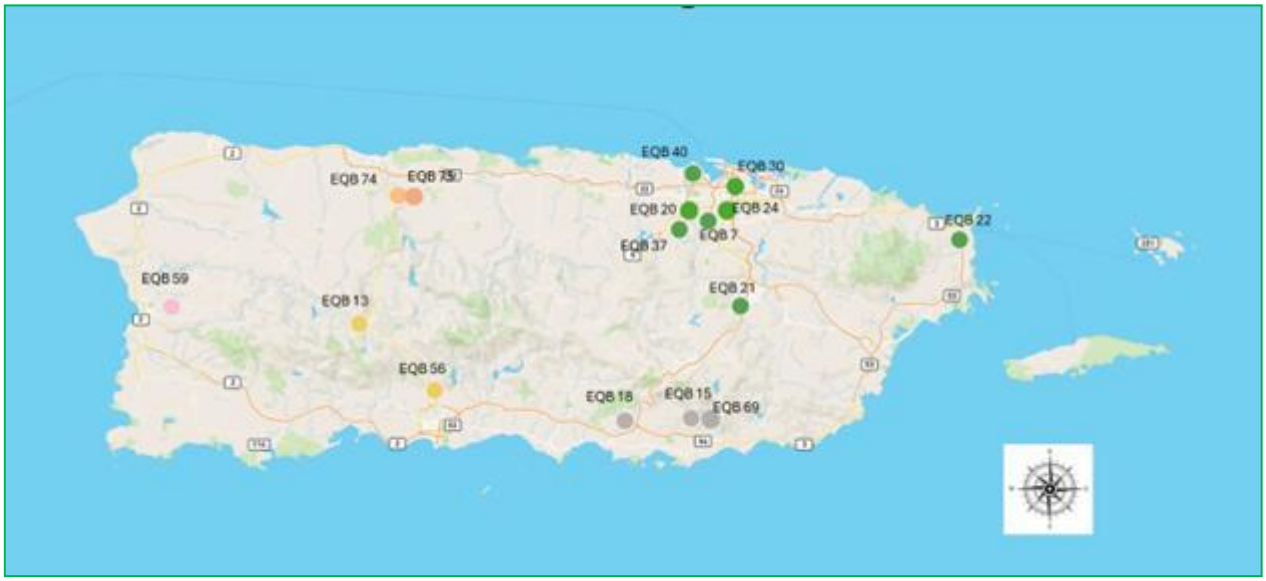
DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES

DNER

GOVERNMENT OF PUERTO RICO

Puerto Rico
Air Monitoring Network Plan
2025



Department of Natural and Environmental Resources

Air Quality Area

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Acronyms and Abbreviations

AQA: Air Quality Area
AQI: Air Quality Index
AQS: Air Quality System
CFR: Code of Federal Regulations
CPR: Commonwealth of Puerto Rico
CBSA: Core-based Statistical Area
DNER: Department Natural and Environmental Resources
EPA: Environmental Protection Agency
FEM: Federal Equivalent Method
FRM: Federal Reference Method
GPR: Government of Puerto Rico
MSA: Metropolitan Statistical Area
NAAQS: National Air Ambient Quality Standards
NAMS: National Air Monitoring Stations
NCore: National Core Multi-Pollutant Monitoring Stations
NO_2: Nitrogen Dioxide
O_3: Ozone
OSI: Information System Office
PAMS: Photochemical Assessment Monitoring Stations
Pb: Lead
PM_{10}: Particulate Matter
$PM_{2.5}$: Fine Particulate Matter
ppm: parts per million
PR: Puerto Rico
PRAMN: Puerto Rico Air Monitoring Network
PRDNER: Puerto Rico Department of Natural and Environmental Resources
PREL: Puerto Rico Environmental Laboratory
PREPA: Puerto Rico Power Electrical Authority
QA: Quality Assurance
QAMP: Quality Assurance Monitoring Plan
QAPP: Quality Assurance Project Plan
RCAP: Regulation for the Control of Atmospheric Pollution of Puerto Rico
SLAMS: State and Local Air Monitoring Stations
SO_2: Sulfur Dioxide
SO_4: Sulfate
SPM: Special Purpose Monitor
TEOM: Tapered Element Oscillating Microbalance
TSD: Temporary Shutdown
TSP: Total Suspended Particulate

1. INTRODUCTION

The Puerto Rico Department of Natural and Environmental Resources (PRDNER) Air Monitoring Network Plan is an annual report required under the Code of Federal Regulations [40 CFR § 58.10(a)(1)]. The purpose of this plan is to provide evidence that through the 2025, the Puerto Rico Air Monitoring Network (PRAMN) meets the current federal monitoring requirements. The PRAMN Plan details any proposed changes for the next 18 months after publication, provides specific information for each of the existing and proposed monitoring stations, and offers the public the opportunity to comment on air sampling activities. The plan also includes information on other air monitoring projects occurring on the island.

A predominant goal of the air monitors within Puerto Rico's network is to collect data with which to assess compliance with the National Ambient Air Quality Standards (NAAQS). In 1970, the Clean Air Act (CAA) established the NAAQS for six pollutants: Lead (Pb), Carbon Monoxide (CO), Particulate Matter (PM_{10} and $PM_{2.5}$), Ozone (O_3), Sulfur Dioxide (SO_2), and Nitrogen Dioxide (NO_2). A list of these NAAQS can be found at https://www.epa.gov/criteria-air-pollutants/naaqs-table.

PRDNER has designed its ambient air monitoring network to accomplish more than this primary goal, including to provide timely air pollution data to the public, support compliance with ambient air quality standards and emissions strategy development, and support air pollution research studies. Data gathered from the Puerto Rico EPA's monitoring network is used to produce a daily Air Quality Index (AQI) report, compile daily air quality forecast reports, support short and long-term health risk assessments, identify localized health concerns, and track long-term trends in air quality that could potentially threaten the citizen's quality of life.

The operation of the PRAMN is a critical component for the protection of public health and the environment. The operation of the network should meet the following requirements:

SIP requirements: Clean Air Act Section (CAA) 110(a)(2)(B) provides for the establishment and operation of monitoring systems for ambient air quality and that the data collected will be available. States are required to submit evidence that implement, maintain, and enforce new or revised NAAQS within 3 years of EPA issuing the standard.

Nonattainment Areas: Ambient air monitoring is important in the nonattainment areas for determining whether the areas are meeting the NAAQS. Air monitoring is also vital in providing air quality information to the public about areas not meeting the NAAQS because their health may be directly impacted.

Providing air quality information to the public: The air monitoring network is crucial in providing air quality information to the public. This information helps the public make air quality-based decisions about what activities they can participate in or whether they are exposed to pollutant concentrations above healthy Air Quality Index (AQI) levels.

Monitor location takes into consideration: peak (the highest concentration of pollution in each area), population (presence of pollutants in areas with high population densities), sources (pollution resulting from significant sources or source categories), background (general pollutant levels), and transport (extent of regional pollutant transport between populated areas). Federal regulations prescribe requirements for monitor and probe sitting to ensure that the ambient air quality data is accurately representative. The criteria for the placement and operation of each monitor and probe vary. Site surveys ensure that each requirement is satisfied.

The PRAMN plan describes and update the Puerto Rico Air Sampling Network. This plan will be presented to the Environmental Protection Agency (EPA) on or before July 1 of each year, after a public comment period of 30 days. The network modifications are made in consultation with the EPA. Also, it evaluates the operating cost of the network in accordance with the available budget for 2025-2026 fiscal year.

2. PUBLIC COMMENTS

In accordance with federal regulations, the plan will be available for public review and comment period for 30 days before submitting the final plan to the EPA. Comments received during the public consultation period will be forwarded to the Environmental Protection Agency (EPA) at the same time as the plan is submitted. This plan will be only available at the DNER website, http://www.drna.pr.gov/acai/muestreo/. Written comments should be sent to **aire@drna.pr.gov**. The final document will be submitted to the EPA along with the public comments received to comply with the federal regulatory requirements.

3. MONITORING DATA QUALITY ASSURANCE

The purpose of the Quality Assurance and Quality Control Program (QA / QC) is to ensure the quality of data obtained from air monitoring networks. The PRAMN meets or exceeds the requirements defined in 40 CFR Part 58 and all applicable appendices.

The QA/QC program includes, but is not limited, to the following activities: instrument performance audits, monitoring sitting evaluations, precision and span checks, flow rate audits, leak checks, data validation, and bias determinations.

For independent quality assurance activities, the PRAMN participates in the National Performance Audit Program and the Performance Evaluation Program for criteria pollutant monitoring. The Department operates under a Quality Management Plan (QMP) approved by the EPA and develops a Quality Assurance Project Plan (QAPP) for the PRAMN. The Management and Quality Assurance Plan (QAMP) was prepared by the PRDNER and approved by EPA Region 2. The air monitoring network complies with the criteria identified in the QAMP.

Each sampling site is evaluated to ensure that all EPA location requirements are met, as part of the performance audit of the instruments. In addition, it includes a safety inspection to guarantee the work environment for the personnel who work at the stations.

4. NETWORK DESIGN

The PRAMN has sixteen (16) locations with forty-four (42)[1] monitors around the island where the air quality for criteria pollutants (gaseous and particulate) is measured. The main goal of the PRAMN is to collect data to assess compliance with the NAAQS and to obtain information about air pollution. The information is available on maps, websites, and / or public notices. PRAMN is an important component for air quality management programs, provides the public with information on current conditions and progress in improving air quality, and is used by health researchers, business interests, environmental groups and others. The data obtained from the air quality monitors for the criteria pollutants are compared with NAAQS, to develop attainment and maintenance plans.

[1] Including QA monitors.

The following describe the various types of monitors at the sites within PRAMN:

- NCore: National Core multi-pollutant monitoring station. Puerto Rico is required by federal regulations to operate one NCore site, which includes monitors for CO, nitric oxide/reactive nitrogen (NO/NO_y), SO_2, O_3, PM_{10}, speciated $PM_{2.5}$, $PM_{2.5}$, $PM_{10\text{-}2.5}$. Puerto Rico operates an NCore site in Bayamon. The characteristic data of an NCore station and / or SLAMS stations are comparable with the data collected by research on the effects on health and atmospheric events, or very well for the work of method development.
- Near-road: Placed near busy roadways, near-road sites measure hourly concentrations of NO_2, CO and $PM_{2.5}$ in urban areas. Puerto Rico operates two near-road locations, one in Guaynabo and the other in Caguas.
- SLAMS: State or Local Ambient Monitoring Station. SLAMS monitoring is for comparison to the NAAQS. Also, it is used to evaluate air quality and provide data that is going to be used in the development of strategies and explore trends in the impact of control measures. Air sampling near major emission sources can give an idea of how these sources control their pollutants because of their operations.
- AQI: The AQI was developed by the EPA to provide a simple, uniform way to report daily air quality conditions. Puerto Rico AQI numbers are determined by measurements of fine particles ($PM_{2.5}$), particulate matter (PM_{10}) and ground-level ozone (O_3). The AQI values for each pollutant are calculated daily and applied to the respective averaging period. The EPA's AirNow AQI values are updated hourly and posted on the AQA website at https://www.drna.pr.gov/acai/aqi/ to help inform the public of current air quality conditions and trends. There are currently four (4) sites in the AQI network in Puerto Rico and two (2) new ones are proposed. The monitors are grouped into six locations: Cataño, Ponce, Mayaguez, Bayamon (currently full AQI); Guayama and Salinas (proposed), see Figure 10.

