GEORGIA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Air Protection Branch
Ambient Monitoring Program

2015 Ambient Air Monitoring Plan

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Glossary

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
BAM	Beta Attenuation Monitor
CAA	Clean Air Act
CBSA	Core Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CV	Coefficient of Variation
EPA	Environmental Protection Agency
EPD	Environmental Protection Division
FEM	Federal Equivalent Method
FRM	Federal Reference Method- the official measurement technique for a given pollutant
GEO MEAN	Geometric Mean
HAP	Hazardous Air Pollutant
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
NAMS	National Ambient Monitoring Site
NATTS	National Air Toxics Trends Station
NCore	National Core Multipollutant Monitoring Network
NMHC	Non-Methane Hydrocarbons
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NO_y	Reactive oxides of Nitrogen
NWS	National Weather Service
ODC	Ozone depleting Chemicals
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 Site
SO_2	Sulfur Dioxide

SPMS	Special Purpose Monitoring Site
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

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, Program Manager, Ambient Monitoring Program
DeAnna.Oser@dnr.state.ga.us
404-363-7004

Janet Aldredge-Byars, Manager Data Analysis Unit
Janet.Aldredge@dnr.state.ga.us
404-362-6587

Regarding the collection of the ambient data:

Sid Stephens, Manager Ambient Monitoring Operations 1
Sid.Stephens@dnr.state.ga.us
404-362-2750

Ken Buckley, Manager Ambient Monitoring Operations 2
Ken.Buckley@dnr.state.ga.us
404-362-2738

Regarding quality oversight of the monitoring program:

Alex Yang, Manager Quality Assurance Unit
Alex.Yang@dnr.state.ga.us
404-363-7066

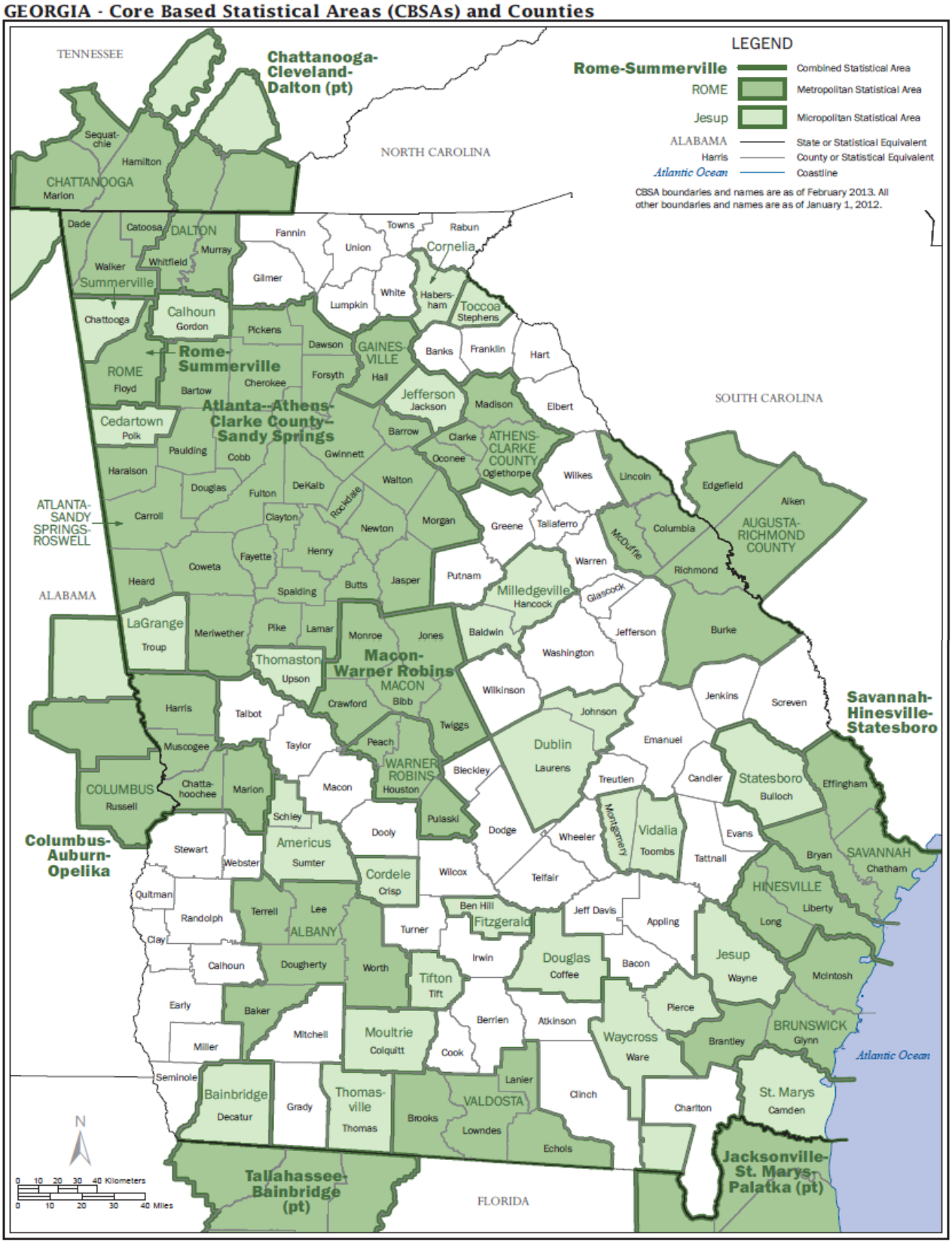
Regarding the meteorology monitoring program:

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

1.0 Introduction

The Annual Monitoring Network Plan is written as part of the requirements for the Environmental Protection Agency's (EPA) amended ambient air monitoring regulations established on October 17, 2006. It will show the Georgia Environmental Protection Division (GA EPD) Ambient Monitoring Program's plan to meet EPA's regulations for monitoring air quality in the State of Georgia by assessing monitoring types, monitoring objectives, site appropriateness for air quality characterization, spatial scale represented by each monitor, and appropriate new technologies. The network plan will outline the established sites across the State of Georgia, as well as the proposal to maintain and discontinue sites in the state's ambient air quality surveillance system. The purpose of the annual network plan is two-fold. First, 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. Second, the plan serves as a directory of existing SLAMS, Photochemical Assessment Monitoring Stations (PAMS), Speciation Trends Network (STN) and Supplemental Speciation sites, National Air Toxics Trends Station (NATTS), National Core Multipollutant Monitoring Station (NCore), Special Purpose Monitoring (SPM), Georgia Air Toxics Network, Acid Rain sites, and the meteorological parameters performed at each location.

As early as 1957, the State of Georgia has monitored air pollutants. Prior to the Clean Air Act of 1970, the state health department conducted air monitoring. In the early 1970's, the Georgia Environmental Protection Division assumed responsibilities for ambient air monitoring to facilitate the identification and control of air contaminants in Georgia. The sampling network currently consists of 41 stations located throughout Georgia. The air monitoring data are used to determine whether air quality standards are being met, to assist in enforcement actions, to determine the improvement or decline of air quality, to determine the extent of allowable industrial expansion, and to provide air pollution information to the public. A list of all active monitoring sites with detailed site information, site map and photos, parameters measured at each site, and recommendations for each site is included in the attached Appendix A. The site information also includes the statistical area represented by each site, which was derived from the following map (Figure 1).



U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Figure 1: Map of Statistical Areas in Georgia

Section 2.0 describes the pollutants, analysis methods, and quality assurance schedules. Section 3.0 gives a description of the networks, and updates GA EPD's plans to meet EPA's new monitoring requirements. Section 4.0 outlines the standards applied to criteria pollutant concentrations established by the EPA and the State of Georgia to protect human health (primary standards) and plants, animals and property (secondary standards). Section 5.0 describes the monitoring objectives and spatial scales. Section 6.0 provides a list of site evaluations performed on the monitoring stations. Appendix A includes the comprehensive list of sites with their detailed information. Appendix B includes an inventory of the current ambient monitoring equipment. Appendix C gives a list of monitors that have been shut down, the date the monitors were shut down, and the last Annual Plan that included those monitors. Appendix D includes comments that were received by GA EPD during the public comment period for this document, and GA EPD's response to those comments.

1.1 Mandate

This document is produced in response to duties mandated to ambient air monitoring agencies in 40 CFR 58.10:

> ***40 CFR PARTS 58.10: Annual Monitoring Network Plan and Periodic Network Assessment.***
>
> *(A)(1) Beginning July 1, 2007, the State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations. The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.*
> *(2) Any annual monitoring network plan that proposes SLAMS network modifications including new monitoring sites is subject to the approval of the EPA Regional Administrator, who shall provide opportunity for public comment and shall approve or disapprove the plan and schedule within 120 days. If the State or local agency has already provided a public comment opportunity on its plan and has made no changes subsequent to that comment opportunity, the Regional Administrator is not required to provide a separate opportunity for comment.*
> *(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.*
>
> > *(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.*
> > > *(5) Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.*
> > > *(6) The monitoring objective and spatial scale of representativeness for each monitor as defined in appendix D to this part.*

(7) The identification of any sites that are suitable and sites that are not suitable for comparison against the annual PM2.5 NAAQS as described in § 58.30.

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

(c) The annual monitoring network plan must document how States and local agencies provide for the review of changes to a PM2.5 monitoring network that impact the location of a violating PM2.5 monitor or the creation/change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual PM2.5 NAAQS as set forth in appendix N to part 50 of this chapter. 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. For PM2.5, the assessment also must identify needed changes to population-oriented sites. 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 first assessment is due 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.

1.2 Procedures for Making Changes to the Monitoring Network

In some circumstances, violating monitors must be shut down or moved. While the Ambient Monitoring Program of GA EPD makes every effort to maintain continued operation of required and/or violating monitors, it operates as a guest or leaseholder at all monitoring stations. GA EPD does not hold ownership rights to the land at any of its ambient air monitoring stations. Per EPA rules, if GA EPD loses its lease or is otherwise forced to leave a given site, that site's monitoring may be discontinued without EPA pre-approval or public notice.

GA EPD has no plans to create or implement the Community Monitoring Zone program at present. Any future plan would be subject to public notice and comment before petitioning EPA for approval.

1.3 Memorandum of Agreement

As stated in the Memorandum of Agreement dated January 13, 2009, "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 40 CFR 58 Appendix D, Section 2, (e) (October 17, 2006)."

The Memorandum of Agreement dated October 9, 2007 states, "The purpose of the Memorandum of Agreement (MOA) is to establish 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 EPDAPB (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 40 CFR 58 Appendix D, Section 2, (e) (October 17, 2006)."

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

1.4 Air Quality Index (AQI)

The Air Quality Index (AQI) is a method of reporting air quality that converts concentration levels of pollution to a simple number scale of 0-500. Intervals on the AQI scale are related to potential health effects of the daily measured concentrations of the major pollutants. Certain stations in the SLAMS network provide data for daily index reporting. Index 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, Georgia-South Carolina MSA; and the Chattanooga Tennessee-Georgia MSA. The Georgia Environmental Protection Division provides this service to the general public for seven statewide areas with the Georgia Ambient Monitoring Program website (http://www.air.dnr.state.ga.us/amp/index.php). The areas are as follows: Athens, Atlanta, Augusta, Columbus, Macon, North Georgia (Fort Mountain, Dawsonville, Summerville) and Savannah. The Chattanooga Tennessee-Georgia MSA AQI reporting is covered by the Chattanooga-Hamilton County Air Pollution Control Bureau.

1.5 QAPP and QMP

As part of the requirements for EPA, GA EPD 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.

QAPP ID	QAPP Title	Submittal	Approval
GA-AAQMP-QAPP-NR-12-2014	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Near Road Monitoring Network (December 2014 Version)	12-31-2014	To be approved by EPA
GA-AAQMP-QAPP-CAP-02-2014	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Criteria Air Pollutants (February 2014 Version)	3-31-2014	To be approved by EPA
GA-AAQMP-QAPP-PM25-01-2013	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for $PM_{2.5}$ (January 2013 Version)	1-29-2013	8-20-2014
GA-AAQMP-QAPP-NATTS-03-2011	Quality Assurance Project Plan for the Georgia National Air Toxics Trends Project (March 2011 Version)	4-26-2011	4-22-2014
GA-AAQMP-QAPP-NCORE-01-2010	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the National Core Multi- Pollutant Network (June 2010 Version)	6-30-2010	5-23-2011
GA-AAQMP-QAPP-PAMS-02-2010	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Photochemical Assessment Monitoring Stations State of Georgia (February 2010 Version)	2-24-2010	7-21-2010

Table 1: List of Georgia EPD's QAPPS

1.6 Public Notice and Comment Procedures

This document and any certain 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 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, Program Manager of the Ambient Monitoring Program, at DeAnna.Oser@dnr.state.ga.us.

Comments must be received by the GA EPD no later than 30 days after the date on which this document is published on http://www.georgiaair.org/airpermit/html/hottopics.htm and http://www.air.dnr.state.ga.us/amp/. 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 then be made available for public review during normal business hours at the office of the Air Protection Branch.

1.7 Changes to Previous Ambient Air Monitoring Plan

Since the publication of the 2014 Ambient Air Monitoring Plan, there have been some changes to the state's ambient air monitoring network that should be noted.

On August 20, 2014, GA EPD began sampling wind speed and wind direction at the new near-road monitoring site at Georgia Institute of Technology (13-0121-0056) in the Atlanta-Sandy Springs-Marietta MSA. Please see Section 3.10 for more details.

On January 1, 2015, GA EPD began sampling near-road NO/NOx/NO_2 at DMRC monitoring site (13-089-0003) in the Atlanta-Sandy Springs-Marietta MSA. This is the second required site for the Atlanta-Sandy Springs-Marietta MSA. Please see Section 3.10 for more details.

As of January 1, 2015, GA EPD began monitoring FRM $PM_{2.5}$ at the GA Tech near-road site (13-121-0056).

On March 31, 2015, the DMRC near-road site (13-089-0003) began monitoring volatile organic compounds.

Due to construction at the Summerville site (13-055-0001), GA EPD was unable to start sampling ozone at the beginning of ozone season (March 1). After construction was completed at the site, ozone sampling was restarted on April 23, 2015.

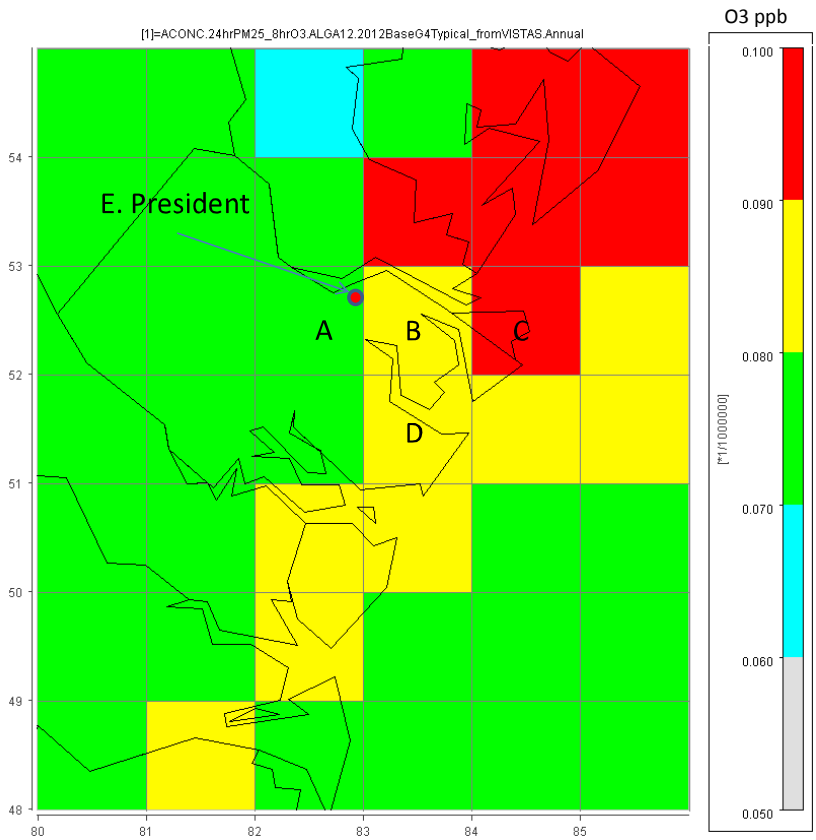
Per EPA's recommendations, GA EPD shut down one of the eight $PM_{2.5}$ speciation samplers across the state of Georgia. This site is located in Athens (13-059-0002), and the last sample was collected January 24, 2015. In addition, the General Coffee (13-069-0002) $PM_{2.5}$ speciation sampler had been recommended for shut down. However, GA EPD chose to continue collecting $PM_{2.5}$ speciation data and began funding the operation of this sampler as of January 1, 2015.

Due to the site property being purchased, GA EPD will be relocating the Rome-Coosa Elementary School site (13-115-0003) to the same vicinity. EPA has preliminarily approved the relocation of the samplers at the site (SO_2, $PM_{2.5}$ FRM, $PM_{2.5}$ continuous, and $PM_{2.5}$ speciation), and GA EPD is awaiting approval of the school board. The $PM_{2.5}$ BAM continuous sampler was shut down on March 31, 2015. This $PM_{2.5}$ BAM sampler will be replaced with a $PM_{2.5}$ TEOM continuous sampler in summer 2015. This TEOM will be collocated with a $PM_{2.5}$ federal reference method (FRM) sampler, and will be investigated to be used as an FEM (federal equivalent method) sampler. If the TEOM correlates well with the FRM sampler, then GA EPD may propose to run this TEOM as an FEM by January 1, 2016. At that point, if the TEOM is set up as an FEM, the $PM_{2.5}$ data could be compared to the National Ambient Air Quality Standards (NAAQS) for attainment purposes (see section 2.1.d of this document for more details).

Due to building renovation, the Sandersville site (13-303-0001) will be moving to another location less than a mile from the original site.

1.8 Monitoring Site Waivers

Renewal of Savannah Ozone Monitoring Waiver:
As part of GA EPD's 2013 Ambient Air Monitoring Plan, GA EPD reviewed the ozone monitoring rules and submitted the following paragraph and figure to EPA regarding adding an ozone monitor to the Savannah MSA:
According to the 2010 census, the Savannah MSA population was 347,611. However, since the 2012 estimated population was 361,941 and the 2010-2012 ozone design value was greater than or equal to 85% of the ozone standard (0.064 ppm), the Savannah MSA will need an additional ozone monitor (Table D-5 of Appendix D to 40CFR58). GA EPD has performed modeling of ozone concentrations to determine the proper placement and is evaluating where to place the additional ozone monitor in the Savannah MSA. The following figure shows the areas in red to have the highest modeled concentrations. This is a CMAQ model of the maximum 8-hour ozone values based on 2012 BaseG4 Typical from VISTAS Annual values.



The following excerpt was taken from EPA's comments to the 2013 Ambient Air Monitoring Plan regarding adding an ozone monitor to the Savannah MSA:

Minimum O_3 Monitoring Requirements
40 CFR Part 58, Appendix D, Table D-2

The network described in the 2013 Network Plan meets the minimum O_3 monitoring requirements specified by 40 CFR Part 58, Appendix D, Table D-2 in all areas but the Savannah MSA. According to the latest available census figures, the Savannah MSA's 2012 population estimate was 361,941. As outlined in your plan, a second O_3 monitoring site is now required in this MSA since the most recent 3-year design value is greater than or equal to 85 percent of the NAAQS (0.064ppm). We recognize that the current design value is exactly 85 percent of the NAAQS and could potentially be below that after this ozone season ending on October 31, 2013. We are working with your agency and the South Carolina Department of Health and Environmental Control to determine whether exploratory ozone monitoring is warranted and/or feasible in South Carolina just north of the Savannah MSA in order to capture the modeled maximum concentration as shown on page eight in your plan. The EPA recommends that the EPD not establish another permanent site in the Savannah MSA until we have an opportunity to explore available options. We plan to work with your agency and with South Carolina in the near future to jointly find a site that can be used to satisfy the additional ozone monitoring requirement for this MSA. The site selected through that process can be included in the 2014 network plan. The EPA approves no other changes to the O_3 monitoring network.

The Savannah MSA site location and ozone monitoring is pending EPA's initiation at this time.

Renewal of Lead Monitoring Waiver

As part of GA EPD's 2013 Ambient Air Monitoring Plan, GA EPD requested to close the source-oriented lead monitor in the Cartersville area (13-015-0003). This request was approved by EPA, and a waiver was granted to discontinue monitoring at this location. The following paragraph and figure were submitted to EPA in the 2013 Ambient Air Monitoring Plan:

To meet the lead monitoring rule (40CFR58, Appendix D, paragraph 4.5), GA EPD placed an ambient lead monitor near the Gerdau Ameristeel US Inc., in Cartersville (13-015-0003). According to this rule, the monitor was designated as a source-oriented monitor, which was expected to have shown the maximum lead concentration in ambient air and to exceed the National Ambient Air Quality Standard (NAAQS). Before the site was established, it was determined that the estimated 2005 lead emissions from the Gerdau Ameristeel facility were 1.41 tons/year (refer to 2009 Ambient Air Monitoring Plan for details). Since the lead monitor began collecting data on December 9, 2009, the highest 3-month rolling average has been 0.0265 $\mu g/m^3$, and the highest monthly average has been 0.0388 $\mu g/m^3$. These values are well below the standard of 0.15 $\mu g/m^3$ (graph is shown below), and this sampler has not shown to have the maximum lead concentration or exceed the NAAQS as expected. The Gerdau Ameristeel US Inc. facility has implemented a pollution prevention plan per 40CFR63.10685(a)(1) that includes minimizing the amount of lead in the scrap selection, and not charging scrap that contains scrap from lead-containing components (Operating Permit, Section 6.2.10). Therefore, GA EPD requests to close the lead monitor at the Cartersville (13-015-0003) site.

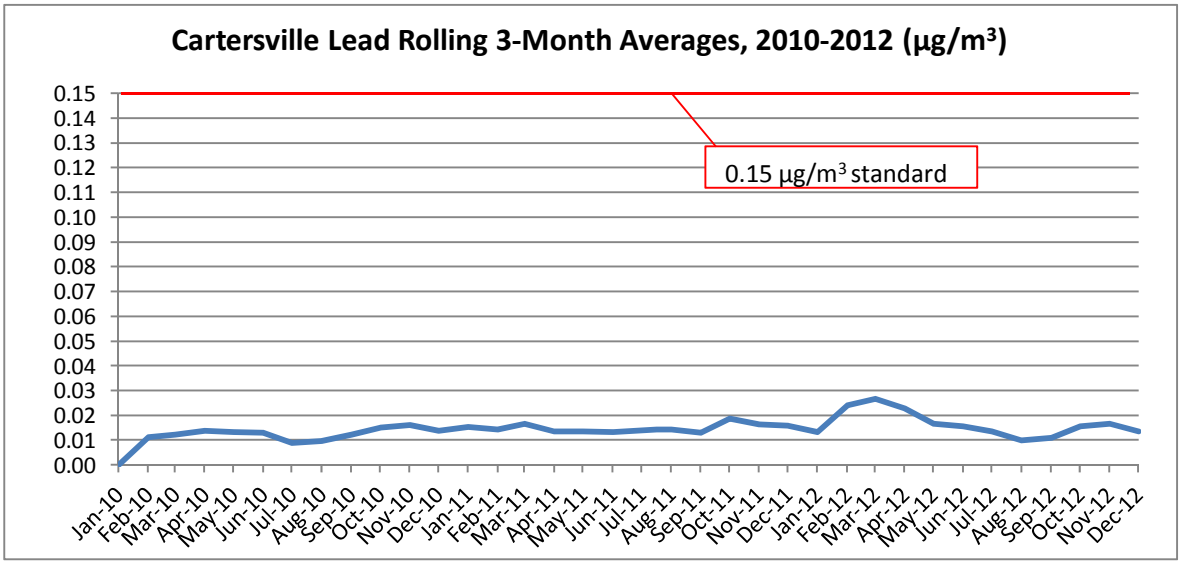


Figure 2: Cartersville Lead, 2010-2012

In addition, to prepare this document, the state lead emissions inventory was checked for emissions information on Gerdau Ameristeel. No lead emissions information was available to report.

