New Jersey
Ambient Air Monitoring
Network Plan 2023

August 2023

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 2023 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 2022 and March 31, 2023, include:

1. Newark Firehouse – station shut down in September 2022; and
2. Paterson - began collection of continuous $PM_{2.5}$ data in June 2022.

These changes are summarized in Table 1.

TABLE 1. Air Monitoring Network Changes, March 2022 – March 2023

Monitoring Site	Parameter(s)	Action	Date
Newark Firehouse	All	Shut down station because of planned construction at site	9/26/2022
Paterson	$PM_{2.5}$	Began collection of data from continuous monitor	6/1/2022

Proposed Changes

In August of 2022, BAM received notice that construction of a new building was about to begin next to the Newark Firehouse air monitoring station, and that our monitoring equipment would have to be removed as soon as possible. Data collection ended there on September 26, and the station was subsequently shut down and dismantled. After receiving input from Newark community representatives and from USEPA Region 2, a vacant lot located approximately one mile northeast of the Newark Firehouse site was identified as a suitable location for a replacement monitoring station. The lot, at 42 Chestnut Street, is owned by the Newark Board of Education (NBOE). The NJDEP is currently negotiating with the NBOE for a license to establish and operate a new monitoring station there. Since Newark Firehouse was a National Core (NCore) station, additional review by USEPA headquarters will be required before final approval. The new station could potentially be operational by the end of 2023.

In February (2023), BAM was also notified that the lease for the Camden Spruce Street monitoring site would be terminated as of June 30, 2024. The search for a new location has started.

This coming year, BAM proposes to continue replacing filter-based $PM_{2.5}$ monitors in the New Jersey air monitoring network with continuous ones. Atlantic City is in the process of being switched. Next on the list are Chester and Clarksboro.

BAM will proceed with its planning to establish a $PM_{2.5}$ monitoring station in Burlington County. Instead of replacing the filter-based $PM_{2.5}$ monitor at the station in Pennsauken, a continuous $PM_{2.5}$ monitor would be located at a new site across the county boundary in Burlington County.

The Pennsauken monitoring station is about 5.5 miles northeast of the Camden Spruce Street monitoring station. Both sites are in Camden County and are less than a half mile from the Delaware River. Burlington County is the largest county by area in the state, with a population of approximately 460,000. It currently has no air monitoring sites of any kind. Establishing a monitoring station in Burlington County is also expected to be beneficial for daily air pollution forecasts for the area. BAM is investigating suitable locations in the center of the county, which includes making use of NJDEP's Environmental Justice Mapping Tool at https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=34e507ead25b4aa5a5051dbb85e55055 to identify overburdened communities as defined under New Jersey's Environmental Justice Law (promulgated in 2020). Low-income and minority communities can be found in Mt. Holly, Pemberton Township, and other Burlington County municipalities.

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 2023 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.

This document was posted for public comment on the Bureau of Air Monitoring website, https://nj.gov/dep/airmon, from May 17 to June 22, 2023. Two comments were received, both recommending additional monitoring, particularly of $PM_{2.5}$, and especially in Newark, where the existing monitoring station had to be shut down in September of 2022. The comments can be found in Appendix F and the Bureau's responses to the comments are in Appendix G.

THE NEW JERSEY AIR MONITORING NETWORK

NJDEP currently operates 29 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 website, https://nj.gov/dep/airmon.

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 also monitors non-criteria 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 several sites.

TABLE 2. Current New Jersey Air Monitoring Sites & Parameters

	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]	Overburdened Community [f]
1	Ancora				X															
2	Atlantic City							X	+											X
3	Bayonne		X		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	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	
11	Elizabeth	X				X														X
12	Elizabeth Lab	X	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	X
15	Jersey City	X	X			X														X
16	Jersey City Firehouse							X*	X	X*										X
17	Leonia				X															X
18	Millville		X		X				X											X
19	Monmouth University				X															
20	Paterson								X											X
21	Pennsauken							X												X
22	Rahway								X											X
23	Ramapo				X															
24	Rider University				X				X										X	
25	Rutgers University		X	X	X			X	X			X*	X	X			X		X	X
26	Toms River								X											
27	Trenton								X											X
28	Union City High School								X											X
29	Washington Crossing															X				
	TOTAL CURRENT SITES	5	9	1	15	8	0	9	15	2	0	4	1	4	4	2	2	1	8	16

* Indicates that there is a collocated monitor at the site (for quality assurance purposes, as required by USEPA).
Shaded cell indicates that the monitor will be removed ("X") or added ("+") by the end of 2023.

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).

f – Overburdened Community - as designated in accordance with the New Jersey Environmental Justice Law, N.J.S.A. 13:1D-157 and the New Jersey Environmental Justice Mapping Tool

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

Overburdened Community – As designated in accordance with the New Jersey Environmental Justice Law, N.J.S.A. 13:1D-157 and the New Jersey Environmental Justice Mapping Tool (https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=34e507ead25b4aa5a5051dbb85e55055)

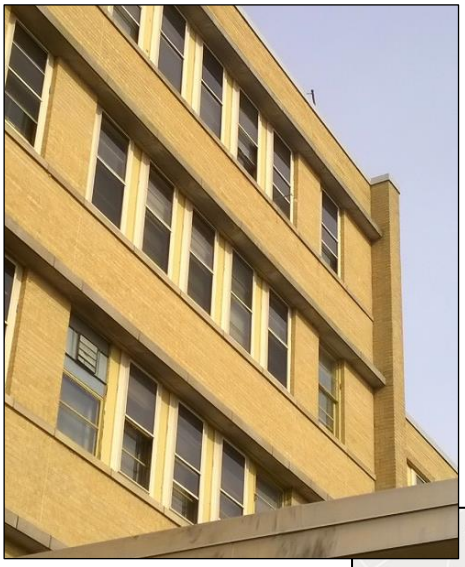
ANCORA STATE HOSPITAL

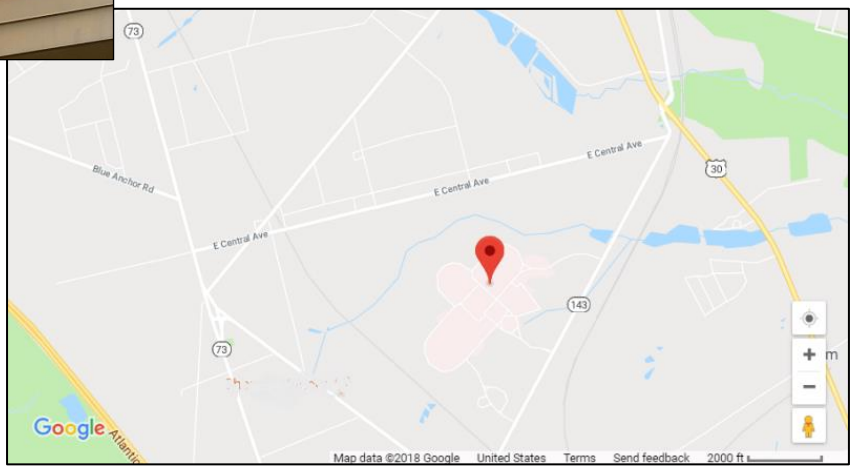
Site Name	Ancora State Hospital
Address	301 Spring Garden Road
City, State, Zip	Hammonton, NJ 08037
AQS Code	34 007 1001
NJ County	Camden
UAR/CSA	Philadelphia-Camden-Wilmington CSA
Latitude	39.684250
Longitude	-74.861491
Date Established	1/1/1966
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable
Overburdened Community?	No

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49iQ	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	





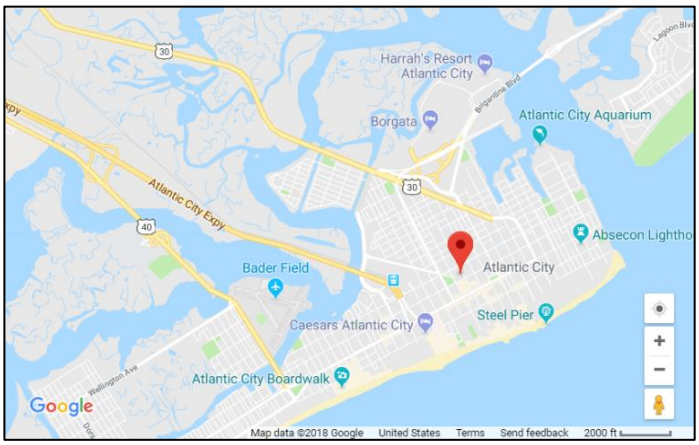
ATLANTIC CITY

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
Overburdened Community?	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	Replace the filter-based $PM_{2.5}$ monitor with a continuous one.
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
Overburdened Community?	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	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	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

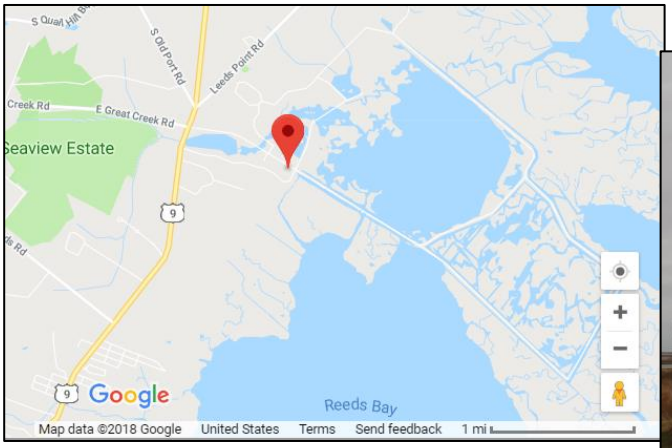
BRIGANTINE

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
Overburdened Community?	No

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49iQ	2019	Ultraviolet	047	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	Met One BAM 1022	2021	Beta particle attenuation	183	Continuous	U	B
SO_2	42401	Thermo 43i-TLE	2007	Pulsed fluorescence	060	Continuous	U	B
Visibility	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
Overburdened Community?	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	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	Met One BAM 1022	2021	Beta Particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42iQ	2019	Chemiluminescence	074	Continuous	N	PE
NO	42601	Thermo 42iQ	2019	Chemiluminescence	074	Continuous	N	PE
NOx	42603	Thermo 42iQ	2019	Chemiluminescence	074	Continuous	N	PE
SO_2	42401	Thermo 43iTLE	2007	Pulsed fluorescence	060	Continuous	N	PE
CO	42101	Thermo 48i-TLE	2007	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	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

Continued

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	The lease for the Camden monitoring site will end in 2024. A new location is being sought.
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
Overburdened Community?	No

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
Overburdened Community?	No

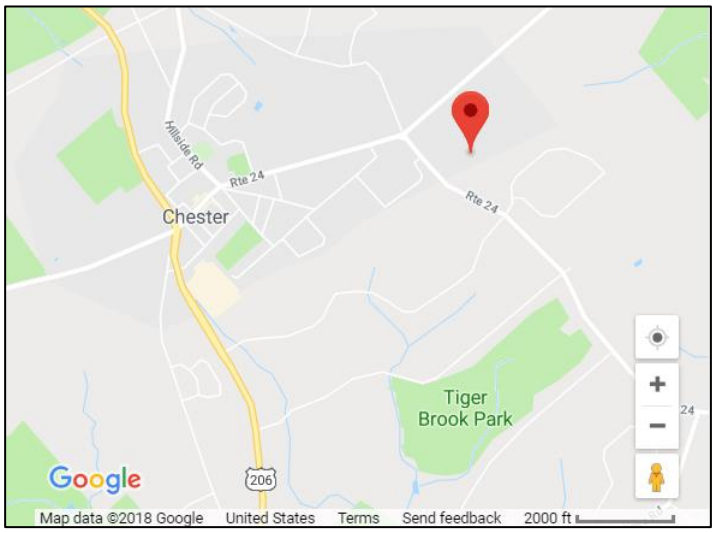
PARAMETER SUMMARY

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	Replace the filter-based $PM_{2.5}$ monitor with a continuous one.
Other Comment	See Appendices A, B and C for more information on $PM_{2.5}$ speciation, volatile organic compounds and carbonyls.