Table 1: Site Information-Puerto Rico Air Monitoring Stations

PR Id.	AQS Num.	County	Coordinates		Parameter
			Latitude	Longitude	
San Juan - Caguas Metropolitan Area					
EQB 7	72-061-0001	Guaynabo	18.423559	-66.114453	PM_{10}
EQB 20	72-061-0006	Guaynabo	18.422595	-66.120012	CO, NO_2
EQB 21	72-025-0007	Caguas	18.198712	-66.052237	$PM_{2.5}$, NO_2, CO
EQB 22	72-053-0003	Fajardo	18.381414	-65.617799	$PM_{2.5}$, PM_{10}
EQB 24	72-061-0005	Guaynabo	18.432122	-66.114702	$PM_{2.5}$, PM_{10}, PM_{10} QA, $PM_{2.5}$QA
EQB 30	72-127-0003	San Juan	18.449814	-66.052510	CO
EQB 37	72-021-0010	Bayamon	18.420089	-66.150615	NCore ($PM_{2.5}$, SO_2, CO, NOx, O_3, PM_{10}, $PM_{2.5}$ Spec, $PM_{2.5}$ AQI)
EQB 40	72-033-0004	Cataño	18.428427	-66.141648	SO_2, $PM_{2.5}$ AQI, PM_{10} AQI
Ponce Metropolitan Area					
EQB 13	72-001-0002	Adjuntas	18.172695	-66.726262	$PM_{2.5}$
EQB 56	72-113-0004	Ponce	18.009558	-66.272249	CO, $PM_{2.5}$, PM_{10}, PM_{10} AQI, $PM_{2.5}$ AQI
Guayama - Salinas Metropolitan Area					
EQB 15	72-057-0012	Guayama	17.955378	-66.617792	$PM_{2.5}$, PM_{10}, $PM_{2.5}$ AQI
EQB 18	72-123-0004	Salinas	17.968873	-66.261423	SO_2, NO_2, $PM_{2.5}$ AQI
EQB 69	72-057-0011	Guayama	17.965713	-66.186803	SO_2
Mayaguez Metropolitan Area					
EQB 59	072-097-0007	Mayagüez	18.21428	-67.14461	O_3, $PM_{2.5}$
Arecibo Metropolitan Area					
EQB 74	72-013-0001	Arecibo	18.457166	-66.696468	Pb
EQB 75	72-013-0002	Arecibo	18.453062	-66.695688	Pb, Pb-QA

Currently, Puerto Rico meets all minimum air monitoring requirements. The EPA in Appendix D of 40 CFR Part 58 establishes the minimum number of monitoring sites necessary to meet the environmental monitoring objectives. The minimum monitoring requirements are specific for each of the pollutants or based on objectives (NCore, Ozone, $PM_{2.5}$, NO_2, near-roads). Generally, the monitoring requirements depends on the population and the air emissions of the area.

The network design is according to the Clean Air Act, the 40 Code of the Federal Regulations (CFR) Part 58, which presents a balance between the desired number of monitors, the sampling frequency, the available budget, and the employees necessary for its management and operation. The recommended changes will be implemented during the period from July 2025 to December 2026, depending on the available budget.

The operation of the network may change over the years without public notification based on unexpected circumstances. For example: equipment failure, construction or demolition activities at the sampling site, loss of access to the site, equipment damaged by electrical failures, or natural events (hurricanes or storms).

Figure 1: Puerto Rico Air Monitoring Network-2025

Puerto Rico Air Monitoring Network-2025

PR Id.	AQS Num.	County	Coordinates		Parameter
			Latitude	Longitude	
San Juan - Caguas Metropolitan Area					
EQB 7	72-061-0001	Guaynabo	18.423559	-66.114453	PM_{10}
EQB 20	72-061-0006	Guaynabo	18.422595	-66.120012	CO, NO_2
EQB 21	72-025-0007	Caguas	18.198712	-66.052237	$PM_{2.5}$, NO_2, CO
EQB 22	72-053-0003	Fajardo	18.381414	-65.617799	$PM_{2.5}$, PM_{10}, $PM_{2.5}$ AQI
EQB 24	72-061-0005	Guaynabo	18.432122	-66.114702	$PM_{2.5}$, PM_{10}, PM_{10} QA PM
EQB 30	72-127-0003	San Juan	18.449814	-66.052510	CO
EQB 37	72-021-0010	Bayamón	18.420089	-66.150615	NCore ($PM_{2.5}$, SO_2, CO, NO_3, PM_{10}, $PM_{2.5}$ Spec, PM AQI)
EQB 40	72-033-0004	Cataño	18.428427	-66.141648	SO_2, $PM_{2.5}$ AQI, PM_{10} AQ
Ponce Metropolitan Area					
EQB 13	72-001-0002	Adjuntas	18.172695	-66.726262	$PM_{2.5}$
EQB 56	72-113-0004	Ponce	18.009558	-66.272249	CO, $PM_{2.5}$, PM_{10}, PM_{10} AQ $PM_{2.5}$ AQI
Guayama - Salinas Metropolitan Area					
EQB 15	72-057-0012	Guayama	17.955378	-66.617792	$PM_{2.5}$, PM_{10}
EQB 18	72-123-0004	Salinas	17.968873	-66.261423	SO_2, NO_2, $PM_{2.5}$ AQI
EQB 69	72-057-0011	Guayama	17.965713	-66.186803	SO_2
Mayaguez Metropolitan Area					
EQB 59	072-097-0007	Mayagüez	18.21428	-67.14461	O_3, $PM_{2.5}$
Arecibo Metropolitan Area					
EQB 74	72-013-0001	Arecibo	18.457166	-66.696468	Pb
EQB 75	72-013-0002	Arecibo	18.453062	-66.695688	Pb, Pb-QA

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4.1 Network Status

The EPA establishes the minimum number of monitoring sites required to meet national ambient monitoring objectives. The minimum monitoring requirements are codified in Appendix D of 40 CFR Part 58. Minimum monitoring requirements are specific to each individual pollutant (e.g Ozone, $PM_{2.5}$) or are objective-based monitoring networks (e.g. NCore, PAMs). Minimum monitoring requirements typically rely on population and/or air pollution emissions data. The Appendix provides a detailed description of these requirements.

Currently, PRAMN meets the minimum sampling requirements even though in recent years the network has not been operated 100% as proposed in previews plan. The efforts, in terms of personnel and budget, are destined to begin in these next 18 months at 100% operation of the sampling network. The table below contains details of the stations in operation and the reasons why they are not in operation, including the estimated time to begin operation. All the changes are made in coordination with EPA. The AQA maintains continuous communication with EPA Region 2.

To carry out the Lead and $PM_{2.5}$ analysis of the sampling network, PRDNER uses the services of the EPA National Laboratory. Table 2 contains details of the stations in operation and the reasons why they are not in operation, including the estimated time to begin operation.

Table 2: Puerto Rico Network Status

PR Id	AQS Num.	County	Parameter	Active	Comments
EQB 7	72-061-0001	Guaynabo	PM_{10}	√	
EQB 13	72-001-0002	Adjuntas	$PM_{2.5}$	TSD	Estimate re-start date, end of 2025.
EQB 15	72-057-0012	Guayama	$PM_{2.5}$	TSD	Change equipment for BAM 1022 Met-One, estimate re-start date, end of 2025.
			PM_{10}	√	
EQB 18	72-123-0004	Salinas	SO_2	√	
			NO_2	New	Estimate start date first quarter of 2026 subject to funding availability.
			$PM_{2.5}$	New	BAM 1020 Metone estimate start date, first quarter 2026 subject to funding availability .
EQB 20	72-061-0006	Guaynabo	CO	TSD	After being damaged during a traffic accident the shelter was replaced. The estimate re-start date, end of 2025.

			NO_2	TSD	Estimated re-start date, end of 2025.
EQB 21	72-025-0007	Caguas	$PM_{2.5}$	√	
			NO_2	√	
			CO	√	
EQB 22	72-053-0003	Fajardo	$PM_{2.5}$	√	
			PM_{10}	√	
EQB 24	72-061-0005	Guaynabo	$PM_{2.5}$	√	
			$PM_{2.5}$ QA	√	
			PM_{10}	√	
			PM_{10} QA	√	
EQB 30	72-127-0003	San Juan	CO	TSD	New air conditioning installed, estimate re-start date, end of 2025
EQB 37	72-021-0010	Bayamon	PM2.5	√	
			PM10	√	
			SO2	√	
			CO	TSD	Waiting for spare parts and/or replacement.
			O3	TSD	Waiting for spare parts and or replacement
			NOy	TSD	Waiting for the new equipment, estimate re-start date, end of 2025.
			PM2.5 Spec.	TSD	Waiting for the new equipment, estimate re-start date, end of 2025.
			PM2.5 Cont. AQI	√	
EQB 40	072-33-0004	Cataño	SO2	√	
			AQI PM2.5	√	Change equipment for BAM 1020 Met-One; estimate replacement date end of 2025
			AQI PM10	TSD	Change equipment for BAM 1020 Met-One; estimate re-start date January 2026
EQB 56	72-113-0004	Ponce	CO	√	
			$PM_{2.5}$	√	
			PM_{10}	√	
			AQI PM_{10}	TSD	Change equipment for BAM 1020 Met-One, estimate re-start date January 2025
			AQI $PM_{2.5}$	√	
EQB 59	72-097-0007	Mayagüez	O_3	√	
			$PM_{2.5}$	√	Changed equipment for BAM 1020 Met-One.
EQB 69	72-057-0011	Guayama	SO_2	TSD	Waiting for new equipment and shelter restoration estimate re-start date, end of 2025.

EQB 74	72-013-0001	Arecibo	Pb	√
EQB 75	72-013-0002	Arecibo	Pb	√
			Pb-QA	√

4.2 Network Equipment

The PRAMN uses the equipment recommended and approved in the *List of Designated Reference and Equivalents Method* of Title 40, Part 53 of the Code of Federal Regulations (40 CFR Part 53) to carry out the sampling according to each parameter being sampled. These consist of two types, continuous and intermittent (manual) sampling.

- Intermittent or manual sampling is used for the particulate stations (PM_{10}, $PM_{2.5}$ and Pb). It takes samples for 24 hours, with different frequencies, PM_{10} and Lead every six days (1-6 days) and $PM_{2.5}$ every three days (1-3 days). This equipment uses filters that are weighed and/or analyzed through chemical processes either in the DNER environmental laboratory or by EPA national contract laboratory.
- Continuous sampling is used for NO_2, CO, SO_2, O_3, PM_{10}, and $PM_{2.5}$. The continuous equipment takes samples continuously 24 hours every day. This equipment calculates averages of five (5) minutes and hourly averages of the values taken.

Both types of equipment are calibrated and have preventive maintenance according to the *QA Handbook Vol. II App D Measurement Quality Objectives and Validation Templates*. All the equipment has and meets the specifications of quality assurance and quality control, and the captured data is reliable for comparison with the NAAQS.

Table 3: Equipment used in the Puerto Rico Air Monitoring Network by Parameter.