The following excerpts were taken from EPA's comments to the 2013 Ambient Air Monitoring Plan regarding monitoring lead in the Cartersville area:

Pb Monitoring Requirements
40 CFR Part 58, Appendix D, 4.5

40 CFR Part 58, Appendix D, 4.5 requires that "At a minimum, there must be one source-oriented SLAMS [state and local air monitoring station] site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year…" Monitoring is ongoing at the Gerdau steel mill in Cartersville and the Exide Technologies facility in Columbus. These are the only non-airport sources in the state, which emit over 0.50 tons per year. The EPD has requested a waiver of the source-oriented monitoring requirement near the Gerdau steel mill in Cartersville, which the EPA approves. This approval is discussed in detail in the "Monitoring Network Changes Proposed by the GA EPD" section.

Monitoring Network Changes Proposed by GA EPD

In its 2013 Network Plan, the state listed in Section 1.7 additional changes being proposed in the network as well as listing the changes that have occurred as a result of the EPA's approval in 2012. Those changes listed in your plan that were approved last year have been verified. The changes to the SO_2, NO_2, CO, Pb and $PM_{2.5}$ networks listed in section 1.7 are approved. Also, on pages 8-9 in section 1.8, the EPD has requested to permanently discontinue several monitors that have been mothballed since the end of 2008. We approve the permanent closure of the total reduced sulfur monitor in Brunswick at site 13-127-0006. We also approve the permanent closure of the O_3 and meteorological monitoring in Fayetteville at site 13-113-0001. We grant a waiver to discontinue Pb monitoring at the Gerdau Ameristeel facility in Bartow County based on the historical data record. However, this waiver should be renewed at the time of each five-year network assessment or upon learning of process changes at the facility that may increase the emissions.

1.9 Inventory of Ambient Monitoring Equipment

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

1.10 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.

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	Pb	PM_{10}	PM_{10} Cont.	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Aethal-ometer	Metals
Rome MSA																						
131150003	Coosa Elementary	Floyd			S	S	X					S										
Brunswick MSA																						
131270006	Risley Middle	Glynn	S		S															NR		
Valdosta MSA																						
131850003	Mason Elem.	Lowndes			S	S																
Warner Robins MSA																						
131530001	Robins Air Base	Houston			S	S																
Dalton MSA																						
132130003	Fort Mountain	Murray	S																	NR		
Albany MSA																						
130950007	Turner Elem.	Dougherty			S	S																
Gainesville MSA																						
131390003	Boys and Girls Club	Hall			S	S																
Athens-Clark County MSA																						
130590002	College Station Rd.	Clarke	S		S	S																
Macon MSA																						
130210007	Allied Chemical	Bibb			S		X															
130210012	Forestry	Bibb	S		S	S						S					NR	NR		NR		NR
Columbus Georgia- Alabama MSA																						
132150001	Health Dept.	Muscogee			S																	
132150008	Airport	Muscogee	S		S	S																
132150009	UPS	Muscogee											S									
132150010	Fort Benning	Muscogee											S									
132150011	Cusseta Elementary	Muscogee			S		X						S									
132151003	Crime Lab	Muscogee																		NR		
Savannah MSA																						
130510021	E. President St.	Chatham	S									S					NR	NR	NR	NR		NR
130510091	Mercer Middle	Chatham			S																	
130511002	W. Lathrop & Augusta Ave.	Chatham				S						S								NR		
Augusta-Richmond County, Georgia-South Carolina MSA																						
130730001	Evans	Columbia	S																	NR		
132450091	Bungalow Rd.	Richmond	S		S	S	X					S		S						NR		

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	Pb	PM_{10}	PM_{10} Cont.	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Aethal-ometer	Metals
Atlanta-Sandy Springs-Marietta MSA																						
130630091	Forest Park	Clayton			S																	
130670003	Kennesaw	Cobb	S		S																	
130770002	Newnan	Coweta	S			S														NR		
130850001	Dawsonville	Dawson	S														NR	NR	NR	NR		NR
130890002	South DeKalb	DeKalb	S/P/C	S/P/C	S/C	S/C	T/C	C	S/P	S/P	S/P/C	C			C	P	N	N	P/N	P/C	N	N
130890003	DMRC Near-Road	DeKalb							R	R			S				R				R*	
130970004	W. Strickland St.	Douglas	S																	NR		
131210039	Fire Station #8	Fulton			S									S								
131210055	Confederate Ave.	Fulton	S			S						S								NR		
131210056	Georgia Tech Near-Road	Fulton		R	R					R										R	R*	
131350002	Gwinnett Tech	Gwinnett	S		S	S																
131510002	McDonough	Henry	S			S																
132230003	Yorkville	Paulding	S/P	S/P	S	S			S/P	S/P						P	NR	NR		P		NR
132470001	Conyers	Rockdale	S/P						S/P	S/P						P				P		
Chattanooga Tennessee-Georgia MSA																						
132950002	Maple Street	Walker			S	S	X															
Not in an MSA																						
130550001	Summerville	Chattooga	S																			
130690002	General Coffee	Coffee					X										NR	NR				NR
132611001	Leslie	Sumter	S																			
133030001	Sandersville	Washington			S																	
133190001	Gordon	Wilkinson			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

*Will be sampling in near future

Table 2: 2015 Georgia Air Monitoring Network

2.0 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. Field personnel will typically visit manual sampling sites at least once every six days to replace sample media and check the operation and calibration of monitors. Personnel will check continuous monitors at least twice monthly for correct instrument operation.

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 air pollution data with defined completeness, precision, accuracy, representativeness and comparability.

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 EPD's main office immediately. Numerous manual and automated checks are performed to ensure that only valid data are reported.

2.1 Particulate Matter

Atmospheric 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 to be 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). The U.S. EPA defines $PM_{2.5}$ as 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. Particulate matter less than or equal to 2.5 µm in diameter is referred to as "fine" particles ($PM_{2.5}$). $PM_{10\text{-}2.5}$ is also 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 originate 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

At sites where Particulate Matter (PM_{10}) is monitored on an integrated basis, Georgia EPD uses EPA-approved reference or equivalent methods. The low-volume samplers collect particulate matter on a pre-weighed quartz microfiber filter for 24 hours. Ambient air is sampled through an impaction inlet device that only allows particles with 10 microns or less in diameter to reach the filter media. The flow rate is controlled by an electronic mass-flow controller, which uses a flow sensor installed below the filter holder to monitor the mass flow rate and to control the speed of the motor accordingly. The filter is returned to the state laboratory for gravimetric analysis after the sample is collected. The change in the filter weight corresponds to the mass of PM_{10} particles collected. That mass, divided by the total volume of air sampled, corresponds to the mass concentration of the particles in the air. The sampling frequency varies by site. These monitors are used to determine attainment of the PM_{10} standard. These analyzers are subjected to quarterly checks and are audited by EPD's Quality Assurance Unit on a semi-annual basis.

b. Particulate Matter (PM_{10}) Continuous

At sites where Particulate Matter (PM_{10}) is monitored on a continuous basis, Georgia EPD uses an EPA-approved equivalent method. The monitor consists of three basic components: the central unit, the sampling pump, and the sampling inlet hardware. The sampling inlet is designed to cut out particles larger than 10 microns in size. The monitor uses beta ray attenuation to calculate collected particle mass concentrations. The beta rays are attenuated as they collide with particles collected on filter tape. The decrease in signal detected by the scintillation counter is inversely proportional to the mass loading on the filter tape. The pump turns on at the beginning of the hour and runs for 50 minutes. During the last 10 minutes of the hour, the pump is turned off while the tape transport operates, and the final mass reading is collected and self-tests are performed. These monitors are used to determine attainment of the PM_{10} standard. These analyzers are subjected to monthly flow checks and are audited by EPD's Quality Assurance Unit on a semi-annual basis.

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

At sites where mass $PM_{2.5}$ samples are taken on an integrated basis, the samples are measured using very similar techniques utilized for measuring PM_{10}. The official reference method 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. The reference method filters are used for attainment determinations. However, due to the delay in collecting each filter, shipping it to the laboratory, and weighing, weeks may pass before the results are known. Although this method is very accurate, it is not useful for real-time determinations of $PM_{2.5}$ concentrations in ambient air. Because the data is collected using the Federal Reference Method, the data is appropriate to use for making attainment decisions relative to the $PM_{2.5}$ NAAQS. 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 3 below. On a semi-annual basis, EPD's Quality Assurance Unit audits these $PM_{2.5}$ samplers.

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

At sites where $PM_{2.5}$ is monitored on a continuous basis, Georgia EPD uses two types of instruments. One of the two types of continuous instruments is the beta attenuation method using the MetOne BAM-1020, adapted from PM_{10} service to $PM_{2.5}$ service by use of an inline BGI "Sharp Cut Cyclone". The inlet is designed to cut out particles that are larger than 2.5 microns in size. The beta rays are attenuated as they collide with particles collected on filter tape. The decrease in signal detected by the scintillation counter is inversely proportional to the mass loading on the filter tape. The pump turns on at the beginning of the hour and runs for 50 minutes. During the last 10 minutes of the hour, the pump is turned off while the tape transport operates, and the final mass reading is collected and self-tests are performed. The sampling method for the BAM type of continuous $PM_{2.5}$ monitor was approved as Federal Equivalent Method (FEM) in Notices of the Federal Register/Vol.73; No.49 dated March 12, 2008 when used with a "Very Sharp Cut Cyclone". When GA EPD begins operating the continuous BAM as an FEM with a "Very Sharp Cut Cyclone", these samplers will be used for making attainment decisions relative to the NAAQS. GA EPD began sampling the BAM as FEM at the South DeKalb site (13-089-0002) as of January 1, 2011, and at the Albany-Turner Elementary site (13-095-0007) on January 1, 2013. Therefore, these two samplers (South DeKalb and Albany-Turner Elementary) are the only two continuous $PM_{2.5}$ samplers that can be compared to the NAAQS at this time. GA EPD is conducting correlations of the BAM (FEM) data with the $PM_{2.5}$ FRM data at these two sites (South DeKalb and Albany-Turner Elementary) to determine if the BAM (FEM) data should continue to be used for comparison to the NAAQS.

At the other locations where Georgia EPD samples $PM_{2.5}$ on a continuous basis, GA EPD uses the Thermo Scientific tapered element oscillating microbalance (TEOM) Series 1400/1400a 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. GA EPD will begin sampling the TEOM at the Rome site (13-115-0003) with a "Filter Dynamics Measurement System (FDMS)" configuration in summer 2015. This TEOM will be collocated with a $PM_{2.5}$ federal reference method (FRM) sampler, and will be investigated to be used as an FEM (federal equivalent method) sampler. If the TEOM correlates well with the FRM sampler, then GA EPD may propose to run this TEOM as an FEM by January 1, 2016. At that point, if the TEOM is set up as an FEM, the $PM_{2.5}$ data could be compared to the National Ambient Air Quality Standards (NAAQS) for attainment purposes. Currently, the other TEOMs in the ambient air monitoring network are not configured to sample with the federal equivalent method. Therefore, data collected from the other TEOM samplers cannot be used for making attainment decisions

relative to the NAAQS. At this time, GA EPD is considering configuring the Athens and Macon-Forestry TEOMs as FEMs. If GA EPD determines that these two TEOMs should be reconfigured as FEMs, then those monitors would also be compared to the NAAQS for attainment designations.

Both types of continuous samplers are used to support development of air quality models and forecasts, including the Air Quality Index (AQI), and to provide the public with information about pollutant concentrations in real time. Both types of analyzers are subject to monthly flow checks and are audited by EPD'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 3 below. On a quarterly basis, EPD's Quality Assurance Unit subjects these samplers to audits.

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

As part of the NCore requirements (discussed in Section 3.1), the South DeKalb site began PMcoarse sampling as of January 1, 2011. GA EPD uses the 'Met One Instruments BAM-1020 $PM_{10-2.5}$ Measurement System Automated Equivalent Method: EQPM-0709-185 consisting of 2 BAM-1020 monitors, the first of which (PM2.5 measurement) is configured as a PM2.5 FEM (EQPM-0308-170). The second BAM-1020 monitor (PM10 measurement) is configurable as a PM2.5 FEM (EQPM-0308-170), but set to monitor PM10. The BAM-1020 monitors are collocated to within 1-4 meters of one another. The BAM-1020 performing the PM2.5 measurement is equipped with Met One Instruments, Inc. P/N BX-Coarse interface board and accessories; the units are interconnected to provide concurrent sampling and to report PM10-2.5 concentrations directly to the user. Both units are operated in accordance with BAM-1020 PM-Coarse Addendum Rev. 5-5 or later and the BAM-1020 Operations Manual Rev. D or later' (Federal Register: Vol.74, page 24241, 06/15/09).

The sampling frequency of the integrated (FRM), continuous (BAM and TEOM), and speciated $PM_{2.5}$ samplers is detailed in Table 3 below, and the attached Appendix A for clarity. The $PM_{2.5}$ samplers highlighted in yellow are the only $PM_{2.5}$ samplers that are used for comparison to the NAAQS for attainment purposes.

Site ID	Common Name	City	County	Integrated	Continuous	Speciation
Rome MSA						
131150003	Coosa Elementary	Rome	Floyd	$PM_{2.5}$ (Daily)	TEOM $PM_{2.5}$	6 Day
Brunswick MSA						
131270006	Risley Middle	Brunswick	Glynn	$PM_{2.5}$ (3 Day)		
Valdosta MSA						
131850003	Mason Elem.	Valdosta	Lowndes	$PM_{2.5}$ (3 Day)	BAM $PM_{2.5}$	
Warner Robins MSA						
131530001	Robins Air Base	Warner Robins	Houston	$PM_{2.5}$ (3 Day)	BAM $PM_{2.5}$	
Albany MSA						
130950007	Turner Elem.	Albany	Dougherty	2 $PM_{2.5}$ (Daily, Daily)	FEM BAM $PM_{2.5}$	
Gainesville MSA						
131390003	Boys and Girls Club	Gainesville	Hall	$PM_{2.5}$ (3 Day)	BAM $PM_{2.5}$	
Athens-Clark County MSA						
130590002	College Station Rd.	Athens	Clarke	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	
Macon						
130210007	Allied Chemical	Macon	Bibb	2 $PM_{2.5}$ (Daily, 12 Day)		6 Day
130210012	Forestry	Macon	Bibb	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	
Columbus Georgia- Alabama MSA						
132150001	Health Dept.	Columbus	Muscogee	$PM_{2.5}$ (3 Day)		
132150008	Airport	Columbus	Muscogee	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	
132150011	Cusseta Elementary	Columbus	Muscogee	$PM_{2.5}$ (3 Day)		6 Day
Savannah MSA						
130510091	Mercer Middle	Savannah	Chatham	$PM_{2.5}$ (3 Day)		
130511002	W. Lathrop & Augusta Ave.	Savannah	Chatham		TEOM $PM_{2.5}$	
Augusta Georgia-South Carolina MSA						
132450091	Bungalow Rd.	Augusta	Richmond	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	6 Day
Atlanta MSA						
130630091	Georgia DOT	Forest Park	Clayton	$PM_{2.5}$ (3 Day)		
130670003	National Guard	Kennesaw	Cobb	$PM_{2.5}$ (Daily)		
130770002	Univ. of West GA	Newnan	Coweta		TEOM $PM_{2.5}$	
130890002	South DeKalb	Decatur	DeKalb	2 $PM_{2.5}$ (Daily, 12 Day)	FEM BAM $PM_{2.5}$	3 Day
131210039	Fire Station #8	Atlanta	Fulton	$PM_{2.5}$ (3 Day)		
131210055	Confederate Ave.	Atlanta	Fulton		TEOM $PM_{2.5}$	
131210056	Georgia Tech	Atlanta	Fulton	$PM_{2.5}$ (3 Day)		
131350002	Gwinnett Tech	Lawrenceville	Gwinnett	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	
131510002	County Extension	McDonough	Henry		TEOM $PM_{2.5}$	
132230003	Yorkville	Yorkville	Paulding	$PM_{2.5}$ (3 Day)	TEOM $PM_{2.5}$	
Chattanooga Tennessee-Georgia MSA						
132950002	Maple Street	Rossville	Walker	$PM_{2.5}$ (3 Day)	BAM $PM_{2.5}$	6 Day
Not In An MSA						
130690002	General Coffee State Park	Douglas	Coffee			6 Day
133030001	Co. Health Dept.	Sandersville	Washington	$PM_{2.5}$ (3 Day)		
133190001	Police Dept.	Gordon	Wilkinson	$PM_{2.5}$ (3 Day)		

Highlighted samplers used for comparison to NAAQS

Table 3: $PM_{2.5}$ Sampling Frequency

2.2 Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless and poisonous gas produced by incomplete burning of carbon-containing fuel. Most atmospheric CO is produced by incomplete combustion of fuels used for vehicles, space heating, industrial processes, and solid waste incineration. Transportation accounts for a large part of CO emissions. Boilers and other fuel burning heating systems are also significant sources.

Breathing 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/m³) 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 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 weekly zero, precision, and span (ZPS) checks, quarterly multipoint calibrations, and are audited by EPD's Quality Assurance Unit on an annual basis.

2.3 Ozone (O_3)

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

Ozone is formed through independent processes in the upper atmosphere (stratosphere). Stratospheric ozone shields the earth from harmful effects of ultraviolet solar radiation. Stratospheric ozone can be damaged by the emission of chlorofluoro-hydrocarbons (CFCs) such as Freon. This report, and the operations of the Ambient Monitoring Program, is only concerned with tropospheric ozone.

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 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 probably will experience breathing difficulty when exposed to short-term

concentrations above 0.076 ppm. 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 continuous monitors is used to determine compliance with the NAAQS for ozone.

According to 40 CFR Part 58, the State of Georgia 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, also according to 40 CFR Part 58. During the monitoring season, analyzers are subjected to weekly ZPS checks and quarterly multipoint calibrations. On an annual basis, EPD's Quality Assurance Unit audits these samplers.

As part of the Clean Air Status and Trends Network (CASTNET), EPA established a monitoring site in 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 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. As of 2011, the CASTNET ozone monitor met the Code of Federal Regulations (40 CFR), and met quality assurance and completeness criteria. Therefore, as of 2011, data collected by this monitor can be used for comparison to the NAAQS.

2.4 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 (A) 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 weekly ZPS checks, quarterly multipoint calibrations, and are audited by EPD's Quality Assurance Unit on an annual basis.

2.5 Nitrogen Oxides (NOx)

Several gaseous oxides of nitrogen 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 reacts 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 strong NO 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 strong local NO 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. 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°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 weekly ZPS checks, quarterly multipoint calibrations, and are audited by EPD's Quality Assurance Unit on an annual basis.

2.6 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). Samples are collected on 8" x 10" pre-weighed fiberglass filters with a high-volume total suspended (TSP) sampler for 24 hours, collecting particles with diameters of 100 microns or less. High volumes of ambient air in the flow range of 40-60 cubic feet per minute are sampled at a constant rate during the sampling period. This produces a uniform distribution of particles deposited on the sample filter downstream of the sampler inlet. Samples

collected with the TSP high-volume sampler can be used to determine the average ambient TSP concentration over a sampling period followed by subsequent analysis to determine the identity and quantity of inorganic metals present in the TSP. The filter sample is shipped to a laboratory for analysis using inductively coupled plasma mass spectroscopy (commonly known as ICP-MS). Data gained from the criteria lead samplers is used to determine compliance with the National Ambient Air Quality Standards for lead. On a semi-annual basis, EPD's Quality Assurance Unit audits these samplers.

In addition to the criteria lead network sites, lead is monitored as a trace metal in the Georgia Air Toxics Monitoring Network, the National Air Toxics Trends Station (NATTS), and with the $PM_{2.5}$ speciation samplers. With the Air Toxics Network, samples are obtained with a high-volume sampler collecting total suspended particles in the ambient air. 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. All three of these additional sampling techniques also collect 24-hour samples on pre-weighed filters, have samples sent to a laboratory for analysis, and are analyzed with ICP-MS. On an annual basis, EPD's Quality Assurance Unit audits these lead samplers.

2.7 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. Many VOCs are also hazardous air pollutants, which can cause very serious illnesses. 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 an important source of VOCs. VOCs include chemicals such as benzene, toluene, methylene chloride and methyl chloroform. In addition to ozone (smog) effects, many VOCs can cause serious health problems such as cancer and other effects directly. Some VOCs such as ethylene may also harm plants.

VOCs are collected and analyzed with two different methods. One method is with the Air Toxics Network in which the VOCs are collected with a canister. A SUMMA® polished 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 10 psig. The samples are collected for a 24-hour period, every 6 or 12 days depending on the site. The Air Toxics VOCs canister is analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS), using method TO14/15, at the EPD laboratory. The second method of VOCs collection and analysis is with the PAMS network in which VOCs are collected and analyzed on-site with a gas chromatograph/flame ionization detector (GC/FID). During June, July, and August, the PAMS VOCs samples are collected continuously on an hourly basis. Also throughout the year with the PAMS network, a 24-hour VOCs sample is collected every 6 days and analyzed with the GC/FID method at the EPD laboratory. The VOC samplers in the PAMS network are subjected to quarterly checks and audited every six months. The Air Toxics VOCs samplers are subjected to quarterly checks and are audited by EPD's Quality Assurance Unit on an annual basis.

2.8 Carbonyls

Carbonyl compounds 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 network, during June, July, and August, four integrated 3-hour carbonyls 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 EPD's Quality Assurance department every six months. Also at select Air Toxics sites, carbonyls samples are collected on a DNPH cartridge for a 24-hour period, every 12 days. The Air Toxic carbonyls samplers are subjected to quarterly checks and audited by EPD's Quality Assurance Unit annually.

2.9 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. The PUF (polyurethane foam) sampler used for sampling semi-volatile organic compounds 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 a remote laboratory and analyzed using gas chromatography. The semi-VOCs samplers are subjected to quarterly checks and audited by EPD's Quality Assurance Unit annually.

2.10 Aethalometer

The aethalometer is a continuous sampler used for sampling 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. With the sampling for black carbon, attempts can be made to determine the anthropogenic portion of carbon sources in ambient air pollution. Operating at 60 Watts/110V AC, the aethalometer uses quartz tape to perform an optical analysis to determine the concentration of carbon particles passing through an air stream. The analysis is conducted using spectrophotometry, measuring the wavelength of the light energy absorbed and plotting the results on the site computer. These parameters are subjected to quarterly checks and audited by EPD's Quality Assurance Unit every six months.

2.11 Meteorological Parameters

GA EPD has seventeen meteorological stations across the state. Surface meteorological measurements, including wind speed and wind direction, are measured at every location. In addition, as part of the Photochemical Assessment Monitoring Sites (PAMS) around the metropolitan Atlanta area, a complete suite of meteorological instrumentation is used to characterize meteorological conditions. All PAMS stations measure hourly-averaged scalar 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 hourly-averaged 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 EPD's Quality Assurance Unit on an annual basis. For upper air measurement, GA EPD uses a SODAR PA5-LR system in conjunction with balloon rawinsonde data collected from NWS at Peachtree City. This upper air system proves especially useful for monitoring low-level winds during smoke transport events.

3.0 Description of Networks

3.1 NCore

The National Core (NCore) Multipollutant Monitoring network is a network measuring several pollutants including particles, gases, and meteorology. These stations provide data on several pollutants at lower detection limits. The NCore Network addresses 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

The NCore site for the State of Georgia is the South DeKalb site (13-089-0002) in DeKalb County. Site selection was due July 1, 2009, and this site was approved by EPA on October 30, 2009. The site was fully operational by January 1, 2011. The NCore sampling equipment at the South DeKalb site includes: $PM_{2.5}$ FRM, $PM_{2.5}$ continuous, PM_{coarse}, $PM_{2.5}$ speciation, ozone (collecting data year-round), trace level carbon monoxide, trace level sulfur dioxide, trace level nitrogen oxide, total reactive nitrogen (NOy), wind direction, wind speed, temperature, and relative humidity. The DMRC site (13-089-0003) is located approximately 2 kilometers away from the South DeKalb site, and is the location of the NCore lead sampler. Refer to GA EPD's previous (2014) Ambient Air Monitoring Plan, Appendix C, Ambient Air Monitoring Plan for National Core (NCore) Multipollutant Monitoring Station for full description.

