New Jersey
Ambient Air Monitoring
Network Plan 2021

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Air Monitoring
https://nj.gov/dep/airmon

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EXECUTIVE SUMMARY

New Jersey's Ambient Air Monitoring Network Plan for 2021 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 primary purpose of the air monitoring program is to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for specific pollutants. It also provides real-time air quality data to the public through its website, and measures concentrations of non-criteria pollutants for the protection of public health.

Changes to the monitoring network that occurred between March 2020 and March 31, 2021, include:

1. Camden RRF – the site was shut down after the PM_{10} monitor was relocated to the Camden Spruce Street site.
2. Toms River - discontinued the filter-based $PM_{2.5}$ sampling on January 31, 2021.
3. Trenton – installed a continuous $PM_{2.5}$ monitor.

These changes are summarized in Table 1.

TABLE 1. Air Monitoring Network Changes, March 2020 – March 2021

Monitoring Site	Parameter(s)	Action	Date
Camden RRF	PM_{10}	Shut down site	3/16/2020
Toms River	$PM_{2.5}$	Discontinued filter-based monitor	1/31/2021
Trenton	$PM_{2.5}$	Installed continuous monitor	2/12/2021

Proposed Changes

The only change to the New Jersey air monitoring network proposed for the coming year is to remove the filter-based $PM_{2.5}$ monitor at the Trenton Library site. A continuous $PM_{2.5}$ monitor was installed on February 12, 2021, and is still being tested.

BAM will be proposing to replace more filter-based $PM_{2.5}$ monitors with continuous real-time monitors. Monitors at Atlantic Cape Community College, the Paterson Health Department, and Union City High School are located in public buildings where access was restricted because of the Covid-19 shutdown, and data could not be collected at these sites. Continuous monitors would prevent such losses of data in the future, and the data would be available to the public through the BAM webpage.

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 2021 Network Plan contains information required by the regulations; descriptions of the air monitoring sites; large- and small-scale maps of the monitoring station locations; and a summary of the changes to the Air Monitoring Network that NJDEP expects to implement during the year. This document was posted for public comment on the Bureau of Air Monitoring website, https://nj.gov/dep/airmon, for thirty days until June 25, 2021. No comments were received. This document is available for download from the website, or as a hard copy by request from bamweb@dep.nj.gov.

THE NEW JERSEY AIR MONITORING NETWORK

NJDEP currently operates 30 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 current 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 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. Separately, 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 (weighing).

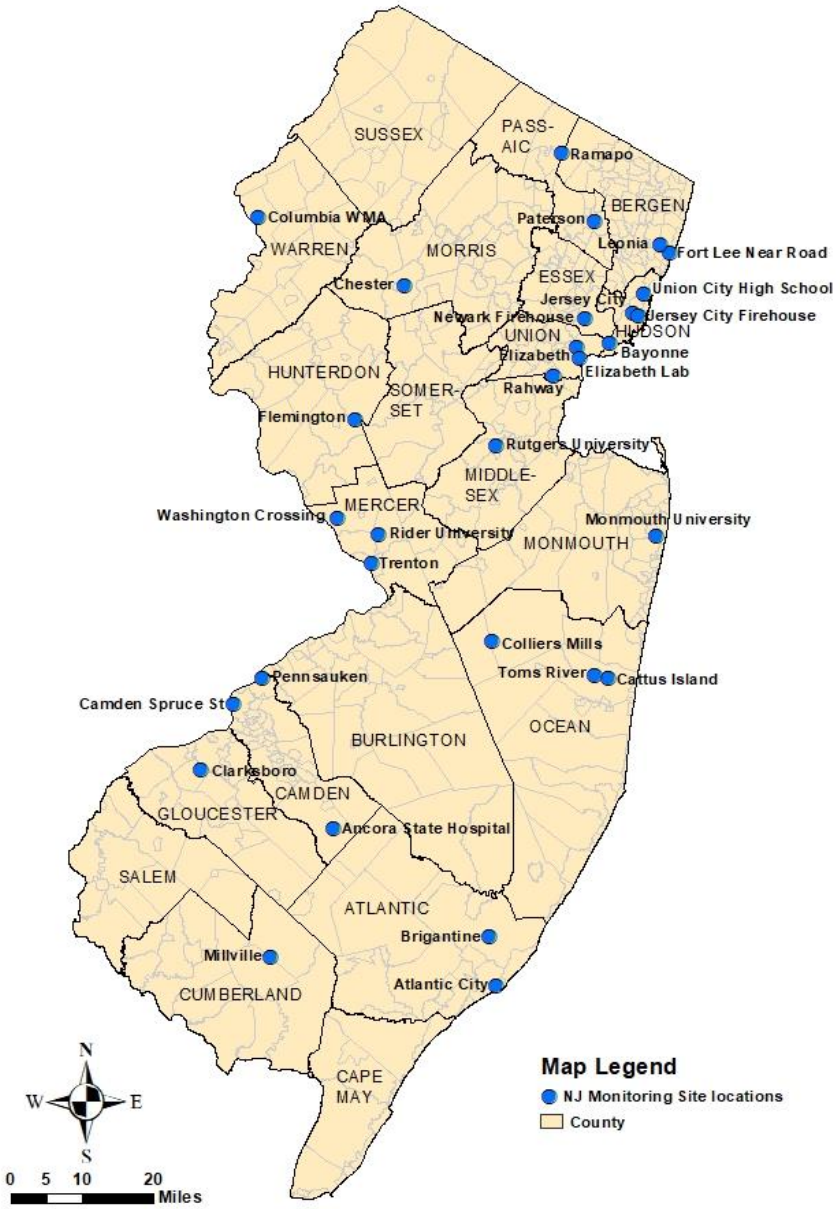
NJDEP monitors other pollutants, some of which are grouped together into categories by their method of sampling or analysis. These categories are listed in the headings of Table 2. "Toxics" monitoring is part of the USEPA's Urban Air Toxics Monitoring Program (UATMP), in which certain volatile organic 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 using $PM_{2.5}$ particles, under the USEPA Chemical Speciation Network (CSN) program. 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. Five 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				X															
2	Atlantic City							X												
3	Bayonne		X		X	X									X				X	
4	Brigantine				X	X		X	X									X		
5	Camden Spruce St	X	X		X	X		X*	X	X		X		X	X				X	
6	Cattus Island															X				
7	Chester		X		X	X		X				X		X						
8	Clarksboro				X			X												
9	Colliers Mills				X															
10	Columbia		X		X	X		X	X										X	
11	Elizabeth	X				X														
12	Elizabeth Lab	X	X			X		X*	X			X		X	X		X		X	
13	Flemington				X				X										X	
14	Fort Lee Near Road	X	X						X						X				X	
15	Jersey City	X	X			X														
16	Jersey City Firehouse							X*	X	X*										
17	Leonia				X															
18	Millville		X		X				X											
19	Monmouth University				X															
20	Newark Firehouse	X	X	X	X	X	X	X	X	X	X	X			X				X	X
21	Paterson							X												
22	Pennsauken							X												
23	Rahway								X											
24	Ramapo				X															
25	Rider University				X				X										X	
26	Rutgers University		X	X	X			X	X			X*	X	X			X		X	X
27	Toms River								X											
28	Trenton							X	X											
29	Union City High School							X												
30	Washington Crossing															X				
	TOTAL CURRENT SITES	6	10	2	16	9	1	14	14	3	1	5	1	4	5	2	2	1	9	2

* Indicates that there is a collocated monitor at the site (for quality assurance purposes, as required by USEPA).
Shaded cell indicates that the monitor is scheduled to be removed.
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. Rutgers has additional parameters (see site description).

