GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

Air Protection Branch
4244 International Parkway
Suite 120
Atlanta, Georgia 30354
404-363-7000

May 16, 2023

NOTICE OF THE OPPORTUNITY FOR PUBLIC COMMENT
GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
AIR PROTECTION BRANCH

STATE OF GEORGIA

NOTICE OF DRAFT 2023 AMBIENT AIR MONITORING PLAN – May 2023

To All Interested Parties:

The Georgia Environmental Protection Division (GA EPD) announces its intent to issue the *2023 Ambient Air Monitoring Plan* to the U.S. Environmental Protection Agency in July 2023. The GA EPD is required to produce this annual plan as part of EPA's amended ambient air monitoring regulations established October 17, 2006.

Georgia EPD's *2023 Ambient Air Monitoring Plan* will show how the state agency plans to meet EPA regulations for monitoring air quality in the state by assessing monitoring objectives, site appropriateness for air quality characterization, spatial scale represented by each monitor and appropriate new technologies.

GA EPD's air monitoring network consists of a number of stations located throughout the state. GA EPD uses the air monitoring data to track if air quality standards are being met, to assist in enforcement actions, to determine the improvement or decline of air quality, to trace the extent of allowable industrial expansion and to provide air pollution information to the public.

The draft *2023 Ambient Air Monitoring Plan* will be available for review on the GA EPD Air Protection Branch internet site: https://epd.georgia.gov/air-protection-branch-public-announcements and the Ambient Air Monitoring Program website: https://airgeorgia.org/.

Persons wishing to comment on the draft *Ambient Air Monitoring Plan* are required to submit their comments, in writing, to GA EPD at the following address:

Air Protection Branch
Attn: Annual Air Monitoring Plan Comments
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

In addition, public comments can be submitted in writing to DeAnna Oser, Assistant Branch Chief of the Air Protection Branch, at DeAnna.Oser@dnr.ga.gov or to EPD.comments@dnr.ga.gov.

Comments must be received by GA EPD no later than June 16, 2023. Should the comment period end on a weekend or holiday, comments will be accepted up until the next working day. GA EPD, in soliciting comments for the final draft before submittal to EPA as required by 40CFR58, will consider all comments received on or prior to that date.

After the comment period has expired, GA EPD will consider all comments received. GA EPD's responses to comments and any other relevant information will be included in the final document published on https://airgeorgia.org/.

For additional information, contact the Assistant Branch Chief of the Air Protection Branch, DeAnna Oser at the Atlanta address, or by phone at 404-363-7000. Please refer to this notice when requesting information.

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Draft 2023 Ambient Air Monitoring Plan

Air Protection Branch
Ambient Monitoring Program

Table of Contents

List of Figures and Tables

Acronyms and Glossary

AADT	Annual Average Daily Traffic
Aerosols	A gaseous suspension of fine solid or liquid particles
AM	Annual Mean
Anthropogenic	Resulting from human activity
APB	Air Protection Branch
AQCR	Air Quality Control Region
AQS	Air Quality System
ARITH MEAN	Arithmetic Mean
ARM	Approved Regional Method
AA	Clean Air Act
CBSA	Core Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSA	Combined Statistical Area
CV	Coefficient of Variation
DNPH	Dinitrophenylhydrazine
EPA	United States Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method- the official measurement technique for a given pollutant
GA AAMP	Georgia Ambient Air Monitoring Program
GA EPD	Georgia Environmental Protection Division
GEO MEAN	Geometric Mean
HAP	Hazardous Air Pollutant
HPLC	High Performance Liquid Chromatography
LOD	Limit of Detection
$\mu g/m^3$	Micrograms per cubic meter
m/s	Meter per second
MSA	Metropolitan Statistical Area, as defined by the US Census Bureau
NAAQS	National Ambient Air Quality Standard
NATTS	National Air Toxics Trends Station
NCore	National Core Multipollutant Monitoring Network
NDV	Normalized Design Value
NMHC	Non-Methane Hydrocarbons
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NO_y	Reactive oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
PAH	Polycyclic Aromatic Hydrocarbons
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
$PM_{2.5}$	Particles with an aerodynamic diameter of 2.5 microns or less
PM_{10}	Particles with an aerodynamic diameter of 10 microns or less
$PM_{10-2.5}$	Particles with an aerodynamic diameter between 2.5 and 10 microns
ppb	Parts per Billion

ppm	Parts per Million
Precursor	A substance from which another substance is formed
PUF	Polyurethane Foam
QTR	Calendar Quarter
Rawinsonde	A source of meteorological data for the upper atmosphere
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur Dioxide
SPMS	Special Purpose Monitoring Stations
STN	Speciation Trends Network
TBD	To Be Determined
TEOM	Tapered Element Oscillating Microbalance
TNMOC	Total Non-Methane Organic Compounds
TRS	Total Reduced Sulfur
UV	Ultraviolet
VOC	Volatile Organic Compound
W/m^2	Watts per square meter
ZPS	Zero/Precision/Span

Agency Contacts

Access to More Information about the Ambient Air Monitoring Network

While this report includes a great deal of information about the Ambient Air Monitoring Network, much more information is readily available, including summaries of the pollutant data from the monitors around the state.

Agency Contacts for Georgia Environmental Protection Division

Regarding this report and questions relating to the collected ambient air quality data:

DeAnna Oser, Ambient Monitoring Program Manager
DeAnna.Oser@dnr.ga.gov
470-524-0541

Janet Aldredge-Byars, Data Analysis Unit Manager
Janet.Aldredge@dnr.ga.gov
470-938-3390

Regarding the collection of the ambient data:

Jaime Gore, Manager, Operations 1 Unit Manager
Jaime.Gore@dnr.ga.gov
470-524-0495

Karl Armstrong, Manager, Operations 2 Unit Manager
Karl.Armstrong@dnr.ga.gov
470-303-9702

Lynsey Scarbrough, Manager, Operations Support Unit Manager
Lynsey.Scarbrough@dnr.ga.gov
404-783-1466

Regarding quality oversight of the monitoring program:

Farhana Yasmin, Quality Assurance Unit Manager
Farhana.Yasmin@dnr.ga.gov
470-524-0653

Regarding the meteorology monitoring program:

Bill Murphey, Meteorology Unit Manager
Bill.Murphey@dnr.ga.gov
404-363-7079

1.0 Executive Summary

The Georgia Ambient Air Monitoring Program (GA AAMP) of the Georgia Environmental Protection Division (GA EPD) is submitting this *2023 Ambient Air Monitoring Plan* to the United States Environmental Protection Agency (EPA) Region 4 office as required by federal regulations under 40CFR58.10 (a)(1). The plan provides documentation of the establishment and maintenance of an air quality surveillance system in Georgia that meets all federal requirements found in Appendix A through E of 40CFR58, where applicable. In developing this plan, the GA AAMP assessed monitoring types and objectives, site appropriateness for air quality characterization, representative spatial scale to match objectives at each monitor, and appropriate new technologies. The plan describes the established sites across the State of Georgia, as well as the proposal to maintain or discontinue sites in the state's ambient air quality surveillance system. The plan confirms that the network continues to meet the State and Local Air Monitoring Stations (SLAMS) criteria established by federal regulations, and that the information in the state and federal monitoring records properly classifies each monitoring station. The plan also serves as a directory of existing SLAMS, Photochemical Assessment Monitoring Stations (PAMS), Speciation Trends Network (STN) and Supplemental Speciation sites, National Air Toxics Trends Stations (NATTS), National Core Multipollutant Monitoring Station (NCore), Near-road Monitoring Network, and the meteorological parameters performed at each location.

Prior to the Clean Air Act of 1970, the state health department conducted air monitoring in Georgia. In the early 1970's, the GA AAMP took over the responsibility of ambient air monitoring to better identify and control air pollutants in Georgia. The GA AAMP currently relies on a sampling network of 35 stations to:

- determine whether air quality standards are being met
- track air quality improvements
- measure the impact of industrial expansions
- provide air pollution information to the public
- assist in enforcement actions

Since the publication of the *2022 Ambient Air Monitoring Plan*, there have been some changes to the state's ambient air monitoring network that should be noted.

Changes to Monitoring:

At the South DeKalb site (13-089-0002), the GA AAMP upgraded the ESC DAS 8832 data logger to an Agilaire 8872 data logger on April 21, 2022.

On August 9, 2022, the GA AAMP upgraded the ESC DAS 8832 data logger to an Agilaire 8872 data logger at the United Ave site (13-121-0055).

The GA AAMP upgraded the data logger at the NR-285 site (13-089-0003) from an ESC DAS 8832 to an Agilaire 8872 on October 4, 2022.

At the Douglasville site (13-097-0004), the GA AAMP upgraded the ESC DAS 8832 data logger to an Agilaire 8872 data logger on January 10, 2023.

On February 6, 2023, the GA AAMP upgraded the ESC DAS 8832 data logger to an Agilaire 8872 data logger at the McDonough site (13-151-0002).

The ESC DAS 8832 data logger at the NR-GA Tech site (13-121-0056) was updated to an Agilaire 8872 data logger on February 16, 2023.

As of January 1, 2022, the GA AAMP installed an FRM $PM_{2.5}$ Thermo Partisol-Plus 2025 sampler at the Augusta site (13-245-0091). From January 1, 2022 until July 31, 2022, this sampled with a 1 in 3 day schedule, before switching to daily samples on August 9, 2022. In addition, as of September 30, 2022, a collocated FRM sampler was installed at the Augusta site with a 1 in 3 day sampling schedule.

At the Albany site (13-095-0007), the FRM $PM_{2.5}$ sampler changed to collecting daily samples as of August 9, 2022. In addition, the collocated FRM $PM_{2.5}$ sampler at the Albany site switched from a 1 in 12 sampling schedule to a 1 in 3 sampling schedule as of September 11, 2022.

The FRM $PM_{2.5}$ Thermo Partisol-Plus 2025 sampler at the Columbus-Airport site (13-215-0008) changed to a daily sample as of August 9, 2022.

During the week of September 6, 2022, the FRM $PM_{2.5}$ Thermo Partisol-Plus 2025 sampler at the South DeKalb site (13-089-0002) changed to daily sampling. Previously, the sampler had been taking one sample every three days.

The GA AAMP began sampling with a new FRM $PM_{2.5}$ Thermo Partisol-Plus 2025 sampler at the Savannah L&A site (13-051-1002) on March 14, 2023, with a daily sampling schedule to ensure redundancy in the Savannah MSA and avoid completeness issues.

On March 16, 2023, a non-regulatory TEOM 1405-F $PM_{2.5}$ continuous monitor was installed at the NR-285 site (13-089-0003) to ensure redundancy in the Atlanta MSA and avoid completeness issues.

At the Gainesville site (13-139-0003), GA AAMP re-instated an FRM $PM_{2.5}$ Thermo Partisol-Plus 2025 sampler on March 27, 2023 with a daily sampling schedule to ensure redundancy in the Gainesville MSA and avoid completeness issues.

On March 24, 2023, a new collocated continuous FEM $PM_{2.5}$ T640 sampler was installed at the Sandersville site (13-303-0001) to ensure redundancy in the Sandersville area and avoid completeness issues.

The Columbus-Airport (13-215-0008), Augusta (13-245-0091), and Albany (13-095-0007) $PM_{2.5}$ T640 samplers were designated as non-FEM and not comparable to the $PM_{2.5}$ NAAQS for 2022 and 2023, as the method is evaluated. GA AAMP requests that these samplers be excluded from the $PM_{2.5}$ NAAQS comparison indefinitely until the method has been evaluated.

GA AAMP plans to update some of the current FRM PM2.5 Thermo Partisol-Plus 2025 samplers with the newer model Thermo Partisol-Plus 2025i samplers across the network. This update will happen as the newer model samplers are procured.

GA AAMP plans to install continuous non-NAAQS $PM_{2.5}$ T640 samplers at the Macon-Allied (13-021-0007), Kennesaw (13-067-0003), Columbus-Baker (13-215-0012), and Forest Park (13-063-0091) sites at some point during 2023. GA AAMP requests that these samplers not be compared to the $PM_{2.5}$ NAAQS during the evaluation of the method.

GA AAMP plans to install a continuous FEM $PM_{2.5}$ T640 sampler at the General Coffee site (13-069-0002) within the next year.

At the NR-GA Tech site (13-121-0056), GA AAMP replaced the non-FEM continuous $PM_{2.5}$ nephelometer sampler with a non-FEM continuous $PM_{2.5}$ TEOM sampler on April 20, 2023. However, at the time of this report, the integration into the data acquisition system is underway. This data is not reportable to AQS as it is for research purposes and is not regulatory. GA AAMP will run the sampler for a few months to further evaluate the technology.

On January 1, 2022, GA AAMP began sampling with a Met One Black Carbon monitor at the NR-285 site (13-089-0003). GA AAMP will be deploying a Met One Black Carbon instrument at the NR-GA Tech site (13-121-0056) by the summer of 2023.

On December 13, 2022, GA AAMP placed a new shelter at the Brunswick site (13-127-0006). GA AAMP is in the process of moving the equipment to the new shelter, and the monitoring equipment is currently still running in the old shelter.

GA AAMP is planning to replace the shelter at the Augusta site (13-245-0091) within the next year.

GA AAMP is planning to purchase a new shelter for the Macon-Forestry site (13-021-0012) within the next year.

The Albany site (13-095-0007) will be relocated by GA AAMP from its current location – the roof of the school – to ground level later this year.

The deck at the General Coffee site (13-069-0002) was rebuilt in April 2023.

Due to increased activity around the McDonough site (13-151-0002), GA AAMP is currently looking at potential areas to relocate the shelter.

Due to increased traffic counts, the ozone monitor at the Gwinnett Tech site (13-135-0002) will need to be moved. GA AAMP is planning to move the Gwinnett Tech site as soon as feasible.

GA AAMP is renewing the waiver for the PAMS meteorology sensors at the Conyers site (13-247-0001) that was addressed in previous *Ambient Air Monitoring Plans*.

GA AAMP continues to monitor ethylene oxide at the South DeKalb (13-089-0002) site. On February 22, 2023, the Picarro continuous ethylene oxide analyzer was reinstalled at this site. Note that this is a non-regulatory sampler used for research purposes only. The Picarro will run for a few months to further evaluate the sampling technology. Please refer to the GA AAMP Quality Assurance Project Plan on the GA EPD website (https://epd.georgia.gov/ethylene-oxide-information) for more details.

GA AAMP plans to move the meteorological equipment from the closed Kraftsman site (13-115-0006) to the Rome site (13-115-0003) during this next year.

1.1 Mandate

This document is produced in response to duties mandated to ambient air monitoring agencies in 40CFR58.10:

> ***40 CFR PART 58.10: Annual monitoring network plan and periodic network assessment.***
>
> *(a)(1) Beginning July 1, 2007, the state, or where applicable local, agency shall submit to the Regional Administrator an annual monitoring network plan which shall provide for the documentation of the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include FRM, FEM, and ARM monitors that are part of SLAMS, NCore, CSN, PAMS, and SPM stations. The plan shall include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of this part, where applicable. The Regional Administrator may require additional information in support of this statement. The annual monitoring network plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA and the submitted plan shall include and address, as appropriate, any received comments.*
> *(2) Any annual monitoring network plan that proposes network modifications (including new or discontinued monitoring sites, new determinations that data are not of sufficient quality to be compared to the NAAQS, and changes in identification of monitors as suitable or not suitable for comparison against the annual $PM_{2.5}$ NAAQS) to SLAMS networks is subject to the approval of the EPA Regional Administrator, who shall approve or disapprove the plan within 120 days of submission of a complete plan to the EPA.*
> *(3) The plan for establishing required NCore multipollutant stations shall be submitted to the Administrator not later than July 1, 2009. The plan shall provide for all required stations to be operational by January 1, 2011.*
> *(4) A plan for establishing source-oriented Pb monitoring sites in accordance with the requirements of appendix D to this part for Pb sources emitting 1.0 tpy or greater shall be submitted to the EPA Regional Administrator no later than July 1, 2009, as part of the annual network plan required in paragraph (a)(1) of this section. The plan shall provide for the required source-oriented Pb monitoring sites for Pb sources emitting 1.0 tpy or greater to be operational by January 1, 2010. A plan for establishing source-oriented Pb monitoring sites in accordance with the requirements of appendix D to this part for Pb sources emitting equal to or greater than 0.50 tpy but less than 1.0 tpy shall be submitted to the EPA Regional Administrator no later than July 1, 2011. The plan shall provide for the required source-oriented Pb monitoring sites for Pb sources emitting equal to or greater than 0.50 tpy but less than 1.0 tpy to be operational by December 27, 2011.*
> *(5)(i) A plan for establishing or identifying an area-wide NO_2 monitor, in accordance with the requirements of Appendix D, section 4.3.3 to this part, shall be submitted as part of the Annual Monitoring Network Plan to the EPA Regional Administrator by July 1, 2012. The plan shall provide for these required monitors to be operational by January 1, 2013.*

(ii) A plan for establishing or identifying any NO_2 monitor intended to characterize vulnerable and susceptible populations, as required in Appendix D, section 4.3.4 to this part, shall be submitted as part of the Annual Monitoring Network Plan to the EPA Regional Administrator by July 1, 2012. The plan shall provide for these required monitors to be operational by January 1, 2013.

(iii)A plan for establishing a single near-road NO_2 monitor in CBSAs having 1,000,000 or more persons, in accordance with the requirements of Appendix D, section 4.3.2 to this part, shall be submitted as part of the Annual Monitoring Network Plan to the EPA Regional Administrator by July 1, 2013. The plan shall provide for these required monitors to be operational by January 1, 2014.

(iv)A plan for establishing a second near-road NO_2 monitor in any CBSA with a population of 2,500,000 persons or more, or a second monitor in any CBSA with a population of 1,000,000 or more persons that has one or more roadway segments with 250,000 or greater AADT counts, in accordance with the requirements of appendix D, section 4.3.2 to this part, shall be submitted as part of the Annual Monitoring Network Plan to the EPA Regional Administrator by July 1, 2014. The plan shall provide for these required monitors to be operational by January 1, 2015.

(6) A plan for establishing SO_2 monitoring sites in accordance with the requirements of appendix D to this part shall be submitted to the EPA Regional Administrator by July 1, 2011 as part of the annual network plan required in paragraph (a) (1). The plan shall provide for all required SO_2 monitoring sites to be operational by January 1, 2013.

(7)A plan for establishing CO monitoring sites in accordance with the requirements of appendix D to this part shall be submitted to the EPA Regional Administrator. Plans for required CO monitors shall be submitted at least six months prior to the date such monitors must be established as required by section 58.13.

(8)(i) A plan for establishing near-road $PM_{2.5}$ monitoring sites in CBSAs having 2.5 million or more persons, in accordance with the requirements of appendix D to this part, shall be submitted as part of the annual monitoring network plan to the EPA Regional Administrator by July 1, 2014. The plan shall provide for these required monitoring stations to be operational by January 1, 2015.

(ii) A plan for establishing near-road $PM_{2.5}$ monitoring sites in CBSAs having 1 million or more persons, but less than 2.5 million persons, in accordance with the requirements of appendix D to this part, shall be submitted as part of the annual monitoring network plan to the EPA Regional Administrator by July 1, 2016. The plan shall provide for these required monitoring stations to be operational by January 1, 2017. (EPA has retracted this requirement.)

(9) The annual monitoring network plan shall provide for the required O_3 sites to be operating on the first day of the applicable required O_3 monitoring season in effect on January 1, 2017 as listed in Table D-3 of appendix D of this part.

(10)A plan for making Photochemical Assessment Monitoring Stations (PAMS) measurements, if applicable, in accordance with the requirements of appendix D paragraph 5(a) of this part shall be submitted to the EPA Regional Administrator no later than July 1, 2018. The plan shall provide for the required PAMS measurements to begin by June 1, 2019 (On January 8, 2020 (85 FR 834, page 834) EPA delayed the start of the revised PAMS monitoring network to June 1, 2021.)

(11)An Enhanced Monitoring Plan for O_3, if applicable, in accordance with the requirements of appendix D paragraph 5(h) of this part shall be submitted to the EPA Regional Administrator no later than October 1, 2019 or two years following the effective

date of a designation to a classification of Moderate or above O_3 nonattainment, whichever is later.

(12)A detailed description of the PAMS network being operated in accordance with the requirements of appendix D to this part shall be submitted as part of the annual monitoring network plan for review by the EPA Administrator. The PAMS Network Description described in section 5 of appendix D may be used to meet this requirement.

(b) The annual monitoring network plan must contain the following information for each existing and proposed site:

(1) The AQS site identification number.

(2) The location, including street address and geographical coordinates.

(3) The sampling and analysis method(s) for each measured parameter.

(4) The operating schedules for each monitor.

Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.

(5) The monitoring objective and spatial scale of representativeness for each monitor as defined in appendix D to this part.

(6) The identification of any sites that are suitable and sites that are not suitable for comparison against the annual $PM_{2.5}$ NAAQS as described in §58.30.

(7) The MSA, CBSA, CSA or other area represented by the monitor.

(8)The designation of any Pb monitors as either source-oriented or non-source-oriented according to Appendix D to 40 CFR part 58.

(9)Any source-oriented monitors for which a waiver has been requested or granted by the EPA Regional Administrator as allowed for under paragraph 4.5(a)(ii) of Appendix D to 40 CFR part 58.

(10)Any source-oriented or non-source-oriented site for which a waiver has been requested or granted by the EPA Regional Administrator for the use of Pb-PM_{10} monitoring in lieu of Pb-TSP monitoring as allowed for under paragraph 2.10 of Appendix C to 40 CFR part 58.

(11)The identification of required NO_2 monitors as near-road, area-wide, or vulnerable and susceptible population monitors in accordance with Appendix D, section 4.3 of this part.

(12)The identification of any $PM_{2.5}$ FEMs and/or ARMs used in the monitoring agency's network where the data are not of sufficient quality such that data are not to be compared to the NAAQS. For required SLAMS where the agency identifies that the $PM_{2.5}$ Class III FEM or ARM does not produce data of sufficient quality for comparison to the NAAQS, the monitoring agency must ensure that an operating FRM or filter-based FEM meeting the sample frequency requirements described in §58.12 or other Class III $PM_{2.5}$ FEM or ARM with data of sufficient quality is operating and reporting data to meet the network design criteria described in appendix D to this part.

(c)The annual monitoring network plan must document how state and local agencies provide for the review of changes to a $PM_{2.5}$ monitoring network that impact the location of a violating $PM_{2.5}$ monitor. The affected state or local agency must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan.

(d)The state, or where applicable local, agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in appendix D to this part, whether new sites are needed, whether existing sites are no longer needed and can be terminated, and whether new technologies are appropriate for

incorporation into the ambient air monitoring network. The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals (e.g., children with asthma), and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself, such as nearby states and tribes or health effects studies. The state, or where applicable local, agency must submit a copy of this 5-year assessment, along with a revised annual network plan, to the Regional Administrator. The assessments are due every five years beginning July 1, 2010.

(e) All proposed additions and discontinuations of SLAMS monitors in annual monitoring network plans and periodic network assessments are subject to approval according to §58.14.

Within this document, the GA AAMP has included the metropolitan statistical area (MSA) represented by each site, which was derived from the following map (Figure 1), as requested above in paragraph 40CFR58.10(a)(3)(b)(8). The U.S. Census Bureau defines an MSA as a geographic entity containing a core urban area of 50,000 or more population and consists of one or more counties containing the core urban area, as well as adjacent counties that have a high degree of social and economic integration with the urban core (http://www.census.gov).

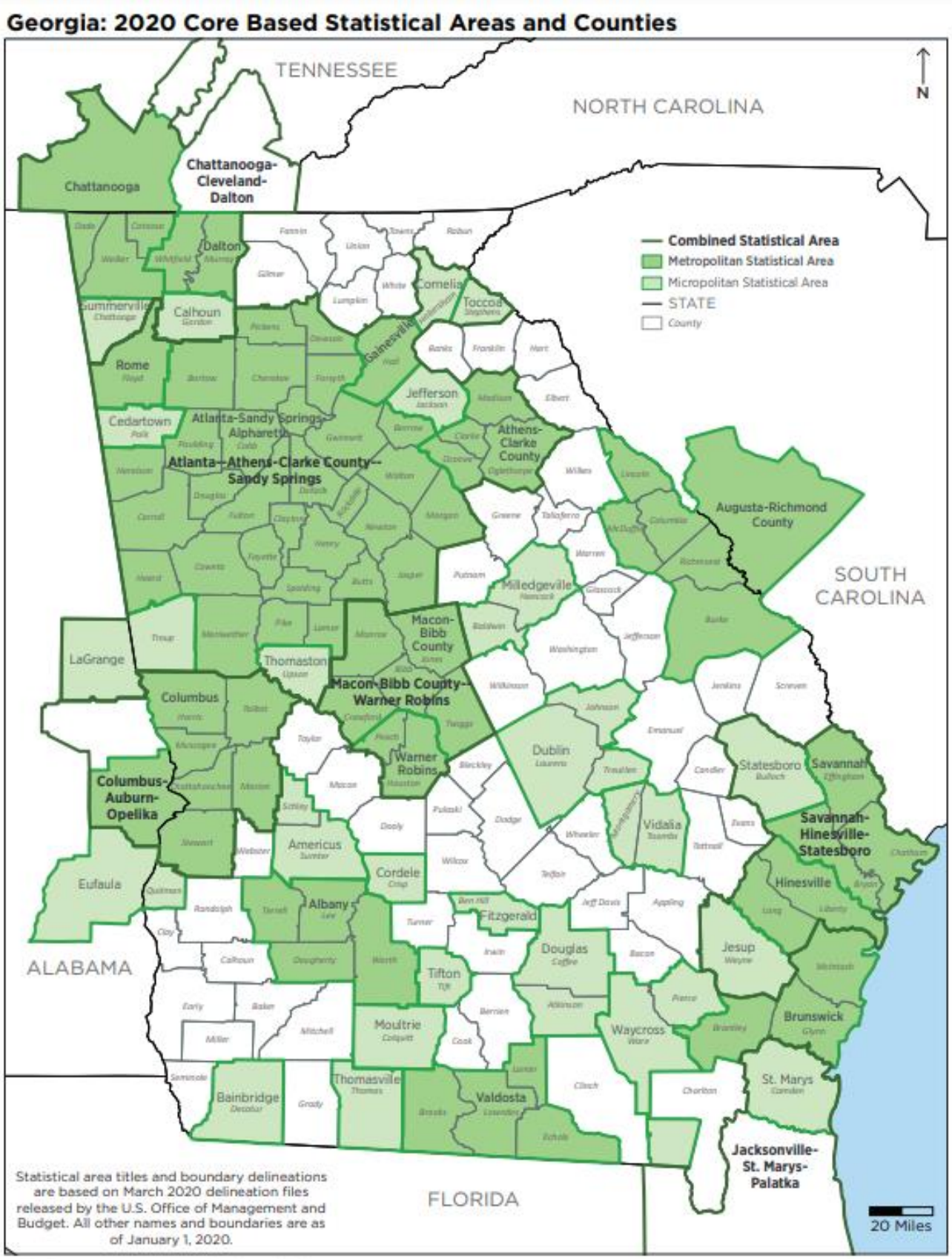


Figure 1: Map of Statistical Areas in Georgia

1.2 Procedures for Making Changes to the Monitoring Network

In some circumstances, monitors must be shut down or moved. While the Ambient Monitoring Program of GA AAMP makes every effort to maintain continued operation of all required monitors, it operates as a guest or leaseholder at all monitoring sites. The GA AAMP does not hold ownership rights to the land at any of its ambient air monitoring sites. If the GA AAMP loses its lease or is otherwise forced to leave a given site, the monitors at that site may be moved to a nearby location [40CFR58.14(c)(6)].

1.3 Memorandum of Agreement

The GA AAMP has memorandum of agreements with the Chattanooga-Hamilton County Air Pollution Control Bureau and the South Carolina Department of Health and Environmental Control for air monitoring activities in MSAs that cross state lines.

As stated in the Memorandum of Agreement dated December 28, 2017, "The purpose of the Memorandum of Agreement (MOA) is to establish the Chattanooga-Hamilton County-Walker County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between CHCAPCB [Chattanooga-Hamilton County Air Pollution Control Bureau] and GAEPDAPB [Georgia Environmental Protection Division Air Protection Branch] (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Chattanooga–Hamilton County-Walker Co, GA MSA as required by 40CFR58 Appendix D, Section 2, (e) (March 28, 2016)." For full MOA documentation, see Appendix E of this document.

The Memorandum of Agreement dated January 2017 states, "The purpose of the Memorandum of Agreement (MOA) is to renew the Augusta-Richmond County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between SCDHEC [South Carolina Department of Health and Environmental Control] and GA EPD (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Augusta–Richmond County MSA as required by 40CFR58 Appendix D, Section 2, (e)." For full MOA documentation, see Appendix E of this document.

For the Columbus, GA-AL MSA, both the Alabama Department of Environmental Management and the GA AAMP have agreed to fully cover EPA's regulations for monitoring their respective state.

1.4 Request for Waiver

Renewal of Solar and TUVR Radiation at Conyers Site:
The GA AAMP is requesting a waiver to continue monitoring the solar radiation and total ultraviolet radiation at the Conyers site (13-247-0001) for the South DeKalb (13-089-0002) PAMS site. The South DeKalb monitoring site does not fit the necessary guidelines for measurement of solar radiation, due to the topography of the site location. Solar radiation measurements from the total global solar radiation sensor must be made from a location that is free from any obstruction which may cause a shadowing effect. In addition, the pyranometer must be located away from highly reflective surfaces, which may cause enhanced optical scattering and overestimate the incoming total solar radiation. The required total ultraviolet radiation and solar radiation measurements are collected at the Conyers monitoring site, which meets necessary criteria.

1.5 Requests for Network Design

The Columbus-Airport (13-215-0008), Augusta (13-245-0091), and Albany (13-095-0007) $PM_{2.5}$ Teledyne T640 samplers were designated as non-FEM and not comparable to the $PM_{2.5}$ NAAQS for 2022 and 2023, as the method is being evaluated. The GA AAMP is requesting to continue NAAQS exclusion indefinitely until the method has been fully evaluated. In addition, GA AAMP is requesting the $PM_{2.5}$ Teledyne T640 samplers that are currently being installed at the Kennesaw (13-067-0003), Forest Park (13-063-0091), Columbus-Baker (13-215-0012), and Macon-Allied (13-021-0007) sites be excluded from $PM_{2.5}$ NAAQS comparison indefinitely until the method has been fully evaluated.

EPA conducted a review of lead (Pb) networks in every Region throughout the U.S. using the 2019 and 2020 National Emissions Inventory (NEI). This review included summaries of lead sources in 2019 and 2020 that do not have any monitoring within two miles, nor waivers for monitoring. For Georgia, there was one facility of concern based on the 2020 NEI, US Army Range Facility for Fort Benning. An analysis was done on the lead emissions at the Fort Benning Facility, and it was determined that the emissions were approximately 900 lbs/year, below the 0.5 tons/year threshold. GA EPD submitted an update to EPA with this information on March 8, 2023.

1.6 Air Quality Index (AQI)

The Air Quality Index (AQI) is a method of reporting daily air quality that converts concentration levels of pollution to a simple color-coded number scale of 0-500. Colored categories on the AQI scale are related to potential health effects from exposure to measured concentrations of a major pollutant. Certain monitoring stations in the GA AAMP's SLAMS network provide data used in daily AQI reporting.

Figure 2 shows how the monitored concentrations correspond to the AQI values, descriptors, and health advisories. AQI reporting is required for all urban areas with a population exceeding 350,000, which in Georgia include the Atlanta-Sandy Springs-Marietta MSA; the Augusta-Richmond County, GA-SC MSA; the Savannah MSA; and the Chattanooga TN-GA MSA. The GA AAMP provides daily AQI reporting to the general public in Georgia through the Ambient Monitoring Program website (https://airgeorgia.org/). The Chattanooga, Tennessee-Georgia MSA AQI reporting is covered by the GA AAMP and the Chattanooga-Hamilton County Air Pollution Control Bureau per the MOA, as discussed above. The Augusta-Richmond County, GA-SC MSA

AQI is covered by the GA AAMP and the South Carolina Department of Health and Environmental Control per the MOA.

Maximum Pollutant Concentration									
$PM_{2.5}$ (24hr) $\mu g/m^3$	PM_{10} (24hr) $\mu g/m^3$	SO_2 (1hr)* ppb	O_3 (8hr)^ ppm	O_3 (1hr) ppm	CO (8hr) ppm	NO_2 (1hr) ppb	AQI Value	Descriptor	EPA Health Advisory
0.0–12.0	0–54	0–35	0.000–0.054	None	0.0–4.4	0–53	0 to 50	**Good (green)**	Air quality is considered satisfactory, and air pollution poses little or no risk.
12.1–35.4	55–154	36–75	0.055–0.070	None	4.5–9.4	54-100	51 to 100	**Moderate (yellow)**	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to the condition of the air may experience respiratory symptoms.
35.5–55.4	155 – 254	76 – 185	0.071 – 0.085	0.125 – 0.164	9.5–12.4	101-360	101 to 150	**Unhealthy for Sensitive Groups**	Members of sensitive groups (people with lung or heart disease) are at greater risk from exposure to particle pollution. Those with lung disease are at risk from exposure to ozone. The general public is not likely to be affected in this range.
55.5–150.4	255–354	186–304*	0.086–0.105	0.165–0.204	12.5–15.4	361-649	151 to 200	**Unhealthy (red)**	Everyone may begin to experience health effects in this range. Members of sensitive groups may experience more serious health effects.
150.5–250.4	355–424	305–604*	0.106–0.200	0.205–0.404	15.5–30.4	650-1249	201 to 300	**Very Unhealthy (purple)**	AQI values in this range trigger a health alert. Everyone may experience more serious health effects. When the AQI is in this range because of ozone, most people should restrict their outdoor exertion to morning or late evening hours to avoid high ozone exposures.
250.5–350.4	425–504	605–804*	0.201-(^)	0.405 – 0.504	30.5–40.4	1250-1649	301 to 400	**Hazardous (maroon)**	AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.
350.5–500.4	505–604	805–1004*	None^	0.505–0.604	40.5–50.4	1650-2049	401 to 500		

*Values of 200 or greater are calculated with 24-hr SO_2 concentrations; ^Values of 301 or greater are calculated with 1-hr O_3 concentrations

Figure 2: Detailed AQI Values by Pollutant

1.7 QAPP and QMP

As part of the requirements for EPA (40CFR58 Appendix A), the GA AAMP has submitted the appropriate Quality Assurance Project Plans (QAPP) and Quality Monitoring Plans (QMP). The following table shows the current status of submittals and approvals of these documents.

Table 1: List of Georgia AAMP's QAPPs

QAPP Title	Submittal	Approval
Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for $PM_{2.5}$	3/24/2023	4/7/2023
Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Criteria Air Pollutants and National Core Multi-Pollutant Station	4/13/2023	
Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Photochemical Assessment Monitoring Stations State of Georgia	5/1/2023	
Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Near Road Monitoring Network	9/7/2022	1/25/2023
Quality Assurance Project Plan for the Georgia National Air Toxics Trends Project	10/11/2022	11/22/2022
Quality Assurance Project Plan for the Georgia Ambient Monitoring Program to Evaluate New and Emerging Technologies for Ethylene Oxide	11/3/2021	11/8/2021
Quality Management Plan for the Air Protection Branch	8/27/2020	9/1/2020

1.8 Public Notice and Comment Procedures

Future changes to the monitoring network are subject to a required public notice and comment process before EPA approval is sought for the changes. Any public comments submitted in response to this document's notice and comment process will be submitted to EPA along with the final document. Persons wishing to comment on proposed changes and documentation are required to submit their comments, in writing, to the GA AAMP at the following address:

Air Protection Branch
Attn: Annual Air Monitoring Plan Comments
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

In addition, public comments can be submitted in writing to DeAnna Oser, Program Manager of the Ambient Monitoring Program, at DeAnna.Oser@dnr.ga.gov or to EPD.comments@dnr.ga.gov. The deadline for submitting comments to the GA AAMP is no later than 30 days after the date on which the document is published on https://airgeorgia.org/. Should the comment period end on a weekend or holiday, comments will be accepted up until the next working day.

The GA AAMP, in soliciting comments for the final draft before submittal to EPA as required by 40CFR58.10(a)(1), will address, as appropriate, any comments received before the deadline.

The GA AAMP's responses to comments and any other relevant information will be included in the final document published on https://airgeorgia.org/.

1.9 Use of Data

The ambient air monitoring data is used to determine whether [the] National Ambient Air Quality Standards as defined by EPA are being met, and if the state of Georgia has areas of nonattainment according to these standards. GA AAMP collects ambient air monitoring data covering both criteria and non-criteria pollutants. This data is used by several different groups and has many uses from public health studies to making regulatory decisions. The data is used to provide air pollution information to the public, including the Air Quality Index (discussed above in Section 1.5), the GA Ambient Air Monitoring Program website (https://airgeorgia.org/) with hourly readings of continuous data, and finally producing a forecast of the air quality which is reported in AirNow and various news reports to the public. The data is used to assist in enforcement actions with permitting and compliance, and to determine the extent of allowable industrial expansion. State modelers as well as private consultants use the air monitoring data to help make these determinations. The ambient air monitoring data has been used by non-governmental planning groups, such as the Georgia Commute Options, and intergovernmental groups, such as Atlanta Regional Commission, to make recommended improvements for cities across the state. The ambient air monitoring data is used to determine whether National Ambient Air Quality Standards as defined by EPA are being met, and if the state of Georgia has areas of nonattainment according to these standards.

GA AAMP routinely has requests of the ambient air monitoring data from other states, various universities, research institutes, and federal agencies such as Centers for Disease Control. The data is used to determine the improvement or declination of air quality, and how the air quality is related to human and environmental health. In addition, the data has been used in international studies to compare with major cities around the world.

Annually, the GA AAMP provides an Ambient Air Surveillance report that summarizes and analyzes the previous year's ambient air data, including a risk assessment, for the general public. In addition, GA AAMP produces an Ambient Air Monitoring Plan on an annual basis. The Ambient Air Monitoring Plan details the location and site specific data for each monitor in GA AAMP's ambient monitoring network, as well as GA AAMP's plans for changes to the network. This document is made available for public review and comment regarding placement of ambient air monitors and collection of ambient air data. Both the Ambient Air Surveillance Report and Ambient Air Monitoring Plan are also found on the website listed above.

1.10 New Technologies

At a few sites across the state, GA AAMP is planning to add new monitoring equipment in which new technologies will be put to use. The GA AAMP has begun installing using the Thermo 49iQ ozone analyzers, and plans to install Thermo 43iQ SO_2 analyzers, and Thermo 48iQTL CO analyzers. The GA AAMP began using a Met One, Instruments BC-1060 black carbon sampler at the NR-285 site, and will be installing the black carbon sampler at the NR-GA Tech Site by summer of 2023. The GA AAMP has started to incorporate new Agilaire 8872 data loggers

throughout the network, and will continue to do so in the coming year. For more information about technology used in the GA AAMP network, refer to Appendix C.

1.11 Georgia AAMP Budget

GA AAMP's budget is made up of a combination of three sources: state funds, federal funds, and fee funds. In recent years, GA AAMP has had budget and personnel constraints, and since the last *Ambient Air Monitoring Plan* there has been some fluctuation in the number of ambient air monitoring samplers across the state. A complete list of the monitors that have been shut down since the last publication of the *Ambient Air Monitoring Plan* can be found in Appendix D of this document.

1.12 Inventory of Ambient Monitoring Equipment

As part of the requirements for the *Ambient Air Monitoring Plan*, the GA AAMP has included a list and evaluation of the current ambient monitoring equipment. See attached Appendix B of this document for the inventory listing.

1.13 List of Sites

The following table gives a complete list of the current air monitoring network and the parameters that are sampled at each site.