3.2 Sulfur Dioxide

On June 2, 2010, EPA strengthened the sulfur dioxide (SO_2) standard to include a 1-hour primary standard of 75 ppb, and new SO_2 ambient monitoring requirements for the 1-hour standard (Federal Register: Vol. 75, No. 119, 06/22/10). The rule was written to use a hybrid approach combining air quality modeling and monitoring. The rule includes 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 final 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 final 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. According to this monitoring rule, GA EPD would need five monitors to accommodate the new SO_2 rule. Two monitors should be in place in the Atlanta-Sandy Springs-Marietta CBSA, one in the Augusta-Richmond County, GA-SC CBSA, one in the Macon CBSA, and one in the Savannah CBSA. According to 40 CFR 58.10 (a) (6), the Annual Plan submitted by July 1, 2011 was to include a plan for establishing SO_2 monitoring sites to meet the new monitoring requirements of Appendix D. These sites were to be operational by January 1, 2013. In addition, the SO_2 5-minute maximum for every hour was to start being reported as of August 23, 2010.

To accommodate the rule change, GA EPD started sampling in the Augusta-Richmond County, GA-SC MSA at the Augusta-Bungalow Road site (13-245-0091) as of January 14, 2013. GA EPD will continue monitoring at the Confederate Avenue site (13-121-0055), the South DeKalb site (13-089-0002), and the Macon-Forestry site (13-021-0012). In addition, GA EPD will continue sampling with both monitors in the Savannah MSA (Savannah-E. President Street, 13-051-0021 and Savannah-L&A, 13-051-1002) and at the Rome-Coosa Elementary site (13-115-0003) since these three monitors have concentrations close to or above 85% of the new SO_2 standard. As of August 1, 2010, GA EPD began collecting 5-minute maximum data with these SO_2 samplers.

The South DeKalb site (13-089-0002) began sampling trace level sulfur dioxide as of October 1, 2010. This sampler also began collecting SO_2 5-minute maximum data on October 1, 2010. This is to accommodate the NCore requirements for this site.

3.3 Nitrogen Dioxide

On January 22, 2010, EPA revised the nitrogen dioxide (NO_2) National Ambient Air Quality Standard and monitoring requirements. According to 40 CFR 58.10 (a) (5), the Annual Plan submitted by July 1, 2012 would include a plan for establishing NO_2 monitoring sites to meet the new monitoring requirements of Appendix D. These sites were to be operational by January 1, 2013 (Federal Register, Vol. 75, No. 26, 02/09/10). Then on October 5, 2012, EPA proposed to change the establishment dates of these monitors, and that the first phase of near-road monitoring site establishment would be January 1, 2014. The second phase of site establishment would be January 1, 2015, and the third phase would be January 1, 2017 (Docket No. EPA-HQ-OAR-2012-0486). These monitors are 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). According to these requirements, GA EPD would need to have two near-road NO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA and one near-road NO_2 monitor in the Augusta-Richmond County, GA-SC MSA.

GA EPD began monitoring near-road NO_2 at the first near-road site on the Georgia Institute of Technology campus (site ID 13-121-0056) in the Atlanta-Sandy Springs-Marietta MSA as of June 15, 2014. For details regarding the establishment of the first near-road NO_2 monitor in the Atlanta-Sandy Springs-Marietta MSA, refer to Appendix E of the 2014 Ambient Air Monitoring Plan. According to EPA's schedule, GA EPD established the second near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA on January 1, 2015 at the established DMRC site (13-089-0003). For details regarding the establishment of the second near-road site, refer to the GA EPD's Addendum to the 2014 Ambient Air Monitoring Plan.

For the Augusta-Richmond County, GA-SC MSA, there are no AADT counts reaching 250,000 vehicles. According to the 2011 AADT estimates, the highest traffic count (traffic counter 0223) is approximately 82,850 vehicles near the intersection of I-20 and I-520. However, the population for the Augusta-Richmond County, GA-SC MSA is above 500,000. Therefore, a near-road NO_2 monitor will be placed in this MSA. GA EPD has analyzed the AADT estimates and has been evaluating suitable locations to meet the near-road NO_2 monitoring requirement in the Augusta-Richmond County, GA-SC MSA by January 1, 2017.

In addition, with these NO_2 requirements, GA EPD would need 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. Currently GA EPD has three NO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA, which has a population above 1,000,000. These

monitors are located at the three PAMS sites: South DeKalb (13-089-0002), Yorkville (13-223-0003), and Conyers (13-247-0001). Of the three NO_2 monitors currently collecting data, the South DeKalb site has historically collected the highest concentrations, is located within an urban area, represents the urban spatial scale, and operates year round. Therefore, the South DeKalb NO_2 monitor satisfies the area-wide requirement.

3.4 Carbon Monoxide

On August 12, 2011, EPA finalized changes to the monitoring requirements for the carbon monoxide (CO) monitoring network. According to these changes, EPA is requiring 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 the State of Georgia, this monitoring requirement would be one CO monitor located in the Atlanta-Sandy Springs-Marietta MSA, collocated with the NO_2 near-road monitor. GA EPD began monitoring CO at the new near-road site at Georgia Institute of Technology (13-121-0056) in schedule with the NO_2 monitor on June 15, 2014.

GA EPD has two other CO monitors at the Photochemical Assessment Monitoring Stations (PAMS) in the Atlanta-Sandy Springs-Marietta MSA. One location is at the South DeKalb site (13-089-0002), and the other is at the Yorkville site (13-223-0003).

3.5 Lead

Georgia EPD's ambient lead monitoring network currently consists of monitors located at four sites. One of these lead monitoring sites is located in the Atlanta-Sandy Springs-Marietta MSA at the DMRC site in DeKalb County (13-089-0003) and consists of two collocated monitors. Three of these lead monitoring sites are in the Columbus Georgia-Alabama MSA in Muscogee County. There is one monitor located at the Cusseta Elementary School (13-215-0011), one at Columbus-UPS (13-215-0009), and one at Columbus-Fort Benning (13-215-0010). In addition, the Columbus-Fort Benning (13-215-0010) criteria lead monitor is collocated with a second criteria lead monitor.

On December 14, 2010, EPA revised the requirements for measuring lead in the ambient air. The emission threshold for placing lead monitors near industrial facilities was lowered from 1.0 tons per year (tpy) to 0.5 tpy. In addition, EPA is requiring that lead monitors be placed at the NCore sites. The new lead monitors were required to be operational by December 27, 2011 [40CFR58, Docket No. EPA-HQ-OAR-2006-0735, 12/14/10].

GA EPD meets the requirement of monitoring lead at an NCore site. The NCore site for the State of Georgia is the South DeKalb site (13-089-0002), and the criteria lead monitor is located at the nearby established DMRC site (13-089-0003).

For the monitors to be placed near industrial facilities that emit greater than 0.5 tpy, EPA had compiled a list of lead sources from the 2011 National Emissions Inventory (NEI). The industrial facilities listed in Georgia are shown in the table below.

Table 4: EPA Required Ambient Air Lead Monitoring for Georgia

State	County	Site Name	Emissions (tpy)	Data Source
GA	Floyd	Temple Inland Rome	0.59	2011 NEI
GA	Pierce	Gilman Building Products Co- Blackshear	0.50	2011 NEI
GA	Fulton	R. M. Clayton Water Reclamation Center	0.62	2011 NEI

Emissions data from 2011 National Emissions Inventory (NEI)

The Georgia Environmental Protection Division (GA EPD) researched all available data for these facilities and, where necessary, contacted the facilities for further information. As a result of GA EPD's research, the following were discovered:

1. Temple Inland Rome Linerboard Mill – GA EPD received updated calculations of 2011 lead emissions from Temple-Inland Rome. These calculations show a total of 186 pounds of lead emitted per year (0.093 tons/year). Refer to Attachment A for details.

2. R.M. Clayton Water Reclamation Center – The facility provided lead calculations for 2010 and 2011. These calculations showed maximum lead emissions of 9.327 pounds per year (0.0046 tons/year) in 2011. Refer to Attachment A below for details.

3. Gilman Building Products, Blackshear – The company submitted updated emission estimates indicating lead emissions of 16.03 pounds/year from each kiln. The Blackshear lumber mill operates 3 kilns, resulting in 48.09 pounds per year (0.02 tons/year) of lead emissions.

4. No other facilities in Georgia have estimated lead emissions equal to or exceeding 0.5 tons/ year.

Attachment A is provided as supporting documentation for the above lead emission findings.

Attachment A:

The following table shows the revised 2011 lead emission rates for Temple Inland Rome, R.M. Clayton Water Reclamation Center, and Gilman Building Products – Blackshear.

Table 5: Changes to GA 2011 NEI Lead Data

Changes to GA 2011 NEI Lead Data			
Facility Name	Temple Inland Rome	R.M. Clayton Water Reclamation Center	Gilman Building Products - Blackshear
City	Rome	Atlanta	Blackshear
State	GA	GA	GA
2011 NEI Emissions (tpy)	0.517	0.62	0.52
Revised Emissions Data	0.061	0.0046	0.024
Latitude	34.254592	33.4625	31.319722
Longitude	85.325569	84.458333	82.216667

Temple Inland Rome submitted calculations for their 2011 lead emissions, with updated emission factors for lead emissions from lime kilns 1 and 2. The new calculations were based on the recommended median lead emission factor (EF) listed in the National Council for Air and Stream Improvement (NCASI) air toxics emissions database. The detailed emission calculations as submitted are given in the table below.

Table 6: Lead Emission Calculations for Temple Inland Rome

Source Group	Material	Activity	Activity Units of Measure (UOM)	EF Final	EF Final UOM	Control Efficiency	Amount Emitted	UOM
Lime Kilns	FuelOil2-MGal (non-cofired)	0	Mgal-FuelOil2 (non-cofired)	1.260E-003	lb/10e3 gal	0.00 %	4.99E-005	lbs
	FuelOil5-MGal (non-cofired)	0	Mgal-FuelOil5 (non-cofired)	1.510E-003	lb/10e3 gal	0.00 %	7.29E-005	lbs
	NatGas-MMSCF (non-cofired)	5	NatGas (non-cofired)-MMSCF	5.000E-004	lb/10e6 scf	0.00 %	2.50E-003	lbs
	TCaO-onGas	81,639	TCaO-onGas	2.860E-004	lb/T CaO	0.00 %	23.35	lbs
	TCaO-onOil	234	TCaO-onOil	2.860E-004	lb/T CaO	0.00 %	6.70E-002	lbs
	FuelOil2-MGal (non-cofired)	0	Mgal-FuelOil2 (non-cofired)	1.260E-003	lb/10e3 gal	0.00 %	0.00	lbs
	FuelOil5-MGal (non-cofired)	0	Mgal-FuelOil5 (non-cofired)	1.510E-003	lb/10e3 gal	0.00 %	0.00	lbs
	NatGas-MMSCF (non-cofired)	4	NatGas (non-cofired)-MMSCF	5.000E-004	lb/10e6 scf	0.00 %	1.98E-003	lbs
	TCaO-onGas	85,693	TCaO-onGas	2.860E-004	lb/T CaO	0.00 %	24.51	lbs
	TCaO-onOil	2	TCaO-onOil	2.860E-004	lb/T CaO	0.00 %	0.00	lbs
Power	NatGas-MMSCF	184	NatGas-MMSCF	5.000E-004	lb/10e6 scf	0.00 %	0.09	lbs
	Coal-Tons	124,589	Coal-Tons	4.200E-004	lb/Ton Coal	0.00 %	52.33	lbs
	FuelOil2-MGal	2	MGal-FuelOil2	1.260E-003	lb/10e3 gal	0.00 %	2.61E-003	lbs
	FuelOil5-MGal	60	MGal-FuelOil5	1.510E-003	lb/10e3 gal	0.00 %	0.09	lbs
	NatGas-MMSCF	142	NatGas-MMSCF	5.000E-004	lb/10e6 scf	0.00 %	0.07	lbs
	Bark-MMBTU	5,492,549	Bark-MMBTU	1.970E-006	lb/10e6 BTU	0.00 %	10.82	lbs

	FuelOil2-MGal	20	MGal-FuelOil2	1.260E-003	lb/10e3 gal	0.00 %	0.03	lbs
	FuelOil5-MGal	601	MGal-FuelOil5	1.510E-003	lb/10e3 gal	0.00 %	0.91	lbs
	OCCRejects-MMBTU	220,965	MMBTU-OCCRejects	1.970E-006	lb/10e6 BTU	0.00 %	0.44	lbs
	Sludge-MMBTU	0	Sludge-MMBTU	1.970E-006	lb/10e6 BTU	0.00 %	0.00	lbs
	TDF-MMBTU	0	MMBTU-TDF	1.970E-006	lb/10e6 BTU	0.00 %	0.00E+000	lbs
RB&SDT5	FuelOil2-MGal (non-cofired)	16	Mgal-FuelOil2 (non-cofired)	1.260E-003	lb/10e3 gal	0.00 %	1.96E-002	lbs
	FuelOil5-MGal (non-cofired)	72	Mgal-FuelOil5 (non-cofired)	1.510E-003	lb/10e3 gal	0.00 %	0.11	lbs
	TBLS	886,798	TBLS	9.810E-006	lb/T BLS	0.00 %	8.70	lbs
	TBLS	886,798	TBLS	6.900E-007	lb/T BLS	0.00 %	0.61	lbs
Total							**122.14**	**lbs**

0.061	**tons**

Gilman Building Products LLC (Blackshear) submitted updated emission values. Their actual emissions were about 0.008 tpy to 0.024045 tpy depending on the number of kilns the facility operates. The detailed emission calculations as submitted are given below.

Gilman facility mentioned above operates as a saw mill. The mill operates three direct fired kilns where cut lumber is dried. The fuel utilized is wood waste. The burning of wood waste to generate steam for the drying process is the only activity causing or contributing to lead emissions.

Each kiln at maximum production utilizes 42000 Tons of wood waste per year; therefore, the total lead emission per year from each kiln is as follows:

Table 7: Lead Emission Calculations for Gilman Building Products LLC (Blackshear, Dudley and Fitzgerald)

Wood Waste utilized/Kiln/Yr At Maximum Operation	42,000 Tons/Yr
Heat Value of Wood	4000 Btu/lb of Wood
Total Heat generation per Kiln	336,000MMBtu/Yr
AP-42 Emission Factor for Wood waste	0.0000477 lbs of Lead/MMBtu
Lead Emissions per kiln	336,000X0.0000477= 16.03 Lbs

Since the mill has three kilns, lead emissions from the facility are:

16.03 lb/yr/kiln x 3 kilns = 48.03 lb/yr

R.M. Clayton Water Reclamation Center provided the following calculation details for 2007, 2008, 2009, 2010 and 2011 lead emissions. Thus, showing that their maximum potential lead emissions for 2011 would be 9.32 lbs.

Table 8: R.M. Clayton Water Reclamation Center Lead Emissions Calculations for 2007-2011

Year	Sludge Incinerated (tpy)	Amount of Sludge Landfilled (metric tonne/year)	Sludge Processed (tpy)	Lead Content of Sludge (mg/kg dry weight)		Scrubber Removal Efficiency (%)	Maximum Potential of (Pb)	
				Minimum	Max		kg/yr	Lb/yr
2007	12,444.0	6,524.0	18,968.0	22.2	134.6	99.63%	9.44	20.82
2008	14,748.0	4,306.0	19,054.0	0.9	90.1	99.63%	6.35	14
2009	10,860.1	9,123.7	19,983.8	30.1	76.7	99.63%	5.67	12.5
2010	13,378.7	6,671.5	20,050.2	49.4	77	99.63%	5.71	12.59
2011	14,931.0	2,289.0	17,220.0	32.7	66.4	99.63%	4.23	9.32

3.6 $PM_{2.5}$ Speciation Trends Network (STN)

With the monitoring of ambient levels of $PM_{2.5}$, EPA wanted to expand the sampling to characterize the make-up of the $PM_{2.5}$ sample. With this information, air quality modeling can be analyzed to help implement the NAAQS standards; health studies can be interpreted with the constituents of the sample, as well as understanding the make-up of regional haze. According to EPA, there are to be 54 Speciation Trends sites across the United States. One of these samplers is located in the State of Georgia, at the South DeKalb site, with site ID 13-089-0002. This sampler began monitoring on October 1, 2000, and samples every three days. There are six more $PM_{2.5}$ speciation monitors in the State of Georgia, 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. All of the $PM_{2.5}$ speciation samplers monitor for 53 species. The speciation samplers are subjected to monthly checks and audited by EPD's Quality Assurance Unit on a quarterly basis.

3.7 Photochemical Assessment Monitoring Stations (PAMS)

Ozone is the most prevalent photochemical oxidant and an important contributor to smog. The understanding of the chemical processes in ozone formation and the specific understanding of the atmospheric mixture in various nonattainment areas nationwide was considered essential by EPA for solving the ozone nonattainment problems and developing a suitable strategy for solving those problems. As such, the 1990 Amendments to the Clean Air Act included additional requirements for monitoring of ozone precursors in areas declared in serious, severe, or extreme nonattainment of the ambient ozone standard. In February 1993, due in part to the Clean Air Act Amendments of 1990, the Photochemical Assessment Monitoring Stations (PAMS) network was created as a method for obtaining more comprehensive ozone data. Along with ozone, the PAMS network monitors for oxides of nitrogen (NOx), reactive oxides of nitrogen (NOy), carbon monoxide (CO), volatile organic compounds (VOCs), selected carbonyl compounds, and meteorological parameters. Stated in Title 40, Part 58 of the Code of Federal

Regulations (40 CFR Part 58), the increased monitoring of ozone and its precursor concentrations allows for the characterization of precursor emissions within the area, transport of ozone and its precursors, and the photochemical processes leading to nonattainment. By expanding on the study of ozone formation, PAMS monitoring sites better serve as a means to study trends and spatial and diurnal variability.

On November 6, 1991, the Atlanta nonattainment area was classified as serious, with the 1-hour ozone standard (56FR56694). By 2003, the area was labeled in severe nonattainment of the 1-hour ozone standard (68FR55469) effective January 1, 2004, but by June 14, 2005, was listed as maintenance/attainment (70FR34660). With the 8-hour ozone standard, the Atlanta nonattainment area was classified as marginal, effective June 15, 2004 (69FR23857) and then as moderate nonattainment effective April 7, 2008 (73FR12013). On June 23, 2011, EPA promulgated its determination [76 FR 36873] that the metro Atlanta nonattainment area had attained the 1997 8-hour ozone NAAQS. EPA published the redesignation in the federal register as a final rule on December 2, 2013 (78 FR 72040). On May 21, 2012, EPA published a final rule in the federal register designating a new 15-county Atlanta area marginal nonattainment for the 2008 8-hour ozone NAAQS.

The GA PAMS network consists of three sites; Yorkville (13-223-0003), South DeKalb (13-089-0002), and Conyers (13-247-0001). Yorkville is a Type 1 site. This site characterizes the upwind background, transported ozone, and precursor concentrations entering the Atlanta area. The site is located in the predominant morning upwind direction approximately 40 miles from the Atlanta urban fringe area in Paulding County, and should not be influenced by local VOC and NO emissions. The site provides urban scale measurements. Data from the Yorkville site is used for the future development and evaluation of control strategies, identification of incoming pollutants, corroboration of NOx and VOC emission inventories, establishment of boundary conditions for future photochemical grid modeling and mid-course control strategy changes, development of incoming pollutant trends, and determination of attainment with NAAQS for O_3, $PM_{2.5}$, CO, and NO_2. South DeKalb is a Type 2 site. This site monitors the magnitude and type of precursor emissions and is located immediately downwind of the area of maximum precursor emissions receiving the predominant morning downwind wind. This site is located in DeKalb County in order to provide neighborhood scale measurements in the area that the precursors have the greatest impact. The data measurements generated at South DeKalb are used principally for development and evaluation of imminent and future control strategies, corroboration of NOx and VOC emission inventories, augmentation of RFP tracking, 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 VOC trends to compare with trends in annual VOC emission estimates), and determination of attainment with NAAQS for O_3, $PM_{2.5}$, CO, and NO_2. Conyers acts as the Type 3 site. This site monitors the maximum ozone concentrations occurring downwind from the area of maximum precursor emissions, in Rockdale County. The site is an urban scale location based on the afternoon winds occurring between 1:00 PM and 4:00 PM, when titration of the precursors has occurred and the ozone is at its highest concentration. The data measurements are used in determination of attainment with the NAAQS for O_3 and NO_2, evaluation of future photochemical grid modeling applications, future development and evaluation of control strategies, development of pollutant trends, and characterization of ozone pollutant exposures.

The PAMS VOCs are collected and analyzed with a Gas Chromatograph/Flame Ionization Detector (GC/FID) at the Yorkville (13-223-0003), Conyers (13-247-0001), and South DeKalb (13-089-0002) sites. Throughout the year, a 24-hour VOCs sample is collected every 6 days at all three PAMS sites. During June, July, and August, an hourly VOCs sample is collected at the Yorkville and South DeKalb sites. The PAMS carbonyls samples are analyzed by drawing approximately 180 liters of air through an absorbent cartridge filled with dinitrophenylhydrazine

(DNPH)-coated silica. The cartridge is then analyzed using High Performance Liquid Chromatography (HPLC). During June, July, and August, four integrated 3-hour carbonyls samples are taken every third day at the South DeKalb (13-089-0002) site. A 24-hour integrated carbonyls sample is also taken every 6 days throughout the year at the South DeKalb (13-089-0002) site. The VOCs sampler and carbonyls samplers in the PAMS network are audited every six months by the Quality Assurance Unit. The Quality Assurance Unit audits the PAMS meteorological equipment on an annual basis.

3.8 Air Toxics

In addition to its required monitoring duties, Georgia EPD measures more compounds in ambient air than are required by the Federal Clean Air Act. In 1993 the EPD began to monitor a number of compounds that, while thought to carry some health risk, have no established ambient air standard. A reassessment of the toxic monitoring program occurred, and in 1996 the EPD embarked on an ambitious project of establishing a statewide hazardous air pollutant-monitoring network. The network was not designed to monitor any one particular industry, but to provide information concerning trend, seasonal variation, and rural versus urban ambient concentration of air toxics. To evaluate the rural air quality, two background sites were proposed: one in North Georgia and one in South Georgia. The majority of the other sites were located in areas with documented emissions to the atmosphere of Hazardous Air Pollutants (HAPs) exceeding one million (1,000,000) pounds per year as indicated by the 1991 Toxic Release Inventory. By 2003 the Air Toxics Network consisted of fifteen sites statewide (including the NATTS site discussed below). Due to budget constraints and lack of available personnel, at the end of 2008, the Air Toxics Network was reduced to six sites (including the NATTS site discussed below): Macon-SE (13-021-0012), Savannah-E.President's St. (13-051-0021), Dawsonville (13-085-0001), South DeKalb (13-089-0002), Yorkville (13-223-0003), and General Coffee (13-069-0002).

Toxic air pollutants, also known as Hazardous Air Pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Air toxic compounds are released from many different sources, including mobile sources (such as vehicles), stationary industrial sources, small area sources, indoor sources (such as cleaning materials), and other environmental sources (such as wildfires). 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.

Examples of toxic air pollutants include benzene, which is found in gasoline; perchlorethlyene, which is emitted from some dry cleaning facilities; and methylene chloride, which is used as a solvent and paint stripper by a number of industries. Examples of other listed air toxics include dioxin, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.

People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems. 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. These air pollutants also affect the environment. Wildlife experience symptoms similar to those in humans. Many air pollutants can also be absorbed into waterways and have toxic effects on aquatic wildlife. 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 Air Toxics equipment samples for metals, semi-volatile organic compounds, volatile organic compounds, and three sites (Savannah, Dawsonville, and South DeKalb) have carbonyls samplers. The samplers run once every twelve days following a pre-established schedule that corresponds to a nationwide sampling schedule. On the twelfth day the sampler runs midnight to midnight and takes a 24-hour composite sample.

The high-volume sampler used for sampling metals is a timed sampler. The sampler is calibrated to collect 1000 to 2000 liters (L) of air per minute. Particulate material is trapped on an 8.5” x 11” quartz fiber filter. The particulates include dust, pollen, diesel fuel by-products, particulate metal, etc. The filters are pre-weighed at a remote laboratory prior to use and weighed again after sampling. The filters are subjected to a chemical digestion process and are analyzed on an inductively coupled plasma mass spectrometer (ICP/MS).

The PUF (polyurethane foam) sampler used for sampling for semi-volatile organic compounds 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 a remote state laboratory and analyzed using gas chromatography.