FIGURE 1. Map of the Current New Jersey Air Monitoring Network



NEW JERSEY AIR MONITORING SITE DESCRIPTIONS

KEY

Parameters

BTEX	Benzene, toluene, ethylbenzene & xylenes
CO	Carbon monoxide
NO	Nitric oxide
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NOy	Total reactive oxides of nitrogen
O_3	Ozone
$PM_{2.5}$	Fine particulate matter
PM_{10}	Inhalable particulate matter
SO_2	Sulfur dioxide
VOCs	Volatile organic compounds

AQS Spatial Scales (Scale)

M	Middle	100 m to 0.5 km
MS	Microscale	Up to 100 m
N	Neighborhood	0.5-4.0 km
U	Urban	4-50 km

AQS Monitoring Objectives (Objective)

B	Background
HC	Highest Concentration
PE	Population Exposure
SO	Source-Oriented

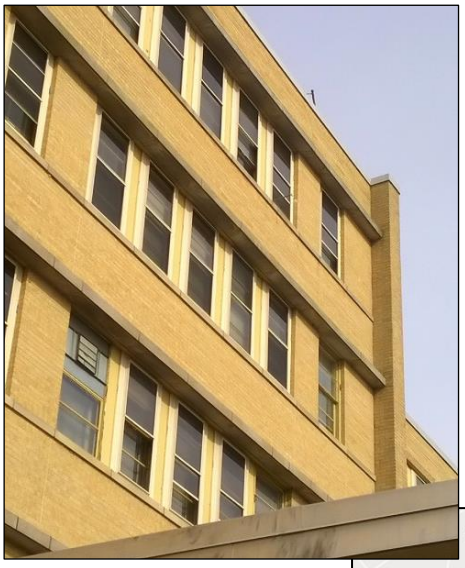
ANCORA STATE HOSPITAL

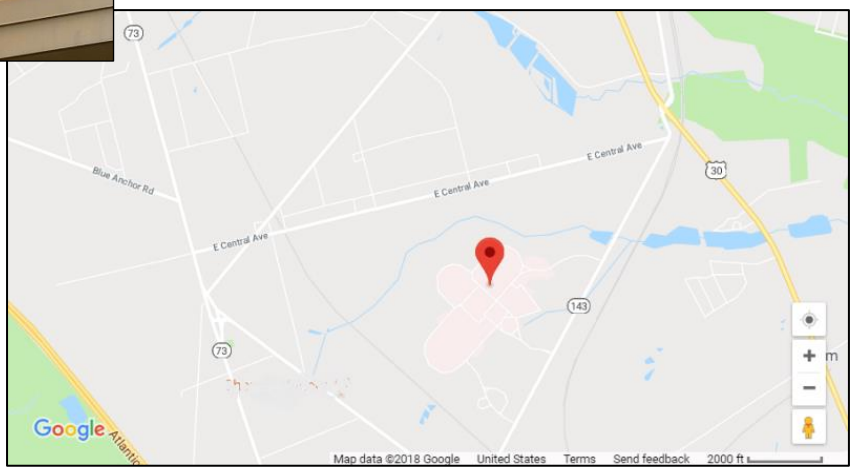
Site Name	Ancora State Hospital
Address	301 Spring Garden Road
City, State, Zip	Hammonton, NJ 08037
AQS Code	34 007 1001
NJ County	Camden
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.684250
Longitude	-74.861491
Date Established	1/1/1966
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49C	2019	Ultraviolet	047	Continuous	U	PE

Site Purpose	During O_3 season, to measure background O_3 concentrations for the southern part of New Jersey. May also measure maximum O_3 concentrations downwind from the Philadelphia metropolitan area.
Plans for the next 18 months	No changes.
Other Comment	





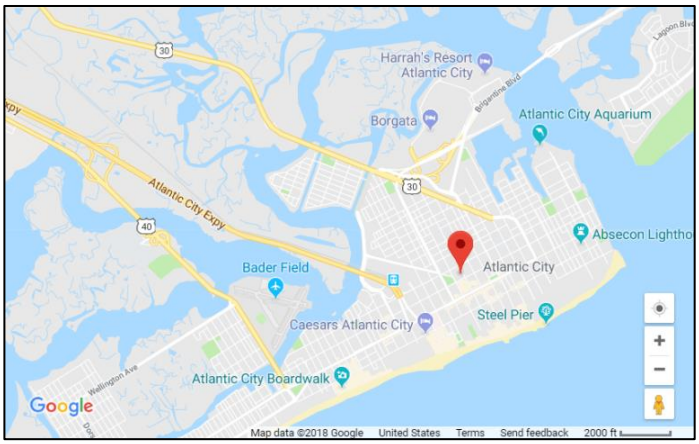
ATLANTIC CITY

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2016	Gravimetric	145	Every 3 days	N	PE

Site Purpose	To measure $PM_{2.5}$ concentrations in the commercial area of Atlantic City.
Plans for the next 18 months	No changes.
Other Comment	



BAYONNE

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec--tive
O_3	44201	Thermo 49i	2017	Ultraviolet	047	Continuous	N	PE
NO_2	42602	Thermo 42i	2010	Chemiluminescence	074	Continuous	U	PE
NO	42601	Thermo 42i	2010	Chemiluminescence	074	Continuous	U	PE
NOx	42603	Thermo 42i	2010	Chemiluminescence	074	Continuous	U	PE
SO_2	42401	Thermo 43i-TLE	2013	Pulsed fluorescence	060	Continuous	N	PE
Black Carbon	84313	Teledyne API 633 Aethalometer	2012	Optical absorption	894	Continuous	N	PE
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	2011	Auto GC-PID	092	Continuous	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

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

Continued

Bayonne, continued

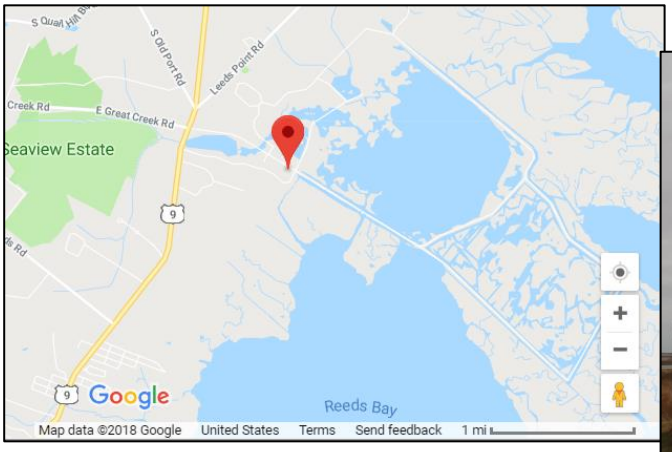
BRIGANTINE

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Teledyne T400	2019	Ultraviolet	087	Continuous	U	B
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2018	Gravimetric	145	Every 3 days	U	B
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2013	Beta particle attenuation	183	Continuous	U	B
SO_2	42401	Thermo 43i-TLE	2007	Pulsed fluorescence	060	Continuous	U	B
Real-time $PM_{2.5}$	88347	Ecotech Nephelometer	2007	Light-scattering	011	Continuous	U	B

Site Purpose	To measure background pollutant concentrations in a southern coastal area, and visibility in a Class I protected area.
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.



