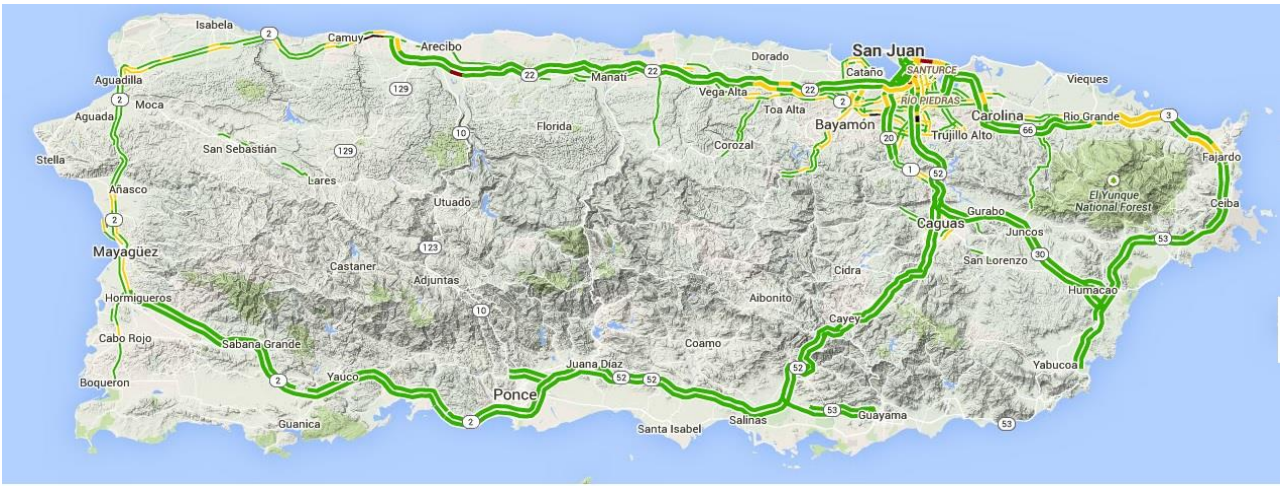
Commonwealth of Puerto Rico/ Office of the Governor
Puerto Rico Environmental Quality Board

Air Monitoring Network Plan Puerto Rico 2016



EQB
Environmental Quality Board
Commonwealth of Puerto Rico

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Acronyms and Abbreviations

AQS: Air Quality System
CFR: Code of Federal Regulations
CBSA: Core-based Statistical Area
EPA: Environmental Protection Agency
FEM: Federal Equivalent Method
FRM: Federal Reference Method
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
PREQB: Puerto Rico Environmental Quality Board
PREPA: Puerto Rico Power Electrical Authority
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
TSP: Total Suspended Particulate

1.0 Introduction

This document describes the network of ambient air quality monitors operated by the Puerto Rico Environmental Quality Board (PREQB). The Air Quality Monitoring Network is review annually as part of Federal Regulations listed in the Title 40, Part 58, Section 10 of the Code of Federal Regulations (40 CFR § 58.10) to identify any changes according with the regulations or incorporate the revisions of the National Air Ambient Quality Standards (NAAQS). Also, it includes a review of actions taken during the 2015-2016 fiscal year and plans for action in the year ahead. This plan will be submitted to the U.S. Environmental Protection Agency (EPA) by July 1 of each year after a 30 day public comment period.

The review process focuses on current and future network air monitoring strategies and the network modifications are made in consultation with the EPA. Also, evaluates the operational cost of the network in accordance with the available budget.

2.0 Public Comments

Pursuant to Federal regulations, this document will be available for a 30 day public inspection and comments period prior to submission of the final plan to EPA. Any comments received during the public revision period will be forwarded to the United States Environmental Protection Agency (EPA) concurrently with submittal of the plan. This report may be viewed on the PREQB's website, www.jca.pr.gov and hardcopies are available for review at PREQB office. Written comments should be submitted to aire@jca.pr.gov. The final document is submitted to the EPA on July 1, 2016 along with any public comments received to fulfill Federal regulatory requirements.

3.0 Monitoring Data Quality Assurance

The Quality Assurance Management Plan (QAMP) was prepared by the Puerto Rico Environmental Quality Board and approved by EPA Region II. The air monitoring network meets the criteria identified in the QAMP.

The QAPP describes in greater detail the monitoring effort and quality assurance procedures that the data must meet before it is considered as quality assured and acceptable for submittal to the public and EPA. The Standard Operating Procedure (SOP) manuals have been prepared by the Air Quality Area. It identifies the steps, procedures and criteria that must be meets in operating of the monitoring network and the validation of the air quality data.

4.0 Network Design

In Puerto Rico, there are more than 15 locations where ambient air quality is routinely measured for gaseous and particulate air pollutants. The measured data form a backbone for air quality management programs, provide the public with information on current conditions and the progress in improving air quality, and are used by health researchers, business interests, environmental groups, and others.
Not all pollutants are monitored at all sites. Most sites monitor multiple pollutants; other sites monitor for only one or two. The PREQB makes the effort to only collect data that is needed from each site. The needs for the monitoring data are varied. A sense of this can be gathered from the information on monitoring purposes in the next section of this report.

Ambient concentration data are collected for the criteria pollutants as, particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), particulate matter with a diameter of 10 microns or less (PM_{10}), ozone (O3), sulfur dioxide (SO_2), nitrogen oxide (NO_2), PM_{10} -Sulfates (SO_4) and lead (Pb). Monitoring for meteorological parameters is also conducted at a number of sites. Also, the network have one (1) NCore site and (2) Near roads sites. The data is needed to better understand and inform the public about the nature of the ambient air quality problems in Puerto Rico.

The Appendix 1 provides a list of monitoring locations, the EPA AQS site codes, the pollutants measured at each site, the spatial scale and the site type for each monitor at all sites, the monitoring purpose for the monitors at each site and the monitoring purpose for continuous particulate analyzers at each site.

4.1 $PM_{2.5}$ Air-Monitoring Network

The PREQB will be operates ten (10) $PM_{2.5}$ sites in the air-monitoring network, eight (8) FRM, one (1) continuous $PM_{2.5}$ and one (1) collocated $PM_{2.5}$ FRM samplers. The FRM operate on a 1-in-3 day sample schedule. The QA FRM samplers operate on a 1-in-6 day sample schedule. The continuous $PM_{2.5}$ sampler is operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The continuous $PM_{2.5}$ sampler has TEOM 1400 AB. The site of $PM_{2.5}$ continuous will be for AQI purposes. The details of these sites are included in Appendix 1: Site Description.

Changes proposed to $PM_{2.5}$ network

EQB propose permanent closing of the site located at San Juan (72-127-0003) and the collocate (QA FRM). Also, propose relocation of the monitor located at Mayaguez (72-097-0006) to a new location at Mayaguez. In addition propose identify some exiting $PM_{2.5}$

SLAMS sites operating filters-based FRMS as possible site to be closed and substitute with continuous FEMS. The substitution and closing are according with the recent NAAQS reviews and the recently $PM_{2.5}$ continuous FEMS and near roads stations. Based on this, EQB proposes a $PM_{2.5}$ monitor at San Juan.

Also, the NCore site (Section 4.9) will have a $PM_{2.5}$ continuous monitor. The changes will be phased in between 2016 and 2017 as is proposed in the NAAQS and Ambient Monitoring requirements.

4.2 PM_{10} Air-Monitoring Network

The PREQB operates five (5) PM_{10} FRM sites and two (2) continuous PM_{10} site in the air-monitoring network. Three of the sites of the FRM are operated every day and two sites are operated every three days (1-in-3 day) sample schedule. Also, PREQB operate two collocated PM_{10} FRM samplers on a 1-in-6 day sample schedule. The continuous PM_{10} samplers are operated year-round and the measurements are sent to the EPA AQS website and used for AQI purposes on an hourly basis. The details of these sites are included in Appendix 1: Site Description.

Changes proposed to PM_{10} network

PREQB propose reduce the frequency to the Guaynabo monitor to 1-3 days (72-061-0005), reduce the frequency to Ponce (72-113-0004), Guayama (72-057-0008) and Guaynabo (72-061-0001) monitors to 1-6 days according with the EPA recommendations to the PM_{10} network to consider the operational cost, reduction of travel time, shipping costs, laboratory processing workload, and little change in annual values through time have encouraged changes to the monitoring schedule.

4.3 Ozone Air-Monitoring Network

The PREQB operates two ozone sites in the air-monitoring network and one monitor is located as part of the NCore site. The ozone samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis. The ozone sites are classified as SLAMS. Details of the sites location are included in Appendix 1: Site Description.

Changes proposed to Ozone network

PREQB don't propose changes to the Ozone network.