Parameter	Equipment	Type
Particulate Matter (PM_{10})	Thermo Scientific Hi-Vol SA/GMW-321B	manual
	Met-One E-Seq-FRM PM10 Low Vol	manual
	Thermo Scientific TEOM 1405F [2]	continuous
Particulate Matter ($PM_{2.5}$)	Met-One E-Seq-FRM PM2.5 / VSCC	manual
	Met-One BAM 1022 PM2.5 / VSCC	continuous
	Met-One BAM 1020 PM2.5 / VSCC	continuous
	Thermo Scientific TEOM 1405F AVF PM2.5 VSCC[3]	continuous
Sulfur Dioxide (SO_2)	Teledyne T-100 Pulsed Fluorescence	continuous
Nitrogen Dioxide (NO_2)	Teledyne T-200 Chemiluminescence	continuous
Ozone (O_3)	Teledyne T-400 Instrumental Ultraviolet Abs.	continuous
Lead (Pb)	Thermo Scientific Hi-Vol ICP-MS	manual
Carbon Monoxide (CO)	Teledyne T-300 Gas Filter Corr. CO Analyzer	continuous
PM2.5 Speciation	Met-One SASS Teflon Energy Dispersive XRF / URG - 3000N Sequential Particulate Speciation	manual

[2] To be replaced by Met-One BAM 1020 Particulate Monitor
[3] To be replaced by Met-One BAM 1020 Particulate Monitor / VSCC

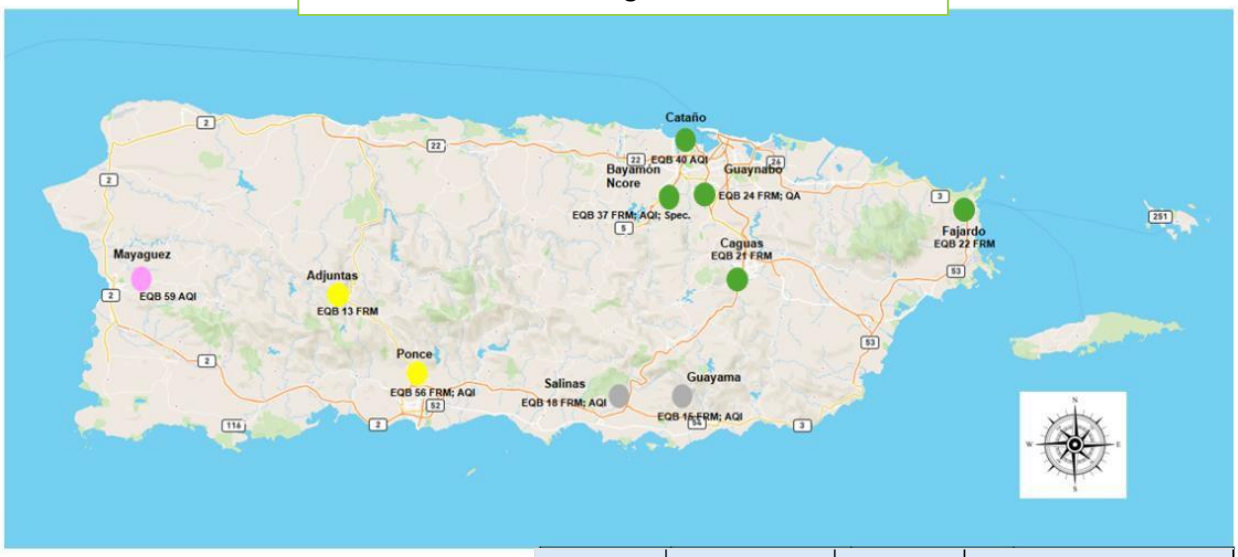
4.3 $PM_{2.5}$ Air Monitoring Network

The PRAMN operates ten (10) sites of $PM_{2.5}$ in the air sampling network, seven (7) use the FRM and four (4) use continuous FRM sampling. The FRM $PM_{2.5}$ sampling equipment is reference sampling equipment included in the EPA-Designated Reference List as Met One E-SEQ- FRM $PM_{2.5}$ / VSCC. The FRM sites operate one every three days (1-3). The FRM QA monitor located at Guaynabo (72-061-0005) operates one day every 6 days.

The equipment of the site 72-057-0012 (EQB 15) will be replaced by continuous sampling (BAM 1022) and a continuous $PM_{2.5}$ monitor BAM 1020 will be added in Salinas at site AQS 72-123-0004 (EQB18).

Figure 2: PM $_{2.5}$ Network

Puerto Rico Air Monitoring $PM_{2.5}$ Network 2025



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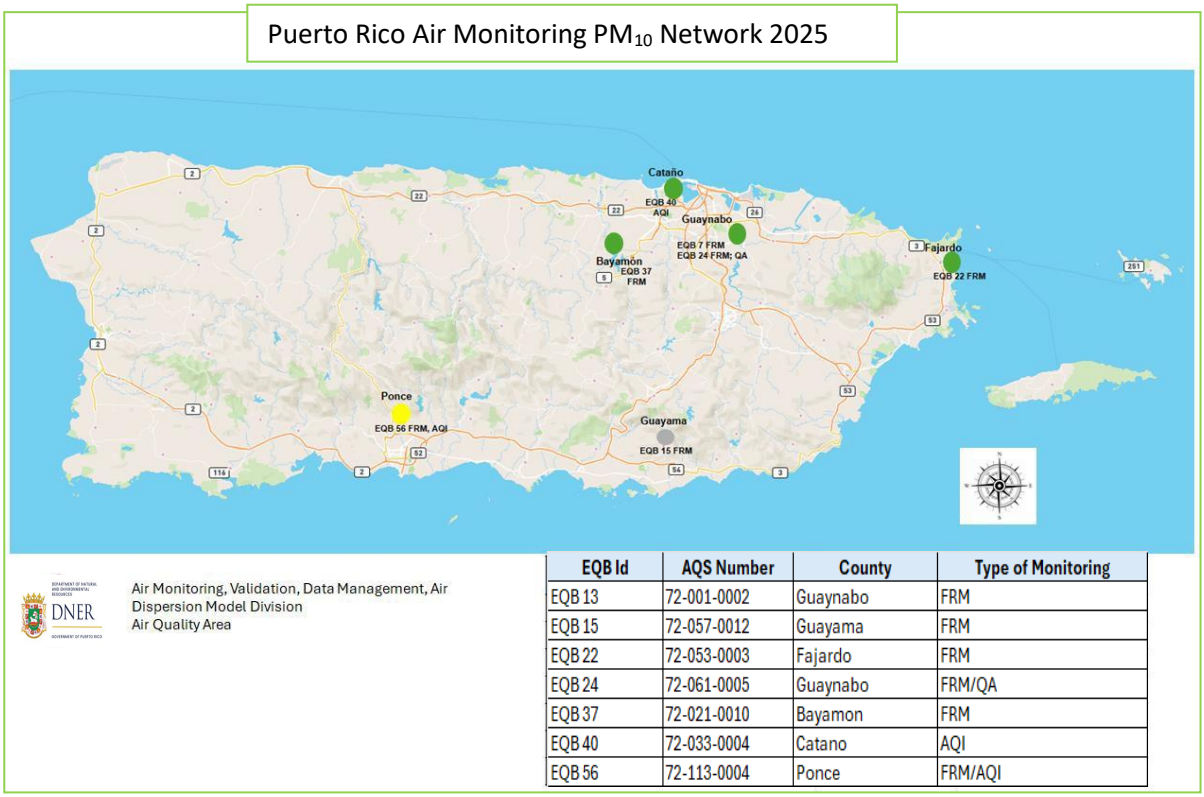
EQB Id	AQS Number	County	Type of Monitoring
EQB 13	72-001-0002	Adjuntas	FRM
EQB 15	72-057-0012	Guayama	FRM/AQI
EQB 18	72-123-0004	Salinas	FRM/AQI (new, no active)
EQB 21	72-025-0007	Caguas	FRM
EQB 22	72-053-0003	Fajardo	FRM
EQB 24	72-061-0005	Guaynabo	FRM/AQI
EQB 37	72-021-0010	Bayamon	FRM/Speciation/AQI
EQB 40	72-033-0004	Catano	FRM/AQI
EQB 56	72-113-0004	Ponce	FRM/AQI
EQB 59	72-097-0007	Mayaguez	FRM/AQI

The continuous $PM_{2.5}$ monitors operate throughout the year and data is sent to EPA's AQS database in one-hour value. The equipment used for continuous $PM_{2.5}$ sampling will be replaced by VSCC Met One BAM 1020 or 1022 Beta Attenuation Particulate Monitors. This analyzer is part of the new equipment financed with the funds from the America Rescue Plan. Details of these sites are in Appendix and Figure 2.

4.4 PM_{10} Air Monitoring Network

The PRAMN operates seven (7) PM_{10} sites and is broken down into six (6) intermittent FRM monitors, one (1) of collocated, and two (2) PM_{10} continuous monitors in the air sampling network.

Figure 3: PM_{10} Network



EQB Id	AQS Number	County	Type of Monitoring
EQB 13	72-001-0002	Guaynabo	FRM
EQB 15	72-057-0012	Guayama	FRM
EQB 22	72-053-0003	Fajardo	FRM
EQB 24	72-061-0005	Guaynabo	FRM/QA
EQB 37	72-021-0010	Bayamon	FRM
EQB 40	72-033-0004	Catano	AQI
EQB 56	72-113-0004	Ponce	FRM/AQI

The FRM PM_{10} sampling equipment used in the network is the Hi-Vol SA/GMW-321B and Met-One E-Seq-FRM PM10 Low Vol. The monitor located at Bayamon operates every three days (1 in 3) and while the other five (5) monitors, including the QA monitor, operate every six days (1 in 6).

The continuous PM_{10} monitors take samples throughout the year, and the concentrations are sent to EPA-AQS. The monitors are used for AQI purposes and are reported to AirNow as part of the AQI network of Puerto Rico. For continuous PM_{10} sampling, the TEOM 1405F-AVF is used, which will be replaced by the BAM 1020 in both sites (Cataño and Ponce). The details of the sites are included in Appendix and Figure 3.

4.5 Ozone Air Monitoring Network

The PRAMN operates two (2) ozone sites in the air sampling network; one of these monitors is at the NCore station. The ozone monitors operate throughout the year, and the concentrations are sent in one-hour values to AQS of the EPA. The monitors are classified as SLAMS and the equipment used is FEM Teledyne T-400 Instrumental Ultraviolet Abs. Both monitors are reported to AirNow as part of the AQI network of Puerto Rico.

The details of the location of the sites are included in Appendix and Figure 4.

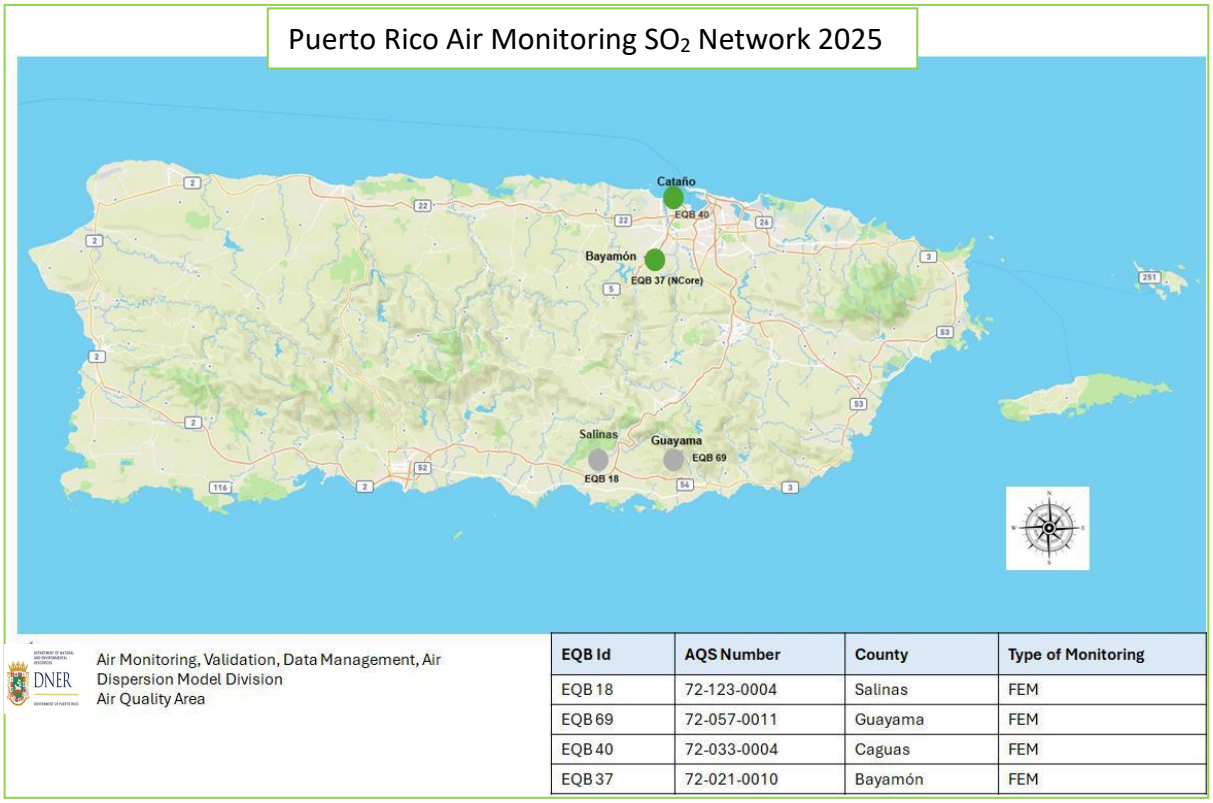
Figure 4: O_3 Network

4.6 SO_2 Air Monitoring Network

The PRAMN operates four (4) sites of sulfur dioxide (SO_2) in the air sampling network; one of these monitors is at the NCore station. All SO_2 monitors are operated throughout the year. The concentrations are sent in one (1) hour values and five (5) minutes to AQS of the EPA. All SO_2 monitors are oriented to sources. The equipment used is FEM (Teledyne T-100 Pulsed Fluorescence).