CAMDEN SPRUCE STREET

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2016	Ultraviolet	047	Continuous	N	PE
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2019	Gravimetric	145	Every 3 days	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2021	Beta Particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2016	Chemiluminescence	074	Continuous	N	PE
NO	42601	Thermo 42i	2016	Chemiluminescence	074	Continuous	N	PE
NOx	42603	Thermo 42i	2016	Chemiluminescence	074	Continuous	N	PE
SO_2	42401	Thermo 43iTLE	2018	Pulsed fluorescence	060	Continuous	N	PE
CO	42101	Thermo 48i-TLE	2018	Nondispersive infrared	054	Continuous	N	PE
PM_{10}	81102	Thermo 2025 low-volume sequential sampler	2013	Gravimetric	127	Every 6 days	M	SO
Black Carbon	84313	Teledyne API 633 Aethalometer	2012	Optical absorption	894	Continuous	N	PE
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	2011	Auto GC-PID	092	Continuous	N	PE
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	2001	XRF, IC, TOR	Appendix C	Every 6 days	N	PE
VOCs	Appendix A	Canister	2001	TO-15	Appendix A	Every 6 days	N	PE
Carbonyls	Appendix B	DNPH cartridge	2001	TO-11A	Appendix B	Every 6 days	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

Camden Spruce Street, continued

Site Purpose	Comprehensive air monitoring station in the Philadelphia-Camden metro area of southern New Jersey.
Plans for the next 18 months	No changes.
Other Comment	$PM_{2.5}$ gravimetric sampler is collocated for precision. Collocated sample taken every 6 days. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

CATTUS ISLAND

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Acid Deposition		Wet Deposition Collector	2015	Ion Chromatography		Weekly	N	PE

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.

CHESTER

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Teledyne T400	2015	Ultraviolet	087	Continuous	U	PE
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2014	Gravimetric	145	Every 3 days	U	PE
NO_2	42602	Teledyne T200	2014	Chemiluminescence	099	Continuous	U	B
NO	42601	Teledyne T200	2014	Chemiluminescence	099	Continuous	U	B
NOx	42603	Teledyne T200	2014	Chemiluminescence	099	Continuous	U	B
SO_2	42401	Teledyne T100	2016	Pulsed fluorescence	100	Continuous	U	B
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	2009	XRF, IC, TOR	Appendix C	Every 6 days	N	PE
VOCs	Appendix A	Canister	2009	TO-15	Appendix.A	Every 6 days	N	PE
Carbonyls	Appendix B	DNPH cartridge	2009	TO-11A	Appendix B	Every 6 days	N	PE

Site Purpose	To measure background concentrations of NOx & SO_2, and population exposure to O_3 and $PM_{2.5}$, 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.

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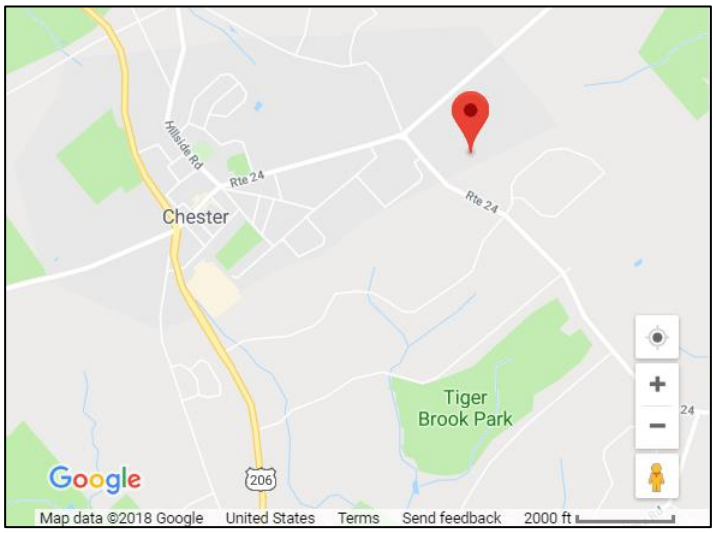
Chester, continued



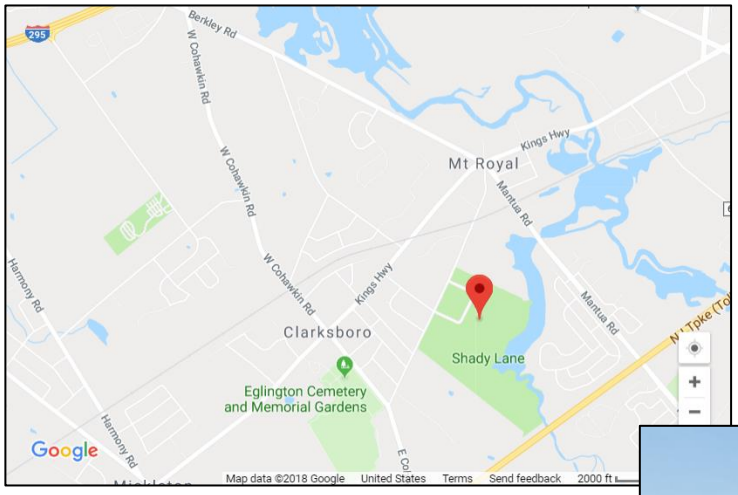
CLARKSBORO

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Teledyne T400	2016	Ultraviolet	087	Continuous	U	HC
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2014	Gravimetric	145	Every 3 days	N	PE

Site Purpose	During O_3 season, to measure highest concentrations of O_3 downwind from Philadelphia metropolitan area. Also to measure population exposure to $PM_{2.5}$.
Plans for the next 18 months	No changes.
Other Comment	



COLLIERS MILLS

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Teledyne T400	2015	Ultraviolet	087	Continuous	U	HC

Site Purpose	During O_3 season, to measure highest concentrations of O_3 downwind from the Philadelphia metropolitan area and central New Jersey.
Plans for the next 18 months	No changes.
Other Comment	

COLUMBIA

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objective
O_3	44201	Thermo 49i	2007	Ultraviolet	047	Continuous	N	PE
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2019	Gravimetric	145	Every 6 days	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2019	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2017	Chemiluminescence	074	Continuous	N	PE
NO	42601	Thermo 42i	2017	Chemiluminescence	074	Continuous	N	PE
NOx	42603	Thermo 42i	2017	Chemiluminescence	074	Continuous	N	PE
SO_2	42401	Teledyne T100U	2015	Pulsed fluorescence	100	Continuous	N	HC
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

Site Purpose	Established in 2010 to measure the SO_2 impact of a coal-burning facility a mile away in Pennsylvania (closed in 2014). Additionally, it measures population exposure for NO_2, O_3 and $PM_{2.5}$ in the northwestern area of NJ.
Plans for the next 18 months	No changes.
Other Comment	Gravimetric $PM_{2.5}$ sampler is collocated for comparison with real-time sampler.