4.4 SO_2 Air-Monitoring Network

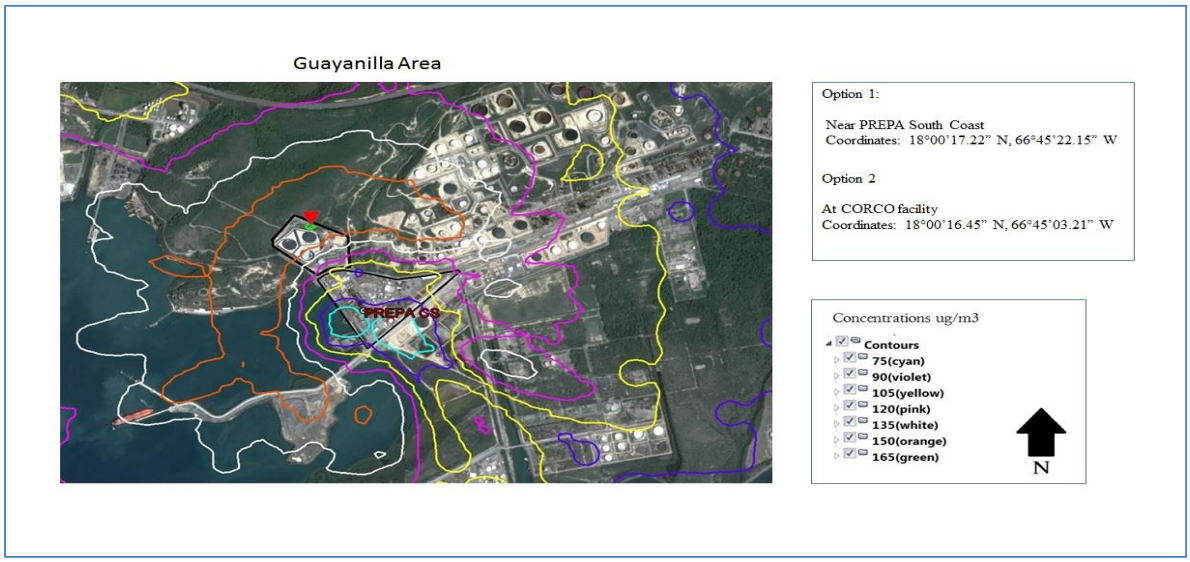
The PREQB operates four (4) sulfur dioxide (SO_2) sites in the air-monitoring network and one monitor is located as part of the NCore site. All SO_2 samplers are operated year-round and the measurements are sent to the EPA AQS on an hourly basis.

The existing SO_2 monitoring locations represent appropriate monitoring locations for the new 1-hour standard monitoring requirements. The monitoring network was design to meet three primary monitoring objectives, as listed in 40 CFR Part 58 Appendix D, Section 1. It includes install the new SO_2 monitor at Guayanilla as proposed during the 2012-2013 fiscal year and plans for action in the year ahead. The details are including at Appendix 1: Site Description.

Changes proposed to SO_2 network

EQB proposes to add a SO_2 monitor at Guayanilla[1] that EPA approved in 2014; relocate the monitor at Guayama to the same site; relocate the monitor at Salinas to a location at Salinas to capture maximum emissions from the area[2]; relocate the monitor at Cataño to a new location to capture maximums emissions from the area[3] and to close the monitor located at Juncos. These changes are according with the new 1-hour standard monitoring requirements. The locations proposed are in areas where maximum SO_2 concentrations are expected to occur according with the air modeling results for 2013-2015. The changes will be phased in January

Figure A: Guayanilla Area



[1] Maximum emissions from the area (PREPA South Coast)
[2] PREPA Aguirre
[3] PREPA San Juan

2017 at is requested in the NAAQS and Ambient Monitoring requirements. The details are including at Figure: A, B & C.

Figure B: Salinas Area

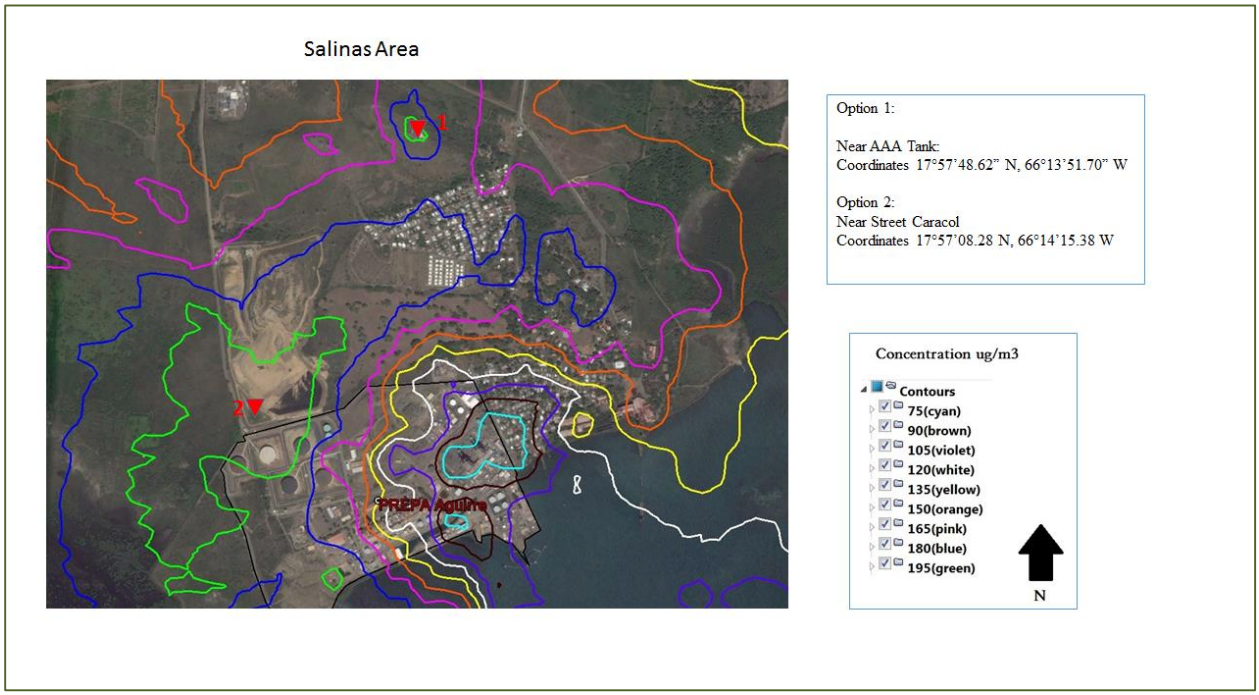
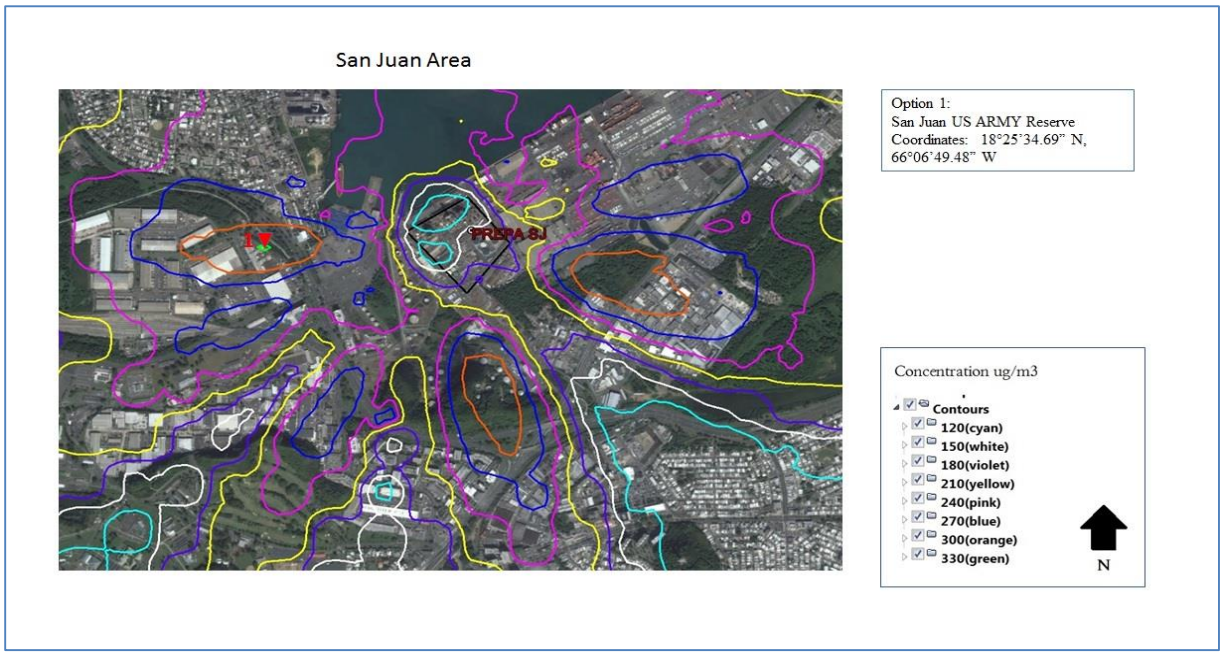


Figure C: San Juan Area



4.5 Lead Air-Monitoring Network

The PREQB operates three (3) lead (Pb) sites in the air-monitoring network and operated one at Bayamón NCore site. All Pb samplers are operated year-round and the measurements are sent to the EPA AQS on daily basis. The SLAMS Pb sites use FRM monitors. The details of these sites are included in Appendix 1: Site Description.