Continued

Chester, continued



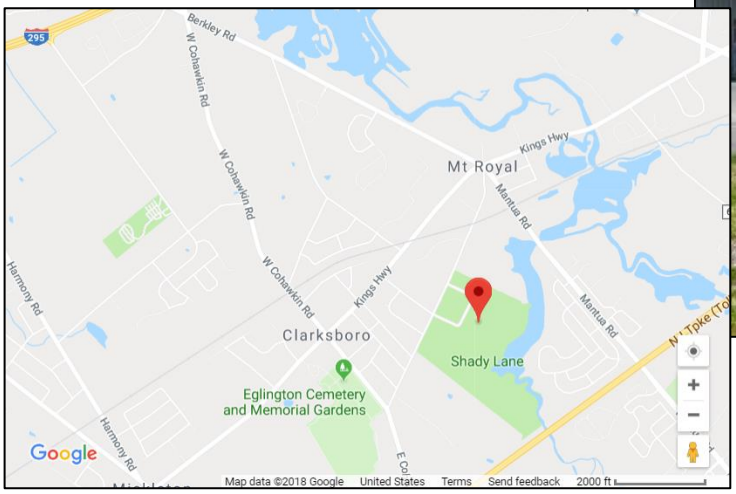
CLARKSBORO

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
Overburdened Community?	No

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	Replace the filter-based $PM_{2.5}$ monitor with a continuous one.
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
Overburdened Community?	No

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
Overburdened Community?	No

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	2013	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	PE
NO	42601	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	PE
NOx	42603	Thermo 42i	2013	Chemiluminescence	074	Continuous	N	PE
SO_2	42401	Thermo 43i-TLE	2009	Pulsed fluorescence	060	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
Overburdened Community?	Yes

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
Overburdened Community?	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	2021	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	HC
NO	42601	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	HC
NOx	42603	Thermo 42i	2010	Chemiluminescence	074	Continuous	N	HC
SO_2	42401	Thermo 43i	2016	Pulsed fluorescence	060	Continuous	N	HC
CO	42101	Thermo 48iQ	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	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

Continued

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.

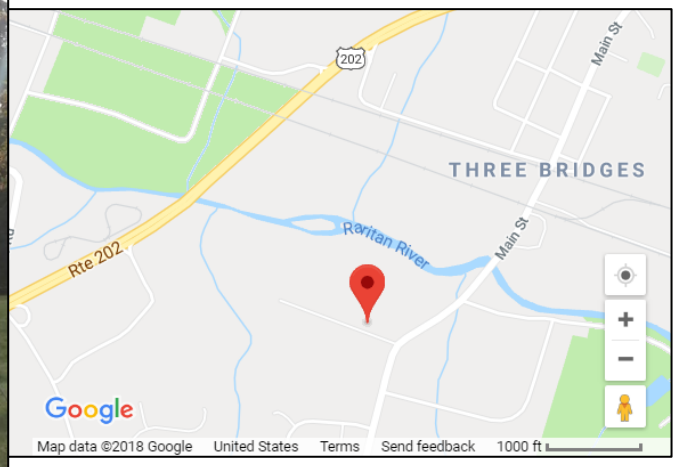
FLEMINGTON

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
Overburdened Community?	No

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	047	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	Hoyt Ave & Hudson St, south of toll plaza
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
Overburdened Community?	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	2010	Chemiluminescence	074	Continuous	MS	SO
NO	42601	Thermo 42i	2010	Chemiluminescence	074	Continuous	MS	SO
NOx	42603	Thermo 42i	2010	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	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
Overburdened Community?	Yes

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 48iQ	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	

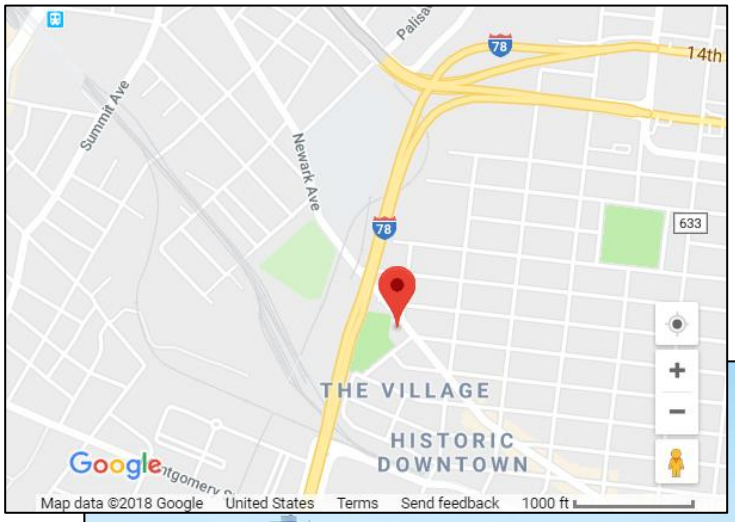
JERSEY CITY FIREHOUSE

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
Overburdened Community?	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
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
Overburdened Community?	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	2008	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	

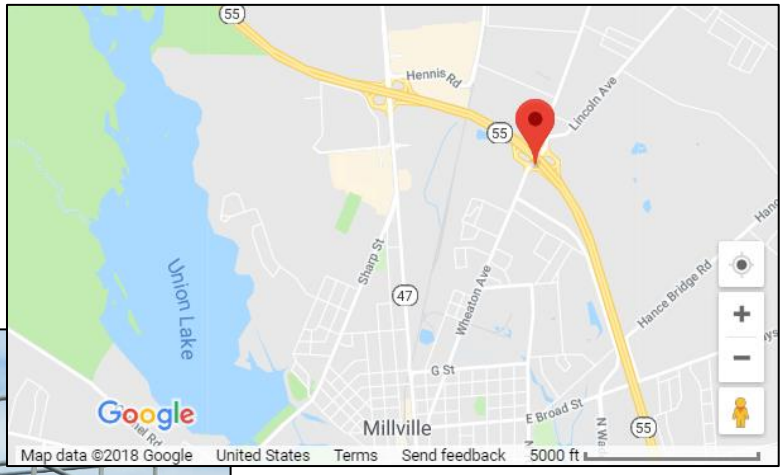
MILLVILLE

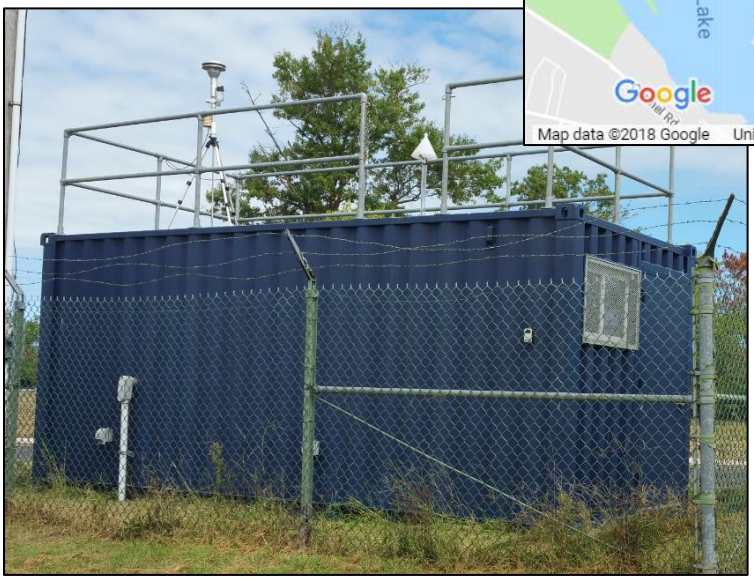
Site Name	Millville
Address	End of S. Lincoln Ave., s. of Rt. 55-S entrance ramp
City, State, Zip	Millville, NJ 08332
AQS Code	34 011 0007
NJ County	Cumberland
UAR/CSA	Vineland-Millville, NJ UA
Latitude	39.422273
Longitude	-75.025204
Date Established	1/1/1983
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes
Overburdened Community?	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	N	PE
Real-time $PM_{2.5}$	88101	Met One BAM 1022	2021	Beta particle attenuation	183	Continuous	N	PE
NO_2	42602	Teledyne T200	2022	Chemiluminescence	099	Continuous	N	PE
NO	42601	Teledyne T200	2022	Chemiluminescence	099	Continuous	N	PE
NOx	42603	Teledyne T200	2022	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	





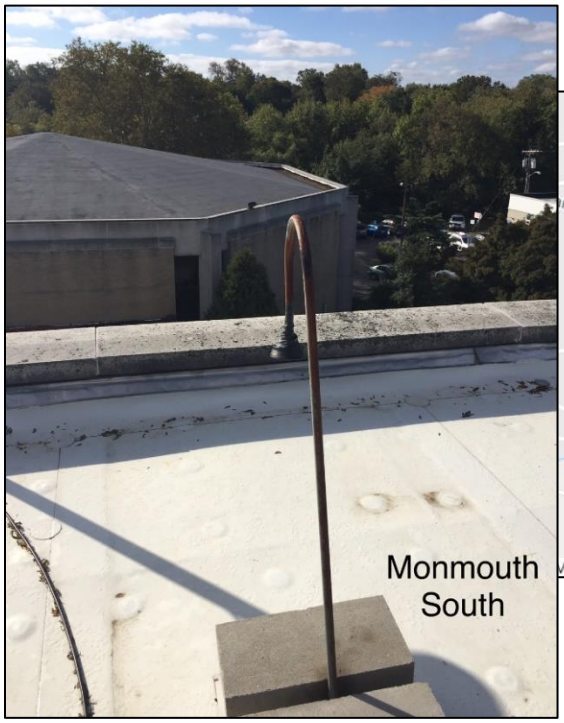
MONMOUTH UNIVERSITY

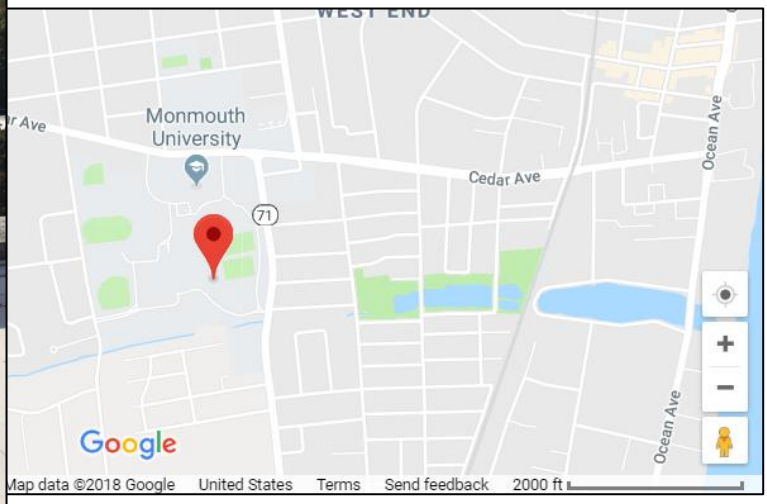
Site Name	Monmouth University
Address	Edison Science Hall, off of 400 Cedar Avenue
City, State, Zip	West Long Branch, NJ 07764
AQS Code	34 025 0005
NJ County	Monmouth
UAR/CSA	New York-Northeast New Jersey-Connecticut CSA
Latitude	40.277647
Longitude	-74.005100
Date Established	5/13/1989
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Not Applicable
Overburdened Community?	No