The details of the location of the sites are included in Appendix and Figure 5.

Figure 5: SO_2 Network



EQB Id	AQS Number	County	Type of Monitoring
EQB 18	72-123-0004	Salinas	FEM
EQB 69	72-057-0011	Guayama	FEM
EQB 40	72-033-0004	Caguas	FEM
EQB 37	72-021-0010	Bayamón	FEM

4.7 Lead Air Monitoring Network

The PRAMN operates two (2) Lead (Pb) sites in the air sampling network, both in Arecibo, monitoring concentrations of the industries that emit lead. One of the monitors and the collocate (QA) operate one (1) every six (6) days (1-6) throughout the year. In October 2024, the frequency of the other monitor (EQB 75), changed to one (1) every

three days throughout the year. The concentrations are submitted in daily values to the EPA AQS.

The lead monitors are SLAMS and use FRM HI Vol. samplers. The filters are analyzed by ICP-MS (EPA contract). The details of the sites are included in Appendix and in Figure 6.

Figure 6: Lead Network

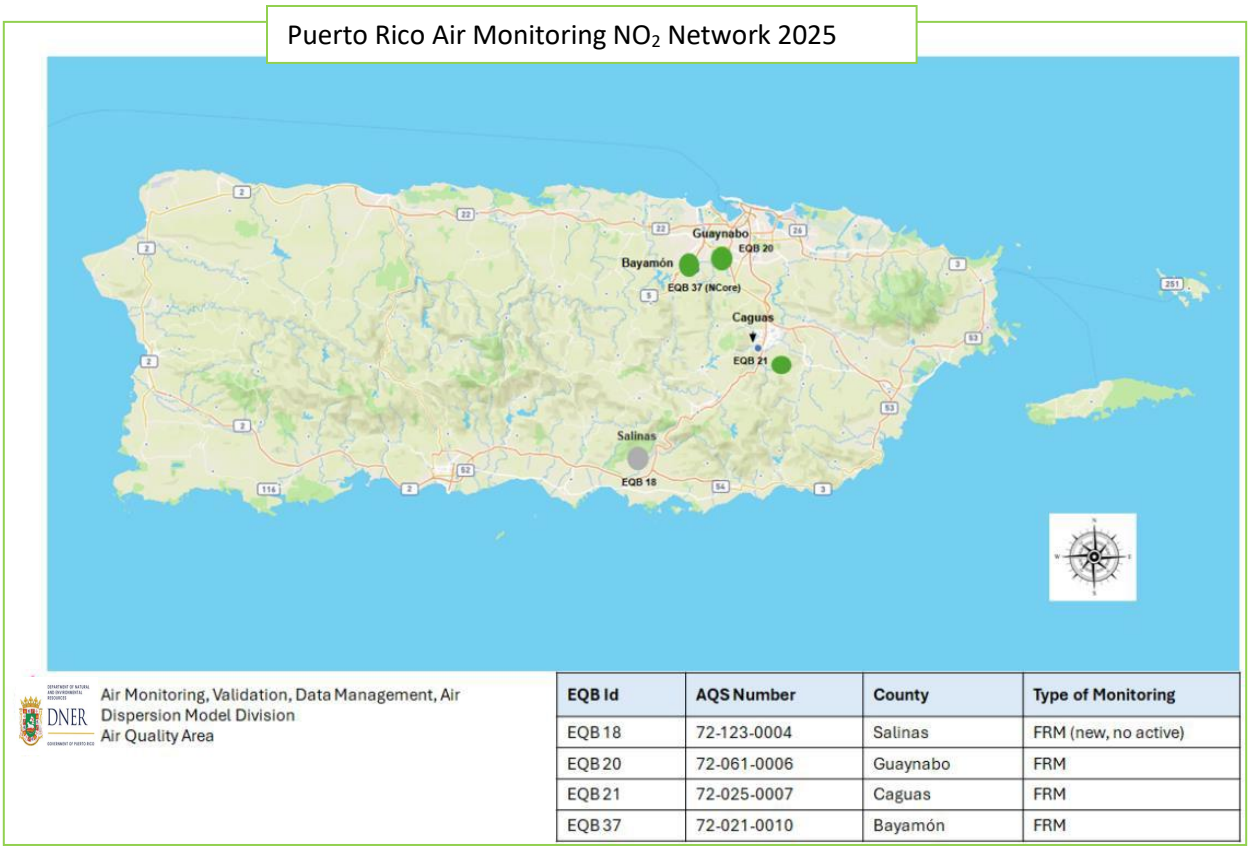
EQB Id	AQS Number	County	Type of Monitoring
EQB 74	72-013-0001	Arecibo	FRM
EQB 75	72-013-0002	Arecibo	FRM

4.8 NO_2 Air Monitoring Network

The PRAMN operates three (3) nitrogen dioxide (NO_2) sites in the air-monitoring network, two (2) as parts of the near road program, (at Guaynabo and Caguas) and one (1) at Bayamon NCore site.

A new NO_2 monitor will be added in Salinas at site AQS 72-123-0004 (EQB 18). The NO_2 samplers are operated year-round, and the measurements are sent to the EPA AQS on an hourly basis. The SLAMS NO_2 sites use FRM; and the equipment used is Teledyne T-200 Chemiluminescence. The details of the sites are included in Appendix and Figure 7.

Figure 7: NO_2 Network

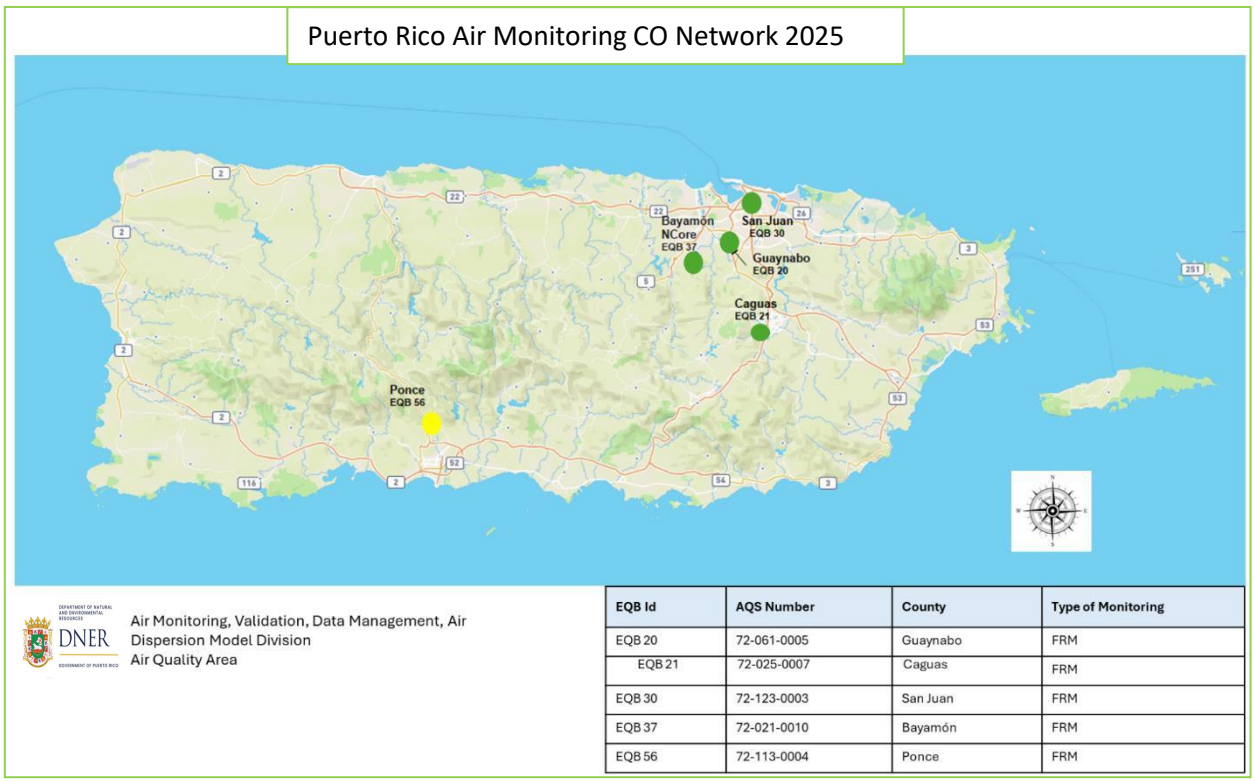


EQB Id	AQS Number	County	Type of Monitoring
EQB 18	72-123-0004	Salinas	FRM (new, no active)
EQB 20	72-061-0006	Guaynabo	FRM
EQB 21	72-025-0007	Caguas	FRM
EQB 37	72-021-0010	Bayamón	FRM

4.9 CO Air-Monitoring Network

The PRAMN operates five (5) carbon monoxide (CO) sites in the air-monitoring network, one (1) of them at Bayamon NCore site. All CO samplers are operated year-round, and the measurements are sent to the EPA AQS on an hourly basis. The SLAMS CO sites use FRM monitors. The equipment used is Teledyne T-300 Gas Filter Corr. CO Analyzer. The details of these sites are included in Appendix and Figure 8.

Figure 8: CO Network



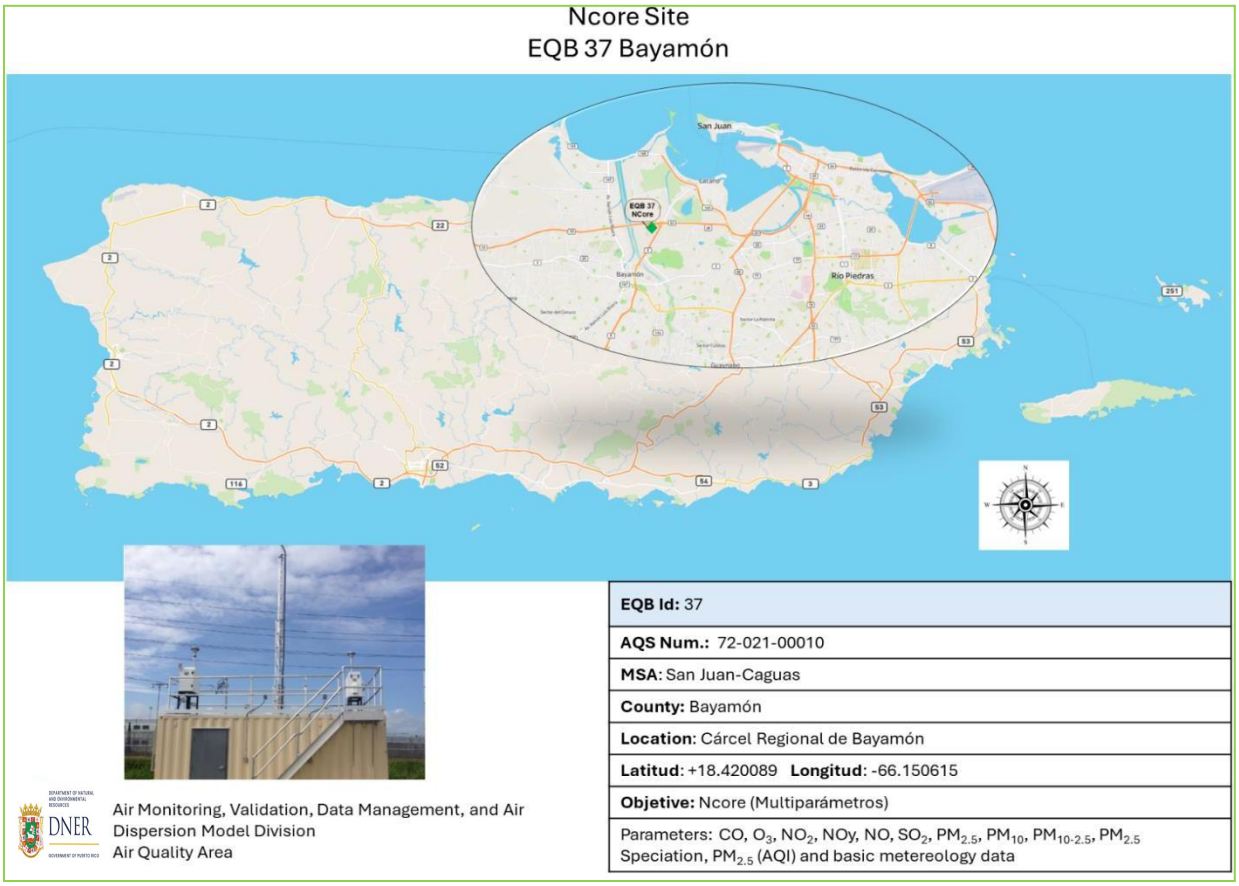
EQB Id	AQS Number	County	Type of Monitoring
EQB 20	72-061-0005	Guaynabo	FRM
EQB 21	72-025-0007	Caguas	FRM
EQB 30	72-123-0003	San Juan	FRM
EQB 37	72-021-0010	Bayamón	FRM
EQB 56	72-113-0004	Ponce	FRM