Changes proposed to lead network

PREQB do not proposes changes to the lead network, only is complete the process of the installation of the new station at Guayanilla according to the plan as proposed during the 2012-2013 fiscal year and the action plans in the year ahead. This site was proposed in the Network Plan 2012 and approved by EPA.

4.6 NO_2 Air-Monitoring Network

The PREQB operates one (1) nitrogen oxide (NO_2) site in the air-monitoring network as parts of the near roads program at Guaynabo and operated one at Bayamón NCore site. 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 are used as a FRM. The details of these sites are included in Appendix 1: Site Description.

Changes proposed to NO_2 network

PREQB proposes complete the installation of the new site at San Juan area (Caguas Sur Pay Toll). The new stations at San Juan areas are according to the regulation as proposed during the 2012-2013 fiscal year and action plans in the year ahead. The sites were proposed in the Network Plan 2012 and approved by EPA.

4.7 CO Air-Monitoring Network

The PREQB operates three (3) carbon monoxide (CO) sites in the air-monitoring network and operated one at Bayamón 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 details of these sites are included in Appendix 1: Site Description.

Changes proposed to CO network

The PREQB proposes to complete the installation of the new site in the area of San Juan (Caguas Sur Pay Toll) as part of the near road program, NO_2 and $PM_{2.5}$ monitors will be added to meet the requirement of a CBSA of 2.5 million population or more. The changes

will be phased in between 2016 and 2017 as proposed in the NAAQS and environmental monitoring requirements.

4.8 PM Sulfate Air Monitoring Network

The PREQB operates four (4) PM_{10} -Sulfates (SO_4) sites in the air-monitoring network. The particulate sulfate-monitoring network utilizes PM_{10} filter sampling analysis to generate ambient sulfate concentrations. All SO_4 samplers are operated year-round and the measurements are sent to the EPA AQS on a daily basis. Details of the sites locations are included in Appendix 1: Site Description.

Changes proposed to SO_4 network

PREQB do not proposes changes to the PM Sulfate network.

4.9 NCore – Air Monitoring Network

For Puerto Rico is required to operate at least one NCore site. According with the requirements, PREQB selected the AIRS 72-021-0010 site at Bayamón to establish the NCore.

PREQB in coordination with EPA install the new station at Bayamon area as was proposed during the 2012-2013 fiscal year. The sites were proposed in the Network Plan 2012 and approved by EPA. The parameters monitored are: CO, O_3, NO_y-NO, NO_y, NO, SO_2, Pb, $PM_{2.5}$, PM_{10}, $PM_{10-2.5.}$, $PM_{2.5}$ Speciation

Changes proposed to NCore Site

PREQB proposes to add the parameter $PM_{2.5}$ continuous at NCore site. For continuous $PM_{2.5}$. PREQB is in process of acquiring new equipment. After the installation of the new equipment PREQB will begin to report data to AQS and report the AQI $PM_{2.5}$.