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	





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
Overburdened Community?	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	2021	Beta particle attenuation	209	Continuous	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	

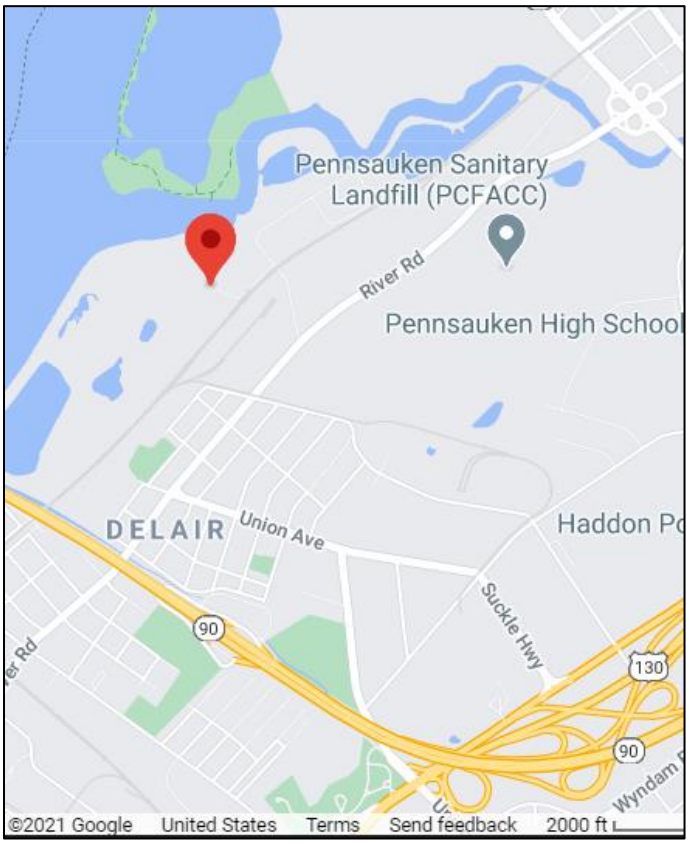
PENNSAUKEN

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
Overburdened Community?	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	Replace the filter-based $PM_{2.5}$ monitor with a real-time one, and possibly relocate it to a new site in Burlington County.
Other Comment	



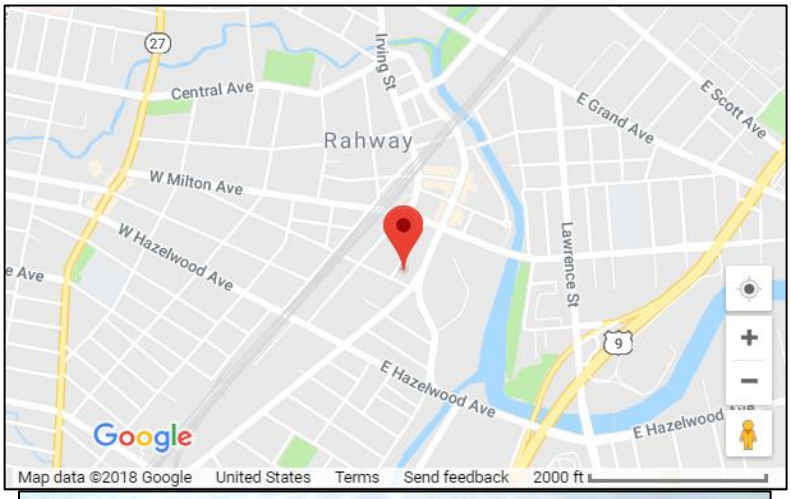
RAHWAY

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
Overburdened Community?	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	



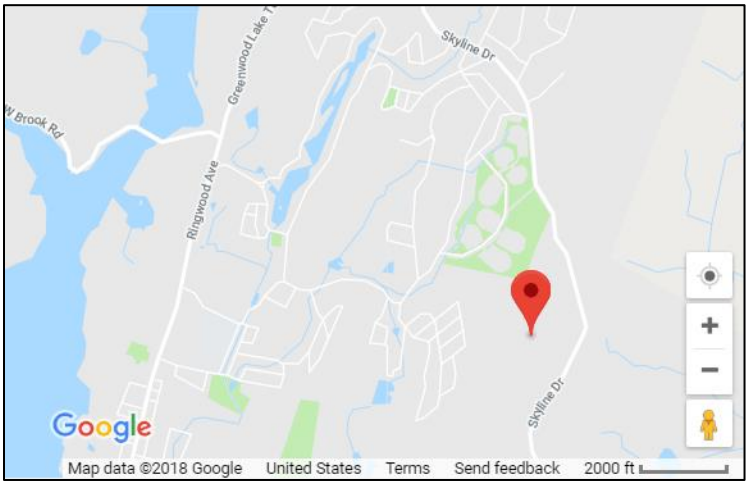
RAMAPO

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
Overburdened Community?	No

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
Overburdened Community?	No

PARAMETER SUMMARY

Parameter	Parameter Code	Sampling Instrument	Manuf. Date	Method of Analysis	Method Code	Sample Frequency	Scale	Objec-tive
O_3	44201	Thermo 49i	2012	Ultraviolet	047	Continuous	N	PE
Real-time $PM_{2.5}$	88101	Thermo Beta 5014i	2019	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
Overburdened Community?	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 18000	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	RM Young 61402V	2021	Capacitive sensor	060	Continuous	N	PE
Relative Humidity	62201	Campbell Sci. HygroVUE 10	2021	Capacitive sensor	060	Continuous	N	PE
Temperature	62101	Campbell Sci. HygroVUE 10	2021	Capacitive sensor	060	Continuous	N	PE
Precipitation	65102	MetOne 375D	2020	Rain gauge	012	Continuous	N	PE
Wind Direction	61102	Gill Windmaster HS 3D	2014	Ultrasonic sensor	060	Continuous	N	PE

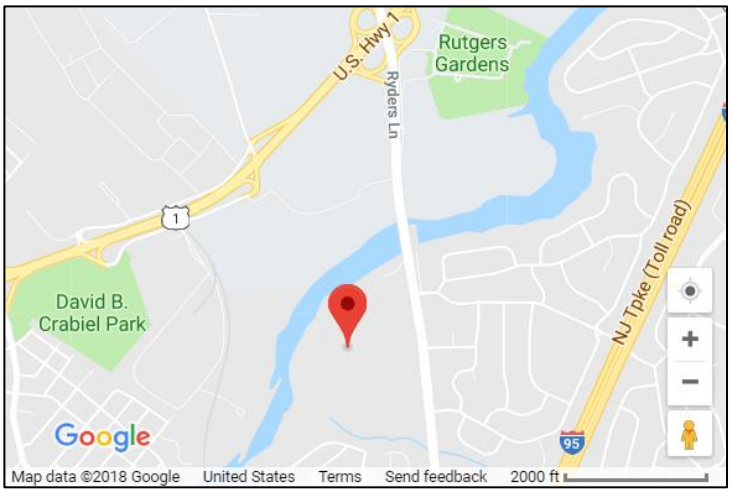
Continued

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	2014	Ultrasonic sensor	060	Continuous	N	PE
Solar Radiation	63301	Kipp & Zonen CMP22	2011	Pyranometer	011	Continuous	N	PE
Ultraviolet Radiation	63302	Kipp & Zonen SUV5	2020	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.



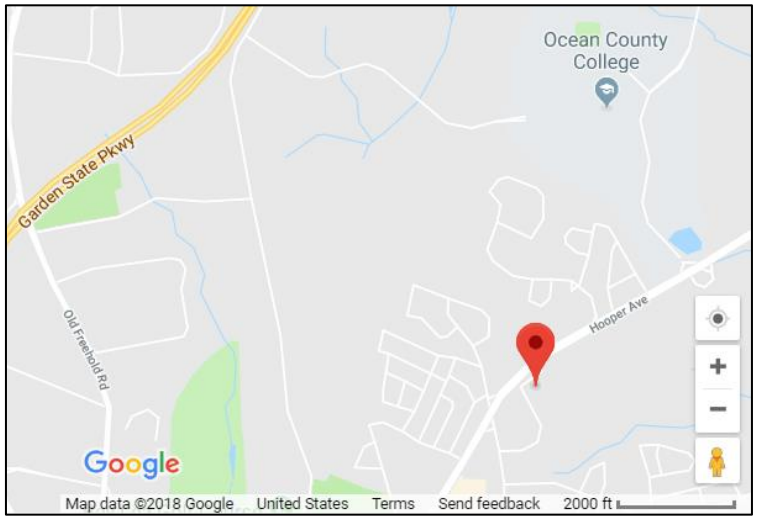
TOMS RIVER

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
Overburdened Community?	No

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	No changes.
Other Comment	



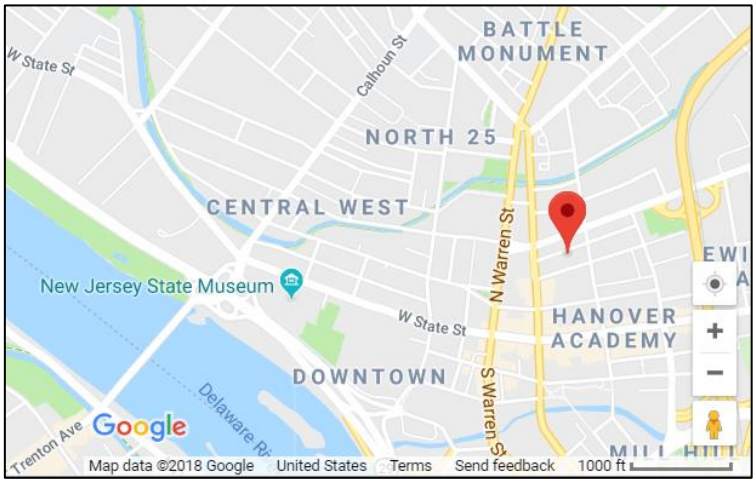
TRENTON

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
Overburdened Community?	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	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	No changes.
Other Comment	



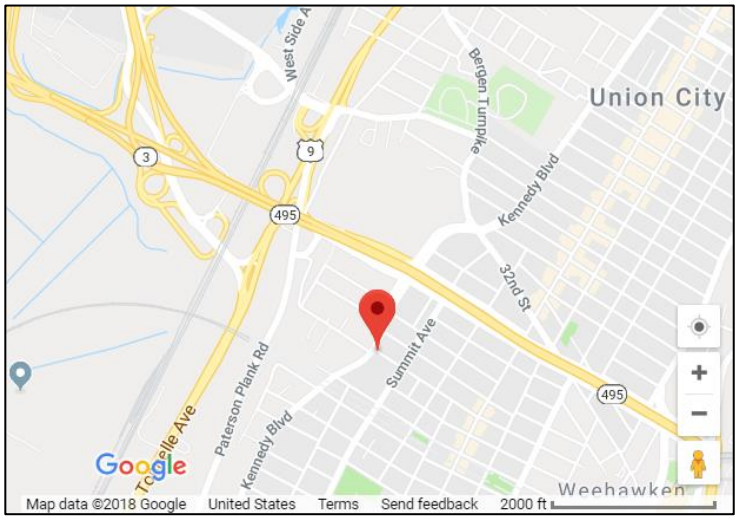
UNION CITY HIGH SCHOOL

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
Overburdened Community?	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	2021	Beta particle attenuation	209	Continuous	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
Overburdened Community?	No

