Ambient Air Monitoring Network Plan 2019

This document, a description of the New Jersey Ambient Air Monitoring Network for 2019, is available for public comment. Please email comments by **June 24, 2019,** 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 air monitoring network operated by the Bureau of Air Monitoring (BAM), and summarizes any changes made in the previous year and those planned for 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. The purpose of the air monitoring program is to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for specific pollutants.

Here is a list of monitoring network changes that occurred from March 2018 to March 31, 2019:

1. Installed a new volatile organic carbon (VOC) monitor (Agilent-Markes auto GC-FID, gas chromatography with flame ionization detector) at the Rutgers University Photochemical Assessment Monitoring Station (PAMS) site.
2. Installed a Teledyne-API Model T500U CAPS nitrogen dioxide (NO_2) analyzer to measure true NO_2 at the Rutgers PAMS site, and removed the Thermo 42i NO_2/NO/NO_x analyzer.
3. Installed a Thermo 42i-Y analyzer to measure NO_y, NO and NO_y-NO difference at the Rutgers site.
4. Installed a ceilometer to measure mixing height at the Rutgers PAMS site.
5. Replaced the $PM_{2.5}$ non-Federal Reference Method (FRM) Tapered Element Oscillating Microbalance (TEOM) continuous monitor with a Federal Equivalent Method (FEM) continuous monitor at Rahway, and removed the filter-based FRM $PM_{2.5}$ monitor.

These changes are summarized in Table 1.

TABLE 1. Air Monitoring Network Changes, March 2018 – March 2019

Monitoring Site	Parameter(s)	Action	Date
Rutgers University	PAMS VOCs	Started up upgraded GC-FID	6/1/18
Rutgers University	True NO_2	Started up	3/27/19
Rutgers University	NO_2, NO, NO_x	Discontinued	3/20/19
Rutgers University	NO_y, NO, NO_y-NO difference	Started up	3/27/19
Rutgers University	Mixing height	Started up	4/13/18
Rahway	$PM_{2.5}$ TEOM	Discontinued	8/9/18
Rahway	$PM_{2.5}$ Beta	Started up	8/9/18
Rahway	$PM_{2.5}$ filter-based sampler	Discontinued	3/31/19

NOTE
$PM_{2.5}$ TEOM - Tapered Element Oscillating Microbalance sampling method
$PM_{2.5}$ Beta – beta particle attenuation sampling method

Proposed Changes

1. Implement the following at the Rutgers University PAMS site by June 1, 2019:
   - Install an ATEC 8000 sampler to take three 8-hour-averaged carbonyl samples per day on a 1-in-3-day schedule, with subsequent TO-11A-method analysis by ERG.

   This was proposed in the 2018 Network Plan and approved by USEPA Region 2.

2. Move the PM_{10} monitor from the Camden Resource Recovery Facility (RRF) site to the Camden Spruce Street site, in order to consolidate BAM operations in Camden, and to shut down the RRF site, which is unsecured. PM_{10} concentrations at Camden RRF, which have been higher than the other New Jersey sites in recent years, have gone back down since nearby road construction was completed. PM_{10} would be added to the suite of monitors at Camden Spruce Street, which currently measures $PM_{2.5}$ with both a continuous and filter-based monitor, as well as many other pollutants.

3. Shut down the $PM_{2.5}$ filter-based FRM monitor at the Fort Lee Library. The continuous $PM_{2.5}$ FEM monitor at Fort Lee Near Road is only about 2025 feet away (0.38 miles). Although the $PM_{2.5}$ monitor at Fort Lee Near Road is not an FRM monitor, USEPA approves of using FEM monitors to demonstrate compliance with the NAAQS. Also, unlike the filter-based monitor, the FEM continuous monitor provides real-time hourly data that is displayed on the NJDEP air monitoring website. The Fort Lee Library monitor, which is on a roof with an unprotected edge, requires weekly manual filter setup and retrieval.

4. Replace the $PM_{2.5}$ filter-based FRM monitor at Toms River, which runs daily, with a continuous $PM_{2.5}$ FEM monitor.

REGULATORY REQUIREMENTS

NJDEP is required by 40 CFR Part 58 to submit an Ambient Air 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 New Jersey's State and Local Air Monitoring Stations (SLAMS), National Core (NCore) stations, Chemical Speciation Network (CSN) stations, Urban Air Toxics Monitoring Program (UATMP) stations, Special Purpose Monitor (SPM) stations, and Photochemical Assessment Monitoring Stations (PAMS).

This 2019 Network Plan contains information required by the regulations; descriptions of the air monitoring sites; large- and small-scale maps of the monitoring station locations; 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 NJDEP's responses to the comments. It is available for download from the Bureau of Air Monitoring website, www.njaqinow.net, or as a hard copy by calling 609-292-0138.

THE NEW JERSEY AIR MONITORING NETWORK

NJDEP currently operates 32 air monitoring stations throughout the state. Table 2 lists all the monitoring sites, along with the pollutants, pollutant categories, or meteorological parameters that are measured at each site. Figure 1 shows the locations of the monitoring stations 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 webpage.

Real-time sampling instruments 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), fine particulate matter ($PM_{2.5}$), and meteorological data are measured this way.

NJDEP also uses USEPA-approved manual particulate samplers for comparison to the PM NAAQS. Three types of airborne particles can be collected on a filter over a 24-hour period: fine particulate (particles smaller than 2.5 micrometers in diameter, or "$PM_{2.5}$"); inhalable particulate (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). At the end of the 24-hour collection period, the samples are manually retrieved and sent to NJDEP's laboratory for gravimetric analysis.

NJDEP monitors other pollutants, some of which are grouped together into categories by their method of sampling or analysis. These categories are listed in the headings of Table 2. "Toxics" monitoring is part of the USEPA's Urban Air Toxics Monitoring Program (UATMP), in which certain volatile organic compounds (VOCs) and carbonyls are analyzed using whole air samples or adsorbent media (see Appendices A and B). Pollutants in the "$PM_{2.5}$ Speciation" category include trace elements, heavy metals, and carbon compounds (see Appendix C); they are analyzed through the Chemical Speciation Network (CSN) program using $PM_{2.5}$ particles. The site at Rutgers University that monitors for ozone precursors (pollutants that promote ozone formation in the atmosphere) is part of the national Photochemical Assessment Monitoring Station (PAMS) program. Ozone precursors (see Appendix D) are often referred to as PAMS pollutants. The $PM_{2.5}$ speciation, VOC, and carbonyl samples are collected by NJDEP and sent to USEPA-approved contract laboratories for analysis. Several urban monitoring stations measure near-real-time benzene, toluene, ethylbenzene, and xylenes (with a "BTEX" analyzer), and black carbon (with an aethalometer). In addition, NJDEP also measures acid deposition, mercury, and visibility (using a nephelometer) at a number of sites.

TABLE 2. Summary of Current New Jersey Air Monitoring Sites

	Monitoring Parameters: / Station Name	CO	NO_2	NO_y	O_3	SO_2	Lead	$PM_{2.5}$	Real-Time $PM_{2.5}$	PM_{10}	PM coarse	$PM_{2.5}$-Speciation [a]	O_3 Precursors [b]	Toxics [c]	Urban Pollutants [d]	Acid Deposition	Mercury	Visibility	Meteorological [e]	Solar Radiation
1	Ancora State Hospital				X															
2	Atlantic City							X												
3	Bayonne		X		X	X									X				X	
4	Brigantine				X	X		X	X									X		
5	Camden RRF									X										
6	Camden Spruce St	X	X		X	X		X**	X	X*		X		X	X				X	
7	Cattus Island															X				
8	Chester		X		X	X		X				X		X						
9	Clarksboro				X			X												
10	Colliers Mills				X															
11	Columbia		X		X	X		X	X										X	
12	Elizabeth	X				X														
13	Elizabeth Lab	X	X			X		X**	X			X		X	X		X		X	
14	Flemington				X				X										X	
15	Fort Lee Library							X												
16	Fort Lee Near Road	X	X						X						X				X	
17	Jersey City	X	X			X														
18	Jersey City Firehouse							X**	X	X**										
19	Leonia				X															
20	Millville		X		X				X											
21	Monmouth University				X															
22	Newark Firehouse	X	X	X	X	X	X	X	X	X	X	X			X				X	X
23	Paterson							X												
24	Pennsauken							X												
25	Rahway								X											
26	Ramapo				X															
27	Rider University				X				X										X	
28	Rutgers University		X	X	X			X	X			2	X	X			X		X*	X*
29	Toms River							X												
30	Trenton							X												
31	Union City High School							X												
32	Washington Crossing															X				
	TOTAL CURRENT SITES	6	10	2	16	9	1	16	12	3	1	6	1	4	5	2	2	1	8	1