Figure D: $PM_{2.5}$ Network

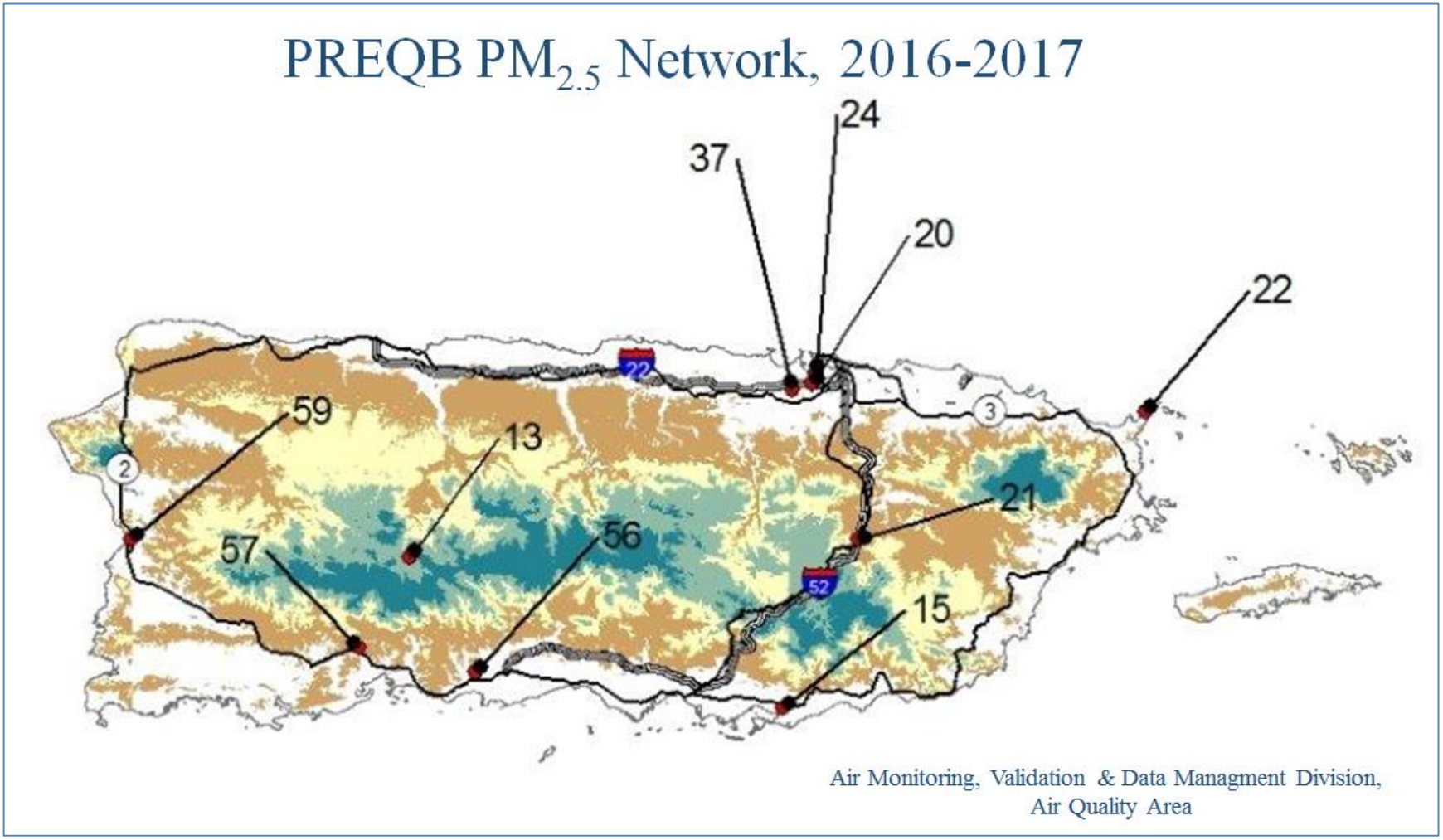


Figure E: PM_{10} Network

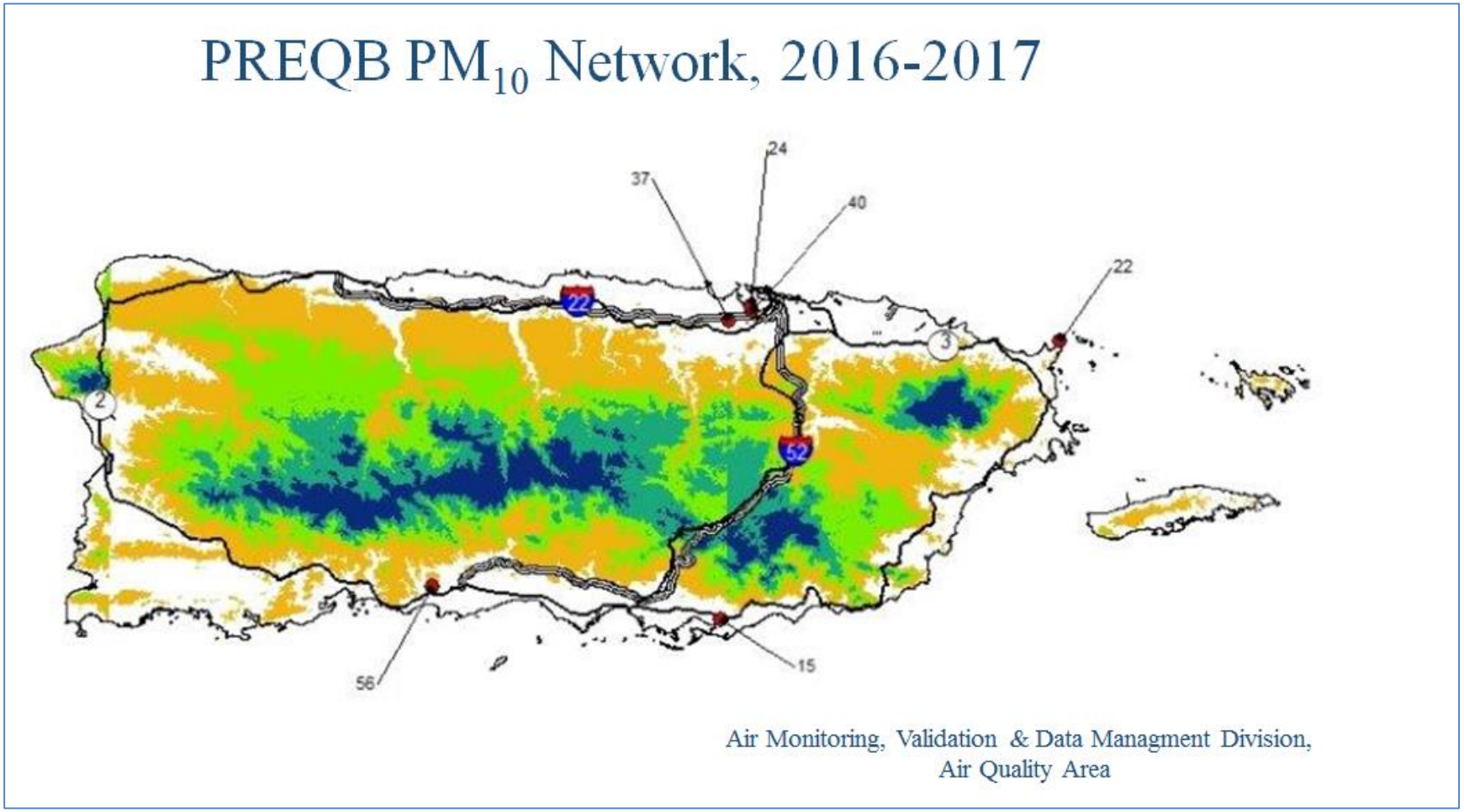


Figure F: O_3 Network

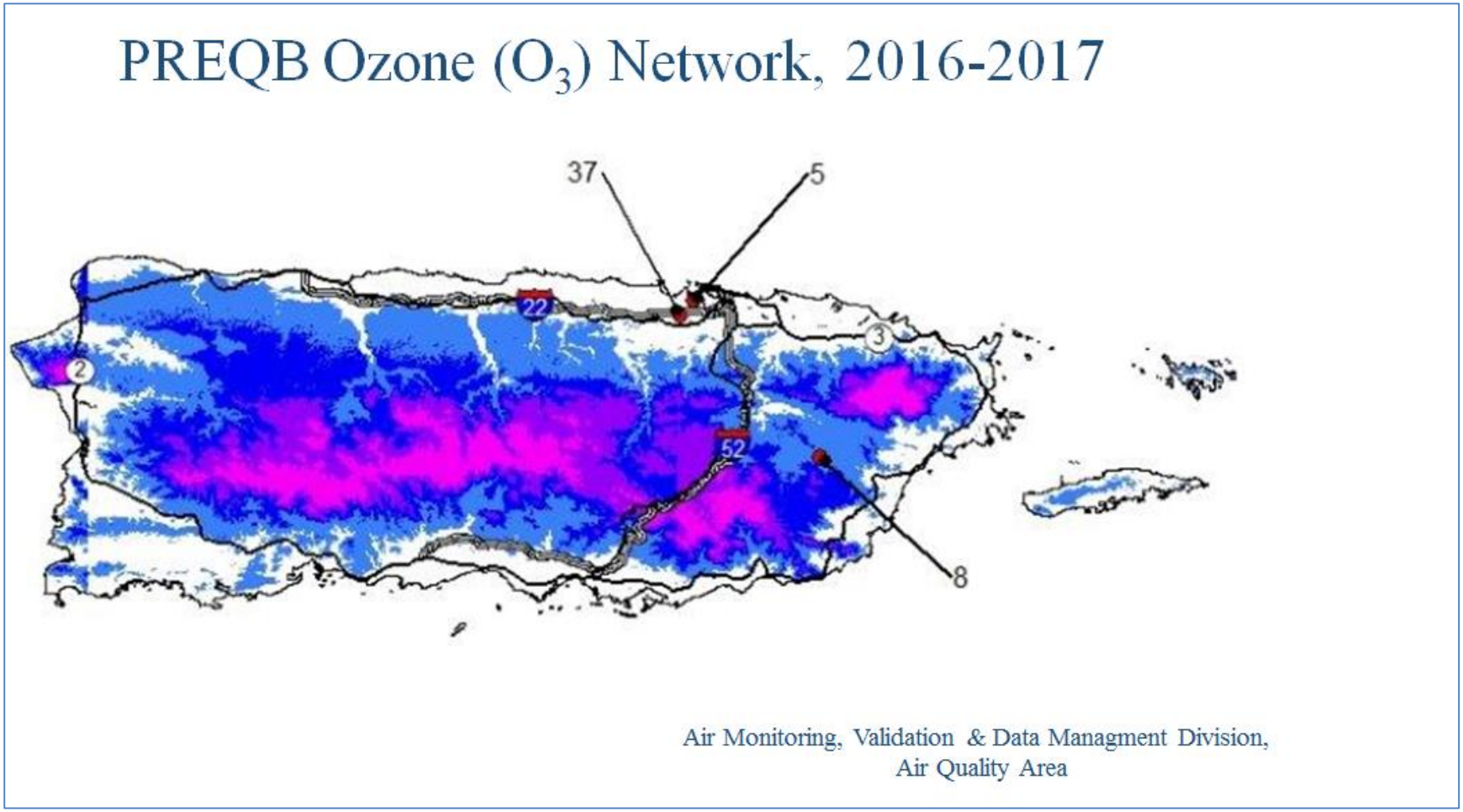


Figure G: SO_2 Network

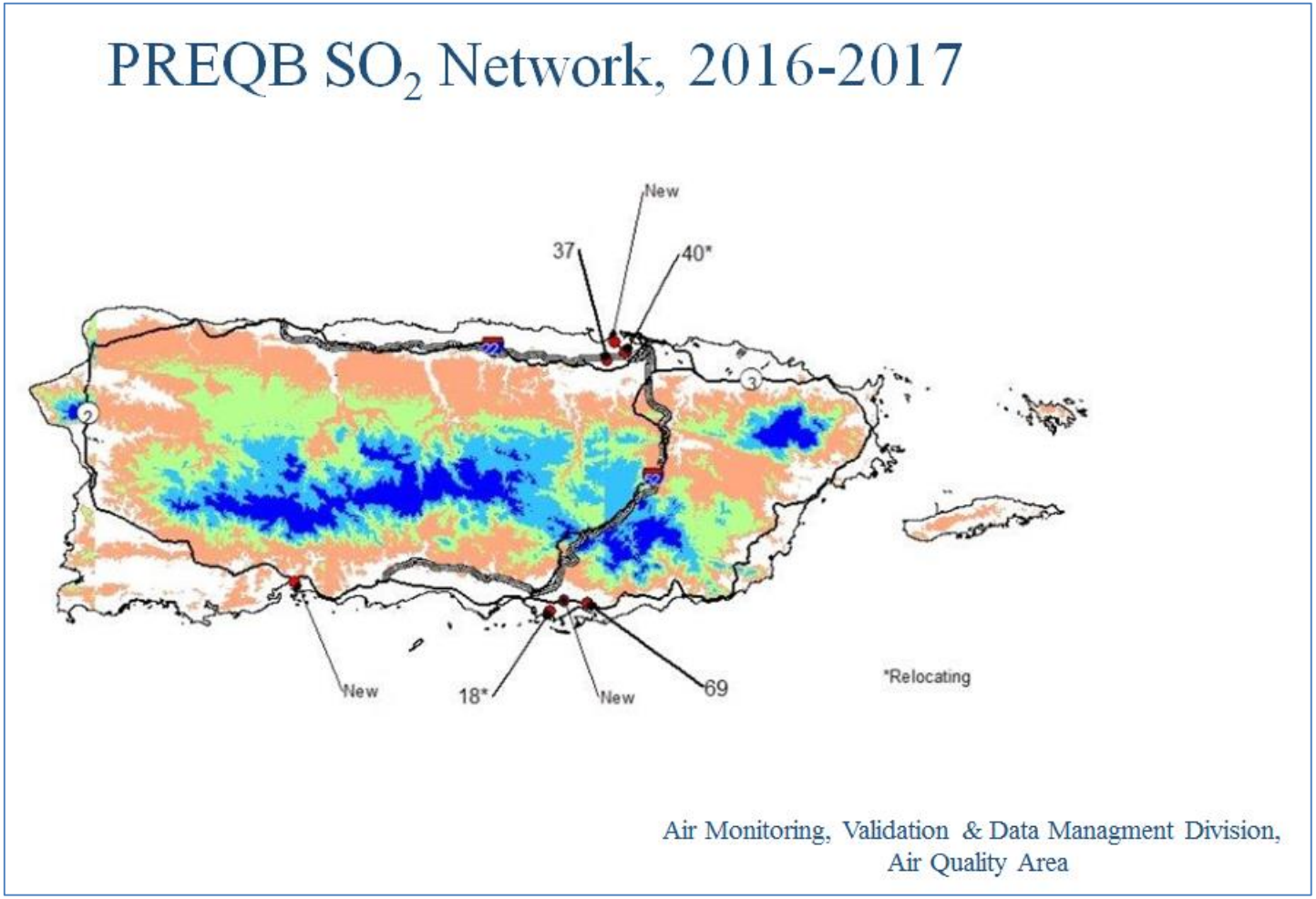


Figure H: Lead Network

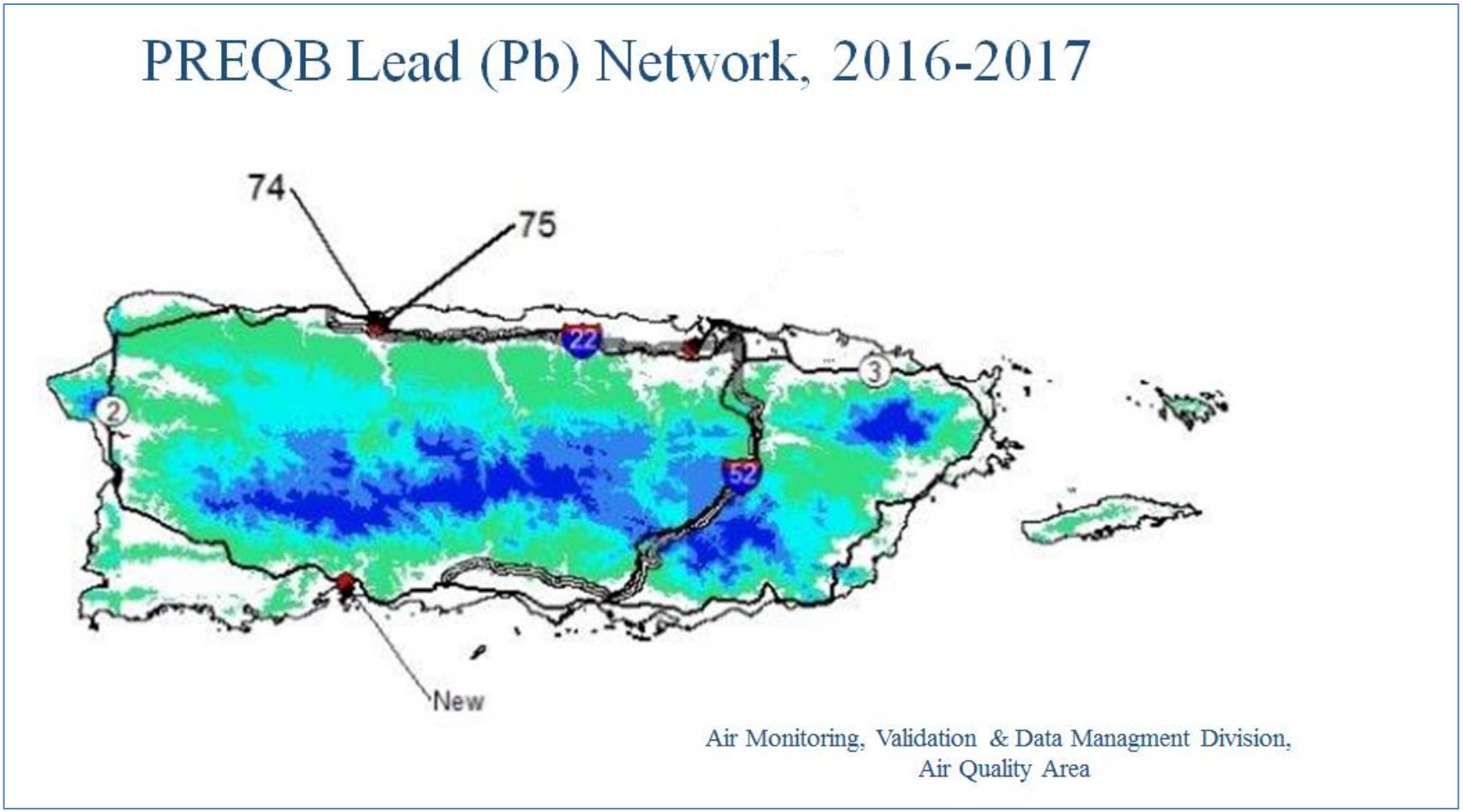


Figure I: NO_2 Network

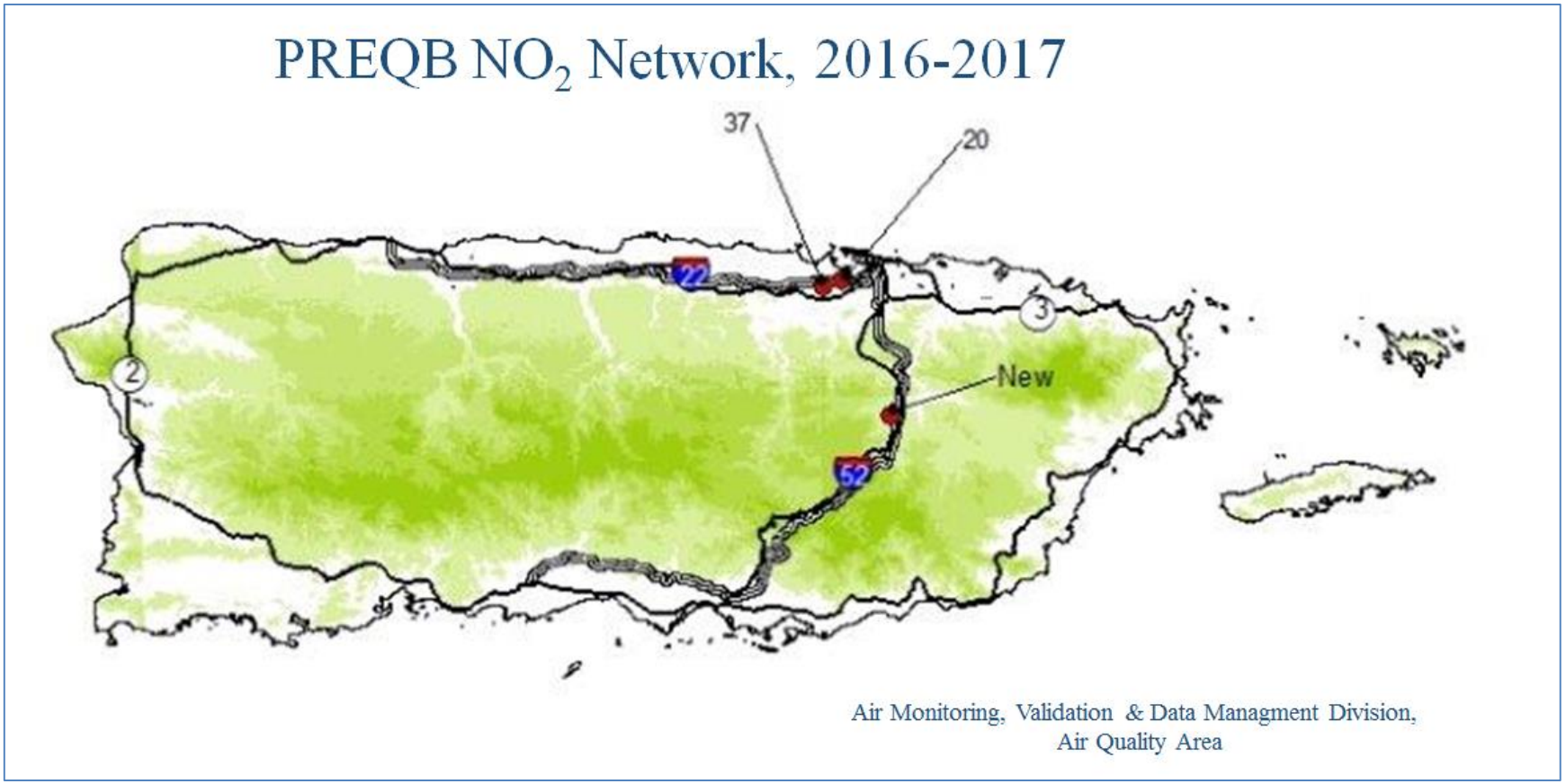


Figure J: CO Network

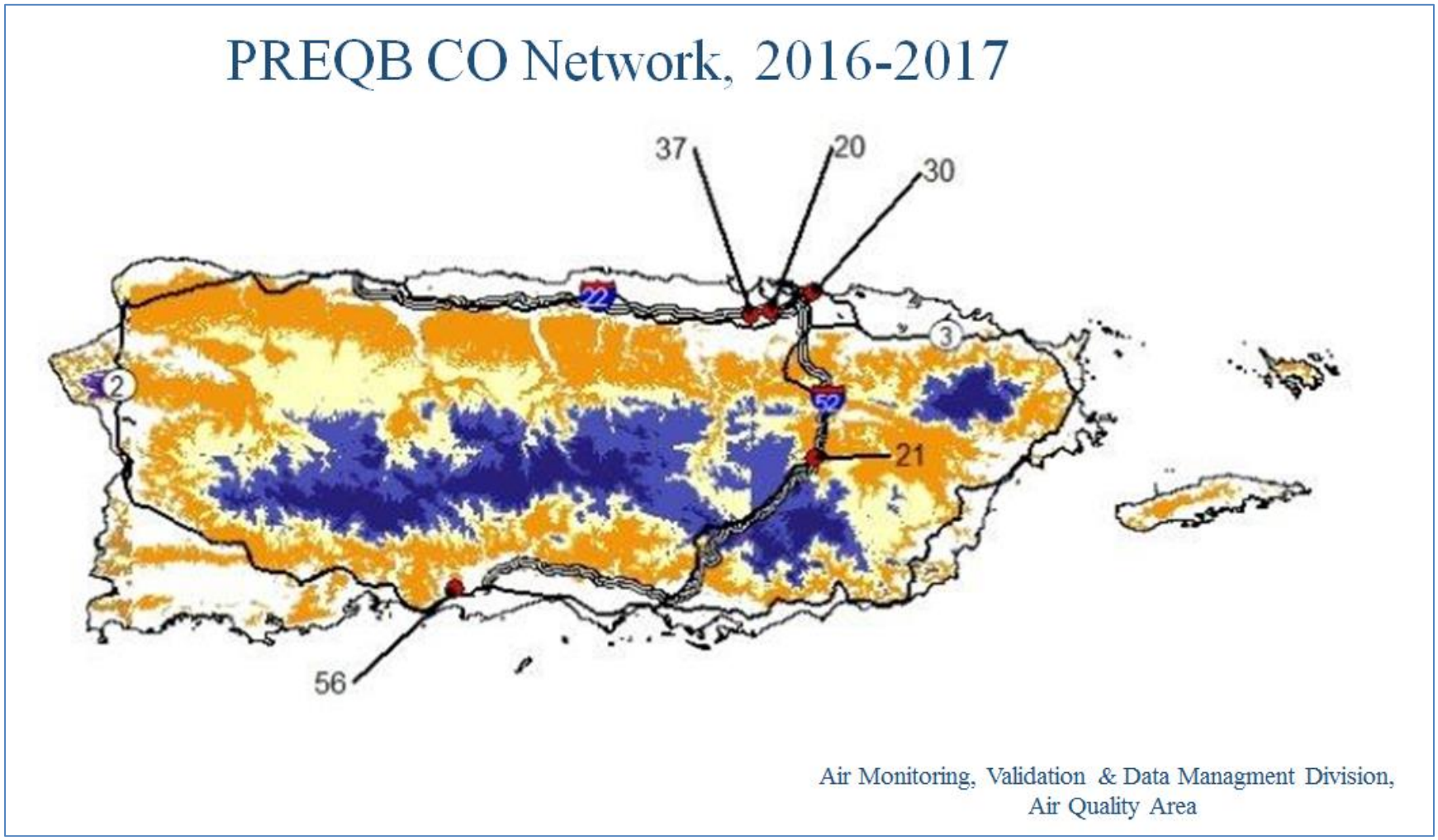
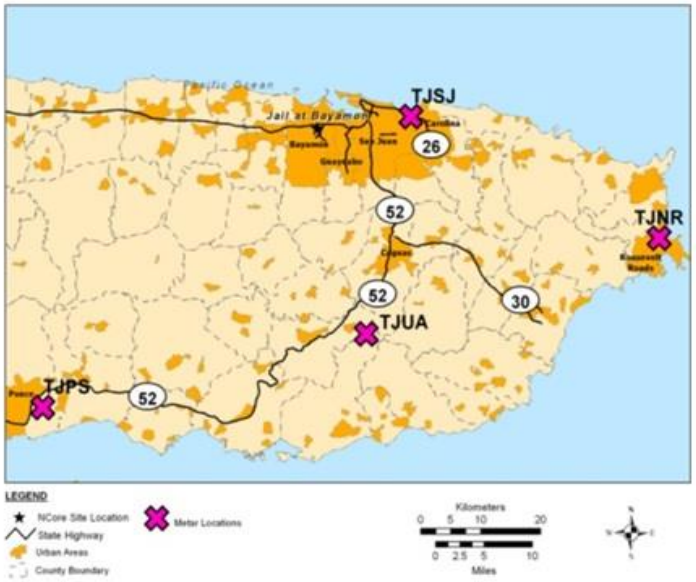


Figure K: NCore Station

NCore Station
Bayamón- San Juan



AIRS Id: 72-021-0006
State: Puerto Rico
County: Bayamon
City: San Juan
EPA Region: 2
Latitude: 18.416667; Longitude: -66.150833
Street Address: Regional Jail Of Bayamon
Location Setting: Suburban
Land Use Type: Industrial

Parameters:

$PM_{2.5}$ (continuous & filter), $PM_{2.5}$ speciation, $PM_{10-2.5}$ particle mass, O_3, SO_2, CO, NO/NO_x, wind speed, wind direction, relative humidity, and ambient temperature. $PM_{10-2.5}$ or PM Coarse is determined by the difference between collocated PM_{10} and $PM_{2.5}$ FRM samplers.