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
Overburdened Community – community subject to environmental and public health stressors, designated in accordance with the New Jersey Environmental Justice Law, N.J.S.A. 13:1D-157 and the New Jersey Environmental Justice Mapping Tool
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	Acetonitrile	43702
2	Acetylene	43206
3	Acrolein	43505
4	Acrylonitrile	43704
5	tert-Amyl Methyl Ether	43373
6	Benzene	45201
7	Bromochloromethane	43836
8	Bromodichloromethane	43828
9	Bromoform	43806
10	Bromomethane	43819
11	1,3-Butadiene	43218
12	Carbon Disulfide	42153
13	Carbon Tetrachloride	43804
14	Chlorobenzene	45801
15	Chloroethane	43812
16	Chloroform	43803
17	Chloromethane	43801
18	Chloroprene	43835
19	Dibromochloromethane	43832
20	1,2-Dibromoethane	43843
21	m-Dichlorobenzene	45806
22	o-Dichlorobenzene	45805
23	p-Dichlorobenzene	45807
24	Dichlorodifluoromethane	43823
25	1,1-Dichloroethane	43813
26	1,2-Dichloroethane	43815
27	1,1-Dichloroethene	43826
28	cis-1,2-Dichloroethylene	43839
29	trans-1,2-Dichloroethylene	43838
30	Dichloromethane	43802
31	1,2-Dichloropropane	43829
32	cis-1,3-Dichloropropene	43831
33	trans-1,3-Dichloropropene	43830
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	Methyl tert-Butyl Ether	43372
40	Methyl Isobutyl Ketone	43560
41	Methyl Methacrylate	43441
42	n-Octane	43233
43	Propylene	43205
44	Styrene	45220
45	1,1,2,2-Tetrachloroethane	43818
46	Tetrachloroethylene	43817
47	Toluene	45202
48	1,2,4-Trichlorobenzene	45810
49	1,1,1-Trichloroethane	43814
50	1,1,2-Trichloroethane	43820
51	Trichloroethylene	43824
52	Trichlorofluoromethane	43811
53	Trichlorotrifluoroethane	43821
54	1,2,4-Trimethylbenzene	45208
55	1,3,5-Trimethylbenzene	45207
56	Vinyl Chloride	43860
57	m,p-Xylene	45109
58	o-Xylene	45204

APPENDIX B: CARBONYLS

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

	Parameter	Parameter Code
1	Acetaldehyde	43503
2	Acetone	43551
3	Benzaldehyde	45501
4	2-Butanone	43552
5	Butyraldehyde	43329
6	Crotonaldehyde	43528
7	2,5-Dimethylbenzaldehyde	45503
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	Acetylene	43206
4	Benzene	45201
5	1,3-Butadiene	43218
6	n-Butane	43212
7	1-Butene	43280
8	cis-2-Butene	43217
9	trans-2-Butene	43216
10	Cyclohexane	43248
11	Cyclopentane	43242
12	n-Decane	43238
13	m-Diethylbenzene	45218
14	p-Diethylbenzene	45219
15	2,2-Dimethylbutane	43244
16	2,3-Dimethylbutane	43284
17	2,3-Dimethylpentane	43291
18	2,4-Dimethylpentane	43247
19	n-Dodecane	43141
20	Ethane	43202
21	Ethylbenzene	45203
22	Ethylene	43203
23	m-Ethyltoluene	45212
24	o-Ethyltoluene	45211
25	p-Ethyltoluene	45213
26	n-Heptane	43232
27	n-Hexane	43231
28	1-Hexene	43245
29	Isobutane	43214
30	Isopentane	43221
31	Isoprene	43243
32	Isopropylbenzene	45210
33	Methylcyclohexane	43261
34	Methylcyclopentane	43262
35	2-Methylheptane	43960
36	3-Methylheptane	43253
37	2-Methylhexane	43263
38	3-Methylhexane	43249

Continued

APPENDIX D: OZONE PRECURSORS (Continued)

	Parameter	AQS Parameter Code
39	2-Methylpentane	43285
40	3-Methylpentane	43230
41	n-Nonane	43235
42	n-Octane	43233
43	n-Pentane	43220
44	1-Pentene	43224
45	cis-2-Pentene	43227
46	trans-2-Pentene	43226
47	alpha-Pinene	43256
48	beta-Pinene	43257
49	Propane	43204
50	n-Propylbenzene	45209
51	Propylene	43205
52	Styrene	45220
53	Toluene	45202
54	1,2,3-Trimethylbenzene	45225
55	1,2,4-Trimethylbenzene	45208
56	1,3,5-Trimethylbenzene	45207
57	2,2,4-Trimethylpentane	43250
58	2,3,4-Trimethylpentane	43252
59	n-Undecane	43954
60	m/p-Xylene	45109
61	o-Xylene	45204

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

APPENDIX F: PUBLIC COMMENTS

COMMENT 1

From: James Lee <jamesmlee@gmail.com>
Sent: Tuesday, June 20, 2023 9:37 PM
To: DEP BAMWEB [DEP] <BAMWEB@dep.nj.gov>
Subject: [EXTERNAL] New Jersey Ambient Air Monitoring Network plan for 2023 comment

To whom it may concern,

In light of recent wildfires that led to readings of 800ug/m^3 in the NYC area and also accounting for the large amount of unmonitored local pollution from transportation from highways to airports to industrial facilities and the NJ Environmental Justice Law, the draft plan is wholly inadequate and underwhelming.

1. It is a travesty that there are no functional monitors in the City of Newark. Given that Newark is a defined environmental justice community and is the site of so many pollution sources, there should be multiple all-source monitors so that there are no interruptions in coverage. The New Jersey Turnpike, as a large source of pollution, should host air quality monitoring sites without cost and contribute to their construction and maintenance. Note that 50% of PM2.5 pollution from cars comes from brake and tire dust and so with less than 1.5% of cars EVs and even after a far-off transition, EVs will continue to be major sources of PM2.5 pollution.

2. Coverage of PM2.5 in particular is severely geographically limited and not resilient to data collection or availability issues:
a. Please add PM2.5 monitoring to all air quality monitoring locations.
b. Please add PM2.5 monitoring so that there is at least two stations in every county, one primary and one secondary as back up.
c. Please locate PM2.5 monitoring stations next to highways and other high traffic volume areas that are a major source of hazardous PM2.5 pollution. Specifically, next to the Holland Tunnel, the Lincoln Tunnel, the George Washington Bridge, Newark Airport, the I-78/I-95 interchange, and the Keasby interchange. There must also be a plan to cover major truck routes such as the Port of Newark/Elizabeth and Route 1/9.

Easy to Interpret Data
PM2.5 data is difficult for the public to interpret yet is obscured using an AQI scale. Please show the raw concentration of PM2.5 numbers alongside the AQI number. Many at-home measurement devices and air filters use the raw numbers. As little as 12ug/m^3 would be of concern, but the public was confused during the recent wildfires due to confusion with AQI scale numbers.

All the best,
James Lee
Jersey City, NJ

COMMENT 2

June 21, 2023

Via Email

New Jersey Department of Environmental Protection
P. O. Box 402
Trenton, NJ 08625
bamweb@dep.nj.gov

CC: Sean Moriarty, Deputy Commissioner, New Jersey DEP

Re: Comments on New Jersey Ambient Air Monitoring Network Plan 2023

Ironbound Community Corporation and Earthjustice submit these comments on DEP's draft Ambient Air Monitoring Network Plan 2023 ("the Plan").[1] As explained further below, DEP's proposal for air monitoring in Newark is inadequate and does not capture the full extent of the significant amount of air pollution that residents of this overburdened community breathe every day. For the reasons stated below, DEP should have monitors closer to sources of pollution and should monitor the full breadth of pollutants emitted in Newark.

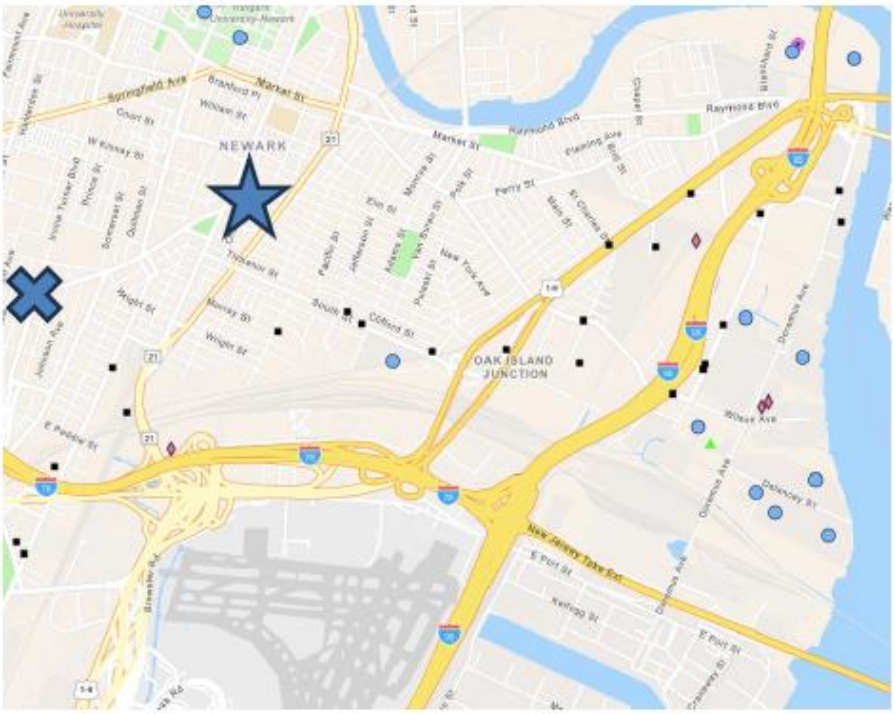
I. DEP MUST ENSURE THAT NEWARK HAS MONITORS CLOSER TO THE MAJOR SOURCES OF NOX, PM2.5, AND OTHER POLLUTANTS.