4.10 NCore Air Monitoring Network

In PR an NCore site was established in March 2011. This site is part of the sampling network that uses various advanced equipment for measuring particles, gases, and meteorology. The EPA requires each state to have at least one NCore site. The parameters sampled are CO, O_3, NO_2, NO_y, NO, SO_2, $PM_{2.5}$, PM_{10}, $PM_{10\text{-}2.5}$, $PM_{2.5}$ Speciation, $PM_{2.5}$ AQI and basic meteorology.

Puerto Rico is required to have an NCore site. Bayamon (AQS: 72-021-0010) was established as the NCore site for Puerto Rico. The monitor of $PM_{2.5}$ continuous is a Metone BAM 1022. The details of the monitors are in Appendix and Figure 9.

Figure 9: NCore Site

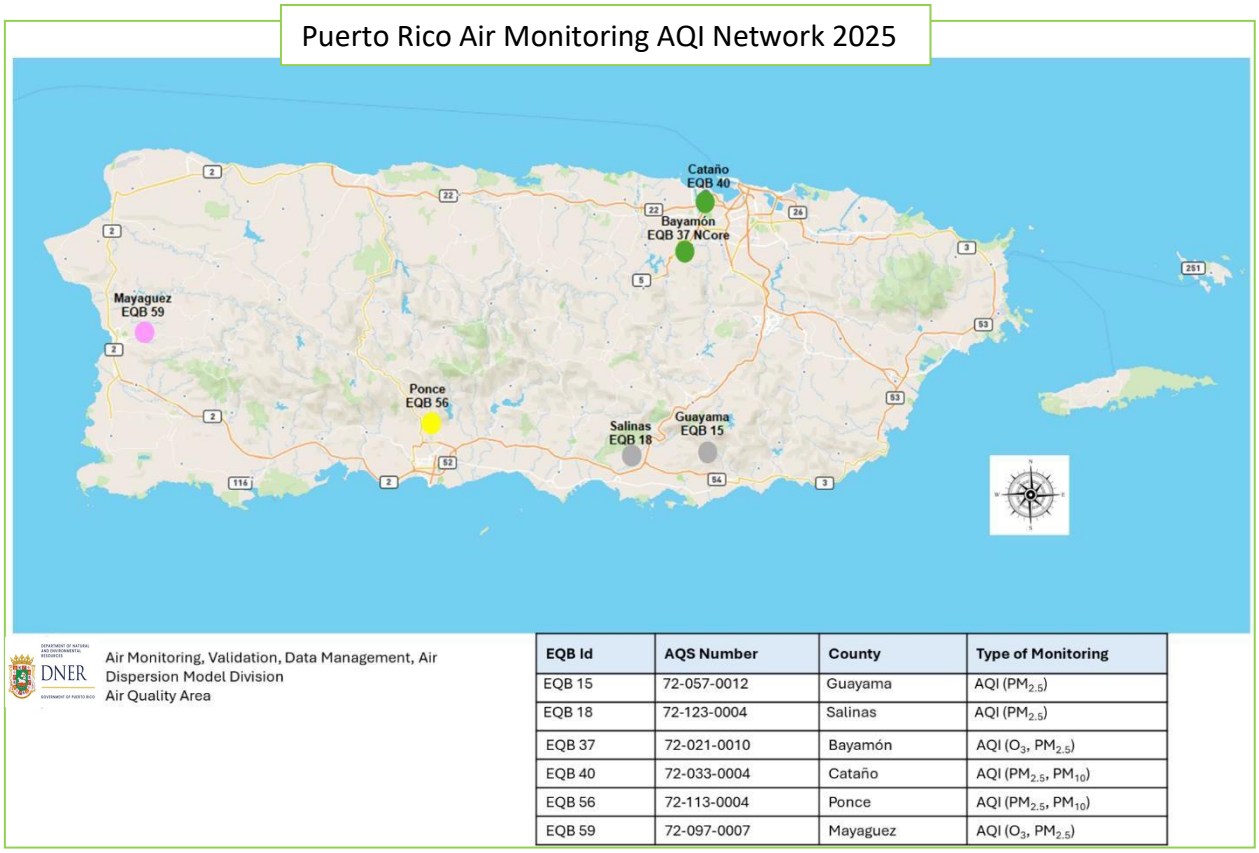


4.11 AQI Air Monitoring Network

The AQI values for each pollutant are calculated daily and applied to the respective averaging period. The EPA's AirNow AQI values are updated hourly and posted on the AQA website at https://www. www.drna.pr.gov/acai/aqi/, to help inform the public of current air quality conditions and trends.

There are currently four (4) sites on the AQI network in Puerto Rico and two (2) new ones proposed. The monitors are grouped into six locations: Cataño, Ponce, Mayaguez, Bayamon (currently full AQI); Guayama and Salinas (proposed). See Figure 10. Daily AQI values are generally the highest for these two pollutants and are responsible for most poor air quality events in Puerto Rico.

Figure 10: AQI Network



EQB Id	AQS Number	County	Type of Monitoring
EQB 15	72-057-0012	Guayama	AQI ($PM_{2.5}$)
EQB 18	72-123-0004	Salinas	AQI ($PM_{2.5}$)
EQB 37	72-021-0010	Bayamón	AQI (O_3, $PM_{2.5}$)
EQB 40	72-033-0004	Cataño	AQI ($PM_{2.5}$, PM_{10})
EQB 56	72-113-0004	Ponce	AQI ($PM_{2.5}$, PM_{10})
EQB 59	72-097-0007	Mayaguez	AQI (O_3, $PM_{2.5}$)

5. LOW-COST SENSOR AIR MONITORING

Low-cost air sensors are planned to be used to complement network monitoring by focusing on distant areas of Puerto Rico. The network of air quality sensors will be used to evaluate the air quality and estimate the levels of exposure to pollution of the population in distant areas of Puerto Rico. The sensors will provide data from areas of Puerto Rico for which there is currently no evidence of air quality, due to lack of budget or infrastructure that would allow the location of an air sampling station.

Low-cost sensors monitoring will occur in areas outside the reach of the PRAMN, near sources of contamination or areas where the infrastructure would not allow the location of an air sampling station. To determine air quality, sensors will be located near pollution sources. Site selection criteria will be based on community priorities and emissions inventories will be used to select sensor locations. Figure 11 below shows the locations of low- cost sensors in communities of interest.

Figure 11: Puerto Rico Low-Cost Air Monitoring Sensor Network

6. NETWORK BUDGET AND LIMITATIONS

The air monitoring network has several limitations that affect its implementation, operation, and maintenance. Although EPA funding is expected to replace equipment and parts of them, maintenance will be affected if the following limitations are not resolved.

- The lack of personnel for maintenance, checks, and data handling of the air monitoring network. The staff responsible for these functions are only three (3) field technicians, one (1) electronics technician that is also a field technician, and two (2) statisticians.
- Streamline the allocation of funds for the operation and purchase of materials have been approved and are available for the period needed. Since the PRAMN is funded with federal funds under Section 103 and Section 105 of the Clean Air Act, the PRAMN must be approved by EPA Region 2. After the funds are allocated cannot immediately be used. The funds require state funds to match, PRDNER requires approval of external government agencies.
- To make the purchasing process more flexible since all PR Government purchases are made by the General Services Administration regardless of the amount and the urgency of the purchase.

The Air Quality Area does not know the status of the orders. In addition, if the amount of the order exceeds $10,000, authorization from another External Agency, Office of Management and Budget, is also required. All these new administrative requirements delay the orders and therefore the operation of the sampling network.

- Also, make the purchasing process more flexible in terms of the purchase of equipment, since the sampling equipment used in the network is not manufactured in Puerto Rico. This requirement delays the orders by not being able to purchase directly from the manufacturer and sometimes increases the cost of parts. Puerto Rico Government regulation even limits the amount of money for purchases and requires prior approval from the Office of Management and Budget.
- Increase cooperation between Government Agencies to facilitate processes when establishing a new site. Any new site is complicated as it depends on the topography of the area, available electrical utility infrastructure, security, use permit and site owner approval.

7. NETWORK CHANGES

Given the situation of limited budget and personnel resources, during 2025, efforts will be concentrated on reestablishing 100% of the operation of the network and continuing maximizing the data capture over 75%.

Changes to the sampling network are made after determining whether the sampling sites meet the objectives for which they were established. Based on this evaluation, it was decided not to proceed with the installation of a $PM_{2.5}$ monitor in Guayanilla since the $PM_{2.5}$ network meets the required number of monitors. In 2024 it was proposed to add a network of low-cost sensors to complement the actual monitoring network in areas that are difficult to access and without infrastructure to locate a permanent sampler. Details of these activities are provided below.

All changes involving the relocation, closure, and/or establishment of a new site will require approval by EPA. Each change request will be submitted to EPA when additional details regarding the sites are available.

a. Activities to be carried out on existing Sites and pending of previous Network Plan:

1. Finish the Guaynabo station (Metropista) and restart the site. The shelter was already replaced.
2. Reestablish operation of stations closed due to lack of personnel.
3. Implement the plan of American Rescue Plan funding to replace aging ambient air monitoring equipment for new monitoring equipment.
4. Finish the replacement of continuous $PM_{2.5}$ and PM_{10} sampling equipment used to report AQI with new equipment.
5. Install the NO_2 and $PM_{2.5}$ monitors in the Salinas area. These sites were approved by EPA for the 2023 network plan. The monitors will be installed at the AQS site 72-123-0004 in Salinas.

b. New activities

1. Add a low -cost sensor air monitoring network as a complement to the Puerto Rico air monitoring network.

7.1 Limitations to Implement the Proposed Changes.

To implement all the proposed changes, it is necessary to achieve the following:

a. A request to EPA for approval of changes and posting to new sites is required.
b. The proposal for funds in Air Monitoring Grants under the Inflation Reduction Act (IRA) submitted to EPA to improve the operation of the sampling network must be approved and awarded as submitted.
c. Puerto Rico must have the necessary personnel for the maintenance, operation and administration of the network and data management. Therefore, it is necessary to allocate funds for recruiting personnel.
d. Have the required sitting criteria to establish the sampling sites. That is, the topography and infrastructure of the area allows access to the site, and the area has an electricity service for the operation of the equipment.

8. NETWORK MODIFICATIONS FORMS

A network modification document will be prepared with full details of the proposed changes to be submitted to EPA Region 2 to implement the network changes identified in this plan.