Table 2: 2023 Georgia Ambient Air Monitoring Network

SITE ID	SITE NAME	COUNTY	O_3	CO	$PM_{2.5}$ FRM	$PM_{2.5}$ Cont.	$PM_{2.5}$ Spec.	PM Coarse	NO/ NOx	NO_2	NOy	SO_2	PM_{10}	PM_{10} Cont.	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Black Carbon	Metals
Rome MSA																					
131150003	Rome	Floyd				S	X												*		
Brunswick MSA																					
131270006	Brunswick	Glynn	S		S	S													NR		
Valdosta MSA																					
131850003	Valdosta	Lowndes			S	S															
Warner Robins MSA																					
131530001	Warner Robins	Houston			S	S															
Dalton MSA																					
132130003	Fort Mountain	Murray	S																NR		
Albany MSA																					
130950007	Albany	Dougherty			S	S															
Gainesville MSA																					
131390003	Gainesville	Hall			S	S															
Athens-Clarke County MSA																					
130590002	Athens	Clarke	S			S															
Macon MSA																					
130210007	Macon-Allied	Bibb			S	*	X														
130210012	Macon-Forestry	Bibb	S		S	S						S							NR		
Columbus Georgia- Alabama MSA																					
132150008	Columbus-Airport	Muscogee	S		S	S															
132150012	Columbus-Baker	Muscogee			S	*	X														
132151003	Columbus-Crime Lab	Muscogee																	NR		
Savannah MSA																					
130510021	Savannah-E. President	Chatham	S									S							NR		
130511002	Savannah- L&A	Chatham			S	S						S							NR		
Augusta-Richmond County, Georgia-South Carolina MSA																					
130730001	Evans	Columbia	S																NR		
132450091	Augusta	Richmond	S		S	S	X					S		S					NR		

Table 2:2023 Georgia Ambient Air Monitoring Network (continued)

SITE ID	SITE NAME	COUNTY	O_3	CO	$PM_{2.5}$ FRM	$PM_{2.5}$ Cont.	$PM_{2.5}$ Spec.	PM Coarse	NO/ NOx	NO_2	NOy	SO_2	PM_{10}	PM_{10} Cont.	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Black Carbon	Metals
Atlanta-Sandy Springs-Marietta MSA																					
130630091	Forest Park	Clayton			S	*															
130670003	Kennesaw	Cobb	S		S	*															
130850001	Dawsonville	Dawson	S																NR		
130890002	South DeKalb	DeKalb	S/P/C	S/P/C	S/C	S/C	T/C	S	S/P	S/P	S/P/C	C		C	P	N	N	P/N	P/C		N
130890003	NR-285	DeKalb				R			R	R						R				R	
130970004	Douglasville	Douglas	S																NR		
131210039	Fire Station #8	Fulton			S								S								
131210055	United Ave.	Fulton	S			S						S							NR		
131210056	NR-GA Tech	Fulton		R	R	R				R									R	*	
131350002	Gwinnett Tech	Gwinnett	S			S															
131510002	McDonough	Henry	S			S															
132319991	EPA CASTNET	Pike	A																		
132470001	Conyers	Rockdale	S																NR/P		
Chattanooga Tennessee-Georgia MSA																					
132950004	Rossville-Williams St.	Walker			S	S	X														
Not in an MSA																					
130550001	Summerville	Chattooga	S																		
130690002	General Coffee	Coffee			S	*	X														
132611001	Leslie	Sumter	S																		
133030001	Sandersville	Washington				S															

Monitoring Types: S=SLAMS; P=PAMS; C=NCore; X=Supplemental Speciation; T=STN; N=NATTS; R=Near-road; NR=Non-Regulatory; G=General Information; A=CASTNET

*=Forthcoming

2.0 Standards

Measuring pollutant concentrations in ambient air and comparing the measured concentrations to corresponding standards determine ambient air quality status for the six criteria pollutants. The six criteria pollutants are sulfur dioxide, particulate matter ($PM_{2.5}$ and PM_{10}), carbon monoxide, ozone, nitrogen dioxide, and lead[1]. The EPA defines ambient air as that portion of the atmosphere, external to buildings, to which the general public has access.

The National Ambient Air Quality Standards (NAAQS) are divided into primary and secondary standards[2]. Primary standards are those established to protect public health. Secondary standards are those established to protect the public welfare from adverse pollution effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, climate, property, transportation, economy, personal comfort and well-being. The scientific criteria upon which the standards are based are reviewed periodically by the EPA, which may reestablish or change the standards according to its findings. Note that there are hundreds of compounds that are generally considered pollutants when found in ambient air but whose health and welfare effects are not well enough understood for ambient standards to be defined.

A pollutant measurement that is greater than the ambient air quality standard for a specific averaging time is called an exceedance. An exceedance does not always imply that a violation of the standard took place. For each pollutant, there are specific rules for a given time period before a pattern of exceedances is considered a violation of the NAAQS. If a violation occurs, it may result in regulatory actions to further clean up the air in the area where the violation occurred. This distinction is made to allow for certain limited exceedances of the standard that may occur, for example, during an unusual weather pattern, reserving regulatory action for cases where the exceedances are too large or too frequent.

3.0 Monitoring Objectives and Spatial Scale

Federal regulations indicate that a minimum of four monitoring objectives should be met in establishing an ambient air monitoring network. The network is to have stations that monitor: (1) the highest pollutant concentrations; (2) the representative concentrations in areas of high population density; (3) the impact of major pollution emissions sources; and (4) the general background concentration levels. The physical siting of the air monitoring station must achieve a spatial scale of representativeness that is consistent with the monitoring objective. The spatial scale results from the physical location of the site with respect to the pollutant sources and categories. It estimates the size of the area surrounding the monitoring site that experiences uniform pollutant concentrations.

The categories of spatial scale are:

Micro Scale: An area of uniform pollutant concentrations ranging from several meters up to 100 meters.

Middle Scale: Uniform pollutant concentrations in an area of about 100 meters to 0.5 kilometer.

Neighborhood Scale: An area with dimensions in the 0.5 to 4.0 kilometer range.

Urban Scale: Citywide pollutant conditions with dimensions ranging from 4 to 50 kilometers.

Regional Scale: An entire rural area of the same general geography (this area ranges from tens to hundreds of kilometers).

[1] GA AAMP is no longer required to monitor for criteria lead, but still monitors non-criteria lead.

[2] For a list of the most current standards, please refer to EPA's website https://www.epa.gov/criteria-air-pollutants/naaqs-table.

Monitoring objectives and associated spatial scales are taken from Appendix D of 40CFR58, Table D-1, and summarized in Table 3 below.

Table 3: Monitoring Objective and Spatial Scale

Monitoring Objective	Appropriate Spatial Scale
Highest concentration or source impact	Micro, Middle, Neighborhood, or (less frequently) Urban
Population oriented	Neighborhood or Urban
General/background, regional transport, welfare related impacts	Urban or Regional

4.0 Description of Networks

4.1 NCore

The State of Georgia is required to have one National Core (NCore) Multipollutant Monitoring station, and the GA AAMP complies with this requirement at the South DeKalb site (13-089-0002) in DeKalb County. The NCore site monitoring equipment includes: $PM_{2.5}$ FRM, $PM_{2.5}$ continuous, $PM_{2.5}$ speciation, ozone (collecting data year-round), trace level carbon monoxide (CO), trace level sulfur dioxide (SO_2), trace level nitrogen oxide (NO), total reactive nitrogen (NOy), wind direction, wind speed, temperature, and relative humidity. The site has operated since January 1, 2011, and site establishment and details were included in the GA AAMP's *2011 Ambient Air Monitoring Plan, Appendix C, Ambient Air Monitoring Plan for National Core (NCore) Multipollutant Monitoring Station*. NCore monitoring network sites have the following monitoring objectives:

- timely reporting of data to the public through AIRNow, air quality forecasting, and other public reporting mechanisms
- support development of emission strategies through air quality model evaluation and other observational methods
- accountability of emission strategy progress through tracking long-term trends of criteria and non-criteria pollutants and their precursors
- support long-term health assessments that contribute to ongoing reviews of the National Ambient Air Quality Standards (NAAQS)
- compliance through establishing nonattainment/attainment areas by comparison with the NAAQS
- support multiple disciplines of scientific research, including; public health, atmospheric and ecological

4.2 Sulfur Dioxide

EPA lowered the sulfur dioxide (SO_2) NAAQS standard to a 1-hour primary standard of 75 ppb, and added new SO_2 ambient monitoring requirements in 2010 (75FR119, 06/22/10) and retained in 2019 (84FR9866, 3/18/19). The rule combines air quality modeling and monitoring. The rule requires refined dispersion modeling to determine if areas with sources that have the potential to cause or contribute to a violation of the new SO_2 standard can comply with the standard.

The monitoring regulations require monitors to be placed in Core Based Statistical Areas (CBSAs), based on a population weighted emissions index (PWEI) for the area. The rule requires three monitors in CBSAs with index values of 1,000,000 or more; two monitors in CBSAs with index values less than 1,000,000 but greater than 100,000; and one monitor in CBSAs with index values greater than 5,000. Based on these requirements, the GA AAMP is required to have one monitor in the Atlanta-Sandy Springs-Marietta MSA. Currently, GA AAMP monitors SO_2 at the United Avenue (13-121-0055) and South DeKalb (13-089-0002) sites in the Atlanta-Sandy Springs-Marietta MSA, the Augusta (13-245-0091) site in the Augusta-Richmond County, GA- SC MSA, the Savannah-L&A (13-051-1002) and Savannah-E. President Street (13-051-0021) sites in the Savannah MSA, and the Macon-Forestry (13-021-0012) site in the Macon MSA.

As an NCore site, the South DeKalb site (13-089-0002) also began monitoring trace level sulfur dioxide as of October 1, 2010. The GA AAMP collects and reports 5-minute maximum data with all the SO_2 monitors in the state.

4.3 Nitrogen Dioxide

On May 18, 2018, EPA retained the 2010 nitrogen dioxide (NO_2) National Ambient Air Quality Standard (NAAQS) (Federal Register, Vol. 83, No. 75, 04/18/18). EPA's last revision of the NAAQS was January 22, 2010. Near-road NO_2 monitors were to be set up in CBSAs with 500,000 or more population (additional monitor with CBSA population above 2,500,000), average traffic counts of 250,000 vehicles or greater, and represent a microscale (no more than 50 meters from the edge of the nearest traffic lane) (Federal Register, Vol. 75, No. 26, 02/09/10). The GA AAMP meets this requirement with two monitors in the Atlanta-Sandy Springs-Marietta MSA. The first near-road NO_2 monitor was set up at the near-road site on the Georgia Institute of Technology campus (NR-GA Tech, 13-121-0056) on June 15, 2014. NO_2/NO/NOx, CO, $PM_{2.5}$, black carbon, wind speed and wind direction are monitored at this site. For details regarding the establishment of the first near-road site in the Atlanta-Sandy Springs-Marietta MSA, refer to Appendix E of the *2014 Ambient Air Monitoring Plan* at https://airgeorgia.org/networkplans.html. The second near-road monitoring site was set up in the Atlanta-Sandy Springs-Marietta MSA on January 1, 2015 at the established monitoring site near interstate 285 (NR-285, 13-089-0003) (formerly DMRC). At the NR-285 site, NO_2/NO/NOx, volatile organic compounds, non-regulatory continuous $PM_{2.5}$, and black carbon are monitored for the near-road network. For details regarding the establishment of the second near-road site, refer to the GA AAMP's Addendum to the *2015 Ambient Air Monitoring Plan* at https://airgeorgia.org/networkplans.html.

In addition to the near-road NO_2 requirements, the GA AAMP is required to operate at least one area-wide NO_2 monitor in the Atlanta-Sandy Springs-Marietta MSA. These monitors should be placed in CBSAs with a population of 1,000,000 or more, and are expected to have the highest concentrations representing a neighborhood or larger spatial scale (40CFR58, Appendix D, Section 4.3.3). The South DeKalb site (13-089-0002) is the GA AAMP's PAMS site (discussed below), and collects area-wide NO_2 data for the Atlanta-Sandy Springs-Marietta MSA. The South DeKalb site has historically collected the highest concentrations representing urban spatial scale, is located within an urban area, and operates year round. Therefore, the South DeKalb NO_2 monitor satisfies the area-wide requirement.

4.4 Carbon Monoxide

EPA's last revision to the monitoring requirements for the carbon monoxide (CO) monitoring network was in 2011. EPA requires that a CO monitor be collocated with an NO_2 near-road monitor in urban areas with populations of one million or more. EPA specified that in areas with 2.5 million or more, the CO monitors should be operational by January 1, 2015 (Federal Register: Vol. 76, No. 169, Page 54293, 08/31/11). For this monitoring requirement, the State of Georgia is required to have one CO monitor located in the Atlanta-Sandy Springs-Marietta MSA, collocated with an NO_2 near-road monitor. The GA AAMP meets this monitoring requirement with a CO monitor that began monitoring at the NR-GA Tech site (13-121-0056) on June 15, 2014. In addition, the South DeKalb site (13-089-0002) is the GA AAMP's NCore site and collects CO data as part of that network (discussed above).

4.5 $PM_{2.5}$ Speciation Trends Network (STN)

The Speciation Trends Network (STN) (40CFR58, Appendix D, Section 4.7.4) characterizes the make-up of the $PM_{2.5}$ samples collected. With this speciation information, air quality modeling can be improved to help implement the NAAQS standards; health studies can be interpreted by knowing the constituents of the $PM_{2.5}$ sample, and the understanding of the constituents in regional haze is also improved. There are 52 Speciation Trends sites across the United States. The GA AAMP meets this requirement with the South DeKalb site (13-089-0002). The South DeKalb Speciation Trends site began monitoring on October 1, 2000, and samples are collected every three days. Additionally, there are six more $PM_{2.5}$ speciation monitors that the GA AAMP has chosen to operate. These sites are located in Rome (started 3/1/02), Macon (started 3/1/02), Columbus (started 5/1/02), Augusta (started 3/2/02), Rossville (started 3/23/05), and Douglas (started 3/1/02). These are in place to provide supplemental speciation data in the overall chemical speciation network, and take samples every 6 days.

4.6 Photochemical Assessment Monitoring Stations (PAMS)

On October 26, 2015, EPA made revisions to the ozone standard, and with those changes, also revised the regulations for the supporting PAMS stations (Federal Register, Vol.80, No. 206, page 65467). EPA is requiring that PAMS measurements be collected at NCore sites only. The GA AAMP meets this requirement with the South DeKalb (13-089-0002) site, which is the GA AAMP's NCore site. Therefore, for the PAMS requirements, the GA AAMP will continue hourly collection of speciated volatile organic compounds in June, July, and August; three 8- hour samples of carbonyls collected every third day during June, July and August; hourly ozone, NO, NO_2, NO_Y, temperature, wind direction, wind speed, barometric pressure, relative humidity, precipitation, and sigma theta at the South DeKalb site. As discussed in Section 1.4, solar radiation and ultraviolet radiation are monitored at the Conyers (13-247-0001) site due to siting conditions.

The South DeKalb site is located in DeKalb County to provide neighborhood scale measurements in the area that the chemicals that form ozone have the greatest impact. The data measurements generated at the South DeKalb site are used principally for development and evaluation of imminent and future control strategies, corroboration of NOx and VOCs emission inventories, verification of photochemical grid model performance, characterization of ozone and toxics air pollutant exposures, development of pollutant trends (particularly toxic air pollutants and annual ambient speciated VOCs trends to compare with trends in annual VOC emission

estimates), and determination of attainment with NAAQS for O_3, $PM_{2.5}$, PM_{10}, CO, SO_2, and NO_2. On January 8, 2020 (85 FR 834, page 834) EPA delayed the start of the revised PAMS monitoring network to June 1, 2021. GA AAMP fully implemented the program by June 1, 2021, and began sampling the hourly VOCs from June through August, the 8-hour carbonyls three times a day every third day from June through August, and hourly direct NO_2.

4.7 National Air Toxics Trends Station (NATTS)

The National Air Toxics Trends Stations (NATTS) program is a nationwide monitoring project for the assessment of national trends and variations of several selected air toxics pollutants. The NATTS network was established to produce data that is consistent and of standardized quality to be able to perform comparisons of air toxics data nationwide. There are 26 NATTS locations nationwide, with both urban sites to address the range of population exposure in urban areas, and rural sites to characterize population exposure in non-urban areas, establish background concentrations, and better assess environmental impacts of emissions of air toxic pollutants. The GA AAMP meets the requirement with the location of the NATTS station at the South DeKalb site (13-089-0002). As part of the NATTS network, the GA AAMP samples metals with a PM_{10} sampler, semi-volatile organic compounds, volatile organic compounds, and carbonyls. Samples are collected from midnight to midnight for a 24-hour sample, every 6 days. Also at the South DeKalb site, GA AAMP began sampling ethylene oxide as of January 2020.

4.8 Ozone

Ozone monitoring has been in place in the Atlanta area since the 1970's. Currently the Atlanta-Sandy Springs-Roswell MSA ozone network includes nine monitors located in nine counties. Across Georgia, there are 19 ozone monitors in the network, which exceeds the EPA requirement (40CR58, Appendix D, Section 4.1). The standard is an 8-hour averaging time, fourth maximum value, averaged over three years. On October 1, 2015, EPA lowered the ozone standard to 0.070 ppm. For this 2015 standard, with the 2019-2021 data, the Atlanta area is meeting the ozone standard. On September 15, 2022, the Atlanta area was designated as in attainment of the 2015 ozone NAAQS (Federal Register, Vol. 87, No. 194, page 60897, dated October 7, 2022).

As part of the Clean Air Status and Trends Network (CASTNET), EPA established a monitoring site in Pike County, Georgia in 1988. The CASTNET site is part of a national air quality monitoring network put in place to assess long-term trends in atmospheric deposition and ecological effects of air pollutants. The CASTNET site is one of 99 regional sites across rural areas of the United States and Canada measuring nitrogen, sulfur, and ozone concentrations, and deposition of sulfur and nitrogen. Like the South DeKalb ozone monitor, the CASTNET ozone monitor also collects data year-round (https://www.epa.gov/castnet). With the exception of the South DeKalb and CASTNET sites, ozone in Georgia, unlike other pollutants previously discussed, is monitored March through October, complying with federal monitoring regulations (in 40CFR Part 58).

4.9 Particulate Matter

Particulate pollution may be categorized by size since there are different health impacts associated with the different sizes of particulate matter. GA AAMP currently monitors for three sizes of particles: PM_{10} (up to 10 microns in diameter), $PM_{2.5}$ (up to 2.5 microns in diameter) and PM_{coarse} (PM_{10} minus $PM_{2.5}$). To give size relation, approximately ten PM_{10} particles can fit on a

cross section of a human hair, and approximately thirty $PM_{2.5}$ particles would fit on a cross section of a hair. These particles and droplets are invisible to the naked eye, and composition and sources can vary greatly by region. There are three monitoring stations with PM_{10} monitors, one station with a PM_{coarse} monitor, and 25 stations with continuous and/or integrated $PM_{2.5}$ monitors, which exceeds the number of samplers required according to 40CFR58, Appendix D, Section 4.7.

For an area to be in attainment of the annual ambient air $PM_{2.5}$ standard, the three-year average of the annual average concentrations has to be less than or equal to 12.0 $\mu g/m^3$. In addition, the 24-hour primary and secondary standard requires that the three-year average of the 98th percentile of the 24-hour concentrations be less than or equal to 35 $\mu g/m^3$. Currently all areas of Georgia are designated unclassifiable/attainment for the 2012 annual $PM_{2.5}$ standard because the national standards are being met. For PM_{10}, the 24-hour data is compared to 150 $\mu g/m^3$. The standard allows one exceedance per year, averaged over a 3-year period, and all three samplers collected data well below the standard. Currently, there is no standard for PM_{coarse}.

4.10 Environmental Justice Comparison Maps

To meet the requirements set forth by EPA, GA AAMP needs to consider its ability to support air quality characterization for areas with high populations of susceptible individuals. In particular, the guidance recommends the assessment of areas with cancer risk, minority population, low income, high population of children under the age of 5, and high population of adults over the age of 65. The whole state of Georgia is displayed for each category, and then a zoomed in view of each of the five largest MSAs in Georgia. The blue triangles represent the locations of GA AAMP's ambient air monitors. The colors included on the maps show the different percentiles reflected in the legend.

Figures 3 through 12(a-e) were created using ArcGIS Pro and data from EPA's EJScreen tool (https://ejscreen.epa.gov/mapper/). The maps show the data at the census tract level based on the 2020 estimated population demographics, and the cancer risk data is based on 2022 data.

a. Cancer Risk Areas

Air toxic pollutants can have negative effects on human health, ranging from causing headaches, nausea, dizziness, birth defects, problems breathing, and notably – cancer. These effects can vary depending on frequency of exposure, length of exposure, health of the person that is exposed, along with the toxicity of the compound.

Figure 3 shows Georgia's air toxics cancer risk by percentile. The counties with the highest percentiles of cancer risk are Fulton, Clayton, and DeKalb Counties – all of which are included in the Atlanta-Sandy Springs-Roswell MSA. GA AAMP has 13 monitoring stations in the Atlanta-Sandy Springs-Roswell MSA, creating wide coverage for the area with the highest cancer risk in the State of Georgia.

Figure 4a-e shows the percentile of air toxics cancer risk by MSA. The Atlanta-Sandy Springs-Roswell, Augusta-Richmond County GA-SC, and Columbus GA-AL MSAs all have at least one monitoring site that is located near areas where the air toxics cancer risk is in the 95-100th percentile. The Macon and Savannah MSAs both have at least one monitoring site that is located near areas where the air toxics cancer risk is in the 90-95th percentile.

In addition, the South DeKalb (13-089-0002) site hosts the National Air Toxics Trends Station (NATTS) for the state of Georgia. As part of the NATTS network, the GA AAMP samples metals with a PM_{10} sampler, semi-volatile organic compounds, volatile organic compounds, and carbonyls. Due to South DeKalb's metro Atlanta location, it is a well-populated area and a prime location for observing the effects of air toxics on the public.

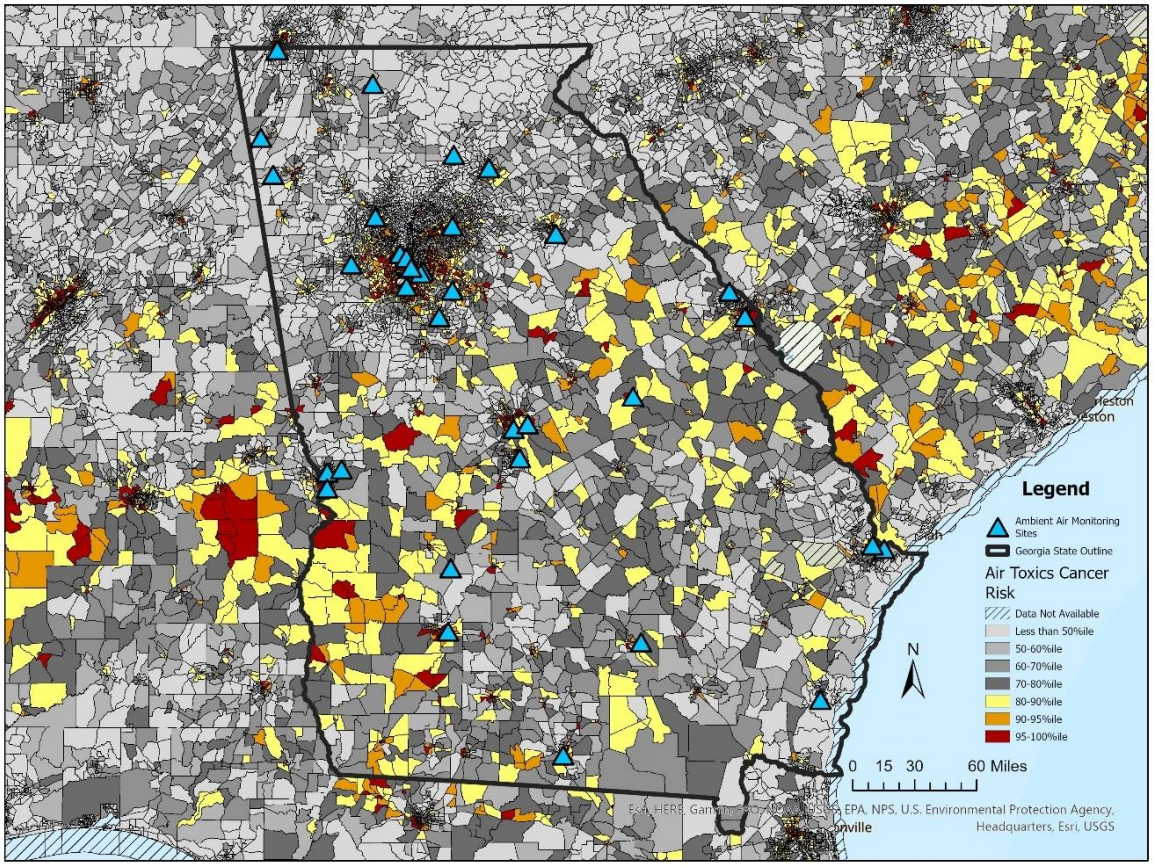
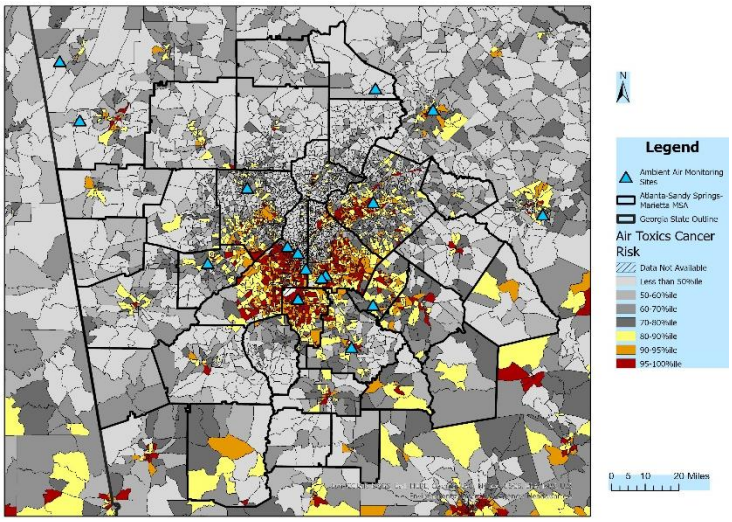
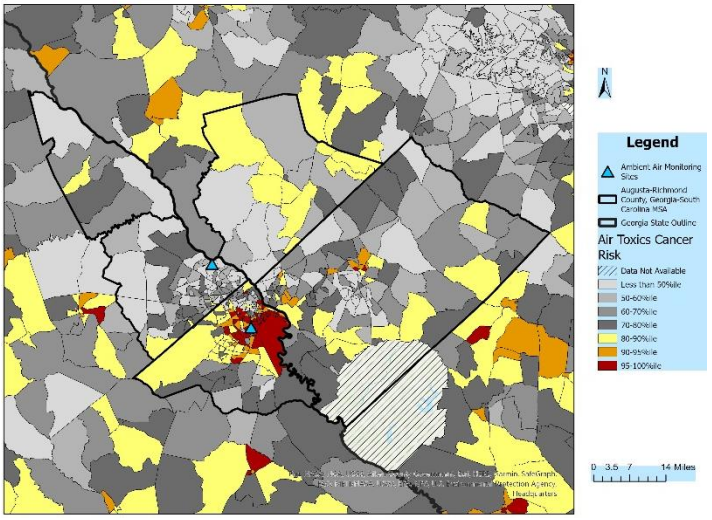


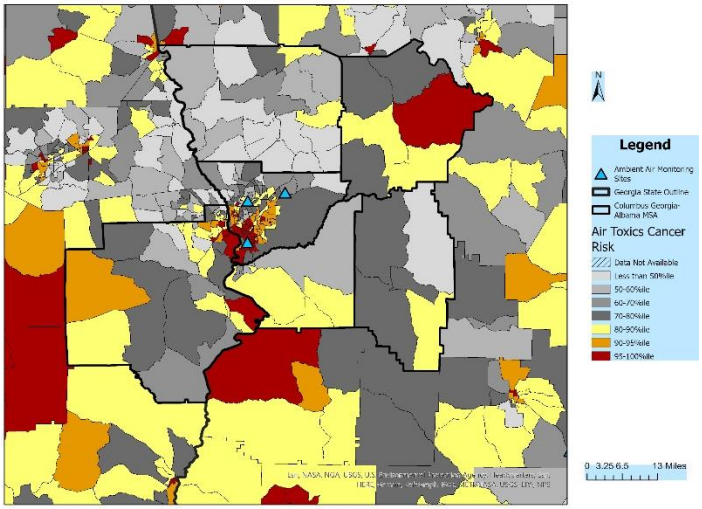
Figure 3. Percentile for Cancer Risk Areas in the State of Georgia



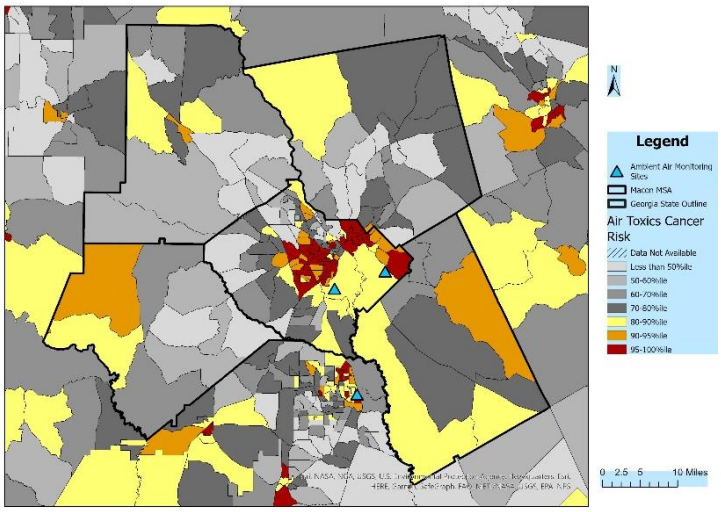
(a) Percentile for Cancer Risk Areas in the Atlanta-Sandy Springs-Marietta MSA



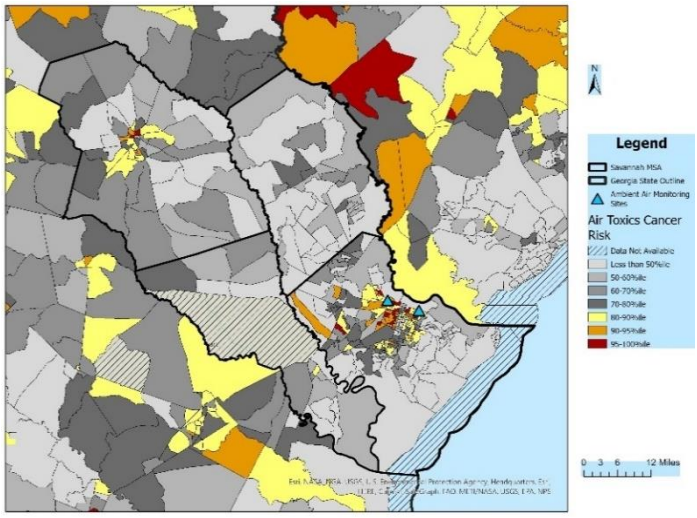
(b) Percentile for Cancer Risk Areas in the Augusta-Richmond County, Georgia-South Carolina MSA



(c) Percentile for Cancer Risk Areas in the Columbus, Georgia-Alabama MSA



(d) Percentile for Cancer Risk Areas in the Macon MSA



(e) Percentile for Cancer Risk Areas in the Savannah MSA

Figure 4. Percentile for Cancer Risk Areas by MSA

b. Minority Population Percentile

According to the EPA, minority populations are considered to be a sensitive sub-group. GA AAMP must assess its ability to support air quality characterization for areas with high populations of susceptible individuals, such as minority populations.

Figure 5 shows Georgia's minority population by percentile. The counties with census tracts with the highest percentages of minority populations are Fulton and Chatham Counties – which include parts of Atlanta and Savannah, respectively. GA AAMP has three monitors in Fulton County and two monitors in Chatham County.

Figure 6a-e shows the percentile of the population that is a minority by MSA. In the Atlanta-Sandy Springs-Roswell MSA, there are multiple monitoring sites that are located near areas where the minority population is in the 95-100th percentile.

In addition, the other four MSAs shown – Augusta-Richmond County GA-SC, Columbus GA-AL, Macon, and Savannah – all have at least one monitoring site that is located near areas where the minority is in the 95-100th percentile.

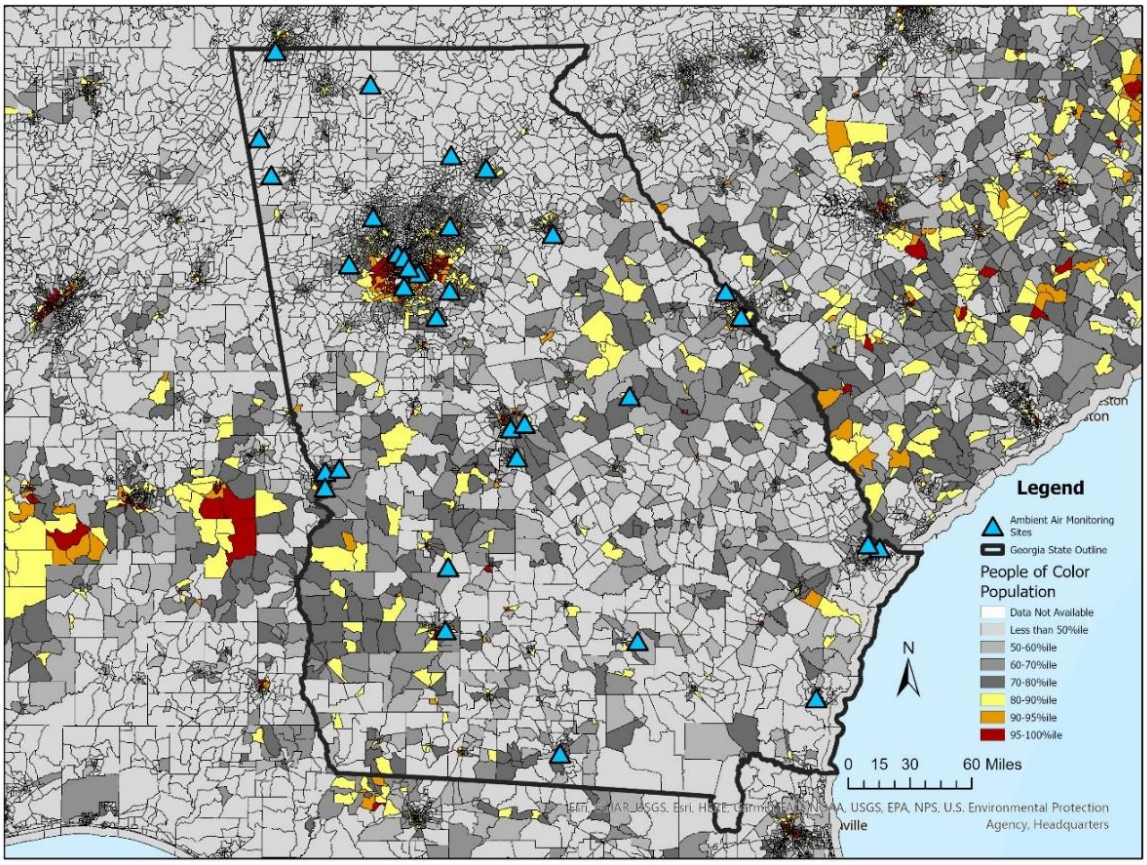
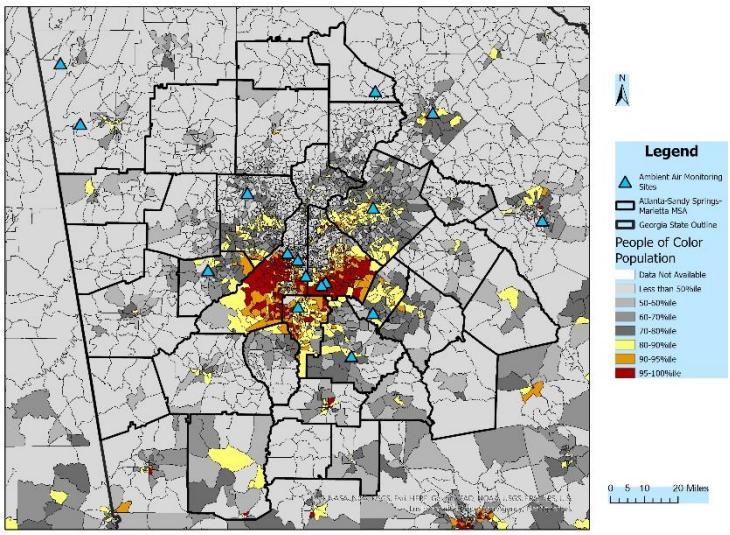
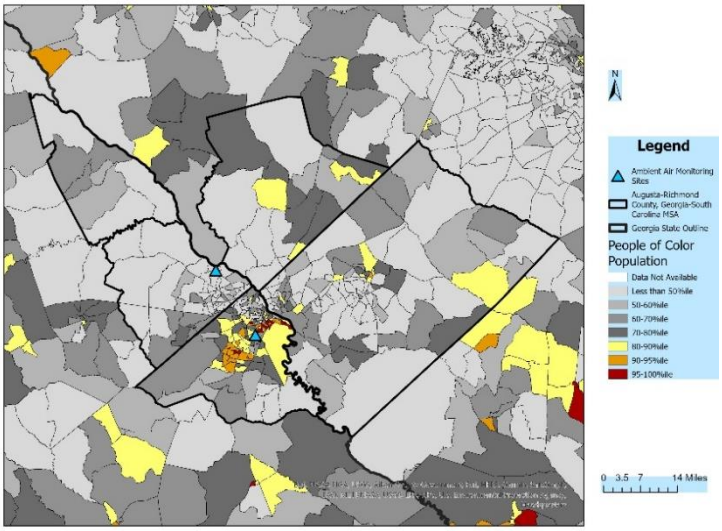


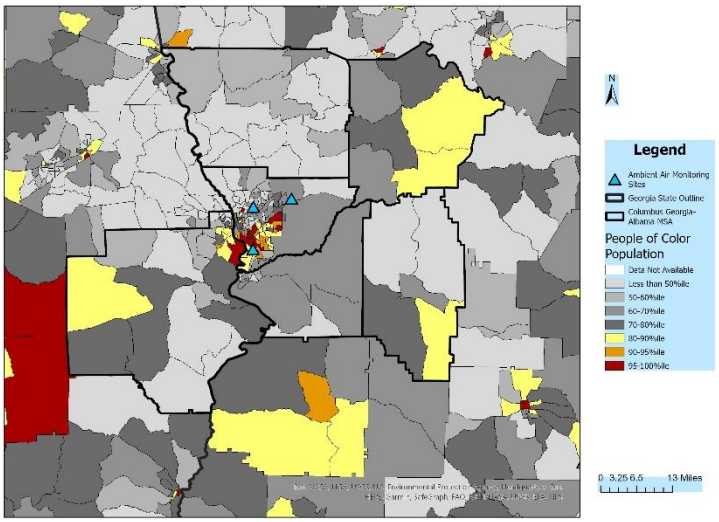
Figure 5. Percentile for Minority Population in the State of Georgia



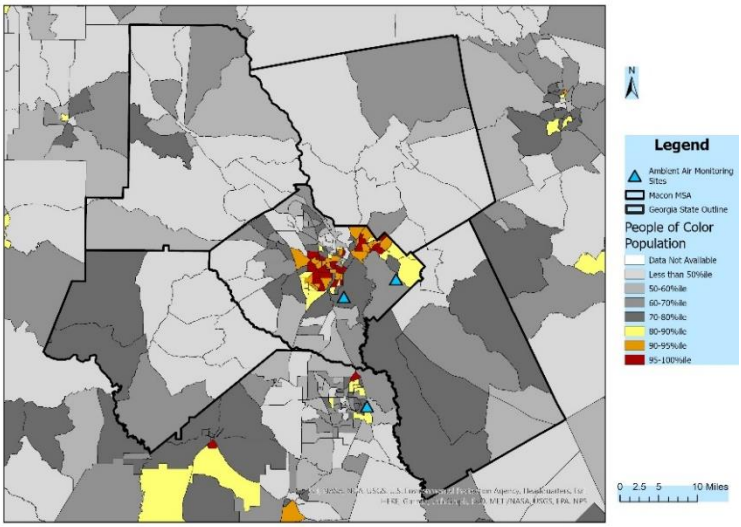
(a) Percentile for Minority Population in the Atlanta-Sandy Springs-Marietta MSA



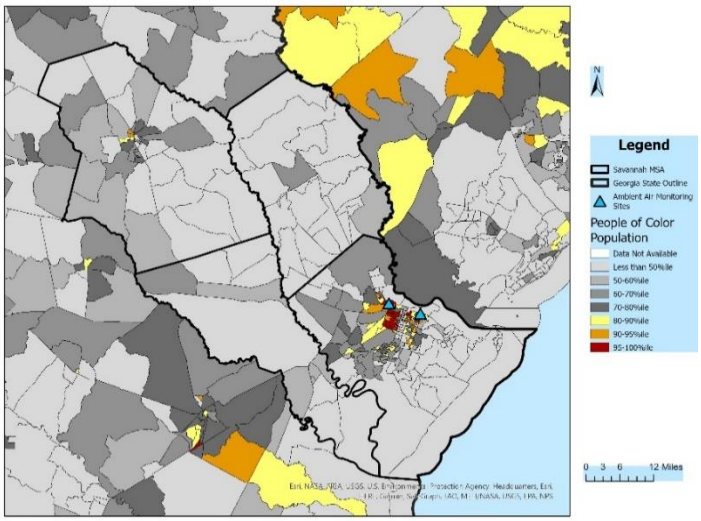
(b) Percentile for Minority Population in the Augusta-Richmond County, Georgia-South Carolina MSA



(c) Percentile for Minority Population in the Columbus, Georgia-Alabama MSA



(d) Percentile for Minority Population in the Macon MSA



(e) Percentile for Minority Population in the Savannah MSA

Figure 6. Percentile for Minority Population by MSA

c. Population with Low Income

Due to historical inequality, populations with low-income are considered sensitive. GA AAMP must assess its ability to support air quality characterization for areas with high populations of susceptible individuals, such as people with low-income.