DEP must place monitors closer to the major sources of pollution in Newark's port and industrial corridor, since the current monitor locations are not capturing the significant amount of emissions from these sources. EPA regulations distinguish between monitors intended to measure pollution at the neighborhood scale (0.5 to 4 km range) for areas with "relatively uniform land use" and "homogeneously distributed air pollutants," and monitors at the microscale (up to 100 meters) or middle scale (100 to 500 meters) that are instead intended to measure "air pollution levels near specific sources," "[s]ites located to determine the highest concentrations expected to occur" and "[s]ites located to determine the impact of significant sources or source categories on air quality."[2]

DEP's one monitor in Newark has historically been used to measure pollution at the "neighborhood" scale only.[3] But it is inappropriate for DEP to measure pollution in Newark at the "neighborhood" scale only because Newark does *not* have "relatively uniform land use," and pollution exposure here is decidedly *not* "homogenously distributed." The map from DEP's EJ MAP application below shows that Newark's land use is not "relatively uniform" since the most

[1] DEP, New Jersey Ambient Air Monitoring Network Plan 2023 (May 2023), https://www.state.nj.us/dep/airmon/pdf/nj-network-plan-2023-draft.pdf.
[2] 40 C.F.R. Pt. 58, App. D §§ 1.1.1, 1.2.
[3] DEP, New Jersey Ambient Air Monitoring Network Plan 2022 at 32 (June 24, 2022), https://www.nj.gov/dep/airmon/pdf/nj-network-plan-2022.pdf.

polluting facilities in the city – facilities that are subject to the EJ Law like major (Title V) sources of air pollution (blue circles), scrap yards (black dots), and the fifth-largest sewage treatment plant in the country (green triangle) – are all concentrated in the southern and eastern borders of the residential areas of the Ironbound. Indeed, 49 of the 53 facilities in Newark that are subject to the EJ Law are all concentrated in the two easternmost zipcodes covering the Ironbound.[4] These facilities include the Covanta Essex waste incinerator, which from 2015 to 2018 was the 6th highest emitter of carbon monoxide, 5th highest emitter of both lead and sulfur dioxide, and 2nd highest emitter of NOx among all Title V facilities in the state.[5]



And the following two maps from a study by M.J. Bradley & Associates show that pollution from mobile sources in Newark is not "homogenously distributed," either. These maps show areas of modeled NOx and PM2.5 exposure, respectively, from roadways, marine ports, airports, railyards, and hotspots of heavy-duty truck idling.[6] The maps show a clear distinction

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[4] Data from DEP Environmental Justice Law EJMAP, https://experience.arcgis.com/experience/548632a2351b41b8a0443cfc3a9f4ef6.

[5] Earthjustice et al., *New Jersey's Dirty Secret: The Injustice of Incinerators and Trash Energy in New Jersey's Frontline Communities* at 5 (2021), https://earthjustice.org/sites/default/files/files/nj-incinerator-report_earthjustice-2021-02.pdf.

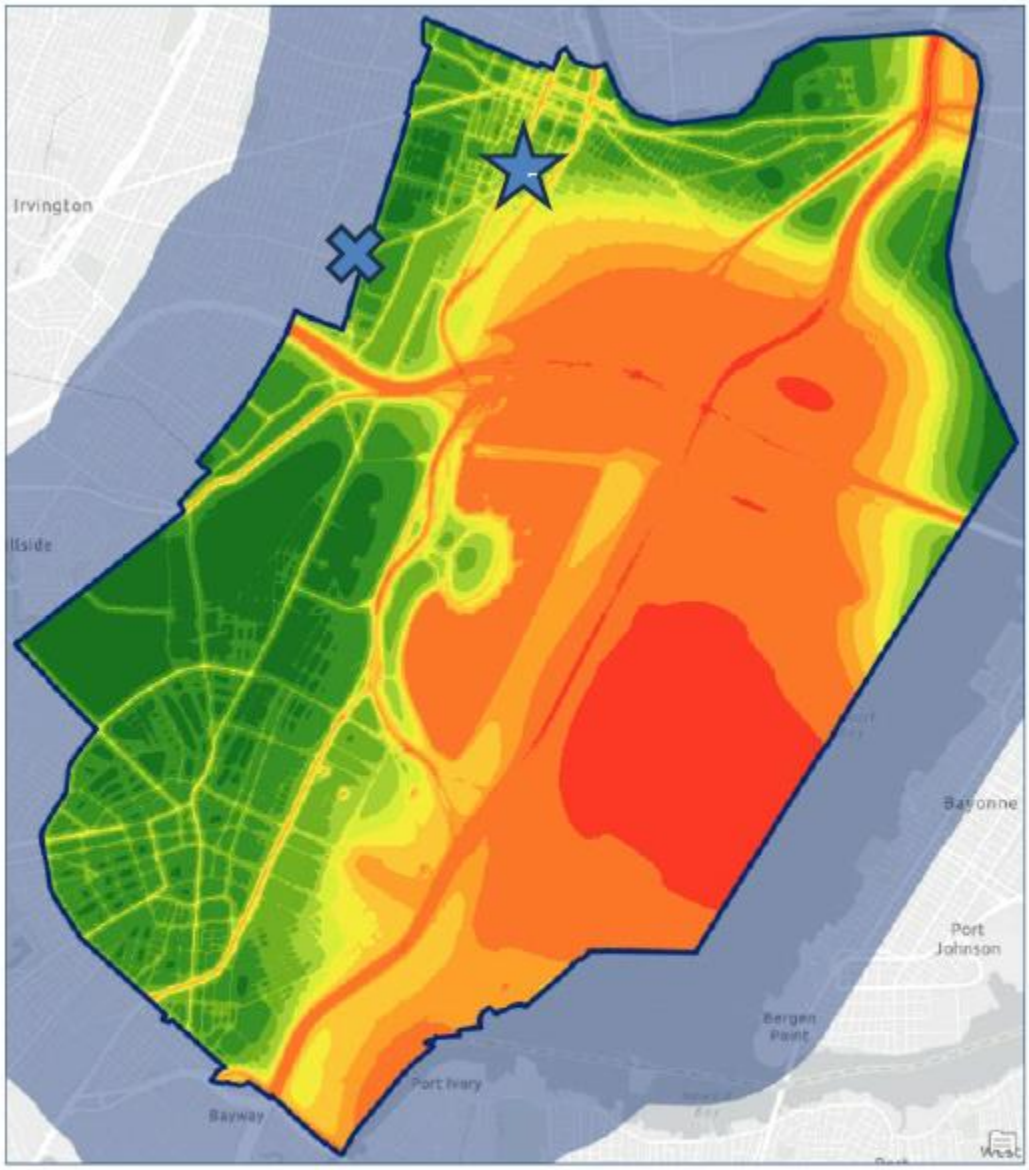
[6] M.J. Bradley & Assocs., *Newark Community Impacts of Mobile Source Emissions* at 5-6, 41, 45 (Nov. 2020), https://www.erm.com/globalassets/documents/mjba-archive/reports/2020/mjba_report_newarkcommunityelectrification_nov2020.pdf.

between lower levels of exposure towards the western sections of the city, and higher levels of exposure towards the east around the port and industrial area. And given that the Port Authority of New York & New Jersey ("PANYNJ") expects activity at the port to double by 2030,[7] these impacts from port-related emissions will likely greatly increase over the coming years.

[maps on following two pages]

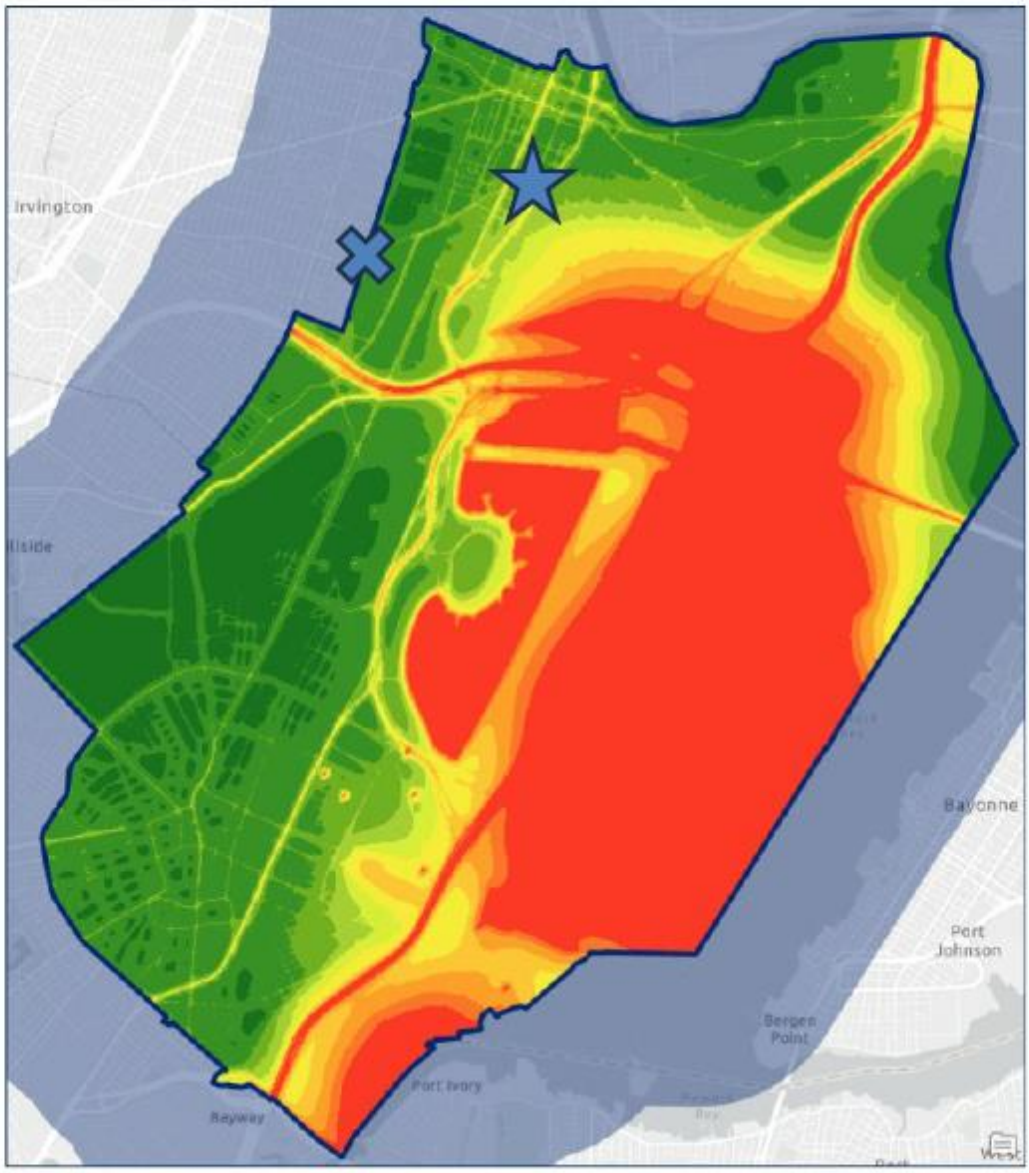
[7] PANYNJ, *Truck Origin-Destination Data Analysis Long-Range Master Plan for the Port of New York and New Jersey* at 30 (Jan. 2018), https://www.panynj.gov/port/en/our-port/port-development/port-master-plan.html.

