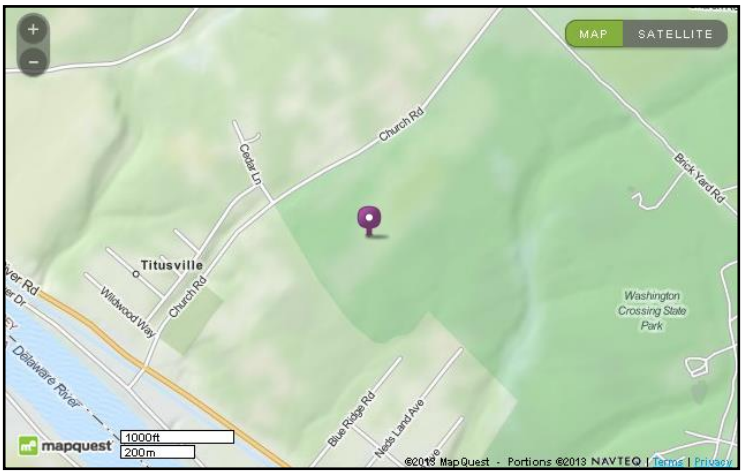
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	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	This site was established to replace the Union City station, which was discontinued 12/31/15.

SITE INFORMATION

Site Name	Washington Crossing
Address	Church Road, Washington Crossing State Park
City, State, Zip	Titusville, NJ 08560
AQS Code	34 021 8001
NJ County	Mercer
MSA/CSA	Trenton-Ewing MSA
Latitude	40.312390
Longtitude	-74.872660
Date Established	1/1/1989
Suitable for Comparison to $PM_{2.5}$ 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
Acid Deposition		Wet Deposition Collector	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	The weekly acid deposition samples are sent to the National Atmospheric Deposition Program (NADP) for analysis. The event acid deposition samples are analyzed by the Bureau of Air Monitoring. The weekly and event acid deposition data are not submitted by NJDEP or NADP 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
CBSA – Core-Based Statistical Area
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
DVMT – Daily Vehicle Miles Traveled
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 USEPA
NJDEP – New Jersey Department of Environmental Protection
NNEM – Nonroad Emissions Equipment Model
NO – Nitric oxide
NO_2 – Nitrogen dioxide
NO_x – Oxides of nitrogen
NO_y – Total reactive oxides of nitrogen
O_3 – Ozone
PAMS – Photochemical Assessment Monitoring Station, sites which measure ozone precursors
Pb – Lead
$PM_{2.5}$ – Fine particles, 2.5 micrometers in aerodynamic diameter or smaller
PM_{10} – Inhalable particles, 10 micrometer in aerodynamic diameter or smaller
$PM_{10-2.5}$ – Coarse 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
PWEI – Population-weighted emissions index
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 site or sampler from which data can be used for comparison to the National Ambient Air Quality Standards
SO_2 – Sulfur dioxide
SPM – Special Purpose Monitor; designation for monitoring site or sampler from which data 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 $PM_{2.5}$
THERMO 42 – the instrument manufactured by Thermo Environmental Corp. to measure nitrogen dioxide, nitric oxide and oxides of nitrogen
THERMO 43A – the instrument manufactured by Thermo Environmental Corp. to measure sulfur dioxide
THERMO 48 – the instrument manufactured by Thermo Environmental Corp. to measure carbon monoxide

THERMO 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 USEPA to analyze carbonyls
TO-15 – a standard method approved by 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 by which 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 TSP
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, NO_2 and NO_x
Coarse particles – also $PM_{10\text{-}2.5}$; particles between 10 and 2.5 micrometers in aerodynamic diameter
Collocated – two samplers operating 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
Design value - a statistic that describes the air quality status of a given location relative to the level of the NAAQS
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 PM_{10}; 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 1-10 km around the monitor
Nephelometer – an instrument that measures fine particles through 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 100-1000 km around the monitor
SierraAnderson – the manufacturer of PM_{10} 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 10-100 km around the monitor
Wallace Fisher – the manufacturer of smoke shade analyzers

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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
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

APPENDIX A: VOLATILE ORGANIC COMPOUNDS (Continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
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: SPECIATED FINE PARTICLES

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
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
PyrolC	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

APPENDIX C: SPECIATED FINE PARTICLES (Continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
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
c-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

APPENDIX E: BTEX COMPOUNDS

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
Benzene	45201	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	132
Toluene	45202	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	132
Ethylbenzene	45203	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	132
m,p-Xylene	45109	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	132
o-Xylene	45204	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	132