Figure 7 shows Georgia's population that are low-income by percentile. The counties with census tracts with the highest percentages of low-income populations are Clarke and Chatham Counties, where Athens and Savannah are located, respectively. GA AAMP has one monitor in Clarke County and two monitors in Chatham County. In addition, several counties in the rural, central part of the state also have higher percentages of people with low-income.

Figure 8a-e shows the percentile of the population with low-income by MSA. In each of the five MSAs shown – Atlanta-Sandy Springs-Roswell, Augusta-Richmond County GA-SC, Columbus GA-AL, Macon, and Savannah – at least one monitoring site is located near areas where the population with low-income is in the 95-100th percentile. The specific sites that are located near the highest percentile of the population with low-income are Forest Park (13-063-0091) in the Atlanta-Sandy Springs-Roswell MSA, Augusta (13-245-0091) in the Augusta-Richmond County GA-SC MSA, Columbus-Baker (13-215-0012) in the Columbus GA-AL MSA, Macon-Allied (13-021-0007) in the Macon MSA, and Savannah L&A (13-051-1002) in the Savannah MSA.

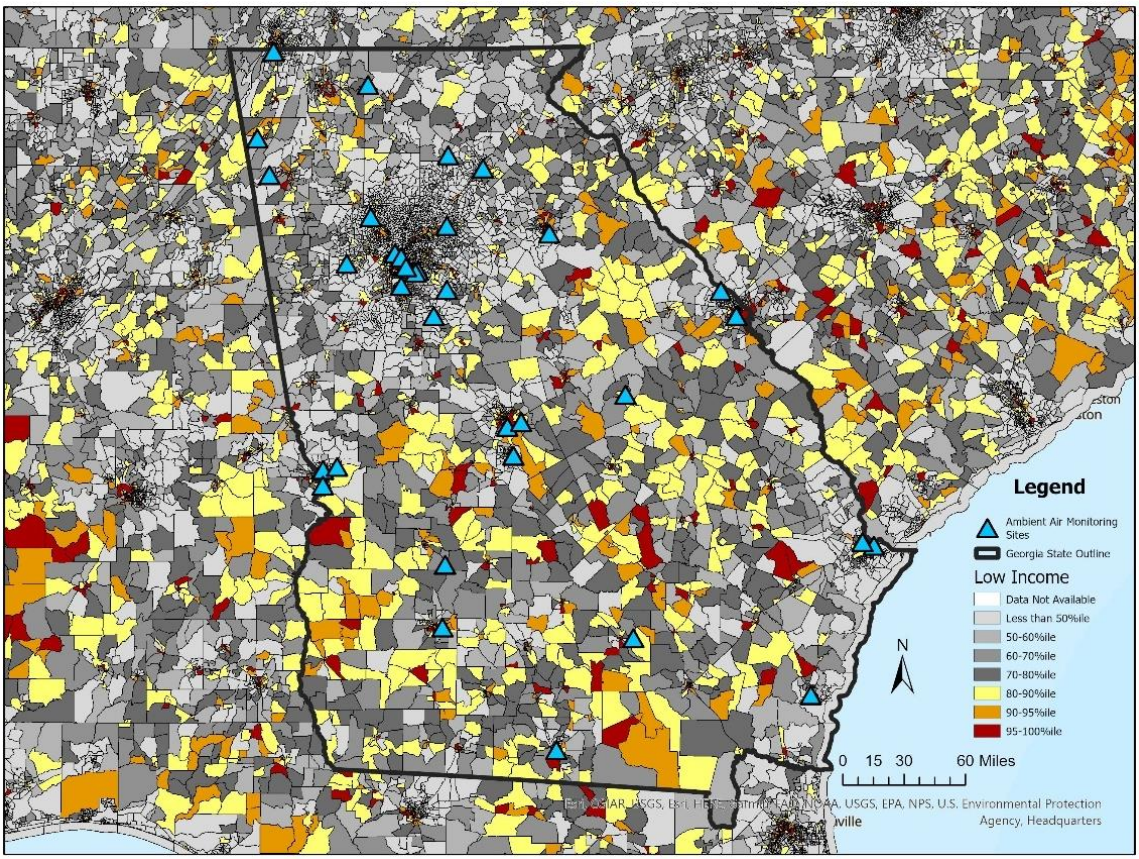
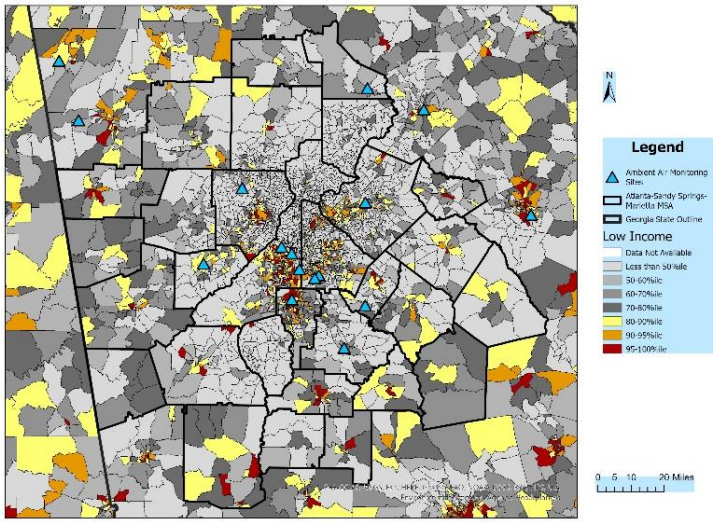
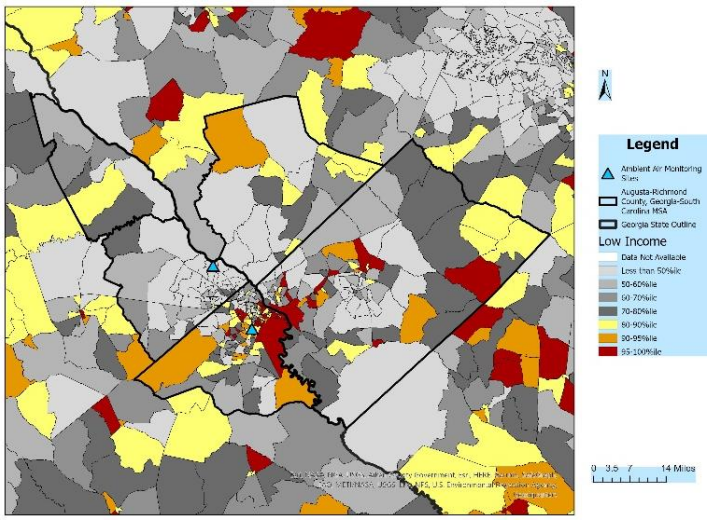


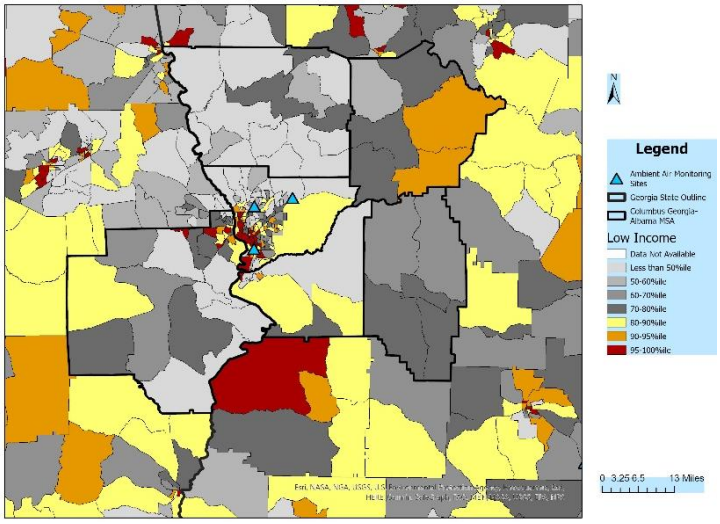
Figure 7. Percentile of Population with Low Income in the State of Georgia



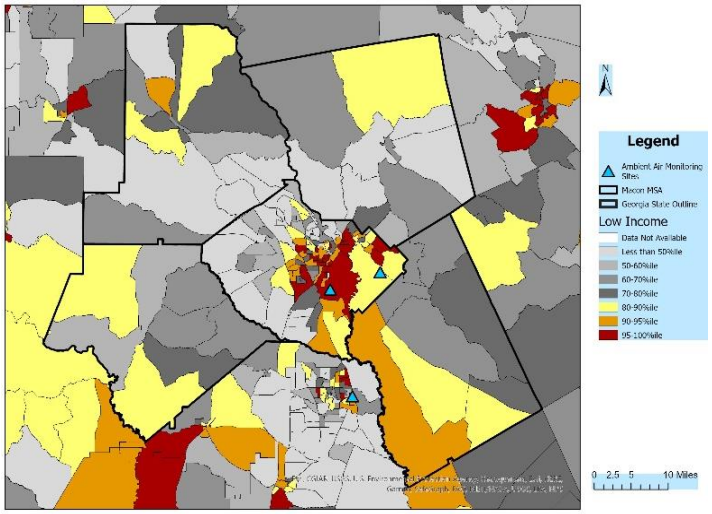
(a) Percentile of Population with Low Income in the Atlanta-Sandy Springs-Marietta MSA



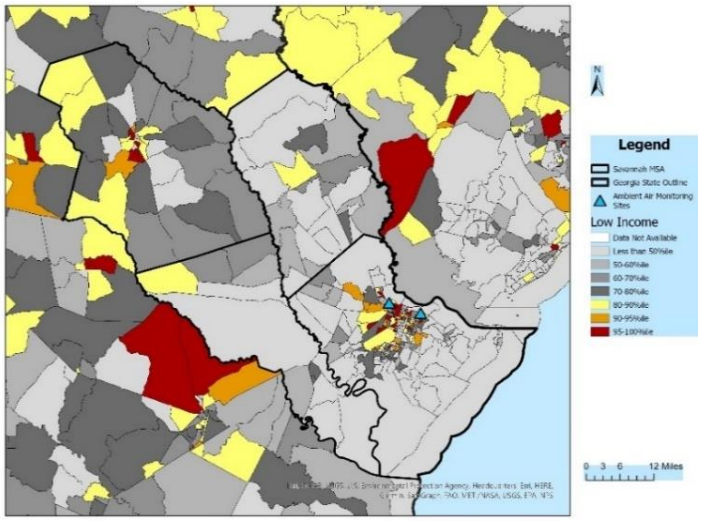
(b) Percentile of Population with Low Income in the Augusta-Richmond County, Georgia-South Carolina MSA



(c) Percentile of Population with Low Income in the Columbus, Georgia-Alabama MSA



(d) Percentile of Population with Low Income in the Macon MSA



(e) Percentile of Population with Low Income in the Savannah MSA

Figure 8. Percentile of Population with Low Income by MSA

d. Population Under Age 5

Due to a child's continuing lung and immune system development, children are considered one subset of the population that is more susceptible to poor ambient air quality. Because a child's respiratory system is developing and therefore more sensitive, this may lead to a breathing ailment with less exposure to a pollutant. In general, children spend more time outdoors, with higher risk of exposure. In addition, children tend to breathe more rapidly, also causing them to be at a higher risk of exposure to air pollutants.

Figure 9 shows Georgia's population that is under the age of 5 by percentile. The counties with the highest percentage of children under the age of 5 are Fulton County, Muscogee County, and Richmond County. GA AAMP has monitors in all three of these counties.

Figure 10a-e shows the percentile of the population under the age of 5 by MSA. In each of the five MSAs shown (Atlanta-Sandy Springs-Roswell, Augusta-Richmond County GA-SC, Columbus GA-AL, Macon, and Savannah), at least one monitoring site is located near areas where the population under the age of 5 is in the 95-100th percentile.

In addition, the GA AAMP has several sites located at or near elementary schools that may include children under the age of 5. The Gainesville site is at Fair Street Elementary School, the Valdosta site is at Mason Elementary, the Augusta site is at Bungalow Road Elementary School, and the Albany site is at Turner Elementary.

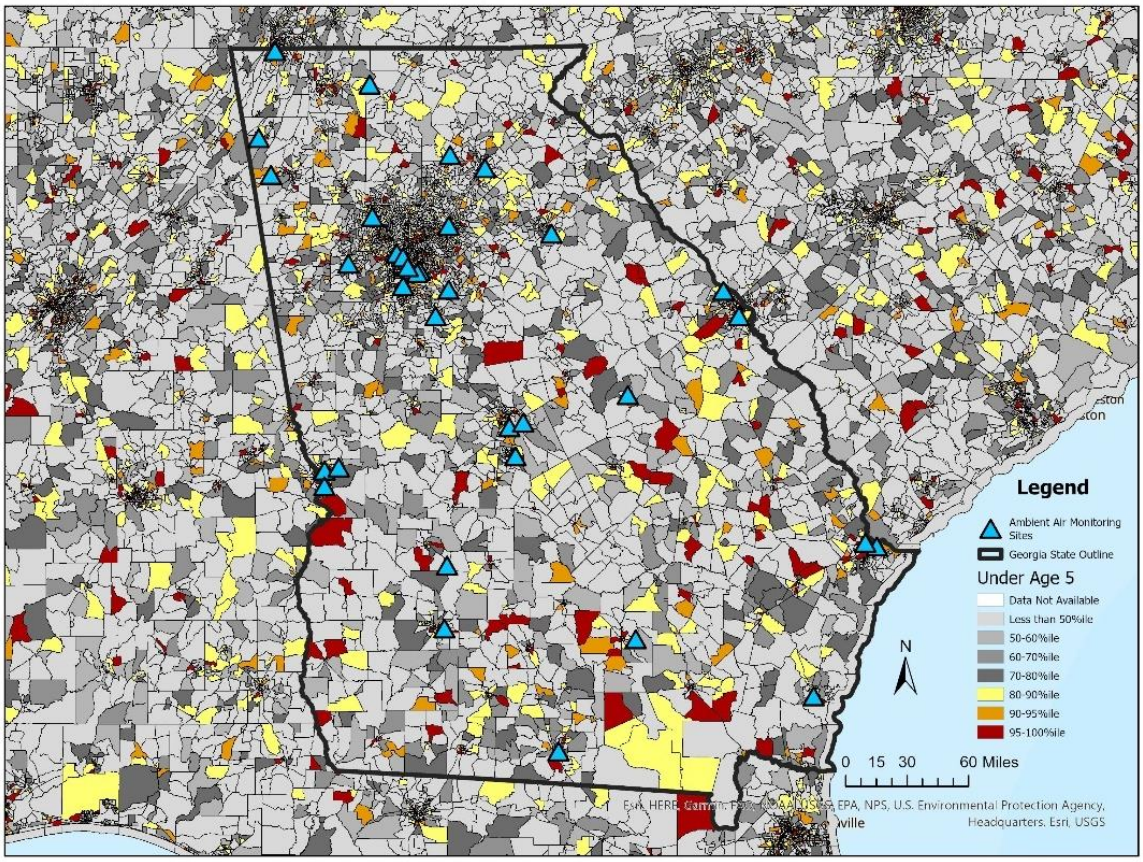
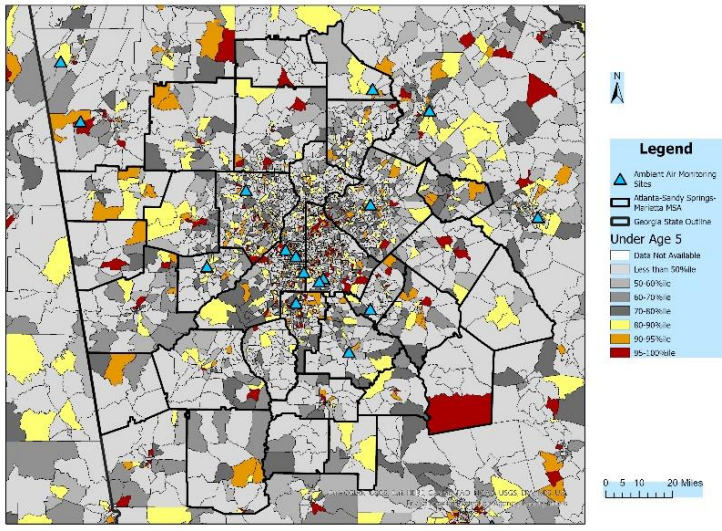
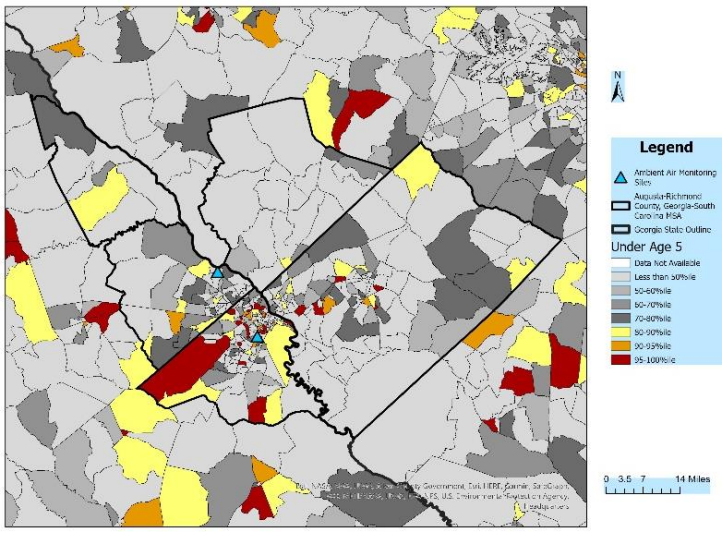


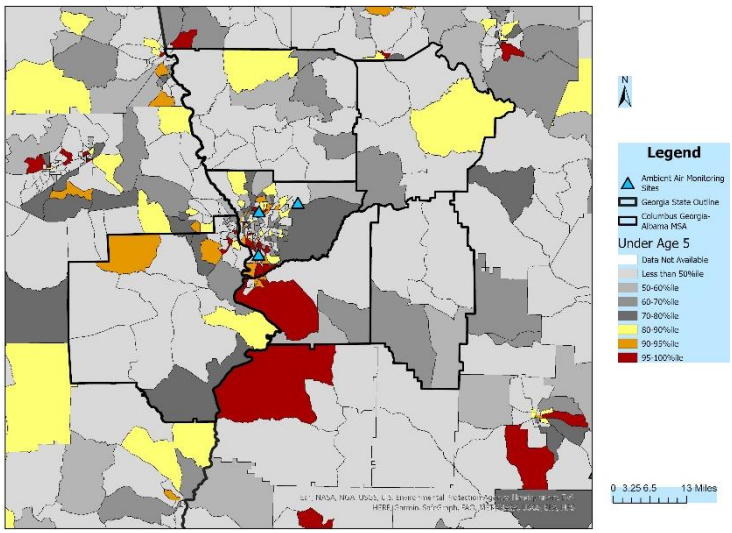
Figure 9. Percentile of Population Under Age 5 in the State of Georgia



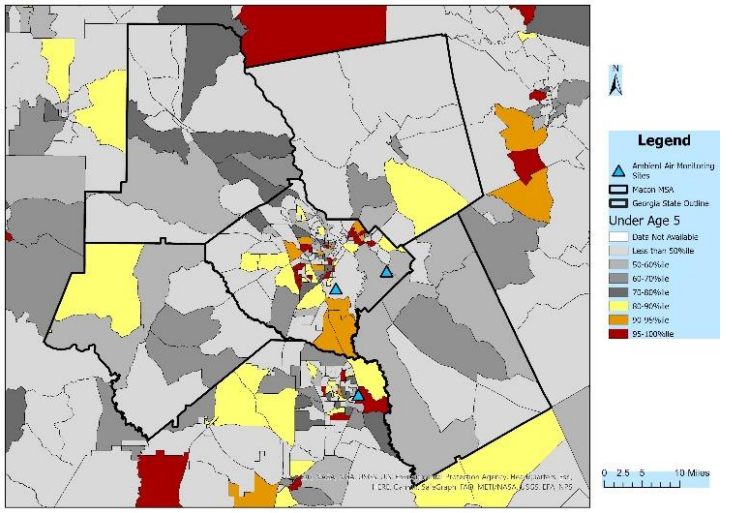
(a) Percentile of Population Under Age 5 in the Atlanta-Sandy Springs-Marietta MSA



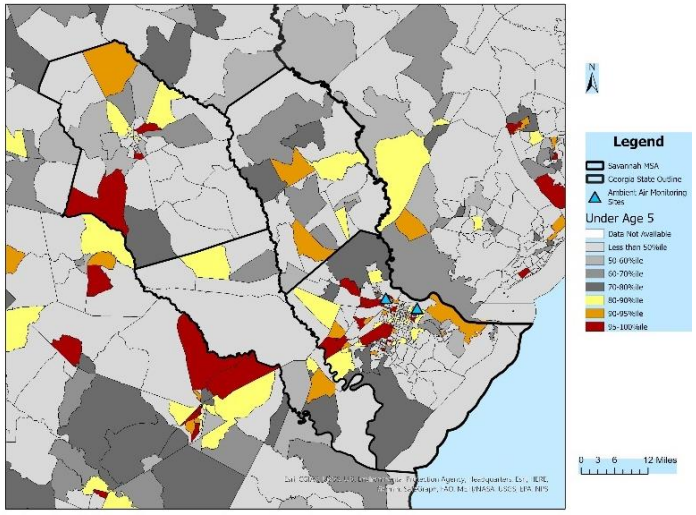
(b) Percentile of Population Under Age 5 in the Augusta-Richmond County, Georgia-South Carolina MSA



(c) Percentile of Population Under Age 5 in the Columbus, Georgia-Alabama MSA



(d) Percentile of Population Under Age 5 in the Macon MSA



(e) Percentile of Population Under Age 5 in the Savannah MSA

Figure 10. Percentile of Population Under Age 5 by MSA

e. Population Over Age 64

Due to potential preexisting conditions and lower immune responses, exposure to air pollution can pose a significant risk to adults over 64. Particulate matter may aggravate lung diseases, including COPD and asthma, and may be responsible for serious health effects. Ozone also may aggravate lung diseases.

Figure 11 shows Georgia's population that is over the age of 64 by percentile. The county with the highest percentage of persons over the age of 64 is Chatham County, and GA AAMP has ambient air monitors in this County.

Figure 12a-e shows the percentile of the population over the age of 64 by MSA. The majority of the ambient air monitors in the Atlanta-Sandy Springs-Roswell MSA are located near areas where the population over the age of 64 is in the <50-70th percentile. However, the United Ave (13-121-0055), NR-Georgia Tech (13-121-0056), South DeKalb (13-089-0002), and Kennesaw (13-067-0003) monitoring sites are notably located near areas where the population over the age of 64 is in the 90-100th percentile (Figure 12a). In the Augusta-Richmond County, GA-SC MSA, the Augusta (13-245-0091) monitoring site is located near areas where the population over the age of 64 is in the 70-100th percentile (Figure 12b). Both monitors in the Savannah MSA are located near areas where the population over the age of 64 is in the 90-100th percentile (Figure 12e).

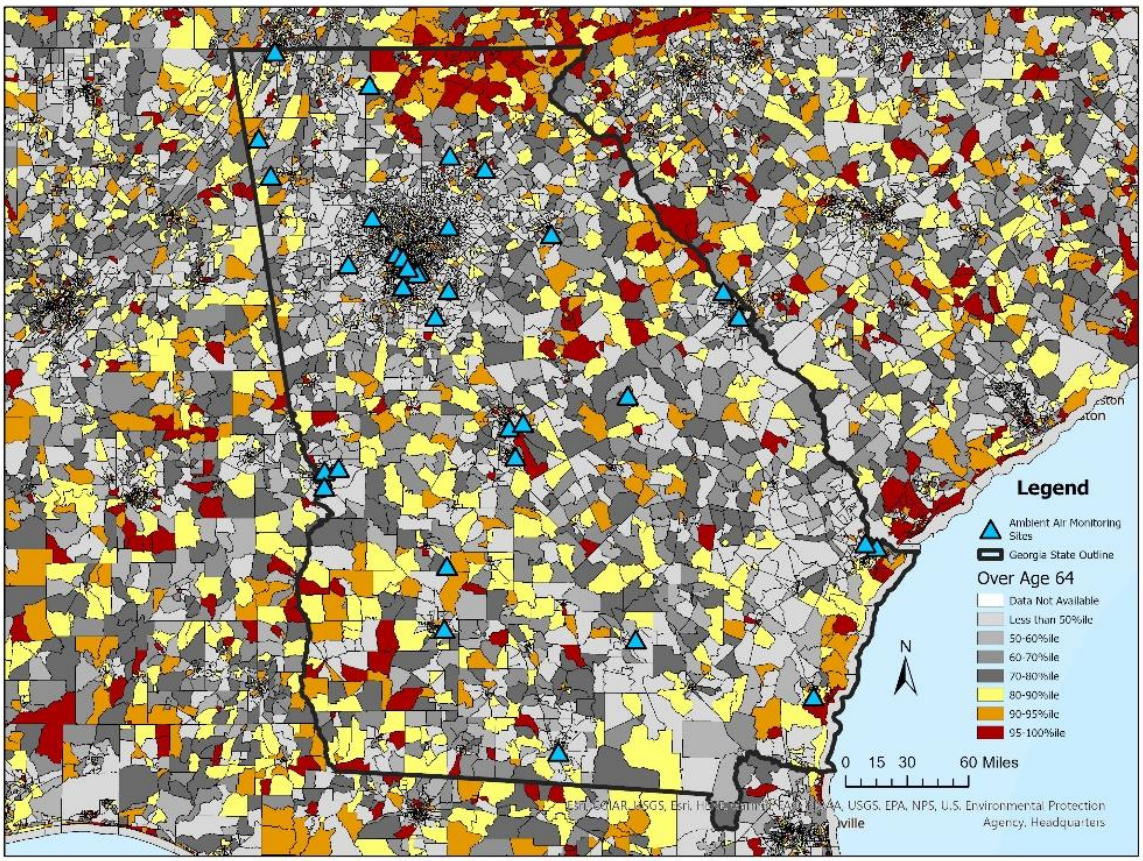
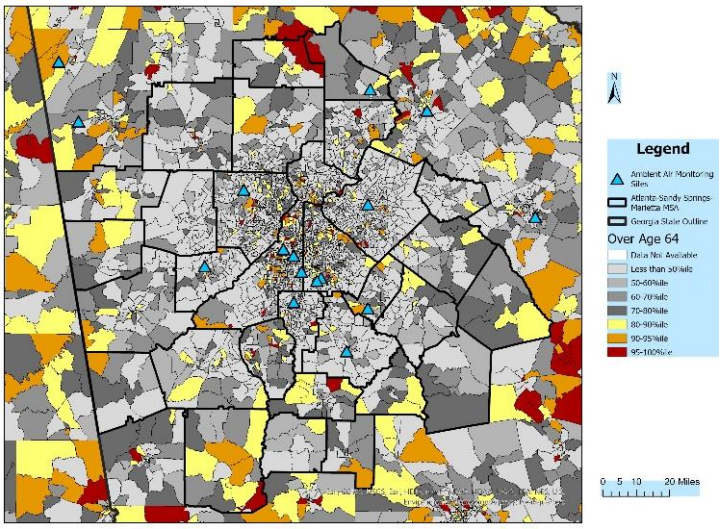
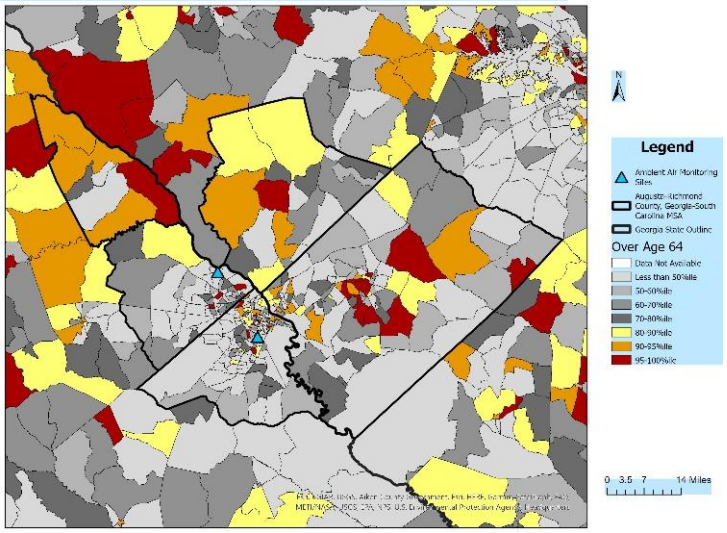


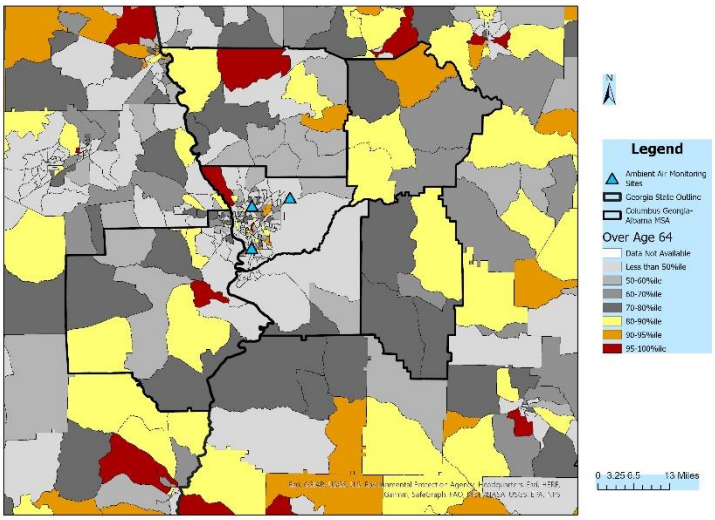
Figure 11. Percentile of Population Over Age 64 in the State of Georgia



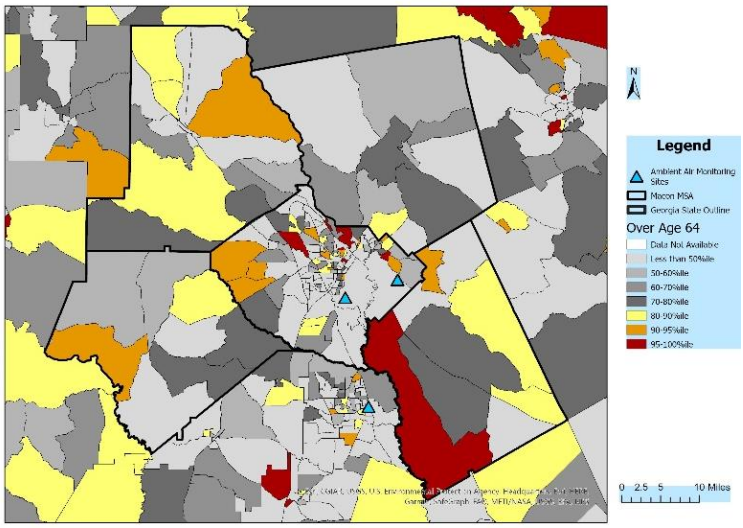
(a) Percentile of Population Over Age 64 in the Atlanta-Sandy Springs-Marietta MSA



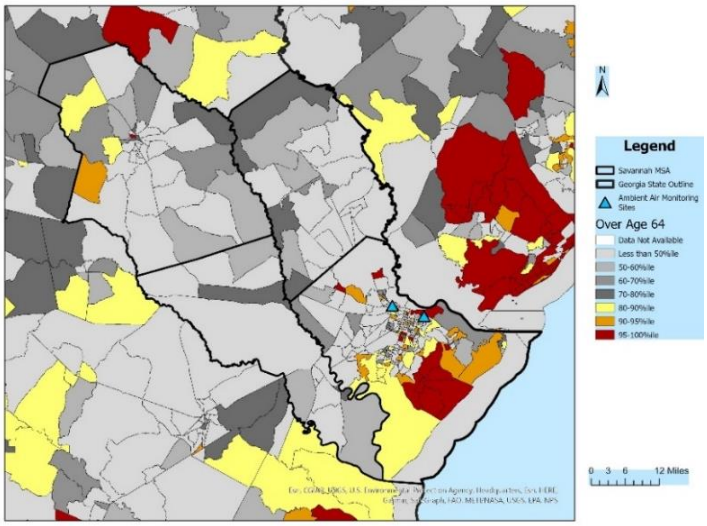
(b) Percentile of Population Over Age 64 in the Augusta-Richmond County, Georgia-South Carolina MSA



(c) Percentile of Population Over Age 64 in the Columbus, Georgia-Alabama MSA



(d) Percentile of Population Over Age 64 in the Macon MSA



(e) Percentile of Population Over Age 64 in the Savannah MSA

Figure 12. Percentile of Population Over Age 64 by MSA

5.0 Site Evaluations

The GA AAMP performs site evaluations throughout the year on an annual basis for each site. The following table details when the most recent site evaluations were performed and a summary of the comments that the evaluator made about each site.

Table 4: Site Evaluations

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS	ACTION TAKEN
Rome MSA					
131150003	Rome	Floyd	4/19/2022	The site was originally established as a SO2 site for the purpose of monitoring the paper mill and power plant to the southwest. The site is Neighborhood spatial scale. Note: The power plant shut down in July 2019. The paper mill may still produce SO2 but the coal burning power plant has been decommissioned. Samplers meet siting criteria.	No action required.
Brunswick MSA					
131270006	Brunswick	Glynn	11/29/2022	Roof rusted through, buckling, leaking onto electronics. Water damage to floor and walls. Inlet heights: 2025 5m, T640 4.9m, O3 4.3m, SO2 4.2m. To driplines: 2025 21.8m, T640 21.8m, SO2 19.4m, O3 20m. To rooftops: O3 1.3m to adjacent roof, 1.4m to shelter, SO2 2m to adjacent roof, 1.5m to shelter, T640 2.1m to shelter, 3m to adjacent roof, 2025 2.1m to shelter, 4.3m to adjacent roof. Inlet separation: 2025 to T640 1.7m, SO2 to O3 0.9m, T640 to SO2 1.1m. 38.2m 2025 to roadway. Samplers meet siting criteria.	Shelter is in the process of being replaced and will be relocated on the property.
Valdosta MS					
131850003	Valdosta	Lowndes	11/23/2022	Samplers meet siting criteria. 14m to near edge Lamar Street, 17.4m from T640 inlet to middle Lamar Street. Inlet heights T640 3.2m, 2025 2.9m. 1.9m between inlets. To nearest dripline: T640 12m, 2025 12m. Samplers installed <20m from young trees taller than inlets.	No action required
Warner Robins MSA					
131530001	Warner Robins	Houston	2/2/2022	2025 moved further away from T640 since last survey. Inlet heights: T640 2.3m, 2025 2.2m. Inlet separation 4.4m. To dripline T640 28m, 2025 25m. Samplers meet siting criteria.	No action required.
Dalton MSA					
132130003	Fort Mountain	Murray	10/13/2022	Nearest marker toward the west on Hwy 52. AADT: Annual average daily traffic from GA DOT 2021 Traffic Count Data. Samplers meet siting criteria.	No action required
Albany MSA					
130950007	Albany	Dougherty	2/6/2023	Samplers meet siting criteria.	No action required.
Gainesville MSA					
131390003	Gainesville	Hall	3/6/2023	The Partisol FRM PM2.5 sampler is still at the site but is not being used. It was last sampled 10/29/18 (at the time of the last survey). The Teledyne T640 serves as the particulate monitor. The large oaks SSW of the sampler have been cut down. At the closest point, the school is north of the building 26 meters and 5 meters higher than the inlet. Samplers meet siting criteria. After 3/6/2023 site evaluation, there was a new FRM $PM_{2.5}$ sampler installed on 3/8/2023, the first day of sampling was 03/27/2023. Distance between the two $PM_{2.5}$ probes is 2.3m, probe height is 2.9m, and probe vert. dist. is 2.4m..	No action required.
Athens-Clark County MSA					
130590002	Athens	Clarke	6/14/2022	Shelter exterior door handle binds to the point it must be hammered open. Ants! Shrubs adjacent to site have grown as tall as inlets again. Inlet heights: O3 4.5m, T640s 4.5m. Inlet separation: T640 to T640 1.3m, O3 to T640 C 2m. To nearest driplines: O3 m 14.4, T640 C 14.4m, T640 P 13m. From rooftop: O3 1.3m, T640s 2m. On site but not is use: Thermo 2025B2 DNR#134292. Nearest lane of traffic is Barnett Shoals Road ~100m. Samplers meet siting criteria.	No action required.
Macon MSA					
130210007	Macon-Allied	Bibb	7/18/2022	Tree in enclosure outside fence is now higher than inlets. 15.7m tree to URG. 2025 landscaping timbers rotting, electrical conduit broken. SASS inlet 1.8m. Inlet heights: SASS 1.8m, URG 2.1m, 2025 P 2.1m, 2025 C 2.1m. Inlet separation: SASS-URG 1.5m, 2025-2025 2.6m, SASS-2025P 2.6m, 2025C-URG 3.2m. Distances to driplines: URG 15.7m, SASS 17.6m, 2025 P 19.6m, 2025 C 17.6m. SASS 20.5m to road edge. Samplers meet siting criteria for criteria pollutants, but deviation noted for SASS.	Tree affecting the SASS sampler has been trimmed as of February 2, 2023.
130210012	Macon-Forestry	Bibb	10/4/2022	Floor and walls rotting. Ceiling may be starting to rust through. Integrity lines not labeled. Solenoids loose and tangled in lines. SO2 sample line loose at filter, fell away when touched by laser measure. Brush and trees to NW are taller than and too close to inlets. Inlet heights: 2025 2.6m, O3 4.1m, SO2 3.9m, T640 4.3m. To nearest dripline: 2025 8.9m, SO2 8.6m, O3 9.1m, T640 10m. To shelter: T640 1.7m, O3 1.0m, SO2 1.4m. Inlet separation: O3 to SO2 1m. HiVol and PUF on site but not in use. Samplers meet siting criteria.	No action taken. Shelter will be replaced in FY24..