Total NOx Emissions Exposure (all sources)



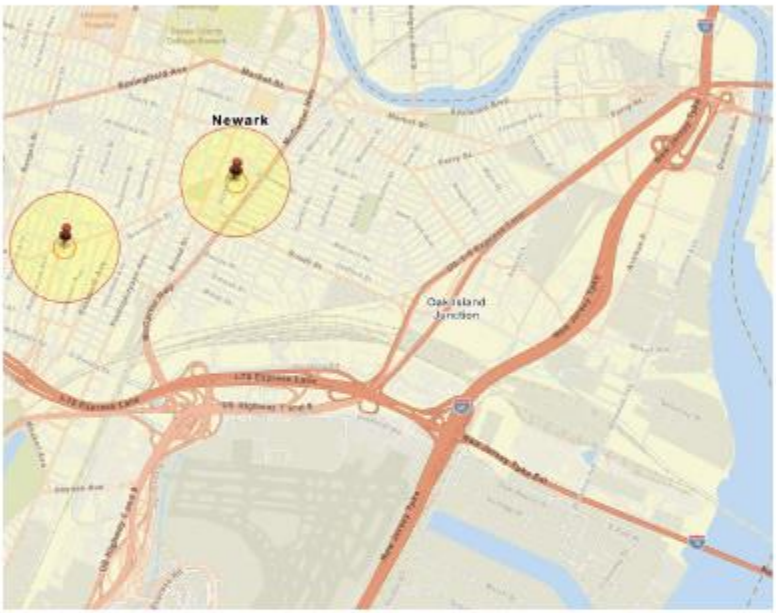
4

Total $PM_{2.5}$ Emissions Exposure (all sources)



5

The maps above also show that DEP's prior and proposed future placement of air monitors in Newark are inadequate to capture these emission hotspots. The prior location of DEP's Newark monitor (Newark Firehouse, 360 Clinton Avenue) is indicated by an "X" in the maps, and DEP's proposed future location for the monitor (42 Chestnut Street) is indicated by a star. The maps show that *neither* of these sites are close enough to sources of pollution to serve the function of a micro or middle scale monitor that can reflect the "highest concentrations expected to occur" in Newark. Indeed, the map below, with 100-meter and 500-meter radii around these two locations, further shows that these monitors are not located near enough to any of the areas of high emissions or exposure to function as micro or middle scale monitors.



And since DEP estimates that the onroad and nonroad mobile sources that operate in Essex County are responsible for 32% of the county's PM2.5 emissions,[8] and 79% of the county's NOx emissions,[9] DEP's placement of monitors well outside the hotspots for these emissions means that a significant portion of PM2.5 and the vast majority of NOx emissions are not being monitored.

It is all the more inappropriate for DEP's monitoring network to lack micro and middle scale monitors in Newark when other, less impacted areas of the state have multiple such monitors. DEP has located *six* micro and middle scale monitors in Fort Lee in Bergen County.[10]

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[8] DEP, State Implementation Plan Revision for Maintenance of the Fine Particulate Matter (PM2.5) 2006 24-hour 35 µg/m^3 National Ambient Air Quality Standards at 16, tbl. 4-1 (Jan. 2023), https://dep.nj.gov/wp-content/uploads/airplanning/pm2.5-second-maintenance-plan-1-9-23.pdf (2017 data).

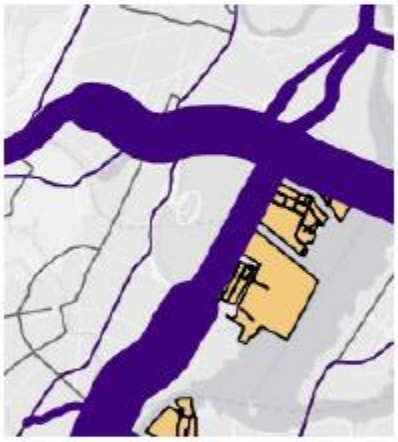
[9] DEP, State Implementation Plan Revision for the Attainment and Maintenance of the Ozone National Ambient Air Quality Standards at 4-10, tbl. 4-4 (Nov. 2021), https://dep.nj.gov/wp-content/uploads/airplanning/8-hour-ozone-sip-2021/ozone-75-ppb-ad-70-ract-2017-pei-final-11-18-21.pdf (2020 data).

[10] DEP, New Jersey Ambient Air Monitoring Network Plan 2023 at 25.

But Fort Lee has only *one* facility under the EJ Law (a scrap yard), compared to Newark's 53 EJ Law facilities. Similarly, less than 1% of truck traffic from PANYNJ ports go through Fort Lee, but, as further explained below, some 41% of this traffic goes through just two highways in Newark[11] – not to mention the emissions from the marine port, airport, and railyards that exist in Newark but not Fort Lee. If a municipality with less exposure from stationary sources and port-related emissions has six micro and middle scale monitors, Newark should have at least as many.

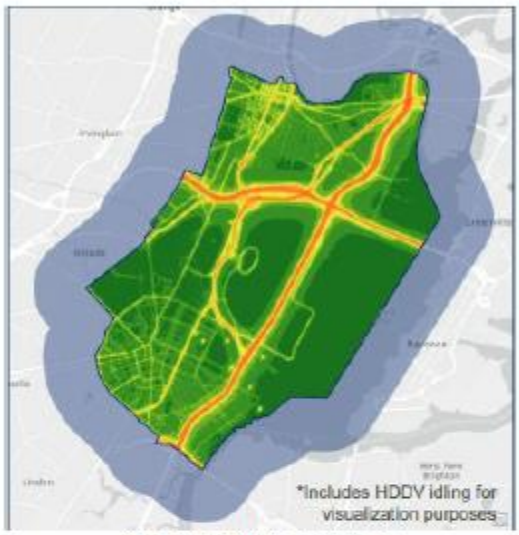
In addition, DEP must add an additional near-road monitor in the area, and this should be located near the major corridors of trucks from Port Newark. For Core-Based Statistical Areas with a population of over 2.5 million, like the New Jersey portion of the New York-Newark-Jersey City Metropolitan Statistical Area,[12] EPA requires two microscale monitors near roads with high annual average daily traffic measuring NO2 and PM2.5.[13] Right now, DEP's sole microscale near road monitor in the entire state is at Fort Lee.[14] DEP must add an additional monitor, and this monitor should be in Newark near the corridors of port-related truck traffic of I-78 and I-95.

PANYNJ estimates that 16% of port-related truck traffic (some 3,840 trucks a day) passes through the I-95 segment in Newark, and 25% of this traffic (6,000 trucks a day) travels on the I-78 segment in Newark.[15] As the below insert from a PANYNJ map shows, port-related traffic on these two corridors far exceeds port-related traffic on other roads.[16]



[11] PANYNJ, *Truck Origin-Destination Data Analysis*, *supra* note 7 at 18-19.
[12] U.S. Census Bureau, *Annual Resident Population Estimates for Metropolitan and Micropolitan Statistical Areas and Their Geographic Components for the United States: April 1, 2020 to July 1, 2022 (CBSA-EST2022)*, https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-metro-and-micro-statistical-areas.html.
[13] 40 C.F.R. Pt. 58, App. D § 4.3.2; *id.* App. D § 4.7.1(b).
[14] DEP, New Jersey Ambient Air Monitoring Network Plan 2023 at 25.
[15] PANYNJ, *Truck Origin-Destination Data Analysis*, *supra* note 7 at 18-19; *see also id.* at 24 (estimating 24,000 truck trips to PANYNJ facilities every weekday).
[16] *Id.* at 21.

The trucks on these roads are overwhelmingly diesel trucks,[17] and thus have disproportionate NOx and PM2.5 emissions. Nationwide, diesel trucks make up just 10% of vehicles on the road[18] but emit 40% of NOx and 50% of direct PM2.5 from on-road sources,[19] and are responsible for 43% of deaths attributable to air pollution from transportation.[20] Indeed, the maps below show that, when taking emissions from all vehicles into account (not just port-related traffic), I-78 and I-95 are the roadways with the highest NOx and PM2.5 exposures in Newark.[21]



Roadway NOx emissions

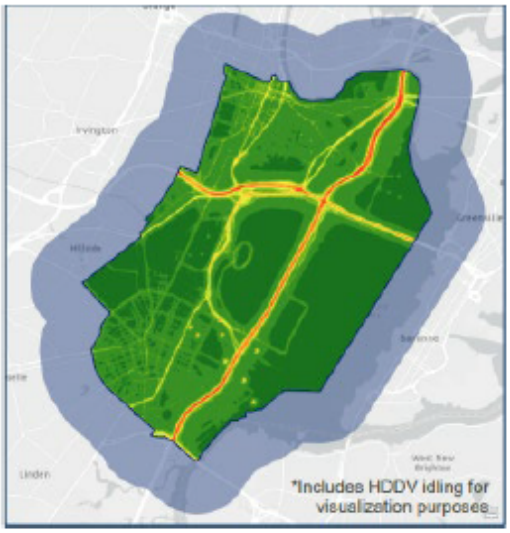
[17] PANYNJ, *PortTruckPass Comprehensive Report* (May 2023), https://www.panynj.gov/port/en/shipping/truck/port-truck-pass-reports.html (noting 99.9% of truck visits were by diesel trucks).

[18] *Annual Energy Outlook 2017, Table: Transportation Sector Key Indicators and Delivered Energy Consumption*, U.S. Energy Info. Admin., https://www.eia.gov/outlooks/aeo/data/browser/#/?id=7-AEO2017&cases=ref2017&sourcekey=0 (last visited June 20, 2023).

[19] EPA, 2017 National Emissions Inventory Complete Release Technical Support Document at 2-12 to 2-12 (Apr. 2020), https://www.epa.gov/sites/production/files/2020-04/documents/nei2017_tsd_full_30apr2020.pdf.

[20] Susan Anenberg et al., Int'l Council on Clean Transp., *A Global Snapshot of the Air Pollution-Related Health Impacts of Transportation Sector Emissions in 2010 and 2015* at 19, tbl. 4 (2019), https://theicct.org/sites/default/files/publications/Global_health_impacts_transport_emissions_2010-2015_20190226.pdf.

[21] M.J. Bradley & Assocs., *Newark Community Impacts of Mobile Source Emissions*, *supra* note 6 at 40, 43.



Roadway PM2.5 emissions

Finally, in addition to these near-road monitors, EPA notes that additional monitors may be required "with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations."[22] The communities of Newark to the immediate north and west of the Port are neighborhoods that deserves DEP's "primary focus." These communities are all considered an "overburdened community" under the New Jersey EJ Law. The Ironbound to the north of the port ranks in the 80th percentile or above for every EJ index in EPA's EJ Screen – including traffic proximity and volume, air toxics cancer risk, respiratory hazard index, and ozone, not to mention PM2.5 and diesel PM – no matter whether compared to New Jersey, EPA Region 2, or the entire nation.[23] Newark's asthma emergency department visit rate is over 3 times the state average,[24] and asthma is the leading cause of school absenteeism in the region.[25] In addition, studies link increased NOx and PM2.5 concentrations with higher COVID-19 mortality,[26] and Essex County, where Newark is located, had more COVID deaths and a higher COVID death rate than any other New Jersey county,[27] and a higher COVID death rate than any

[22] 40 C.F.R. Pt. 58, App. D § 4.3.4(a).
[23] EPA, EJScreen Report for Residential Areas of the Ironbound (June 7, 2023) (attached as Attachment 1).
[24] NJ Dep. of Health, *Asthma in New Jersey: Essex County Asthma Profile* at 4 (2014), https://www.state.nj.us/health/fhs/chronic/documents/asthma_profiles/essex.pdf.
[25] Max Rivlin-Nadler, *Hell on Wheels: Port Authority's Broken Promise Is Choking Newark's Kids*, The Village Voice (May 3, 2016), https://www.villagevoice.com/2016/05/03/hell-on-wheels-port-authoritys-broken-promise-is-choking-newarks-kids/.
[26] *See* Yaron Ogen, *Assessing nitrogen dioxide levels as a contributing factor to coronavirus fatality*, 726 Sci. Total Environ. (2020), https://www.sciencedirect.com/science/article/pii/S0048969720321215 ("[L]ong-term exposure to [nitrogen dioxide] may be one of the most important contributors to fatality caused by the COVID-19 virus."); Xiao Wu et al., *Exposure to air pollution and COVID-19 mortality in the United States* at 11, Harvard Univ. (2020), https://projects.iq.harvard.edu/covid-pm ("[A] small increase in long-term exposure to $PM_{2.5}$ leads to a large increase in the COVID-19 death rate.").
[27] Jordan Allen et al., *Tracking Coronavirus in New Jersey: Latest Map and Case Count*, The New York Times, https://www.nytimes.com/interactive/2020/us/new-jersey-coronavirus-cases.html (last updated Mar. 23, 2023).