5.0 Network Modification Forms

Network modification form will be prepared for submit to EPA Region II to implement the network changes identified in this plan.

6.0 Summary and Conclusions

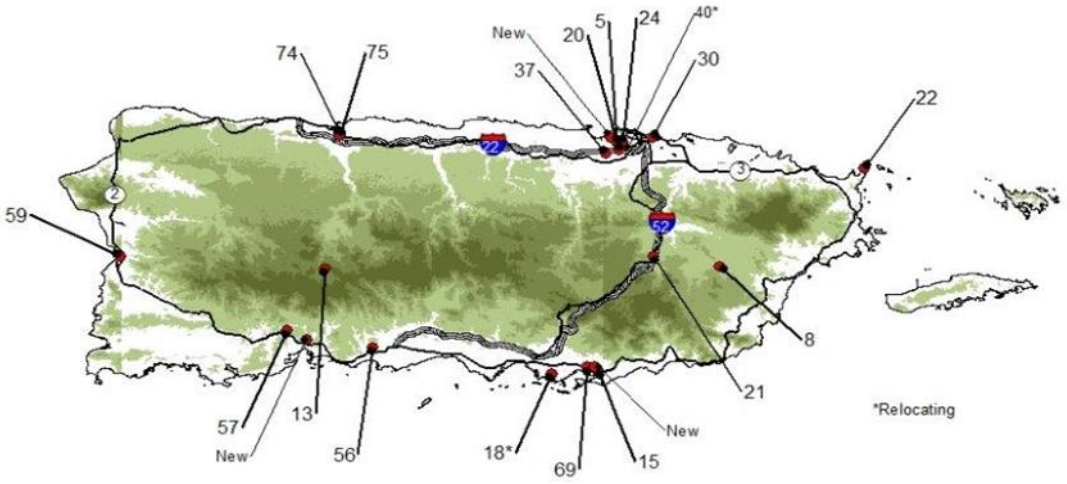
The air monitoring network of Puerto Rico presented in this plan meets the monitoring requirements of federal regulations. The procedures that are used and the instruments that are operated meet the standards that has been established by EPA.

The significant network changes proposed through 2016-17 include:

- Establish one new TSP lead filter sampling with flameless atomic absorption analysis to monitoring ambient lead concentrations at Guayanilla.
- Establish a new SO_2 site al Guayanilla according with the regulations for the new 1-hour that EPA approved in 2014.
- Relocate the SO_2 monitor at Guayama to the same site.
- Relocate the SO_2 monitor at Salinas to Guayama to capture maximum emissions from the area according with the regulations for the new 1-hour.
- Relocate the SO_2 monitor at Cataño to a new location to capture maximum emissions from the San Juan area according with the new regulation for 1-hour.
- Close the SO_2 monitor located at Juncos according with the new regulation for the 1-hour
- Complete the near road NO_2 new sites at Caguas
- Close the $PM_{2.5}$ site located at San Juan (72-127-0003) and the collocate (QA FRM).
- Relocate the $PM_{2.5}$ monitor located at Mayaguez (72-097-0006) to a new location at Mayaguez
- Replace existing $PM_{2.5}$ SLAMS sites operating filters-based FRMS with continuous FEMS at near-road NO_2 and CO monitors required in CBSAs of 2.5 million or more persons.
- Reduce the frequency of the PM_{10} monitor located at Guaynabo from daily to 1-3 days and reduce frequency at Guayama, Guaynabo and Ponce from 1-3 to 1-6 days.