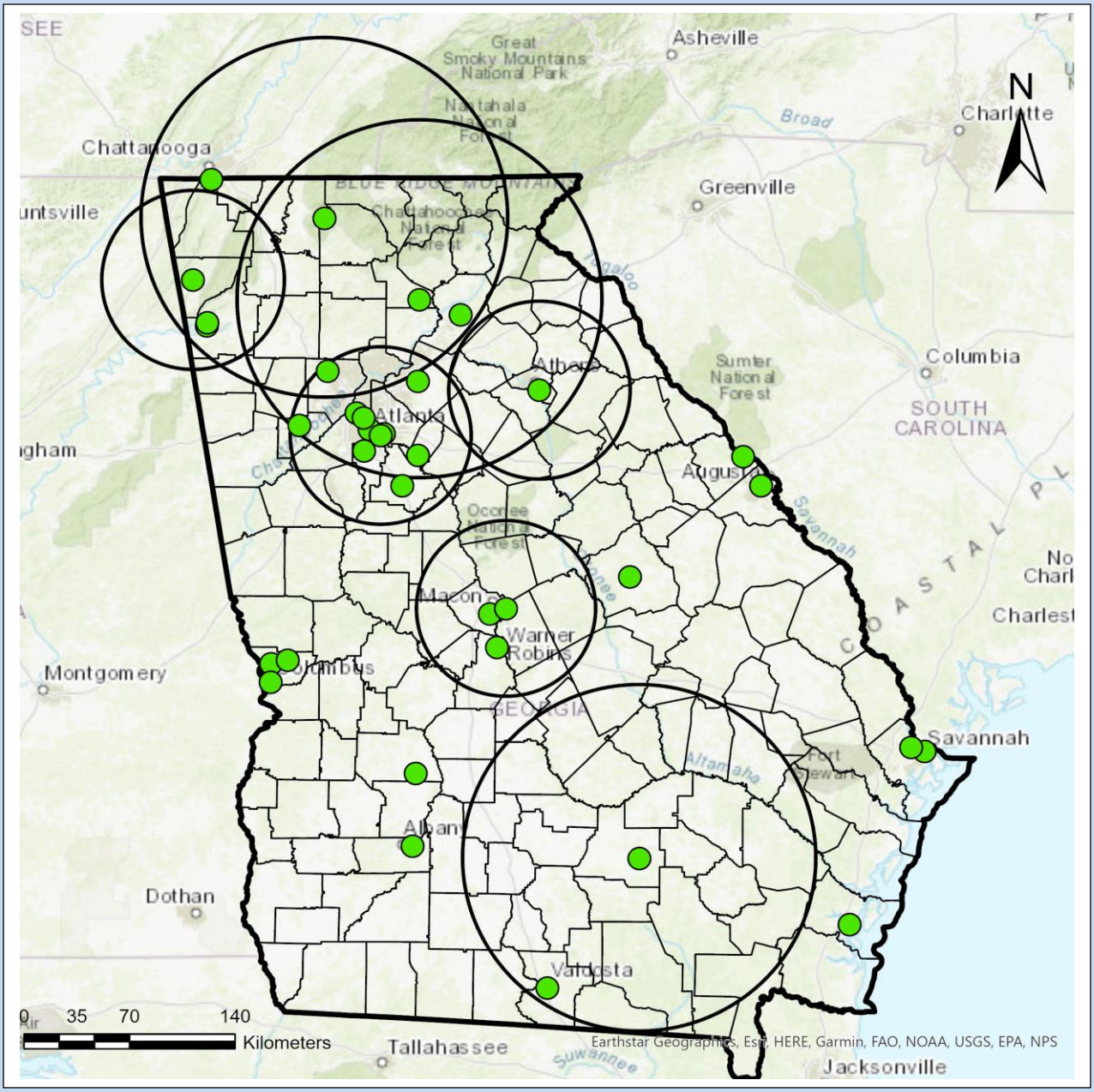
SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS	ACTION TAKEN
Columbus MSA					
132150008	Columbus-Airport	Muscogee	7/26/2022	Shelter replaced since last survey. Water damage to wall under stairs indicated by fungus (Panus) growing from wall (hardwood plywood under metal sheathing). Inlet heights: 2025 4.6m, T640 4.5m, O3 4m. To rooftop: O3 1.4m, 2025 2.1m, T640 1.8m. To nearest dripline: T640 22.4m, 2025 31.4m, O3 24.4m. T640 to 2025 2m. 58.4m 2025 inlet to roadway. Samplers meet siting criteria.	No action required.
132150012	Columbus-Baker	Muscogee	2/1/2023	Samplers meet siting criteria. The samplers are on a deck immediately adjacent to Roper Avenue and near the school bus driveway. The nearest major road is Benning Drive.	No action required.
132151003	Columbus-Crime Lab	Muscogee	1/17/2023	Sensors overgrown by vegetation. Ceiling rusting through, vegetation encroaching on sensors. Samplers meet siting criteria.	No action required.
Savannah MSA					
130510021	Savannah-E. President	Chatham	4/27/2022	Water damage to interior walls. Nearest drip line to inlets is now more than 35m distant. Barometer inlet height 1.7m, RH inlet 2.5m, tower 9.3m, SO2 4m, O3 4m. O3 to SO2 inlet 0.8m. Stored on site but not in use are ATEC 100 Carbonyls DNR#130074, Graseby PUF, Andersen HiVol. Samplers meet siting criteria.	Not applicable.
130511002	Savannah – L&A	Chatham	5/3/2022	New shelter. Met. tower split tubing. Nearest dripline to T640 20m, to SO2 17m. Inlets: S02 4.3m above ground,1.7 m from shelter. T640 4.3m above ground,1.8 m from shelter. Met tower height by clinometer 9.2m. Samplers meet siting criteria.	No action required.
Augusta MSA					
130730001	Evans	Columbia	8/16/2022	The shelter exterior and floor are rotting. Integrity and sample lines are routed down onto and through the floor of the shelter, along the ground outside, and then up through a candy cane. Recommend lines are replaced and routed up and out at top of wall of shelter as short as possible to avoid contamination, improve response and standardize with other sites. Ta/RH sensor may be too close to tower. However, the construction of the sensor does not allow spacing further from the tower. The tower is not a solid mass. The physical volume is mostly ambient air. O3 inlet 3.2m above ground, 0.2m from shelter, 28m from nearest dripline. All equipment >20m from dripline "Sampling, integrity and/or manifold lines clean and dry? Lines appear unclean lying on floor and ground" "Sampling and integrity lines properly labeled? No, O3 only at site" The shelter is located approximately one-third mile from Hardy McManus Road on Dolphin Way. Samplers meet siting criteria.	Not applicable.
132450091	Augusta	Richmond	8/17/2022	Water damage around a/c. Few available outlets left. Ta/RH sensor may be too close to tower. However, the construction of the sensor does not allow spacing further from the tower. The tower is not a solid mass. The physical volume is mostly ambient air. Inlet heights: URG 2.6m, SASS 2.4m, 2025 2.7m, Rain 3.1m, T640x 4.6m, SO2 4.5m, O3 4.6m, RH 2.5m, BP 1.8m. All dripline distances >30m. From roof: T640x 2.1m, Rain 0.6m, S02 2m, O3 2m. Roadway 130m from SASS. Samplers meet siting criteria.	Not applicable.
Atlanta-Sandy Springs- Marietta MSA					
130630091	Forest Park	Clayton	8/17/2022	The site was moved April 2016, from the DOT building roof to a nearby location on the ground, 115 meters to the NE. There are not any site deficiencies that need to be addressed. Samplers meet siting criteria.	Not applicable.
130670003	Kennesaw	Cobb	2/7/2023	Samplers meet siting criteria.	Not applicable.
130850001	Dawsonville	Dawson	10/5/2022	Samplers meet siting criteria. Met tower is inside 10x height differential with the trees to the north, east, and south. Three trees to the SE of the ozone inlet and two to the north are inside the height-distance criteria. >270 degrees of the ozone probe monitoring path has unrestricted air flow.	Not applicable.

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS	ACTION TAKEN
130890002	South DeKalb	DeKalb	12/21/2022	Samplers meet siting criteria. All drip lines to sampler inlets exceed 20 meters. Although a few trees are still inside the height-distance differential, at least 270 degrees of the monitoring path for all of the samplers is now unobstructed. The two HiVol PM_{10} metals samplers are no longer used but are still present on the deck.	Not applicable.
130890003	NR-285	DeKalb	6/22/2022	Samplers meet siting criteria. The Thermo Scientific black carbon monitor has been replaced with a Met One BC sampler. The Thermo is still inside the trailer. The small shrub tree outside of the fence to the NE near the NOx inlet needs to be trimmed or cut down. Operations will soon cut it back. The site is Micro Near Road.	The small tree shrub to the NE outside of the fence was cut down after this site evaluation was performed.
130970004	Douglasville	Douglas	2/21/2023	Samplers meet siting criteria. Slight water damage to interior of trailer wall in one area. The water appears to have gained access through the vent hole during heavy rains coming from the southern direction. The WSA building is 32 meters to the SE and 6 meters high.	Not applicable
131210039	Fire Station #8	Fulton	8/25/2022	Samplers meet siting criteria. Solar panels are present on the roof. There are not any deficiencies compromising sampling quality.	Not applicable.
131210055	United Ave.	Fulton	3/2/2023	No deficiencies observed. Samplers meet siting criteria.	Not applicable.
131210056	NR-GA Tech	Fulton	6/8/2022	Samplers meet siting criteria. This site is designated as a NO_2 Near Road Site and sampling began June 16, 2014. There were no deficiencies observed at the site. A new Carbon Black sampler will be installed at the time of this survey. Samplers meet siting criteria.	Not applicable.
131350002	Gwinnett Tech	Gwinnett	6/30/2022	Neighborhood spatial scale. The sampling trailer is surrounded on west (25 meters away) and northeast (22 meters away) by the college parking lot. The site meets all siting criteria; however, O3 sampling site having a point analyzer probe located closer to a roadway than allowed by Table E-1 requirements. It should be classified as middle scale rather than neighborhood or urban scale since the measurements from such a site would more closely represent the middle scale. Working with the EPA to address the issue.	After discussions with EPA about the ozone monitor's spatial scale, GA AAMP will plan to move the site.
131510002	McDonough	Henry	9/28/2022	Water damage to walls. TEOM 4.4m height, 24.8m to dripline, 1.9m to shelter, 7m to adj rooftop. O3 3.9m height, 22.8m to dripline, 1.4m to shelter, 9.3m to rooftop, 2.3m to TEOM. To animal incinerator: O3 96m, TEOM 97m. Samplers meet siting criteria.	No action taken.
132470001	Conyers	Rockdale	9/26/2022	Only one tree, the sweet gum to the SE, is inside the distance-height criteria. The predominate wind direction is not out of the SE. The rest of the air flow is unobstructed. The solar radiation and UV sensors were damaged by the grounds crew and will be replaced. Samplers meet siting criteria.	Solar radiation and UV sensors have been replaced.
Chattanooga Tennessee-Georgia MSA					
132950004	Rossville-Williams St.	Walker	5/4/2022	Samplers meet siting criteria. The site was relocated to the corner of Williams St. and Maple St. and sampling resumed in April 2021. The new platform is 600 meters east of the old site.	Not applicable.
Not in an MSA					
130550001	Summerville	Chattooga	2/28/2022	Samplers meet siting criteria. The site is Urban spatial scale. No deficiencies detected.	Not applicable.
130690002	General Coffee	Coffee	12/12/2022	Samplers meet siting criteria. Loose moldy deck boards are trip and slip hazards. Deck walls falling off. Diesel trucks parking horse trailers within 20m of samplers. Campfire ring 30m from SASS, 20m from 2025. Inlet heights: URG 3m, SASS 2.7m, 2025 2.9m, Xontech 2.2m. To driplines: 2025 17.8m, Xontech 19.4m, URG 17.4m, SASS 18.2m. Inlet separation: URG to SASS 2.5m, 2025 to SASS 4.5m, 2025 to URG 5.2m, 2025 to Xontech 1.5m.	Deck replaced April 2023, after this site evaluation.
132611001	Leslie	Sumter	3/8/2022	Water damage to walls and floor. Samplers meet siting criteria.	Not applicable.
133030001	Sandersville	Washington	5/12/2022	T640 Inlet 3.2m above ground. Ta sensor mounted on post separate from T640 1.8m above ground, 1.8m from inlet, recommend Ta sensor relocated closer to inlet. >40m to nearest dripline. Samplers meet siting criteria.	Not applicable.

Appendix A: Individual Site Information Grouped by Metropolitan Statistical Area (Smallest to Largest)

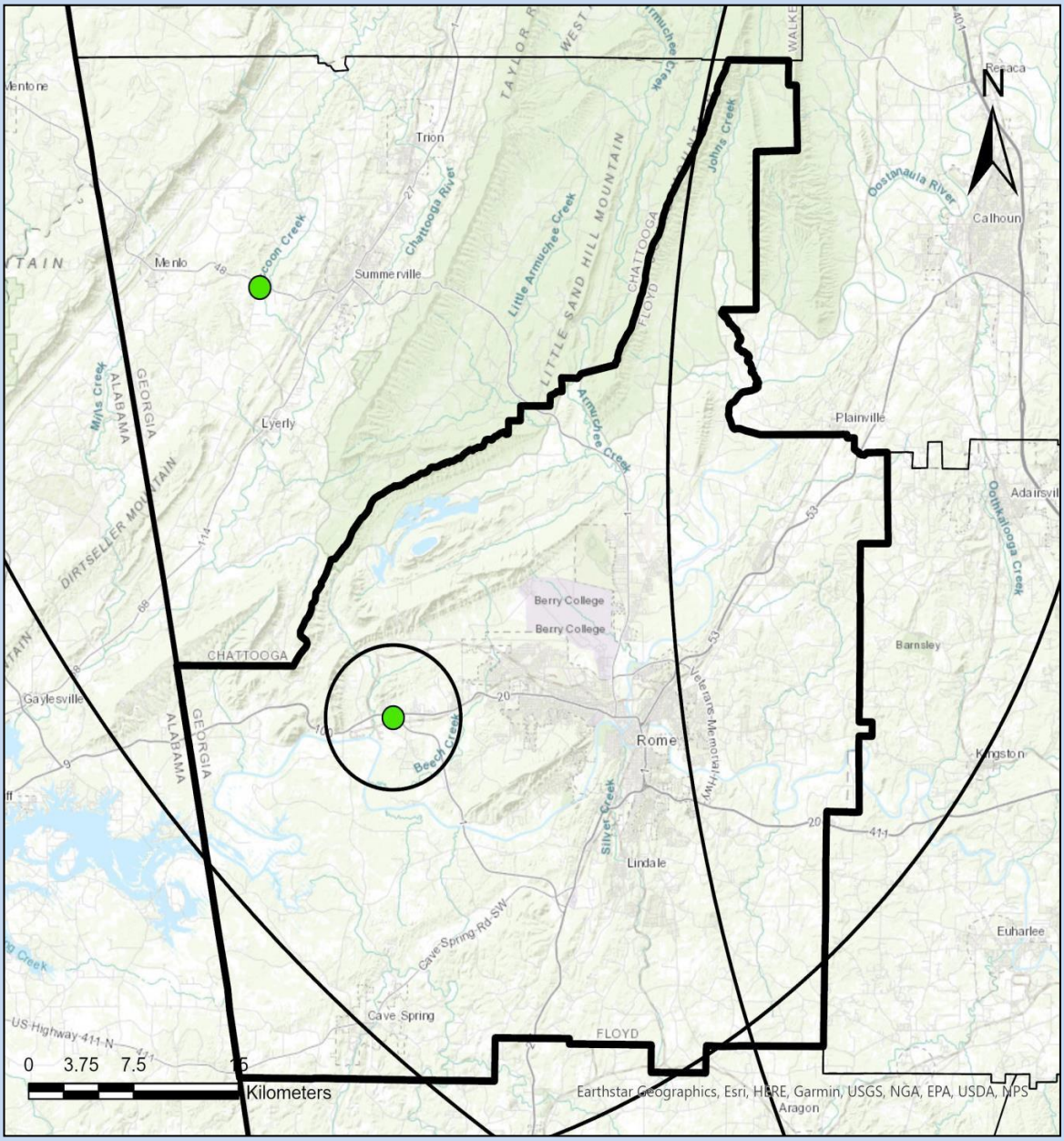
Georgia Department of Natural Resources Environmental Protection Division

Spatial Scales of GA AAMP's Ambient Air Monitors



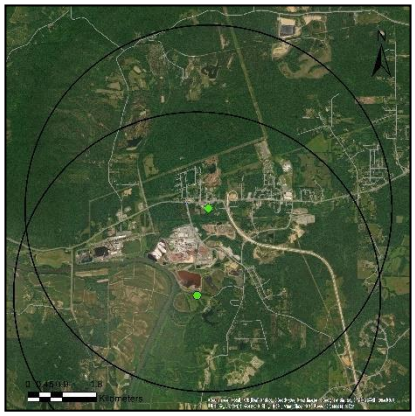
Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

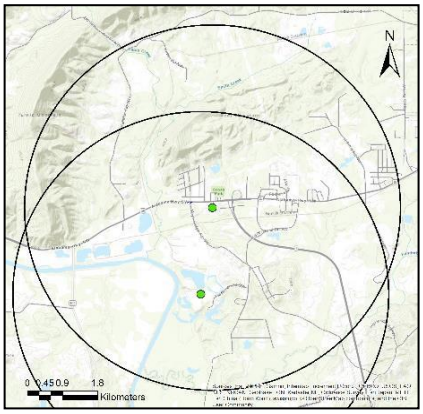
Rome MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Rome





AQS ID: 131150003

Address: 5041 Alabama Hwy, Rome, Floyd County, Georgia 30165

Site Established: 1/1/74

Latitude/Longitude: N34.2605/W-85.3232

Elevation: 186 meters

Area Represented: Rome MSA

Site History: Established as SO_2 site

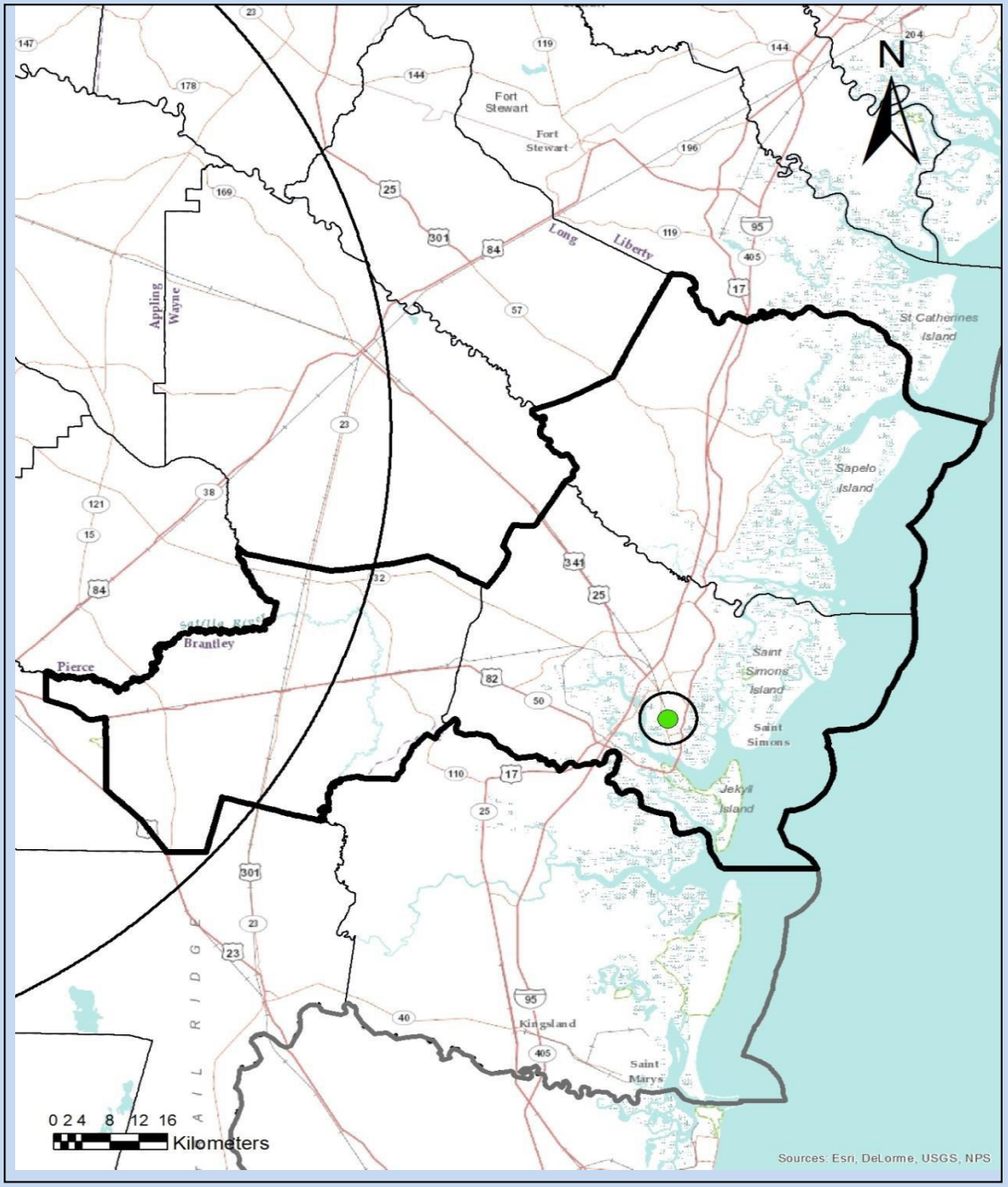
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2.5 m	Neighborhood	3/1/02
$PM_{2.5}$ Continuous	Population Exposure	Continuous	3.5 m	Neighborhood	1/1/08*

*Sampler inactive from 1/1/15 until reopened 2/15/17

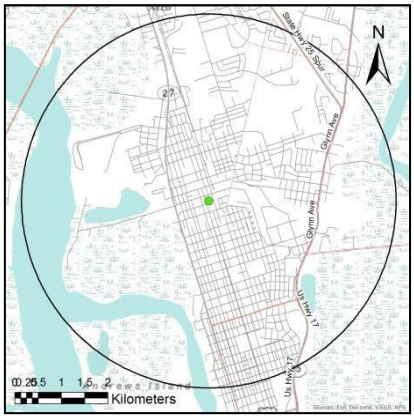
GA AAMP's plans for this site: Continue monitoring; wind direction and wind speed monitors will be added to this site within the next year

Brunswick MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Brunswick



AQS ID: 131270006

Address: Glynn Learning Center, 2900 Albany Street, Brunswick, Glynn County, Georgia 31520

Established: 1/1/87

Latitude/Longitude: N31.169611/W-81.495194

Elevation: 19.4 meters

Area Represented: Brunswick MSA

Site History: Established as SO_2 site

North

South

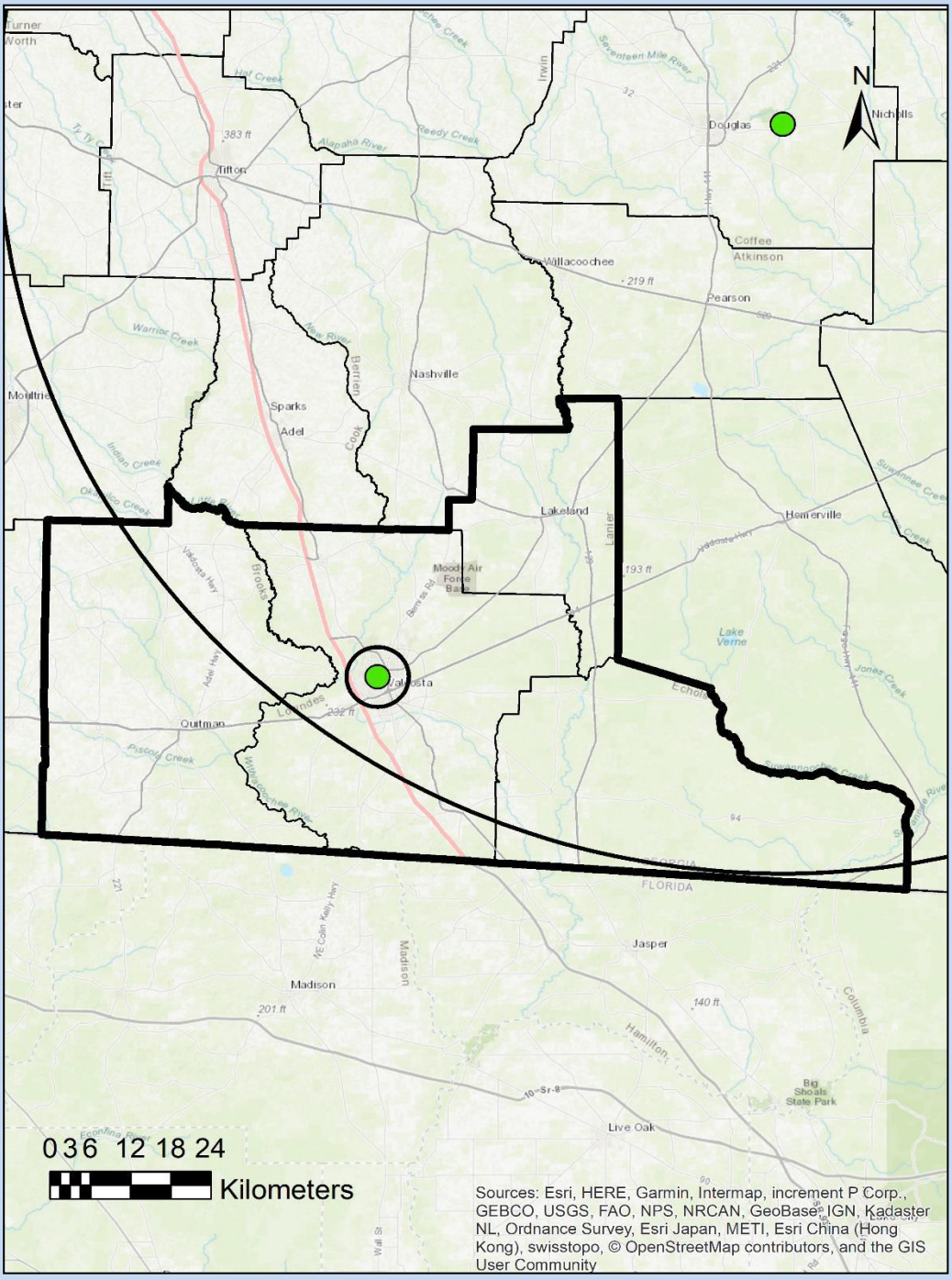
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	4.9 m	Neighborhood	8/31/95
$PM_{2.5}$	Population Exposure	Continuous	4.9 m	Neighborhood	10/21/21
O_3	Population Exposure	Continuous (Mar-Oct)	4.3 m	Neighborhood	3/1/95
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04

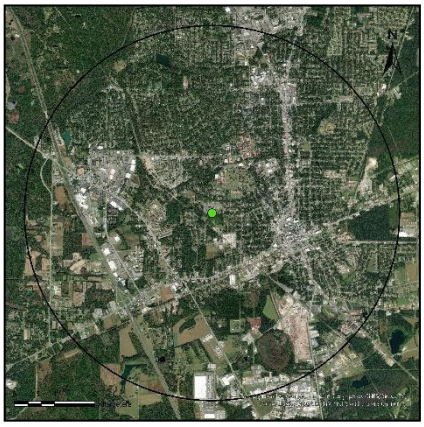
GA AAMP's plans for this site: Continue monitoring; running FEM continuous $PM_{2.5}$ T640 since 10/21/2021; GA AAMP is in the process of moving equipment to new shelter

Valdosta MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Valdosta



AQS ID: 131850003

Address: 821 W Gordon Street, Lowndes County, Georgia 31602

Site Established: 12/17/99

Latitude/Longitude: N30.836577/W-83.294719

Elevation: 55.0 meters

Area Represented: Valdosta MSA Site

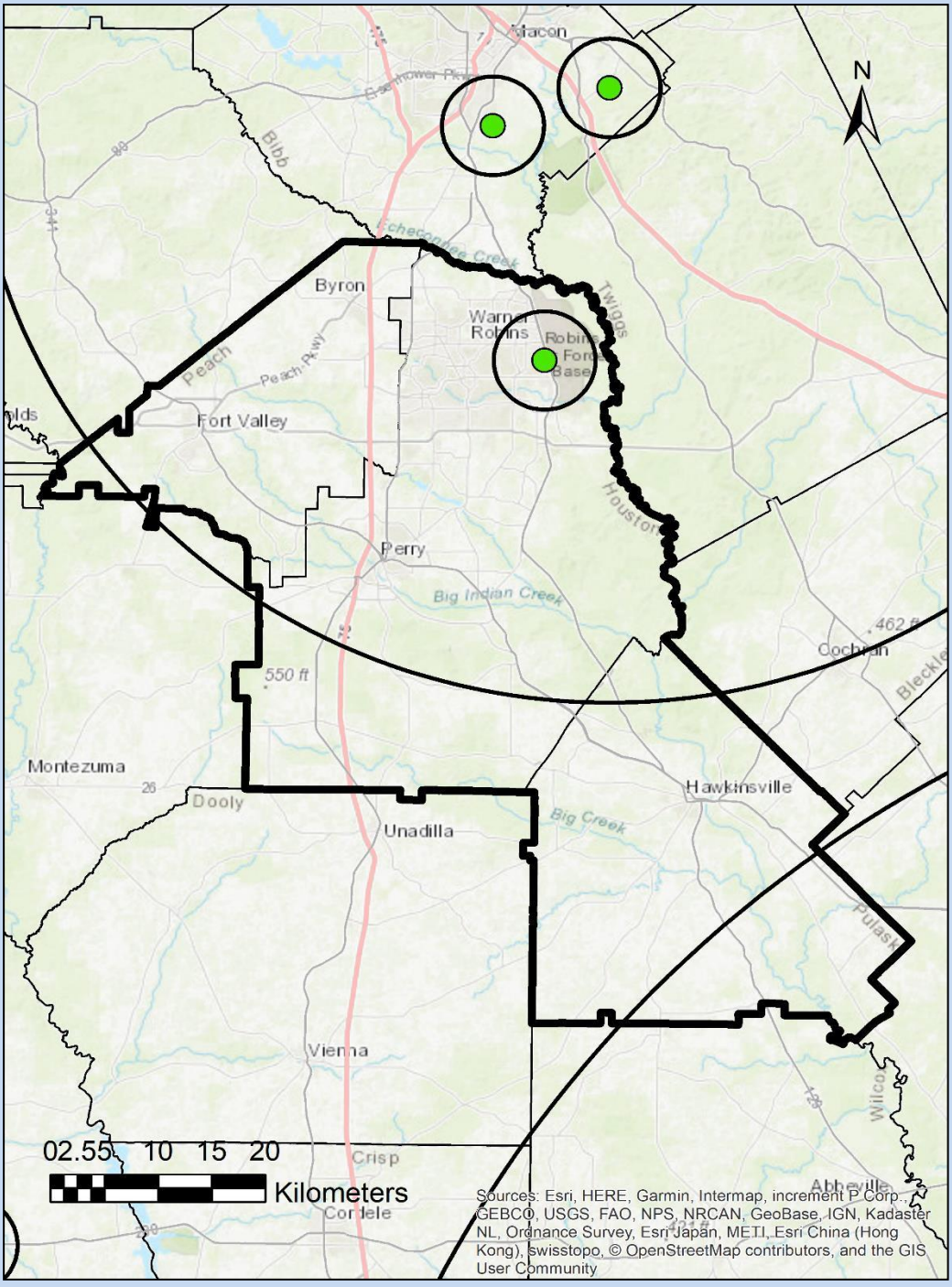
History: Established as $PM_{2.5}$ site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	2.8 m	Neighborhood	1/1/00
$PM_{2.5}$	Population Exposure	Continuous	3.1 m	Neighborhood	1/1/08

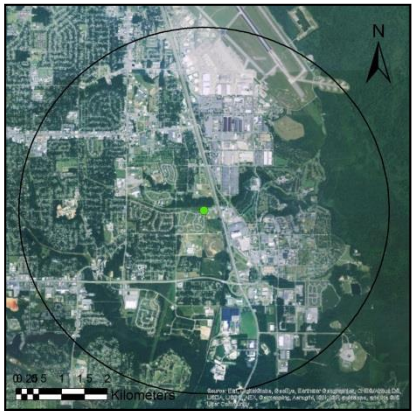
GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ monitor as FEM as of 10/22/20

Warner Robins MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Warner Robins



AQS ID: 131530001

Address: Warner Robins Air Force Base, Memorial Park, 800 South 1st Street, Warner Robins, Houston County, Georgia 31088

Site Established: 6/15/00

Latitude/Longitude: N32.6056/W-83.5978

Elevation: 86.25 meters

Area Represented: Warner Robins MSA

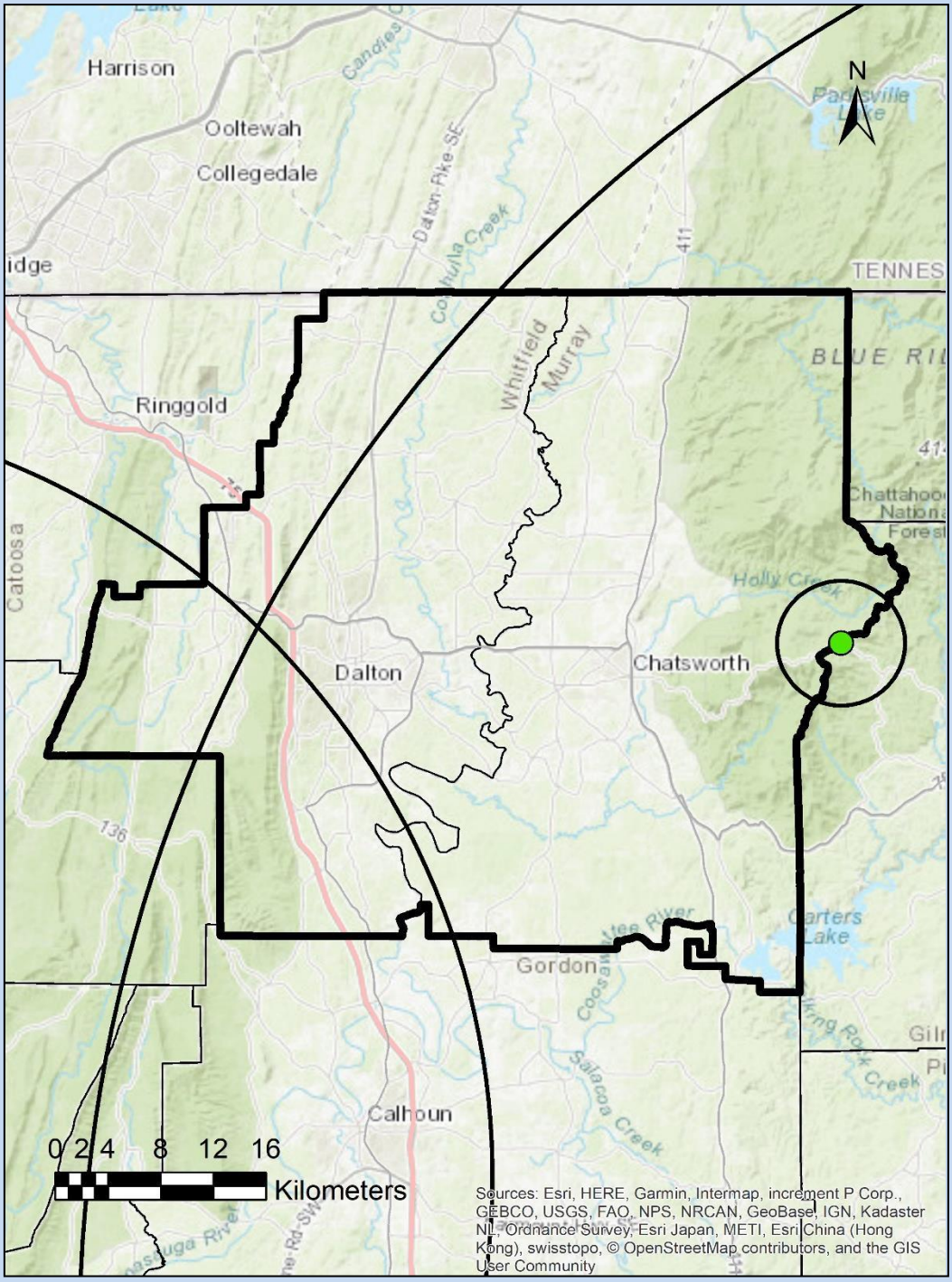
Site History: Established as $PM_{2.5}$ site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	3 m	Neighborhood	7/5/00
$PM_{2.5}$	Population Exposure	Continuous	3 m	Neighborhood	1/1/08

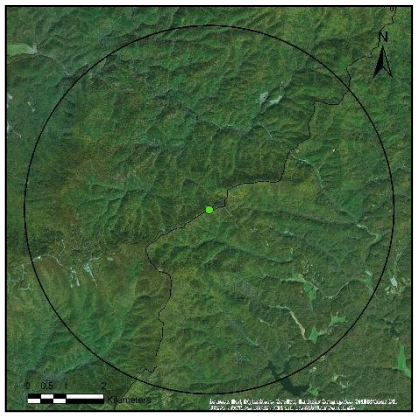
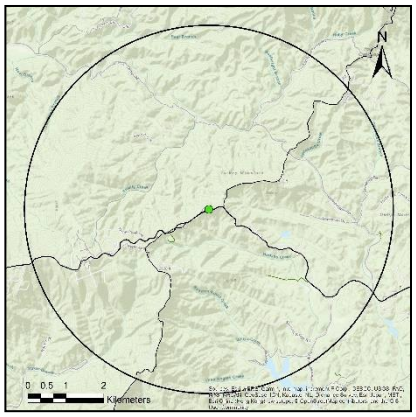
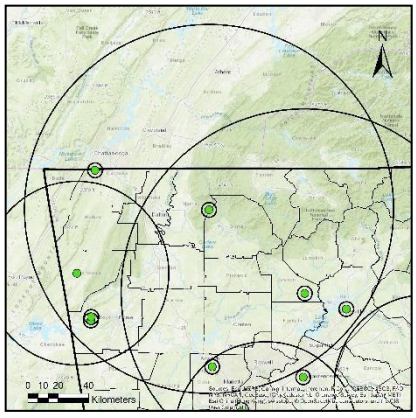
GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ monitor as FEM as of 3/7/2018

Dalton MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Fort Mountain

AQS ID: 132130003

Address: Fort Mountain, State Highway 52, Cohutta Overlook, Chatsworth, Murray County, Georgia 30705

Site Established: 3/23/99

Latitude/Longitude: N34.7851/W-84.6265

Elevation: 794 meters

Area Represented: Dalton MSA

Site History: Established as O_3 site

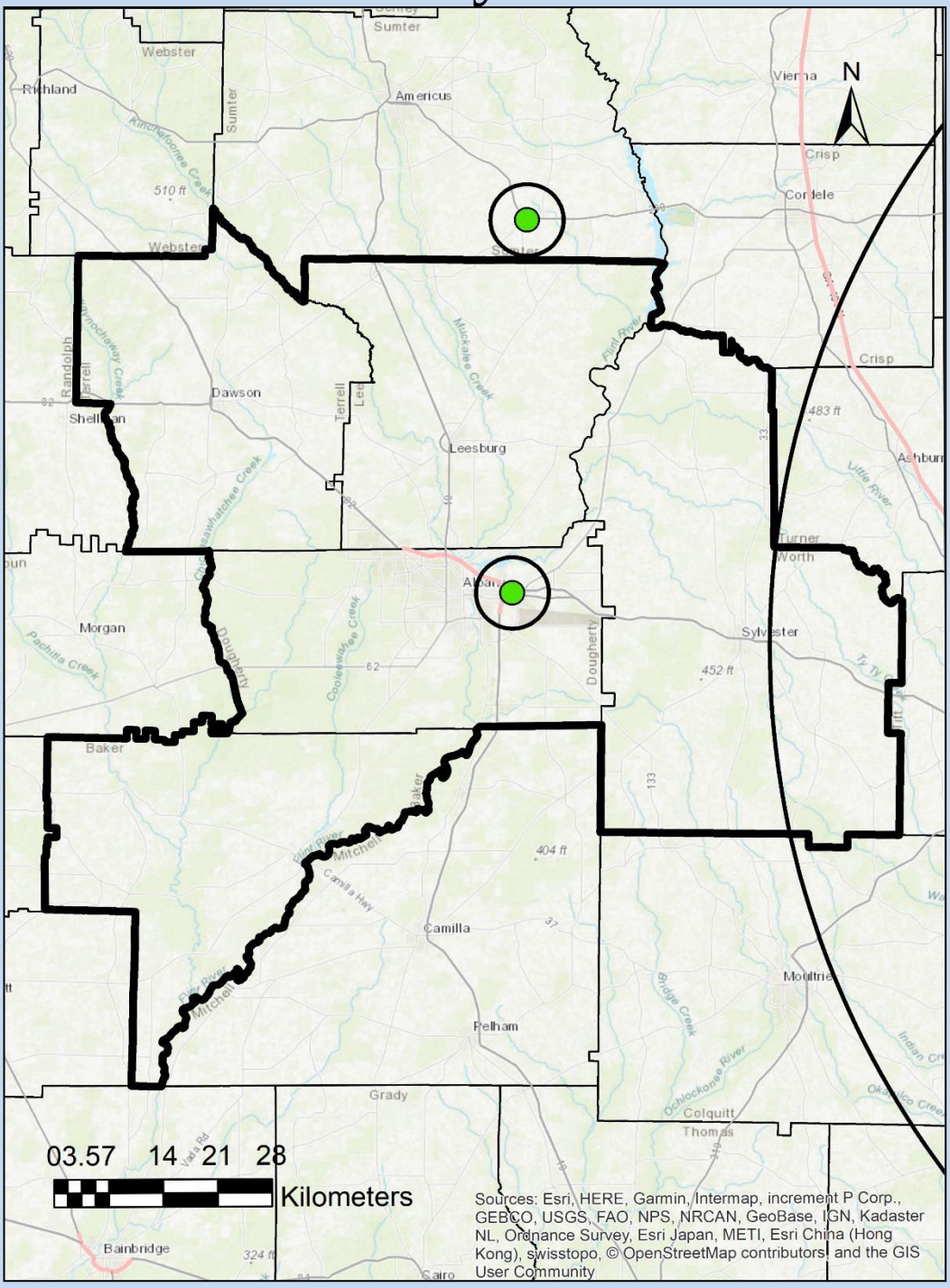
North South East West




Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	5 m	Regional	3/1/00
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	2/7/02
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	2/7/02
Outdoor Temperature	General/ Background	Continuous	3 m	Neighborhood	2/7/02
Relative Humidity	General/ Background	Continuous	3 m	Neighborhood	2/7/02

GA AAMP's plans for this site: Continue monitoring

Albany MSA



03.57 14 21 28 Kilometers

Radius of Circles on Map

Micro Scale: up to 100m

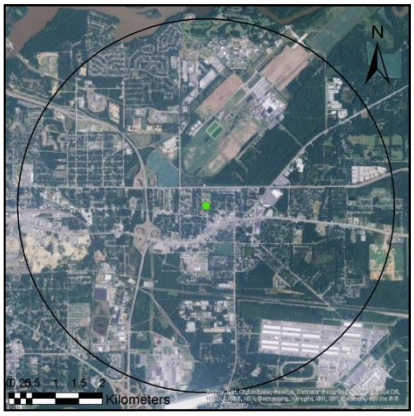
Middle Scale: up to 0.5km

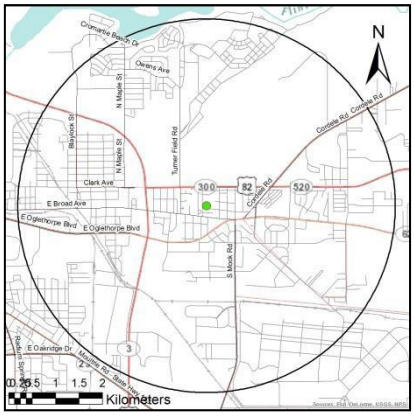
Neighborhood Scale: up to 4.0km

Urban Scale: up to 50km

Regional Scale: up to 100s of km (100km shown)