U.S. county outside of New York City.[28] But much of these NOx and PM2.5 emissions that contribute to high asthma and COVID rates are largely going unmonitored because of DEP's inadequate monitoring in Newark.

Newark's status as one of, if not the, most overburdened environmental justice communities in the state compels DEP to add additional micro and middle scale monitors to measure pollution from significant sources of NOx, PM2.5, and other pollution.

II. DEP MUST ALSO MONITOR AIR TOXICS IN NEWARK.

DEP's Newark monitoring station(s) should also monitor air toxics such as volatile organic compounds ("VOCs"), formaldehyde, and mercury, in addition to criteria pollutants. DEP's current network has monitors at Camden Spruce Street, Chester, Elizabeth Lab, and Rutgers monitoring "toxics," which include 58 volatile organic compounds ("VOCs") and 13 carbonyls, including formaldehyde.[29] In addition, the current network has one mercury monitor at Elizabeth Lab.[30] In contrast, the Newark monitor has historically monitored neither "toxics" nor mercury.[31] While DEP does monitor "urban pollutants" in Newark, these include black carbon and only 5 VOCs – less than a tenth of the 58 VOCs that are monitored at other sites in the State.

DEP should monitor mercury and all the "toxics" in Newark given that the community is home to an overwhelming number of facilities and other sources that emit these toxics into the ambient air, threatening the wellbeing of residents. Formaldehyde, for example, is released by power plants like Newark Energy Center, incinerators such as Covanta Essex, a variety of manufacturing facilities, and mobile source exhaust like cars and trucks.[32] From 2015 to 2018, Newark Energy Center emitted over 8,400 pounds of formaldehyde, and the Newark Bay Cogen Plant emitted over 5,900 pounds.[33] Formaldehyde can have a range of effects on people from irritation of the nose, eyes and throat at lower, short-term exposure to persistent breathing issues and even certain types of cancers from prolonged or higher levels of exposure.[34]

Newark facilities are also significant sources of other air toxics that DEP is monitoring in other municipalities, but not in Newark. From 2015 to 2018, Newark Energy Center was one of

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[28] Jordan Allen et al., *Coronavirus in the U.S.: Latest Map and Case Count*, The New York Times, https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html (last updated Mar. 23, 2023).
[29] DEP, New Jersey Air Monitoring Network Plan 2023 at tbl. 2, apps. A, B.
[30] *Id.* at tbl. 2.
[31] DEP, New Jersey Ambient Air Monitoring Network Plan 2022, *supra* note 3 at tbl. 2.
[32] *Formaldehyde*, EPA, https://www.epa.gov/sites/default/files/2016-09/documents/formaldehyde.pdf (last updated Jan. 2000).
[33] Data from *What's in My Community?*, DEP, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=76194937cbbe46b1ab9a9ec37c7d709b and DEP Dataminer, https://njems.nj.gov/DataMiner.
[34] *Id.*; *Formaldehyde and Your Health*, Agency for Toxic Substances and Disease Registry, https://www.atsdr.cdc.gov/formaldehyde/#:~:text=At%20low%20levels%2C%20breathing%20in,and%20changes%20in%20lung%20function (last updated Feb. 10, 2016); *Formaldehyde and Cancer Risk*, Nat'l Cancer Inst., https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/formaldehyde/formaldehyde-fact-sheet (last reviewed June 10, 2011) (Both the International Agency for Research on Cancer (IARC) and the U.S. National Toxicology Program have declared formaldehyde a known human carcinogen.).

the top 20 highest emitters of acrolein and top 10 highest emitters of acetaldehyde among Title V facilities in the state.[35] The Covanta Essex incinerator, meanwhile, was a top ten emitter of trichloroethylene, a top 5 emitter of carbon tetrachloride, and the second highest emitter of mercury (emitting over 126 pounds over this time period).[36] It is well known that mercury causes a range of adverse health effects including neurological damage and kidney damage, and is especially dangerous for young children and pregnant women, since it can affect the developing brain and nervous system. And the Passaic Valley Sewerage Commission wastewater treatment plan was the second highest emitter of chloroform in the state, emitting over 2,500 pounds over this time period.[37] All of these facilities are located in the eastern Ironbound, some 5km away from DEP's prior and proposed air monitor sites. DEP should therefore add "toxics" and mercury to the list of pollutants it monitors in Newark, and ensure that these monitors are near the sources of these emissions.

III. CONCLUSION

Newark is one of the most overburdened among all of the state's environmental justice communities. DEP must no longer leave the significant impacts of Newark's freight and industrial corridor largely unmonitored. For the reasons stated above, DEP should have monitors in Newark closer to the major sources of pollution and should monitor the entire gamut of pollutants that Newark residents are exposed to.

Sincerely,

/s/ Jonathan Smith
Jonathan Smith
Casandia Bellevue
Earthjustice
jjsmith@earthjustice.org
212-845-7379

Maria Lopez-Nuñez
Ironbound Community Corporation

[35] Data from *What's in My Community?* and DEP Dataminer, *supra* note 33.
[36] *Id.*
[37] *Id.*

Attachment 1

EJScreen Report (Version 2.11)

the User Specified Area, NEW JERSEY, EPA Region 2

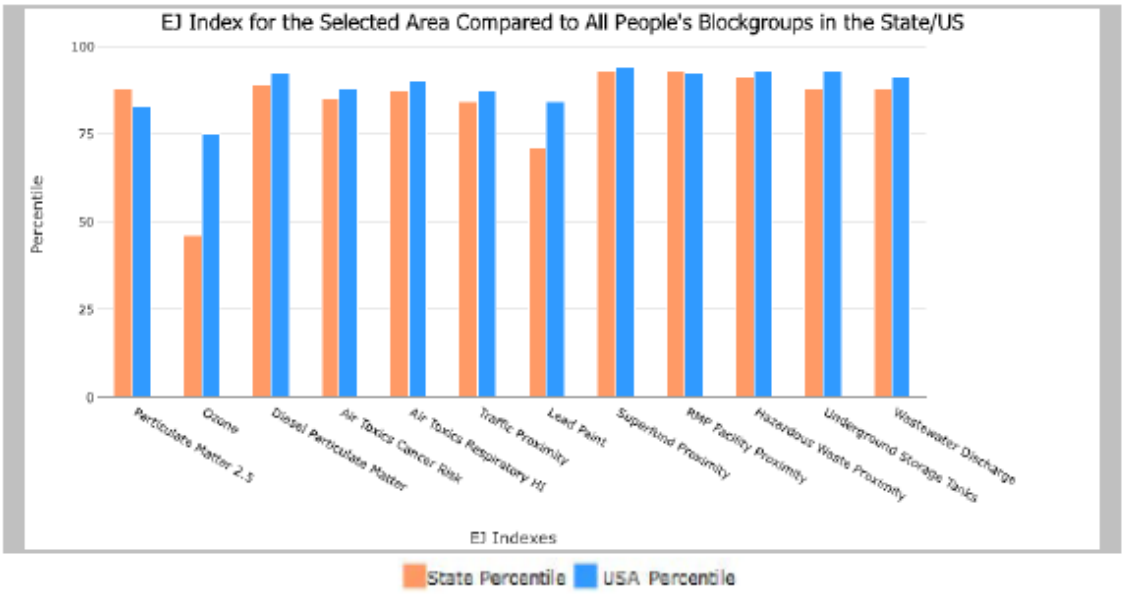
Approximate Population: 50,000

Input Area (sq. miles): 1.71

Ironbound

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
Particulate Matter 2.5 EJ index	88	83
Ozone EJ index	46	75
Diesel Particulate Matter EJ index*	89	92
Air Toxics Cancer Risk EJ index*	85	88
Air Toxics Respiratory HI EJ index*	87	90
Traffic Proximity EJ index	84	87
Lead Paint EJ index	71	84
Superfund Proximity EJ index	93	94
RMP Facility Proximity EJ index	93	92
Hazardous Waste Proximity EJ index	91	93
Underground Storage Tanks EJ index	88	93
Wastewater Discharge EJ index	88	91

EJ Indexes - The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.



*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

June 07, 2023

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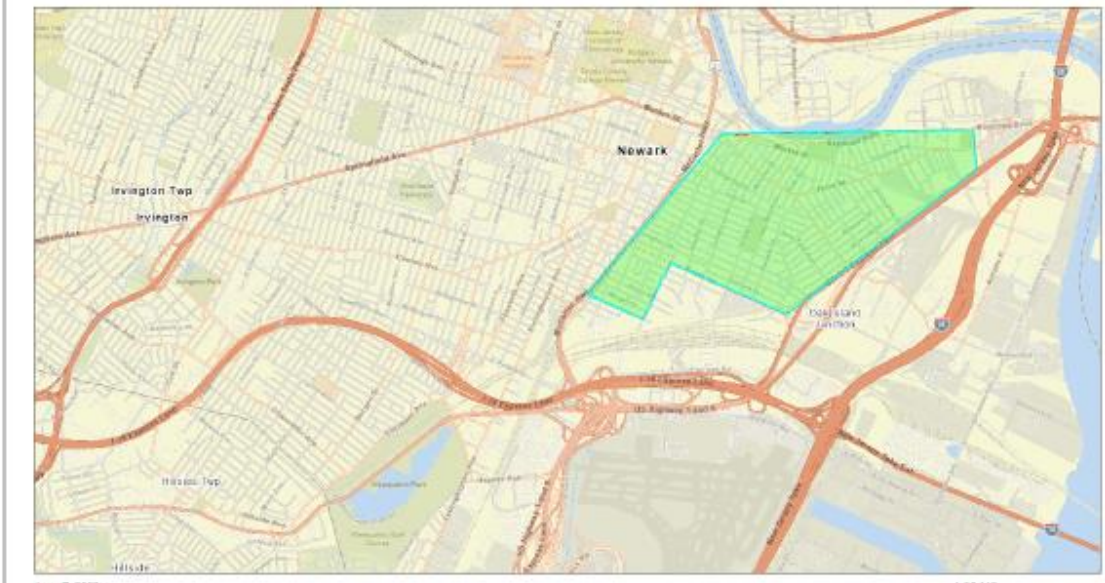
EJScreen Report (Version 2.11)

the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 50,000
Input Area (sq. miles): 1.71
Ironbound