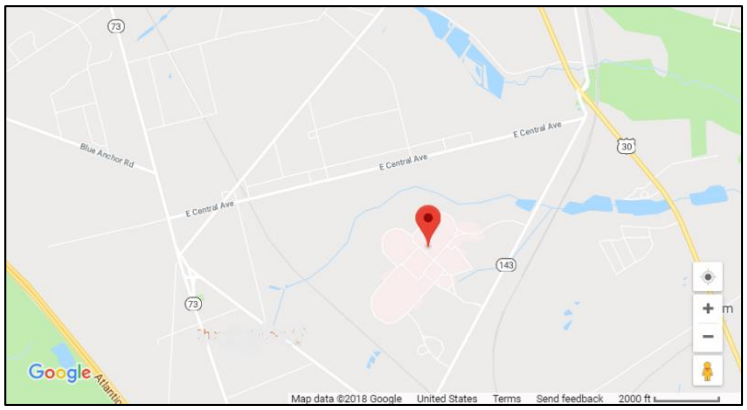
Shaded sites are proposed for shutdown.
*Parameter to be added in 2019.
** The site also has a co-located monitor (for quality assurance purposes, as required by USEPA).
a – See Appendix C
b – See Appendix D
c – See Appendices A and B
d – Urban pollutants include black carbon and select volatile organic compounds (BTEX compounds; see Appendix E).
e - Meteorological parameters include temperature, barometric pressure, relative humidity, rain, wind direction, and wind speed.

FIGURE 1. Map of Current New Jersey Air Monitoring Network

NEW JERSEY AIR MONITORING SITE DESCRIPTIONS

SITE INFORMATION

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



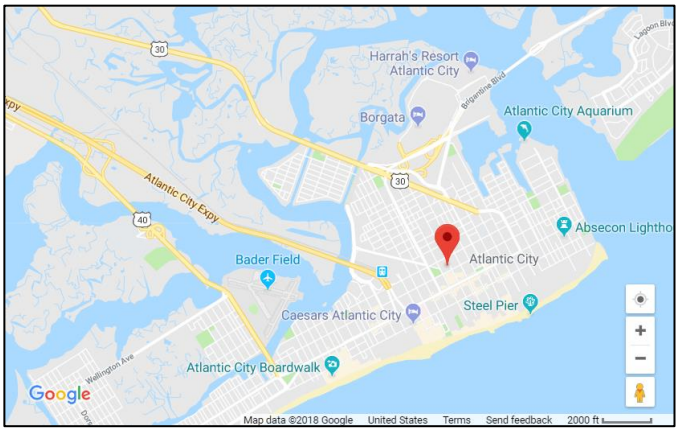
PARAMETER SUMMARY

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	

SITE INFORMATION

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



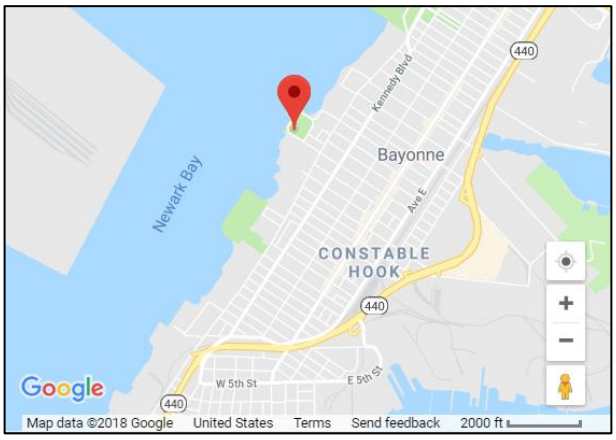
PARAMETER SUMMARY

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	Veterans Park, Park Road at end of W. 25th St.
City, State, Zip	Bayonne, NJ 07002
AQS Code	34 017 0006
NJ County	Hudson
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.670250
Longitude	-74.126081
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



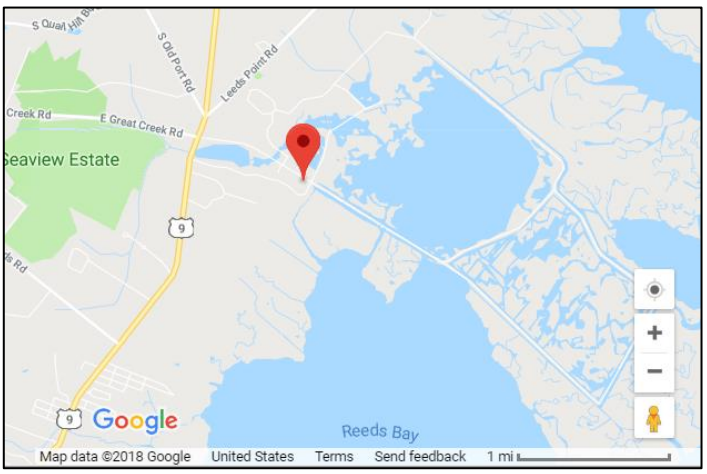
PARAMETER SUMMARY

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	894	Continuous	Neighborhood	Population Exposure
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	Auto GC-PID	092	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	Edwin B. Forsythe National Wildlife Refuge Visitor Center, 800 Great Creek Road
City, State, Zip	Galloway, NJ 08205
AQS Code	34 001 0006
NJ County	Atlantic
UAR/CSA	Atlantic City, NJ UA
Latitude	39.464872
Longitude	-74.448736
Date Established	9/18/1991
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



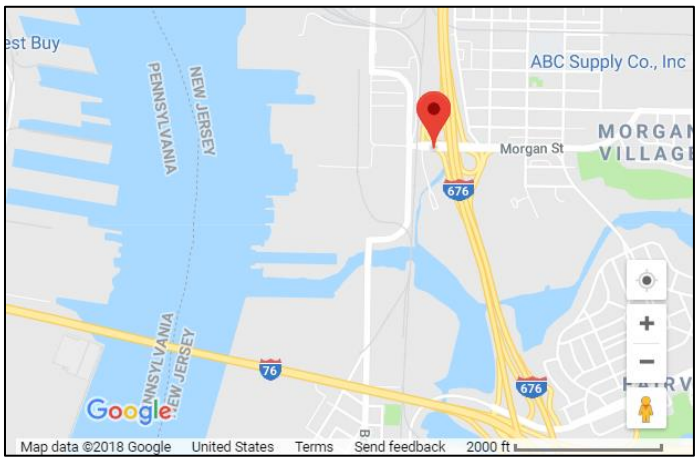
PARAMETER SUMMARY

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	060	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

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. Site is also an IMPROVE station, part of NESCAUM visibility network. Real-time $PM_{2.5}$ nephelometer data is not submitted to USEPA'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
City, State, Zip	Camden, NJ 08104
AQS Code	34 007 0009
NJ County	Camden
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.912431
Longitude	-75.116864
Date Established	5/1/1994
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
Inhalable Particles (PM_{10})	81102	Thermo 2025 Low-volume sequential sampler	Gravimetric	127	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	Move the PM_{10} monitor to the Camden Spruce Street monitoring station and shut down this site.
Other Comment	

SITE INFORMATION

Site Name	Camden Spruce Street
Address	266-298 Spruce Street
City, State, Zip	Camden, NJ 08103
AQS Code	34 007 0002
NJ County	Camden
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.934446
Longitude	-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 2025i 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 C	Met One & URG-3000N	XRF, IC, TOR	Appendix C	Every 6 days	Neighborhood	Population Exposure
Volatile Organic Compounds	Appendix A	Canister	TO-15	Appendix A	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix B	DNPH cartridge	TO-11A	Appendix B	Every 6 days	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	894	Continuous	Neighborhood	Population Exposure
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	Auto GC-PID	092	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	