The canister sampler used for sampling Volatile Organic Compounds (VOCs) is a timed sampler. A polished 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 10 psig. The canister is analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS).

The carbonyl samplers at the Air Toxics Network (ATN) sites sample approximately 180 liters of air through an absorbent cartridge filled with dinitrophenylhydrazine (DNPH)-coated silica. The cartridge is then analyzed using high performance liquid chromatography (HPLC). All of these air toxic parameters are subjected to quarterly checks and are audited by EPD’s Quality Assurance Unit on an annual basis.

3.9 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. The location of the station in Georgia is the South DeKalb site (13-089-0002). With the exception of the aethalometer, samples are collected from midnight to midnight for a 24-hour sample, every 6 days. The aethalometer is a continuous sampler used for sampling black and organic carbon. Operating at 60 watts/110V AC, the aethalometer uses quartz tape to perform an optical analysis to determine the concentration of carbon particles passing through an air stream. The analysis is conducted using spectrophotometry, measuring the wavelength of the light energy absorbed and plotting the results on the site computer.

The PM_{10} sampler used for sampling toxic metal particles less than or equal to 10 microns in diameter is a timed sampler. Collecting 1020 to 1240 liters (L) of air per minute, the sampler

uses an 8.5” x 11” quartz glass fiber filter to trap particulate matter. 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 volatile organic compound (VOCs) samples are collected with a canister method. A polished 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 10 psig. The canister is analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS).

The PUF (polyurethane foam) sampler used for sampling for semi-volatile organic compounds 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 a remote laboratory and analyzed using a gas chromatograph with an electron capture detector (ECD).

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 (L) of air to be sampled. The cartridge is then analyzed using high performance liquid chromatography (HPLC). A 24-hour integrated carbonyls sample is taken every 6 days throughout the year. 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. These parameters are subjected to quarterly checks and audited by EPD’s Quality Assurance Unit every six months.

3.10 Near-Road

On February 9, 2010, EPA revised the nitrogen dioxide (NO_2) National Ambient Air Quality Standard and monitoring requirements. Included in these revisions was the establishment of near-road monitoring sites. The sites were to be set up in CBSAs with 500,000 or more population (additional monitor with CBSA population above 2,500,000), annual average daily 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) (75 FR 6474). With these requirements, GA EPD needed to have two near-road monitoring sites in the Atlanta-Sandy Springs-Marietta MSA and one near-road monitoring site in the Augusta-Richmond County, GA-SC MSA. According to the U.S. Census Bureau (http://www.census.gov/compendia/statab/cats/population.html), the Atlanta-Sandy Springs-Marietta MSA had a 2010 population of 5,268,860, and the Augusta-Richmond County, GA-SC MSA had a 2010 population of 556,877. On October 5, 2012, EPA proposed that the first phase of site establishment would be January 1, 2014. The second phase of site establishment would be January 1, 2015, and the third phase would be January 1, 2017 (Docket# EPA-HQ-OAR-2012-0486).

GA EPD began operating the initial near-road site on the Georgia Institute of Technology campus (site ID 13-121-0056) in the Atlanta-Sandy Springs-Marietta MSA as of June 15, 2014. At the Georgia Tech site, samplers are in place to monitor NO_2/NO/NOx, CO, $PM_{2.5}$, wind speed and wind direction, and black carbon will be monitored in the near future. 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’. According to EPA’s schedule, GA EPD set up the second near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA on January 1, 2015 at the established DMRC site (13-089-0003). At the DMRC site, NO_2/NO/NOx and volatile organic compounds are monitored for the near-road network, and black carbon will

be monitored in the near future. For details regarding the establishment of the second near-road site, refer to GA EPD's Addendum to the '2014 Ambient Air Monitoring Plan'.

For the third phase of near-road sites to be established, a site is to be located in the Augusta-Richmond County, GA-SC MSA. There are no AADT counts reaching 250,000 vehicles in the Augusta-Richmond County, GA-SC MSA. According to the 2014 AADT estimates (http://geocounts.com/gdot/), the highest traffic count (traffic counter 0223) is approximately 82,215 vehicles near the intersection of I-20 and I-520. However, the population for the Augusta-Richmond County, GA-SC MSA is above 500,000. Therefore, a near-road monitoring site will be placed in this MSA. GA EPD has analyzed the AADT estimates and has been evaluating suitable locations to meet the near-road monitoring requirement in the Augusta-Richmond County, GA-SC MSA by January 1, 2017.

4.0 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. The U.S. EPA (Environmental Protection Agency) defines the 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. For a list of the most current standards, please refer to EPA's website http://www.epa.gov/air/criteria.html. 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. This is not a synonym for a violation, however. For each pollutant, there are specific rules for a given time period before a pattern of exceedances is considered a violation of the NAAQS that may result in regulatory actions to further clean up the area's air. 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.

5.0 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).

Monitoring objectives and associated spatial scales are taken from Appendix D of 40 CFR Part 58, Table D-1, and summarized in Table 9 below.

Table 9: 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

6.0 Site Evaluations

Georgia EPD plans to perform site evaluations continuously throughout the year on an annual basis for each site. The following table details when the site evaluations were performed and a summary of the comments that the evaluator made about each site.

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
Rome MSA				
131150003	Rome	Floyd	1/29/2015	The two tall oaks form an obstruction to the northwest of the samplers. However, over 90% of the monitoring path is not affected by the trees.
Brunswick MSA				
131270006	Brunswick	Glynn	11/5/2014	Samplers meet siting criteria. No deficiencies.
Valdosta MSA				
131850003	Valdosta	Lowndes	2/10/2014	Samplers meet siting criteria. The BAM door appears to have been previously broken and rigged into place with plastic tape. The door was found in place, but completely separated from the hinge other than the plastic tape applied to the outside of the sampler housing. The door should be replaced to ensure sampler is shielded from the weather. There is water damage to the housing wall below the vent outlet. A new sampler housing may be necessary.
Warner Robins MSA				
131530001	Warner Robins	Houston	7/29/2015	Samplers meet siting criteria. Shrubs and trees higher than inlets are less than 20m away. Dead vines on the fence enclosure are higher than inlets. Recommend vines are removed and brush cleared further back.
Dalton MSA				
132130003	Fort Mountain	Murray	12/10/2014	Samplers meet siting criteria. Few trees to the south are inside 10X height differential with the MET tower. Ground slopes off severely to the north and east.
Albany MSA				
130950007	Albany	Dougherty		Samplers meet siting criteria. No deficiencies.
Gainesville MSA				
131390003	Gainesville	Hall	11/11/2014	Samplers meet siting criteria. No deficiencies.
Athens-Clark County MSA				
130590002	Athens	Clarke	2/4/2015	Samplers did not meet siting criteria. Construction near site ceased since last survey. 2025, SASS, and URG now on deck. URG and SASS operation ceases since last survey. Water damage around a/c ports.
Macon MSA				
130210007	Macon-Allied	Bibb	8/13/2014	Samplers meet siting criteria. Bradford pear drip line 13.3m from Collaocated Partisol 2025 inlet. Center of roadway 20.1m from Met One SASS. Edge of roadway 19m from SASS.
130210012	Macon-Forestry	Bibb	3/3/2014	Samplers meet siting criteria. The meteorological tower is bent in several spots and is difficult to lower safely. The metal and PUF samplers need at least 0.3m further elevation to meet inlet siting requirements of 2-7 meters. The floor around the door is rotting out. The floor covering is cracked and has a hole. White dust was emitted from the hole when walking near it entering the shelter

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
Columbus MSA				
132150001	Columbus-Health Dept.	Muscogee	7/29/2014	Sampler meets siting criteria. No deficiencies.
132150008	Columbus-Airport	Muscogee	7/29/2014	Samplers meet siting criteria. No deficiencies.
132150009	Columbus-UPS	Muscogee	2/27/2014	Samplers meet siting criteria. The former site has been activated to monitor lead emissions from the Exide battery plant to the NW. Cusseta Rd. is 200 meters to the SW. The platform needs to be replaced and the fence door and part of the fence is bent.
132150010	Columbus-Ft. Benning	Muscogee	2/24/2015	Samplers meet siting criteria. No deficiencies.
132150011	Columbus-Cusseta	Muscogee	2/27/2014	Samplers meet siting criteria. No deficiencies.
132151003	Columbus-Crime Lab	Muscogee	2/24/2015	Only meteorological instruments are being run at the site presently.
Savannah MSA				
130510021	Savannah-E. President St.	Chatham	6/23/2014	Samplers meet siting criteria. Shelter moved since last survey with new air toxics samplers on new deck adjacent. PUF sampler with motor NP-26298 and Metals sampler with motor 1171 remain at previous location on stands. Drip line is ~14m distant across roadway from current location of inlets.
130510091	Savannah-Mercer	Chatham	6/17/2014	Sampler meets siting criteria. 134288 appears to be out of service while undergoing occasional attempts at repair.
130511002	W. Lathrop & Augusta Ave.	Chatham	5/13/2014	Samplers meet siting criteria. Trees are growing back. SO2 analyzer intermittently displays alarm for low lamp voltage. Anemometer and SO2 analyzer changed since last survey.
Augusta MSA				
130730001	Evans	Columbia	7/9/2014	Sampler meets siting criteria. Integrity and sample lines are routed on floor of shelter, along ground outside, and then up tower to inlet. Recommend lines are replaced and routed up and out at top of wall of shelter to avoid contamination, improve response and standardize with other sites. A port in an appropriate spot has been made for data wiring. Recommend lines are routed out the new port. Site access involved carrying heavy equipment up a steep slope of mud and wet grass. Door jamb rotting, paint peeling.
132450091	Augusta	Richmond	9/25/2014	Samplers meet siting criteria. CSN, PM2.5, and PM10 samplers are now located on a platform directly adjacent to shelter. Vines, weeds and briars should be cut back. There is trash inside enclosure from frequent littering by passersby. The ram elevator motor is weak and required manual assistance to exchange the filter cartridge.
Atlanta-Sandy Springs-Marietta MSA				
130150003	Cartersville	Bartow	6/23/2014	Sampling began in December 2009 and was discontinued at the site in March 2014
130630091	Forest Park	Clayton	12/4/2014	Sampler meets siting criteria. No deficiencies.
130670003	National Guard	Cobb	1/20/2015	Samplers meet siting criteria. No deficiencies.
130770002	Newnan	Coweta	2/12/2015	Samplers meet siting criteria. No deficiencies.
130850001	Dawsonville	Dawson	11/10/2014	Samplers do not meet siting criteria. Trees to the south are inside of the required height distance differential between obstacles and all inlets. Met tower is inside 10x height differential with a few trees to the north. Silica Gel needs replacing.
130890002	South DeKalb	DeKalb	4/17/2014	Samplers do not meet siting criteria. The tall trees to the north are inside twice the height-distance differential for the samplers. The predominant wind direction is not from the north, however. Chromium sampling was discontinued in 2013. The two chromium samplers are still present at site.

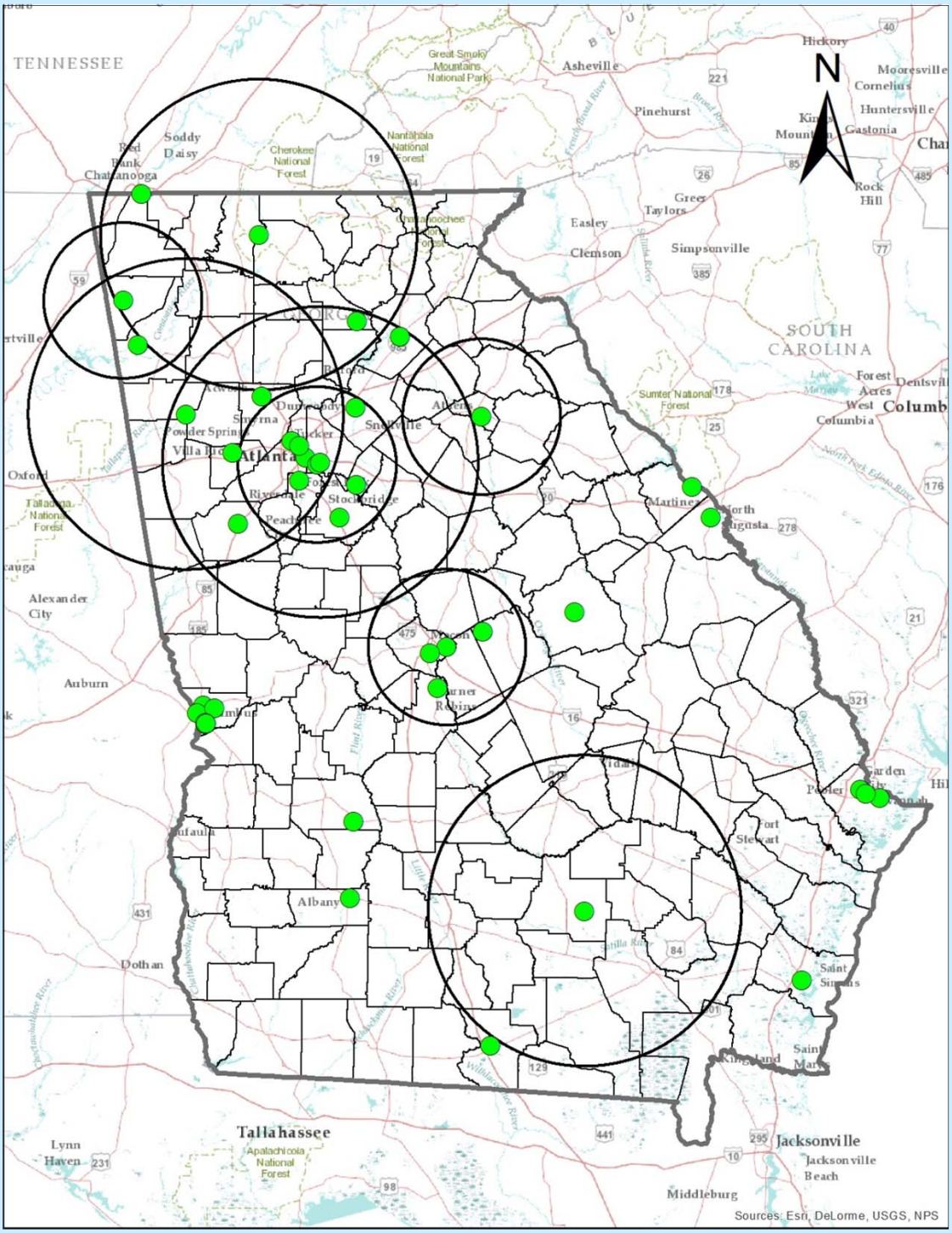
SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
130890003	DMRC	DeKalb	11/25/2014	Samplers meet siting criteria. A concrete pad, 7 meters east of the Hi-Vol platform, has been poured for the soon to be near road site trailer. The EPA has installed solar power panels next to the existing Hi-Vol platform, to the north. The small pine trees next to the fence toward the NE have been cut down since the last survey.
130970004	Douglasville	Douglas	4/8/2014	Samplers meet siting criteria. There is a slight amount of water infiltration on the inside south side of the trailer. As a result, there is a small amount of water in the floor and the siding near the floor has become slightly warped. The water appears to be gaining access through the vent hole on the side of the shelter during heavy rains. There is no outside damage to the shelter that would allow water in.
131210039	Fire Station #8	Fulton	4/30/2014	Samplers meet siting criteria. There are not any deficiencies compromising sampling quality. The white pine tree northeast of the sampler is closer than twice height-distance differential but is not in the path of prevailing winds. All other criteria are met.
131210055	Confederate Ave.	Fulton	7/22/2014	Samplers meet siting criteria. No deficiencies.
131210056	GA Tech	Fulton	7/1/2014	Samplers meet siting criteria. This site is designated as a NO2 Near Road Site and sampling began in June 16, 2014. The met tower had not been extended at the time of survey.
131350002	Gwinnett Tech	Gwinnett	2/18/2015	Samplers meet siting criteria. The sampling trailer is surrounded on west (25 meters away) and northeast (22 meters away) by college parking lot. The parking lot to the east is for car auto mechanic classes. The trailer floor has a few rips in it near the door. The trailer floor is bucking up slightly because of water infiltration on plywood support. A small wooden board is broken on the Partisol platform. Three small trees, 2.5 meters tall, have been planted 10-12 meters north of the trailer since last survey.
131510002	McDonough	Henry	7/8/2014	Samplers meet siting criteria. No deficiencies.
132230003	Yorkville	Paulding	1/28/2015	Samplers meet siting criteria. No deficiencies.
132470001	Conyers	Rockdale	7/10/2014	Samplers meet siting criteria. No deficiencies.
Chattanooga Tennessee-Georgia MSA				
132950002	Rossville	Walker	12/3/2014	Samplers meet siting criteria. No deficiencies.
Not in an MSA				
130550001	Summerville	Chattooga	2/4/2015	Sampler meets siting criteria. Two tiles on the trailer floor next to the door are missing and the plywood floor beneath is rotting out. The trailer is to be replaced in 2015.
130690002	General Coffee	Coffee	10/22/2014	Samplers meet siting criteria. No deficiencies.
132611001	Leslie	Sumter	3/2/2015	Sampler does not meet siting criteria. Shelter floor buckled. Water damage to ceiling, around door jamb, and along base of walls. The drip-line is now 7.2m East of inlet. Trees should be removed or shelter relocated in clearing away from trees. Parking enclosure for heavy equipment >20m from inlet.
133030001	Sandersville	Washington	5/6/2014	Sampler meets siting criteria. Partisol 2000 DNR #135374 on site but not in service. Other equipment does not belong to EPD. Power cords lie where water puddles when it rains. Rooftop is muddy and slippery when wet. Partisol 2025 seal rotted and broken.
133190001	Gordon	Wilkinson	4/4/2014	Samplers meet siting criteria. No deficiencies.

Table 10: Site Evaluations

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

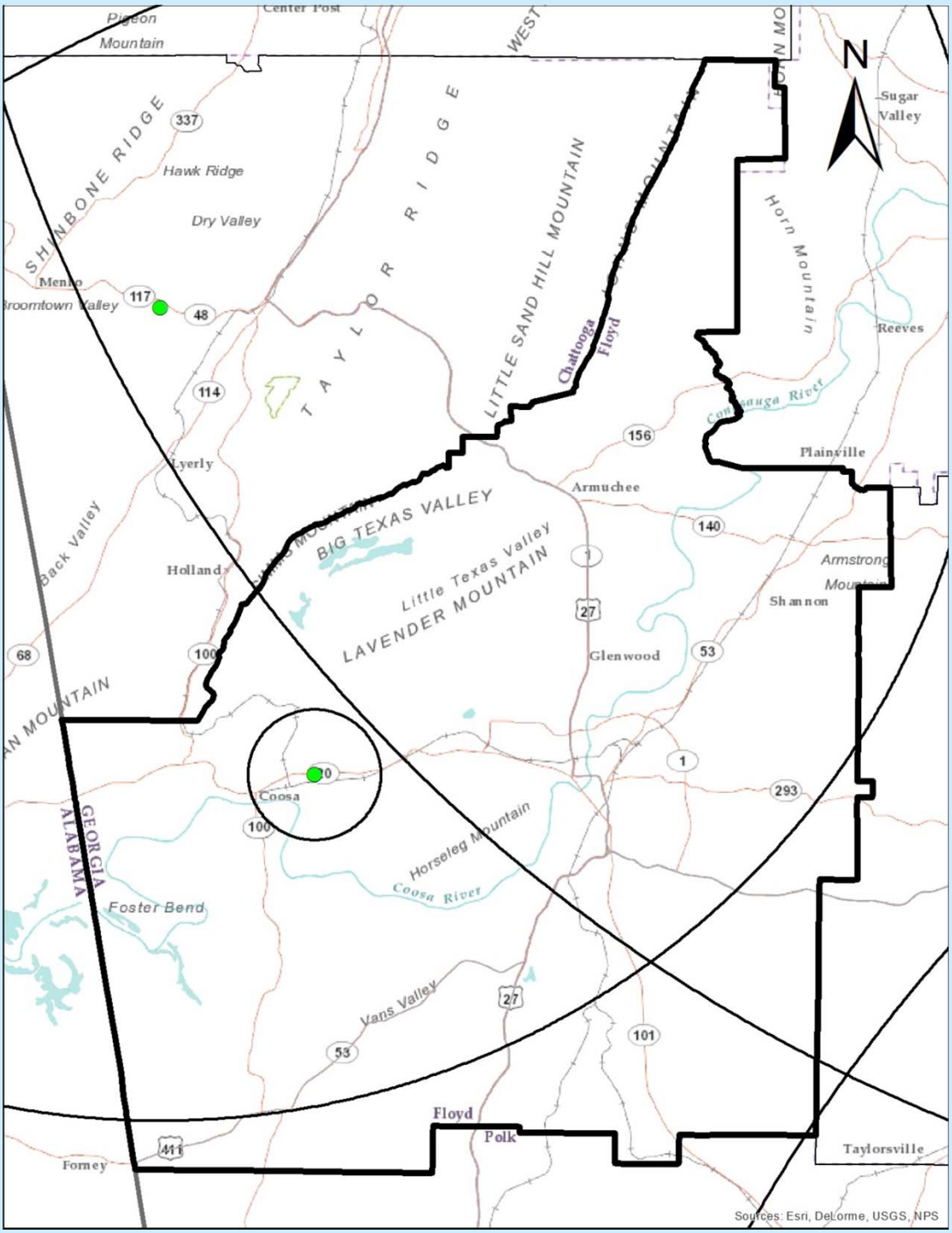
Georgia Department of Natural Resources
Environmental Protection Division

Spatial Scales of GA EPD's Ambient Air Monitors

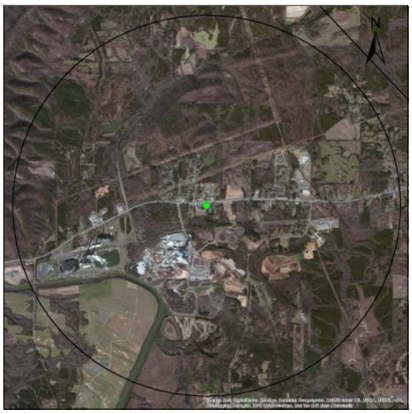


Micro Scale: up to 100m
Middle Scale: up to 0.5km
Neighborhood Scale: up to 4.0km
Urban Scale: up to 50km
Regional Scale: up to 100s of km (100km shown)

Rome MSA


N
Pigeon Mountain
Center Post
WEST
SHINBONE RIDGE
337
Hawk Ridge
Dry Valley
TAYLOR RIDGE
LITTLE SAND HILL MOUNTAIN
Chattooga
Floyd
Horn Mountain
Sugar Valley
Reeves
Menlo
117
48
114
Lyerly
156
Plainville
Armuchee
BIG TEXAS VALLEY
Little Texas Valley
LAVENDER MOUNTAIN
140
Back Valley
Holland
Armstrong Mountain
Shannon
27
68
100
Glenwood
53
1
293
Coosa
Horseleg Mountain
Coosa River
GEORGIA
ALABAMA
Foster Bend
Vans Valley
101
Floyd
Polk
411
Forney
Taylorsville
Sources: Esri, DeLorme, USGS, NPS

Rome- Coosa Elementary



AQS ID: 131150003
Address: Coosa Elementary School, Highway 20, Rome, Floyd County, Georgia 30165
Site Established: 1/1/74
Latitude/Longitude: N34.26051/W-85.32328
Elevation: 186 meters
Area Represented: Rome MSA
Site History: Established as SO_2 site