Continued

Columbia, continued

ELIZABETH

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
SO_2	42401	Teledyne T100	2016	Pulsed fluorescence	100	Continuous	M	PE
CO	42101	Thermo 48i	2017	Nondispersive infrared	054	Continuous	MS	HC

Site Purpose	To measure the highest concentrations of SO_2 and CO in the central commercial area of Elizabeth.
Plans for the next 18 months	No changes.
Other Comment	

ELIZABETH LAB

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025i low-volume sequential sampler	2013	Gravimetric	145	Daily	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2014	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	HC
NO	42601	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	HC
NOx	42603	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	HC
SO_2	42401	Thermo 43i	2016	Pulsed fluorescence	060	Continuous	N	HC
CO	42101	Thermo 48i	2019	Nondispersive infrared	054	Continuous	N	HC
Black Carbon	84313	Teledyne API 633 Aethalometer	2012	Optical absorption	894	Continuous	N	PE
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	2011	Auto-GC PID	092	Continuous	N	PE
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	2016	XRF, IC, TOR	Appendix C	Every 3 days	N	HC
VOCs	Appendix A	Canister	2016	TO-15	Appendix A	Every 6 days	N	PE
Carbonyls	Appendix B	DNPH cartridge	2016	TO-11A	Appendix B	Every 6 days	N	PE
Mercury (Hg)		Tekran 2537x	2016	CVAF Spectrometry		Hourly	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

Elizabeth Lab, continued

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	Site is also referred to as Elizabeth Trailer. $PM_{2.5}$ gravimetric sampler is collocated for precision. Collocated sample taken every 6 days. See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

FLEMINGTON

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2013	Ultraviolet	087	Continuous	U	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2013	Beta particle attenuation	183	Continuous	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

Site Purpose	To measure O_3 and $PM_{2.5}$ concentrations in the northwestern region of New Jersey.
Plans for the next 18 months	No changes.
Other Comment	

FORT LEE NEAR ROAD

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2020	Beta particle attenuation	209	Continuous	MS	SO
NO_2	42602	Thermo 42i	2012	Chemiluminescence	074	Continuous	MS	SO
NO	42601	Thermo 42i	2012	Chemiluminescence	074	Continuous	MS	SO
NOx	42603	Thermo 42i	2012	Chemiluminescence	074	Continuous	MS	SO
CO	42101	Thermo 48i	2013	Nondispersive infrared	054	Continuous	MS	SO
Black Carbon	84313	Teledyne API 633 Aethalometer	2012	Optical absorption	894	Continuous	MS	SO
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	2014	Auto-GC PID	092	Continuous	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

Site Purpose	Established in 2014 as NJ's designated NEAR-ROAD site; 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.

Continued

Fort Lee Near Road, continued

JERSEY CITY

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec--tive
NO_2	42602	Teledyne T200	2016	Chemiluminescence	099	Continuous	N	PE
NO	42601	Teledyne T200	2016	Chemiluminescence	099	Continuous	N	PE
NOx	42603	Teledyne T200	2016	Chemiluminescence	099	Continuous	N	PE
SO_2	42401	Teledyne T100	2016	Pulsed fluorescence	100	Continuous	N	HC
CO	42101	Thermo 48i-Q	2019	Nondispersive infrared	054	Continuous	MS	HC

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

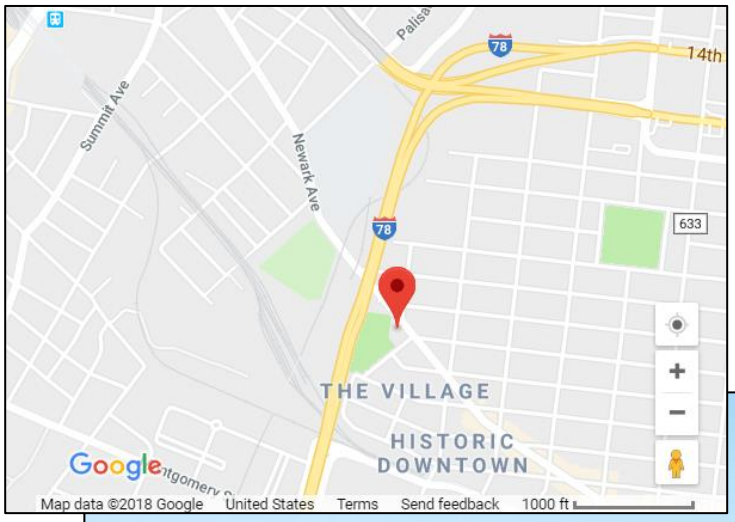
JERSEY CITY FIREHOUSE

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2015	Gravimetric	145	Daily	N	PE
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2019	Beta particle attenuation	209	Continuous	N	PE
PM_{10}	81102	Thermo 2000 low-volume single sampler	2013	Gravimetric	126	Every 6 days	N	HC

Site Purpose	To measure population exposure to particulate matter in the Jersey City area.
Plans for the next 18 months	No changes.
Other Comment	Gravimetric $PM_{2.5}$ and PM_{10} samplers are collocated for precision measurements. Collocated samples taken every 6 days.



LEONIA

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i-Q	2019	Ultraviolet	047	Continuous	N	PE

Site Purpose	During O_3 season, to measure population exposure in the Leonia and Teaneck areas.
Plans for the next 18 months	No changes.
Other Comment	