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
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	Move the Camden RRF PM_{10} monitor to this site.
Other Comment	$PM_{2.5}$ gravimetric sampler is collocated for precision. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

SITE INFORMATION

Site Name	Cattus Island
Address	Cattus Island County Park, end of Bandon Road
Municipality	Toms River NJ 08753
AQS Code	None
NJ County	Ocean
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	39.989636
Longitude	-74.134132
Date Established	10/23/2012
Suitable for Comparison to PM2.5 NAAQS?	Not Applicable

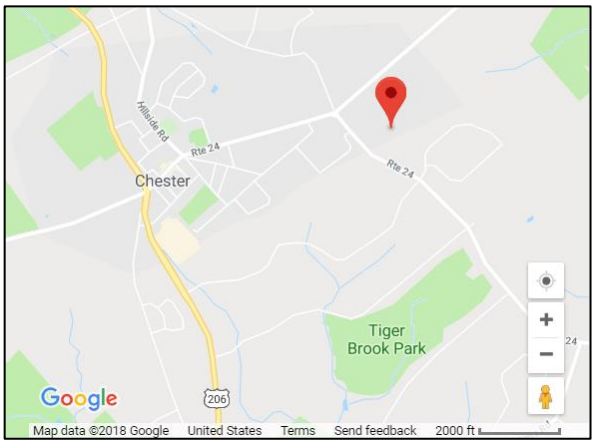
PARAMETER SUMMARY

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 acid deposition near Barnegat Bay.
Plans for the next 18 months	No changes.
Other Comment	Weekly 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 USEPA's AQS database.

SITE INFORMATION

Site Name	Chester
Address	Department of Public Works Bldg. #1, 50 North Road
City, State, Zip	Chester, NJ 07930
AQS Code	34 027 3001
NJ County	Morris
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.787628
Longitude	-74.676301
Date Established	1/1/1978
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



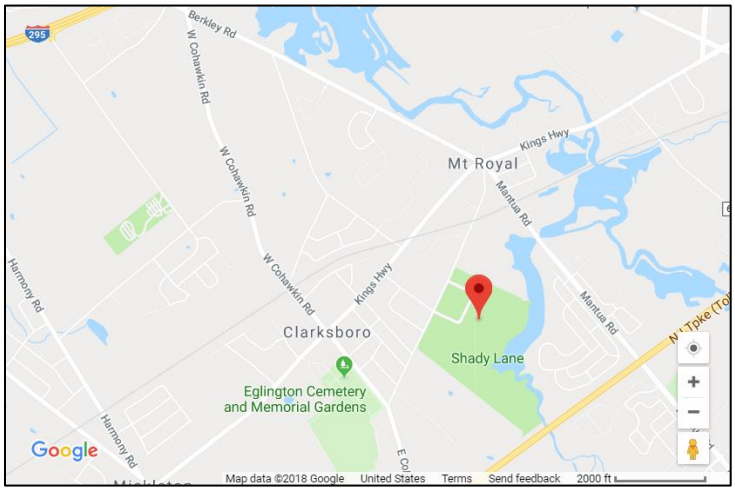
PARAMETER SUMMARY

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	Teledyne T400	Ultraviolet	087	Continuous	Urban	Population Exposure
Sulfur Dioxide (SO_2)	42401	Teledyne T100	Pulsed fluorescence	100	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 C	Met One & URG-3000N	XRF, IC, TOR	Appendix C	Every 6 days	Neighborhood	Population Exposure
Volatile Organic Compounds	Appendix A	Canister	TO-15	Appendix.A	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix B	DNPH cartridge	TO-11A	Appendix B	Every 6 days	Neighborhood	Population Exposure

Site Purpose	To measure background concentrations in northern New Jersey.
Plans for the next 18 months	No changes.
Other Comment	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	Shady Lane Complex, 256 County House Road
City, State, Zip	Clarksboro, NJ 08020
AQS Code	34 015 0002
NJ County	Gloucester
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.800339
Longitude	-75.212119
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
Ozone (O_3)	44201	Thermo 49i	Ultraviolet	047	Continuous	Urban	Highest Concentration
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025 Low-volume sequential sampler	Gravimetric	145	Every 3 days	Neighborhood	Population Exposure

Site Purpose	To measure highest concentrations of ozone downwind from Philadelphia metropolitan area and population exposure to $PM_{2.5}$.
Plans for the next 18 months	No changes.
Other Comment	

SITE INFORMATION

Site Name	Colliers Mills
Address	JPTD Training Center, south of Success Rd., east of Hawkin Rd.
City, State, Zip	Jackson, NJ 08527
AQS Code	34 029 0006
NJ County	Ocean
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	40.064830
Longitude	-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 of 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
Address	105 Delaware Avenue (approximate)
City, State, Zip	Columbia, NJ 07832
AQS Code	34 041 0007
NJ County	Warren
UAR/CSA	Allentown-Bethlehem-Easton, PA-NJ UA
Latitude	40.924580
Longitude	-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	Teledyne T100U	Pulsed fluorescence	100	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	Elizabeth
Address	7 Broad Street
City, State, Zip	Elizabeth, NJ 07201
AQS Code	34 039 0003
NJ County	Union
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.662493
Longitude	-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 48i	Nondispersive-infrared	054	Continuous	Microscale	Highest Concentration
Sulfur Dioxide (SO_2)	42401	Teledyne T100	Pulsed fluorescence	100	Continuous	Middle	Population Exposure

Site Purpose	To measure the highest concentrations in the central commercial area of Elizabeth.
Plans for the next 18 months	No changes.
Other Comment	

SITE INFORMATION

Site Name	Elizabeth Lab
Address	NJ Turnpike Interchange 13 Toll Plaza
City, State, Zip	Elizabeth, NJ 07201
AQS Code	34 039 0004
NJ County	Union
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.641440
Longitude	-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 48i	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 43i	Pulsed fluorescence	060	Continuous	Neighborhood	Highest Concentration
Fine Particles ($PM_{2.5}$)	88101	Thermo 2025i 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	Appendix C	Met One & URG-3000N	XRF, IC, TOR	Appendix C	Every 3 days	Neighborhood	Highest Concentration
Volatile Organic Compounds	Appendix A	Canister	TO-15	Appendix A	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix B	DNPH cartridge	TO-11A	Appendix B	Every 6 days	Neighborhood	Population Exposure
Mercury (Hg)		Tekran 2537x	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	894	Continuous	Neighborhood	Population Exposure
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	Auto-GC PID	092	Continuous	Neighborhood	Population Exposure
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

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
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	

Site Purpose	A comprehensive air monitoring site for the northeast metropolitan region of New Jersey.
Plans for the next 18 months	No changes.
Other Comment	$PM_{2.5}$ gravimetric sampler is collocated for precision. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

SITE INFORMATION

Site Name	Flemington
Address	Raritan Township Municipal Utilities Authority, 365 Old York Road
City, State, Zip	Flemington, NJ 08822
AQS Code	34 019 0001
NJ County	Hunterdon
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.515262
Longitude	-74.806671
Date Established	1/1/1980
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

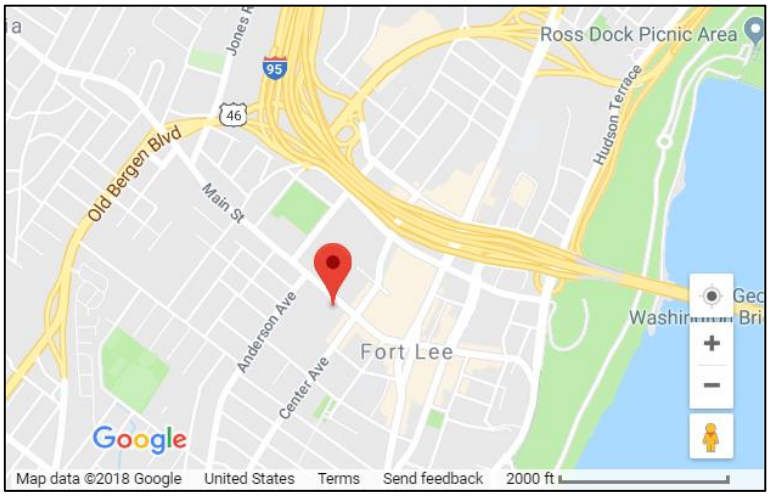
PARAMETER SUMMARY

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	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 ozone concentrations in the northwestern region of New Jersey.
Plans for the next 18 months	No changes.
Other Comment	