North

South

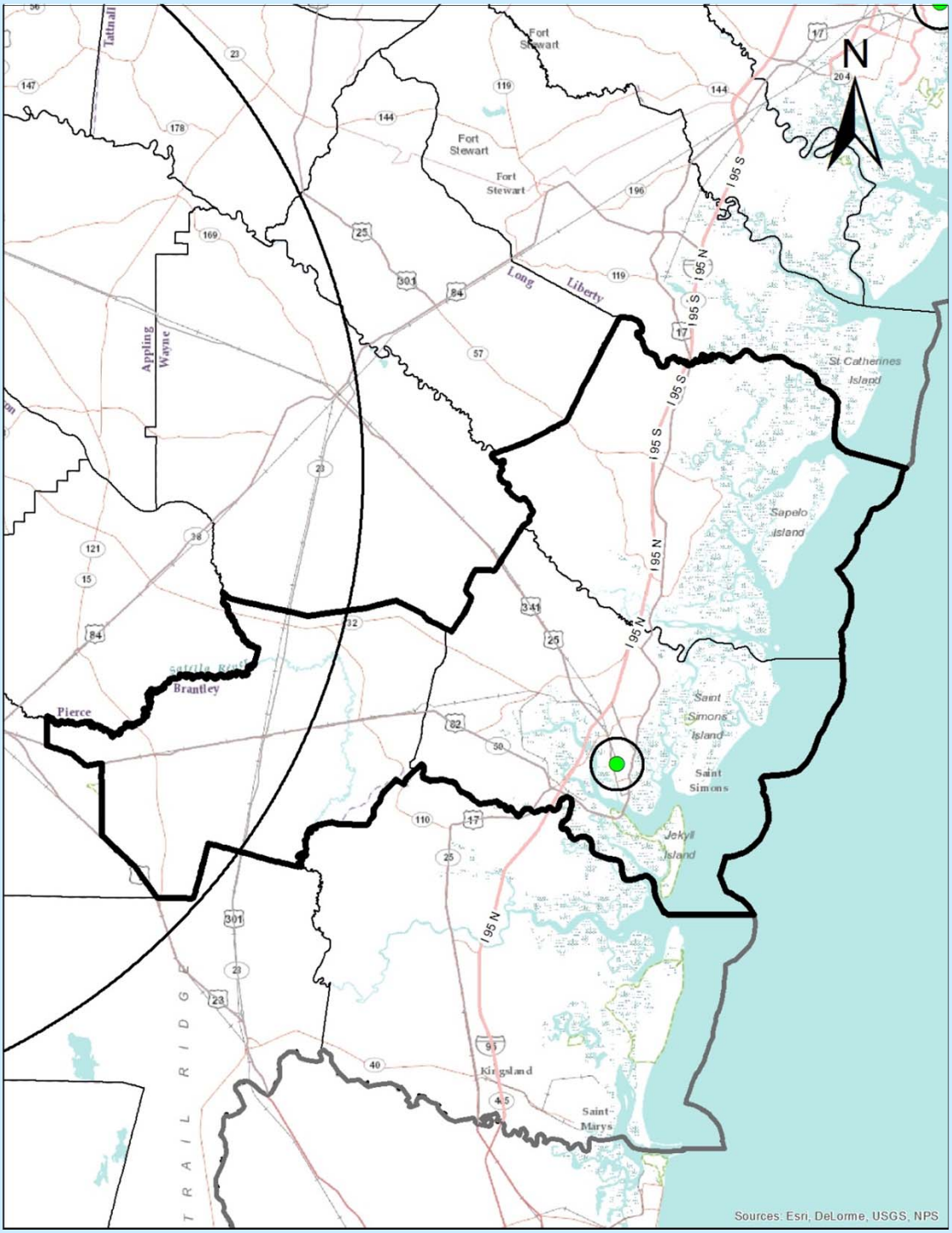
East

West

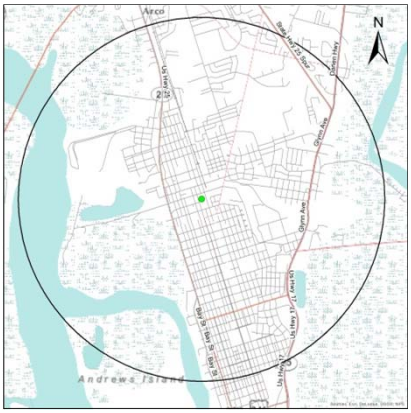
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	2 m	Neighborhood	1/18/99
$PM_{2.5}$	Population Exposure	Continuous	3 m	Neighborhood	1/1/08
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	2 m	Neighborhood	3/1/02
SO_2	Population Exposure	Continuous	4 m	Neighborhood	1/1/75
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10

Recommendations: Relocating site, as site property was purchased. Plan to relocate to same vicinity (212 Eagle Dr. NW, Rome GA 30165). EPA has preliminarily approved the relocation of the samplers at the site, and GA EPD is awaiting approval of the school board. Continuous $PM_{2.5}$ sampler changing from BAM to TEOM in summer 2015.

Brunswick MSA



Brunswick- Risley Middle School



AQS ID: 131270006
Address: Risley Middle School, 2900 Albany Street, Brunswick, Glynn County, Georgia 31520
Site Established: 1/1/87
Latitude/Longitude: N31.169530/W-81.496046
Elevation: 2 meters
Area Represented: Brunswick MSA
Site History: Established as SO_2 site

North

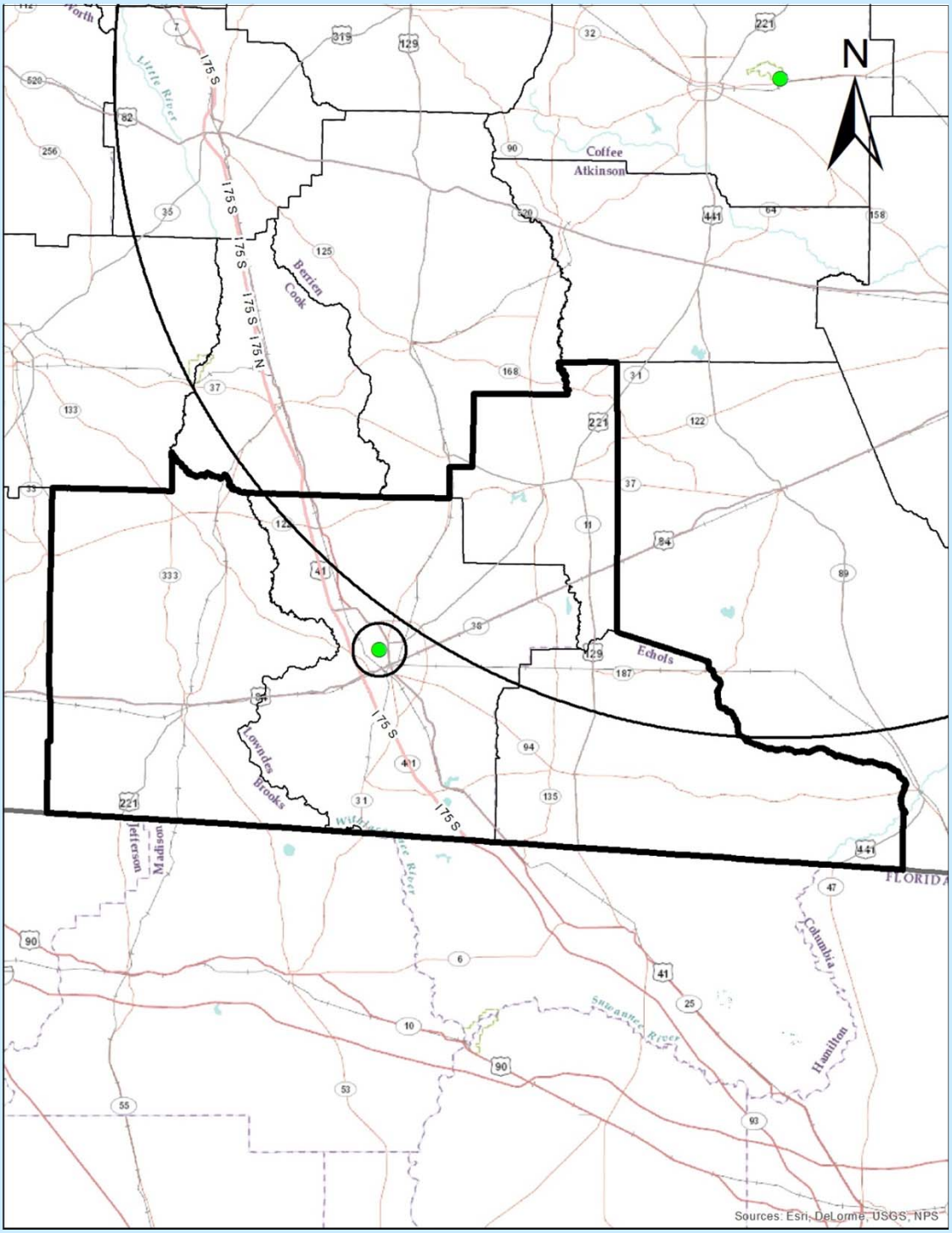
South

West

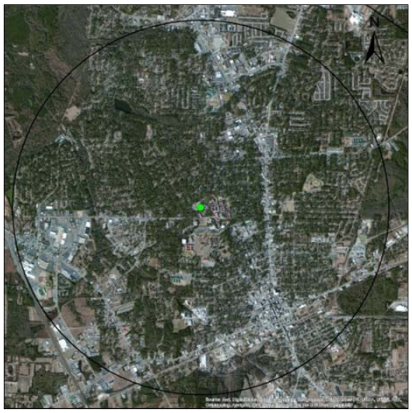
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 6 days	5 m	Neighborhood	8/31/95
O_3	Population Exposure	Continuous (Mar-Oct)	8 m	Neighborhood	3/1/95
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04

Recommendations: Continue monitoring

Valdosta MSA



Valdosta- Mason Elementary



AQS ID: 131850003

Address: S.L. Mason Elementary School, 821 West Gordon Street, Valdosta, Lowndes County, Georgia 31601

Site Established: 12/17/99

Latitude/Longitude: N30.848056/W-83.294444

Elevation: 58 meters

Area Represented: Valdosta MSA

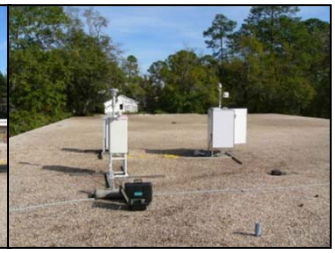
Site History: Established as $PM_{2.5}$ site

North

South

East

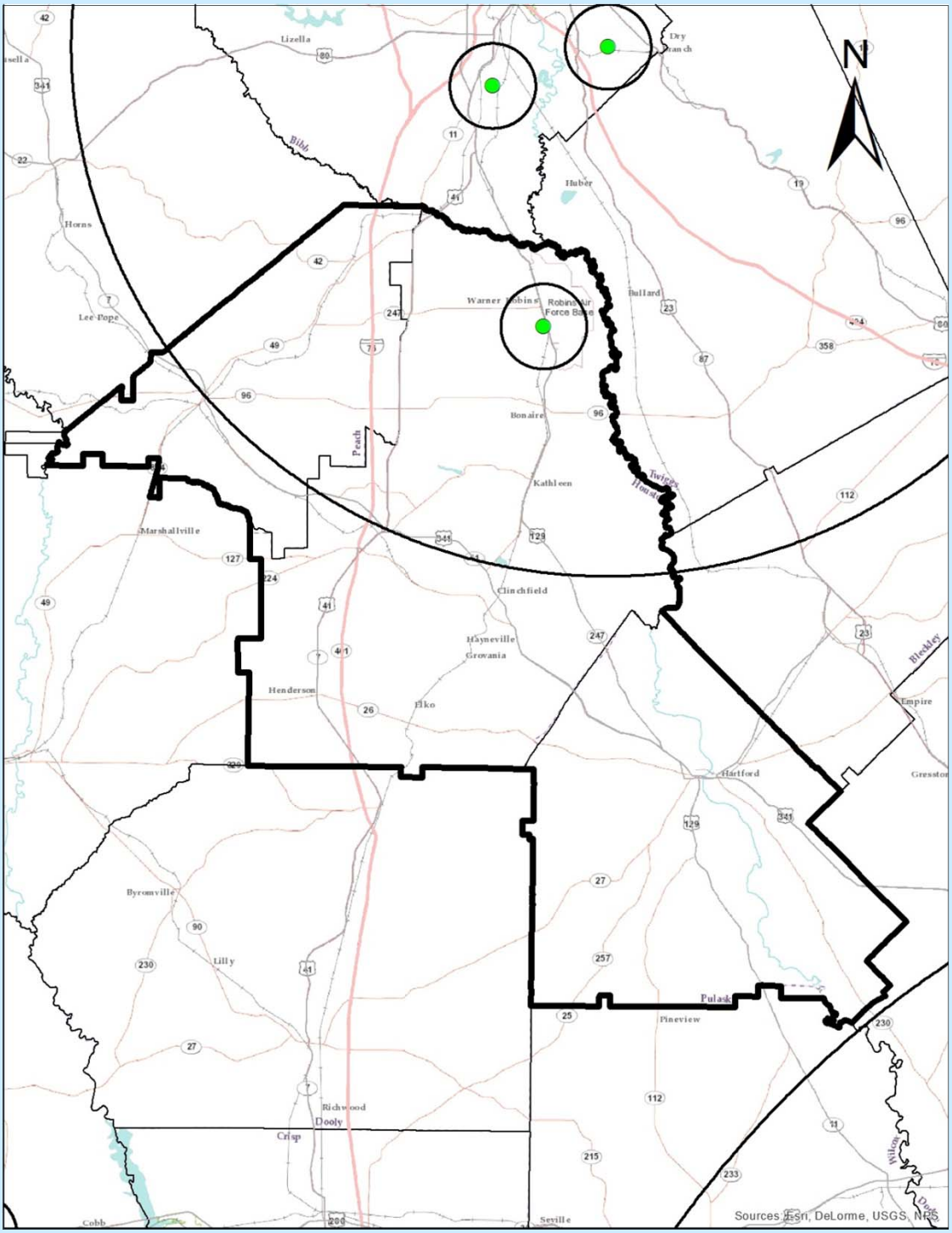
West



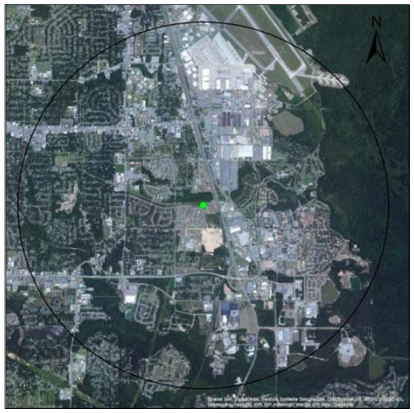
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	8 m	Neighborhood	1/1/00
$PM_{2.5}$	Population Exposure	Continuous	8 m	Neighborhood	1/1/08

Recommendations: Continue monitoring

Warner Robins MSA



Warner Robins- Air Force Base



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: N32.605600/W-83.597907

Elevation: 113 meters

Area Represented: Warner Robins MSA

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

North

South

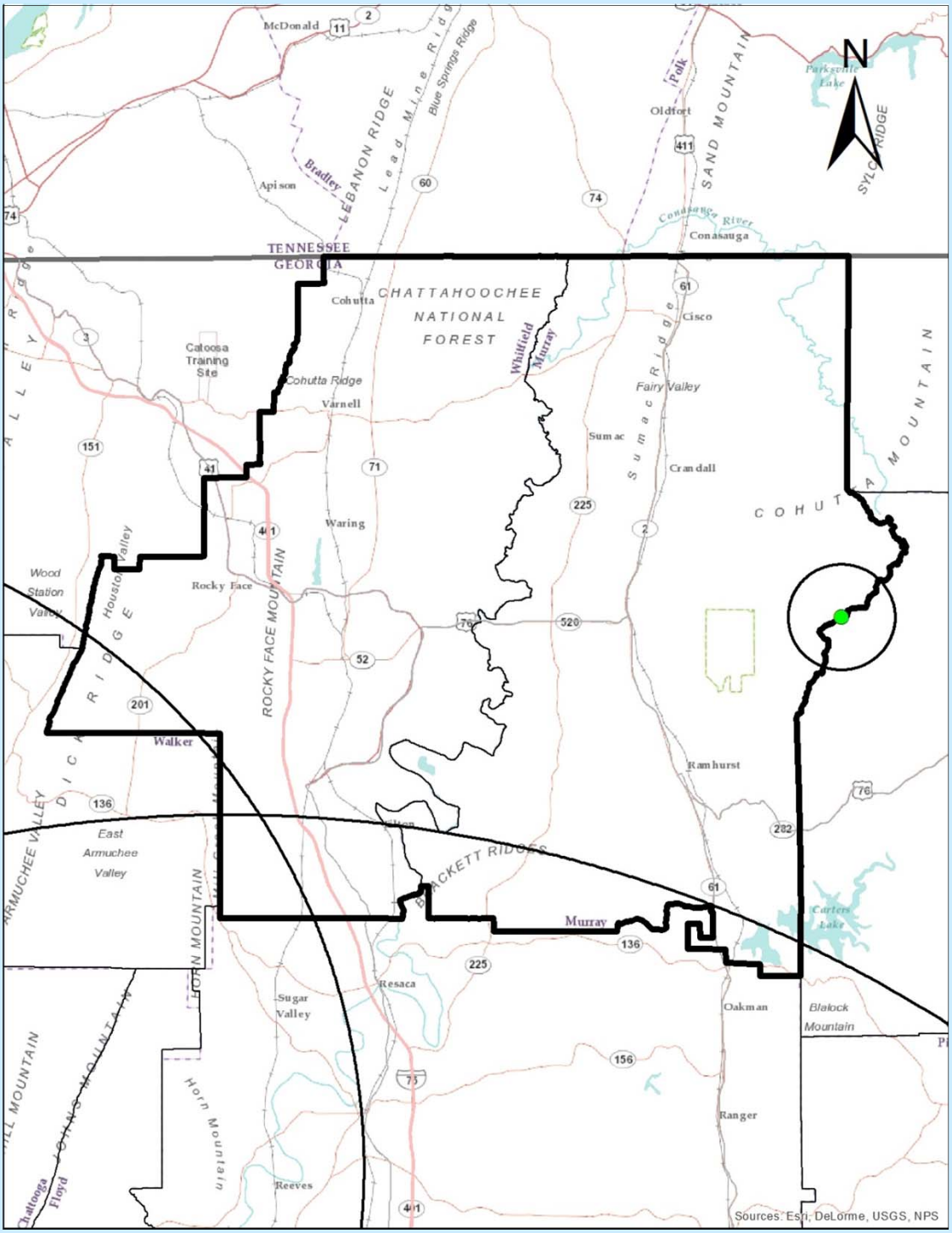
East

West

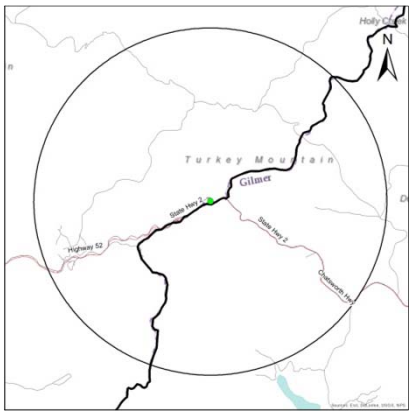
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	2 m	Neighborhood	7/5/00
$PM_{2.5}$	Population Exposure	Continuous	2 m	Neighborhood	1/1/08

<u>Recommendations:</u> Continue monitoring

Dalton MSA


N
McDonald
Oldfort
Parksville Lake
Polk
SAND MOUNTAIN
LEBANON RIDGE
Lead Mine Ridge
Blue Springs Ridge
Bradley
Apison
Conasauga River
Conasauga
TENNESSEE
GEORGIA
Cohutta
CHATTAHOOCHEE NATIONAL FOREST
Whitfield
Murray
Cisco
Catoosa Training Site
Cohutta Ridge
Varnell
Fairy Valley
Sumac Ridge
Sumac
Crandall
COHUTTA MOUNTAIN
Waring
Wood Station Valley
Houston Valley
Rocky Face
ROCKY FACE MOUNTAIN
Walker
Ramhurst
East Armuchee Valley
ARMUCHEE VALLEY
BACKETT RIDGES
Murray
Carters Lake
Resaca
Sugar Valley
Oakman
Blalock Mountain
HORN MOUNTAIN
Horn Mountain
Ranger
Reeves
Chattooga
Floyd
Sources: Esri, DeLorme, USGS, NPS

Chatsworth- 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: N34.785078/W-84.626499
Elevation: 980 meters
Area Represented: Dalton MSA
Site History: Established as O_3 site

North

South

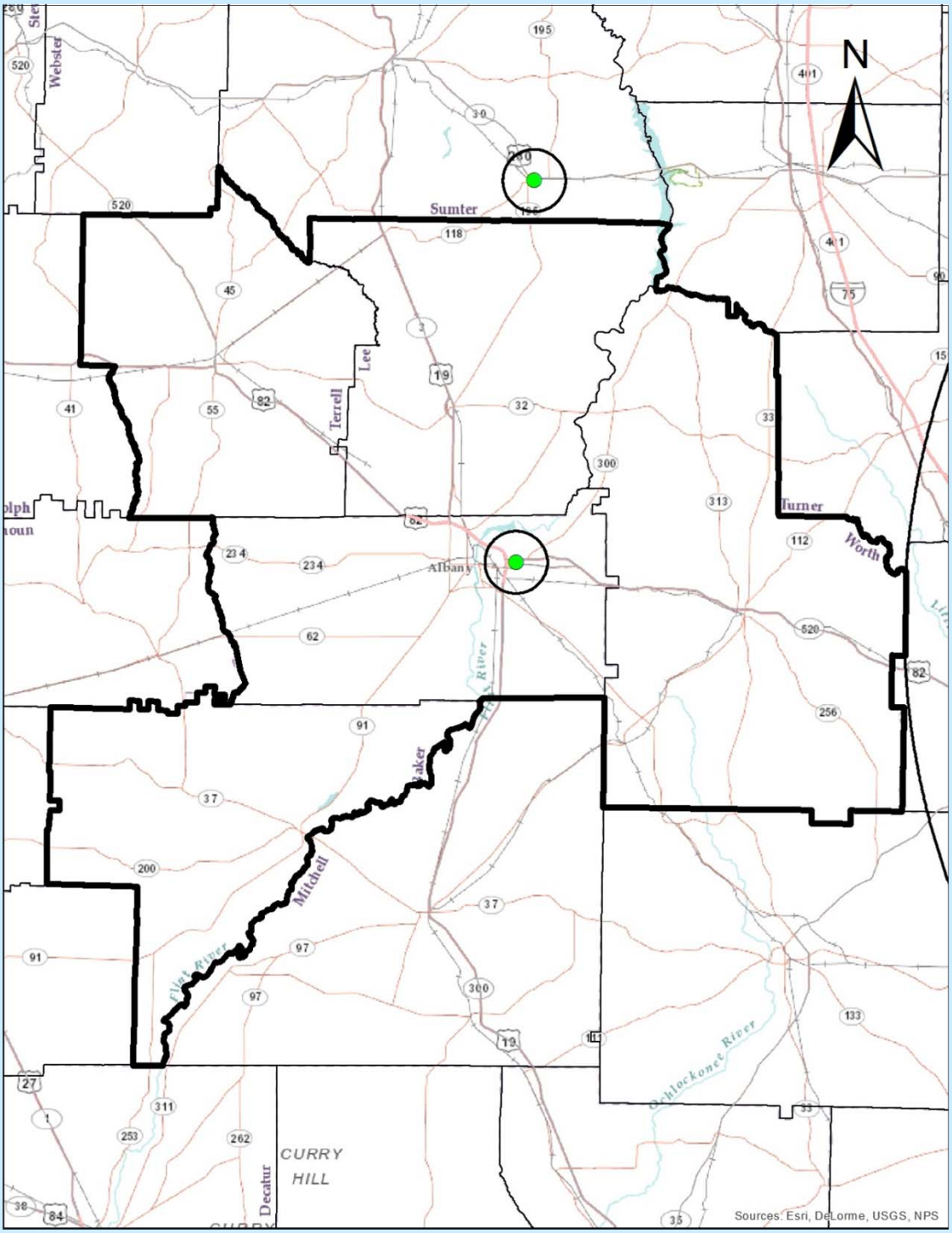
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 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
Temperature	General/ Background	Continuous	2 m	Neighborhood	2/7/02
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	2/7/02

Recommendations: Continue monitoring

Albany MSA


N
Webster
Sumter
Lee
Terrell
Turner
Worth
Albany
Baker
Mitchell
Flint River
Ochlockonee River
CURRY
HILL
Decatur
Sources: Esri, DeLorme, USGS, NPS

Albany- Turner Elementary

AQS ID: 130950007
Address: Turner Elementary School, 2001 Leonard Avenue, Albany, Dougherty County, Georgia 31705
Site Established: 7/31/91
Latitude/Longitude: N31.576917/W-84.100194
Elevation: 61 meters
Area Represented: Albany MSA
Site History: Established as TSP site