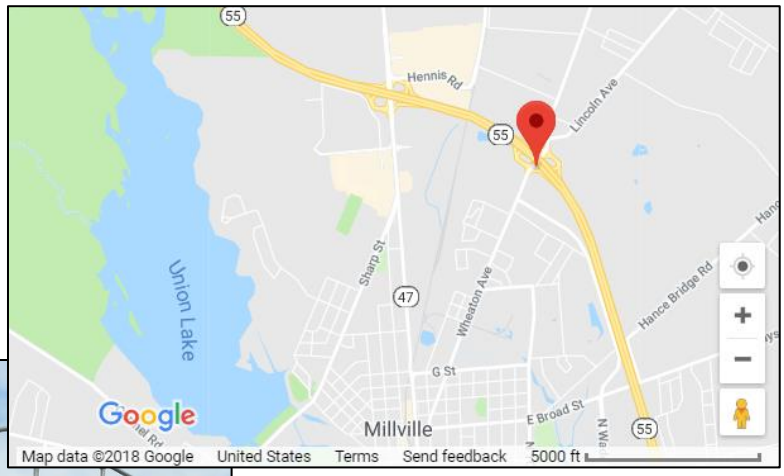
MILLVILLE

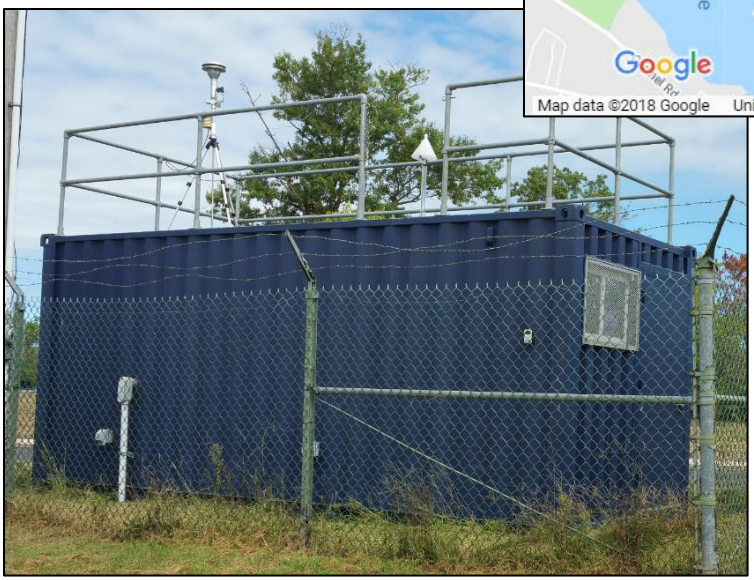
Site Name	Millville
Address	Behind 4401 S. Main Road
City, State, Zip	Millville, NJ 08332
AQS Code	34 011 0007
NJ County	Cumberland
UAR/CSA	Vineland-Millville, NJ UA
Latitude	39.422273
Longitude	-75.025204
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2015	Ultraviolet	047	Continuous	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2013	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Teledyne T200	2015	Chemiluminescence	099	Continuous	N	PE
NO	42601	Teledyne T200	2015	Chemiluminescence	099	Continuous	N	PE
NOx	42603	Teledyne T200	2015	Chemiluminescence	099	Continuous	N	PE

Site Purpose	To measure population exposure in the Vineland and Millville areas of southern New Jersey.
Plans for the next 18 months	No changes.
Other Comment	





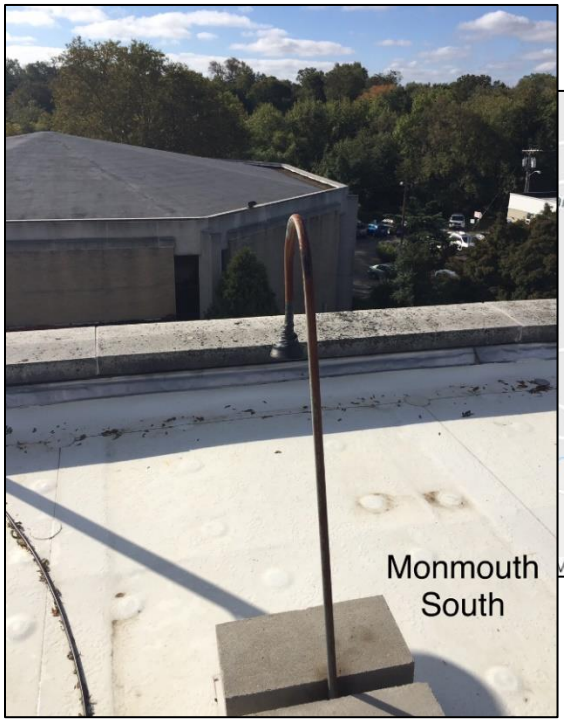
MONMOUTH UNIVERSITY

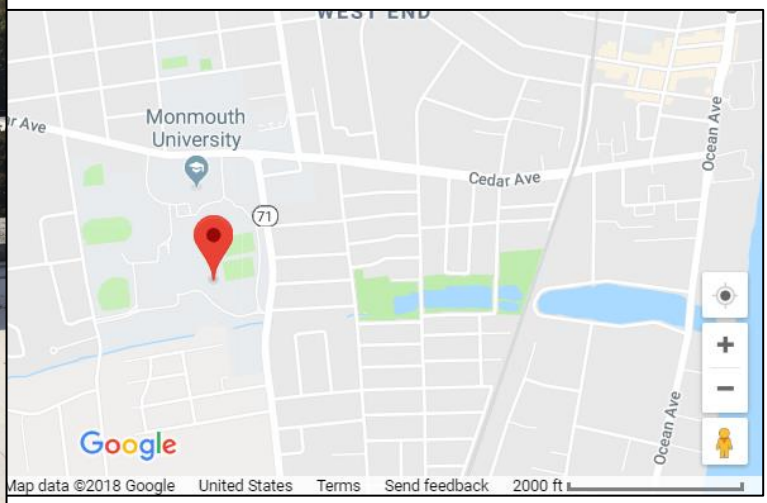
Site Name	Monmouth University
Address	Edison Science Hall, off of 400 Cedar Avenue
City, State, Zip	West Long Branch, NJ 07764
AQS Code	34 025 0005
NJ County	Monmouth
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.277647
Longitude	-74.005100
Date Established	5/13/1989
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2017	Ultraviolet	047	Continuous	N	HC

Site Purpose	During O_3 season, to measure highest concentrations of O_3 in the eastern Monmouth County coastal area.
Plans for the next 18 months	No changes.
Other Comment	





NEWARK FIREHOUSE

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2010	Ultraviolet	047	Continuous	N	PE
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2016	Gravimetric	145	Every 3 days	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2013	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	PE
NO	42601	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	PE
NOx	42603	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	PE
NOy-NO Difference	42612	Thermo 42i-Y	2013	Chemiluminescence	674	Continuous	N	PE
NO	42601	Thermo 42i-Y	2013	Chemiluminescence	674	Continuous	N	PE
Total Reactive Oxides of Nitrogen (NOy)	42600	Thermo 42i-Y	2013	Chemiluminescence	674	Continuous	N	PE
SO_2	42401	Thermo 43i-TLE	2012	Pulsed fluorescence	560	Continuous	N	HC
CO	42101	Thermo 48i-TLE	2012	Nondispersive infrared	554	Continuous	N	PE
PM_{10}	81102	Thermo 2025 Sequential Sampler	2012	Gravimetric	127	Every 3 days	N	PE
Lead (Pb)	85129	Thermo 2025 low-volume sequential sampler	2017	XRF with PM_{10}	811	Every 6 days	N	PE
PMcoarse	86101	Thermo 2025 Sequential Sampler Pair	2017	Paired Gravimetric Difference	176	Every 3 days	N	PE
Black Carbon	84313	Teledyne API 633 Aethalometer	2012	Optical absorption	894	Continuous	N	PE
BTEX	Appendix E	Syntech Spectras GC 955 BTEX analyzer	2011	Auto-GC PID	092	Continuous	N	PE
PM2.5 Speciation	Appendix C	Met One & URG-3000N	2017	XRF, IC, TOR	Appen-dix C	Every 3 days	N	PE

Continued

Newark Firehouse, continued

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Resultant Wind Direction	61104	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Resultant Wind Speed	61103	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Solar Radiation	63301	Qualimetrics	2010	Pyrometer	011	Continuous	N	PE

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.