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	4

United States Environmental Protection Agency

EJScreen Report (Version 2.11)

the User Specified Area, NEW JERSEY, EPA Region 2

Approximate Population: 50,000

Input Area (sq. miles): 1.71

Ironbound

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m³)	9.08	8.34	85	8.67	64
Ozone (ppb)	41.7	42.1	19	42.5	44
Diesel Particulate Matter* (µg/m³)	1.02	0.52	91	0.294	95-100th
Air Toxics Cancer Risk* (lifetime risk per million)	40	29	99	28	95-100th
Air Toxics Respiratory HI*	0.58	0.38	99	0.36	95-100th
Traffic Proximity (daily traffic count/distance to road)	1400	920	82	760	86
Lead Paint (% Pre-1960 Housing)	0.38	0.4	42	0.27	64
Superfund Proximity (site count/km distance)	2.1	0.45	97	0.13	99
RMP Facility Proximity (facility count/km distance)	6.2	0.76	99	0.77	99
Hazardous Waste Proximity (facility count/km distance)	18	3.3	98	2.2	98
Underground Storage Tanks (count/km²)	66	15	97	3.9	99
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.079	0.24	86	12	83
Socioeconomic Indicators					
Demographic Index	57%	33%	81	35%	80
Supplemental Demographic Index	29%	12%	95	15%	93
People of Color	64%	45%	70	40%	75
Low Income	49%	22%	88	30%	79
Unemployment Rate	7%	6%	72	5%	73
Limited English Speaking Households	41%	7%	98	5%	97
Less Than High School Education	31%	10%	94	12%	91
Under Age 5	7%	6%	65	6%	64
Over Age 64	9%	16%	24	16%	24
Low Life Expectancy	18%	18%	48	20%	33

EJScreen Report (Version 2.11)

the User Specified Area, NEW JERSEY, EPA Region 2

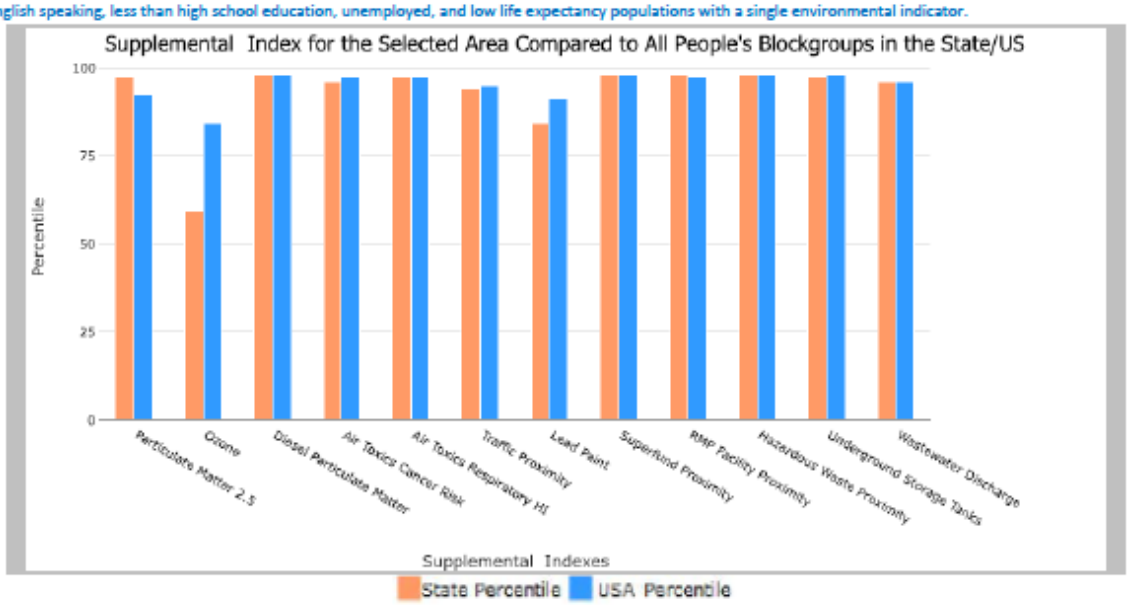
Approximate Population: 50,000

Input Area (sq. miles): 1.71

Ironbound

Selected Variables	State Percentile	USA Percentile
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	97	92
Ozone Supplemental Index	59	84
Diesel Particulate Matter Supplemental Index*	98	98
Air Toxics Cancer Risk Supplemental Index*	96	97
Air Toxics Respiratory HI Supplemental Index*	97	97
Traffic Proximity Supplemental Index	94	95
Lead Paint Supplemental Index	84	91
Superfund Proximity Supplemental Index	98	98
RMP Facility Proximity Supplemental Index	98	97
Hazardous Waste Proximity Supplemental Index	98	98
Underground Storage Tanks Supplemental Index	97	98
Wastewater Discharge Supplemental Index	96	96

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice.

June 07, 2023

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APPENDIX G – RESPONSES TO COMMENTS

RESPONSE TO COMMENT 1

June 21, 2023

Mr. James Lee
jamesmlee@gmail.com

Dear Mr. Lee:

Thank you for your detailed comments on the New Jersey Ambient Air Monitoring Network Plan for 2023. Your comments, along with comments from residents, community groups, academia, industry groups, and the USEPA are important for making the air quality data valuable for all of New Jersey.

Your specific comments are addressed below:

1. The closure of the Newark Firehouse air monitoring station in 2022 was unexpected and sudden, which did not allow the NJDEP adequate time to find a replacement station. The Bureau of Air Monitoring in the NJDEP is working with the City of Newark, the Newark Board of Education, Newark community groups and the EPA to identify and establish a replacement station. The process is lengthy due to the time needed for review and approvals. In the meantime, existing NJDEP air monitoring stations in Jersey City, Bayonne and Elizabeth provide similar air pollutant information for residents of Newark until the replacement station is established and operational.
2. The NJDEP operates 19 fine particle ($PM_{2.5}$) air monitors in 15 counties in New Jersey, which are situated according to specific federal requirements regarding population and pollution sources. Counties with lower population and fewer emission sources are expected to have lower $PM_{2.5}$ concentrations and less need for monitors. In New Jersey, the counties that do not have $PM_{2.5}$ monitors all border counties that do. When the replacement Newark station is established, $PM_{2.5}$ monitoring will return to Essex County, and the NJDEP is considering adding a $PM_{2.5}$ monitor in Burlington County.
3. The Bureau of Air Monitoring maintains spare monitors, so when we are alerted that a monitor failed, we can deploy staff to replace or repair the monitor as quickly as possible.
4. The NJDEP operates $PM_{2.5}$ monitors next to highways with high traffic volume: in Elizabeth at Exit 13 of the New Jersey Turnpike, and in Fort Lee at the entrance of the George Washington Bridge toll plaza.
5. We are planning to update the Air Monitoring website, and we will take your comments about the AQI and $PM_{2.5}$ concentrations into consideration. It is our goal to have the website content understood by as many people as possible.

Thanks again for your comments.

Luis Lim, Chief
Bureau of Air Monitoring
NJDEP
609-633-1151 office
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RESPONSE TO COMMENT 2

July 17, 2023

Maria Lopez-Nuñez
Ironbound Community Corporation

Dear Ms. Lopez-Nuñez:

On June 21, 2023, the Bureau of Air Monitoring in the New Jersey Department of Environmental Protection (NJDEP) received the comments prepared by Ironbound Community Corporation (ICC) and Earthjustice for the NJDEP's 2023 Ambient Air Monitoring Network Plan. We appreciate that you included tables, maps, graphics and references to support your comments.

Below are the NJDEP's responses to your comments:

Comment 1: "DEP Must Ensure That Newark Has Monitors Closer to the Major Sources of NOx, $PM_{2.5}$ and Other Pollutants."

The DEP's most recently operating station in Newark, the Newark Firehouse station located at 360 Clinton Avenue, was originally sited and designated as a National Core (NCore) air monitoring station by the U.S. Environmental Protection Agency (EPA). All NCore stations must meet the following monitoring objectives:

1. Timely reporting of data to public;
2. Support for development of emission strategies through air quality model evaluation;
3. Accountability of emission strategy progress through tracking of long-term trends;
4. Support for long-term health assessments that contribute to ongoing reviews of the National Ambient Air Quality Standards (NAAQS);
5. Compliance through comparison with the NAAQS;
6. Support for scientific studies; and
7. Support for ecosystem assessments ecosystem analyses.

According to 40 CFR Part 58, Appendix D, "NCore sites include both neighborhood and urban scale measurements in general..," and "NCore sites should be placed away from direct emission sources that could substantially impact the ability to detect area-wide concentrations. The Administrator must approve the NCore sites."

Unfortunately, the Newark Firehouse station was unexpectedly and suddenly closed in September 2022 to allow for the construction of a Newark Police Department building, and the NJDEP did not have time to find a replacement site. The replacement for the Newark Firehouse station needs to be sited in an area that represents the exposure that most Newark residents experience rather than in an area of the expected maximum impact of significant sources, in order to meet the requirements of NCore station.

Finding an appropriate site that meets NCore siting requirements in a dense urban area such as Newark is a significant challenge. The Bureau of Air Monitoring in the NJDEP was made aware that the Newark Board of Education was open to discussing the feasibility of hosting an air monitoring station on one of their properties as a Supplemental Environmental Project to meet requirements of their air pollution control permits. Eight properties were identified that would meet the NCore requirements, and these eight were presented on April 14, 2023, to Newark community group members in a meeting organized

by the DEP's Environmental Justice Advisory Council. The Newark community group members agreed that a vacant lot owned by the Newark Board of Education located at 42 Chestnut Street is suitable to replace the Newark Firehouse NCore station. Negotiations with the Newark Board of Education are still ongoing.

Also included with Comment 1 was the statement that, "DEP must add an additional near-road monitor in the area." The EPA requirements for the number of near-road monitors applies to Core-Based Statistical Areas which may cover more than one state. The second near-road monitor, as required for the New York-Northern New Jersey-Connecticut Core-Based Statistical Area due to its population, has been met by the establishment of a near-road monitoring station by the New York State Department of Environmental Conservation in Queens, New York City.

Comment 2: "DEP Must Also Monitor Air Toxics in Newark."

The NJDEP recognizes many pollutants emitted by the major pollution sources in Newark's port and industrial corridor could pose risks for Newark residents. The NJDEP reviews and analyzes the results of the EPA's nationwide Air Toxics Screening Assessment (formerly National Air Toxics Assessment) for the air pollutants that the EPA classified as hazardous. The Assessment is based on an inventory of facilities and area sources (including vehicles) that EPA uses to estimate ambient air quality down to the census-tract level. The maps and graphics in your June 21 comment letter are similar to maps generated through the Air Toxics Screening Assessment.

The results of the EPA Assessment have been generally consistent with air toxics pollutant monitoring data measured at the NJDEP's air monitoring stations in Camden, Chester, Elizabeth and Rutgers-New Brunswick. The NJDEP understands that actual ambient monitoring data may provide additional insights which modeling data may not reveal. The NJDEP does not have its own analytical laboratory and relies on an EPA contract laboratory to perform the analyses of air samples collected at Camden, Chester, Elizabeth and Rutgers-New Brunswick. The analyses, which cost $100,000 per site per year, is funded by EPA's Air Grant, and the cost for adding another air toxics station would have to be met by an equal reduction in other air monitoring activities in New Jersey, or an increase in the Air Grant.

Regarding the measurement of criteria pollutants such as ozone and $PM_{2.5}$, multiple monitors in Newark will not show an overall significant variation. On April 19, 2023, the Clean Air Council of New Jersey held a public hearing to determine the amount of progress New Jersey has made in controlling and regulating air toxics, and one of the issues discussed was whether the current air toxics monitoring effort in New Jersey is sufficient. When the Clean Air Council submits their recommendations to the NJDEP, the NJDEP will analyze their air toxics strategies, including any recommended changes to the air toxics monitoring network. The NJDEP will be sure to seek comment from the ICC to discuss the Clean Air Council's recommendations.

Sincerely,

Luis Lim, Chief
Bureau of Air Monitoring
NJDEP