SITE INFORMATION

Site Name	Fort Lee Library
Address	320 Main Street
City, State, Zip	Fort Lee, NJ 07024
AQS Code	34 003 0003
NJ County	Bergen
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.852256
Longitude	-73.973314
Date Established	1/23/1986
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



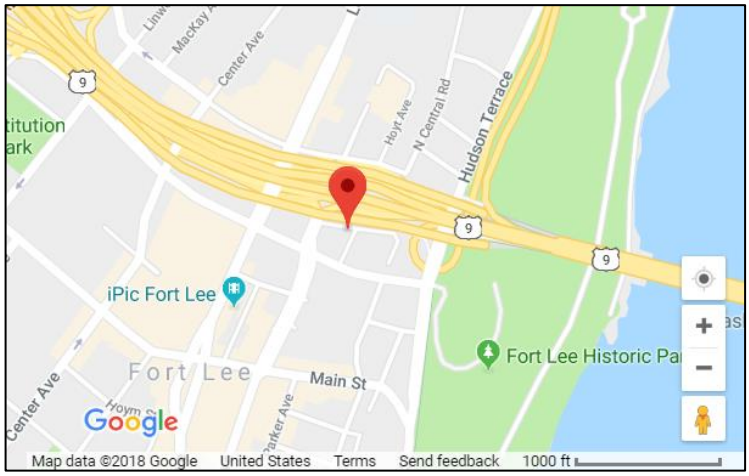
PARAMETER SUMMARY

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	Shut down the monitoring site; a continuous $PM_{2.5}$ monitor is located at the Fort Lee Near Road station nearby.
Other Comment	

SITE INFORMATION

Site Name	Fort Lee Near Road
Address	2047 N. Central Road
City, State, Zip	Fort Lee, NJ 07024
AQS Code	34 003 0010
NJ County	Bergen
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.853550
Longitude	-73.966180
Date Established	4/1/2014
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	Microscale	Source-oriented
Nitrogen Dioxide (NO_2)	42602	Thermo 42i	Chemiluminescence	074	Continuous	Microscale	Source-oriented
Oxides of Nitrogen (NO_x)	42603	Thermo 42i	Chemiluminescence	074	Continuous	Microscale	Source-oriented
Carbon Monoxide (CO)	42101	Thermo 48i	Nondispersive-infrared	054	Continuous	Microscale	Source-oriented
Real-time $PM_{2.5}$	88101	Met One BAM 1022	Beta Particle attenuation	209	Continuous	Microscale	Source-oriented
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	894	Continuous	Microscale	Source-oriented
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	Auto-GC PID	092	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	EPA OAQPS BEACON NO2, SO2, O3 and CO sensors are in operation at this site as part of NJDEP ozone Enhanced Monitoring Plan.

SITE INFORMATION

Site Name	Jersey City
Address	2828 John F. Kennedy Boulevard
City, State, Zip	Jersey City, NJ 07306
AQS Code	34 017 1002
NJ County	Hudson
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.731645
Longitude	-74.066308
Date Established	1/1/1970
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable

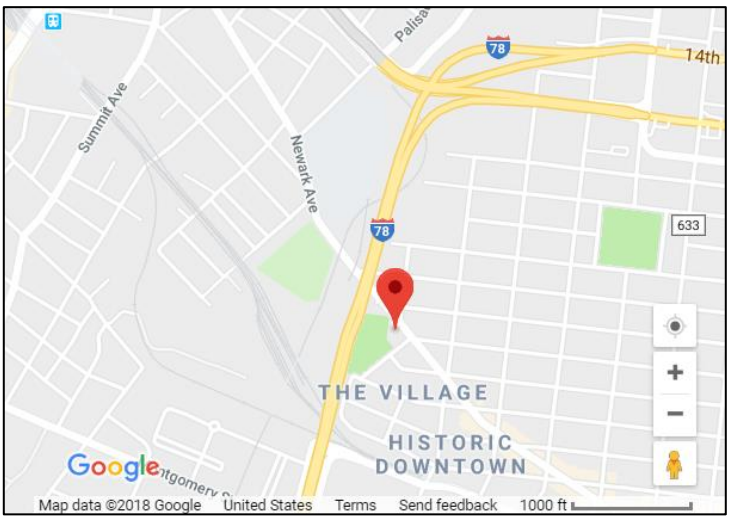
PARAMETER SUMMARY

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	Microscale	Highest Concentration
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	No changes.
Other Comment	

SITE INFORMATION

Site Name	Jersey City Firehouse
Address	JCFD Engine 5/Ladder 6, 355 Newark Avenue
City, State, Zip	Jersey City, NJ 07302
AQS Code	34 017 1003
NJ County	Hudson
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.725454
Longitude	-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	Gravimetric $PM_{2.5}$ and PM_{10} are collocated for precision measurements. Sample taken every 6 days. The AQS method code for the collocated $PM_{2.5}$ monitor is 143.

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
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.870436
Longitude	-73.991994
Date Established	12/7/2007
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable

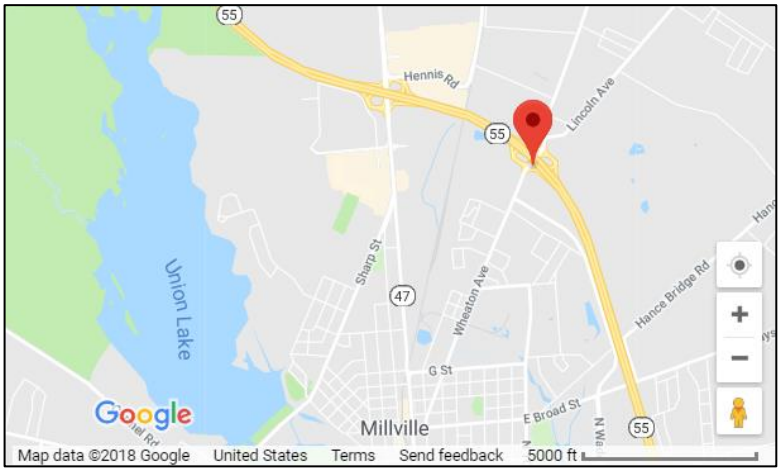
PARAMETER SUMMARY

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	Behind 4401 S. Main Road
City, State, Zip	Millville, NJ 08332
AQS Code	34 011 0007
NJ County	Cumberland
UAR/CSA	Vineland-Millville, NJ UA
Latitude	39.422273
Longitude	-75.025204
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



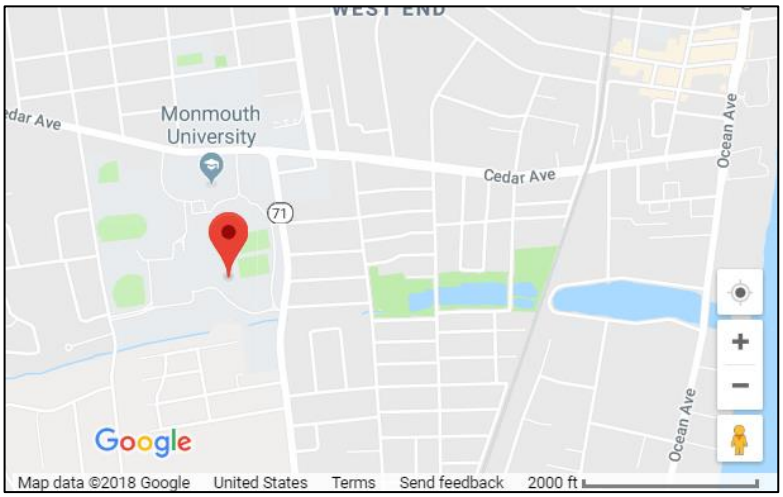
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
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
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	