Albany





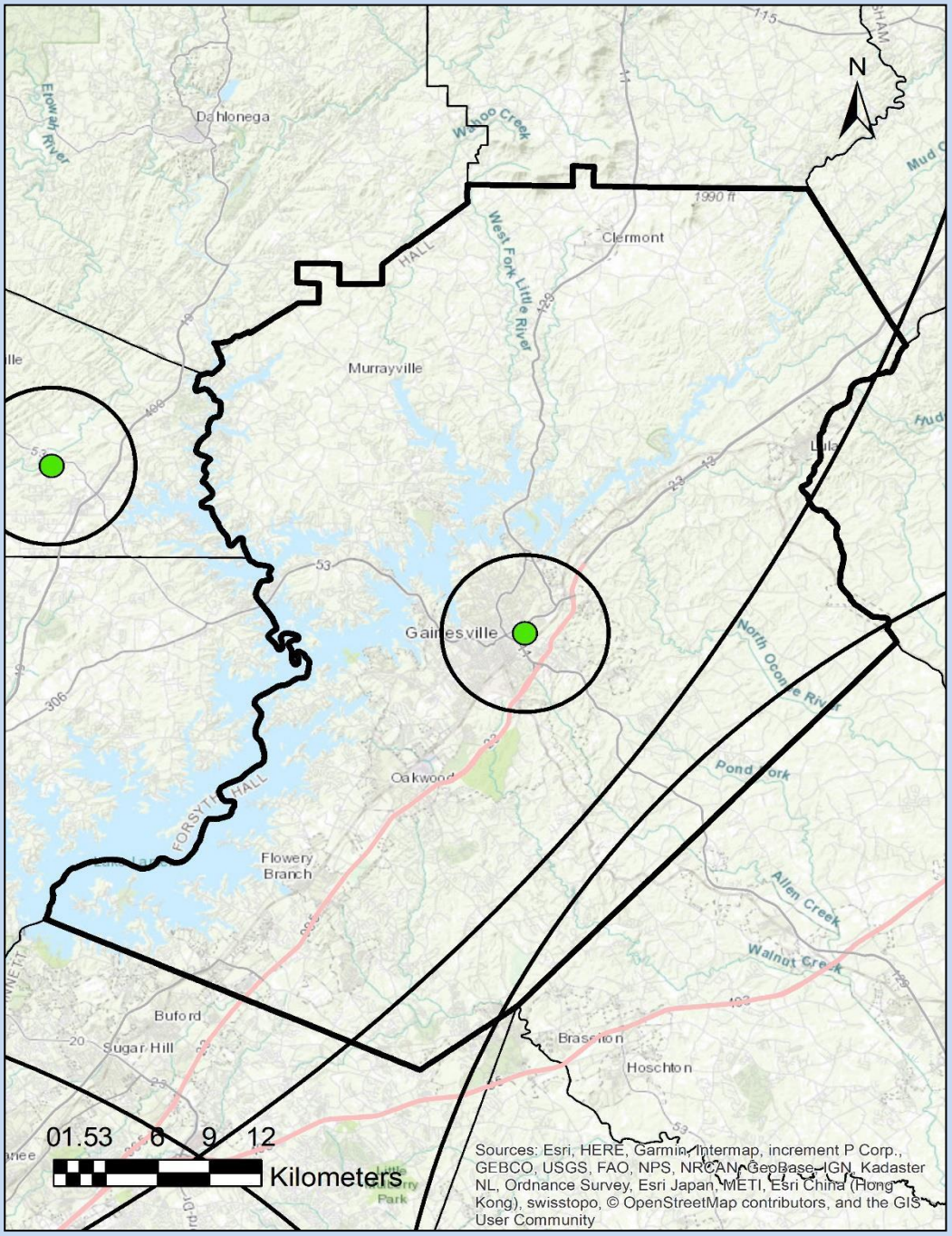
AQS ID: 130950007
Address: Turner Elementary School, 2001 Leonard Avenue, Albany, Dougherty County, Georgia 31705
Site Established: 7/31/91
Latitude/Longitude: N31.5776/W-84.0998
Elevation: 67 meters
Area Represented: Albany MSA Site
History: Established as TSP site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	2.1 m	Neighborhood	2/2/99
$PM_{2.5}$	Quality Assurance	Every 3 days	2.1 m	Neighborhood	1/10/13
$PM_{2.5}$	Population Exposure	Continuous	2.1 m	Neighborhood	5/11/08

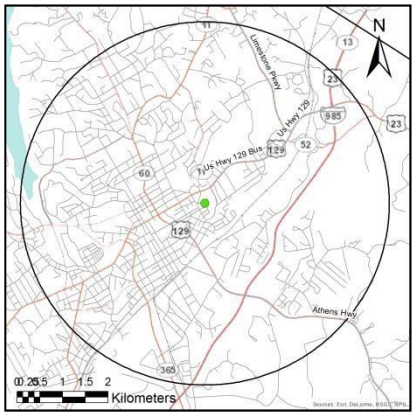
GA AAMP's plans for this site: Continue monitoring; running continuous monitor as FEM as of 1/10/13; beginning with 2022 data, continuous $PM_{2.5}$ monitor is non-NAAQS; GA AAMP is planning to relocate this sampling station to ground level by the end of 2023

Gainesville MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Gainesville



AQS ID: 131390003

Address: Fair Street School, 695 Fair Street, Gainesville, GA 30501

Site Established: 1/1/97

Latitude/Longitude: N34.2993/W-83.8134

Elevation: 353 meters

Area Represented: Gainesville MSA

Site History: Established as $PM_{2.5}$ site

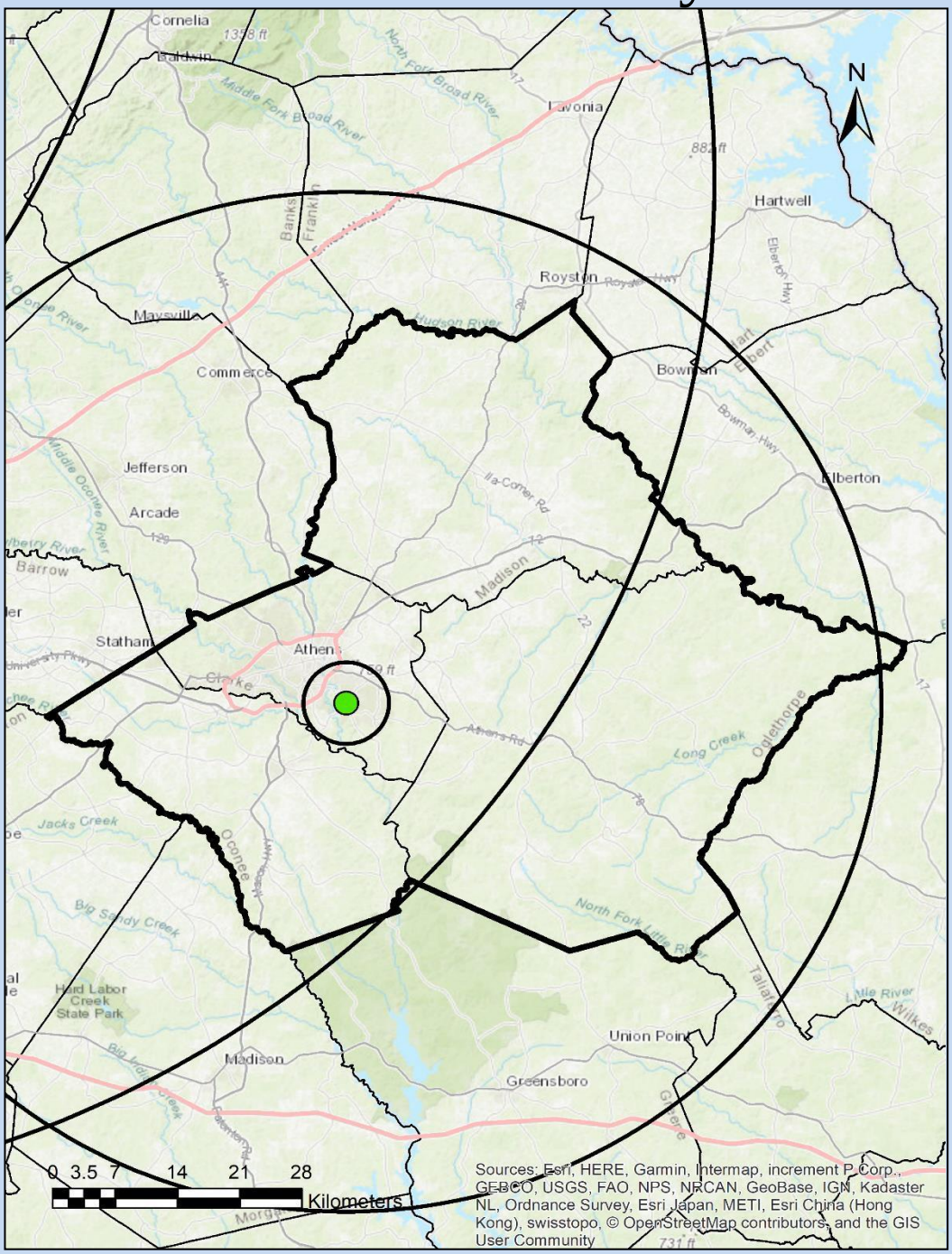
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	2.9 m	Neighborhood	2/14/99*
$PM_{2.5}$	Population Exposure	Continuous	2.9 m	Neighborhood	1/1/08

*Sampler inactive from 11/1/18 until reopened 3/24/23

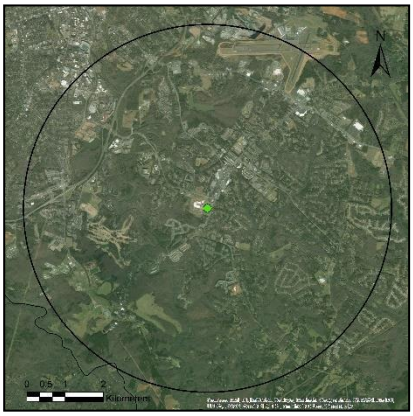
GA AAMP's plans for this site: Continue monitoring; running continuous monitor as FEM as of 10/3/2017; FRM monitor was inactive from 11/1/2018 to 3/24/2023 when daily sampling was reinstated to ensure redundancy in the Gainesville MSA and avoid completeness issues

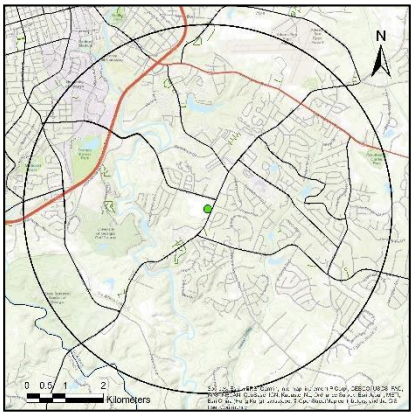
Athens-Clarke County MSA

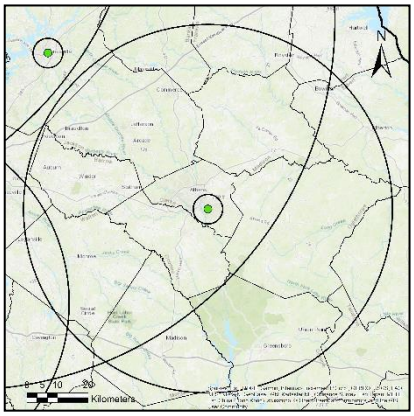


Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Athens







AQS ID: 130590002
Address: 2350 Barnett Shoals Road, Athens, Clarke County, Georgia 30605
Site Established: 3/1/02
Latitude/Longitude: N33.9180/W-83.3445
Elevation: 220 meters
Area Represented: Athens-Clarke County MSA
Site History: Established as O_3 and PM site

North

South

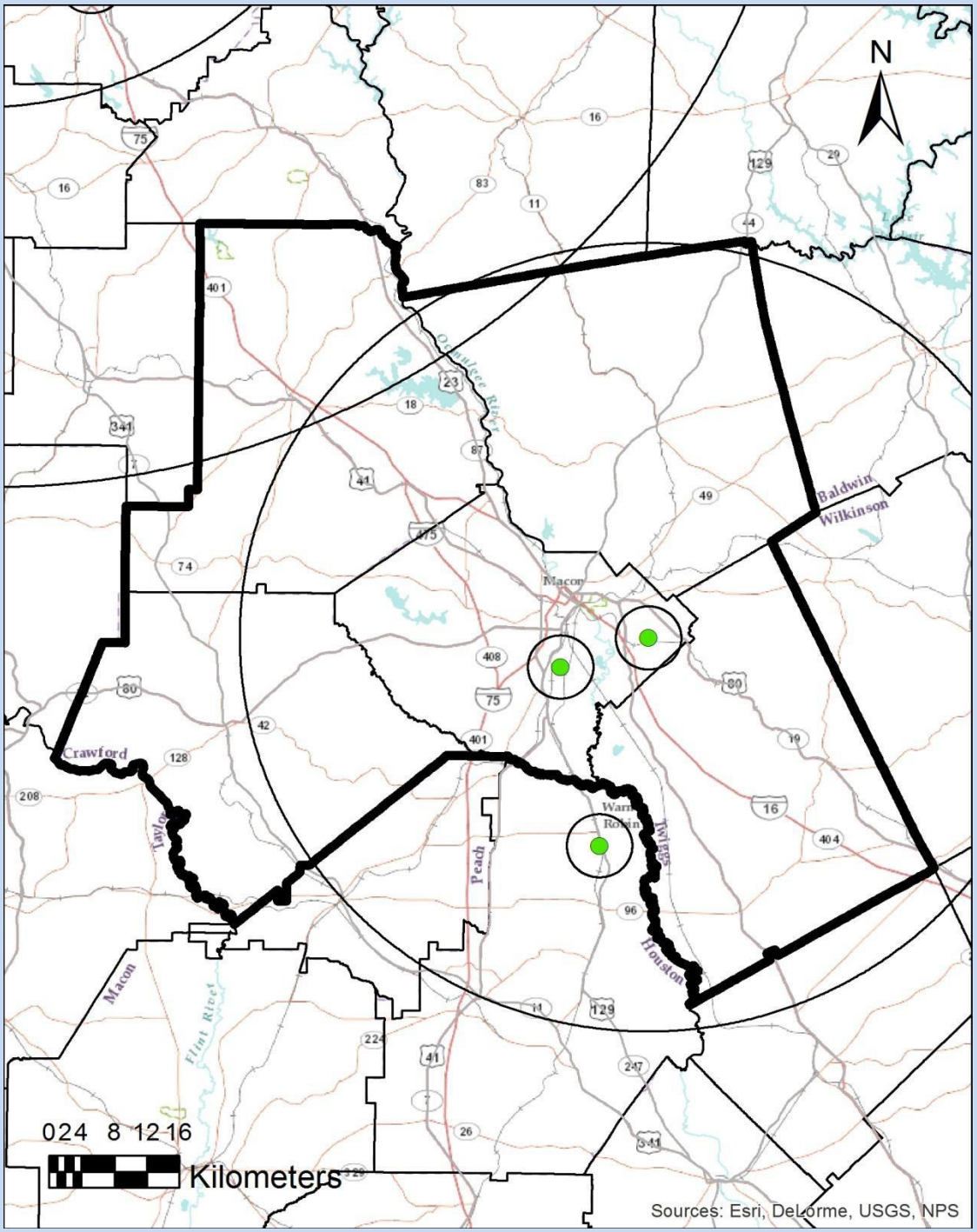
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	3.4 m	Urban	5/1/02
$PM_{2.5}$	Population Exposure	Continuous	4.4 m	Neighborhood	8/1/04
$PM_{2.5}$	Quality Assurance	Continuous	4.4 m	Neighborhood	2/15/19

GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ monitor as FEM as of 4/1/2018; on February 15, 2019, GA AAMP added a second FEM Teledyne T640 Continuous $PM_{2.5}$ sampler to satisfy collocation requirements

Macon MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Macon-Allied

AQS ID: 130210007

Address: 300 Allied Industrial Blvd., Macon, Bibb County, Georgia 31206

Site Established: 1/1/74

Latitude/Longitude: N32.7773/W-83.6411

Elevation: 106 meters

Area Represented: Macon MSA Site

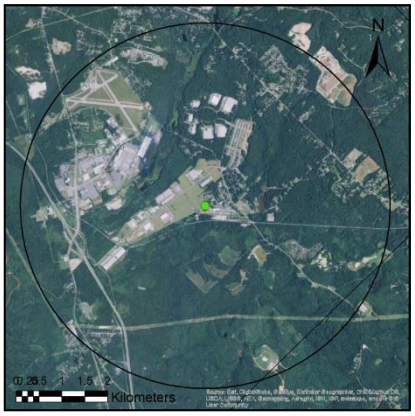
History: Established as TSP site

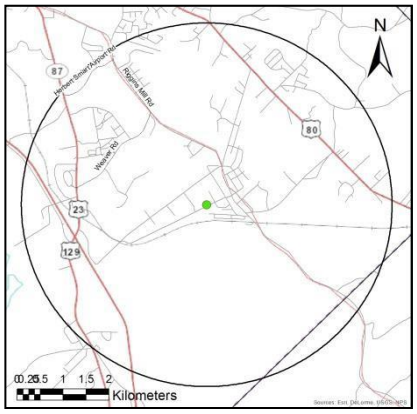
North South East West

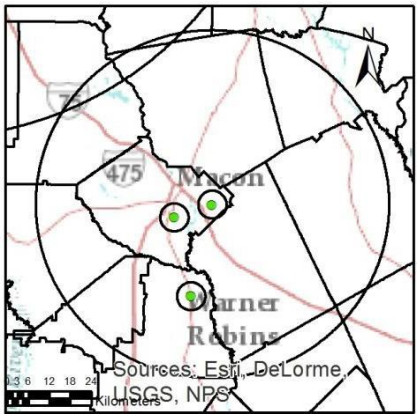
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2.5 m	Neighborhood	3/1/02
$PM_{2.5}$	Population Exposure	Every 3 days	2.5 m	Neighborhood	2/2/99
$PM_{2.5}$	Quality Assurance	Every 12 days	2.5 m	Neighborhood	2/2/99

GA AAMP's plans for this site: Continue monitoring; GA AAMP plans to install a continuous $PM_{2.5}$ non-NAAQS sampler with the EPA American Rescue Plan funds in 2023

Macon-Forestry







AQS ID: 130210012

Address: Georgia Forestry Commission, 5645 Riggins Mill Road, Dry Branch, Bibb County, Georgia 31020

Site Established: 5/7/97

Latitude/Longitude: N32.8051/W-83.5436

Elevation: 120 meters

Area Represented: Macon MSA

Site History: Established as O_3 and SO_2 site

North

South

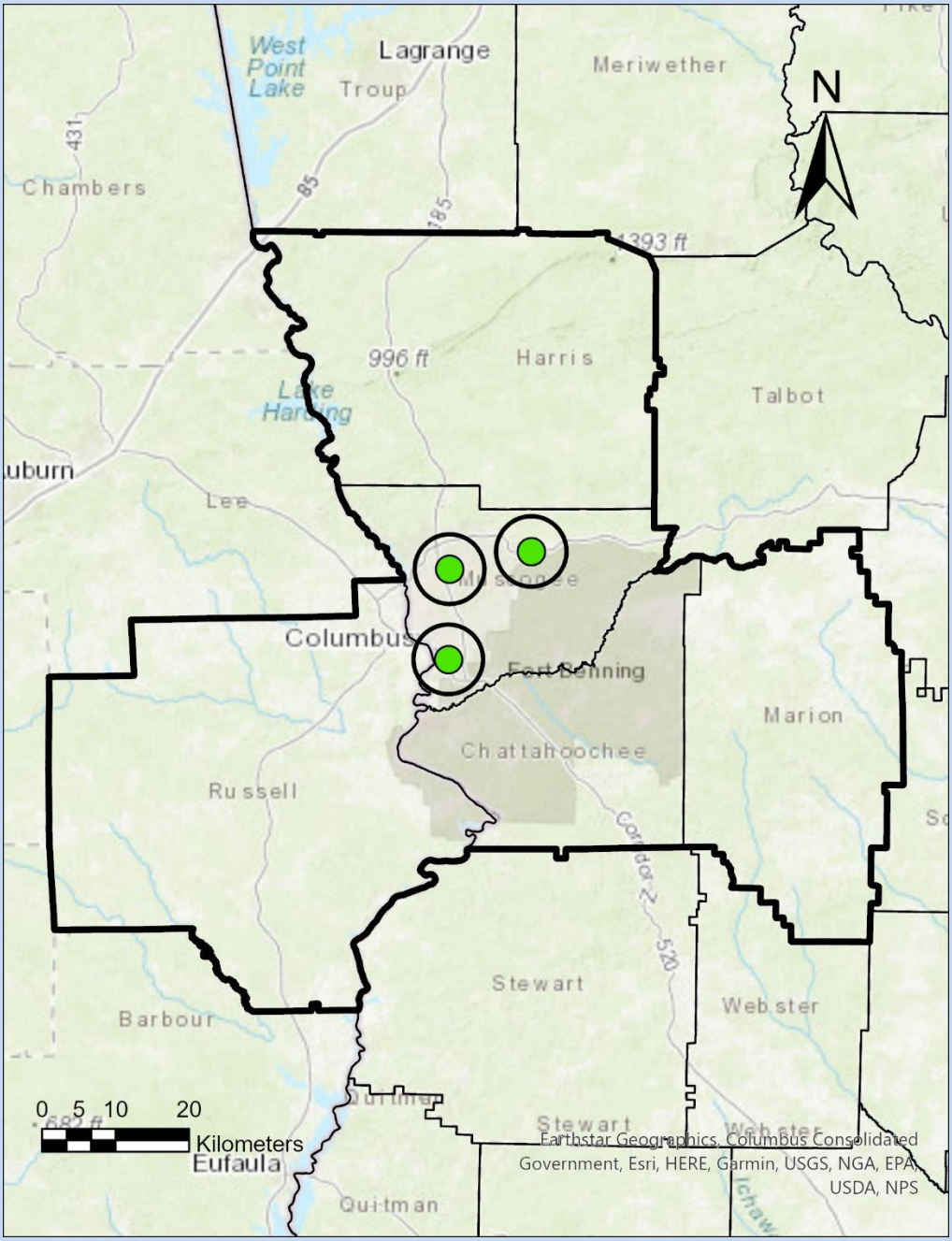
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	3 m	Neighborhood	2/1/99
$PM_{2.5}$	Population Exposure	Continuous	3.5 m	Neighborhood	5/5/03
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04
O_3	Population Exposure	Continuous (Mar-Oct)	3.5 m	Neighborhood	5/7/97
SO_2	Population Exposure	Continuous	3.5 m	Urban	5/7/97
SO_2 5-Minute Maximum	Population Exposure	Continuous	3.5 m	Neighborhood	8/1/10

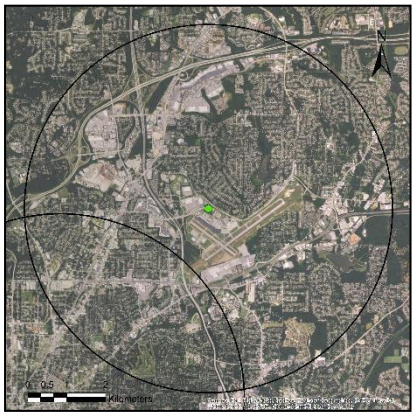
GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ monitor as FEM as of 10/1/2017; a new shelter is planned to be installed within the next year

Columbus Georgia-Alabama MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Columbus-Airport



AQS ID: 132150008

Address: Columbus Airport, 3100 Airport Thruway Drive, Columbus, Muscogee County, Georgia 31909

Site Established: 7/1/82

Latitude/Longitude: N32.5211/W-84.9447

Elevation: 445 meters

Area Represented: Columbus Georgia-Alabama MSA

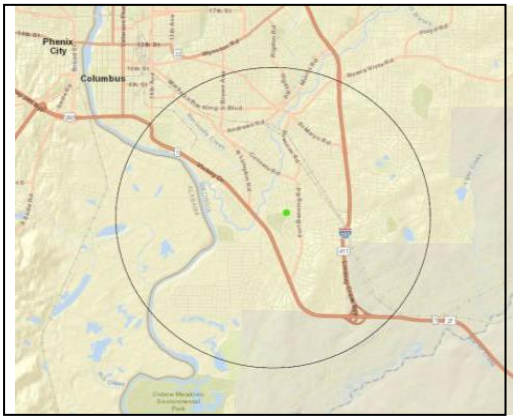
Site History: Established as O_3 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	3 m	Neighborhood	7/1/82
$PM_{2.5}$	Population Exposure	Daily	4.8 m	Neighborhood	6/2/03
$PM_{2.5}$	Population Exposure	Continuous	3 m	Neighborhood	6/1/03

GA AAMP's plans for this site: Continue monitoring; GA AAMP installed a continuous FEM $PM_{2.5}$ T640 sampler to replace the continuous non-FEM $PM_{2.5}$ TEOM on November 23, 2021; beginning with 2022 data, continuous $PM_{2.5}$ monitor is non-NAAQS

Columbus-Baker



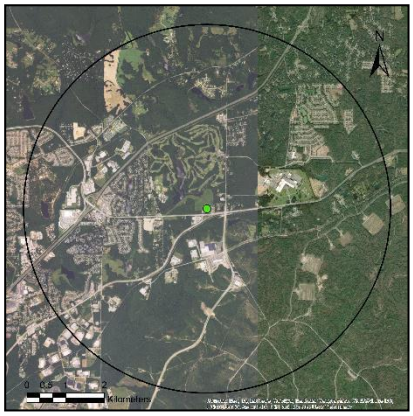
AQS ID: 132150012
Address: Baker Middle School, 1215 Benning Dr, Columbus, Muscogee County, Georgia 31903
Site Established: 3/1/21
Latitude/Longitude: N32.4274/W-84.9457
Elevation: 85 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as $PM_{2.5}$ site

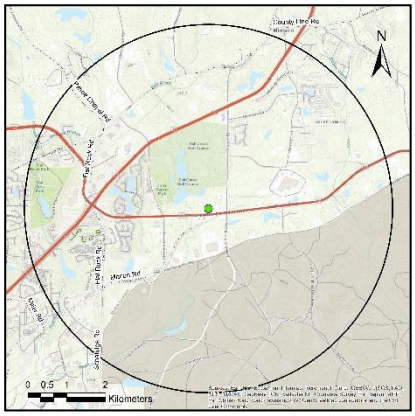
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	2.7 m	Neighborhood	3/1/21
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2.5 m	Neighborhood	3/1/21

GA AAMP's plans for this site: Continue monitoring; site moved from Columbus-Cusseta location and historical data can be found with AQS ID 13-215-0011; GA AAMP plans to install a continuous $PM_{2.5}$ non-NAAQS sampler with the EPA American Rescue Plan funds in 2023

Columbus-Crime Lab





AQS ID: 132151003

Address: Columbus Crime Lab, 8395 Beaver Run Road, Midland, Muscogee County, Georgia 31820

Site Established: 6/30/80

Latitude/Longitude: N32.5394/W-84.8448

Elevation: 122 meters

Area Represented: Columbus Georgia-Alabama MSA

Site History: Established as O_3 site

North

South

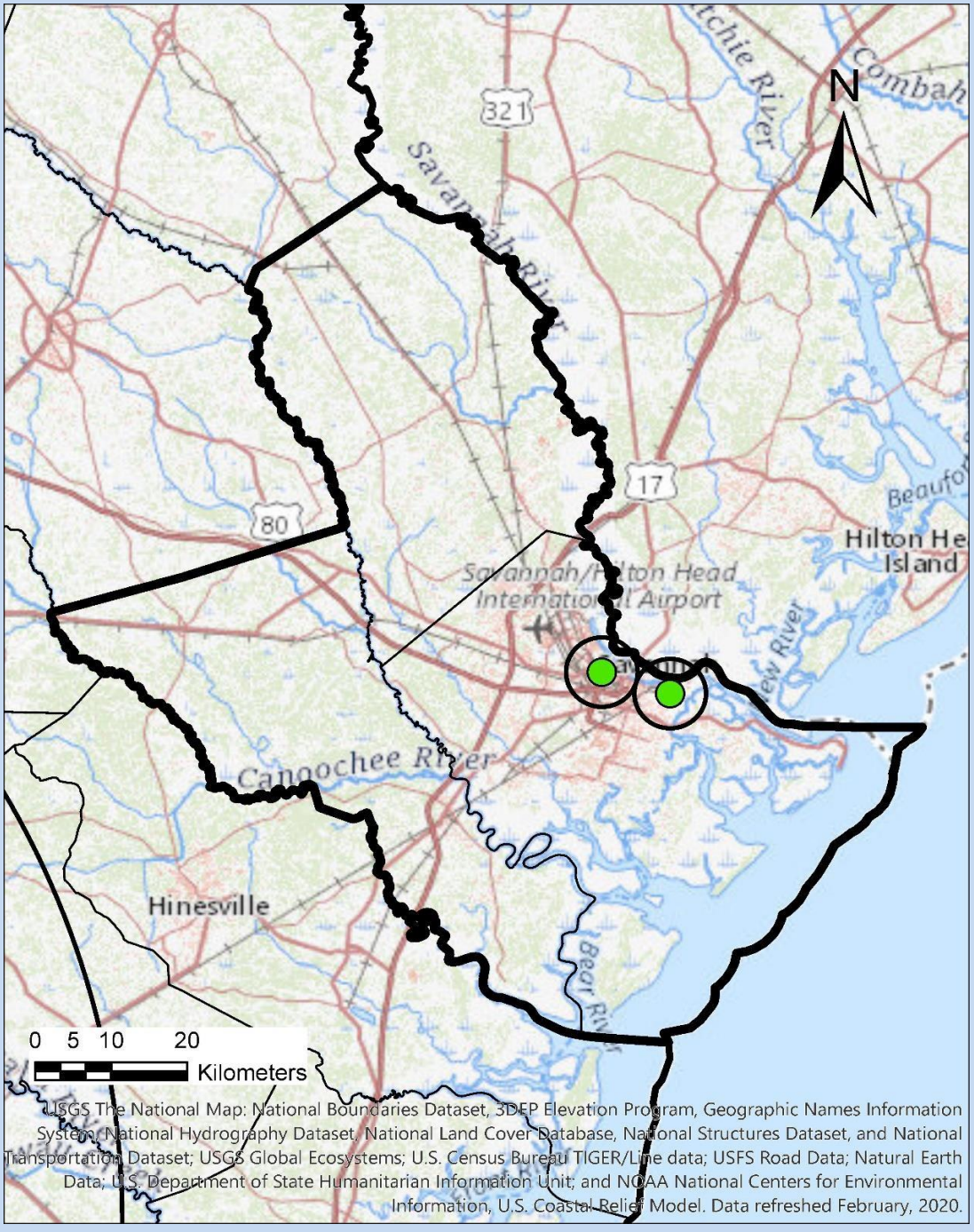
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/5/06
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/5/06
Outdoor Temperature	General/ Background	Continuous	2.2 m	Neighborhood	1/5/06
Relative Humidity	General/ Background	Continuous	2.2 m	Neighborhood	1/5/06
Rain/Melt Precipitation	General/ Background	Continuous	2.6 m	Neighborhood	1/5/06
Barometric Pressure	General/ Background	Continuous	1.8 m	Neighborhood	1/5/06

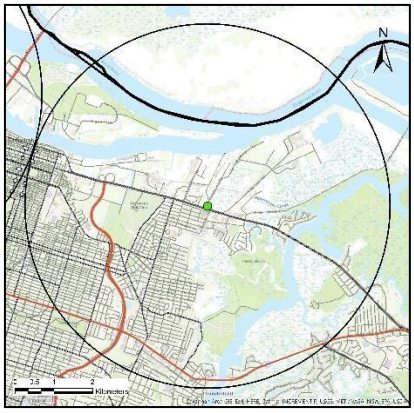
GA AAMP's plans for this site: Continue monitoring

Savannah MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Savannah- E. President



AQS ID: 130510021

Address: American Red Cross, 2500 E. President Street, Bd-A, Savannah, Chatham County, Georgia 31404

Site Established: 2/1/95

Latitude/Longitude: N32.0683/W-81.0496

Elevation: 10.4 meters

Area Represented: Savannah MSA

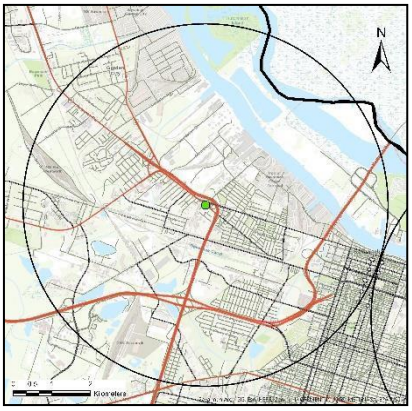
Site History: Established as SO_2 and H_2S site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	3.8 m	Neighborhood	4/19/95
SO_2	Source Oriented	Continuous	3.8 m	Neighborhood	3/29/95
SO_2 5-Minute Maximum	Population Exposure	Continuous	3.8 m	Neighborhood	8/1/10
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1//04

GA AAMP's plans for this site: Continue monitoring

Savannah- L&A

AQS ID: 130511002

Address: Pumping Station at Intersection of West Lathrop and Augusta Avenue, Savannah, Chatham County, Georgia 31415

Site Established: 1/1/72

Latitude/Longitude: N32.0906/W-81.1304 Elevation: 6.11 meters

Area Represented: Savannah MSA

Site History: Established as TSP site

North

South

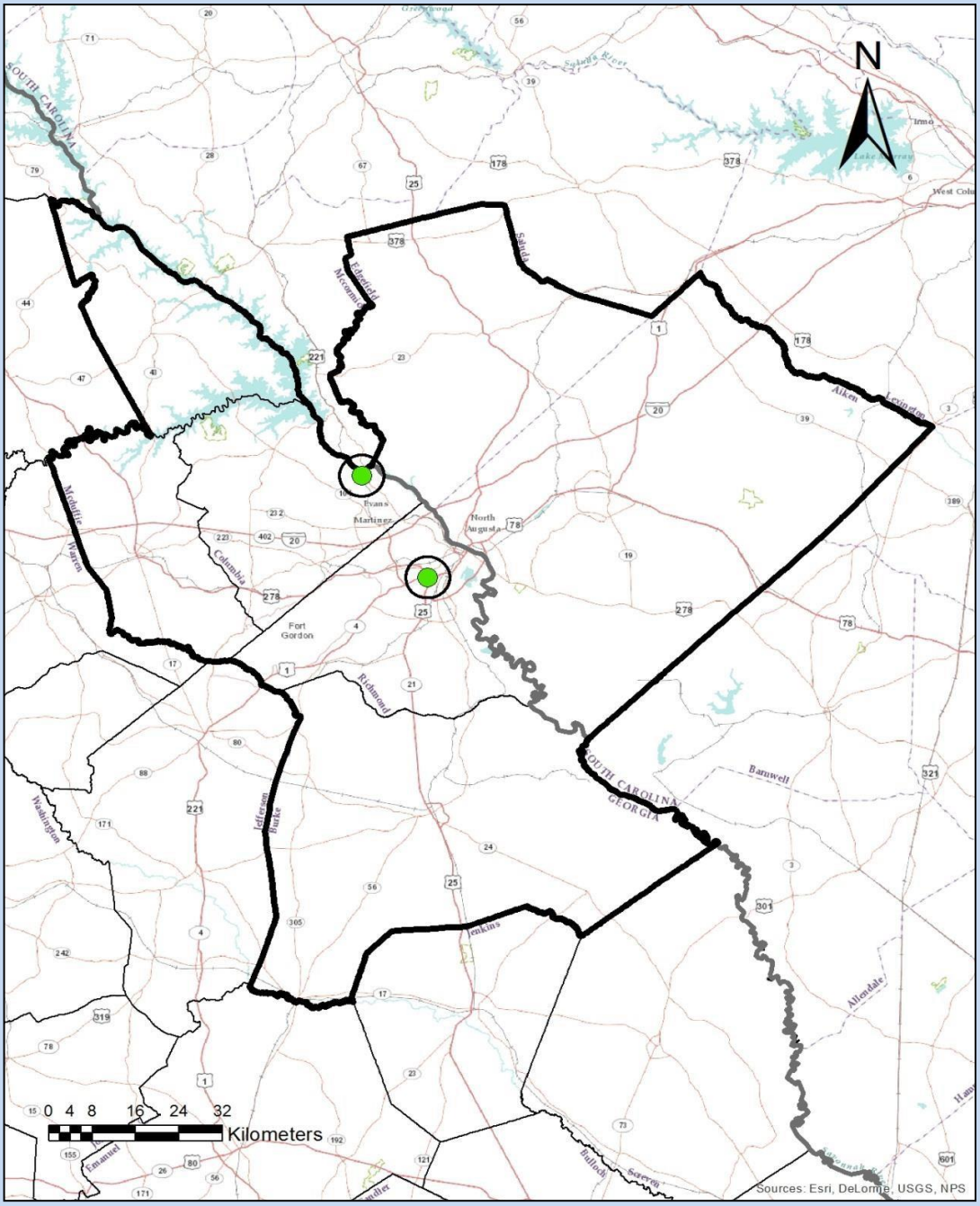
Southeast

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO_2	Population Exposure	Continuous	4.1 m	Neighborhood	1/1/98
SO_2 5-Minute Maximum	Population Exposure	Continuous	4.1 m	Neighborhood	8/1/10
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/79
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/79
$PM_{2.5}$	Population Exposure	Daily	4.75 m	Neighborhood	3/13/23
$PM_{2.5}$	Population Exposure	Continuous	4.5 m	Neighborhood	10/1/03

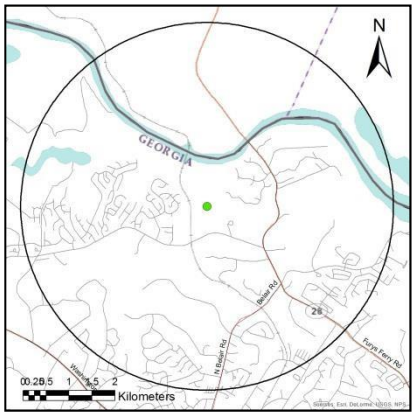
GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ sampler as FEM as of 11/7/2017 to ensure redundancy in the Savannah MSA and avoid data completeness issues

Augusta-Richmond County, Georgia-South Carolina MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Evans



AQS ID: 130730001

Address: Riverside Park, 4431 Hardy McManus Road, Evans, Columbia County, Georgia 30809

Site Established: 2/17/05

Latitude/Longitude: N33.5819/W-82.1314

Elevation: 74 meters

Area Represented: Augusta-Richmond County, Georgia-South Carolina MSA

Site History: Established as O_3 and NO_Y site

North

South

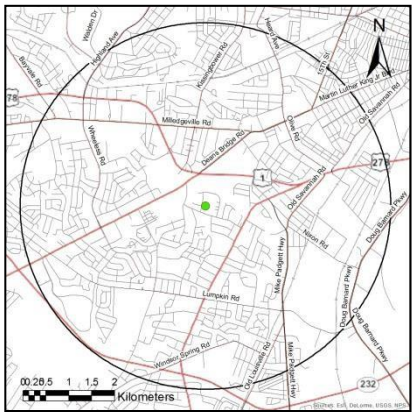
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	5 m	Neighborhood	3/1/05
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	2/17/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	2/17/05
Outside Temperature	General/ Background	Continuous	2 m	Neighborhood	2/17/05
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	2/17/05

GA AAMP's plans for this site: Continue monitoring

Augusta



AQS ID: 132450091

Address: Bungalow Road Elementary School, 2216 Bungalow Rd, Augusta, Richmond County, Georgia 30906