9. SUMMARY AND CONCLUSIONS

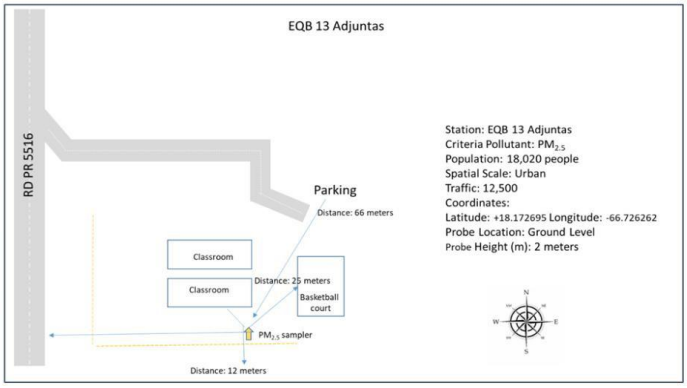
The air monitoring network of Puerto Rico presented in this plan meets the monitoring requirements of federal regulations. The procedures that are used and the instruments that are operated meet the standards that have been established by EPA.

The most significant changes are to replace the continuous $PM_{2.5}$ and PM_{10} samplers. Reestablish operation of closed stations and implement the American Rescue Plan funding to replace old monitoring equipment. Also, improve the real-time publication of the air quality in Puerto Rico, using new equipment in particulate matter stations and with the installation of low-cost sensors in the areas of poor access.

APPENDIX: SITES DESCRIPTION

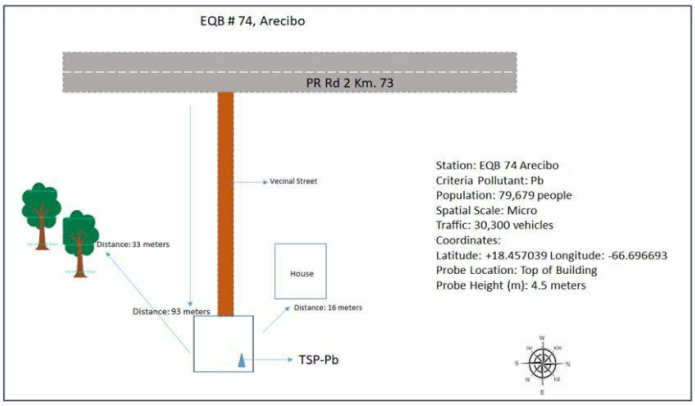
Site Name		EQB 13				
Address		Road #123				
City		Adjuntas				
AQS Code		72-001-0002				
PR County		Adjuntas				
MSA/CSA		N/A				
Latitude		+18.172695				
Longitude		-66.726262				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		Yes				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
Ambient Average Temperature	Instrumental	Electronic	1 in 3	Urban	Extreme Downwind	2005/01/01
Sample Average Barometric Pressure	Instrumental	Barometric Sensor	1 in 3	Urban	Extreme Downwind	2005/01/01
$PM_{2.5}$	E-Seq-FRM/VSCC	Gravimetric	1 in 3	Urban	Upwind Background	2005/01/01
Site Purpose		Reference for Extreme downwind				
Plans for the next 18 months		Re-start				
Other Comments		TSD 2021/01/20 (due lack or personnel)				

Station EQB 13 Adjuntas



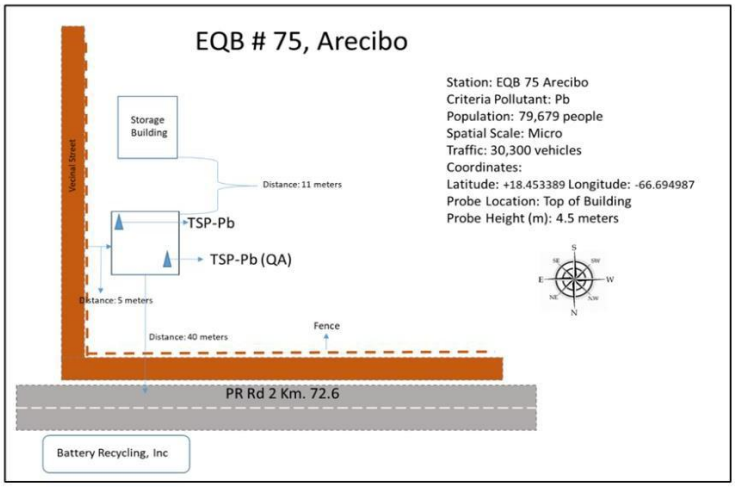
Site Name		EQB 74				
Address		Victor Santoni Cordero Road				
City		Arecibo				
AQS Code		72-013-0001				
PR County		Arecibo				
MSA/CSA		Arecibo				
Latitude		+18.457166				
Longitude		-66.696468				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
Ambient Average Temperature	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2010/01/02
Sample Average Barometric Pressure	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2010/01/02
Lead	Hi-Vol	ICP-MS	1 in 6	Micro	Source Oriented	2010/01/02
Site Purpose		Population Protection				
Plans for the next 18 months		No Changes				
Other Comments		Part of Lead SIP				

Station EQB 74 Arecibo



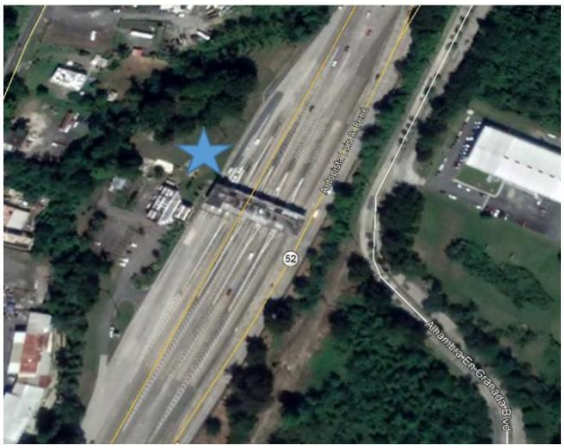
Site Name		EQB #75				
Address		PR Road #2				
City		Arecibo				
AQS Code		72-013-0002				
PR County		Arecibo				
MSA/CSA		Arecibo				
Latitude		+18.453062				
Longitude		-66.695688				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
Ambient Average Temperature	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2012/08/19
Sample Average Barometric Pressure	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2012/08/19
Lead	Hi-Vol	ICP-MS	1 in 6	Micro	Source Oriented	2012/08/19
Site Purpose		Population Protection				
Plans for the next 18 months		No Changes				
Other comments		Pb collocated (QA), Part of Lead SIP				

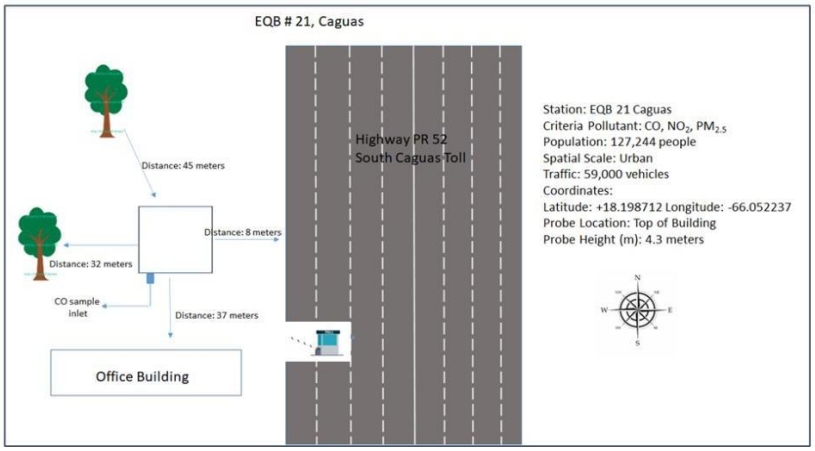
Station EQB 75 Arecibo



Site Name		EQB 21				
Address		Highway 22 Caguas South Toll				
City		Caguas				
AQS Code		72-25-0007				
PR County		Caguas				
MSA/CSA		San Juan-Caguas				
Latitude		+18.198712				
Longitude		-66.052237				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
NO_2	Teledyne T200u	Chemiluminescence	Continuous	Urban	High Concentration	2016/12/19
CO	Teledyne T300U	Gas filter Correlation CO analyzer	Continuous	Urban	High concentration	2017/02/06
$PM_{2.5}$	Met-One E-Seq-FRM/VSCC	Gravimetric	1 in 3	Urban	High concentration	2017/06/01
Ambient Average Temperature	Instrumental	Electronic	1 in 3	Urban	High concentration	2017/06/01
Sample Average Barometric Pressure	Instrumental	Barometric Sensor	1 in 3	Urban	High concentration	2017/06/01
Site Purpose		Near Roads				
Plans for the next 18 months		No Changes				
Other comments						

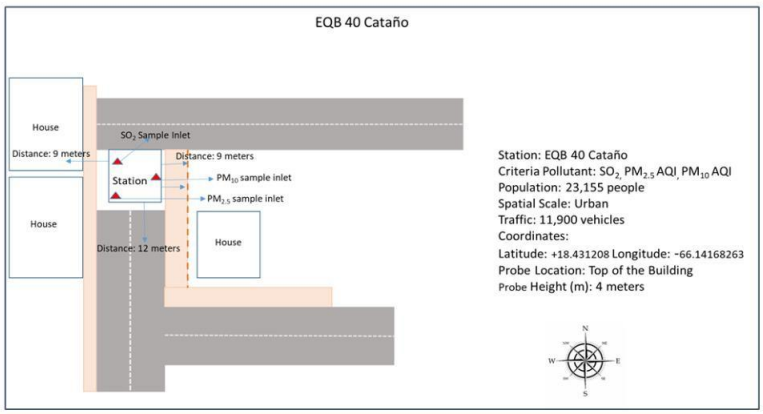
Station EQB 21 Caguas





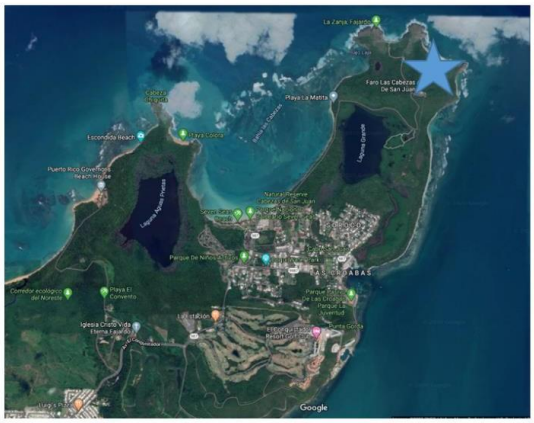
Site Name		EQB 40				
Address		11 Final St. Las Vegas				
City		Cataño				
AQS Code		72-033-0004				
PR County		Cataño				
MSA/CSA		San Juan-Caguas				
Latitude		+18.428427				
Longitude		-66.141648				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
SO_2	Teledyne T100u	Ultraviolet Pulsed Fluorescent	Continuous	Neighborhood	Population Exposure	1993/12/07
PM_{10} Continuous	Inst. R&P SA246B-Inlet	TEOM Gravimetric	Continuous	Urban	Population Exposure	2000/07/13
$PM_{2.5}$ Continuous	TEOM $PM_{2.5}$ VSCC	FDMS Gravimetric	Continuous	Urban	Population Exposure	2015/01/01
Site Purpose		Population Protection				
Plans for the next 18 months		Replace the $PM_{2.5}$ analyzer for BAM 1022 Met-One / VSCC				
Other comments		AQI (PM_{10}, $PM_{2.5}$) $PM_{2.5}$ continuous monitor				