SITE INFORMATION

Site Name	Monmouth University
Address	Edison Science Hall, off of 400 Cedar Avenue
City, State, Zip	West Long Branch, NJ 07764
AQS Code	34 025 0005
NJ County	Monmouth
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.277647
Longitude	-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 49i	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	Newark Firehouse
Address	360 Clinton Avenue
City, State, Zip	Newark, NJ 07108
AQS Code	34 013 0003
NJ County	Essex
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.720989
Longitude	-74.192892
Date Established	6/1/2009
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 42i-Y	Chemiluminescence	674	Continuous	Neighborhood	Population Exposure
NO_y-NO Difference	42612	Thermo 42i-Y	Chemiluminescence	674	Continuous	Neighborhood	Population Exposure
Total Reactive Oxides of Nitrogen (NO_y)	42600	Thermo 42i-Y	Chemiluminescence	674	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

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
PM coarse	86101	Thermo 2025 Sequential Sampler Pair	Paired Gravimetric Difference	176	Every 3 days	Neighborhood	Population Exposure
Inhalable Particles (PM_{10})	81102	Thermo 2025 Sequential Sampler	Gravimetric	127	Every 3 days	Neighborhood	Population Exposure
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	XRF, IC, TOR	Appen-dix C	Every 3 days	Neighborhood	Population Exposure
Black Carbon	84313	Teledyne API Model 633 Aethalometer	Optical absorption	894	Continuous	Neighborhood	Population Exposure
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	Auto-GC PID	092	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	
Resultant Wind Direction	61104	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Resultant Wind Speed	61103	Vaisala WXT	Ultrasonic sensor	060	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 C for more information on $PM_{2.5}$ speciation.

SITE INFORMATION

Site Name	Paterson
Address	Paterson Board of Health, 176 Broadway
City, State, Zip	Paterson, NJ 07505
AQS Code	34 031 0005
NJ County	Passaic
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.918381
Longitude	-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	Camden Water Inc., 8999 Zimmerman Avenue
City, State, Zip	Pennsauken, NJ 08110
AQS Code	34 007 1007
NJ County	Camden
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.989036
Longitude	-75.050008
Date Established	9/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

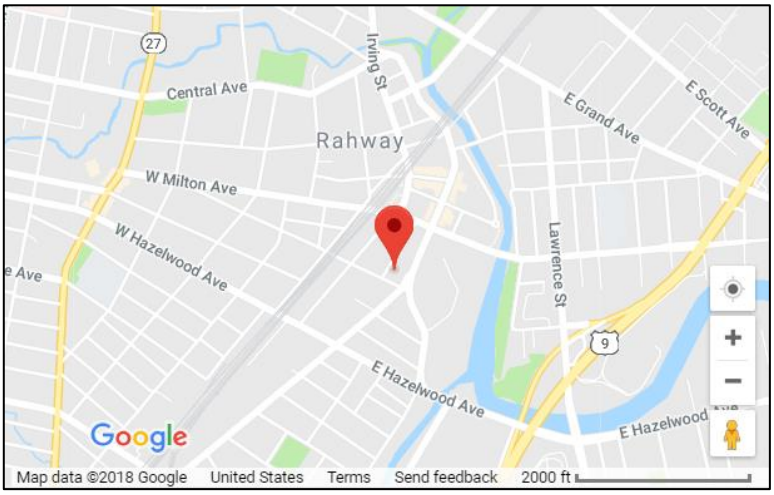
PARAMETER SUMMARY

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	Rahway Fire Department, 1300 Main Street
City, State, Zip	Rahway, NJ 07065
AQS Code	34 039 2003
NJ County	Union
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.603943
Longitude	-74.276174
Date Established	12/11/1999
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



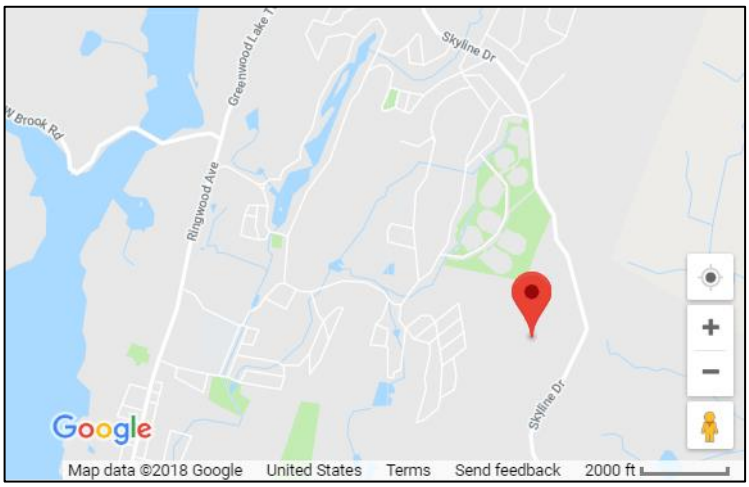
PARAMETER SUMMARY

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Real-time $PM_{2.5}$	88101	Met One BAM 1022	Beta Particle attenuation	209	Continuous	Neighborhood	Population Exposure

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

SITE INFORMATION

Site Name	Ramapo
Address	Ramapo Station Fire Tower, Ramapo Park Drive
City, State, Zip	Wanaque, NJ 07465
AQS Code	34 031 5001
NJ County	Passaic
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	41.058617
Longitude	-74.255544
Date Established	6/5/1998
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable



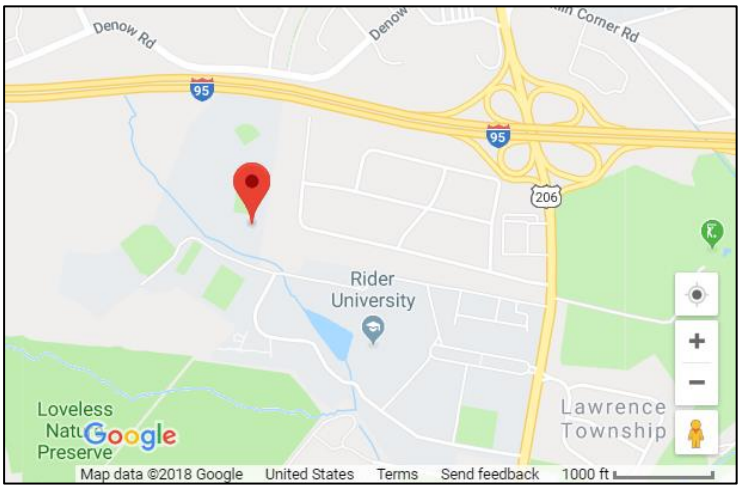
PARAMETER SUMMARY

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	Athletic Fields, off of 2083 Lawrenceville Road
City, State, Zip	Lawrenceville, NJ 08648
AQS Code	34 021 0005
NJ County	Mercer
UAR/CSA	Trenton, NJ-PA UA
Latitude	40.283092
Longitude	-74.742644
Date Established	6/1/1981
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
Ozone (O_3)	44201	Thermo 49C	Ultraviolet	047	Continuous	Neighborhood	Population Exposure
Real-time PM2.5	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	
Wind Direction	61102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	
Precipitation	65102	Vaisala WXT	Ultrasonic sensor	060	Continuous	Neighborhood	

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

SITE INFORMATION

Site Name	Rutgers University
Address	Vegetable Farm 3, 67 Ryders Lane
City, State, Zip	East Brunswick, NJ 08816
AQS Code	34 023 0011
NJ County	Middlesex
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.462182
Longitude	-74.429439
Date Established	10/1/1994
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-Y	Chemiluminescence	674	Continuous	Neighborhood	Population Exposure
NO_y-NO Difference	42612	Thermo 42i-Y	Chemiluminescence	674	Continuous	Neighborhood	Population Exposure
Total Reactive Oxides of Nitrogen (NO_y)	42600	Thermo 42i-Y	Chemiluminescence	674	Continuous	Neighborhood	Population Exposure
True-NO_2	42602	Teledyne T500U	Cavity attenuated phase shift	212	Continuous	Neighborhood	Population Exposure
Ozone (O_3)	44201	Teledyne T400	Ultraviolet	087	Continuous	Neighborhood	Population Exposure
Ozone Precursors (PAMS)	Appendix D	Agilent-Markes	Auto GC-FID	Appendix D	Hourly	Urban	Background
Real-time $PM_{2.5}$	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 A	Canister	TO-15	Appendix A	Every 6 days	Neighborhood	Population Exposure
Carbonyls	Appendix B	DNPH cartridge	TO-11A	Appendix B	Every 6 days	Neighborhood	Population Exposure
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	XRF, IC, TOR	Appendix C	Every 3 days	Neighborhood	Population Exposure
Mercury (Hg)		Tekran 2537x	CVAF Spectrometry		Hourly	Neighborhood	Population Exposure