North

South

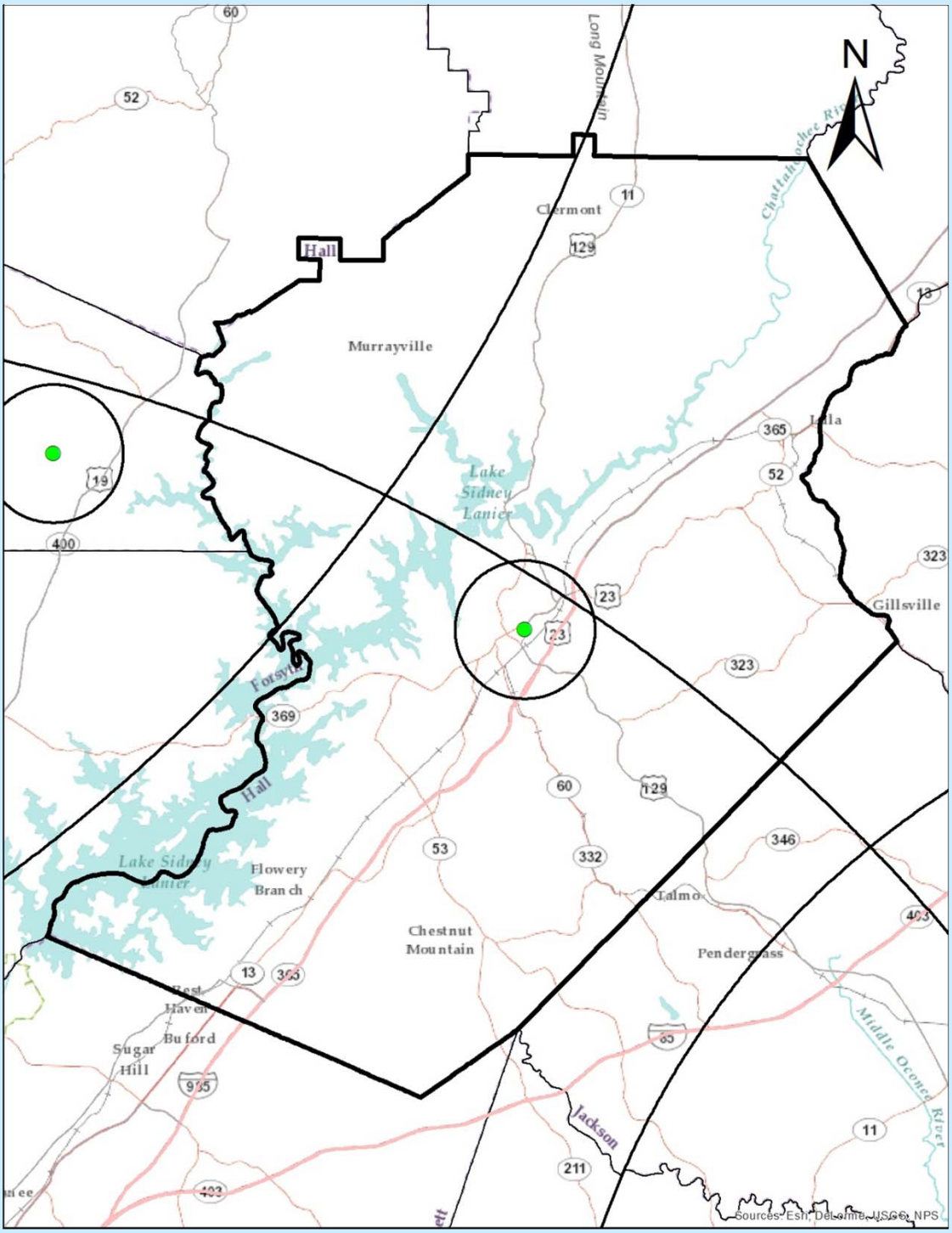
East

West

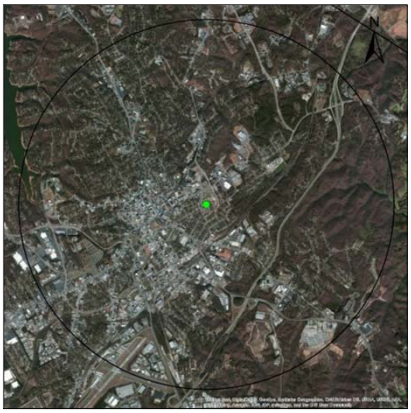
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	6 m	Neighborhood	2/2/99
$PM_{2.5}$	Quality Assurance	Daily	6 m	Neighborhood	1/10/13
$PM_{2.5}$	Population Exposure	Continuous	6 m	Neighborhood	5/11/08

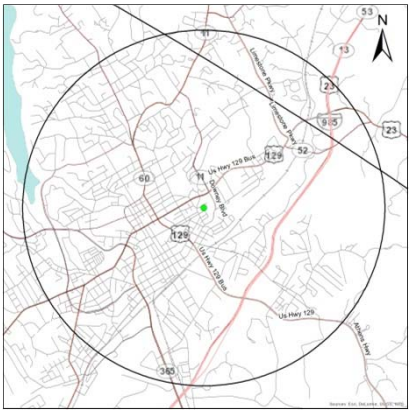
Recommendations: Continue monitoring; Running continuous monitor as FEM as of 1/10/13

Gainesville MSA



Gainesville- Boys and Girls Club





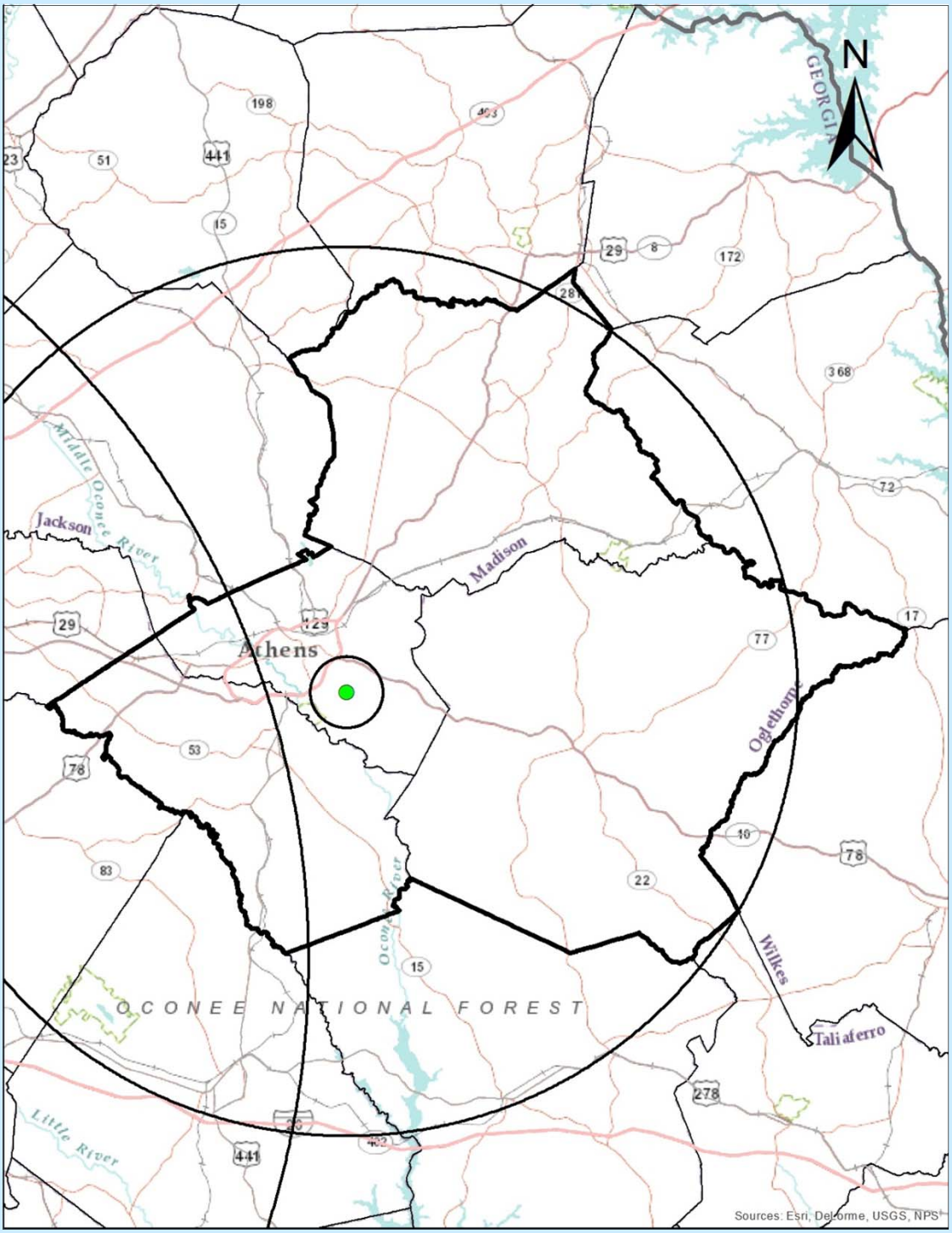
AQS ID: 131390003
Address: Boys and Girls Club, 1 Positive Place, Gainesville, Hall County, Georgia 30501
Site Established: 1/1/97
Latitude/Longitude: N34.30008/W-83.81217
Elevation: 353 meters
Area Represented: Gainesville MSA
Site History: Established as $PM_{2.5}$ site

North South East West

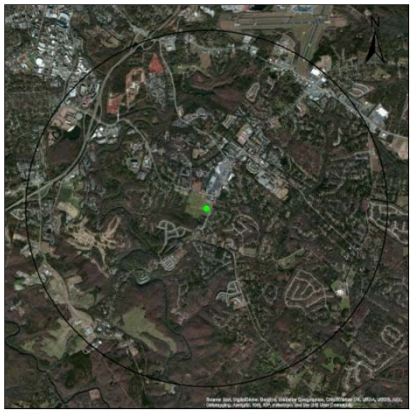
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	5 m	Neighborhood	2/14/99
$PM_{2.5}$	Population Exposure	Continuous	5 m	Neighborhood	1/1/08

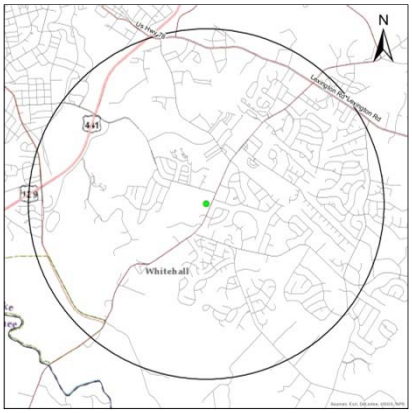
<u>Recommendations:</u> Continue monitoring

Athens-Clark County MSA



Athens- College Station Road





AQS ID: 130590002
Address: Fire Station #7, 2350 Barnett Shoals Road, Athens, Clarke County, Georgia 30603
Site Established: 3/1/02
Latitude/Longitude: N33.91793/-W83.34461
Elevation: 233 meters
Area Represented: Athens-Clarke County MSA
Site History: Established as O_3 and PM site

North

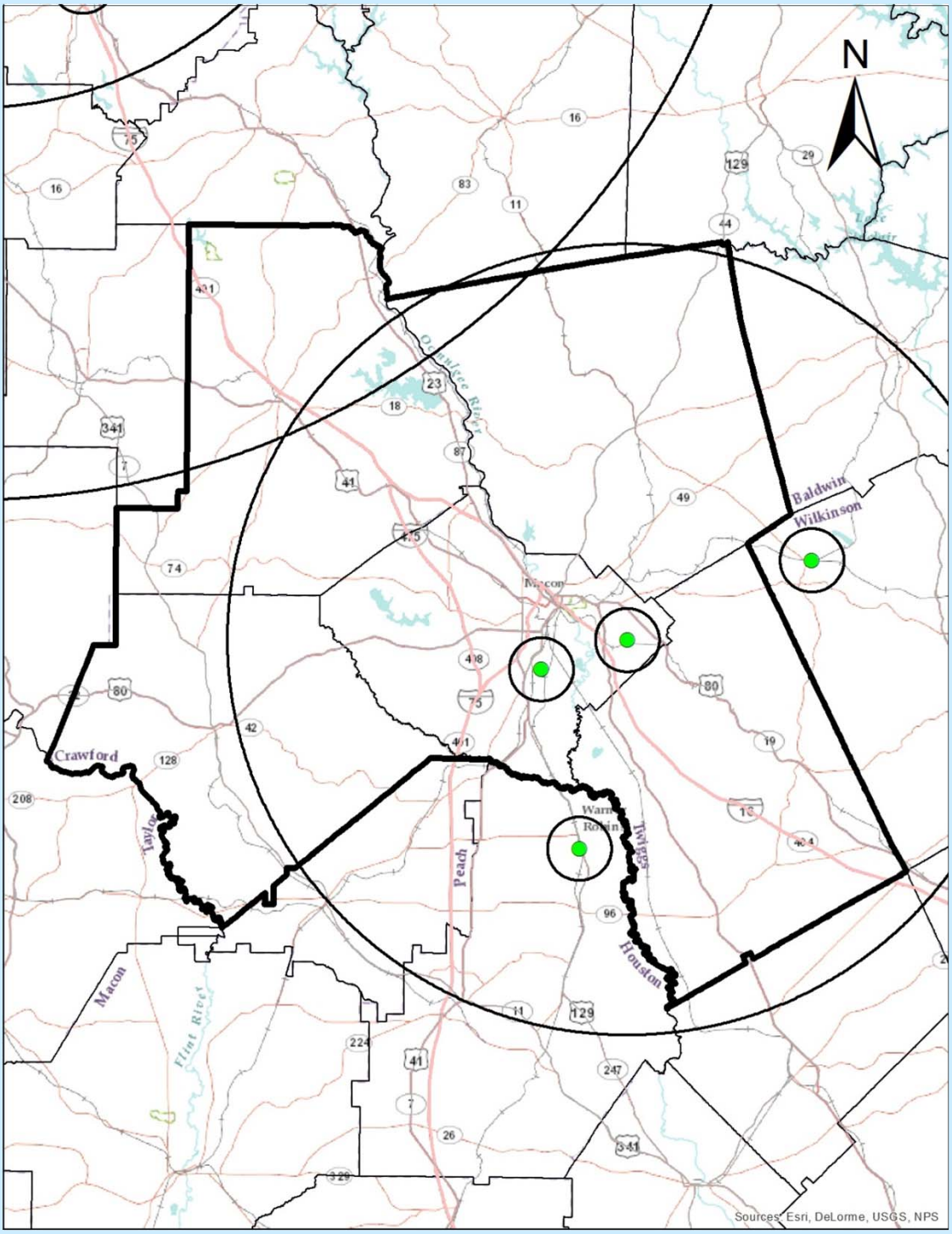
South

West

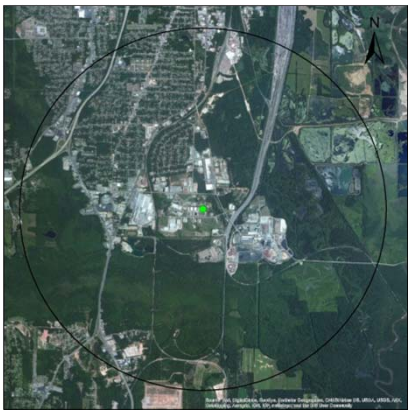
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	6.80 m	Urban	5/1/02
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	2/12/05
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	8/1/04

Recommendations: Continue monitoring; considering configuring continuous $PM_{2.5}$ TEOM sampler as an FEM, which would be compared to the NAAQS

Macon MSA


N
Baldwin
Wilkinson
Macon
Crawford
Taylor
Peach
Twiggs
Houston
Macon
Flint River
Ocmulgee River
Sources: Esri, DeLorme, USGS, NPS

Macon- Allied Chemical



AQS ID: 130210007
Address: Allied Chemical, 600 Guy Paine Road, Macon, Bibb County, Georgia 31206
Site Established: 1/1/74
Latitude/Longitude: N32.77729/W-83.64120
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	4 m	Neighborhood	3/1/02
$PM_{2.5}$	Population Exposure	Daily	4 m	Neighborhood	2/2/99
$PM_{2.5}$	Quality Assurance	Every 12 days	4 m	Neighborhood	2/2/99

Recommendations: Continue monitoring

Macon- GA Forestry Commission

AQS ID: 130210012
Address: Georgia Forestry Commission, 5645 Riggins Mill Road, Dry Branch, Bibb County, Georgia 31020
Site Established: 5/7/97
Latitude/Longitude: N32.805244/W-83.543628
Elevation: 103 meters
Area Represented: Macon MSA
Site History: Established as O_3 and SO_2 site

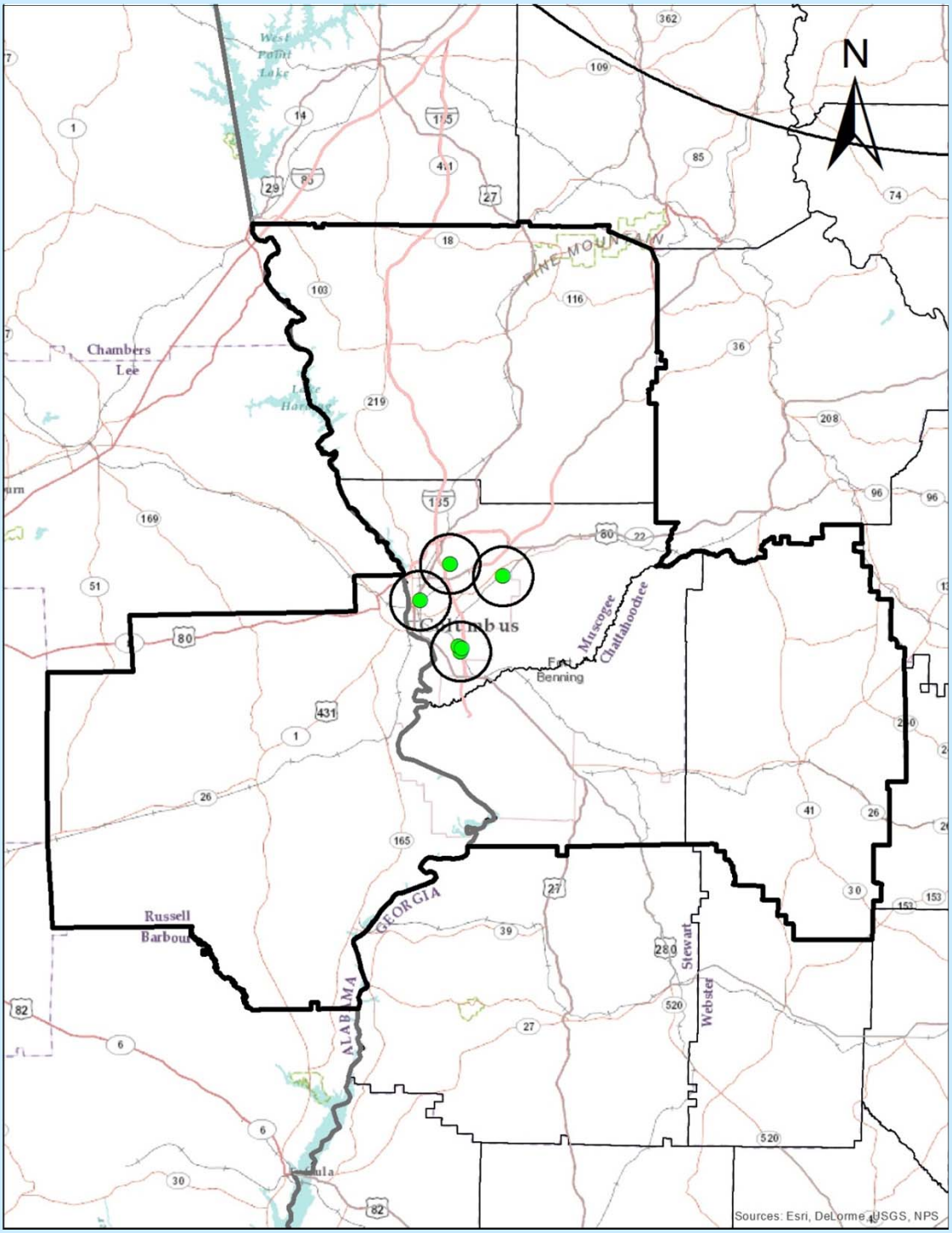
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	2/1/99
$PM_{2.5}$	Population Exposure	Continuous	4 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)	4 m	Neighborhood	5/7/97
SO_2	Population Exposure	Continuous	4 m	Urban	5/7/97
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	1/1/99

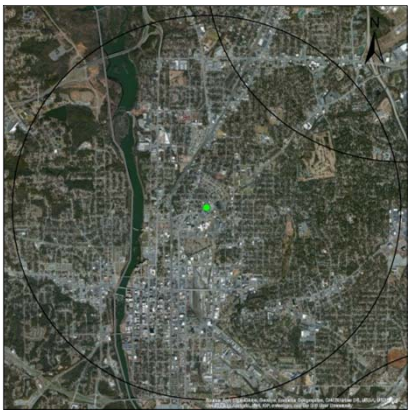
Macon- GA Forestry Commission (continued)

Recommendations: Continue monitoring; considering configuring continuous $PM_{2.5}$ TEOM sampler as an FEM, which would be compared to the NAAQS

Columbus Georgia-Alabama MSA



Columbus- Health Department



AQS ID: 132150001

Address: Muscogee City Health Department, 1958 8th Avenue, Columbus, Muscogee County, Georgia 31904

Site Established: 1/1/57

Latitude/Longitude: N32.484226/W-84.978925

Elevation: 101 meters

Area Represented: Columbus Georgia-Alabama 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	7 m	Neighborhood	3/4/99

<u>Recommendations:</u> Continue monitoring

Columbus- Airport

AQS ID: 132150008
Address: Columbus Airport, 3100 Thruway Drive, Columbus, Muscogee County, Georgia 31909
Site Established: 7/1/82
Latitude/Longitude: N32.52113/W-84.94486
Elevation: 135 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)	4 m	Neighborhood	7/1/82
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	6/2/03
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	6/1/03

<u>Recommendations:</u> Continue monitoring

Columbus- UPS

AQS ID: 132150009
Address: 4365 Allied Drive, Columbus, Muscogee County, Georgia 31906
Site Established: 9/1/90
Latitude/Longitude: N32.434809/W-84.929326
Elevation: 83 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as lead site

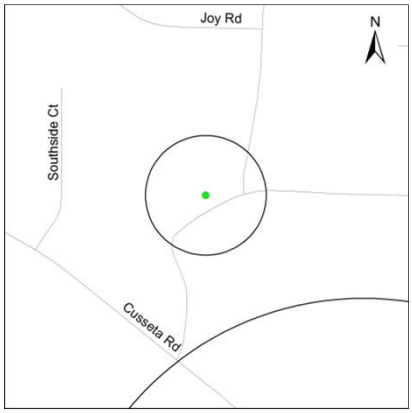
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Source Oriented	Every 6 days	2 m	Micro	9/1/90*

* Sampler inactive from 3/31/04 until reopened on 2/3/12

Recommendations: Lead monitoring being conducted along with Columbus-Fort Benning and Columbus-Cusseta Road sites to determine which sampler is best located to perform source monitoring

Columbus- Fort Benning



AQS ID: 132150010
Address: Ft. Benning Junction, 975 Joy Road, Columbus, Muscogee County, Georgia 31906
Site Established: 3/1/91
Latitude/Longitude: 32.43628/-84.934155
Elevation: 83 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as lead site