Figure L: Map Air Monitoring Network 2016-17

Puerto Rico Air Monitoring Network, 2016-17



Station	Parameter
5	O_3
7	PM_{10}, S_4
8	O_3, SO_2
13	$PM_{2.5}$
15	PM_{10}, $PM_{2.5}$, S_4
18	SO_2, P_B
20	NO_2, CO, $PM_{2.5}$
21	NO_2, CO, $PM_{2.5}$
22	PM_{10}, $PM_{2.5}$, S_4
24	PM_{10}, $PM_{2.5}$, S_4
30	CO
37	PM_{10}, $PM_{2.5}$, SO_2, NO_2, $PM_{2.5\ Spec}$, O_3
40	$PM_{2.5}$, PM_{10}, SO_2
56	PM_{10}, $PM_{2.5}$, CO
57	$PM_{2.5}$
59	$PM_{2.5}$
69	SO_2
74	P_b
75	P_b

EQB
Environmental Quality Board
Commonwealth of Puerto Rico

Air Monitoring, Validation & Data Management Division
Air Quality Area

Site Name	EQB #13
Address	Road #123
City	Adjuntas
AQS Code	72-001-0002
PR County	Adjuntas
MSA/CSA	N/A
Latitude	+18.17537759
Longitude	-66.72598803
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Urban	Extreme Downwind	2005/01/01
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Urban	Extreme Downwind	2005/01/01
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Urban	Upwind Background	2005/01/01

Parameter	Monitor Type
$PM_{2.5}$	SLAMS

Site Purpose	Reference for Extreme downwind
Plans for the next 18 months	No changes
Other comments	

Site Name	EQB #74
Address	Victor Santoni Cordero Road
City	Arecibo
AQS Code	72-013-0001
PR County	Arecibo
MSA/CSA	N/A
Latitude	+18.45703907
Longitude	-66.69669257
Suitable for Comparison to $PM_{2.5}$ NAAQS?	n/a

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ambient Temperature Average	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2010/01/01
Ambient Pressure Average	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2010/01/01
Lead TSP	Hi-Vol	Atomic Emission Spectrometry	1 in 6	Micro Scale	Source Oriented	2010/01/01

Parameter	Monitor Type
Lead	SLAMS

Site Purpose	Reference for Extreme downwind
Plans for the next 18 months	No changes
Other comments	

Site Name	EQB #75
Address	PR Road #2
City	Arecibo
AQS Code	72-013-0002
PR County	Arecibo
MSA/CSA	N/A
Latitude	+18.45338923
Longitude	-66.69498698
Suitable for Comparison to $PM_{2.5}$ NAAQS?	n/a

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ambient Temperature Average	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2012/08/19
Ambient Pressure Average	Instrumental	Offsite Avg. Pressure	1 in 6	Micro	Source Oriented	2012/08/19
Lead TSP	Hi-Vol	Flameless atomic Absorption	1 in 6	Micro Scale	Source Oriented	2012/08/19

Parameter	Monitor Type
Lead	SLAMS

Site Purpose	Reference for Extreme downwind
Plans for the next 18 months	No changes
Other comments	Pb collocated

Site Name	EQB #40
Address	11 Final St. Las Vegas
City	Cataño
AQS Code	72-033-0004
PR County	Cataño
MSA/CSA	San Juan - Bayamón
Latitude	+18.43120758
Longitude	-66.14168262
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sulfur Dioxide	Instrumental	Pulsed Fluorescent	Continuous	Neighborhood	Population Exposure	1993/12/07
PM_{10}	R&P SA246B	TEOM Gravimetric	Continuous	Urban	Population Exposure	2000/07/13
$PM_{2.5}$	Thermo 1405	Gravimetric	Continuous	Urban	Population Exposure	2015/01/01

Parameter	Monitor Type
Sulfur Dioxide	SLAMS
PM_{10}	SLAMS
$PM_{2.5}$	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	New $PM_{2.5}$ continuous monitor
Other comments	AQI (PM_{10}, $PM_{2.5}$)

Site Name	EQB #5
Address	PR Rd. 165
City	Cataño
AQS Code	72-033-0008
PR County	Cataño
MSA/CSA	San Juan - Bayamón
Latitude	+18.431208
Longitude	-66.141683
Suitable for Comparison to $PM_{2.5}$ NAAQS?	NO

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ozone	Instrumental	Ultra Violet	Continuous	Urban	Population exposure	2004/07/22

Parameter	Monitor Type
Ozone	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	No changes
Other comments	

Site Name	EQB #22
Address	Fajardo Lighthouse
City	Fajardo
AQS Code	72-053-0003
PR County	Fajardo
MSA/CSA	Humacao - Fajardo
Latitude	+18.38398349
Longitude	-66.61888794
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Regional	Regional Transport	1999/04/20
PM_{10}	Hi-Vol	Gravimetric	1 in 1	Neighborhood	Background	1989/03/05
PM_{10} Sulfate	Hi Vol	Colorimetric	1 in 6	Neighborhood	Background	1998/01/05
Ambient Temperature Average	R&P Model 2025	Electronic	1 in 3	Regional	General / Background	1999/04/20
Ambient Pressure Average	R&P Model 2025	Barometric Sensor	1 in 3	Regional	General / Background	1999/04/20

Parameter	Monitor Type
$PM_{2.5}$	SLAMS
PM_{10}	SLAMS
PM_{10} Sulfate	SPM

Site Purpose	Reference and Background
Plans for the next 18 months	No changes
Other comments	

Site Name	EQB #15
Address	Barrio Jobos, Intersection Highway 3 & 707
City	N/A
AQS Code	72-057-0008
PR County	Guayama
MSA/CSA	Guayama
Latitude	+17.95789438
Longitude	-66.16501599
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15
PM_{10}	Hi-Vol	Gravimetric	1 in 6	Neighborhood	Population Exposure	1988/10/06
PM_{10} Sulfate	Hi-Vol	Colorimetric	1 in 6	Neighborhood	Population Exposure	1998/01/05
Ambient Temperature Average	R&P Model 2025	Electronic	1 in 3	Neighborhood	Population Exposure	1999/04/20
Ambient Pressure Average	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	1999/04/20

Parameter	Monitor Type
$PM_{2.5}$	SLAMS
PM_{10}	SLAMS
PM_{10} Sulfate	SPM

Site Purpose	Protection for the population
Plans for the next 18 months	No changes
Comments	PM_{10} collocated

Site Name	EQB #69
Address	At the south side of the police station
City	Guayama
AQS Code	72-057-0009
PR County	Guayama
MSA/CSA	Guayama
Latitude	+17.96763771
Longitude	-66.18747065
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sulfur Dioxide	Instrumental	Pulsed Fluorescence	Continuous	Neighborhood	Source Oriented	2001/11/14

Parameter	Monitor Type
Sulfur Dioxide	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	Relocated at the same site, Temporary Shutdown 2013/01/01
Comments	

Site Name	EQB #57
Address	Road 377 Bo. Quebrada
City	Guayanilla
AQS Code	72-059-0016
PR County	Guayanilla
MSA/CSA	Ponce
Latitude	+18.0451106
Longitude	-66.80225307
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Population Exposure	1999/01/15
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	1999/01/15
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15

Parameter	Monitor Type
$PM_{2.5}$	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	No changes
Comments	

Site Name	EQB # (NEW)
Address	
City	Guayanilla
AQS Code	72-059-0001
PR County	Guayanilla
MSA/CSA	Ponce
Latitude	
Longitude	
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sulfur Dioxide	Instrumental	Pulsed Fluorescent	Continuous	Neighborhood	Source Oriented	
Lead TSP	Hi- Vol	Atomic Absorption	1 in 6	Micro	Population Exposure	
Ambient Temperature Average			1 in 6			
Ambient Pressure Average			1 in 6			

Parameter	Monitor Type
Sulfur Dioxide	SLAMS
Lead TSP	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	New Site (SO_2 Regulation 1-hour)
Comments	Near South Coast PREPA

Site Name	EQB #7
Address	USGS & Water Resources Bldg.
City	Guaynabo
AQS Code	72-061-0001
PR County	Guaynabo
MSA/CSA	San Juan - Bayamón
Latitude	+18.42565192
Longitude	-66.11584553
Suitable for Comparison to $PM_{2.5}$ NAAQS?	No