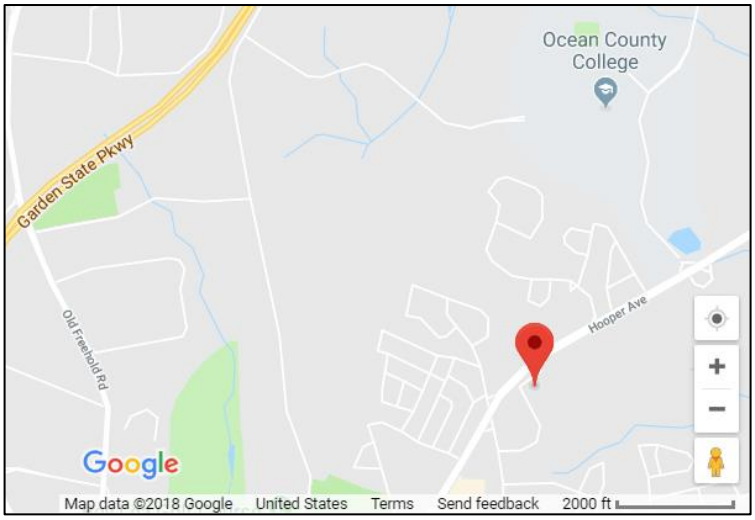
PARAMETER SUMMARY (Rutgers University, continued)

Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code	AQS Sample Frequency	AQS Spatial Scale	AQS Monitoring Objective
Barometric Pressure	64101	Rotronic MP101A	Capacitive sensor	060	Continuous	Neighborhood	
Relative Humidity	62201	Rotronic MP101A	Capacitive sensor	060	Continuous	Neighborhood	
Solar Radiation	63301	Kipp&Zonen CMP-11	Pyranometer	011	Continuous	Neighborhood	
Temperature	62101	Rotronic MP101A	Capacitive sensor	060	Continuous	Neighborhood	
Wind Direction	61102	Gill Windmaster HS 3D	Ultrasonic sensor	060	Continuous	Neighborhood	
Wind Speed	61101	Gill Windmaster HS 3D	Ultrasonic sensor	060	Continuous	Neighborhood	
Precipitation	65102	Geonor T-200B	Rain gauge	012	Continuous	Neighborhood	
Ultraviolet Radiation	63302	Eppley TUVR	UV Radiometer	011	Continuous	Neighborhood	
Mixing Height	61301	Vaisala CL51	Ceilometer	011	Continuous	Neighborhood	

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	Total reactive oxides of nitrogen (NOy) and carbonyl samplers will begin operation in June 2019.
Other Comment	EPA OAQPS Pandora spectrometer is operating as part of the ozone Enhanced Monitoring Plan. Upper air and surface meteorological measurements collected at this site by Rutgers University will be integrated into DEP's database. See Appendix D for more information on ozone precursors, also known as PAMS. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

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
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.994908
Longitude	-74.170447
Date Established	2/11/1999
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes



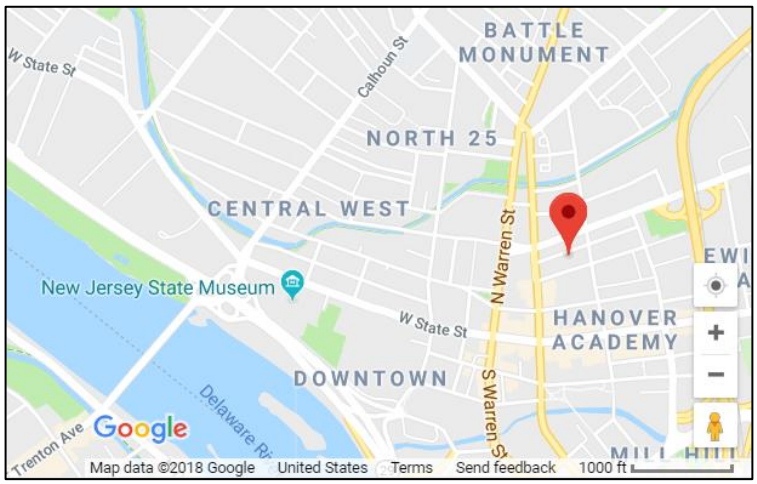
PARAMETER SUMMARY

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



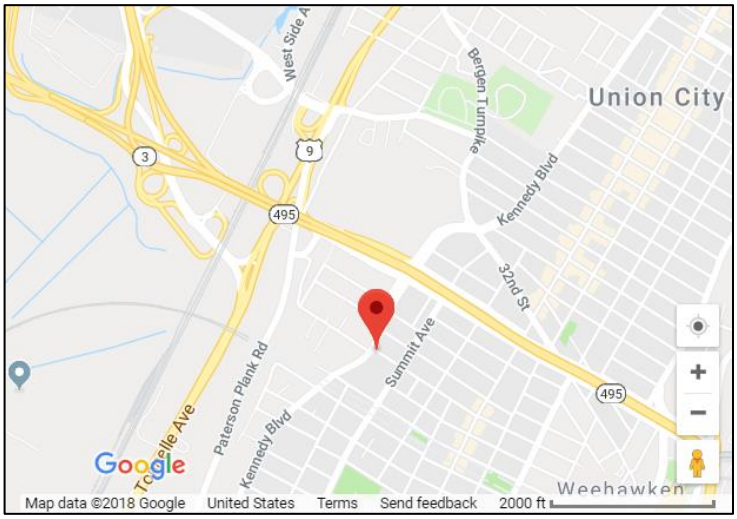
PARAMETER SUMMARY

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



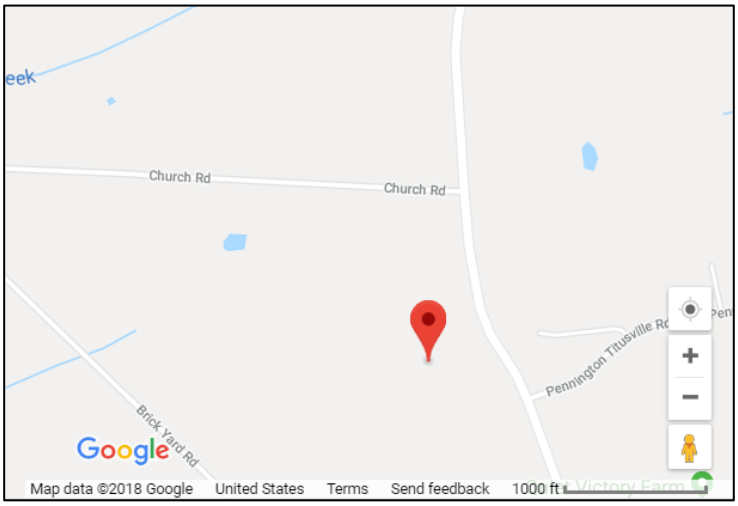
PARAMETER SUMMARY

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	

SITE INFORMATION

Site Name	Washington Crossing
Address	Washington Crossing State Park, Philips Farm Group Area, 1239 Bear Tavern Road
City, State, Zip	Titusville, NJ 08560
AQS Code	
NJ County	Mercer
UAR/CSA	Trenton, NJ-PA UA
Latitude	40.315359
Longitude	-74.853613
Date Established	1/1/1989
Suitable for Comparison to $PM_{2.5}$ NAAQS?	No 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 acid deposition on the western border of New Jersey.
Plans for the next 18 months	No changes.
Other Comment	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 USEPA's AQS database.