North

South

East

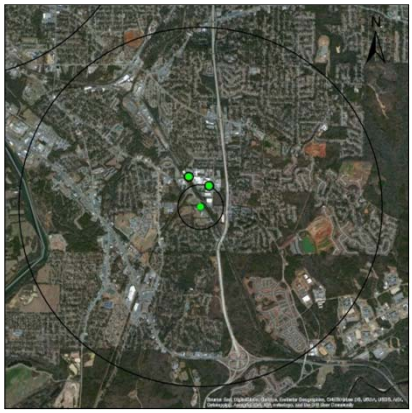
West

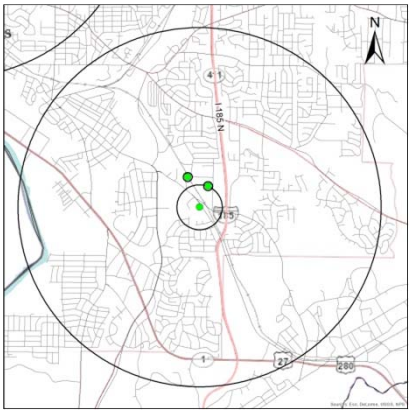
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Source Oriented	Every 6 days	2 m	Micro	3/1/91*
Lead	Source Oriented	Every 6 days	2 m	Micro	4/10/13

* Sampler inactive from 3/31/04 until reopened on 12/27/11

Recommendations: Lead monitoring being conducted along with Columbus-UPS and Columbus-Cusseta Road sites to determine which sampler is best located to perform source monitoring

Columbus- Cusseta Road Elementary





AQS ID: 132150011

Address: Cusseta Road Elementary School, 4150 Cusseta Road, Columbus, Muscogee County, Georgia 31903

Site Established: 9/4/91

Latitude/Longitude: N32.42905/W-84.93160

Elevation: 88 meters

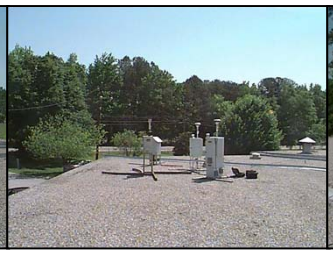
Area Represented: Columbus Georgia-Alabama MSA

Site History: Established as lead site

North

South

East

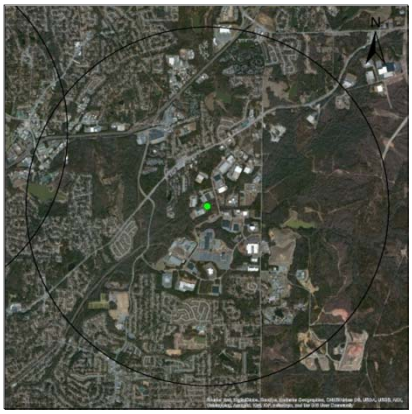


West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Population Exposure	Every 6 days	5 m	Middle	9/4/91
$PM_{2.5}$	Population Exposure	Every 3 days	5 m	Neighborhood	1/21/99
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	5 m	Neighborhood	5/1/02

Recommendations: Continue monitoring; Lead monitoring being conducted along with Columbus-Fort Benning and Columbus-UPS sites to determine which sampler is best located to perform source monitoring

Columbus- Crime Lab



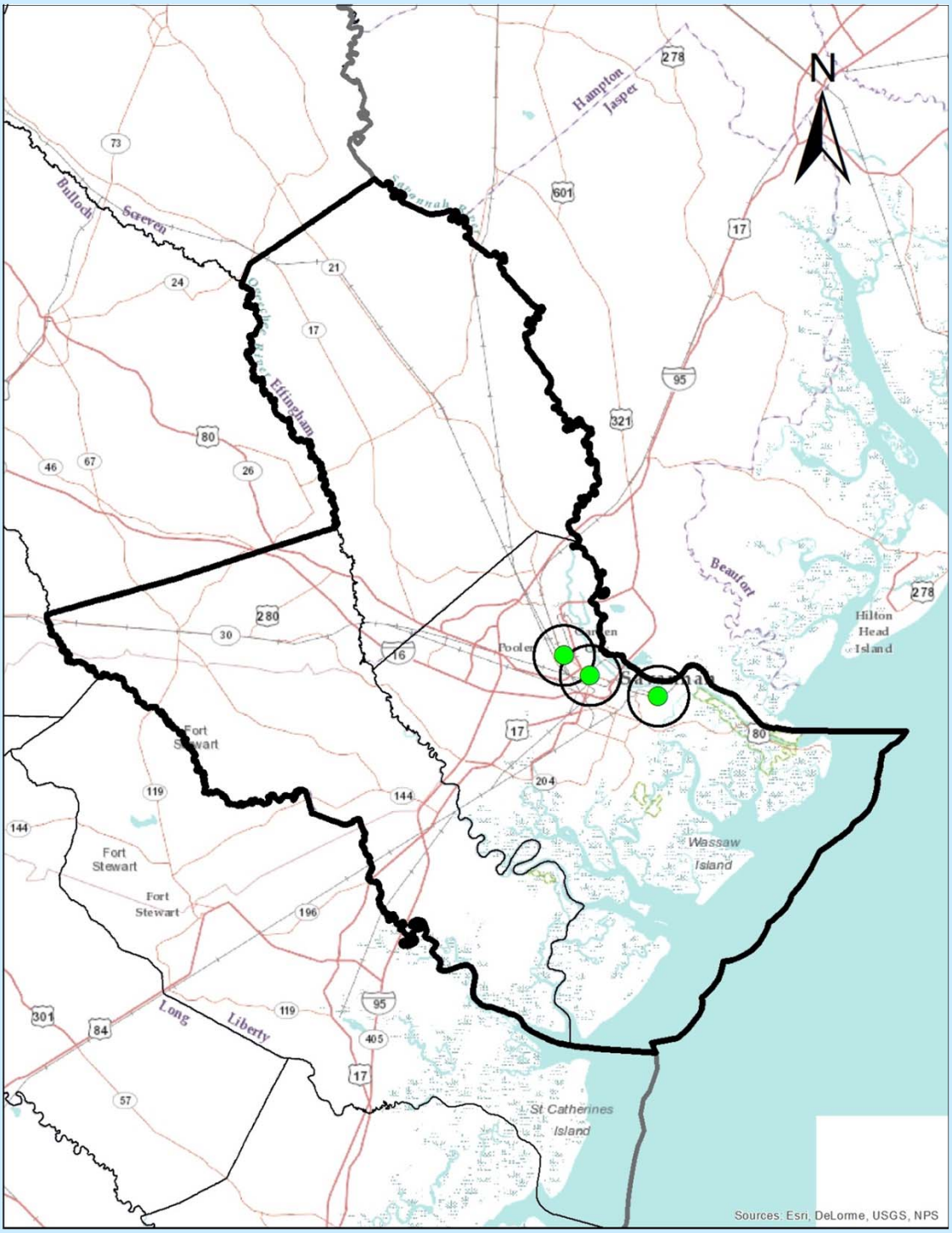
AQS ID: 132151003
Address: Columbus Crime Lab, 8695 Beaver Run Road, Midland, Muscogee County, Georgia 31820
Site Established: 6/30/80
Latitude/Longitude: N32.50854/W-84.88037
Elevation: 122 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as O_3 site

North South 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
Temperature	General/ Background	Continuous	2 m	Neighborhood	1/5/06
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	1/5/06
Precipitation	General/ Background	Continuous	3 m	Neighborhood	1/5/06
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	1/5/06

Recommendations: Continue monitoring

Savannah MSA



Savannah- E. President Street

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: N32.069050/W-81.048949

Elevation: 2 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)	4 m	Neighborhood	4/19/95
SO_2	Source Oriented	Continuous	4 m	Neighborhood	3/29/95
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 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
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	9/18/96
Carbonyls	Population Exposure	Every 12 days	4 m	Neighborhood	1/1/99

Recommendations: Continue monitoring

Savannah- Mercer School

AQS ID: 130510091
Address: Mercer Middle School, 201 Rommel Avenue, Savannah, Chatham County, Georgia 31408
Site Established: 7/7/76
Latitude/Longitude: N32.110580/W-81.162024
Elevation: 4 meters
Area Represented: Savannah MSA
Site History: Established as TSP site

North

South

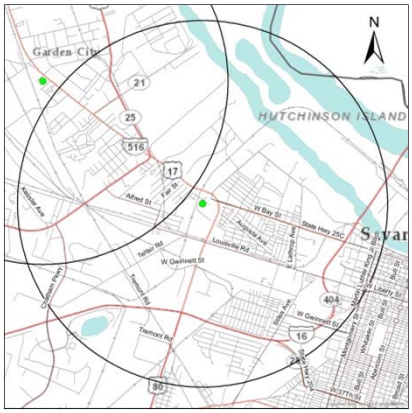
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/99

<u>Recommendations:</u> Continue monitoring

Savannah- Lathrop and Augusta



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: N32.090278/W-81.130556

Elevation: 4 meters

Area Represented: Savannah MSA

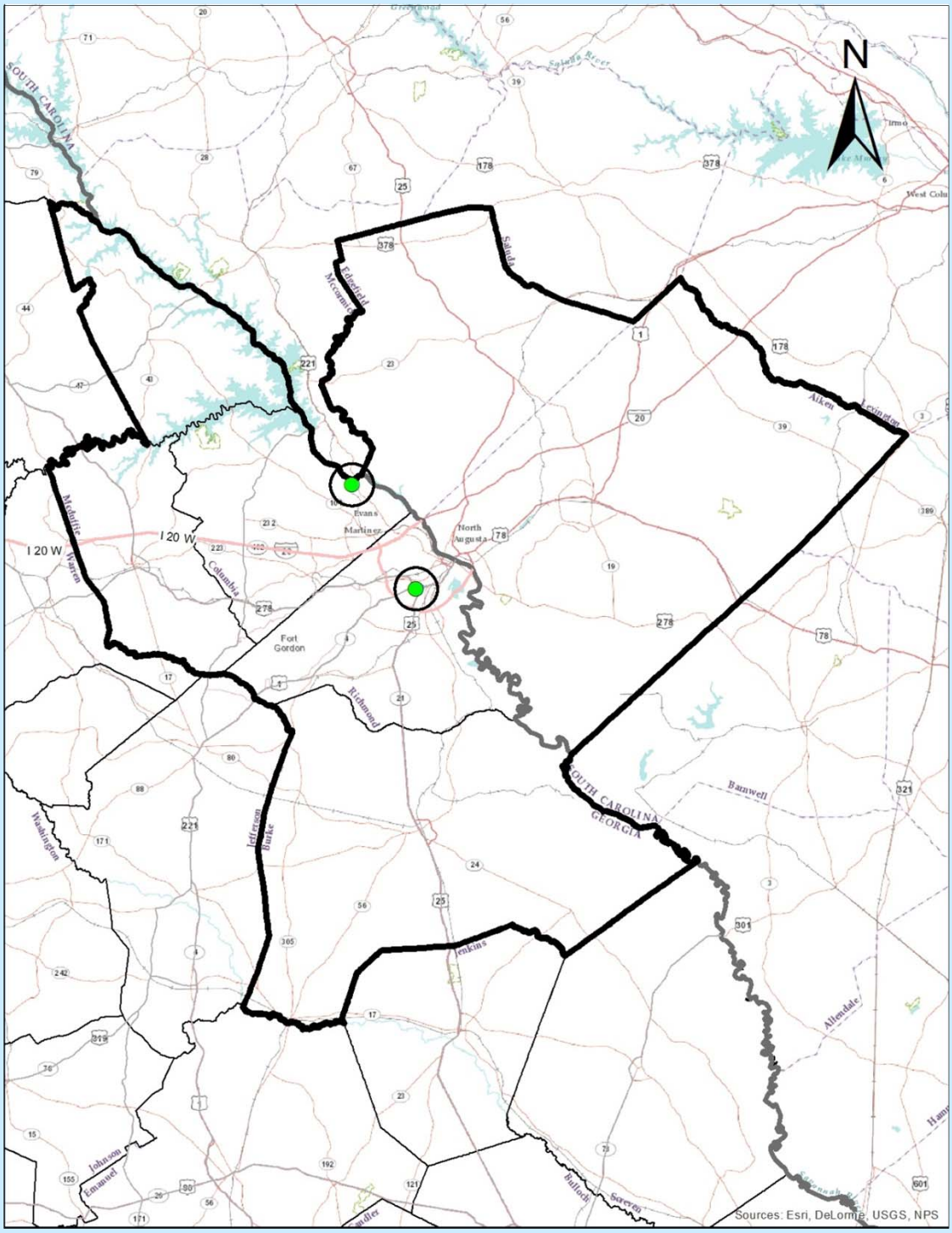
Site History: Established as TSP site

Northeast Southwest

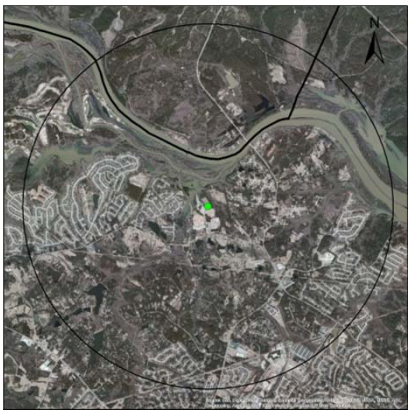
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO_2	Population Exposure	Continuous	4 m	Neighborhood	1/1/98
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/79
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/79
$PM_{2.5}$	Population Exposure	Continuous	5 m	Neighborhood	10/1/03

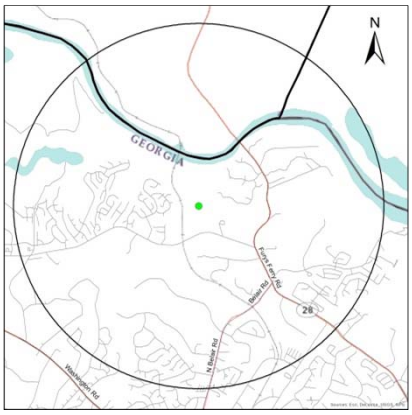
Recommendations: Continue monitoring; propose to add an ozone monitor when initiated by EPA

Augusta-Richmond County, Georgia-South Carolina MSA



Evans- Riverside Park





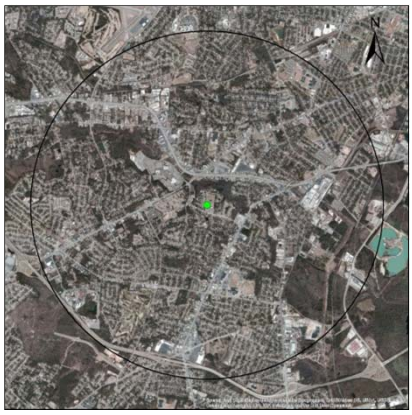
AQS ID: 130730001
Address: Riverside Park, 4431 Hardy McManus Road, Evans, Columbia County, Georgia 30809
Site Established: 2/17/05
Latitude/Longitude: N33.582000/W-82.131340
Elevation: 74 meters
Area Represented: Augusta-Richmond County, Georgia-South Carolina MSA
Site History: Established as O_3 and NO_Y site

North Southeast East

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
Temperature	General/ Background	Continuous	2 m	Neighborhood	2/17/05
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	2/17/05

Recommendations: Continue monitoring

Augusta- Bungalow Road Elementary



AQS ID: 132450091

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

Site Established: 1/1/76

Latitude/Longitude: N33.433349/W-82.022217

Elevation: 46 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)	5 m	Neighborhood	4/27/89
PM_{10}	Population Exposure	Every 6 days	6 m	Neighborhood	4/9/96
PM_{10}	Quality Assurance	Every 12 days	6 m	Neighborhood	1/10/13
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	6 m	Neighborhood	3/2/02
$PM_{2.5}$	Population Exposure	Every 3 days	6 m	Neighborhood	2/8/99
$PM_{2.5}$	Population Exposure	Continuous	6 m	Neighborhood	10/1/03
SO_2	Population Exposure	Continuous	6 m	Neighborhood	1/14/13
SO_2 5-Minute Maximum	Population Exposure	Continuous	6 m	Neighborhood	1/14/13

Augusta- Bungalow Road Elementary (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	10/2/03
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	10/2/03
Temperature	General/ Background	Continuous	2 m	Neighborhood	10/2/03
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	10/2/03
Precipitation	General/ Background	Continuous	4 m	Neighborhood	10/2/03
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	10/2/03

Recommendations: Continue monitoring

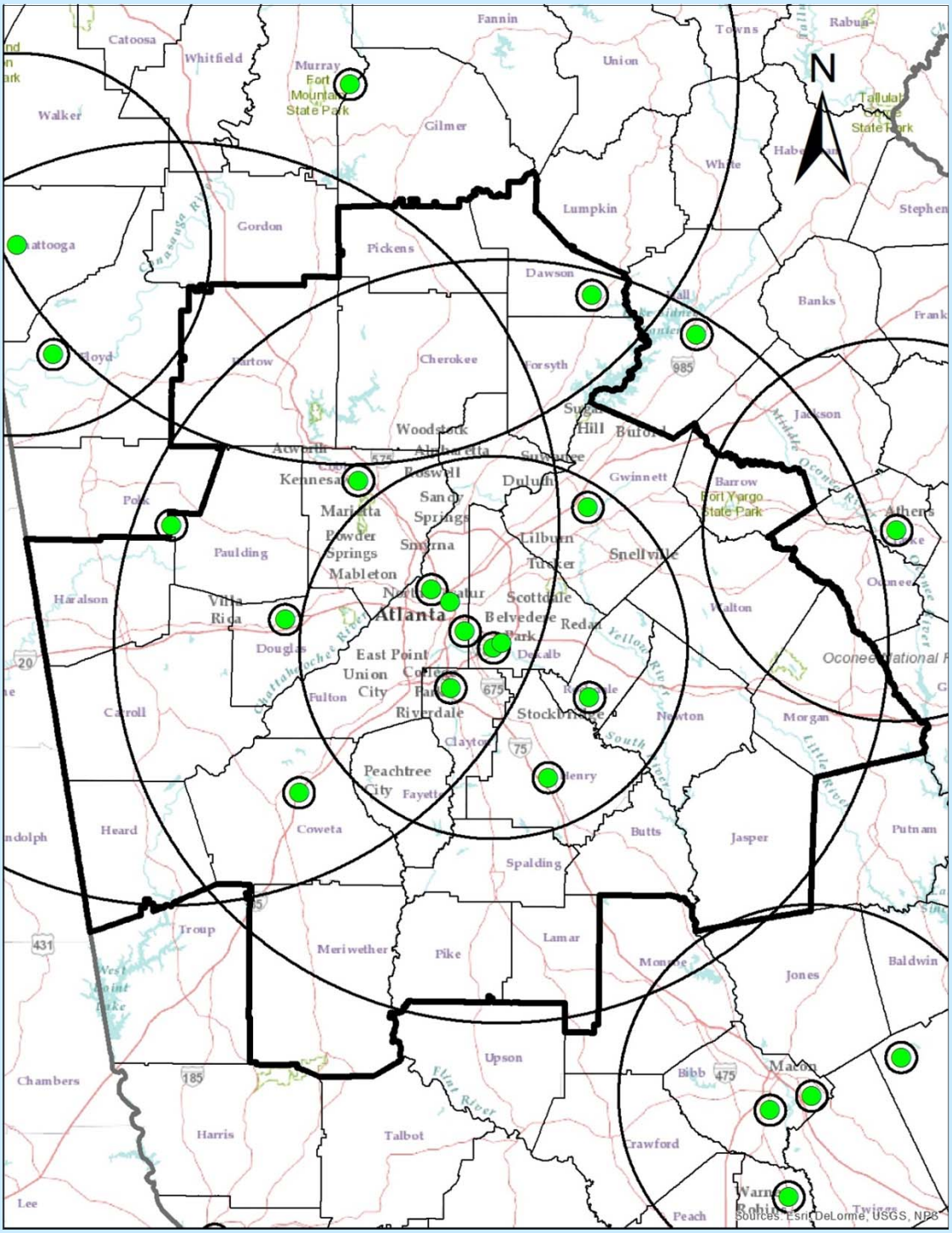
Augusta- Near-Road Monitoring Site

AQS ID: To be determined
Address: Augusta, Richmond County, Georgia (Specifics to be determined)
Site Established: To be determined
Latitude/Longitude: To be determined
Elevation: To be determined
Area Represented: Augusta-Richmond County, Georgia-South Carolina MSA

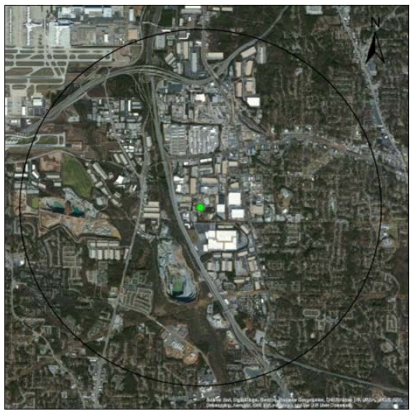
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO_2	Highest Concentration	Continuous	TBD	Micro	TBD

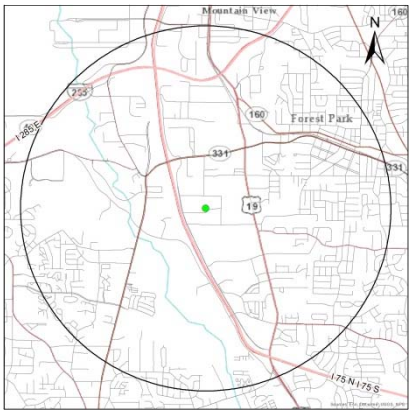
Due to changes in establishment schedule by EPA, site should be set up by January 1, 2017 (see Section 3.3 of Introduction for details)

Atlanta-Sandy Springs-Marietta



Forest Park- Georgia DOT





AQS ID: 130630091
Address: 25 Kennedy Drive, Forest Park, Clayton County, Georgia 30297
Site Established: 1/1/78
Latitude/Longitude: N33.609722/W-84.391111
Elevation: 288 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as TSP site

North

South

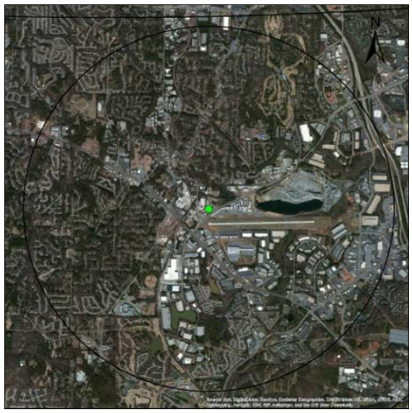
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	5 m	Neighborhood	1/9/99

Recommendations: Continue monitoring

Kennesaw- National Guard



AQS ID: 130670003
Address: Georgia National Guard, 1901 McCollum Parkway, Kennesaw, Cobb County, Georgia, 30144
Site Established: 2/7/99
Latitude/Longitude: N34.015346/W-84.607484
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 m	Neighborhood	9/1/99
$PM_{2.5}$	Population Exposure	Daily	4 m	Neighborhood	2/7/99

Recommendations: Continue monitoring

Newnan- University of West Georgia

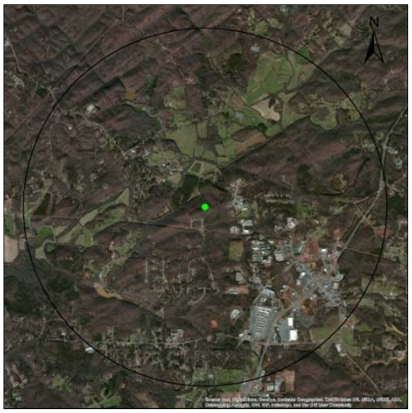
AQS ID: 130770002
Address: Univ. of West GA, Newnan Campus, 7 Solar Circle, Newnan, Coweta County, Georgia 30265
Site Established: 5/5/99
Latitude/Longitude: N33.40389/W-84.74606
Elevation: 271 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

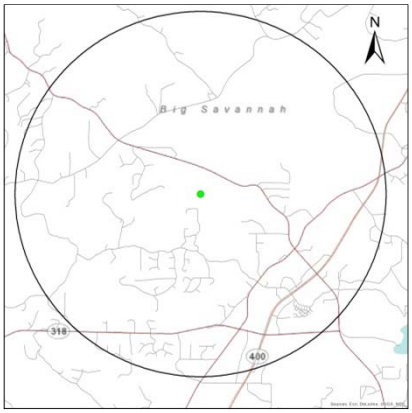
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	5/5/99
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	9/1/03
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04