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
PM_{10}	Hi-Vol	Gravimetric	1 in 6	Micro Scale	Highest Concentration	1999/02/28
PM_{10} Sulfate	Hi-Vol	Colorimetric	1 in 6	Neighborhood	Population Exposure	1998/01/05

Parameter	Monitor Type
PM_{10}	SLAMS
PM_{10} Sulfate	SPM

Site Purpose	Determine Highest Concentration
Plans for the next 18 months	No changes
Comments	PM_{10} Monitor is part of PM_{10} SIP for Guaynabo LMP

Site Name	EQB #24
Address	Electrical Substation
City	Guaynabo
AQS Code	72-061-0005
PR County	Guaynabo
MSA/CSA	San Juan - Bayamón
Latitude	+18.44009541
Longitude	-66.11445975
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15
PM_{10}	Hi-Vol	Gravimetric	1 in 3	Neighborhood	Population Exposure	1988/01/05
PM_{10} Sulfate	Hi-Vol	Colorimetric	1 in 6	Neighborhood	Population Exposure	1998/01/05
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Population Exposure	1999/01/15
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	1999/01/15

Parameter	Monitor Type
$PM_{2.5}$	SLAMS
PM_{10}	SLAMS
PM_{10} Sulfate	SPM

Site Purpose	Protection for the population
Plans for the next 18 months	No changes
Comments	PM_{10} Monitor is part of PM_{10} SIP for Guaynabo LMP, $PM_{2.5}$ and PM_{10} collocated monitors

Site Name	EQB #20
Address	Buchanan (Metropista)
City	Guaynabo
AQS Code	72-061-0006
PR County	Guaynabo
MSA/CSA	San Juan - Bayamón
Latitude	+18.2519
Longitude	-66.0714
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
$PM_{2.5}$ (New)						
Carbon Monoxide	Instrumental	Non Dispersive Infrared	Continuous	Urban	High concentration	2014/07/08
NO_2	Instrumental	Chemiluminescence	Continuous	Urban	High Concentration	2014/0708

Parameter	Monitor Type
$PM_{2.5}$	SLAMS
NO_2	SLAMS
Carbon Monoxide	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	Add $PM_{2.5}$ continuous
Comments	Near Roads Site

Site Name	EQB #59
Address	Nenadich Street
City	Mayagüez
AQS Code	72-097-0006
PR County	Mayagüez
MSA/CSA	Mayagüez
Latitude	+18.20009892
Longitude	-67.14587984
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Source Oriented	2007/02/21
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Source Oriented	2007/02/21
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Source Oriented	2007/02/21

Parameter	Monitor Type
$PM_{2.5}$	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	Intends to re localizer in same area in a location more accessible
Comments	$PM_{2.5}$ temporary shutdown

Site Name	EQB #8
Address	Road 183
City	Juncos
AQS Code	72-077-0001
PR County	Juncos
MSA/CSA	Juncos
Latitude	+18.17793873
Longitude	-65.91548245
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Ozone	Instrumental	Ultra violet	Continuous	Neighborhood	Population Exposure	2007/10/03
Sulfur Dioxide	Instrumental	Pulsed Fluorescent	Continuous	Neighborhood	Population Exposure	2007/10/03

Parameter	Monitor Type
Ozone	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	SO_2 Monitor will be closed at end of the year
Comments	

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	+18.00955831
Longitude	-66.62724916
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/01/15
PM_{10}	Hi-Vol	Gravimetric	1 in 6	Neighborhood	High Concentration	1999/01/06
Carbon Monoxide	Instrumental	Non Dispersive Infrared	Continuous	Neighborhood	Population Exposure	2011/10/01
PM_{10} continuous	R&P SA246B	Continuous	Continuous	Neighborhood	Population Exposure	2011/10/05
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Source Oriented	1999/01/15
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Source Oriented	1999/01/15
$PM_{2.5}$ continuous	R&P SA246B	Continuous	Continuous	Neighborhood	Population Exposure	NEW

Parameter	Monitor Type
$PM_{2.5}$	SLAMS
PM_{10}	SLAMS
CO	SLAMS

PM_{10-} continuous	SLAMS
$PM_{2.5}$ continuous	SLAMS

Site Purpose	Determine High Concentration
Plans for the next 18 months	$PM_{2.5}$ continuous monitor to AQI purposes.
Comments	

Site Name	EQB #18
Address	Road #3 Las Mareas
City	Salinas
AQS Code	72-123-0002
PR County	Salinas
MSA/CSA	Ponce
Latitude	+17.95300579
Longitude	-66.26146111
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sulfur Dioxide	Instrumental	Pulsed Fluorescent	Continuous	Neighborhood	Source Oriented	2008/09/24
Lead TSP	Hi-Vol	Flameless Atomic Absorption	1 in 6	Neighborhood	Source Oriented	2011/10/18

Parameter	Monitor Type
Sulfur Dioxide	SLAMS
Lead	SLAMS

Site Purpose	Protection for the population
Plans for the next 18 months	SO_2 and Lead monitors will be relocated to new site at Guayama according with the SO_2 Regulation 1-hour
Comments	Meteorological monitor

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- Bayamón
Latitude	+18.4498145
Longitude	-66.05250955
Suitable for Comparison to $PM_{2.5}$ NAAQS?	Yes

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Carbon Monoxide	Instrumental	Non Dispersive Infrared	Continuous	Middle	High Concentration	1995/04/01
$PM_{2.5}$	R&P Model 2025	Gravimetric	1 in 3	Neighborhood	Population Exposure	1999/03/21
Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Population Exposure	1999/03/21
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	1999/03/21

Parameter	Monitor Type
Carbon Monoxide	SLAMS

Site Purpose	Determine High Concentration and protection of population
Plans for the next 18 months	Monitor $PM_{2.5}$ will be closed at end of the year
Comments	

Site Name	EQB #New
Address	
City	San Juan
AQS Code	72-025-
PR County	San Juan
MSA/CSA	N/A
Latitude	+
Longitude	-
Suitable for Comparison to $PM_{2.5}$ NAAQS?	n/a

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
NO_2						
CO						

Parameter	Monitor Type
NO_2	SLAMS
CO	SLAMS
$PM_{2.5}$	

Site Purpose	Protection for the population
Plans for the next 18 months	
Comments	Near Road Site

Site Name	EQB #37 NCore Station
Address	Regional Jail of Bayamón
City	Bayamón
AQS Code	72-021-0010
PR County	Bayamón
MSA/CSA	San Juan - Bayamón
Latitude	+18.42008912
Longitude	-66.1506155
Suitable for Comparison to $PM_{2.5}$ NAAQS?	N/A

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sulfur Dioxide	Instrumental	Pulsed Fluorescent	Continuous	Neighborhood	Population Exposure	2011/03/16
Carbon Monoxide	Instrumental	Gas Filter Corr. CO Analyzer	Continuous	Neighborhood	Population Exposure	2011/03/16
Lead TSP	Hi-Vol	Flameless Atomic Absorption	1 in 6	Neighborhood	Population Exposure	2011/03/22
Oxide Nitrogen	Instrumental 699	ChemiliminescenceTeledyne API	Continuous	Neighborhood	Population Exposure	2014/05/21
Oxide Nitrogen (NOy)	Instrumental 699	ChemiliminescenceTeledyne API	Continuous	Neighborhood	Population Exposure	2014/05/21
NOy-NO	Instrumental 699	ChemiliminescenceTeledyne API	Continuous	Neighborhood	Population Exposure	2014/05/21
PM_{10}	R&P Model 2025	Gravimetric	1-3	Neighborhood	Population Exposure	2015/05/09
$PM_{2.5}$	R&P Model 2025	Gravimetric	1-3	Neighborhood	Population Exposure	2015/04/12
$PM_{10-2.5}$	Thermo Partisol Plus 2025	Paired Gravimetric	1-3	Neighborhood	Population Exposure	2015/05/09

Ambient Average Temperature	R&P Model 2025	Electronic	1 in 3	Neighborhood	Population Exposure	2011/03/22

Parameter	Sampling Method	Analysis Method	Schedule	Spatial Scale	Monitoring Objective	Begin Date
Sample Average Barometric Pressure	R&P Model 2025	Barometric Sensor	1 in 3	Neighborhood	Population Exposure	2011/03/22
Ozone	Instrumental 087	Ultra violet absorption	Continuous	Neighborhood	Population Exposure	2014/05/21
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
$PM_{2.5}/PM_{10}$	Teledyne 602 Beta	Beta Plus Particle measurement system	Continuous	Neighborhood	Population Exposure	New
$PM_{2.5}$ Speciation	SASS/URG-3000N		1-3	Neighborhood	Population Exposure	New

Parameter	Monitor Type
Sulfur Dioxide	SLAMS
Carbon Monoxide	SLAMS
Lead TSP	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

Site Purpose	Protection for the population
Plans for the next 18 months	Add $PM_{2.5}$ continuous as part of NCore
Comments	