GLOSSARY OF ABBREVIATIONS AND TERMS

ABBREVIATIONS

AQS – Air Quality System, 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
CSN – Chemical Speciation Network
CFR – Code of Federal Regulations
CO – Carbon monoxide
CVAF Spectrometry – Cold Vapor Atomic Fluorescence Spectrometry, method for analyzing mercury
FEM – Federal Equivalent Method; monitoring method that is not FRM but is approved by USEPA
FRM – Federal Reference Method; primary monitoring method recommended by USEPA for a specific pollutant
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
NAAQS – National Ambient Air Quality Standard
NADP – National Atmospheric Deposition Program
NCore – National Core, a monitoring site having a group of parameters specified by USEPA
NESCAUM – Northeast States for Coordinated Air Use Management
NJDEP – New Jersey Department of Environmental Protection
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; site which measures ozone precursors
Pb – Lead
$PM_{2.5}$ – Fine particles, 2.5 micrometers in aerodynamic diameter or smaller
PM_{10} – Inhalable particles, 10 micrometers 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
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
TEOM - Tapered Element Oscillating Microbalance, an analytical method used to measure real-time $PM_{2.5}$
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
UAR – Urban Areas Represented; 1 or more counties having a population greater than 50,000
UATMP - Urban Air Toxics Monitoring Program
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
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 $PM_{10-2.5}$; 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
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 sampler– 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
Microscale – 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
Population exposure – a monitoring instrument or site that is designated to measure the concentrations of a pollutant in a highly populated area
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
Solar radiation – the intensity of energy from sunlight
TEOM-FDMS – Tapered Element Oscillating Microbalance with Filter Dynamic Measurement System; the analytical method used by a Thermo 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
Thermo 1400 – the instrument manufactured by Thermo Environmental Corp. to measure real-time $PM_{2.5}$
Thermo 2025 – the instrument manufactured by Thermo Environmental Corp. to measure $PM_{2.5}$; data from this instrument can be used for comparison to the NAAQS
Ultraviolet – the method used for analyzing ozone
Urban Scale – the spatial scale of a monitoring site, from 10-100 km around the monitor

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APPENDIX A: VOLATILE ORGANIC COMPOUNDS

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
1	1,1,1-Trichloroethane	43814	Canister	TO-15	101
2	1,1,2,2-Tetrachloroethane	43818	Canister	TO-15	101
3	1,1,2-Trichloroethane	43820	Canister	TO-15	101
4	1,1-Dichloroethane	43813	Canister	TO-15	101
5	1,1-Dichloroethene	43826	Canister	TO-15	101
6	1,2,4-Trichlorobenzene	45810	Canister	TO-15	101
7	1,2,4-Trimethylbenzene	45208	Canister	TO-15	101
8	1,2-Dibromoethane	43843	Canister	TO-15	101
9	1,2-Dichloroethane	43815	Canister	TO-15	101
10	1,2-Dichloropropane	43829	Canister	TO-15	101
11	1,3,5-Trimethylbenzene	45207	Canister	TO-15	101
12	1,3-Butadiene	43218	Canister	TO-15	101
13	Acetonitrile	43702	Canister	TO-15	101
14	Acetylene	43206	Canister	TO-15	101
15	Acrolein	43505	Canister	TO-15	101
16	Acrylonitrile	43704	Canister	TO-15	101
17	Benzene	45201	Canister	TO-15	101
18	Bromochloromethane	43836	Canister	TO-15	101
19	Bromodichloromethane	43828	Canister	TO-15	101
20	Bromoform	43806	Canister	TO-15	101
21	Bromomethane	43819	Canister	TO-15	101
22	Carbon Disulfide	42153	Canister	TO-15	101
23	Carbon Tetrachloride	43804	Canister	TO-15	101
24	Chlorobenzene	45801	Canister	TO-15	101
25	Chloroethane	43812	Canister	TO-15	101
26	Chloroform	43803	Canister	TO-15	101
27	Chloromethane	43801	Canister	TO-15	101
28	Chloroprene	43835	Canister	TO-15	101
29	cis-1,2-Dichloroethylene	43839	Canister	TO-15	101
30	cis-1,3-Dichloropropene	43831	Canister	TO-15	101
31	Dibromochloromethane	43832	Canister	TO-15	101
32	Dichlorodifluoromethane	43823	Canister	TO-15	101
33	Dichloromethane	43802	Canister	TO-15	101
34	Dichlorotetrafluoroethane	43208	Canister	TO-15	101
35	Ethyl Acrylate	43438	Canister	TO-15	101
36	Ethyl tert-Butyl Ether	43396	Canister	TO-15	101
37	Ethylbenzene	45203	Canister	TO-15	101
38	Hexachloro-1,3-Butadiene	43844	Canister	TO-15	101

Continued

APPENDIX A: VOLATILE ORGANIC COMPOUNDS (Continued)

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
39	m,p-Xylene	45109	Canister	TO-15	101
40	m-Dichlorobenzene	45806	Canister	TO-15	101
41	Methyl Isobutyl Ketone	43560	Canister	TO-15	101
42	Methyl Methacrylate	43441	Canister	TO-15	101
43	Methyl tert-Butyl Ether	43372	Canister	TO-15	101
44	n-Octane	43233	Canister	TO-15	101
45	o-Dichlorobenzene	45805	Canister	TO-15	101
46	o-Xylene	45204	Canister	TO-15	101
47	p-Dichlorobenzene	45807	Canister	TO-15	101
48	Propylene	43205	Canister	TO-15	101
49	Styrene	45220	Canister	TO-15	101
50	tert-Amyl Methyl Ether	43373	Canister	TO-15	101
51	Tetrachloroethylene	43817	Canister	TO-15	101
52	Toluene	45202	Canister	TO-15	101
53	trans-1,2-Dichloroethylene	43838	Canister	TO-15	101
54	trans-1,3-Dichloropropene	43830	Canister	TO-15	101
55	Trichloroethylene	43824	Canister	TO-15	101
56	Trichlorofluoromethane	43811	Canister	TO-15	101
57	Trichlorotrifluoroethane	43821	Canister	TO-15	101
58	Vinyl Chloride	43860	Canister	TO-15	101

APPENDIX B: CARBONYLS

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
1	2-Butanone	43552	DNPH Cartridge	TO-11A	202
2	2,5-Dimethylbenzaldehyde	45503	DNPH Cartridge	TO-11A	202
3	Acetaldehyde	43503	DNPH Cartridge	TO-11A	202
4	Acetone	43551	DNPH Cartridge	TO-11A	202
5	Benzaldehyde	45501	DNPH Cartridge	TO-11A	202
6	Butyraldehyde	43329	DNPH Cartridge	TO-11A	202
7	Crotonaldehyde	43528	DNPH Cartridge	TO-11A	202
8	Formaldehyde	43502	DNPH Cartridge	TO-11A	202
9	Hexaldehyde	43517	DNPH Cartridge	TO-11A	202
10	Isovaleraldehyde	43513	DNPH Cartridge	TO-11A	202
11	Propionaldehyde	43504	DNPH Cartridge	TO-11A	202
12	Tolualdehydes	45504	DNPH Cartridge	TO-11A	202
13	Valeraldehyde	43518	DNPH Cartridge	TO-11A	202