Site Established: 1/1/76

Latitude/Longitude: N33.4339/W-82.0224

Elevation: 48.77 meters

Area Represented: Augusta-Richmond County, Georgia-South Carolina MSA

Site History: Established as TSP site

North

South

East

West

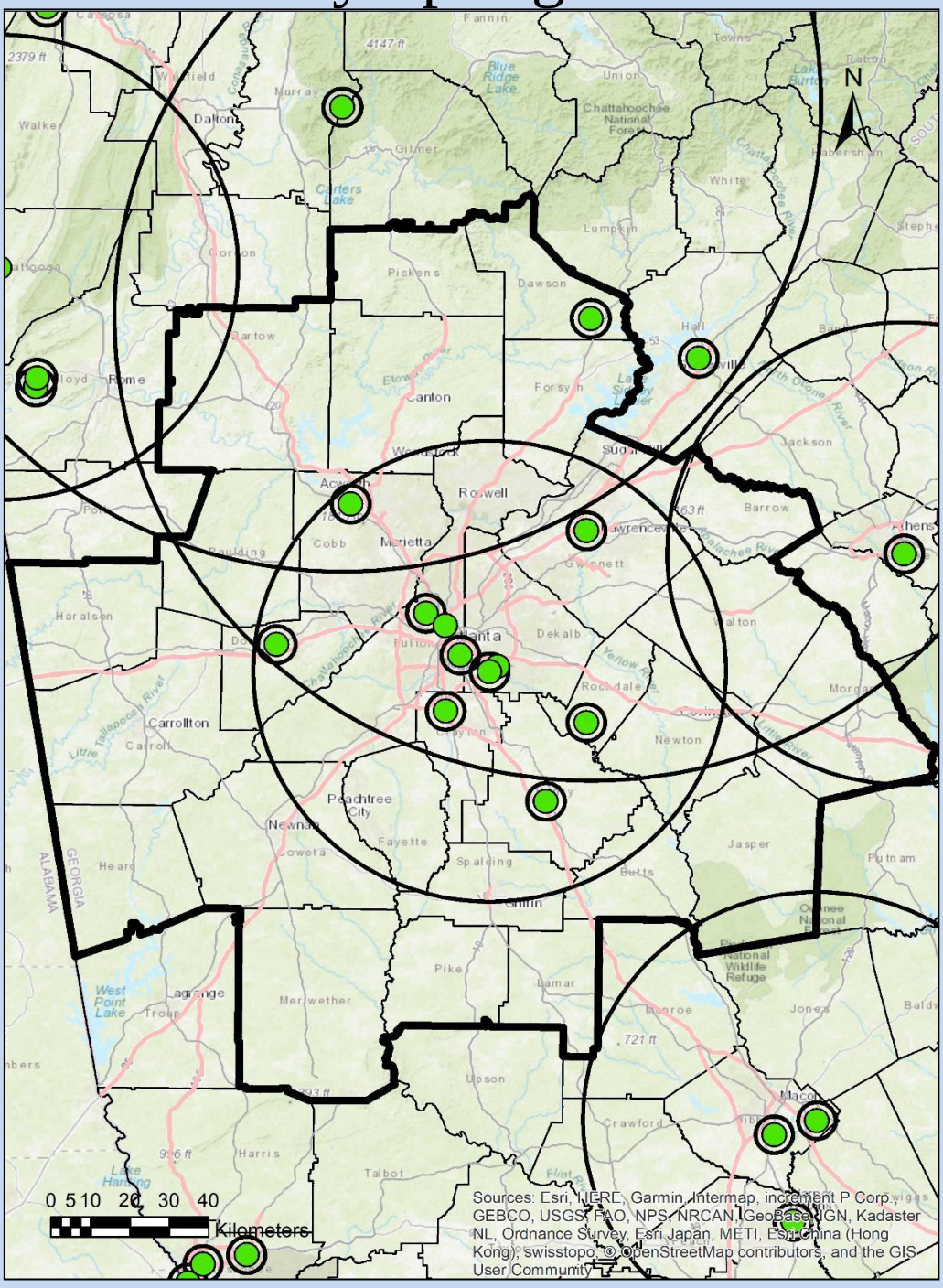
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4.5 m	Neighborhood	4/27/89
PM_{10}	Population Exposure	Continuous	3.5 m	Neighborhood	4/9/96
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2.5 m	Neighborhood	3/2/02
$PM_{2.5}$	Population Exposure	Continuous	4.5 m	Neighborhood	10/1/03
$PM_{2.5}$	Population Exposure	Daily	2.5 m	Neighborhood	1/1/22
$PM_{2.5}$	Quality Assurance	Every 3 days	2.5 m	Neighborhood	9/20/22
SO_2	Population Exposure	Continuous	4.5 m	Neighborhood	1/14/13

Augusta (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO_2 5-Minute Maximum	Population Exposure	Continuous	4.5 m	Neighborhood	1/14/13
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	10/2/03
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	10/2/03
Outside Temperature	General/ Background	Continuous	2 m	Neighborhood	10/2/03
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	10/2/03
Rain/Melt Precipitation	General/ Background	Continuous	4 m	Neighborhood	10/2/03
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	10/2/03

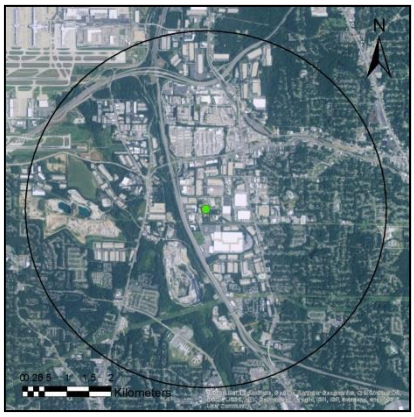
GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ monitor as FEM as of 10/1/2017; beginning with 2022 data, continuous $PM_{2.5}$ monitor is non-NAAQS; GA AAMP replaced the continuous PM_{10} TEOM and continuous $PM_{2.5}$ T640 with continuous T640X, which reads $PM_{2.5}$, PM_{10}, and PMcoarse on July 13, 2021. The $PM_{2.5}$ speciation sampling was temporarily suspended from March 23, 2021 until June 9, 2021; the integrated $PM_{2.5}$ FRM monitor was shut down from 2018-2021, and reopened January 1, 2022 to meet collocation requirements

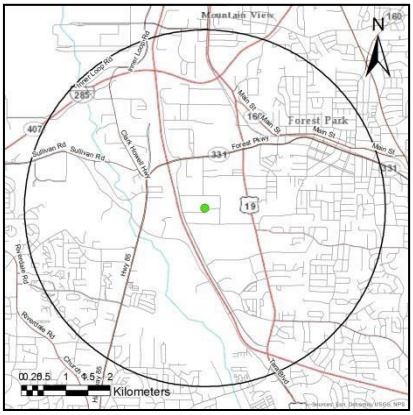
Atlanta-Sandy Springs-Marietta MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Forest Park





AQS ID: 130630091

Address: 25 Kennedy Drive, Forest Park, Clayton County, Georgia 30297 Site Established: 1/1/78

Latitude/Longitude: N33.6107/W-84.3908 Elevation: 288 meters

Area Represented: Atlanta-Sandy Springs-Marietta

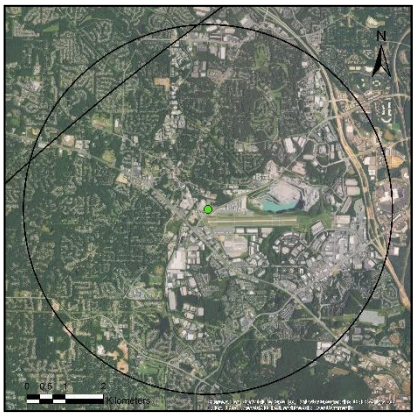
MSA Site History: Established as TSP site

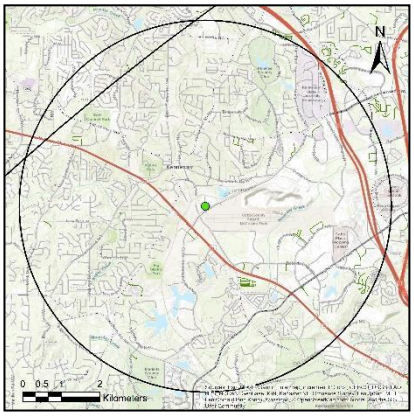
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	2.2 m	Neighborhood	1/9/99

GA AAMP's plans for this site: Continue monitoring; GA AAMP plans to install a continuous $PM_{2.5}$ non-NAAQS T640 sampler with the EPA American Rescue Plan funds in 2023

Kennesaw





AQS ID: 130670003

Address: Georgia National Guard, 1901 McCollum Parkway, Kennesaw, Cobb County, Georgia, 30144

Site Established: 2/7/99

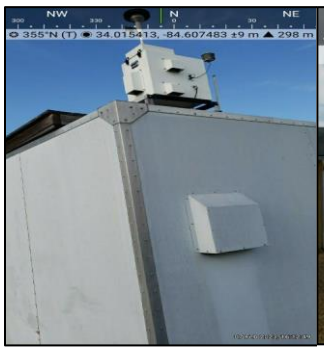
Latitude/Longitude: N34.0153/W-84.6075

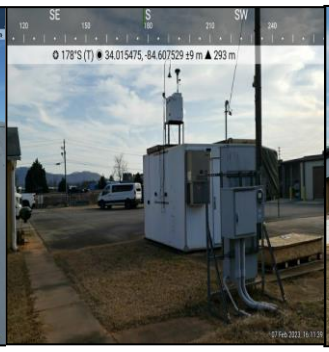
Elevation: 317 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as $PM_{2.5}$ site

North South East West

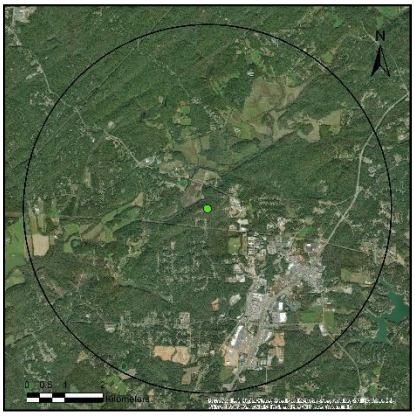
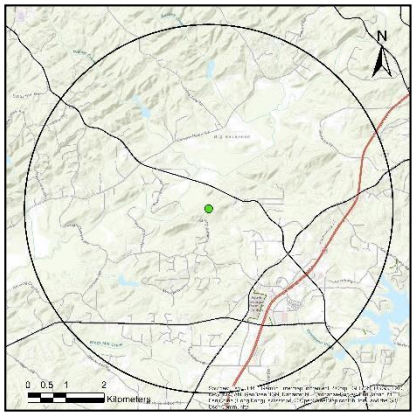
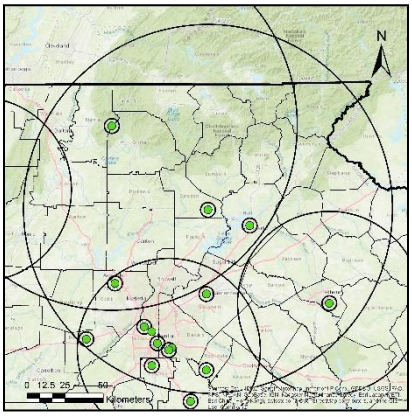




Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4.2 m	Neighborhood	9/1/99
$PM_{2.5}$	Population Exposure	Every 3 Days	4.8 m	Neighborhood	2/7/99

GA AAMP's plans for this site: Continue monitoring; GA AAMP plans to install a continuous $PM_{2.5}$ non-NAAQS T640 sampler with the EPA American Rescue Plan funds in 2023

Dawsonville

AQS ID: 130850001

Address: Georgia Forestry Commission, 4500 Georgia Highway 53 East, Dawsonville, Dawson County, Georgia 30534

Site Established: 1/1/85

Latitude/Longitude: N34.3761/W-84.0596

Elevation: 372 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

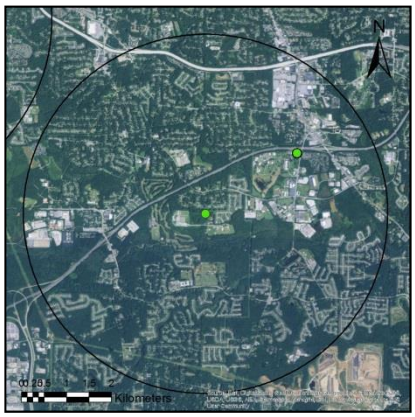
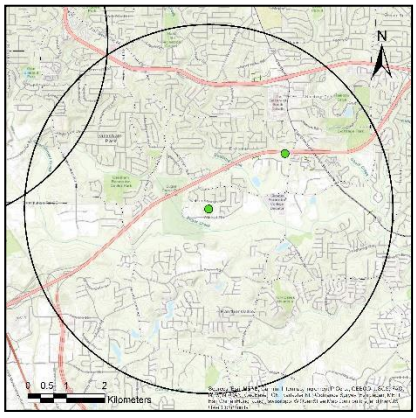
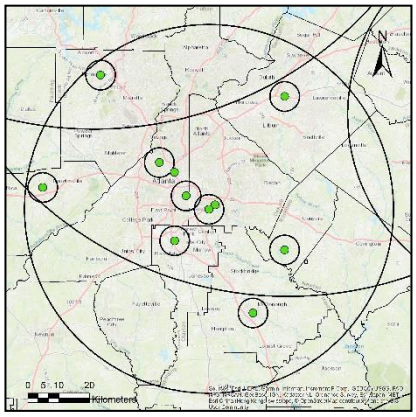
Site History: Established as O_3 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	1/1/85
Wind Speed	General/ Background	Continuous	10 m	Regional	1/1/05
Wind Direction	General/ Background	Continuous	10 m	Regional	1/1/05

GA AAMP's plans for this site: Continue monitoring

South DeKalb

AQS ID: 130890002

Address: 2300-C Wildcat Road, Decatur, DeKalb County, Georgia 30034

Site Established: 1/1/74

Latitude/Longitude: N33.6877/W-84.2905

Elevation: 308 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as O_3 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	2.4 m	Neighborhood	1/22/99
$PM_{2.5}$	Quality Assurance	Every 3 days	2.4 m	Neighborhood	12/20/08
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	5/1/03
$PM_{2.5}$ Speciation	Population Exposure	Every 3 days	2.2 m	Neighborhood	10/1/00
SO_2	Population Exposure	Continuous	3.8 m	Neighborhood	10/1/10
SO_2 5-Minute Maximum	Population Exposure	Continuous	3.8 m	Neighborhood	10/1/10
O_3	Population Exposure	Continuous	4 m	Neighborhood/ Urban	1/1/74
CO	Population Exposure	Continuous	4 m	Neighborhood	5/19/03

South DeKalb (continued)

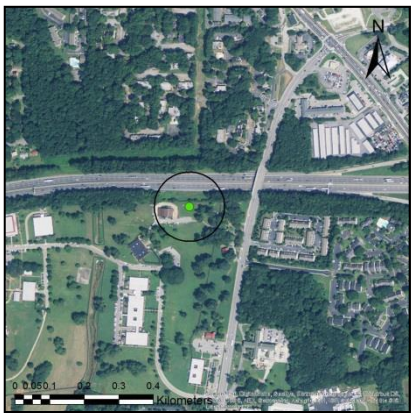
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NOy	Population Exposure	Continuous	10 m	Neighborhood/ Urban	1/1/98
NO	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NOx	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NO_2	Population Exposure	Continuous	4 m	Neighborhood/ Urban	7/21/78
Carbonyls (PAMS)	Max Precursor Emissions	Three 8-hour samples every third day in summer	3.8 m	Neighborhood	6/1/93
Carbonyls (NATTS)	Population Exposure	Every 6 days	3.8 m	Neighborhood	6/1/93
Carbonyls (NATTS)	Quality Assurance	1/month	3.8 m	Neighborhood	1/1/06
PM_{10} Select Metals (NATTS)	Population Exposure	Every 6 days	2 m	Neighborhood	1/1/00
PM_{10} Select Metals (NATTS)	Quality Assurance	1/month	2 m	Neighborhood	1/1/05
PM_{10} Continuous	Population Exposure	Continuous	4 m	Neighborhood	1/1/11
PM_{coarse} Continuous	Population Exposure	Continuous	4 m	Neighborhood	1/1/11
VOCs (PAMS)	Max Precursor Emissions	Continuous in Summer (June-August)	3.8 m	Neighborhood	6/1/93
VOCs (NATTS)	Population Exposure	Every 6 days	3.8 m	Neighborhood	6/1/93
VOCs (NATTS)	Quality Assurance	1/month	3.8 m	Neighborhood	1/1/05
Ethylene Oxide	Population Exposure	Continuous	3.8 m	Neighborhood	2/22/23
Semi-VOCs (NATTS)	Population Exposure	Every 6 days	2.5 m	Neighborhood	4/30/07
Semi-VOCs (NATTS)	Quality Assurance	1/month	2.5 m	Neighborhood	4/30/07
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/93
Rain/Melt Precipitation	General/ Background	Continuous	3.2 m	Neighborhood	1/1/97

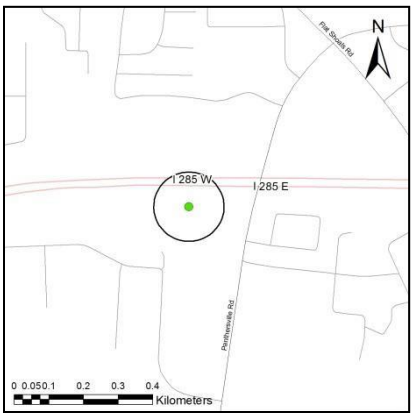
South DeKalb (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	6/1/93
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	6/1/93
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	6/1/93
Sigma Theta	General/ Background	Continuous	10 m	Neighborhood	1/1/02
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	6/1/93

GA AAMP's plans for this site: Continue monitoring. NCore site (refer to GA AAMP's *2011 Ambient Air Monitoring Plan, Appendix C, Ambient Air Monitoring Plan for National Core (NCore) Multipollutant Monitoring Station* for full description and approval). Solar radiation and ultraviolet radiation for South DeKalb PAMS are currently monitored at the Conyers site due to equipment specifications (see Section 1.4 for waiver request). GA AAMP replaced both the primary and collocated NATTS high-volume PM_{10} metals samplers with low-volume PM_{10} metals samplers as of April 1, 2022. GA AAMP installed a Markes-Agilent 7890B Gas Chromatograph to fulfill the PAMS requirement for measuring hourly VOCs by June 1, 2021. GA AAMP also installed a direct NO_2 monitor in June 2021 to fulfill PAMS requirements. GA AAMP reinstalled the Picarro continuous ethylene oxide analyzer at this site on February 22, 2023 as a non-regulatory sampler used for research purposes only. GA AAMP will run the Picarro for a few months to further evaluate the sampling technology.

NR-285





AQS ID: 130890003

Address: 3073 Panthersville Road, Decatur, DeKalb County, Georgia 30034

Site Established: 7/1/86

Latitude/Longitude: N33.6985/W-84.2727

Elevation: 238 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

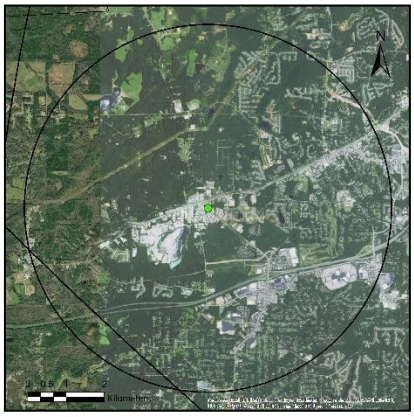
Site History: Established as lead site

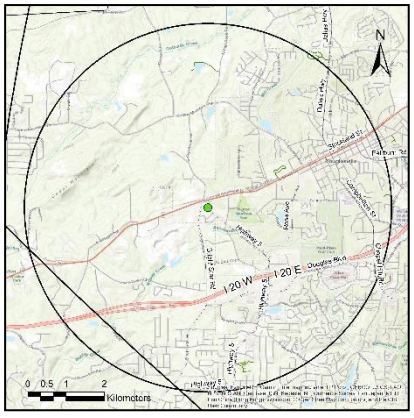
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO_2	Source Oriented	Continuous	3.3 m	Micro	1/1/15
NO	Source Oriented	Continuous	3.3 m	Micro	1/1/15
NOx	Source Oriented	Continuous	3.3 m	Micro	1/1/15
VOCs	Source Oriented	Every 12 days	3.3 m	Micro	3/31/15
$PM_{2.5}$	Source Oriented	Continuous	4.5 m	Micro	3/17/23
Black Carbon	Source Oriented	Continuous	3.3 m	Micro	9/1/15

GA AAMP's plans for this site: Continue monitoring; Near-road site as of 1/1/15 (see *Addendum to 2015 Ambient Monitoring Plan* for full description); black carbon instrument was replaced with a Met One sampler on January 1, 2022; the continuous $PM_{2.5}$ monitor is a non-FEM, non-NAAQS TEOM 1405-F to ensure redundancy in the MSA and avoid data completeness issues

Douglasville





AQS ID: 130970004

Address: Douglas County Water Authority, 7725 W. Strickland St., Douglasville, Douglas County, Georgia 30134

Site Established: 8/15/97

Latitude/Longitude: N33.7411/W-84.7765

Elevation: 373 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

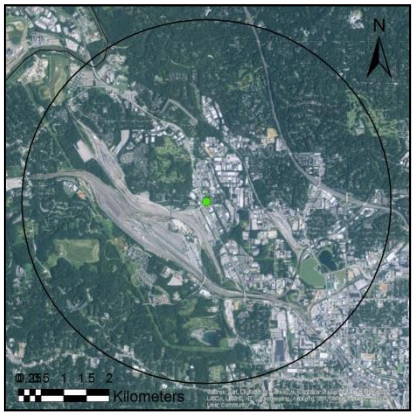
Site History: Established as O_3 site

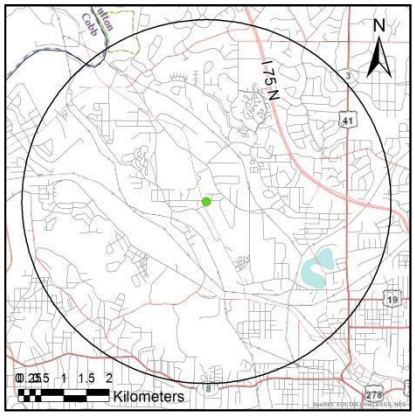
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	8/15/97
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	8/15/97
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	8/15/97

GA AAMP's plans for this site: Continue monitoring

Fire Station #8





AQS ID: 131210039

Address: Fire Station #8, 1711 Marietta Blvd., Atlanta, Fulton County, Georgia 30318

Site Established: 1/1/73

Latitude/Longitude: N33.8021/W-84.4357

Elevation: 265 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as TSP site

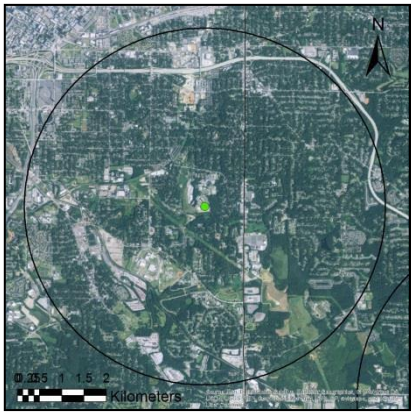
North South East West

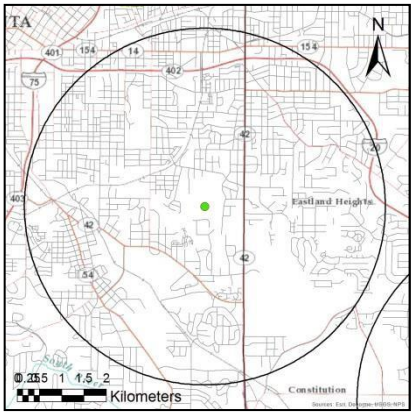
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	10 m	Neighborhood	1/21/99*
PM_{10}	Population Exposure	Every 6 days	10 m	Neighborhood	1/1/86**
PM_{10}	Population Exposure/Quality Assurance	Every 12 days	10 m	Neighborhood	2/1/86***

* Sampler inactive from 9/30/06 to 12/1/08, **Sampler inactive from 9/26/06 to 1/3/13, ***Sampler inactive from 10/12/87 to 1/1/06 and from 9/26/06 to 6/1/17

GA AAMP's plans for this site: Continue monitoring

United Avenue





AQS ID: 131210055
Address: 945 United Avenue, Atlanta, Fulton County, Georgia 30316
Site Established: 10/1/91
Latitude/Longitude: N33.7206/W-84.3574
Elevation: 288 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 and SO_2 site

North

South

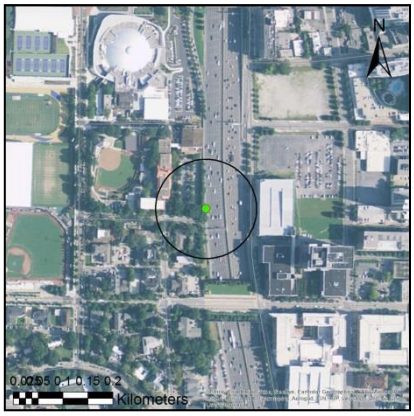
East

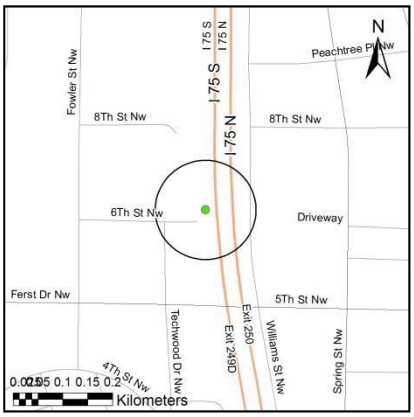
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO_2	Population Exposure	Continuous	4 m	Neighborhood	10/1/91
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
O_3	Maximum Concentration	Continuous (Mar-Oct)	4 m	Neighborhood	10/1/91
$PM_{2.5}$	Population Exposure	Continuous	4.8 m	Neighborhood	7/1/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04

GA AAMP's plans for this site: Continue monitoring

NR-GA Tech





AQS ID: 131210056

Address: Georgia Institute of Technology, 6th Street and I-75, Atlanta, Fulton County, Georgia, 30313

Site Established: 6/15/14

Latitude/Longitude: N33.7784/W-84.3914

Elevation: 286 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as near-road site

North South East West

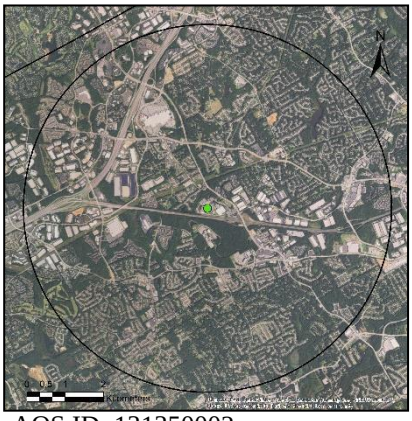
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO_2	Source Oriented	Continuous	3.5 m	Micro	6/15/14
NO	Source Oriented	Continuous	3.5 m	Micro	6/15/14
NOx	Source Oriented	Continuous	3.5 m	Micro	6/15/14
CO	Source Oriented	Continuous	3.5 m	Micro	6/15/14
$PM_{2.5}$	Source Oriented	Every 3 days	4.8 m	Micro	1/1/15
$PM_{2.5}$	Source Oriented	Continuous	3.5 m	Micro	3/1/18
Black Carbon	Source Oriented	Continuous	4.4 m	Micro	7/9/15

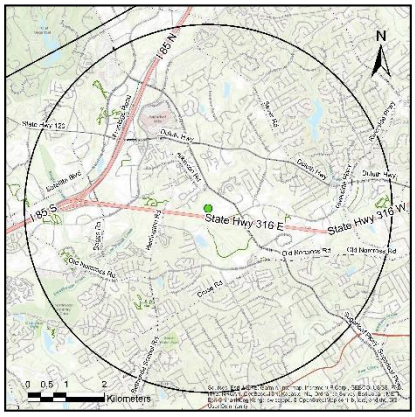
NR-GA Tech (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Direction	Source Oriented	Continuous	5.5 m	Micro	8/20/14
Wind Speed	Source Oriented	Continuous	5.5 m	Micro	8/20/14

GA AAMP's plans for this site: Continue monitoring; see Appendix E of *2014 Ambient Air Monitoring Plan* for near-road site establishment and details; GA AAMP replaced the $PM_{2.5}$ continuous nephelometer with a $PM_{2.5}$ non-FEM continuous TEOM sampler on 4/20/2023; replacing the black carbon with a Met One sampler in summer of 2023

Gwinnett Tech





AQS ID: 131350002

Address: Gwinnett Tech, 5150 Sugarloaf Parkway, Lawrenceville, Gwinnett County, Georgia 30043

Established: 3/17/95

Latitude/Longitude: N33.9632/W-84.0691

Elevation: 294 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

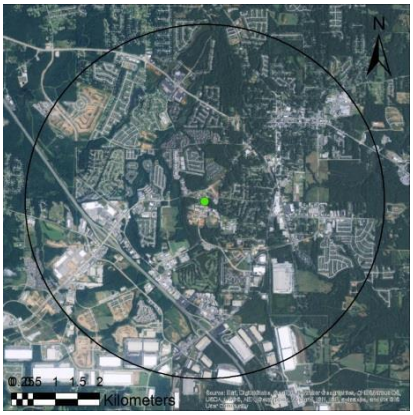
Site History: Established as O_3 site

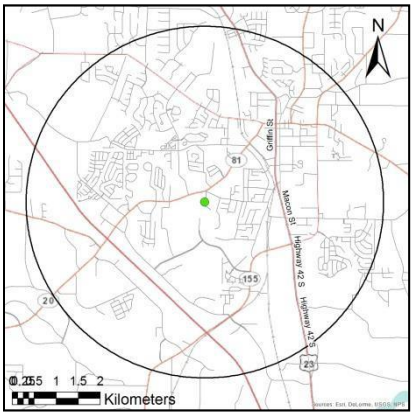
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	3.4 m	Neighborhood	5/17/95
$PM_{2.5}$	Population Exposure	Continuous	4.4 m	Neighborhood	9/1/03

GA AAMP's plans for this site: Continue monitoring; running continuous $PM_{2.5}$ sampler as FEM as of 10/26/17; due to increased traffic counts, the ozone monitor will need to be moved; GA AAMP is planning to move the site as soon as feasible.

McDonough





AQS ID: 131510002

Address: Blessings Thrift Store, 86 Work Camp Rd, McDonough, Henry County, Georgia 30253

Site Established: 6/7/99

Latitude/Longitude: N33.4338/W-84.1619

Elevation: 261.35 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as O_3 site

North

South

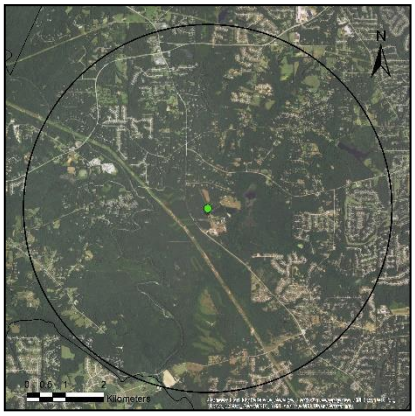
East

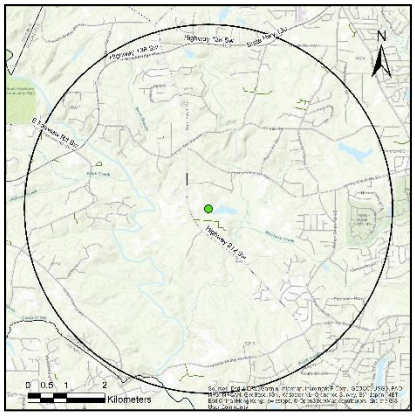
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Maximum Concentration	Continuous (Mar-Oct)	4 m	Neighborhood	6/7/99
$PM_{2.5}$	Population Exposure	Continuous	4.2 m	Neighborhood	9/1/03

GA AAMP's plans for this site: Continue monitoring; GA AAMP is currently looking at potential areas the shelter can be relocated to due to increased activity around the site

Conyers





AQS ID: 132470001
Address: 2625 Georgia Highway 212, Conyers, Rockdale County, Georgia 30094
Established: 7/26/78
Latitude/Longitude: N33.5884/W-84.0697
Elevation: 219 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

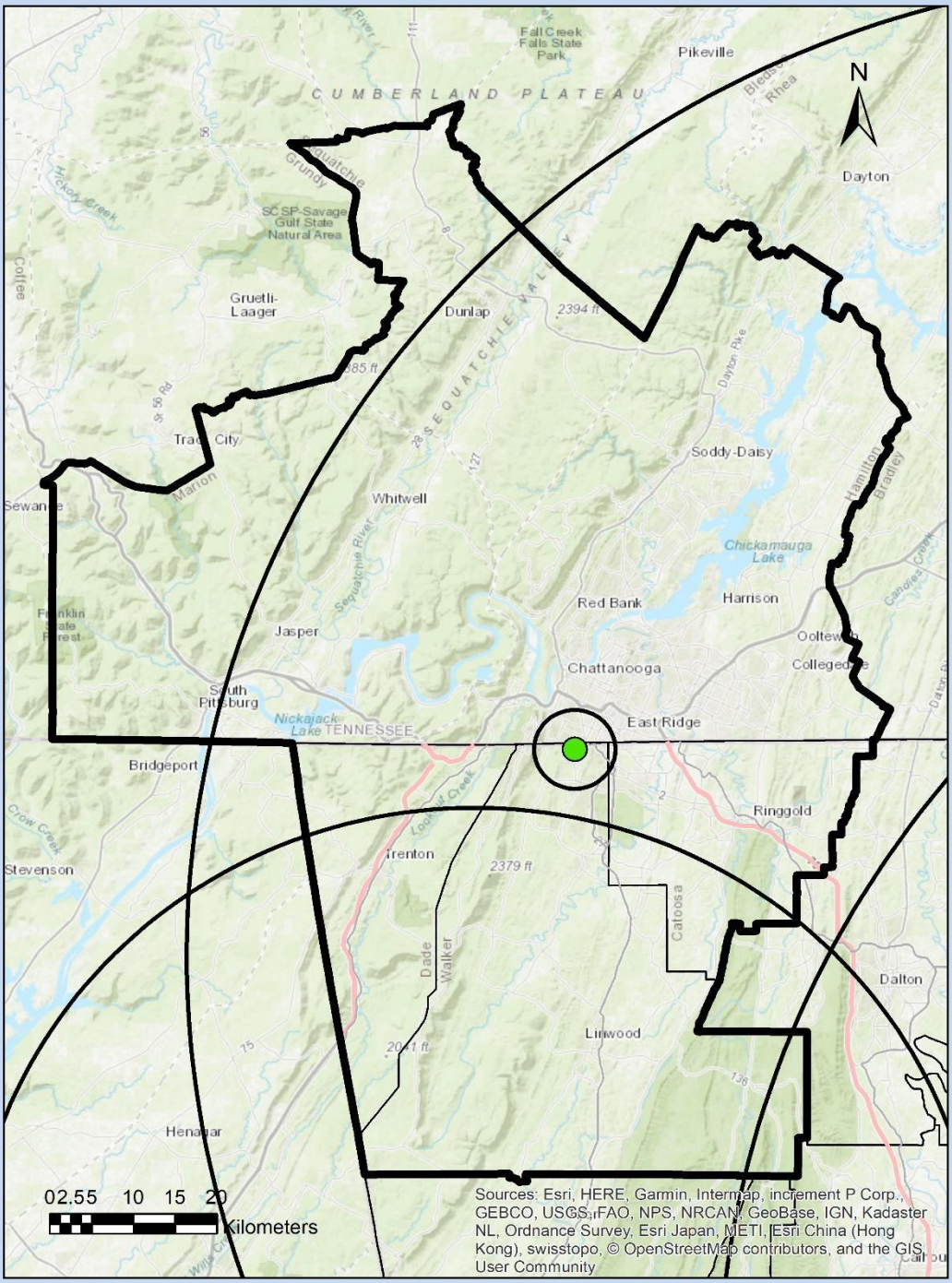
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Maximum Concentration	Continuous (Mar-Oct)	4.4 m	Neighborhood	7/26/78
Relative Humidity	General/ Background	Continuous	2.9 m	Neighborhood	6/1/94
Barometric Pressure	General/ Background	Continuous	2.9 m	Neighborhood	6/1/94
Ultraviolet Radiation	General/ Background	Continuous	2.2 m	Neighborhood	1/1/97
Outdoor Temperature	General/ Background	Continuous	2.9 m	Neighborhood	6/1/94
Solar Radiation	General/ Background	Continuous	2.2 m	Neighborhood	6/1/94

Conyers (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	6/1/94
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	6/1/94
Rain/Melt Precipitation	General/ Background	Continuous	3.8 m	Neighborhood	7/1/03

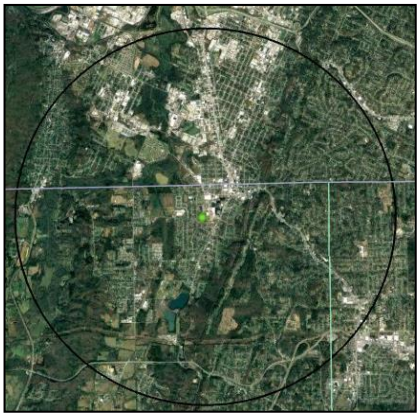
GA AAMP's plans for this site: Continue monitoring; ultraviolet radiation and solar radiation monitored at Conyers are also used to fulfill meteorological requirements for South DeKalb PAMS (see Section 1.4 for waiver request)

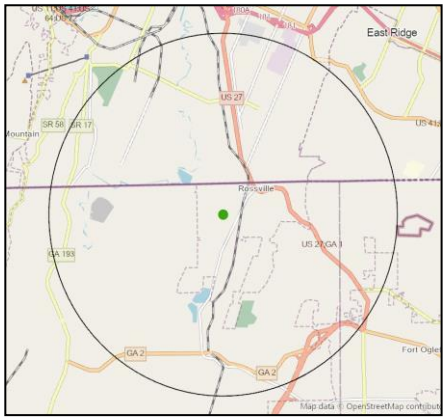
Chattanooga Tennessee-Georgia MSA



Radius of Circles on Map
Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Rossville-Williams St.