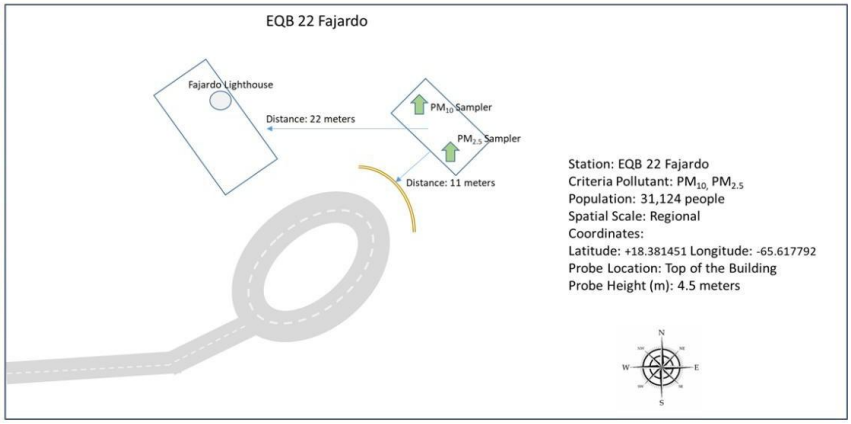
Station EQB 40 Cataño



Site Name		EQB 22				
Address		Fajardo Lighthouse				
City		Fajardo				
AQS Code		72-053-0003				
PR County		Fajardo				
MSA/CSA		San Juan-Caguas				
Latitude		+18.381414				
Longitude		-66.617799				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		Yes				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
PM_{10}	Hi-Vol SA/GMW-1200	Gravimetric	1 in 6	neighborhood	Regional Transport	1989/03/05
$PM_{2.5}$	Met-One E-Seq-FRM /VSCC	Gravimetric	1 in 3	Regional	Background	1999/04/20
Ambient Temperature Average	Instrumental	Electronic	1 in 3	Regional	Background	1999/04/20
Ambient Pressure Average	Instrumental	Barometric Sensor	1 in 3	Regional	Background	1999/04/20
Site Purpose		Background / Regional Transport				
Plans for the next 18 months		No Changes				
Other comments						

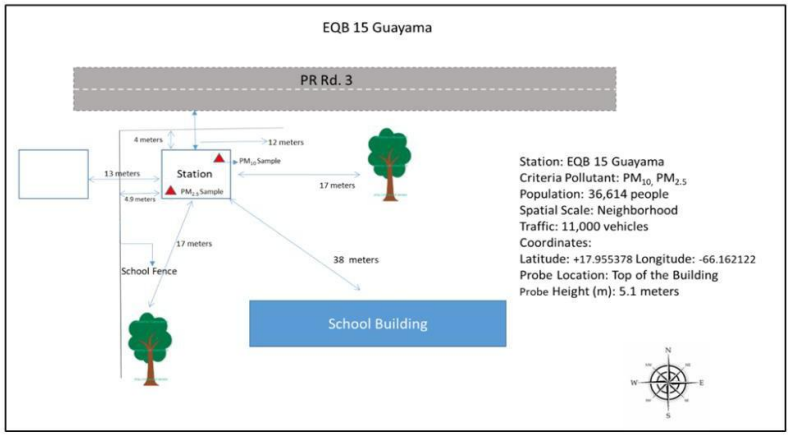
Station EQB 22 Fajardo





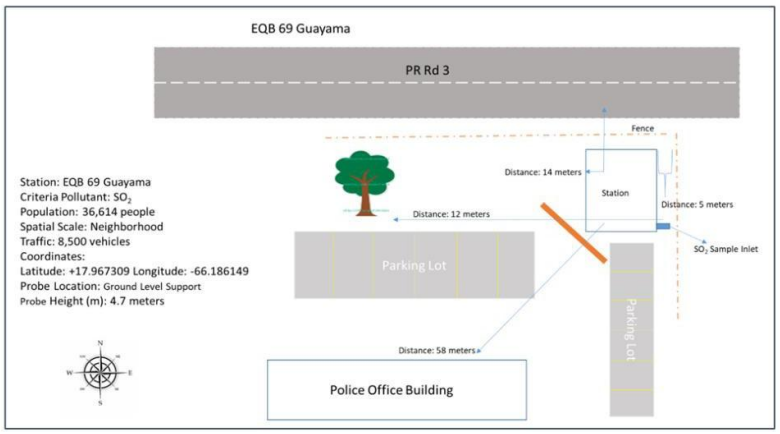
Site Name		EQB 15				
Address		PR Rd. 3				
City		Guayama				
AQS Code		72-057-0012				
PR County		Guayama				
MSA/CSA		Guayama-Salinas				
Latitude		17.955378				
Longitude		-66.617792				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		Yes				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
PM_{10}	Hi-Vol SA/GMW-1200	Gravimetric	1 in 6	neighborhood	Population Exposure	2019/10/30
$PM_{2.5}$	Met-One BAM 1022 / VSCC	BAM 1022 Attenuation	continuous	neighborhood	Population Exposure	2019/10/03
Ambient Temperature Average	Instrumental	Electronic	1 in 3	neighborhood	Population Exposure	2019/10/03
Ambient Pressure Average	Instrumental	Barometric Sensor	1 in 3	neighborhood	Population Exposure	2019/10/03
Site Purpose		Protection for the Population				
Plans for the next 18 months		Replace the $PM_{2.5}$ analyzer for BAM 1022 Met-One / VSCC				
Other comments						

Station EQB 15 Guayama



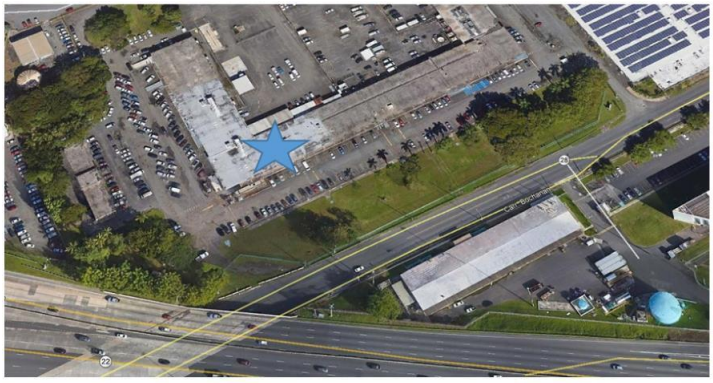
Site Name		EQB 69				
Address		PR Police Station, Stolen Vehicles Division				
City		Guayama				
AQS Code		72-057-0011				
PR County		Guayama				
MSA/CSA		Guayama-Salinas				
Latitude		+17.965713				
Longitude		-66.186803				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
SO_2	Teledyne T100u	Ultraviolet Fluorescence	continuous	neighborhood	Source oriented	2017/04/06
Site Purpose		Protection for the population				
Plans for the next 18 months		No Changes				
Other comments						

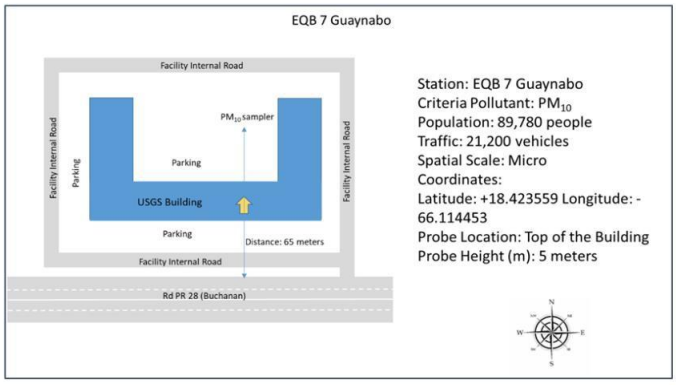
Station EQB 69 Guayama



Site Name		EQB 7				
Address		USGS & Water Resources Bldg.				
City		Guaynabo				
AQS Code		72-061-0001				
PR County		Guaynabo				
MSA/CSA		San Juan- Caguas				
Latitude		+18.423559				
Longitude		-66.114453				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		No				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
PM_{10}	Hi-Vol SA/GMW-321B	Volumetric	1 in 6	Micro Scale	Highest Concentration	1999/02/28
Site Purpose		Determine High Concentration				
Plans for the next 18 months		No changes				
Other comments		Part of the LMP PM_{10} of Guaynabo				

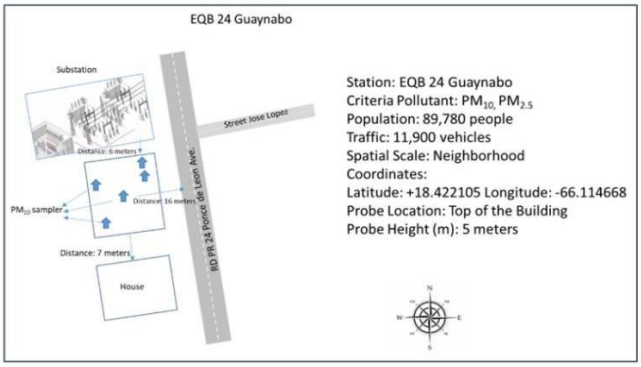
Station EQB 7 Guaynabo





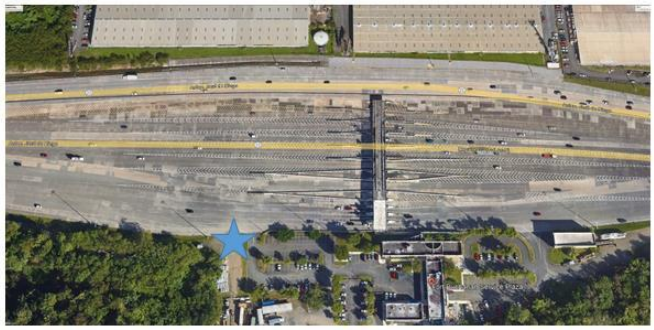
Site Name		EQB 24				
Address		Electrical Substation				
City		Guaynabo				
AQS Code		72-061-0005				
PR County		Guaynabo				
MSA/CSA		San Juan- Caguas				
Latitude		+18.432122				
Longitude		-66.114702				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		yes				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
$PM_{2.5}$	E-Seq FRM/ VSCC	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15
PM_{10}	Hi-Vol SA/GMW-321B	Volumetric	1 in 3	Neighborhood	Population Exposure	1988/01/05
Ambient Average Temperature	Instrumental	Electronic	1 in 3	Neighborhood	Population Exposure	1999/01/15
Average Barometric Pressure	Instrumental	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	1999/01/15
Site Purpose		Population Protection				
Plans for the next 18 months		No Changes				
Other comments		PM_{10} & $PM_{2.5}$ collocate (QA), Part of the LMP PM_{10} of Guaynabo				

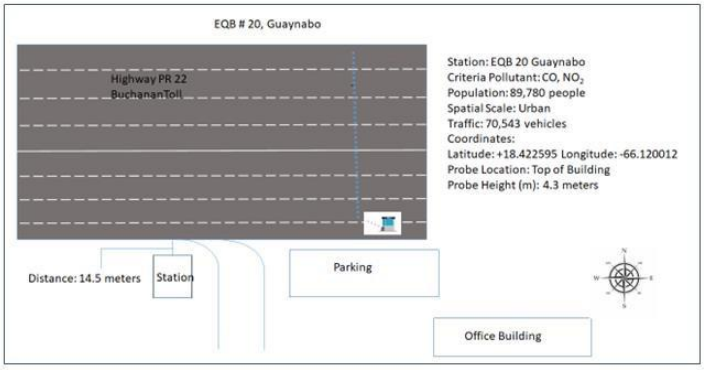
Station EQB 24 Guaynabo



Site Name		EQB 20				
Address		Highway 22 Buchanan Toll				
City		Guaynabo				
AQS Code		72-061-0006				
PR County		Guaynabo				
MSA/CSA		San Juan- Caguas				
Latitude		+18.422595				
Longitude		-66.120012				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		n/a				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
CO	Teledyne T300U	Gas filter Correlation CO	Continuous	Urban	High concentration	2014/07/08
NO_2	Teledyne T200u	Chemiluminescence	Continuous	Urban	High concentration	2015/02/20
Site Purpose		Near Roads				
Plans for the next 18 months		Re- Start				
Other comments		TSD 2020/01/26, the site was affected by traffic accident in Jan. 2020				