APPENDIX C: SPECIATED FINE PARTICLES

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
1	Aluminum	88104	Met One SASS Teflon	Energy Dispersive XRF	811
2	Ammonium	88301	Met One SASS Nylon	Ion Chromatography	812
3	Antimony	88102	Met One SASS Teflon	Energy Dispersive XRF	811
4	Arsenic	88103	Met One SASS Teflon	Energy Dispersive XRF	811
5	Barium	88107	Met One SASS Teflon	Energy Dispersive XRF	811
6	Bromine	88109	Met One SASS Teflon	Energy Dispersive XRF	811
7	Cadmium	88110	Met One SASS Teflon	Energy Dispersive XRF	811
8	Calcium	88111	Met One SASS Teflon	Energy Dispersive XRF	811
9	Cerium	88117	Met One SASS Teflon	Energy Dispersive XRF	811
10	Cesium	88118	Met One SASS Teflon	Energy Dispersive XRF	811
11	Chlorine	88115	Met One SASS Teflon	Energy Dispersive XRF	811
12	Chromium	88112	Met One SASS Teflon	Energy Dispersive XRF	811
13	Cobalt	88113	Met One SASS Teflon	Energy Dispersive XRF	811
14	Copper	88114	Met One SASS Teflon	Energy Dispersive XRF	811
15	EleCarbTor	88380	URG 3000N	EC1+EC2+EC3-(OP(TOR))	838
16	EleCarbTot	88357	URG 3000N	EC1+EC2+EC3-OP	838
17	Indium	88131	Met One SASS Teflon	Energy Dispersive XRF	811
18	Iron	88126	Met One SASS Teflon	Energy Dispersive XRF	811
19	Lead	88128	Met One SASS Teflon	Energy Dispersive XRF	811
20	Magnesium	88140	Met One SASS Teflon	Energy Dispersive XRF	811
21	Manganese	88132	Met One SASS Teflon	Energy Dispersive XRF	811
22	Nickel	88136	Met One SASS Teflon	Energy Dispersive XRF	811
23	Nitrate	88306	Met One SASS Nylon	Ion Chromatography	812
24	OrgCarbTor	88370	URG 3000N	OC1+OC2+OC3+OC4+(OP(TOR))	838
25	OrgCarbTot	88355	URG 3000N	OC1+OC2+OC3+OC4+OP	838
26	Phosphorus	88152	Met One SASS Teflon	Energy Dispersive XRF	811
27	Potassium	88180	Met One SASS Teflon	Energy Dispersive XRF	811
28	Potassium IC	88303	Met One SASS Nylon	Ion Chromatography	812
29	Rubidium	88176	Met One SASS Teflon	Energy Dispersive XRF	811
30	Selenium	88154	Met One SASS Teflon	Energy Dispersive XRF	811
31	Silicon	88165	Met One SASS Teflon	Energy Dispersive XRF	811
32	Silver	88166	Met One SASS Teflon	Energy Dispersive XRF	811
33	Sodium	88184	Met One SASS Teflon	Energy Dispersive XRF	811
34	Sodium IC	88302	Met One SASS Nylon	Ion Chromatography	812
35	Strontium	88168	Met One SASS Teflon	Energy Dispersive XRF	811
36	Sulfate	88403	Met One SASS Nylon	Ion Chromatography	812
37	Sulfur	88169	Met One SASS Teflon	Energy Dispersive XRF	811
38	Tin	88160	Met One SASS Teflon	Energy Dispersive XRF	811
39	Titanium	88161	Met One SASS Teflon	Energy Dispersive XRF	811
40	Vanadium	88164	Met One SASS Teflon	Energy Dispersive XRF	811
41	Zinc	88167	Met One SASS Teflon	Energy Dispersive XRF	811
42	Zirconium	88185	Met One SASS Teflon	Energy Dispersive XRF	811

APPENDIX D: OZONE PRECURSORS

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
1	Sum of PAMS	43000	Agilent-Markes	Auto-GC-FID	078
2	Total NMOC	43102	Agilent-Markes	Auto-GC-FID	078
3	Ethane	43202	Agilent-Markes	Auto-GC-FID	078
4	Ethylene	43203	Agilent-Markes	Auto-GC-FID	078
5	Propane	43204	Agilent-Markes	Auto-GC-FID	078
6	Propylene	43205	Agilent-Markes	Auto-GC-FID	078
7	Acetylene	43206	Agilent-Markes	Auto-GC-FID	078
8	n-Butane	43212	Agilent-Markes	Auto-GC-FID	078
9	Isobutane	43214	Agilent-Markes	Auto-GC-FID	078
10	trans-2-Butene	43216	Agilent-Markes	Auto-GC-FID	078
11	cis-2-Butene	43217	Agilent-Markes	Auto-GC-FID	078
12	n-Pentane	43220	Agilent-Markes	Auto-GC-FID	078
13	Isopentane	43221	Agilent-Markes	Auto-GC-FID	078
14	1-Pentene	43224	Agilent-Markes	Auto-GC-FID	078
15	trans-2-Pentene	43226	Agilent-Markes	Auto-GC-FID	078
16	cis-2-Pentene	43227	Agilent-Markes	Auto-GC-FID	078
17	3-Methylpentane	43230	Agilent-Markes	Auto-GC-FID	078
18	n-Hexane	43231	Agilent-Markes	Auto-GC-FID	078
19	n-Heptane	43232	Agilent-Markes	Auto-GC-FID	078
20	n-Octane	43233	Agilent-Markes	Auto-GC-FID	078
21	n-Nonane	43235	Agilent-Markes	Auto-GC-FID	078
22	n-Decane	43238	Agilent-Markes	Auto-GC-FID	078
23	Cyclopentane	43242	Agilent-Markes	Auto-GC-FID	078
24	Isoprene	43243	Agilent-Markes	Auto-GC-FID	078
25	2,2-Dimethylbutane	43244	Agilent-Markes	Auto-GC-FID	078
26	1-Hexene	43245	Agilent-Markes	Auto-GC-FID	078
27	2,4-Dimethylpentane	43247	Agilent-Markes	Auto-GC-FID	078
28	Cyclohexane	43248	Agilent-Markes	Auto-GC-FID	078
29	3-Methylhexane	43249	Agilent-Markes	Auto-GC-FID	078
30	2,2,4-Trimethylpentane	43250	Agilent-Markes	Auto-GC-FID	078
31	2,3,4-Trimethylpentane	43252	Agilent-Markes	Auto-GC-FID	078
32	3-Methylheptane	43253	Agilent-Markes	Auto-GC-FID	078
33	Methylcyclohexane	43261	Agilent-Markes	Auto-GC-FID	078
34	Methylcyclopentane	43262	Agilent-Markes	Auto-GC-FID	078
35	2-Methylhexane	43263	Agilent-Markes	Auto-GC-FID	078
36	1-Butene	43280	Agilent-Markes	Auto-GC-FID	078
37	2,3-Dimethylbutane	43284	Agilent-Markes	Auto-GC-FID	078
38	2-Methylpentane	43285	Agilent-Markes	Auto-GC-FID	078
39	2,3-Dimethylpentane	43291	Agilent-Markes	Auto-GC-FID	078
40	n-Undecane	43954	Agilent-Markes	Auto-GC-FID	078
41	2-Methylheptane	43960	Agilent-Markes	Auto-GC-FID	078

Continued

APPENDIX D: OZONE PRECURSORS (Continued)

	Parameter	AQS Parameter Code	Sampling Instrument	Method of Analysis	AQS Method Code
42	m/p Xylene	45109	Agilent-Markes	Auto-GC-FID	078
43	m/p Ethyltoluene	45116	Agilent-Markes	Auto-GC-FID	078
44	Benzene	45201	Agilent-Markes	Auto-GC-FID	078
45	Toluene	45202	Agilent-Markes	Auto-GC-FID	078
46	Ethylbenzene	45203	Agilent-Markes	Auto-GC-FID	078
47	o-Xylene	45204	Agilent-Markes	Auto-GC-FID	078
48	1,3,5-Trimethylbenzene	45207	Agilent-Markes	Auto-GC-FID	078
49	1,2,4-Trimethylbenzene	45208	Agilent-Markes	Auto-GC-FID	078
50	n-Propylbenzene	45209	Agilent-Markes	Auto-GC-FID	078
51	Isopropylbenzene	45210	Agilent-Markes	Auto-GC-FID	078
52	o-Ethyltoluene	45211	Agilent-Markes	Auto-GC-FID	078
53	m-Ethyltoluene	45212	Agilent-Markes	Auto-GC-FID	078
54	p-Ethyltoluene	45213	Agilent-Markes	Auto-GC-FID	078
55	m-Diethylbenzene	45218	Agilent-Markes	Auto-GC-FID	078
56	p-Diethylbenzene	45219	Agilent-Markes	Auto-GC-FID	078
57	Styrene	45220	Agilent-Markes	Auto-GC-FID	078
58	1,2,3-Trimethylbenzene	45225	Agilent-Markes	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	092
Toluene	45202	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	092
Ethylbenzene	45203	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	092
m,p-Xylene	45109	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	092
o-Xylene	45204	Syntech Spectras BTEX analyzer GC 955	Gas Chromatography	092