AQS ID: 132950004

Address: 301 Williams St., Rossville, Walker County, Georgia, 30741

Site Established: 3/1/21

Latitude/Longitude: N34.9784/W-85.2943

Elevation: 200 meters

Area Represented: Chattanooga Tennessee-Georgia MSA

Site History: Established as $PM_{2.5}$ site

North

South

East

West

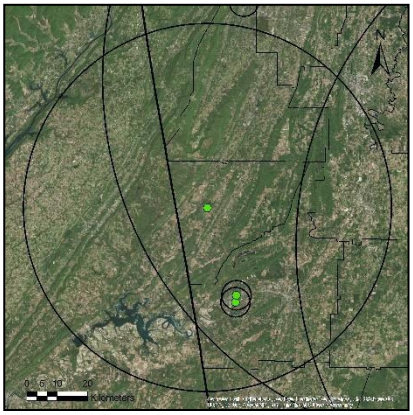
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Continuous	2.5 m	Neighborhood	3/1/21
$PM_{2.5}$	Population Exposure/ Regional Transport	Every 3 days	2.7 m	Neighborhood	3/1/21
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2.5 m	Neighborhood	4/28/21

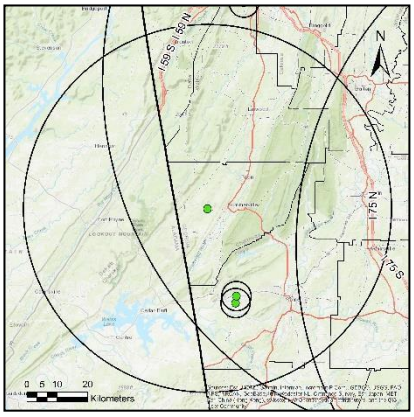
GA AAMP's plans for this site: Continue monitoring; site moved from Maple St. location and historical data can be found with AQS ID 13-295-0002; the speciation sampling was temporarily suspended from July 1, 2020 until April 28, 2021

Sites Not in an MSA

(Listed in AQS ID Order)

Summerville





AQS ID: 130550001

Address: DNR Fish Hatchery, 231 Fish Hatchery Road, Summerville, Chattooga County, Georgia 30747

Site Established: 1985

Latitude/Longitude: N34.4744/W-85.4089

Elevation: 276 meters

Area Represented: Not in an MSA, Summerville Micropolitan Statistical Area

Site History: Established as Acid Rain site

North

South

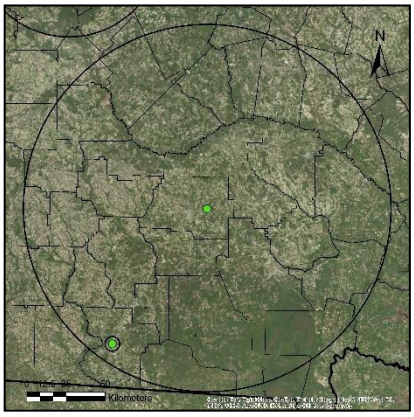
East

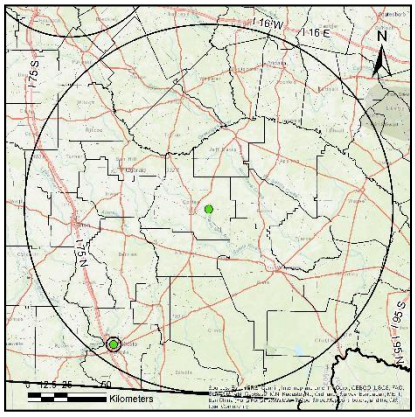
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Regional Transport	Continuous (Mar-Oct)	4 m	Urban	3/1/04

GA AAMP's plans for this site: Continue monitoring

General Coffee





AQS ID: 130690002

Address: 46 John Coffee Road, Nicholls, Coffee County, Georgia 31554

Site Established: 1/1/99

Latitude/Longitude: N31.5129/W-82.7501

Elevation: 49 meters

Area Represented: Not in an MSA, Douglas Micropolitan Statistical Area

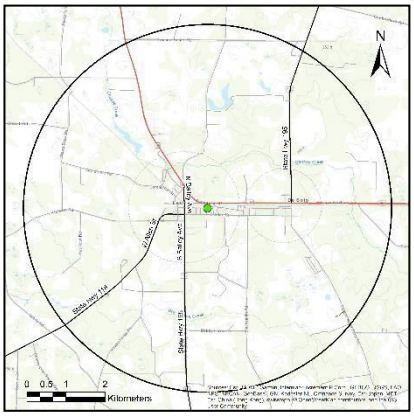
Site History: Established as Air Toxics site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$ Speciation	General Background	Every 6 days	3.5 m	Regional	3/1/02
$PM_{2.5}$	General Background	Every 3 days	3 m	Regional	2/1/17
Ethylene Oxide	General Background	As needed	3 m	Regional	9/19/19

GA AAMP's plans for this site: Continue monitoring; GA AAMP plans to install a continuous $PM_{2.5}$ FEM T640 sampler with the EPA American Rescue Plan funds in 2023; the deck at General Coffee was rebuilt in April 2023

Leslie



AQS ID: 132611001

Address: Leslie Community Center, N Bass St/E Allen St, Leslie, Sumter County, Georgia 31764

Site Established: 1/1/81

Latitude/Longitude: N31.9541/W-84.0811

Elevation: 108 meters

Area Represented: Not in an MSA, Americus Micropolitan Statistical Area

Site History: Established as O_3 site

North

South

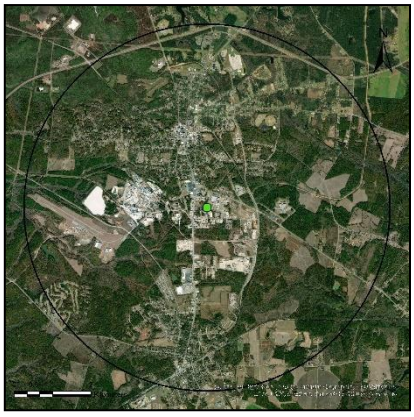
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	General/ Background	Continuous (Mar-Oct)	3 m	Neighborhood	1/1/81

GA AAMP's plans for this site: Continue monitoring

Sandersville



AQS ID: 133030001
Address: 420 Riddleville Road, Sandersville, Washington County, Georgia 31082
Site Established: 1/1/74
Latitude/Longitude: N32.968060/W-82.805903
Elevation: 140 meters
Area Represented: Not in an MSA, Washington County
Site History: Established as TSP site

North

South

East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Continuous	3.1 m	Neighborhood	1/30/19
$PM_{2.5}$	Quality Assurance	Continuous	3.0 m	Neighborhood	3/24/23

GA AAMP's plans for this site: Continue monitoring; on 8/14/19, GA AAMP replaced the FRM with an FEM Teledyne T640 Continuous $PM_{2.5}$ sampler; GA AAMP added another FEM sampler to ensure redundancy in the area and avoid data completeness issues

Appendix B: Inventory of Ambient Monitoring Equipment

Georgia Department of Natural Resources
Environmental Protection Division

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Rome MSA			
Rome	ESC DAS 8832	Datalogger 8832	good / >8
	Met One SASS	PM2.5 Speciation Sampler	good / >7
	URG 3000N	PM2.5 Speciation Sampler	good / >11
	TEOM 1400AB	Continuous PM2.5 Sampler	good / >7
Brunswick MSA			
Brunswick	ESC DAS 8832	Datalogger	good / >8
	Thermo 49 series	O3 Analyzer	good / >10
	Thermo 49 series	O3 Calibrator	good / >10
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good / >10
	Teledyne T640	Continuous PM2.5 Sampler	good / >1
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good / >1
	Aluma T-135	Meteorological Crank Tower	good / >12
	Environics 7000	Zero Air Supply	good / >7
Valdosta MSA			
Valdosta	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good / >7
	Teledyne T640	Continuous PM2.5 Sampler	good / >1
	ESC DAS 8832	Datalogger	good / <6
Warner Robins MSA			
Warner Robins	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good / >6
	Teledyne T640	Continuous PM Sampler	good / >4
	ESC DAS 8832	Datalogger	good / >8
Dalton MSA			
Fort Mountain	ESC DAS 8832	Datalogger	good / >8
	Thermo 49 series	O3 Analyzer	good / >10
	Thermo 49 series	O3 Calibrator	good / >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >3
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >1
	Aluma FOT-10	Meteorological Fold Over Tower	good/ >12
Gainesville MSA			
Gainesville	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	new
	Teledyne T640	Continuous PM Sampler	good/ >4
	ESC DAS 8832	Datalogger	good/ >8
Albany MSA			
Albany	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Thermo Partisol-Plus 2025	Collocated Integrated PM2.5 Sampler	good/ >6
	ESC DAS 8832	Datalogger	good/ >8
	Teledyne T640	Continuous PM Sampler	good/ >2
Athens-Clarke County MSA			
Athens	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	Teledyne T640	Continuous PM Sampler	good/ >3
	Teledyne T640	Collocated Continuous PM Sampler	good/ >2
	ESC DAS 8832	Datalogger	good/ >8
	Environics 7000	Zero Air Supply	good/ >6
Macon MSA			
Macon-Allied	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Thermo Partisol-Plus 2025	Collocated Integrated PM2.5 Sampler	good/ >6
	Met One SASS	PM2.5 Speciation Sampler	good/ >11
	URG 3000N	PM2.5 Speciation Sampler	good/ >11
Macon Forestry	ESC DAS 8832	Datalogger	good/ >8
	Thermo 49 series	O3 Analyzer	good/ >11
	Thermo 49 series	O3 Calibrator	good/ >10
	Thermo 43i	SO2 Analyzer	good/ >10
	Thermo 146i	Multi-Gas Calibrator	good/ >11

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Macon-Forestry cont'd	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Teledyne T640	Continuous PM Sampler	good/ >3
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ >8
	Graseby PUF Sampler GPS1-11*	Semi-VOCs (PAH) Sampler	good/ >11
	Graseby High Volume 2000H*	Metals Sampler	good/ >11
	AVOCS*	VOC Sampler	good/ >11
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >1
	Aluma T-135	Meteorological Crank Tower	good/ >12
Columbus Georgia-Alabama MSA			
Columbus - Airport	ESC DAS 8832	Datalogger	good/ >8
	Thermo 49 series	O3 Analyzer	good/ >11
	Thermo 49 series	O3 Calibrator	good/ >10
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Teledyne T640	Continuous PM2.5 Sampler	good/ >3
	Environics 7000	Zero Air Supply	good/ >6
Columbus - Baker	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Met One SASS	PM2.5 Speciation Sampler	good/ >8
	URG 3000N	PM2.5 Speciation Sampler	good/ >6
Columbus - Crime Lab	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >6
	Aluma T-135	Meteorological Crank Tower	good/ >12
	RM Young Barometric Pressure Sensor 61302V	Barometric Pressure Sensor	good/ >1
	Novalynx 260-2501 Tipping Bucket	Precipitation Sensor	good/ >6
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >6
	ESC DAS 8832	Datalogger	good/ >8
Savannah MSA			
Savannah - E President	ESC DAS 8832	Datalogger	good/ >8
	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	Thermo 43i	SO2 Analyzer	good/ >10
	Thermo 146i	Multi-Gas Calibrator	good/ >10
	Environics 7000	Zero Air Supply	good/ >6
	Graseby PUF Sampler GSP1*	Semi-VOCs (PAH) Sampler	good/ >10
	Andersen Hi-VL 2000 HBL*	Metals Sampler	good/ >10
	ATEC 1000*	Carbonyls Sampler	good/ >10
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >1
	Aluma T-135	Meteorological Crank Tower	good/ >12
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >1
	RM Young Barometric Pressure Sensor 61302	Barometric Pressure Sensor	good/ >1
Savannah - L&A	ESC DAS 8832	Datalogger	good/ >8
	Thermo 43i	SO2 Analyzer	good/ >10
	Thermo 146i	Multi-Gas Calibrator	good/ >10
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	new
	Teledyne T640	Continuous PM Sampler	good/ >3
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >1
	Aluma T-135	Meteorological Crank Tower	good/ >12
	Environics 7000	Zero Air Supply	good/ >6

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Augusta-Richmond County, Georgia-South Carolina MSA			
Evans	Thermo 49 series	O3 Analyzer	good/ >9
	Thermo 49 series	O3 Calibrator	good/ >9
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >2
	Aluma FOT-10	Meteorological Fold Over Tower	good/ >9
	ESC DAS 8832	Datalogger	good/ >8
	Sabio 1001	Zero Air Supply	good/ >6
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >2
Augusta	Sabio 1001	Zero Air Supply	good/ >6
	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	Thermo 43i-TLE	SO2 Analyzer	good/ >10
	Thermo 146i	Multi-Gas Calibrator	good/ >10
	Teledyne T640X	Continuous PM Sampler	good/>2
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ <1
	Thermo Partisol-Plus 2025	Collocated Integrated PM2.5 Sampler	good/<1
	Met One SASS	PM2.5 Speciation Sampler	good/ >7
	URG 3000N	PM2.5 Speciation Sampler	good/ >7
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >5
	Aluma T-135	Meteorological Crank Tower	good/ >12
	ESC DAS 8832	Datalogger	good/ >8
	Novalynx 260-2501 Tipping Bucket	Precipitation Sensor	good/ >2
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	new
	PM Young Barometric Pressure Sensor 61302	Barometric Pressure Sensor	good/ >1
Atlanta-Sandy Springs-Marietta MSA			
Forest Park	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
Kennesaw	Agilaire 8872	Datalogger	new
	Thermo 49 series	O3 Analyzer	good/ >9
	Thermo 49 iQPS	O3 Calibrator	good/ >3
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >5
Dawsonville	Thermo 49 series	O3 Analyzer	good/ >8
	Thermo 49 series	O3 Calibrator	good/ >8
	ESC DAS 8832	Datalogger	good/ >8
	Environics 7000	Zero Air Supply	good/ >8
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >3
	Aluma FOT-10	Meteorological Fold Over Tower	good/ >12
South DeKalb	Agilaire 8872	Datalogger	good/ >1
	Thermo 49 series	O3 Analyzer	good/ >5
	Thermo 49iQPS	O3 Calibrator	good/ >3
	Environics 6103	Multi-Gas Calibrator	good/ >6
	Environics 6103	Multi-Gas Calibrator	good/ >5
	Themo 42iY	NOy Analyzer	good/ >10
	Teledyne N500 CAPS	NO, NO2, NOx	good/ >1
	Thermo 42i	NOx Analyzer	good/ >10
	Thermo 48i-TLE	CO Analyzer	good/ >6
	Thermo 43i-TLE	SO2 Analyzer	good/ >6
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
South Dekalb cont'd	Thermo Partisol-Plus 2025	Collocated Integrated PM2.5 Sampler	good/ >6
	Teledyne T640X	Continuous PM Sampler	good/>4
	Met One SASS	PM2.5 Speciation Sampler	good/ >6
	URG 3000N	PM2.5 Speciation Sampler	good/ >10
	Sabio 1001	Zero Air Supply	good/ >5
	Sabio 1001	Zero Air Supply	good/ >5
	ATEC 8000	Carbonyls Sampler	good/ >6
	ATEC 8000/ATEC 2200-1C	Collocated Carbonyls Sampler	good/ >6
	Tisch Environmental PUF	Semi-VOCs (PAH) Sampler	good/ >9
	Tisch Environmental PUF	Collocated Semi-VOCs (PAH) Sampler	good/ >9
	ATEC 2200	VOCs Sampler	good/ >10
	ATEC 2200	Collocated VOCs Sampler	good/ >10
	Sierra-Andersen/Graseby High-Vol	PM10 Metals	good/ >10
	Sierra/Andersen/Graseby High-Vol	Collocated PM10 Metals	good/ >10
	Met-One Low-Vol	PM10 Metals	good/ >2
	Met-One Low-Vol	Collocated PM10 Metals	good/ >2
	Picarro G2920^	Continuous Ethylene Oxide Sampler	good/ >2
	Markes Unity XR Thermal Desorber	Gas Chromatograph	good/ >2
	AirGas Hydrogen Cylinder (4)	Gas Cylinder	good/ >2
	AirGas Helium Cylinder (3)	Gas Cylinder	good/ >2
	NexAir Helium Cylinder	Gas Cylinder	good/ >2
	AirGas Compressed Air (9)	Gas Cylinder	good/ >2
	Parker TOC Generator	Zero Air Generator	good/ >2
	Peak Scientific Hydrogen Generator	Hydrogen Generator	good/ >2
	Linde Spectra PAMS Gas Standard	PAMS - Gas Standard	good/ >7
	AirGas Nitrogen Cylinder (2)	Gas Cylinder	good/ >2
	Carbon Monoxide Cylinder	Gas Cylinder	good/ <10
	Nitrogen Oxide Cylinder	Gas Cylinder	good/ <10
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ <10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >6
	Aluma T-135	Meteorological Crank Tower	good/ >12
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >2
	Novalynx 260-2501 Tipping Bucket	Precipitation Sensor	good/ >6
	RM Young Barometric Pressure Sensor 61302	Barometric Pressure Sensor	good/ >6
NR-285	Agilaire 8872	Datalogger	good/ >1
	TEOM 1405-F	Continuous PM2.5 Sampler	new
	Thermo 42i	NOx Analyzer	good/ >6
	Xonteck 910	VOC Sampler	good/ >6
	Environics 6103	Multi-gas Calibrator	good/ >6
	Nitrogen Oxide Cylinder	Gas Cylinder	good/ >10
	Met One Instrument BC-1060	Black Carbon Sampler	good/ <1
Douglasville	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >3
	Aluma T-135	Meteorological Crank Tower	good/ >12
	Sabio 1001	Zero Air Supply	good/ >6
	Agilaire 8872	Datalogger	new
Fire Station #8	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	Tisch TE-Wilbur Filter Based	Integrated PM10 Sampler	good/>4
	Tisch TE-Wilbur Filter Based	Collocated Integrated PM10 Sampler	good/>4

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
United Avenue	Thermo 146i	Multi-gas Calibrator	good/ >5
	Agilaire 8872	Datalogger	good/ >1
	Thermo 49 series	O3 Analyzer	good/ >8
	Thermo 49 series	O3 Calibrator	good/ >8
	Thermo 43i	SO2 Analyzer	good/ >7
	TEOM 1400AB	Continuous PM2.5 Sampler	good/ >10
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ >10
	Sabio 1001	Zero Air Supply	good/ >6
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >6
	Aluma T-135	Meteorological Crank Tower	good/ >12
NR-GA Tech	Agilaire 8872	Datalogger	new
	Thermo 42i	NO2 Analyzer	good/ >6
	Thermo 48i-TLE	CO Analyzer	good/ >10
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	TEOM 1405-F	Continuous PM2.5 Sampler	new
	Carbon Monoxide Cylinder	Gas Cylinder	good/ >10
	Nitrogen Oxide Cylinder	Gas Cylinder	good/ >10
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >3
	Aluma T-135	Meteorological Crank Tower	good/ >8
	Environics 7000	Zero Air Supply	good/ >6
	Environics 6103	Multi-gas Calibrator	good/ >6
	Met One Instruments BC-1060	Black Carbon Sampler	good/<1
Gwinnett Tech	ESC DAS 8832	Datalogger	good/ >7
	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	Environics 7000	Zero Air Supply	good/ >5
	Teledyne T640	Continuous PM Sampler	good/ >4
McDonough	Agilaire 8872	Datalogger	new
	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49 series	O3 Calibrator	good/ >10
	Environics 7000	Zero Air Supply	good/ >6
	TEOM 1400AB	Continuous PM2.5 Sampler	good/ >10
Conyers	Agilaire 8872	Datalogger	good/ >1
	Thermo 49 series	O3 Analyzer	good/ >10
	Thermo 49iQPS	O3 Calibrator	good/ >3
	Teledyne 701	Zero Air Supply	good/ >6
	RM Young Ultrasonic Anemometer 81000	Wind Speed and Wind Direction	good/ >2
	Aluma T-135	Meteorological Crank Tower	good/ >12
	Eppley Lab Standard Precision Pyronometer 38380F3	Solar Radiation Instrument	good/ >1
	Eppley Lab TUVR 38020	Ultraviolet Radiometer	good/ >1
	Novalynx 260-2501 Tipping Bucket	Precipitation Sensor	good/ >6
	RM Young Temp/RH Probe 41382VC	Ambient Temperature & Relative Humidity	good/ >5
	RM Young Barometric Pressure Sensor 61302	Barometric Pressure Sensor	good/ >6
Chattanooga Tennessee-Georgia MSA			
Rossville-Williams St.	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >7
	Met One SASS	PM2.5 Speciation Sampler	good/ >7
	URG 3000N	PM2.5 Speciation Sampler	good/ >7
	ESC DAS 8832	Datalogger	good/ >8
	Teledyne T640	Continuous PM2.5 Sampler	good/ >3
Sites Not in an MSA			
Summerville	ESC DAS 8832	Datalogger	good/ >8
	Thermo 49 series	O3 Analyzer	good/ >10

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Summerville cont'd	Thermo 49 series	O3 Calibrator	good/ >10
General Coffee	Met One SASS	PM2.5 Speciation Sampler	good/ >6
	URG 3000N	PM2.5 Speciation Sampler	good/ >10
	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >11
Leslie	ESC DAS 8832	Datalogger	good/ >8
	Thermo 49 series	O3 Analyzer	good/ >11
	Thermo 49 series	O3 Calibrator	good/ >10
	Environics 7000	Zero Air Supply	good/ >6
Sandersville	Teledyne T640	Continuous PM Sampler	good/ >4
	Teledyne T640	Collocated Continuous PM Sampler	new
	ESC DAS 8832 (2)	Datalogger	good/ >6
Georgia AAMP			
	BGI/MesaLabs DeltaCal (4)	Flow, Temperature & Pressure Standard	good/ >7
	BGI/MesaLabs TetraCal (3)	Flow, Temperature & Pressure Standard	good/ >7
	BIOS DC-Lite DCL-H	Flow Standard	good/ >7
	BIOS Definer 220 High Flow	High flow volumetric standardized gas	good/ >7
	BIOS Definer 220 Low Flow	Low flow volumetric standardized gas	good/ >7
	Chinook Engineering Streamline Pro (3)	Flow Transfer Standard	good/ >7
	Graseby GMW	PUF Orifice	good/ >7
	Linde UltraPure Gas Standard	PAMS - EPA UltraPure Gas Standard	good/ >7
	Sensidyne Gilibrator Flow Cell (6)	Flow Standard	good/ >7
	Sensidyne Gilibrator Flow Cell Base (2)	Flow Standard	good/ >7
	Tisch Environmental TE-5040A	PUF Orifice	good/ >7
	Vaisala HM40/HM46 (3)	Temperature & Relative Humidity Probe	good/ >7
	Vaisala HMI41/HMP46 (3)	Temperature & Relative Humidity Probe	good/ >7
	Thermo 49i-PS (2)	O3 Standard	good/ >10
	Thermo 49-PS (2)	O3 Standard	good/ >11
	Thermo 146i (2)	Multi-Gas Calibrator	good/ >11
	Airgas EPA Protocol Gas Standard (5)	EPA Protocol NO/NOx/CO/SO2 Gas Standard	good/ >7
	Bosch GLM 80 (2)	Laser Distance/Angle Measurer	good/ >7
	NexAir EPA Protocol Gas Standard (5)	EPA Protocol NO/CO/SO2 Gas Standard	good/ >7
Meteorology Unit Workshop	RM Young Ultrasonic Anemometer 810000 (13)	Wind Speed and Wind Direction	Various
	RM Young Meteorological Translator 26800	Datalogger	good/ >2
	Eppley Lab Standard Precision Pyronometer 38380F3 (5)	Solar Radiation Instrument	Various
	Eppley Lab TUVR (6)	Ultraviolet Radiometer	Various
	RM Young Wind Monitor 05305VM (2)	Wind Speed and Wind Direction	good/ >10
	Novalynx 260-2501 Tipping Bucket (8)	Precipitation Sensor	good/ >10
	RM Young Temp/RH Probe 41382VC/ 41382VC (13)	Ambient Temperature & Relative Humidity	good/ >6
	RM Young Barometric Pressure Sensor 61302 (14)	Barometric Pressure	good/ >10
	Aluma T-135 (5)	Meteorological Crank Tower	Various

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Workshop	Met One SASS (7)	PM2.5 Speciation Sampler	good/ >9
	URG 3000N (4)	PM2.5 Speciation Sampler	good/ >6
	Thermo 43i-TLE (3)	SO2 Analyzer	Various
	Thermo 146i (10)	Multi-Gas Calibrator	Various
	Thermo 42i (5)	NO, NO2, NOx Analyzer	Various
	Environics 6103 (3)	Multi-Gas Calibrator	good/ >6
	Thermo 48i-TLE (6)	CO Analyzer	Various
	Thermo 42iY	NOy Analyzer	good/ >9
	Thermo 43i (4)	SO2 Analyzer	Various
	Sabio 1001 (2)	Zero Air Supply	good/ >6
	Teledyne T701H (2)	Zero Air Supply	Various
	Environics 7000 (6)	Zero Air Supply	good/ >5
	Teledyne T640 (3)	Continuous PM Sampler	good/ >4
	Teledyne T640X	Continuous PM Sampler	good/ >4
	Met One E-SEQ-FRM (5)	Integrated PM Sampler	Various
	Thermo 42C (2)	NO/NO2/NOx Analyzer	Various
	Thermo 49i-PS (5)	O3 Calibrator	Various
	Thermo 49i (2)	O3 Analyzer	Various
	Thermo 49C-PS (5)	O3 Calibrator	Various
	Thermo 49C (2)	O3 Analyzer	Various
	Thermo Partisol-Plus 2025 (13)	Integrated PM2.5 Sampler	Various
	TEOM 1400AB (3)	Continuous PM2.5 Sampler	good/ >9
	Agilaire 8872 (18)	Datalogger	Various
	ATEC 2200-1P (9)	VOCs Sampler	good/ >9
	ATEC 2200-1C (2)	VOCs Sampler	good/ >9
	ATEC 8000 (5)	Carbonyls Sampler	Various
	Agilaire 8832 (7)	Datalogger	Various
	Thermo 49i QPS (7)	Primary O3 Standard	good/ >4
	Thermo 49i-PS, Thermo 49i	O3 Bench Calibrator and Sampler	good/ >9
	Thermo 146iQ	Multi-Gas Calibrator	good/ >3
	Xonteck 911 (2)	Canister Sampler	good/ >6
	Tisch Wilbur	PM10 Sampler	good/ >4
	Alicat Scientific FP-25 (17)	Flow, Temperature & Pressure Standard	Various
	Alicat Whisper	Flow, Temperature & Pressure Standard	Various
	BGI/MesaLabs TetraCal (17)	Flow, Temperature & Pressure Standard	Various
	BGI/MesaLabs DeltaCal (22)	Flow, Temperature & Pressure Standard	Various
	Tisch Environmental TE-5028A VRC (10)	Variable High Volume Orifice	Various
	Tisch Environmental TE-5040A (11)	PUF Orifice	Various
	Sensidyne Gilibrator Flow Cell Base (17)	Flow Standard	Various
	Sensidyne Gilibrator Flow Cell (51)	Flow Standard	Various
	AirGas Hydrogen Cylinder (2)	Gas Cylinder	good/ >2
	Carbon Monoxide Cylinder(2)	Gas Cylinder	good/ >10
	Nitrogen Oxide Cylinder	Gas Cylinder	good/ >10
	Sulfur Dioxide Cylinder (3)	Gas Cylinder	good/ >10
	ESC DAS 8832 (multiple)	Datalogger	good/ >7
	Thermo 43i	SO2 Analyzer	good/ >7
	Thermo 146i	Multi-Gas Calibrator	good/ >7
	Sulfur Dioxide Cylinder	Gas Cylinder	good/ <10
	RM Young Ultrasonic Anemometer 810000	Wind Speed and Wind Direction	good/ >4
	Aluma T-135	Meteorological Crank Tower	good/ >4
	Environics 7000	Zero Air Supply	good/ >6
	TSP High Volume 2000H (2)	Metals-Pb (lead) Sampler	good/ >11
	TSP High Volume 2000H	Collocated Metals-Pb (lead) Sampler	good/ >11

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Workshop cont'd	Thermo Partisol-Plus 2025	Integrated PM2.5 Sampler	good/ >6
	TSP High Volume 2000H	TSP-Pb (lead) Sampler	good/ >11
	Entech CS1200E Passive Sampler	Ethylene oxide	good />2
	Anderson General Metal Works	High Volume PM10 orifice	good/ >7
	Dwyer 475-1-FM	Digital Manometer	good/ >7
	Dwyer 475-2-FM	Digital Manometer	good/ >7
	Dwyer 477-1-FM (2)	Digital Manometer	good/ >7
	Dwyer 475-0-FM (3)	Digital Manometer	good/ >7
	Fisher Scientific 14-648-4 (5)	Stopwatch	good/ >7
	Tisch Environmental TE-5028A	High Vol PM10 Orifice	good/ >7
	Compressed Air Mix	Gas Cylinder	good/ >10
	BGI VRC	Variable High Volume Orifice	good/ >7
	Mesa Labs Flexcal High Flow (2)	High Flow	good/ >7
	Mesa Labs Flexcal Low Flow (2)	Low Flow	good/ >7

NOTE:

COND = Condition **Age = age in years**

*** = Not currently in use** **^ = Used for Ethylene Oxide**

Appendix C: Pollutant Description, Analysis Method, and Quality Assurance Schedule

Georgia Department of Natural Resources
Environmental Protection Division

Pollutant Description, Analysis Method, and Quality Assurance Schedule

All monitors have known precision, accuracy, interferences, and operational parameters. The monitors as well as all measurement devices are carefully calibrated at predetermined frequencies, varying from daily to quarterly. Calibration standards are traceable to National Institute of Standards and Technology (NIST) master standards.

Monitoring and analysis are performed according to a set of standard operating procedures (SOP). Field personnel visit sampling sites, replace sample media, and check the operation and calibration of monitors per the SOP.

Specialized data-collection and storage equipment is used at most sites to collect the data. A computerized telemetry system aids in assembly of the data for submission to the U.S. EPA. This enhances data validity, minimizes travel costs, and allows data to be available by computer at GA AAMP's main office immediately. Numerous manual and automated checks are performed to ensure that only valid data are reported to EPA.

Quality assurance activities are carried out to determine the quality of the collected ambient data, improve the quality of the data, and evaluate how well the entire monitoring system operates. The goal of quality assurance activities is to produce high quality monitoring data.

1.0 Particulate Matter

Particulate matter is defined as any airborne material, except uncombined water (liquid, mist, steam, etc.) that exists in a finely divided form as liquid or solid at standard temperature (25°C) and pressure (760mmHg) and has an aerodynamic diameter of less than 100 micrometers. Three sizes of particulate matter are monitored: PM_{10}, $PM_{2.5}$, and PMcoarse (10-2.5). PM_{10} is particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (µm). $PM_{2.5}$ are solid particles and liquid droplets found in the air that are less than 2.5 micrometers (µm) or microns in diameter. Individually, these particles and droplets are invisible to the naked eye. Collectively, however, they can appear as clouds or a fog-like haze. $PM_{2.5}$ is also referred to as "fine" particles. $PM_{10\text{-}2.5}$ is called PMcoarse. The PMcoarse fraction has a diameter between 2.5 and 10 micrometers (µm) or microns. In comparison, a human hair is 70-100 µm in diameter.

Particulates are emitted by many human activities, such as fuel combustion, motor vehicle operation, industrial processes, grass mowing, agricultural tilling, and open burning. Natural sources include windblown dust, forest fires, volcanic eruptions, and pollen. Particulates emitted directly from a source may be either fine (less than 2.5 µm) or larger (2.5-60 µm), but particles formed in the atmosphere will usually be fine. Typically, fine particles are formed by condensation of materials produced during combustion or atmospheric reactions in which gaseous pollutants are chemically converted to particles.

Particulate matter can cause health problems affecting the breathing system, including aggravation of existing lung and heart disease, limitation of lung clearance, changes in form and structure of organs, and development of cancer. Individuals most sensitive to the effects of particulate matter include those with chronic obstructive lung or heart disease, those suffering from the flu, asthmatics, the elderly, children, and mouth breathers.

Health effects from inhaled particles are influenced by the depth of penetration of the particles into the respiratory system, the amount of particles deposited in the respiratory system, and the chemical composition of the deposited particles. The risks of adverse health effects are greater when particles enter the tracheobronchial and alveolar portions of the respiratory system. Healthy respiratory systems can trap particles larger than 10 µm more efficiently before they move deeply into the system, and can more effectively remove the particles that are not trapped before they can lodge deeply in lung tissue.

Particulate matter also can interfere with plant photosynthesis by forming a film on leaves that reduces exposure to sunlight. Particles also can cause soiling and degradation of property, which can be costly to clean and maintain. Suspended particles can absorb and scatter light, causing reduction of visibility. This is a national concern, especially in areas such as national parks, historic sites, and scenic attractions.

a. Particulate Matter (PM_{10}) Integrated

GA AAMP conducts PM_{10} monitoring on an integrated basis at one site in Georgia. GA AAMP uses an EPA-approved method. The Tisch – TE Wilbur Filter Based PM_{10} Air Sampler functions to collect airborne particulate matter ≤ 10mm (PM_{10}) on a pre-weighted 47mm diameter filter over a 24-hour period, midnight to midnight. The sampler normally samples every 6 days and exposed filter are subsequently collected and sent to Pace Analytical Services, LLC for gravimetric analysis and measurement of PM_{10} concentration. The system monitors and records all system sensors such as flow, temperatures and barometric pressure, as well as the system pressure, filter temperature variation, and flow total which provides the operator or laboratory technician additional information on the sample if warnings or alarms occurred during the sample run. These monitors are used to determine attainment of the PM_{10} standard. These analyzers are subjected to quarterly checks and are audited by GA AAMP's Quality Assurance Unit on a semi-annual basis, within a five to seven month window.

b. Particulate Matter (PM_{10}) Continuous

GA AAMP conducts PM_{10} monitoring on a continuous basis at two sites in Georgia. GA AAMP uses an EPA-approved equivalent method, the Teledyne T640/640x, which is a real-time, continuous PM mass monitor that uses scattered light spectrometry for measurement. The T640 measures $PM_{2.5}$, and the T640x Option measures $PM_{2.5}$, PM_{10}, and $PM_{10\text{-}2.5}$. The sampling head draws in the ambient air with different size particles, which are dried with the Aerosol Sample Conditioner (ASC) and moved into the optical particle sensor where scattered light intensity is measured to determine particle size diameter. The inlet used for the T640x option samples at 16.67 liters per minute (LPM) to mechanically size-cut the aerosol intake for sampling particles at 10 microns and under. The particles move separately into the T-aperture through an optically differentiated measurement volume that is homogeneously illuminated with polychromatic light. This Model T640 with 640x option PM_{10} monitor is configurable as a PM_{10} FEM (EQPM-0516-239), and the data is used to determine attainment of the PM_{10} NAAQS. This analyzer is subjected to monthly flow checks and is audited by GA AAMP's Quality Assurance Unit on a semi-annual basis.

c. Fine Particulate Matter ($PM_{2.5}$) Integrated

At sites where GA AAMP collects $PM_{2.5}$ samples on an integrated basis, the samples are measured using very similar techniques utilized for measuring PM_{10}. The official federal reference method (FRM) requires that samples are collected on Teflon™ filters with a $PM_{2.5}$ sampler for 24 hours. A specialized particle size sorting device is used to filter the air, collecting only particles 2.5 microns in size and smaller. The filters are weighed in a laboratory before and after the sampling period. The change in the filter weight corresponds to the mass weight of $PM_{2.5}$ particles collected. That mass weight, divided by the total volume of air sampled, corresponds to the mass concentration of the particles in the air for that 24-hour period. This data is collected using the FRM, and the data is appropriate to use for making attainment determinations relative to the $PM_{2.5}$ NAAQS. Currently, GA AAMP uses the Thermo Scientific Partisol 2025 (RFPS-0498-118 or EQPM-0202-145) and Thermo Scientific Partisol 2025i (RFPS-0498-118). GA AAMP may choose to replace some of these Thermo 2025 filter-based $PM_{2.5}$ FRM monitors with the Met One sequential filter-based $PM_{2.5}$ FRM monitors (RFPS-0717-245). The sampling frequency for integrated $PM_{2.5}$ sampling varies by site, based on EPA rules, and is listed with each individual site's information in Appendix A of this document and in Table 1 below. On a semi-annual basis, GA AAMP's Quality Assurance Unit audits these $PM_{2.5}$ samplers.

d. Fine Particulate Matter ($PM_{2.5}$) Continuous

GA AAMP monitors for $PM_{2.5}$ on a continuous basis with two different methods. One method is the Teledyne T640/640x, which is an optical aerosol spectrometer that converts optical measurements to mass measurements by determining sampled particle size via scattered light using 90° white- light scattering with polychromatic LED. The inlet used for the T640/640x samples at 5.0 liters per minute (LPM). The Aerosol Sample Conditioner (ASC) removes the volatile components (mainly water) of the aerosol to avoid false particle size. The internal vacuum pump is controlled by a pulse-width modulation (PWM) feedback control for consistently accurate flow to the sensor. The external vacuum pump is controlled by an ambient and pressure compensated mass flow controller in combination with a pneumatic valve for consistently accurate flow. The Teledyne T640/640x is officially designated as an US EPA Federal Equivalent Method (FEM) (EQPM-0516-236 and EQPM-0516-238) (81 FR 45285), and used for making attainment decisions relative to the $PM_{2.5}$ NAAQS. GA AAMP continues to evaluate the continuous $PM_{2.5}$ Teledyne T640/640x monitors at locations where they are collocated with the $PM_{2.5}$ FRMs (filter based) monitors.

Another $PM_{2.5}$ continuous collection method utilized by GA AAMP is the Thermo Scientific tapered element oscillating microbalance (TEOM) Series 1400/1400a/1405-F monitors. These monitors use an inline $PM_{2.5}$ cyclone for particle size selection and an inline Sample Equilibration System (SES), which uses a diffusion drying technique to minimize water vapor interference with the particle mass measurement. The instrument oscillates the sample filter on a microbalance continuously while particles are collected from ambient air. By measuring the change in the oscillation frequency, the change in filter mass can be determined. The sampling method for the TEOM type of continuous $PM_{2.5}$ monitor was approved as Federal Equivalent Method (FEM) in Notices of the Federal Register/Vol.74; page 28696 dated June 17, 2009 when used with a "Filter Dynamics Measurement System (FDMS)". The FDMS component estimates and adjusts for the volatile component of the mass. Currently, the TEOMs in the ambient air monitoring network are

not configured to sample as FEMs. Therefore, data collected from the TEOM samplers cannot be used for making attainment decisions relative to the NAAQS.

Both types of continuous $PM_{2.5}$ samplers are used to support development of air quality models and forecasts, including the AQI, and to provide the public with information about pollutant concentrations in real time. All three types of analyzers are subject to monthly flow checks and are audited by GA AAMP's Quality Assurance Unit on a semi-annual basis.

e. Fine Particulate Matter ($PM_{2.5}$) Speciation

Particle speciation measurements require the use of a wide variety of analytical techniques, but all generally use filter media to collect the particles to be analyzed. Laboratory techniques currently in use are gravimetric (micro weighing); X-ray fluorescence and particle-induced X-ray emission for trace elements; ion chromatography for anions and selected cations; controlled combustion for carbon; and gas chromatography/mass spectroscopy (GC/MS) for semi-volatile organic particles. Samples are collected for 24 hours and shipped to an EPA-appointed laboratory for analysis. The sampling frequency varies by site and is detailed in Table 1. GA AAMP's Quality Assurance Unit subjects these samplers to audits on a semi-annual basis.

f. Coarse Particulate Matter ($PM_{10-2.5}$)

As part of the NCore requirements (discussed in Section 4.1 of the Introduction), the South DeKalb site (13-089-0002) began $PM_{10-2.5}$ sampling as of January 1, 2011. The Teledyne T640x $PM_{10-2.5}$ is the current system used to measure coarse particulate matter. The Teledyne T640/640x is a real-time, continuous PM mass monitor that uses scattered light spectrometry for measurement. The T640x Option measures $PM_{2.5}$, PM_{10}, and $PM_{10-2.5}$. The sampling head draws in the ambient air with different size particles, which are dried with the Aerosol Sample Conditioner (ASC) and moved into the optical particle sensor where scattered light intensity is measured to determine particle size diameter. The particles move separately into the T-aperture through an optically differentiated measurement volume that is homogeneously illuminated with polychromatic light. GA AAMP uses the 16.7 LPM Model T640 with 640x option $PM_{10-2.5}$ monitor: EQPM-0516-240. This analyzer is subjected to monthly flow checks and is audited by GA AAMP's Quality Assurance Unit on a semi-annual basis.

The sampling frequency of the integrated (FRM), continuous (Teledyne, TEOM), and speciated $PM_{2.5}$ samplers is detailed in Table 5, and Appendix A. The $PM_{2.5}$ samplers highlighted in yellow are the $PM_{2.5}$ samplers that are used for comparison to the NAAQS for attainment purposes.

Table 5. $PM_{2.5}$ Sampling Frequency

Site ID	Common Name	City	County	Integrated	Continuous	Speciation
Rome MSA						
131150003	Rome	Rome	Floyd		$PM_{2.5}$	6 Day
Brunswick MSA						
131270006	Brunswick	Brunswick	Glynn	$PM_{2.5}$ (3 Day)	FEM $PM_{2.5}$	
Valdosta MSA						
131850003	Valdosta	Valdosta	Lowndes	$PM_{2.5}$ (3 Day)	FEM $PM_{2.5}$	
Warner Robins MSA						
131530001	Warner Robins	Warner Robins	Houston	$PM_{2.5}$ (3 Day)	FEM $PM_{2.5}$	
Albany MSA						
130950007	Albany	Albany	Dougherty	2 $PM_{2.5}$ (Daily, 3 Day)	$PM_{2.5}$	
Gainesville MSA						
131390003	Gainesville	Gainesville	Hall	$PM_{2.5}$ (Daily)	FEM $PM_{2.5}$	
Athens-Clarke County MSA						
130590002	Athens	Athens	Clarke		2 FEM $PM_{2.5}$	
Macon MSA						
130210007	Macon-Allied	Macon	Bibb	2 $PM_{2.5}$ (3 Day, 12 Day)	*$PM_{2.5}$	6 Day
130210012	Macon-Forestry	Macon	Bibb	2 $PM_{2.5}$ (3 Day, 3 Day)	FEM $PM_{2.5}$	
Columbus, Georgia- Alabama MSA						
132150008	Columbus-Airport	Columbus	Muscogee	$PM_{2.5}$ (Daily)	$PM_{2.5}$	
132150012	Columbus-Baker	Columbus	Muscogee	$PM_{2.5}$ (Daily)	*$PM_{2.5}$	6 Day
Savannah MSA						
130511002	Savannah-L&A	Savannah	Chatham	$PM_{2.5}$ (Daily)	FEM $PM_{2.5}$	
Augusta, Georgia-South Carolina MSA						
132450091	Bungalow Road	Augusta	Richmond	2 $PM_{2.5}$ (Daily, 3 Day)	$PM_{2.5}$	6 Day
Atlanta-Sandy Springs-Marietta MSA						
130630091	Forest Park	Forest Park	Clayton	$PM_{2.5}$ (3 Day)	*$PM_{2.5}$	
130670003	Kennesaw	Kennesaw	Cobb	$PM_{2.5}$ (3 Day)	*$PM_{2.5}$	
130890002	South DeKalb	Decatur	DeKalb	2 $PM_{2.5}$ (Daily, 3 Day)	FEM $PM_{2.5}$	3 Day
130890003	NR-285	Decatur	DeKalb		$PM_{2.5}$	
131210039	Fire Station #8	Atlanta	Fulton	$PM_{2.5}$ (3 Day)		
131210055	United Ave.	Atlanta	Fulton		$PM_{2.5}$	
131210056	NR-Georgia Tech	Atlanta	Fulton	$PM_{2.5}$ (3 Day)	$PM_{2.5}$	
131350002	Gwinnett Tech	Lawrenceville	Gwinnett		FEM $PM_{2.5}$	
131510002	McDonough	McDonough	Henry		$PM_{2.5}$	
Chattanooga, Tennessee-Georgia MSA						
132950004	Rossville-Williams St.	Rossville	Walker	$PM_{2.5}$ (3 Day)	FEM $PM_{2.5}$	6 Day
Not in an MSA						
130690002	General Coffee	Douglas	Coffee	$PM_{2.5}$ (3 Day)	*FEM $PM_{2.5}$	6 Day
133030001	Sandersville	Sandersville	Washington		2 FEM $PM_{2.5}$	

Highlighted samplers used for comparison to NAAQS, * denotes planned changes or additions in 2023

2.0 Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless and poisonous gas produced by incomplete burning of fossil fuels used in vehicles, space heating, and industrial processes. Boilers and other fuel burning heating systems are also significant sources.