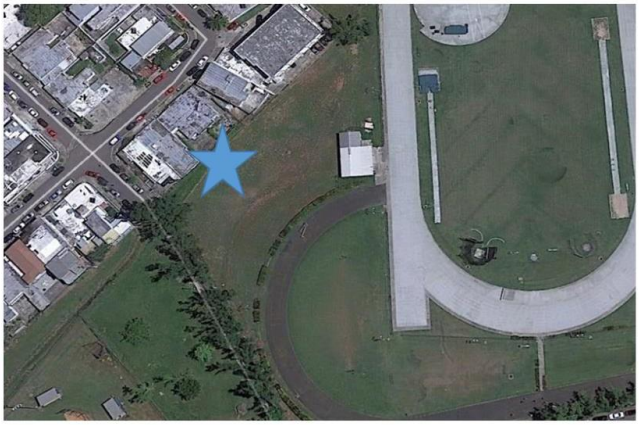
Station EQB 20 Guaynabo

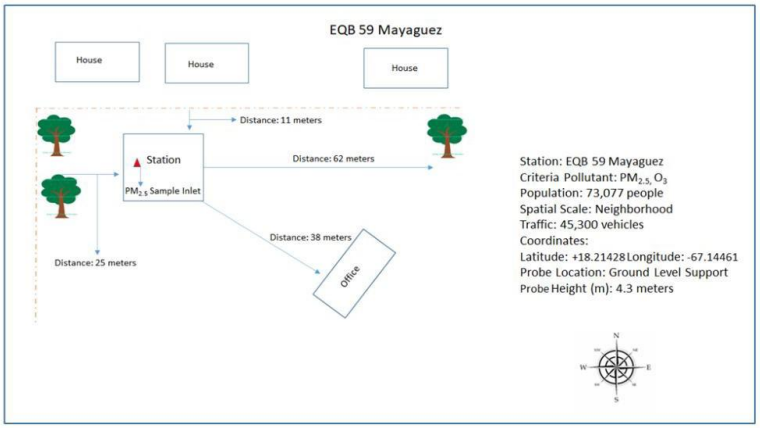




Site Name		EQB 59				
Address		University of PR Mayaguez Campus				
City		Mayagüez				
AQS Code		72-097-0007				
PR County		Mayagüez				
MSA/CSA		Mayagüez				
Latitude		18.21428				
Longitude		-67.14461				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		No				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
$PM_{2.5}$ Continuous	TEOM 1405 $PM_{2.5}$ VSCC	FDMS Gravimetric	Continuous	neighborhood	Population exposure	2019/06/11
O_3	Teledyne T400U	Ultraviolet Abs	Continuous	Urban	Population exposure	2019/06/11
Site Purpose		AQI purpose				
Plans for the next 18 months		Replace the $PM_{2.5}$ analyzer for BAM 1022 Metone / VSCC				
Other comments		$PM_{2.5}$ & Ozone (AQI)				

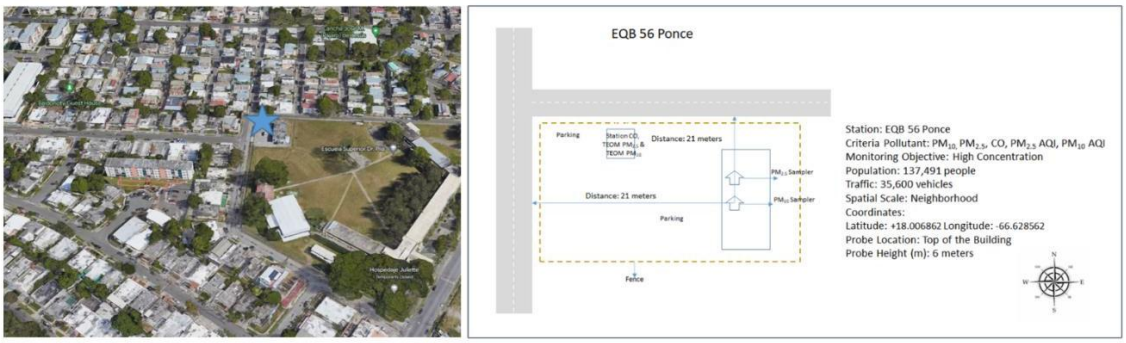
Station EQB 59 Mayaguez





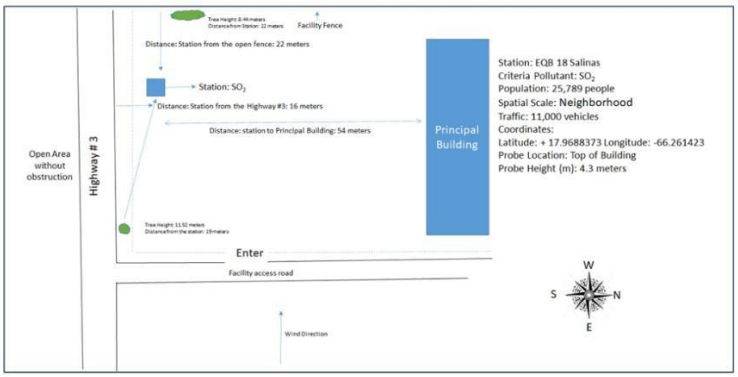
Site Name		EQB 56				
Address		Civil Defense Bldg. Urb. San Antonio				
City		Ponce				
AQS Code		72-113-0004				
PR County		Ponce				
MSA/CSA		Ponce				
Latitude		+18.009558				
Longitude		-66.627249				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		yes				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
$PM_{2.5}$	E-Seq VSCC	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15
PM_{10}	Hi-Vol SA/GMW-1200	Volumetric	1 in 6	Neighborhood	High Concentration	1999/01/06
CO	Instrumental	T300U Gas filter Correlation CO	Continuous	Neighborhood	Population Exposure	2011/10/01
PM_{10} continuous	Met-One BAM 1020	BAM 1020 Attenuation	Continuous	Neighborhood	Source oriented	2011/10/05
$PM_{2.5}$ continuous	Met-One BAM 1020 / VSCC	BAM 1020 Attenuation	Continuous	Neighborhood	Source Oriented	2017/07/05
Ambient Average Temperature		Barometric Sensor		Neighborhood	Source Oriented	1999/01/15
Sample Average Barometric Pressure		Electronic		Neighborhood		1999/01/15
Site Purpose		AQI purpose, Population Protection				
Plans for the next 18 months		Replace the $PM_{2.5}$ continuous analyzer for BAM 1022 Metone / VSCC				
Other comments		AQI ($PM_{2.5}$ & PM_{10})				

Station EQB 56 Ponce



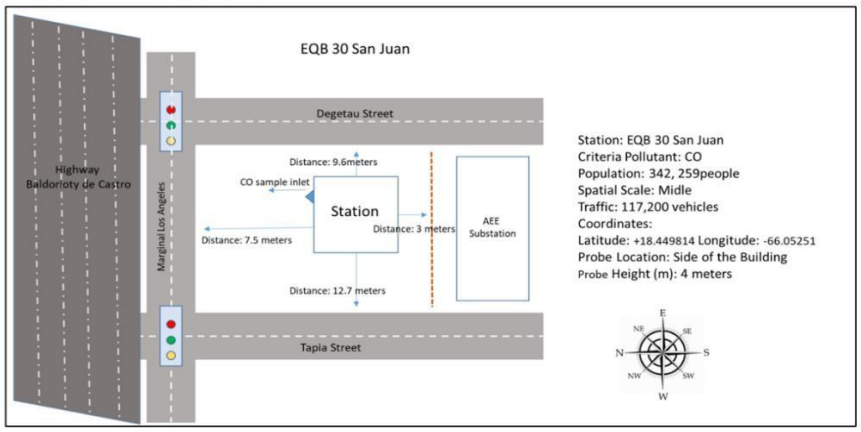
Site Name		EQB 18				
Address		PR Rd. 3 (Inside Syngenta Company area)				
City		Salinas				
AQS Code		72-123-0004				
PR County		Salinas				
MSA/CSA		Guayama - Salinas				
Latitude		+17.9688373				
Longitude		-66.261423				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		N/A				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
SO_2	Teledyne T100	Ultraviolet Fluorescence	Continuous	Neighborhood	High Concentration	2023/01/19
$PM_{2.5}$ continuous	Met-One BAM1020 / VSCC	BAM 1020 Attenuation	Continuous	Neighborhood	High concentration	new
NO_2	Teledyne T200u	Chemiluminescence	Continuous	Neighborhood	High concentration	new
Site Purpose		Population Protection & High Concentration				
Plans for the next 18 months		Add analyzers ($PM_{2.5}$ continuous (AQI) & NO_2)				
Other comments						

Station EQB 18 Salinas



Site Name		EQB 30				
Address		Baldorioty de Castro Ave.				
City		San Juan				
AQS Code		72-127-0003				
PR County		San Juan				
MSA/CSA		San Juan- Bayamon				
Latitude		+18.449814				
Longitude		-66.052510				
Suitable for Comparison to $PM_{2.5}$ NAAQS?		No				
Monitor Type		SLAMS				
Parameter	Method	Analysis Method	Schedule	Spatial Scale	Objective	Begin Date
CO	Teledyne T- 300U	Gas Filter Corr. CO	Continuous	Middle	High Concentration	1995/04/01
Site Purpose		Determine High Concentration and protection of population				
Plans for the next 18 months		Re-Start				
Other comments		TSD 2021/01/01 (due to lack of personnel)				

Station EQB 30 San Juan



Site Name	EQB #37 NCore Station
Address	Regional Jail of Bayamon
City	Bayamon
AQS Code	72-021-0010
PR County	Bayamon
MSA/CSA	San Juan - Bayamon
Latitude	+18.420089
Longitude	-66.150615
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
SO_2	Teledyne T100u	Ultraviolet Fluorescent	Continuous	Neighborhood	Population Exposure	2011/03/16
CO	Teledyne T300u	Gas Filter Corr. CO Analyzer	Continuous	Neighborhood	Population Exposure	2011/03/16
NO	Teledyne T200u	Chemiluminescence	Continuous	Neighborhood	Population Exposure	2014/05/21
NOy	Teledyne T200u	Chemiluminescence	Continuous	Neighborhood	Population Exposure	2014/05/21
NOy-NO	Teledyne T200u	Chemiluminescence	Continuous	Neighborhood	Population Exposure	2014/05/21
PM_{10}	E-FRM PM_{10}	Gravimetric	1-3	Neighborhood	Population Exposure	2015/05/09
$PM_{2.5}$	E-Seq FRM $PM_{2.5}$/VSCC	Gravimetric	1-3	Neighborhood	Population Exposure	2015/04/12
$PM_{10-2.5}$	E-FRM $PM_{10-2.5}$ Sampler Pair	Paired Gravimetric	1-3	Neighborhood	Population Exposure	2015/05/09
$PM_{2.5}$ AQI	BAM 1022 Metone VSCC	BAM Attenuation Mass	Continuous	Neighborhood	Source Oriented	2023/10/01

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
O_3	Teledyne T–400	Ultraviolet	Continuous	Neighborhood	Population Exposure	2014/05/21
$PM_{2.5}$ Speciation	Met-One SASS Teflon	Energy Dispersive XRF	1-3	Neighborhood	Population Exposure	2015/11/20
	URG-3000N Sequential	Sequential Particulate Speciation	1-3	Neighborhood	Population Exposure	2015/11/20
Wind Speed Resultant	Instrumental	RM Young Ultrasonic Anemometer Model 81000	Continuous	Neighborhood	Population Exposure	2014/05/21
Wind Direction Resultant	Instrumental	RM Young Ultrasonic Anemometer Model 81000	Continuous	Neighborhood	Population Exposure	2014/05/21
Outdoor Temperature	Instrumental	Met One 083D	Continuous	Neighborhood	Population Exposure	2014/05/21
Relative Humidity	Instrumental	Met One 083D	Continuous	Neighborhood	Population Exposure	2014/05/21
Barometric Pressure	Instrumental	Barometric sensor	Continuous	Neighborhood	Population Exposure	2014/05/21

Parameter	Monitor Type
Sulfur Dioxide	SLAMS
Carbon Monoxide	SLAMS
Oxide Nitrogen	SLAMS
Oxide Nitrogen (NOy)	SLAMS
Ozone	SLAMS
$PM_{2.5}$	SLAMS
PM_{10}	SLAMS
$PM_{2.5}/PM_{10}$	SLAMS
$PM_{2.5}$ Speciation	SLAMS
$PM_{2.5}$ AQI	SLAMS/AQI

Site Purpose	NCore Site
Plans for the next 18 months	Re-start NO_2
Comments	NO_2 TSD (2020/08/06) y $PM_{2.5}$ speciation TSD