PATERSON

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2016	Gravimetric	145	Every 3 days	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the Paterson area.
Plans for the next 18 months	No changes.
Other Comment	

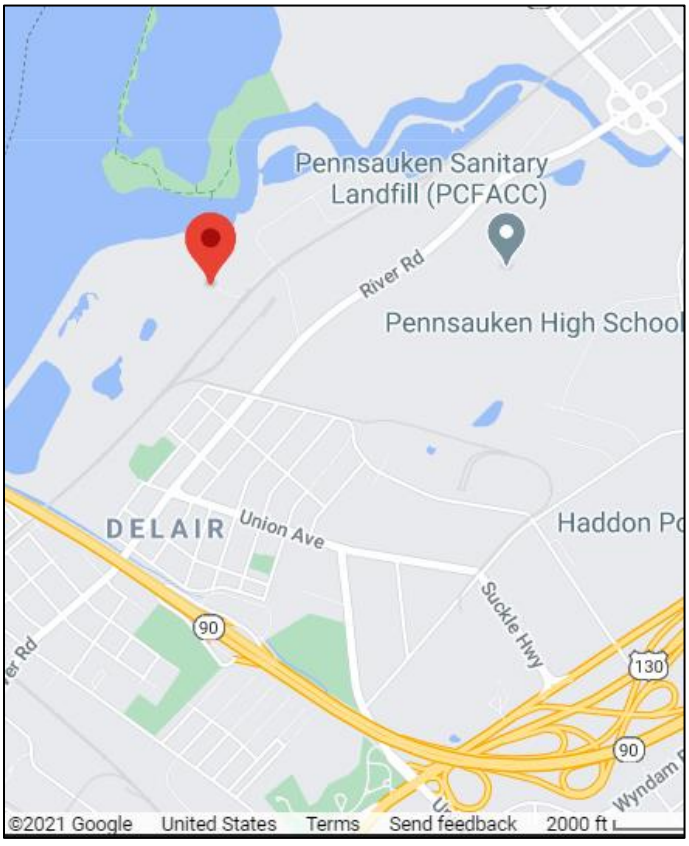
PENNSAUKEN

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2015	Gravimetric	145	Every 3 days	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the Pennsauken area.
Plans for the next 18 months	No changes.
Other Comment	



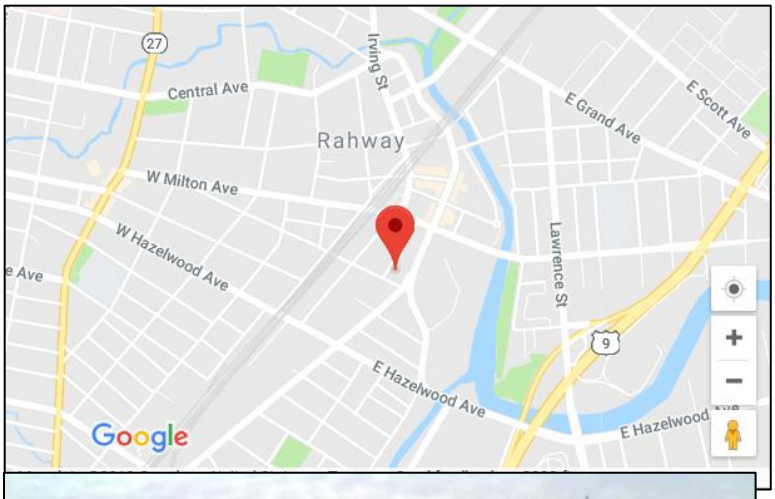
RAHWAY

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2016	Beta particle attenuation	209	Continuous	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the Rahway area.
Plans for the next 18 months	No changes.
Other Comment	



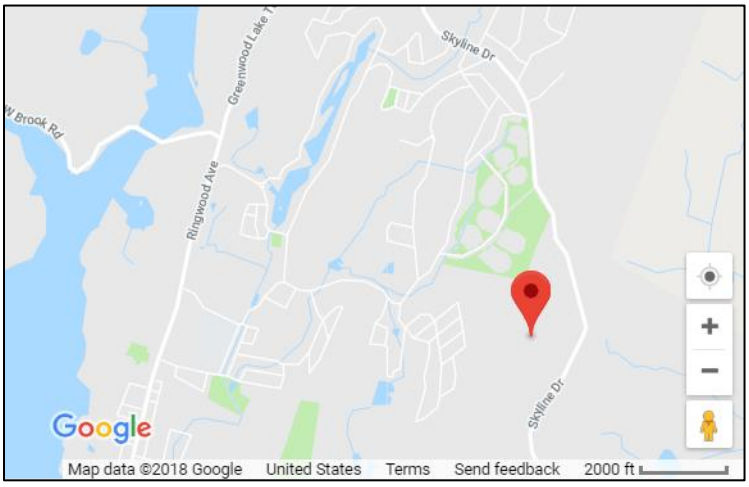
RAMAPO

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2010	Ultraviolet	047	Continuous	U	B

Site Purpose	During O_3 season, to measure background, transport and upwind concentrations of ozone.
Plans for the next 18 months	No changes.
Other Comment	



RIDER UNIVERSITY

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2018	Ultraviolet	047	Continuous	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2012	Beta particle attenuation	183	Continuous	N	PE
Barometric Pressure	64101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Vaisala WXT	2010	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Direction	61102	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE
Wind Speed	61101	Vaisala WXT	2010	Ultrasonic sensor	060	Continuous	N	PE

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

RUTGERS UNIVERSITY

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Teledyne T400	2014	Ultraviolet	087	Continuous	N	PE
$PM_{2.5}$	88101	Thermo 2025i low-volume sequential sampler	2019	Gravimetric	145	Every 3 days	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2013	Beta particle attenuation	183	Continuous	N	PE
True-NO_2	42602	Teledyne T500U	2018	Cavity attenuated phase shift	212	Continuous	N	PE
NOy-NO Difference	42612	Thermo 42i-Y	2018	Chemiluminescence	674	Continuous	N	PE
NO	42601	Thermo 42i-Y	2018	Chemiluminescence	674	Continuous	N	PE
Total Reactive Oxides of Nitrogen (NOy)	42600	Thermo 42i-Y	2018	Chemiluminescence	674	Continuous	N	PE
$PM_{2.5}$ Speciation	Appendix C	Met One & URG-3000N	2017	XRF, IC, TOR	Appendix C	Every 3 days	N	PE
VOCs	Appendix A	Canister	2017	TO-15	Appendix A	Every 6 days	N	PE
Carbonyls	Appendix B	DNPH cartridge	2017	TO-11A	Appendix B	Every 6 days	N	PE
Ozone Precursors (PAMS)	Appendix D	Agilent-Markes	2018	Auto GC-FID	Appendix D	Hourly	U	B
PAMS Carbonyls	Appendix B	Atec 8000	2018	TO-11A	Appendix B	8-hr, every 3 days	U	B
Mercury (Hg)		Tekran 2537x	2016	CVAF Spectrometry		Hourly	N	PE
Barometric Pressure	64101	Rotronic MP101A		Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Rotronic MP101A		Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Rotronic MP101A		Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	Geonor T-200B		Rain gauge	012	Continuous	N	PE
Wind Direction	61102	Gill Windmaster HS 3D		Ultrasonic sensor	060	Continuous	N	PE

Continued

Rutgers University, continued

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Wind Speed	61101	Gill Windmaster HS 3D		Ultrasonic sensor	060	Continuous	N	PE
Solar Radiation	63301	Kipp&Zonen CMP-11		Pyranometer	011	Continuous	N	PE
Ultraviolet Radiation	63302	Eppley TUVR		UV Radiometer	011	Continuous	N	PE
Mixing Height	61301	Vaisala CL51		Ceilometer	011	Continuous	N	PE

Site Purpose	To measure population exposure and O_3 precursors, downwind for Philadelphia metropolitan area and upwind for New York metropolitan area.
Plans for the next 18 months	No changes.
Other Comment	PAMS sampling period is June 1 to August 31. 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 are 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. A $PM_{2.5}$ speciation sampler is collocated for QA/QC.