Breathing elevated levels of carbon monoxide affects the oxygen-carrying capacity of the blood. Hemoglobin in the blood binds with CO more readily than with oxygen, starving the body of vital oxygen. Individuals with lung and heart diseases or anemia are particularly sensitive to CO health effects. Low concentrations affect mental function, vision, and alertness. High concentrations can cause fatigue, reduced work capacity and may adversely affect fetal development. Chronic exposure to CO at concentrations as low as 70 parts per million (ppm) (80 mg/m^3) can cause cardiac damage. Other health effects associated with exposure to CO include central nervous system effects and pulmonary function difficulties. Ambient CO apparently does not adversely affect vegetation or materials.

Carbon monoxide (CO) is monitored using EPA-approved reference or equivalent methods. These analyzers are self-contained and capable of measuring ambient CO on a continuous, real-time basis using the non-dispersive infrared analysis and gas filter correlation techniques. CO is monitored using specialized analyzers based on the principle that CO absorbs infrared radiation. The sample is drawn through the sample bulkhead and the optical bench. Radiation from an infrared source is chopped and then passed through a gas filter alternating between CO and nitrogen (N_2). The radiation then passes through a narrow bandpass interference filter and enters the optical bench where absorption by the sample gas occurs. The infrared radiation then exits the optical bench and falls on an infrared detector. The N_2 side of the filter wheel produces a measure beam which can be absorbed by the CO in the cell. The chopped detector signal is modulated by the alternation between the two gas filters with amplitude related to the concentration of CO in the sample cell. Thus, the gas filter correlation system responds specifically to CO. The sampler is equipped with a microprocessor that enables digital measurement of CO, automatic compensation for changes in temperature and pressure, and internal diagnostics. These analyzers are subjected to biweekly zero, precision, and span (ZPS) checks, quarterly multipoint calibrations, and are audited by GA AAMP's Quality Assurance Unit on a semi-annual basis.

3.0 Ozone (O_3)

Ozone (O_3) is a clear gas that forms in the troposphere (lower atmosphere) by chemical reactions involving hydrocarbons (also called volatile organic compounds) and oxides of nitrogen in the presence of sunlight. Even low concentrations of tropospheric ozone, also called ground level ozone are harmful to people, animals, vegetation and materials.

Ozone is the major component of a complex mixture of compounds known as photochemical oxidants. Ozone is not usually emitted directly into the atmosphere, but is formed by a series of complex reactions involving hydrocarbons, nitrogen oxides, and strong sunlight. Ozone concentrations are generally higher during the daytime, when temperatures are moderate or hot, and during seasons when conditions are dry and the sunlight is more intense.

Ozone is a pulmonary irritant, affecting the respiratory mucous membranes, as well as other lung tissues and respiratory functions. Ozone has been shown to impair normal function of the lung

causing shallow, rapid breathing and a decrease in pulmonary function. Other symptoms of exposure include chest tightness, coughing and wheezing. People with asthma, bronchitis, or emphysema may experience breathing difficulty when exposed to short-term concentrations at higher levels of ozone. Continued or repeated long-term exposure may result in permanent lung structure damage.

Ozone damages vegetation by injuring leaves. Ozone also accelerates material aging, cracking rubber, fading dyes and eroding paint.

Georgia's ozone analyzers continuously measure the concentration of ozone in ambient air using the ultraviolet (UV) photometric method and are EPA-approved for regulatory air monitoring programs. The degree to which the UV light is absorbed is directly related to the ozone concentration. The ambient air is drawn into the sample bulkhead and is split into two gas streams. One gas stream flows through an ozone scrubber to become the reference gas. The reference gas then flows to the reference solenoid valve. The sample gas flows directly to the sample solenoid valve. The solenoid valves alternate the reference and sample gas streams between the two cells every 10 seconds. When cell A contains reference gas, cell B contains sample gas and vice versa. The UV light intensities of each cell are measured by detectors A and B. When the solenoid valves switch the reference and sample gas streams to opposite cells, the light intensities are ignored for several seconds to allow the cells to be flushed. The sampler calculates the ozone concentration for each cell and outputs the average concentration to both the front panel display and the analog or digital output. Data gained from the monitors is used to determine compliance with the NAAQS for ozone.

As required by Table D-3 of 40 CFR Part 58, Appendix D (4.1)(c)(3)(i), GA AAMP operates ozone monitors each year from March 1st through October 31st, with the exception of the NCore (National Core Monitoring Network) ozone monitor. The NCore ozone monitor, located at the South DeKalb site (13-089-0002), samples year round, as required by 40 CFR Part 58. During the monitoring season, analyzers are subjected to biweekly ZPS checks and quarterly multipoint calibrations. GA AAMP's Quality Assurance Unit audits these samplers on an annual basis.

EPA established a Clean Air Status and Trends Network (CASTNET) monitoring site in Georgia in 1988. The CASTNET site (13-231-9991) is part of a national air quality monitoring network put in place to assess long-term trends in atmospheric deposition and ecological effects of air pollutants. The CASTNET site is one of 85 regional sites across rural areas of the United States and Canada measuring nitrogen, sulfur, and ozone concentrations, and deposition of sulfur and nitrogen. Like the South DeKalb ozone monitor, the CASTNET ozone monitor also collects data year-round. Since 2011, the CASTNET ozone monitor has met requirements for quality assurance and completeness criteria and can be used for comparison to the NAAQS [40 CFR 58, (1.1)(b)].

4.0 Sulfur Dioxide (SO_2)

Sulfur dioxide (SO_2) is a colorless, corrosive, harmful gas with a pungent odor. Sulfur oxides contribute to the formation of acid rain and the formation of particles that reduce visibility. The main sources of SO_2 are combustion of fossil fuels containing sulfur compounds and the manufacture of sulfuric acid. Other sources include refining of petroleum and smelting of ores that contain sulfur.

The most obvious health effect of sulfur dioxide is irritation and inflammation of body tissues brought in contact with the gas. Sulfur dioxide can increase the severity of existing respiratory diseases such as asthma, bronchitis, and emphysema. Sulfuric acid and fine particulate sulfates, which are formed from sulfur dioxide, also may cause significant health problems. Sulfur dioxide causes injury to many plants. A bleached appearance between the veins and margins on leaves indicates damage from SO_2 exposure. Commercially important plants sensitive to SO_2 include cotton, cucumber, alfalfa, sweet potatoes, tulips, apple trees, and several species of pine trees.

Sulfur dioxide is measured in the ambient air using EPA-approved reference method instruments as defined in 40 CFR Part 53. Georgia's sulfur dioxide network consists of continuous instruments using a pulsed ultraviolet (UV) fluorescence technique. This monitoring technique is based on measuring the emitted fluorescence of SO_2 produced by its absorption of UV radiation. Pulsating UV light is focused through a narrow bandpass filter allowing only light wavelengths of 1,900 to 2,300 angstrom units (Å) to pass into the fluorescence chamber. SO_2 absorbs light in this region without any quenching by air or most other molecules found in polluted air. The SO_2 molecules are excited by UV light and emit a characteristic decay radiation. A second filter allows only this decay radiation to reach a photomultiplier tube. Electronic signal processing transforms the light energy impinging on the photomultiplier tube into a voltage which is directly proportional to the concentration of SO_2 in the sample stream being analyzed. The sampler outputs the SO_2 concentration to the front panel display and analog or digital output. These analyzers are subjected to biweekly ZPS checks, quarterly multipoint calibrations, and are audited by GA AAMP's Quality Assurance Unit on an annual basis.

5.0 Nitrogen Oxides (NOx)

Several gaseous oxides of nitrogen (NO_x) are normally found in the atmosphere, including nitrous oxide (N_2O), nitric oxide (NO) and nitrogen dioxide (NO_2). Nitrous oxide is a stable gas with anesthetic characteristics and typical ambient concentrations well below the threshold concentration for a biological effect. Nitric oxide is a colorless gas with ambient concentrations generally low enough to have no significant biological effect. Nitrogen dioxide is reddish-brown but is not usually visible at typical ambient concentrations.

The most significant nitrogen oxide emissions result from the burning of fossil fuels such as coal, oil, and gasoline, due to the oxidation of atmospheric nitrogen and nitrogen compounds in the fuel. The primary combustion product is NO, which immediately reacts with oxygen in the atmosphere to form NO_2.

At high concentrations, nitrogen dioxide has significant health effects as a pulmonary irritant, especially upon asthmatics and children. At concentrations more typical in Georgia, though, NO_2 is primarily of concern because of its role in the formation of ground-level ozone. In warm, sunny conditions, it reacts with hydrocarbons in the atmosphere to form ozone. Ironically, the same reaction can run in reverse in the absence of sunlight, though, meaning that urban areas with higher NO_2 emissions and daytime ozone problems will often have virtually zero ozone present at night. Yet the next morning, the store of unreacted NO_2 that builds up in these areas overnight can cause rapid ozone formation once the sun rises. Therefore, urban areas often have summertime ozone concentrations with dramatic afternoon peaks contrasting against periods overnight where no ozone is present. Areas without significant local NO_2 sources, like rural areas and national parks,

tend to have ozone present around the clock, but in moderate concentrations that are steadier throughout a twenty-four hour period.

Some types of vegetation are very sensitive to NO_2, including oats, alfalfa, tobacco, peas, and carrots. Chronic exposure causes chlorosis (yellowing), and acute exposure usually causes irregularly shaped lesions on the leaves.

Nitric oxide and nitrogen dioxide do not directly damage materials. However, NO_2 can react with moisture in the air to produce nitric acid, which corrodes metal surfaces and contributes to acid rain. High concentrations of NO_2 may reduce visibility.

Oxides of nitrogen, particularly NO_2, are monitored using specialized analyzers that continuously measure the concentration of oxides of nitrogen in ambient air using the ozone-phase chemiluminescent method. GA AAMP operates a Thermo Environmental Model 42i Chemiluminescence NO-NO_2-NO_x Analyzer (EPA Automated Equivalent Method RFNA-1289-074). Nitric oxide (NO) and ozone (O_3) react to produce a characteristic luminescence with intensity linearly proportional to the NO concentration. Infrared light emission results when electronically excited NO_2 molecules decay to lower energy states. NO_2 must first be converted to NO before it can be measured using the chemiluminescent reaction. NO_2 is converted to NO by a molybdenum NO_2-to-NO converter heated to about 325^{o}C. The ambient air sample is drawn into the sample bulkhead. The sample flows through a particulate filter, a capillary, then to the mode solenoid valve. The solenoid valve routes the sample either straight to the reaction chamber (NO mode) or through the NO_2-to-NO converter and then to the reaction chamber (NO_x mode). Dry air enters the dry air bulkhead through a flow sensor, and then through a silent discharge ozonator. The ozonator generates the necessary ozone concentration needed for the chemiluminescent reaction. The ozone reacts with the NO in the ambient air to produce electronically excited NO_2 molecules. A photomultiplier tube housed in a thermoelectric cooler detects the NO_2 luminescence. The NO and NO_2 concentrations calculated in the NO and NO_x modes are stored in memory, and the difference between the concentrations are used to calculate the NO_2 concentration. The sampler outputs NO, NO_2, and NO_x concentrations on the front panel display and the analog or digital outputs. There are two major instrument designs. While they are closely related, they do not monitor the same species. NO_x analyzers measure NO, NO_2, and NO_x. NO_y analyzers measure NO and NO_y, but cannot measure NO_2. The NO_y analyzers are also specialized for measuring trace-level concentrations; as such, they cannot measure higher concentrations. Because of these tradeoffs, it is necessary to operate a network of both instrument types to get a complete picture of local conditions. Of the oxides of nitrogen, only NO_2 is regulated under the NAAQS. Therefore, only the NO_x type analyzers produce data directly relevant to the standard. These analyzers are subjected to biweekly ZPS checks, quarterly multipoint calibrations, and are audited by GA AAMP's Quality Assurance Unit on an annual basis.

At the South DeKalb PAMS site (13-089-0002), the GA AAMP utilizes the Teledyne Advanced Pollution Instrumentation Model N500 Nitrogen Dioxide Analyzer for collection of direct NO/NO_2/NO_x measurements (Federal Equivalent Method EQNA-0320-256). The Model N500 collects direct measurements of NO/NO_2/NO_x with cavity attenuated phase shift spectroscopy (CAPS). The N500 CAPS monitor operates as an optical absorption spectrometer. The CAPS method uses light from a blue Ultraviolet (UV) light emitting diode (LED) centered at 405 nm, a measurement cell with high reflectivity mirrors located at either end to provide an extensive optical path length, and a vacuum photodiode detector. The sampler outputs NO, NO_2, and NO_X

concentrations on the front panel display and the analog or digital outputs directly to the AirVision database. These analyzers are subjected to biweekly ZPS checks, quarterly multipoint calibrations, and are audited by GA AAMP's Quality Assurance Unit on an annual basis.

6.0 Non-Criteria Lead (Pb)

Lead (Pb) is a toxic heavy metal element occurring in the atmosphere as a constituent of small particles. The major source of atmospheric lead used to be the combustion of gasoline containing the additive tetraethyl lead as an antiknock agent. The use as a gasoline additive has been banned in all applications except aviation gasoline. This ban has dramatically decreased concentrations of lead in the ambient air. Significant remaining sources include coal combustion and sandblasting of highway structures and water tanks. Lead is also used in some batteries, paints, insecticides, and newspaper inks.

Lead persists and accumulates in the environment and the human body. It may be inhaled, ingested, and eventually absorbed into the bloodstream and distributed to all body tissues. Exposure to low concentrations interferes with blood production and specific enzyme systems. It is believed to cause kidney and nerve cell damage, and severe lead poisoning is known to cause brain damage in children.

Since lead is a particulate, the measurement for ambient air lead concentrations is performed using a manual method, unlike measurements for the gaseous pollutants discussed earlier (ozone, SO_2, NO_2 and CO). Lead is monitored as a trace metal in the National Air Toxics Trends Station (NATTS), and with the $PM_{2.5}$ speciation samplers. The NATTS lead is sampled using a PM_{10} sampler, and particles are sampled up to 10 microns in size. With the $PM_{2.5}$ speciation sampler, samples are collected that include particles up to 2.5 microns in size. These sampling techniques collect 24-hour samples on pre-weighed filters, have samples sent to a laboratory for analysis, and are analyzed using inductively coupled plasma mass spectroscopy (commonly known as ICP-MS). On a semi-annual basis, GA AAMP's Quality Assurance Unit audits these samplers.

7.0 Metals

A sub-group of the National Air Toxics Trends data includes the metals group, which encompass compounds such as cadmium, mercury, chromium and lead. These pollutants, also known as Hazardous Air Pollutants (HAPs), are those pollutants that are known or suspected to cause cancer or other serious health effects, such as damage to the immune system, reproductive effects or birth defects, developmental or neurological problems, or adverse environmental effects. These effects can vary depending on how often one is exposed, how long one is exposed, the person's health that is exposed, and the toxicity of the compound. Some of the substances tend to have only one critical effect, while others may have several. The lifetime, transportation, and make-up of these pollutants are affected by weather (rain and wind) and landscape (mountains and valleys). They can be transported far away from the original source, or be caught in rain and brought down to waterways or land.

In addition to exposure from breathing air toxics, some toxic air pollutants such as mercury can deposit onto soils or surface waters, where plants take them up, are ingested by animals, and are eventually magnified up through the food chain. Through this process, known as bioaccumulation, larger animals build up concentrations of these pollutants in their tissues that may be thousands of times higher than that found in the most polluted water or soil. Like humans, animals may

experience health problems if exposed to sufficient quantities of air toxics over time. Humans who eat animals that have accumulated large concentrations of these pollutants are at the very top of this bioaccumulative food chain and as such are at particular risk for experiencing health effects.

The PM_{10} sampler used for sampling toxic metal particles less than or equal to 10 microns in diameter as part of the NATTS network is a Met One low-volume single channel timed sampler. Collecting 16.7 liters per minute, with a total collection of 24.05 m^3, the sampler uses a 47 mm diameter Teflon™ filter to trap particulate matter. The samplers run once every six days following a pre-established schedule that corresponds to a nationwide sampling schedule. On the sixth day the sampler runs midnight to midnight and takes a 24-hour composite sample. The sample is analyzed using inductively coupled plasma mass spectrometry (ICP/MS). With ICP/MS, an argon gas is used to atomize and ionize the elements in a sample. The resulting ions are used to identify the isotopes of the elements and a mass spectrum is used to identify the element proportional to a specific peak formed from an isotope. The NATTS PM_{10} metals samplers are subjected to quarterly checks and audited by GA AAMP's Quality Assurance Unit on a semi-annual basis.

8.0 Volatile Organic Compounds (VOCs)

All volatile organic compounds (VOCs) contain carbon, the basic chemical element found in living beings. Carbon-containing chemicals are called organic. Volatile chemicals escape into the air easily and react with NO_2 in sunlight to form ground level ozone. Some VOCs are also hazardous air pollutants, which can cause serious health effects. VOCs are released from burning fuel (gasoline, oil, coal, natural gas, etc.), solvents, paints, glues, and other products used at work or at home. Cars are a significant source of VOCs. VOCs include chemicals such as benzene, toluene, methylene chloride and methyl chloroform. Some VOCs are naturally occurring. VOCs such as pinenes and terpenes emitted from pine trees are a significant source of VOCs in the southeastern United States.

VOCs are collected and analyzed with four different types of samplers. Three types of collection method use a passivated inert stainless steel canister: ATEC 2200, Xonteck 910/911, and Entech. For the ATEC and Xonteck, the canister is evacuated to a near-perfect vacuum and attached to a sampler with a pump controlled by a timer. The canister is filled to greater than 5 psig. For the ethylene oxide study, Entech passive subambient samplers are used. The canister is evacuated to a near-perfect vacuum and attached to the sampler controlled by a timer. The solenoid is opened on the passive sampler via the timer and fills the canister with ambient air until about 2 to 4 inches of vacuum are left. All three of these samplers collect a sample for a representative 24-hour period, and the samples are analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS), using EPA compendium method TO15, by the GA EPD laboratory. The South DeKalb site uses the ATEC 2200 to collect VOCs as part of the National Air Toxics Trends Station. These VOCs samplers are subjected to quarterly checks and are audited by GA AAMP's Quality Assurance Unit twice per year.

The fourth type of sampler used for VOCs collection and analysis is with the Photochemical Assessment Monitoring Station (PAMS) network in which VOCs are collected and analyzed on-site with a gas chromatograph/flame ionization detector (GC/FID). The South DeKalb site is the GA AAMP's PAMS site. During June, July, and August, the PAMS VOCs samples are collected continuously on an hourly basis. The VOCs sampler in the PAMS network is subjected to checks and audited during the PAMS season (June, July and August).

9.0 Carbonyls

Carbonyl compounds are a subset of VOCs, and define a large group of substances, which include acetaldehyde and formaldehyde. These compounds can act as precursors to ozone formation. They can be formed from the breakdown of certain organic pollutants in outdoor air, from forest fires and wildfires, as well as from vehicle exhaust.

The carbonyls are sampled with two types of methods. One type is an absorbent cartridge filled with dinitrophenylhydrazine (DNPH)-coated silica that is attached to a pump to allow approximately 180 liters of air to be sampled. The cartridge is then analyzed using high performance liquid chromatography (HPLC). For the PAMS site, during June, July, and August, three 8-hour samples are taken every third day. A 24-hour integrated carbonyls sample is also taken every 6 days throughout the year at the South DeKalb NATTS site. The other method used for collecting carbonyls is the canister sampler that is used for sampling volatile organic compounds. Acrolein is a carbonyl compound that is collected using this canister method, described above, and analyzed with the GC/MS method. The PAMS and NATTS carbonyls samplers are subjected to quarterly checks and audited by GA AAMP's Quality Assurance Unit every six months.

10.0 Semi-Volatile Organic Compounds

Polycyclic aromatic hydrocarbons (PAHs), also called semi-volatile organic compounds are chemical compounds that consist of fused, six-carbon aromatic rings. They are formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel fuels, fat or tobacco. PAHs can occur in air attached to dust particles, and some can evaporate into the air from soil or surface waters. PAHs can stick tightly to particles and seep through soil to contaminate groundwater. They do not dissolve easily in water and can stick to solid particles and settle to the

bottoms of lakes and rivers. Many PAHs are known or suspected carcinogens. The PUF (polyurethane foam) sampler used for sampling semi-volatile organic compounds, as part of the NATTS network, is a timed sampler. The sampler is calibrated to collect 198 to 242 liters (L) of air per minute. A multi-layer cartridge is prepared which collects both the particulate fraction and the volatile fraction of this group of compounds. The plug, filter and absorbent are extracted at the GA EPD laboratory and analyzed using gas chromatography with an electron capture detector (ECD). The semi-VOCs samplers are subjected to quarterly checks and audited by GA AAMP's Quality Assurance Unit annually.

11.0 Black Carbon

Black carbon is a particulate aerosol formed from the incomplete combustion of fossil fuels, biomass, and biofuels. Diesel engines are a large contributor of black carbon. Sampling for black carbon provides an estimate of the anthropogenic portion of carbon sources in ambient air pollution. For continuous sampling of black carbon, GA AAMP is using the Met One Instruments BC-1060 at the NR-285 (13-089-0003) and NR-Georgia Tech (13-121-0056) sites. Operating continuously at 2 LPM, these instruments have dual-wavelength illumination (370 nm and 880 nm) and use quartz tape to perform an optical analysis to determine the concentration of carbon particles passing through an air stream. Concentrations are determined by measuring the change in optical transmission as black carbon containing particulate matter accumulates onto a filter and then converting this transmission data into black carbon concentration. These parameters are

subjected to quarterly checks and audited by GA AAMP's Quality Assurance Unit every six months.

12.0 Meteorological Parameters

GA AAMP has fifteen meteorological stations across the state. Surface meteorological measurements, including wind speed and wind direction, are measured at each location. In addition, as part of the Photochemical Assessment Monitoring Site (PAMS) in the metropolitan Atlanta area, a complete suite of meteorological instrumentation is used to characterize meteorological conditions. The PAMS station measures hourly-averaged vector wind speed and vector-averaged wind direction at the 10-meter level, and hourly-averaged surface temperature, relative humidity and barometric pressure at the 2-meter level. Several sites include instruments to record total hourly precipitation, global solar radiation, and total ultraviolet radiation. In addition, the standard deviation of the wind direction is computed at the NCore site (South DeKalb). These parameters are audited by the GA AAMP's Quality Assurance Unit on an annual basis. For upper air measurement, GA AAMP uses a Vaisala BL-VIEW Ceilometer in conjunction with balloon rawinsonde data collected from NWS at Peachtree City. This upper air system is useful for monitoring the mixing height and low-level winds during smoke transport events.

Appendix D: List of Closed Ambient Monitors (in order of shut down date)

Georgia Department of Natural Resources
Environmental Protection Division

Site ID	Site Name	Sampler	Date Shut Down	Last Published in Annual Plan
131210039	Fire Station#8	PM_{10}	9/26/06	N/A
130893001	Tucker	Ozone	10/31/06	N/A
130090001	Milledgeville-Airport	SO_2	12/31/06	2009
130893001	Tucker	PAMS VOCs, NO/NOx/NOy/NO_2	1/7/07	N/A
131110091	McCaysville	SO_2	10/2/07	2007
131210001	Fulton Co Health Dept	PM_{10}	9/1/08	2008
130970003	Douglasville-Beulah Pump Station	PM_{10}	9/1/08	2008
132550002	Griffin-Spalding County	PM_{10}	9/1/08	2008
132151003	Columbus-Crime Lab	Ozone	10/31/08	2008
130090001	Milledgeville-Airport	Air Toxics	10/31/08	2011
131150004	Rome-Co. Health Dept	Air Toxics	10/31/08	2011
131210020	Utoy Creek	Air Toxics	10/31/08	2011
131273001	Brunswick-Brunswick Coll	Air Toxics/Carbonyls	10/31/08	2011
131390003	Gainesville	Air Toxics	10/31/08	2011
131530001	Warner Robins	Air Toxics	10/31/08	2011
131850003	Valdosta	Air Toxics	10/31/08	2011
132155000	Columbus-Columbus State	Air Toxics	10/31/08	2011
132450092	Augusta-Clara Jenkins	Air Toxics	10/31/08	2011
130550001	Summerville-Fish Hatchery	Acid Rain	10/31/08	2011
130850001	Dawsonville	Acid Rain	10/31/08	2011
131890001	McDuffie-Fish Hatchery	Acid Rain	10/31/08	2011
132410002	Hiawassee-Lake Burton	Acid Rain	10/31/08	2011
132970001	Social Circle-Fish Hatchery	Continuous $PM_{2.5}$	10/31/08	2011
131130001	Fayetteville-GA DOT	Ozone, Wind Speed, Wind Direction	10/31/08	2013
131270006	Brunswick	Total Reduced Sulfur	10/31/08	2013
131210048	Georgia Tech	$PM_{2.5}$	12/1/08	2008
131150005	Rome	$PM_{2.5}$ FRM, PM_{10}, $PM_{2.5}$ Speciation	Consolidated with 131150003 3/09	2008
131210048	Georgia Tech	SO_2, NO, NO_2, NOx	4/30/09	2011
130150003	Cartersville	Wind Speed, Wind Dir	12/31/11	2011
130730001	Evans	NO_y	7/28/2008	2012
130210013	Macon-Lake Tobesofkee	NO_y, O_3	10/31/2008	2012
131270006	Brunswick	SO_2	12/31/12	2012
132150008	Columbus -Airport	SO_2	12/31/12	2012
130510017	Savannah-Market St.	$PM_{2.5}$ FRM	12/31/12	2012
132450005	Augusta-Medical College	$PM_{2.5}$ FRM	12/31/12	2012
131210032	Atlanta-E. Rivers School	$PM_{2.5}$ FRM, PM_{10}	12/31/12	2012
130892001	Doraville Health Center	$PM_{2.5}$ FRM	12/31/12	2012
130670004	Powder Springs-Macland Aquatic Ctr.	$PM_{2.5}$ FRM	12/31/12	2012
130210007	Allied	PM_{10}	12/31/12	2012
130510014	Savannah-Shuman Middle	PM_{10}	12/31/12	2012
130550001	Summerville-Fish Hatchery	PM_{10}	12/31/12	2012
130892001	Doraville Health Center	PM_{10}	12/31/12	2012
130950007	Albany	PM_{10}	12/31/12	2012
131150003	Rome	PM_{10}	12/31/12	2012
131210048	Georgia Tech	PM_{10}	12/31/12	2012
131270004	Brunswick-Arco Pump Station	PM_{10}	12/31/12	2012

132150011	Columbus-Cusseta Road	PM_{10}	12/31/12	2012
133030001	Sandersville	PM_{10}	12/31/12	2012
130893001	Tucker-Idlewood Road	Wind Speed, Wind Direction, Temp, RH, Solar Radiation, UV Radiation, BP, Precip	5/31/13	2013
130890002	South DeKalb	Hexavalent chromium	7/15/13	2013
132470001	Conyers	Continuous Gas Chromatograph	8/31/13	2013
130150003	Cartersville	Lead	2/22/14	2013
131210099	Roswell Road	CO	3/5/14	2013
130590002	Athens	$PM_{2.5}$ Speciation	1/24/15	2014
132230003	Yorkville	Continuous Gas Chromatograph	8/31/15	2015
132230003	Yorkville	6-Day PAMs, $NO/NO_2/NOx$, CO	12/31/15	2015
130850001	Dawsonville	Air Toxics/Carbonyls	12/31/15	2015
132470001	Conyers	6-Day PAMs, $NO/NO_2/NOx$	12/31/15	2015
130890003	NR-285	Lead	6/30/16	2016
130890002	South DeKalb	Black carbon	12/31/16	2016
133190001	Gordon	$PM_{2.5}$ FRM	12/31/16	2016
132230003	Yorkville	O_3	12/31/16	2016
132230003	Yorkville	$PM_{2.5}$ FRM, Continuous $PM_{2.5}$, VOCs, Semi-VOCs, Carbonyls, Metals, Wind Speed, Wind Direction, Temp, RH, Solar Radiation, UV Radiation, BP, Precip	1/31/17	2016
131150003	Rome-Coosa	SO_2	12/31/16	2017
132450091	Augusta	Integrated PM_{10}	3/31/18	2017
130770002	Newnan	O_3, $PM_{2.5}$, Wind Direction, Wind Speed	11/15/17	2018
132150010	Columbus-Joy Rd	Lead	6/30/18	2018
132450091	Augusta	$PM_{2.5}$ FRM	10/31/18 (reopened 1/1/2022)	2018 (reinstated in 2022)
131390003	Gainesville	$PM_{2.5}$ FRM	10/31/18	2018 (reinstated in 2023)
131350002	Gwinnett Tech	$PM_{2.5}$ FRM	10/31/18	2018
130210012	Macon-Forestry	Air Toxics	12/31/18	2018
130510021	Savannah-E. President's Street	Air Toxics	12/31/18	2018
130690002	General Coffee	Air Toxics	12/31/18	2018
130590002	Athens	$PM_{2.5}$ FRM	3/31/19	2018
130510091	Savannah-Mercer	$PM_{2.5}$ FRM	6/30/19	2019
133030001	Sandersville	$PM_{2.5}$ FRM	8/15/19	2019
131150006	Rome-Kraftsman	SO_2, Wind Speed, Wind Direction	12/31/2020	2020
132150009	Columbus-Allied	Lead	3/31/2021	2020
132150011	Columbus-Cusseta	$PM_{2.5}$ FRM, Lead	7/30/2020	2020
132150001	Columbus-Health Department	$PM_{2.5}$ FRM	12/31/2020	2020
132950002	Rossville-Maple St.	$PM_{2.5}$ FRM, $PM_{2.5}$ Continuous, $PM_{2.5}$ Speciation	7/30/2020	2020
132450091	Augusta	PM_{10} TEOM	7/13/2021	2021

Appendix E: Memorandum of Agreement

Georgia Department of Natural Resources
Environmental Protection Division

MEMORANDUM OF AGREEMENT

ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR

THE CHATTANOOGA-WALKER COUNTY

METROPOLITAN STATISTICAL AREA MSA
December 28, 2017

Participating Agencies:

Georgia
Georgia Department of Natural Resources (GA DNR)
Environmental Protection Division GA EPD APB

Tennessee
Chattanooga-Hamilton County Air Pollution Control Bureau (CHCAPCB)

I. PURPOSE/OBJECTIVES/GOALS

The purpose of the Memorandum of Agreement (MOA) is to establish the Chattanooga-Hamilton County-Walker County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between CHCAPCB and GAEPDAPB (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Chattanooga –Hamilton County-Walker Co, GA MSA as required by 40 CFR 58 Appendix D, Section 2, (e) (March 28, 2016)[1].

II. BACKGROUND

The Chattanooga-Hamilton Co-Walker Co, GA MSA consists of the following counties: Dade, Walker, Catoosa, Hamilton, Marion, and Sequatchie. GA EPD APB has jurisdiction over Dade, Walker, and Catoosa Counties in Georgia and CHCAPCB has jurisdiction over Hamilton County, Tennessee. The State of Tennessee has jurisdiction over Marion and Sequatchie Counties in Tennessee, but does not have any permanent air monitoring sites in those counties. The CHCAPCB and GA EPD APB are required by the Clean Air Act to measure for certain criteria pollutants in the ambient air in the Chattanooga-Hamilton County-Walker Co, GA Metropolitan Statistical Area (MSA). The United States Environmental Protection Agency (EPA) has established minimum monitoring requirements based on the size of the MSA and the quality of the air in the

MSA for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone.

40 CFR 58 Appendix D, Section 2, (e)[1] states (in part):

"…The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."[1]

Currently each air pollution control agency (affected agency) conducts monitoring in its respective jurisdiction and coordinates its monitoring with the other air pollution control agencies within the MSA.

I. ROLES AND RESPONSIBILITIES

The parties agree to the following terms and conditions:

- CHCAPCB and GA EPD APB (the "affected agencies") commit to conducting appropriate monitoring in their respective jurisdictions of the MSA; as needed, to collectively meet EPA minimum monitoring requirements for the entire MSA for PM10, PM2.5, and ozone, as well as other criteria air pollutant monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all affected agencies. The minimum air quality monitoring requirement (for PM10, PM2.5, and ozone described in 40 CFR 58) for the MSA shall apply to the MSA in its entirety and shall not apply to any sole affected agency within the MSA unless agreed upon by all affected agencies.

- The affected agencies commit to coordinating monitoring "…responsibilities and requirements…to achieve an effective network design…"[1] regarding criteria air pollutant monitoring conducted in the MSA and commit to communicate unexpected or unplanned changes in monitoring activities within their jurisdictions to the other affected agencies of this MOA. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other communications to discuss monitoring activities for the MSA. Each affected agency shall inform the other affected agencies via telephone or e-mail of any monitoring changes occurring in its jurisdiction of the MSA at its earliest convenience after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites, destruction of monitoring sites due to natural disasters, or similar occurrences that result in a loss of more than 25% data in a quarter or a permanent change in the monitoring network. At least once a year in the second quarter of the year or before June 15th, each agency shall make available to the other agencies who are a party to this agreement, a copy of its proposed monitoring plan for the MSA for the next

year. The CHCAPCB will submit the network review that is submitted to the State of Tennessee for inclusion in the State's monitoring plan.

- Each party reserves the right to revoke or terminate this MOA at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

III. LIMITATIONS

A. All commitments made in this MOA are subject to the availability of appropriated funds and each party's budget priorities. Nothing in this MOA, in and of itself, obligates CHCAPCB or GA EPD APB to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.

B. This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimburse or contribution of funds between parties to this MOA will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements that will be effected in writing by representatives of the parties.

C. Except as provided in Section III, this MOA does not create any right or benefit, substantive or procedural, enforceable by law or equity against CHCAPCB or GA EPD APB, their officers or employees, or any other person. This MOA does not direct or apply to any person outside CHAPCD or GAEPD APB.

V. PROPRIETARY INFORMATION AND INTELLECTUAL PROPERTY

No proprietary information or intellectual property is anticipated to arise out of this MOA.

VI. POINTS OF CONTACT

The following individuals are designated points of contact for the MOA:

GA EPD APB DeAnna G. Oser
GAEPD APB Ambient Monitoring Program
4244 International Parkway, Suite 120
Atlanta, GA 30354

DeAnna.Oser@dnr.ga.gov
Voice: (404) 363-7004
FAX: (404) 363-7100

CHCAPCB Robert Colby
CHCAPCB
6125 Preservation Dr
Chattanooga, Tn 37416

bcolby@chattanooga.gov
Voice: (423) 643-5999
FAX: (423) 643-5972

VII. MODIFICATION/DURATION/TERMINATION

This MOA will be effective when signed by all parties. This MOA may be amended at any time by the mutual written consent of the parties. The parties will review this MOA at least once every 10 years to determine whether it should be revised, renewed, or cancelled. This MOA may be revoked or terminated by an affected agency at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

VIII. REFERENCE

1 – United States Environmental Protection Agency, Title 40 Code of Federal Regulations, Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 2 (e), "General Monitoring Requirements".

IX. APPROVALS

Georgia Department of Natural Resources, Environmental Protection Division
Air Protection Branch (GA EPD APB)

BY: Richard E. Dunn

TITLE: Director

DATE: 1/24/18

Chattanooga-Hamilton County Air Pollution Bureau (CHCAPCB)

BY: Robert McCoy

TITLE: Director

DATE: January 3, 2018

DHEC MOA#: 2017-429

MEMORANDUM OF AGREEMENT

ON AIR QUALITY MONITORING FOR CRITERIA POLLUTANTS FOR

THE AUGUSTA - RICHMOND COUNTY

METROPOLITAN STATISTICAL AREA (MSA)

January 2017

Participating Agencies:

Georgia
Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch (GA EPD)

South Carolina
Department of Health and Environmental Control (SCDHEC)
Bureau of Air Quality

I. PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to renew the Augusta - Richmond County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between SCDHEC and GA EPD (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as any other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Augusta - Richmond County MSA as required by 40 CFR 58 Appendix D, Section 2(e).

II. BACKGROUND

The Augusta - Richmond County MSA consists of the following counties: Burke, Columbia, McDuffie, Lincoln, Richmond, Aiken and Edgefield. GA EPD has jurisdiction over Burke, Columbia, McDuffie, Lincoln, and Richmond Counties in Georgia and SCDHEC has jurisdiction over Aiken and Edgefield Counties, South Carolina. The SCDHEC and GA EPD are required by the Clean Air Act to measure for certain criteria pollutants in the ambient air in the Augusta - Richmond County Metropolitan Statistical Area (MSA). The EPA has established minimum monitoring requirements based on the size of the MSA and the quality of the air in the MSA for PM10, PM2.5, and ozone.

40 CFR 58 Appendix D, Section 2(e) states (in part):

> "…The EPA recognizes that there may be situations where the EPA Regional Administrator and the affected State or local agencies may need to augment or to divide the overall MSA/CSA monitoring responsibilities and requirements among these various agencies to achieve an effective network design. Full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator."

Currently each air pollution control agency (affected agency) conducts monitoring in its respective jurisdiction and coordinates its monitoring with the other air pollution control agency within the MSA.

III. ROLES AND RESPONSIBILITIES

The parties agree to the following terms and conditions:

- SCDHEC, and GA EPD (the "affected agencies") commit to conducting appropriate monitoring in their respective jurisdictions of the MSA; as needed, to collectively meet EPA minimum monitoring requirements for the entire MSA for PM10, PM2.5, and ozone, as well as any other criteria air pollutant monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all affected agencies. The minimum air quality monitoring requirements (for PM10, PM2.5, and ozone described in 40 CFR 58) for the MSA shall apply to the MSA in its entirety and shall not apply to any sole affected agency within the MSA unless agreed upon by all affected agencies.

- The affected agencies commit to coordinating monitoring "responsibilities and requirements…to achieve an effective network design" regarding criteria air pollutant monitoring conducted in the MSA and commit to communicate unexpected or unplanned changes in monitoring activities within their jurisdictions to the other affected agency. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other

communications to discuss monitoring activities for the MSA. Each affected agency shall inform the other affected agency via telephone or e-mail of any monitoring changes occurring in its jurisdiction of the MSA at its earliest convenience after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites, destruction of monitoring sites due to natural disasters, or similar occurrences that result in an extended (greater than 1 quarter) or permanent change in the monitoring network. At least once a year in the second quarter of the year or before June 15th, each affected agency shall make available to the other affected agency, a copy of its proposed monitoring plan for its jurisdiction within the MSA for the next year.

- Each party reserves the right to revoke or terminate this MOA at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

IV. LIMITATIONS

A. All commitments made in this MOA are subject to the availability of appropriated funds and each party's budget priorities. Nothing in this MOA, in and of itself, obligates SCDHEC or GA EPD to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.

B. This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between parties to this MOA will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate subsidiary agreements that will be effected in writing by representatives of the parties.

C. Except as provided in Section III, this MOA does not create any right or benefit, substantive or procedural, enforceable by law or equity against SCDHEC or GA EPD, their officers or employees, or any other person. This MOA does not direct or apply to any person outside SCDHEC or GA EPD.

V. PROPRIETARY INFORMATION AND INTELLECTUAL PROPERTY

No proprietary information or intellectual property is anticipated to arise out of this MOA.

VI. POINTS OF CONTACT

The following individuals are designated points of contact for the MOA:

GA EPD: DeAnna Oser
GA EPD Ambient Monitoring Program
4244 International Parkway, Suite 120
Atlanta, GA 30354

DeAnna.Oser@dnr.ga.gov
Voice: (404) 363-7004
FAX: (404) 363-7100

SCDHEC: Micheal Mattocks
SCDHEC Bureau of Environmental Services
8231 Parklane Road
Columbia, SC 29223

mattocm@dhec.sc.gov
Voice: (803) 896-0902
FAX: (803) 896-0980

In the event that a point of contact needs to be changed, notification may be made via email to the other parties.

VII. MODIFICATION/DURATION/TERMINATION

This MOA will be effective when signed by all parties. This MOA may be amended at any time by the mutual written consent of the parties. The parties will review this MOA at least once every 10 years to determine whether it should be revised, renewed, or cancelled. This MOA may be revoked or terminated by an affected agency at any time and for any reason by giving thirty (30) days written notice prior to the date of termination.

VIII. REFERENCE

United States Environmental Protection Agency, Title 40 Code of Federal Regulations, Part 58, Appendix D, "Network Design Criteria for Ambient Air Quality Monitoring", Section 2 (e), "General Monitoring Requirements."

IX. APPROVALS

Georgia Department of Natural Resources, Environmental Protection Division (GA EPD)

BY: Richard E. Dunn

TITLE: Director

DATE: 2/21/17

South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Air Quality

BY: Rhonda B. Thomas

TITLE: Bureau Chief

DATE: 03/01/17

THIS AGREEMENT IS NOT OFFICIAL AND BINDING UNTIL SIGNED BY THE DHEC CONTRACTS MANAGER.

Francine J. Miller

Francine Miller
DHEC Contracts Manager
DATE: 3-6-17

5