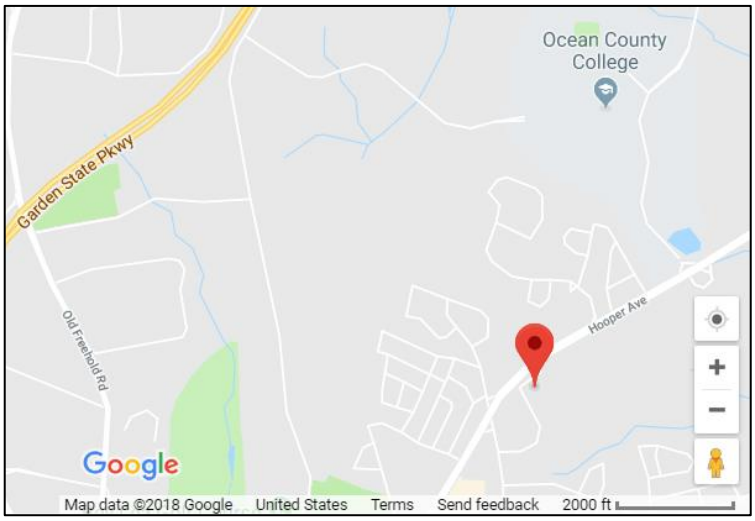
TOMS RIVER

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2018	Beta particle attenuation	209	Continuous	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the Toms River area.
Plans for the next 18 months	Remove the filter-based sampler by the end of the year.
Other Comment	



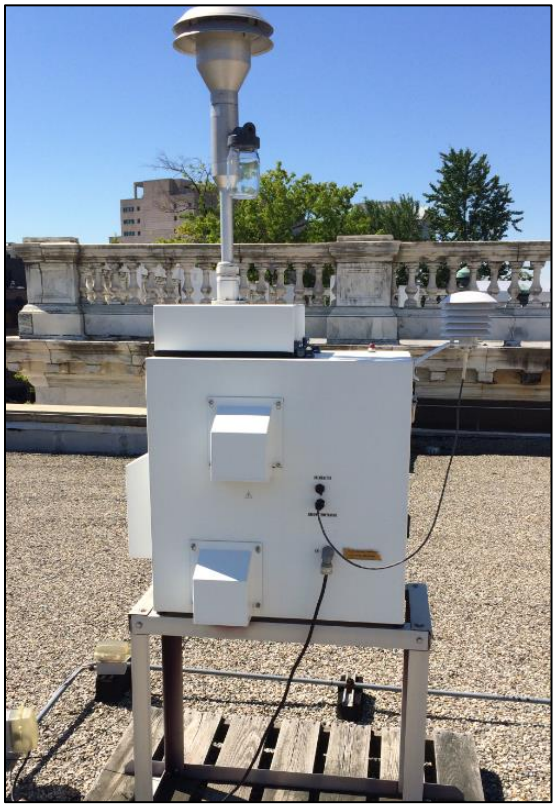
TRENTON

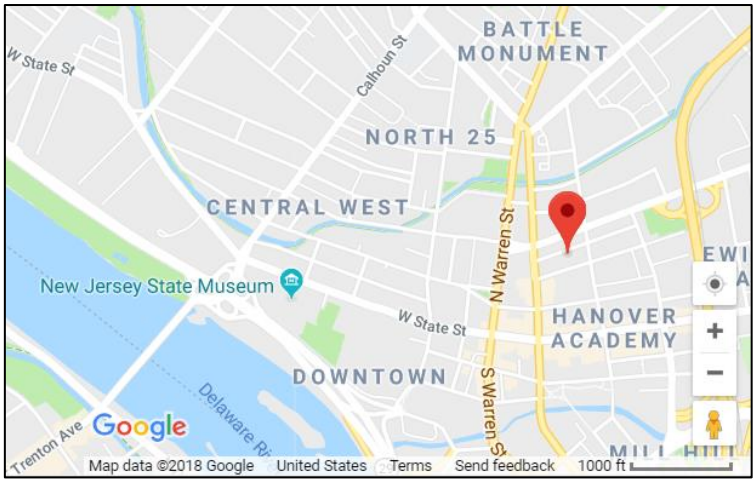
Site Name	Trenton
Address	Trenton Public Library, 120 Academy Street
City, State, Zip	Trenton, NJ 08608
AQS Code	34 021 0008
NJ County	Mercer
UAR/CSA	Trenton, NJ-PA UA
Latitude	40.222411
Longitude	-74.763167
Date Established	9/1/1982
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2018	Gravimetric	145	Daily	N	PE
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2019	Beta particle attenuation	209	Continuous	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the downtown commercial district of Trenton.
Plans for the next 18 months	Replace the filter-based monitor with a continuous real-time $PM_{2.5}$ sampler.
Other Comment	





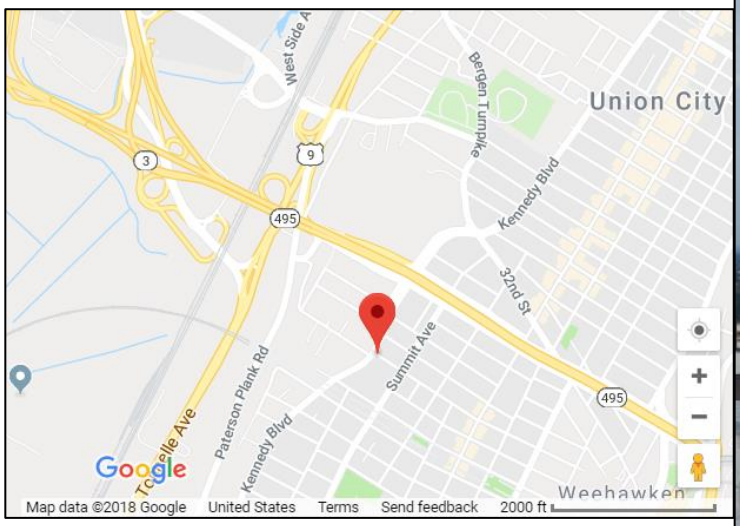
UNION CITY HIGH SCHOOL

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	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
$PM_{2.5}$	88101	Thermo 2025 low-volume sequential sampler	2018	Gravimetric	145	Every 3 days	N	PE

Site Purpose	To measure population exposure to $PM_{2.5}$ in the Union City and Hudson County areas.
Plans for the next 18 months	No changes.
Other Comment	



WASHINGTON CROSSING

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?	Not Applicable

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
Acid Deposition		Wet Deposition Collector	2015	Ion Chromatography		Weekly	N	PE

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
auto GC-PID – automated gas Chromatograph Photoionization 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 required by USEPA to measure particles, O3, SO2, CO, NOx and meteorology, for compliance with the NAAQS and to support research
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
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
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 monitor situated in an area which is not expected to be affected by specific air pollution sources
Canister – a stainless steel container used for collecting an air sample to be analyzed f or 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
Highest concentration – a monitor situated to measure the expected maximum concentrations 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, up to 100 meters from the monitor
Middle-scale – the spatial scale of a monitoring site, from 100 meters to 0.5 km from the monitor
Neighborhood-scale – the spatial scale of a monitoring site, from 0.5 to 4 km from 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 volatile organic compounds that affect ozone formation and destruction in the atmosphere; also called PAMS pollutants
Population exposure – a monitor situated to measure typical concentrations of a pollutant in a densely populated area
Pulsed fluorescence – the method used for analyzing for sulfur dioxide
Pyrometer – the method used for measuring solar radiation
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
Source-oriented – a monitor situated to measure the impact of significant sources or source categories
Ultraviolet – the method used for analyzing ozone
Urban Scale – the spatial scale of a monitoring site, from 4 to 50 km from the monitor

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APPENDIX A: VOLATILE ORGANIC COMPOUNDS

Sampling Instrument: Canister
Method of Analysis: TO-15
AQS Method Code: 101

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

Continued

APPENDIX A: VOLATILE ORGANIC COMPOUNDS (Continued)

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

APPENDIX B: CARBONYLS

Sampling Instrument: DNPH Cartridge
Method of Analysis: TO-11A
AQS Method Code: 202

	Parameter	Parameter Code
1	2-Butanone	43552
2	2,5-Dimethylbenzaldehyde	45503
3	Acetaldehyde	43503
4	Acetone	43551
5	Benzaldehyde	45501
6	Butyraldehyde	43329
7	Crotonaldehyde	43528
8	Formaldehyde	43502
9	Hexaldehyde	43517
10	Isovaleraldehyde	43513
11	Propionaldehyde	43504
12	Tolualdehydes	45504
13	Valeraldehyde	43518

APPENDIX C: SPECIATED FINE PARTICLES

	Parameter	Parameter Code	Sampling Instrument	Method of Analysis	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	Chloride	88203	Met One SASS Teflon	Energy Dispersive XRF	811
12	Chlorine	88115	Met One SASS Teflon	Energy Dispersive XRF	811
13	Chromium	88112	Met One SASS Teflon	Energy Dispersive XRF	811
14	Cobalt	88113	Met One SASS Teflon	Energy Dispersive XRF	811
15	Copper	88114	Met One SASS Teflon	Energy Dispersive XRF	811
16	EleCarbTor	88380	URG 3000N	EC1+EC2+EC3-(OP(TOR))	838
17	EleCarbTot	88357	URG 3000N	EC1+EC2+EC3-OP	838
18	Indium	88131	Met One SASS Teflon	Energy Dispersive XRF	811
19	Iron	88126	Met One SASS Teflon	Energy Dispersive XRF	811
20	Lead	88128	Met One SASS Teflon	Energy Dispersive XRF	811
21	Magnesium	88140	Met One SASS Teflon	Energy Dispersive XRF	811
22	Manganese	88132	Met One SASS Teflon	Energy Dispersive XRF	811
23	Nickel	88136	Met One SASS Teflon	Energy Dispersive XRF	811
24	Nitrate	88306	Met One SASS Nylon	Ion Chromatography	812
25	OrgCarbTor	88370	URG 3000N	OC1+OC2+OC3+OC4+(OP(TOR))	838
26	OrgCarbTot	88355	URG 3000N	OC1+OC2+OC3+OC4+OP	838
27	Phosphorus	88152	Met One SASS Teflon	Energy Dispersive XRF	811
28	Potassium	88180	Met One SASS Teflon	Energy Dispersive XRF	811
29	Potassium IC	88303	Met One SASS Nylon	Ion Chromatography	812
30	Rubidium	88176	Met One SASS Teflon	Energy Dispersive XRF	811
31	Selenium	88154	Met One SASS Teflon	Energy Dispersive XRF	811
32	Silicon	88165	Met One SASS Teflon	Energy Dispersive XRF	811
33	Silver	88166	Met One SASS Teflon	Energy Dispersive XRF	811
34	Sodium	88184	Met One SASS Teflon	Energy Dispersive XRF	811
35	Sodium IC	88302	Met One SASS Nylon	Ion Chromatography	812
36	Strontium	88168	Met One SASS Teflon	Energy Dispersive XRF	811
37	Sulfate	88403	Met One SASS Nylon	Ion Chromatography	812
38	Sulfur	88169	Met One SASS Teflon	Energy Dispersive XRF	811
39	Tin	88160	Met One SASS Teflon	Energy Dispersive XRF	811
40	Titanium	88161	Met One SASS Teflon	Energy Dispersive XRF	811
41	Vanadium	88164	Met One SASS Teflon	Energy Dispersive XRF	811
42	Zinc	88167	Met One SASS Teflon	Energy Dispersive XRF	811
43	Zirconium	88185	Met One SASS Teflon	Energy Dispersive XRF	811

APPENDIX D: OZONE PRECURSORS

Sampling Instrument: Agilent-Markes
Method of Analysis: Auto-GC-FID
AQS Method Code: 227

	Parameter	AQS Parameter Code
1	Sum of PAMS Compounds	43000
2	Total NMOC	43102
3	n-Dodecane	43141
4	Ethane	43202
5	Ethylene	43203
6	Propane	43204
7	Propylene	43205
8	Acetylene	43206
9	n-Butane	43212
10	Isobutane	43214
11	trans-2-Butene	43216
12	cis-2-Butene	43217
13	1,3-Butadiene	43218
14	n-Pentane	43220
15	Isopentane	43221
16	1-Pentene	43224
17	trans-2-Pentene	43226
18	cis-2-Pentene	43227
19	3-Methylpentane	43230
20	n-Hexane	43231
21	n-Heptane	43232
22	n-Octane	43233
23	n-Nonane	43235
24	n-Decane	43238
25	Cyclopentane	43242
26	Isoprene	43243
27	2,2-Dimethylbutane	43244
28	1-Hexene	43245
29	2,4-Dimethylpentane	43247
30	Cyclohexane	43248
31	3-Methylhexane	43249
32	2,2,4-Trimethylpentane	43250
33	2,3,4-Trimethylpentane	43252
34	3-Methylheptane	43253
35	alpha-Pinene	43256
36	beta-Pinene	43257
37	Methylcyclohexane	43261
38	Methylcyclopentane	43262

Continued

APPENDIX D: OZONE PRECURSORS (Continued)

	Parameter	AQS Parameter Code
39	2-Methylhexane	43263
40	1-Butene	43280
41	2,3-Dimethylbutane	43284
42	2-Methylpentane	43285
43	2,3-Dimethylpentane	43291
44	n-Undecane	43954
45	2-Methylheptane	43960
46	m/p-Xylene	45109
47	Benzene	45201
48	Toluene	45202
49	Ethylbenzene	45203
50	o-Xylene	45204
51	1,3,5-Trimethylbenzene	45207
52	1,2,4-Trimethylbenzene	45208
53	n-Propylbenzene	45209
54	Isopropylbenzene	45210
55	o-Ethyltoluene	45211
56	m-Ethyltoluene	45212
57	p-Ethyltoluene	45213
58	m-Diethylbenzene	45218
59	p-Diethylbenzene	45219
60	Styrene	45220
61	1,2,3-Trimethylbenzene	45225

APPENDIX E: BTEX COMPOUNDS

Sampling Instrument: Syntech Spectras BTEX Analyzer GC 955
Method of Analysis: Gas Chromatography
AQS Method Code: 092

Parameter	Parameter Code
Benzene	45201
Toluene	45202
Ethylbenzene	45203
m,p-Xylene	45109
o-Xylene	45204