Recommendations: Continue monitoring

Dawsonville- GA Forestry Commission





AQS ID: 130850001

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

Site Established: 1/1/85

Latitude/Longitude: N34.37619/W-84.05986

Elevation: 372 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as O_3 site

North

South

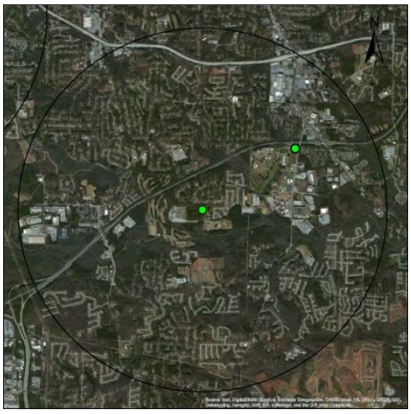
East

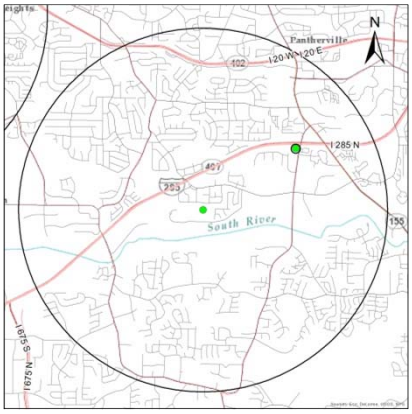
West

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
Toxics	General/ Background	Every 12 days	2 m	Neighborhood	12/11/96
Carbonyls	General/ Background	Every 12 days	4 m	Neighborhood	1/1/99
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/05

Recommendations: Continue monitoring

Decatur- South DeKalb





AQS ID: 130890002
Address: 2390-B Wildcat Road, Decatur, DeKalb County, Georgia 30034
Site Established: 1/1/74
Latitude/Longitude: N33.68797/-84.29048
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	2.7 m	Neighborhood	1/22/99
$PM_{2.5}$	Quality Assurance	Every 12 days	2.7 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	2.6 m	Neighborhood	10/1/00
SO_2	Population Exposure	Continuous	4 m	Neighborhood	10/1/10
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	10/1/10
O_3	Highest Concentration	Continuous	4 m	Neighborhood/ Urban	1/1/74

Decatur- South DeKalb (continued)

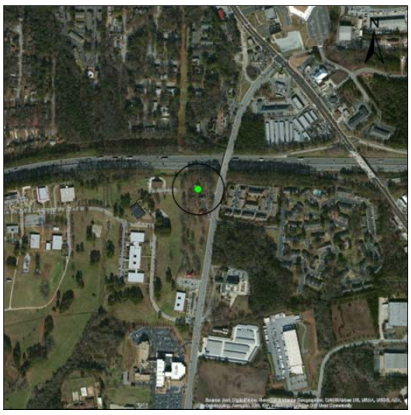
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
CO	Population Exposure	Continuous	4 m	Neighborhood	5/19/03
NOy	Population Exposure	Continuous	10 m	Neighborhood/ Urban	1/1/98
NO	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NOx	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NO_2	Population Exposure	Continuous	5 m	Neighborhood/ Urban	7/21/78
Carbonyls (PAMS)	Max Precursor Emissions	3-hour Samples in Summer	4 m	Neighborhood	6/1/93
Carbonyls (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	4 m	Neighborhood	6/1/93
Carbonyls	Quality Assurance	Every 12 days	4 m	Neighborhood	1/1/06
PM_{10} Select Metals (Toxics)	Population Exposure	Every 6 days	2 m	Neighborhood	1/1/00
PM_{10} Select Metals (Toxics)	Quality Assurance	Every 12 days	2.3 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	4 m	Neighborhood	6/1/93
VOCs (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	4 m	Neighborhood	6/1/93
VOCs (Toxics)	Quality Assurance	Every 12 days	4 m	Neighborhood	1/1/05
Elemental Carbon (Aethalometer)	Population Exposure	Continuous	4 m	Neighborhood	6/12/03

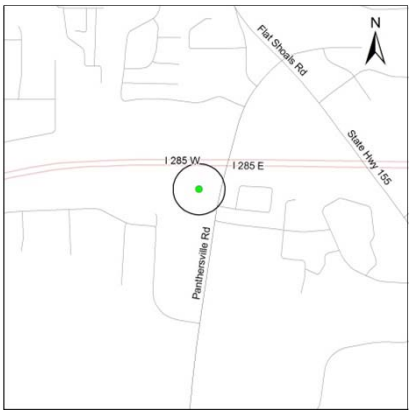
Decatur- South DeKalb (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Semi-VOCs	Population Exposure	Every 6 days	1.6 m	Neighborhood	4/30/07
Semi-VOCs	Quality Assurance	Every 12 days	2 m	Neighborhood	4/30/07
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/93
Rain/Melt Precipitation	General/ Background	Continuous	3 m	Neighborhood	1/1/97
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

Recommendations: Continue monitoring; NCore site (see Appendix C of 2014 Ambient Air Monitoring Plan for full description and approval)

Decatur- DMRC Near-Road





AQS ID: 130890003
Address: D.M.R.C., 3073 Panthersville Road, Decatur, DeKalb County, Georgia 30034
Site Established: 7/1/86
Latitude/Longitude: N33.698468/W-84.272694
Elevation: 238 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as lead site

North

South

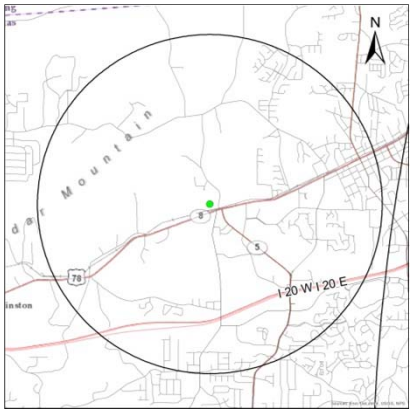
East

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Regional Transport	Every 6 days	2 m	Regional	7/1/86
Lead	Quality Assurance	Every 12 days	2 m	Regional	8/5/09
NO_2	Population Exposure	Continuous	4 m	Micro	1/1/15
NO	Population Exposure	Continuous	4 m	Micro	1/1/15
NOx	Population Exposure	Continuous	4 m	Micro	1/1/15
VOCs	Population Exposure	Every 6 days	2 m	Micro	3/31/15
Black Carbon	Population Exposure	Continuous	4 m	Micro	TBD

Recommendations: Continue monitoring; Lead monitor for NCore Station at South DeKalb site (see Appendix C of '2014 Ambient Monitoring Plan' for full description); Near-road site as of 1/1/15 (see 'Addedum to 2014 Ambient Monitoring Plan' for full description; GA EPD anticipates starting the black carbon sampler in near future

Douglasville- W. Strickland Street



AQS ID: 130970004

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

Site Established: 8/15/97

Latitude/Longitude: N33.743514/W-84.779263

Elevation: 368 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

Site History: Established as O_3 site

North

South

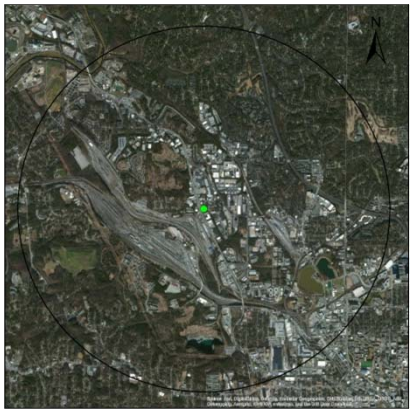
East

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

Recommendations: Continue monitoring

Atlanta- 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: N33.802189/W-84.435658
Elevation: 265 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as TSP site

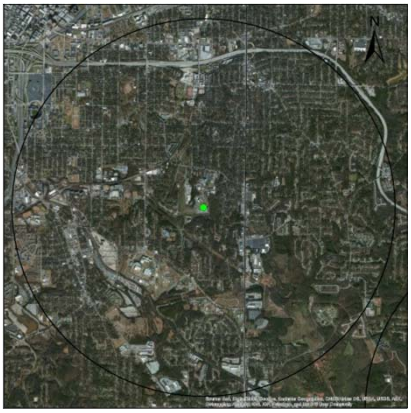
North South East West

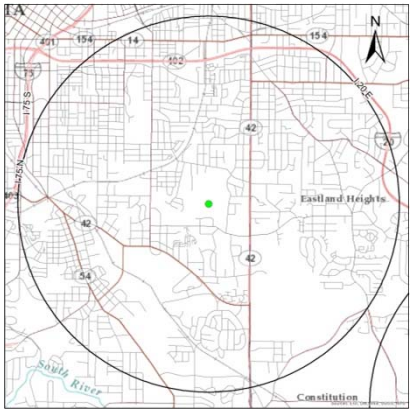
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	1/21/99*
PM_{10}	Population Exposure	Every 6 days	4 m	Neighborhood	10/18/87**

* Sampler inactive from 9/30/06 to 12/1/08, **Sampler inactive from 9/26/06 to 1/3/13

Recommendations: Continue monitoring

Atlanta- Confederate Avenue





AQS ID: 131210055
Address: 935 East Confederate Avenue, Atlanta, Fulton County, Georgia 30316
Site Established: 10/1/91
Latitude/Longitude: N33.72005/W-84.35714
Elevation: 292 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 and SO_2 site

North

South

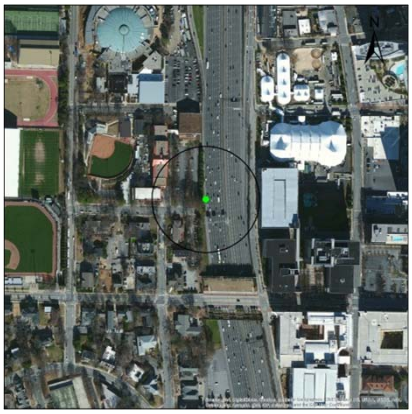
East

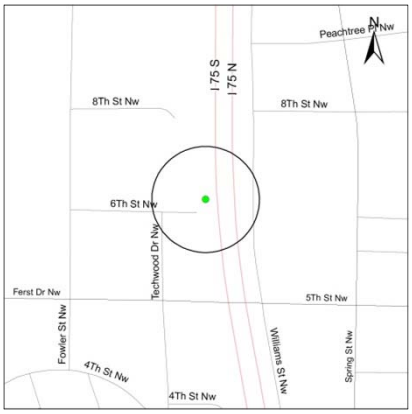
West

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	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	10/1/91
$PM_{2.5}$	Population Exposure	Continuous	4.80 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

Recommendations: Continue monitoring

Atlanta-Georgia Tech Near-Road





AQS ID: 131210056
Address: Georgia Institute of Technology, 6th Street, Atlanta, Fulton County, Georgia, 30313
Site Established: 6/15/14
Latitude/Longitude: N33.778315/W-84.391418
Elevation: 286 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as near-road site

Northeast Southeast East

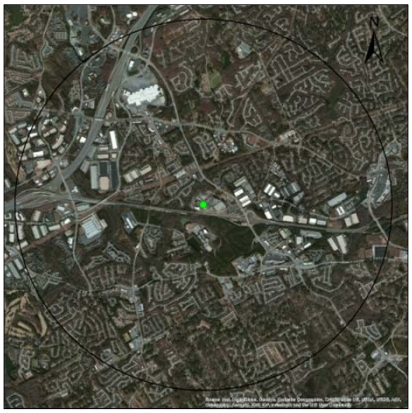
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO_2	Source Oriented	Continuous	4 m	Micro	6/15/14
NO	Source Oriented	Continuous	4 m	Micro	6/15/14
NOx	Source Oriented	Continuous	4 m	Micro	6/15/14
CO	Source Oriented	Continuous	4 m	Micro	6/15/14
$PM_{2.5}$	Source Oriented	Continuous	5 m	Micro	1/1/15
Black Carbon	Source Oriented	Continuous	TBD	Micro	TBD
Wind Speed	Source Oriented	Continuous	7 m	Micro	8/20/14

Atlanta-Georgia Tech Near-Road (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Direction	Source Oriented	Continuous	7 m	Micro	8/20/14

Recommendations: GA EPD anticipates the black carbon sampler will be running in near future. See Appendix E of '2014 Ambient Monitoring Plan' for near-road site details.

Lawrenceville- Gwinnett Tech



AQS ID: 131350002
Address: Gwinnett Tech, 5150 Sugarloaf Parkway, Lawrenceville, Gwinnett County, Georgia 30043
Site Established: 3/17/95
Latitude/Longitude: N33.96127/W-84.06901
Elevation: 290 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North

South

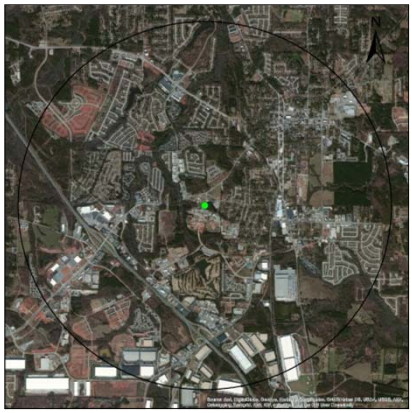
East

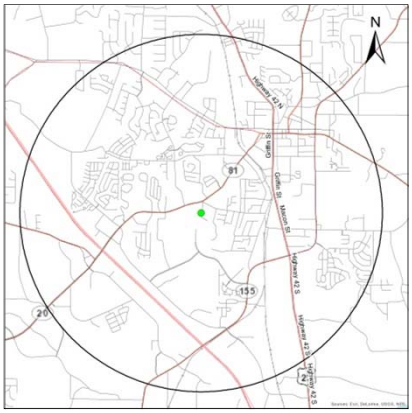
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Highest Concentration	Continuous (Mar-Oct)	5 m	Neighborhood	5/17/95
$PM_{2.5}$	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/00
$PM_{2.5}$	Population Exposure	Continuous	5 m	Neighborhood	9/1/03

Recommendations: Continue monitoring

McDonough- County Extension Office





AQS ID: 131510002
Address: Henry County Extension Office, 86 Work Camp Rd, McDonough, Henry County, Georgia 30253
Site Established: 6/7/99
Latitude/Longitude: N33.433426/W-84.161797
Elevation: 249 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North

South

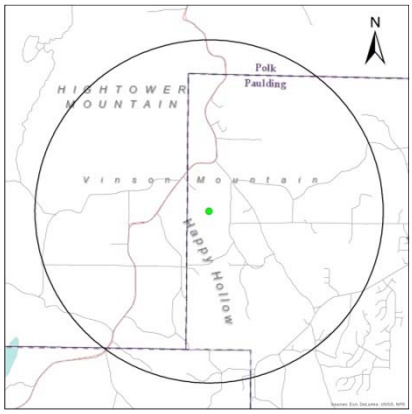
East

West

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

Recommendations: Continue monitoring

Yorkville- King Farm



AQS ID: 132230003
Address: King Farm, 160 Ralph King Path, Rockmart, Paulding County, Georgia, 30153
Site Established: 1/1/96
Latitude/Longitude: N33.92850/W-85.04534
Elevation: 379 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as PAMS site

North

South

East

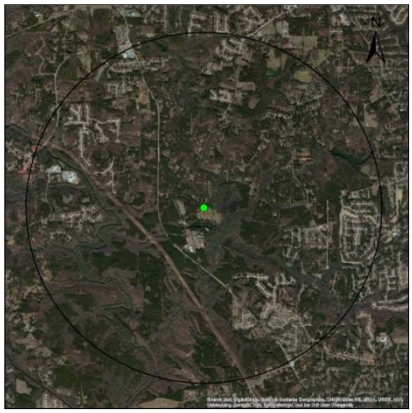
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure/ Upwind Background	Continuous (Mar-Oct)	4 m	Regional	1/1/96
CO	Population Exposure/ Upwind Background	Continuous	4 m	Regional	7/16/02
NO	Population Exposure/ Upwind Background	Continuous	4 m	Regional	1/1/96
NO_2	Population Exposure/ Upwind Background	Continuous	4 m	Regional	1/1/96

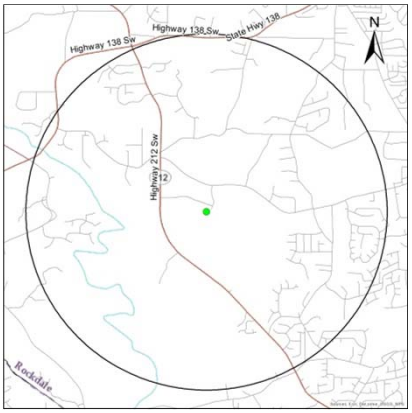
Yorkville- King Farm (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NOx	Population Exposure/ Upwind Background	Continuous	4 m	Regional	1/1/96
Toxics	Regional Transport	Every 12 days	2 m	Neighborhood	1/1/00
VOCs (PAMS)	Upwind Background	Continuous in Summer	4 m	Regional	1/1/96
VOCs (PAMS)	Upwind Background	Every 6 days	4 m	Regional	1/1/96
VOCs (Toxics)	Regional Transport	Every 12 days	4 m	Neighborhood	1/1/96
$PM_{2.5}$	Upwind Background	Continuous	4 m	Regional	3/1/03
$PM_{2.5}$	Upwind Background/ Regional Transport	Every 3 days	5 m	Regional	1/24/99
Solar Radiation	General/ Background	Continuous	1.50 m	Regional	1/1/96
Ultraviolet Radiation	General/ Background	Continuous	1.50 m	Regional	1/1/97
Barometric Pressure	General/ Background	Continuous	2 m	Regional	1/1/96
Rain/Melt Precipitation	General/ Background	Continuous	3 m	Regional	1/1/97
Wind Direction	General/ Background	Continuous	10 m	Regional	1/1/96
Wind Speed	General/ Background	Continuous	10 m	Regional	1/1/96
Outdoor Temperature	Regional Transport	Continuous	2 m	Regional	1/1/96
Relative Humidity	General/ Background	Continuous	2 m	Regional	1/1/96

Recommendations: Continue monitoring

Conyers- Monastery





AQS ID: 132470001
Address: Monastery of the Holy Spirit, 2625 Georgia Highway 212, Conyers, Rockdale County, Georgia 30094
Site Established: 7/26/78
Latitude/Longitude: N33.590932/W-84.065386
Elevation: 219 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North

South

East

West

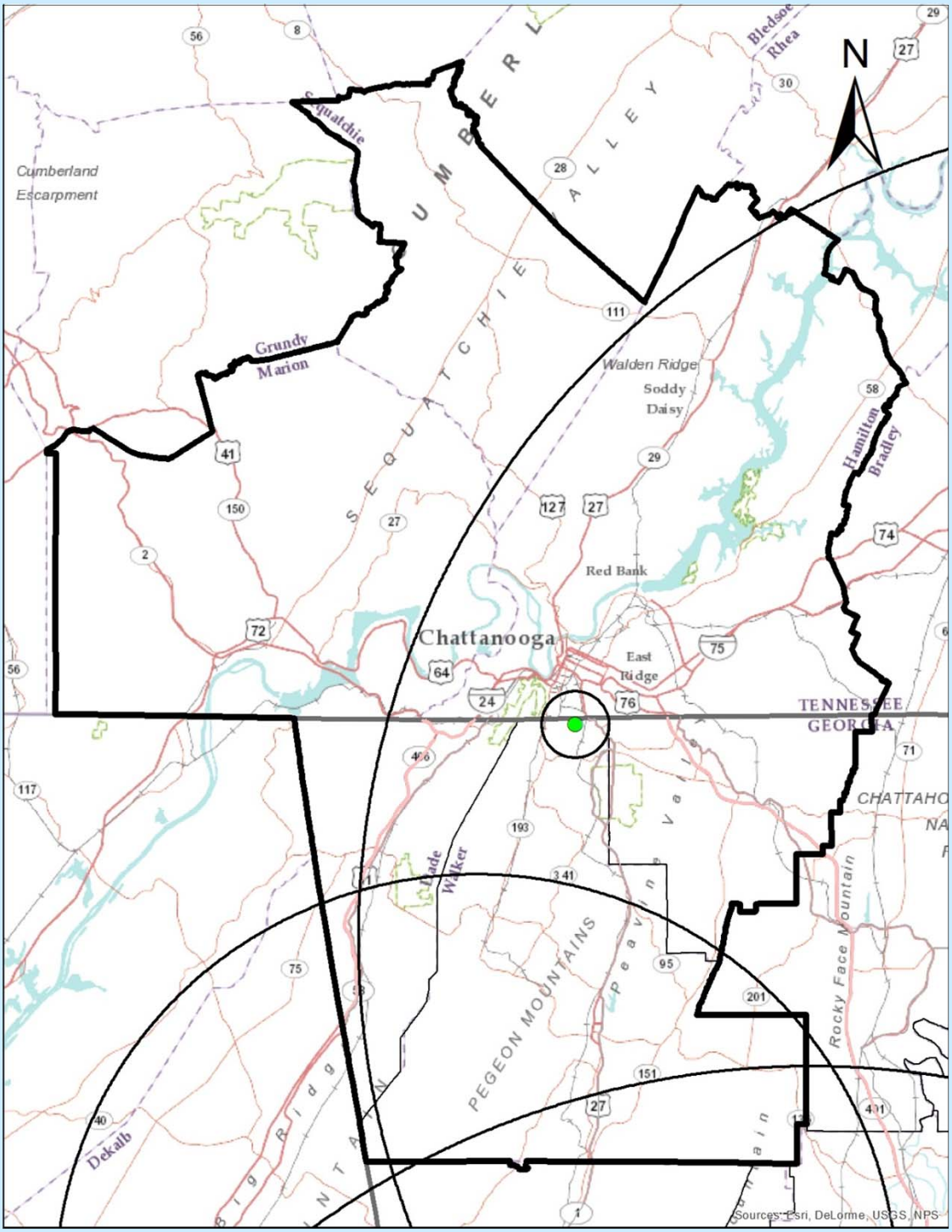
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Maximum Concentration	Continuous (Mar-Oct)	5 m	Neighborhood	7/26/78
NOx	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
NO_2	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
NO	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94

Conyers- Monastery (continued)

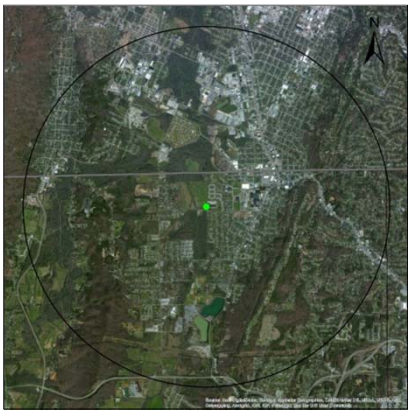
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
VOCs (PAMS)	Max Precursor Emissions Impact	Every 6 days	5 m	Neighborhood	1/1/94
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Ultraviolet Radiation	General/ Background	Continuous	1.50 m	Neighborhood	1/1/97
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Solar Radiation	General/ Background	Continuous	1.50 m	Neighborhood	6/1/94
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 m	Neighborhood	7/1/03

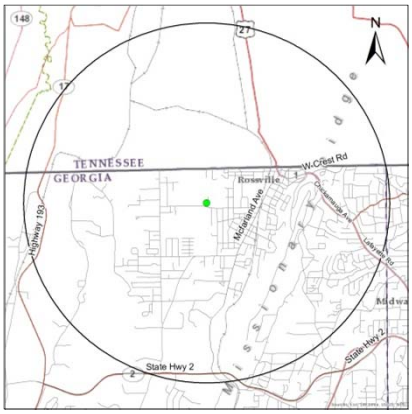
Recommendations: Continue monitoring

Chattanooga Tennessee-Georgia MSA



Rossville- Maple Street





AQS ID: 132950002
Address: 601 Maple Street, Lot #6, Rossville, Walker County, Georgia, 30741
Site Established: 1/1/67
Latitude/Longitude: N34.97889/W-85.30098
Elevation: 200 meters
Area Represented: Chattanooga Tennessee-Georgia MSA
Site History: Established as TSP and SO_2/NO_2 site

North

South

East

West

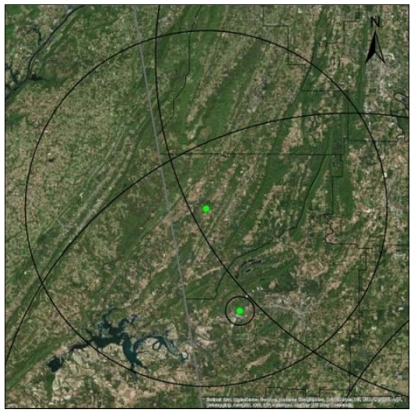
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure/ Regional Transport	Continuous	6 m	Neighborhood	1/24/07
$PM_{2.5}$	Population Exposure	Every 3 days	6 m	Neighborhood	1/1/00
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	6 m	Neighborhood	3/23/05

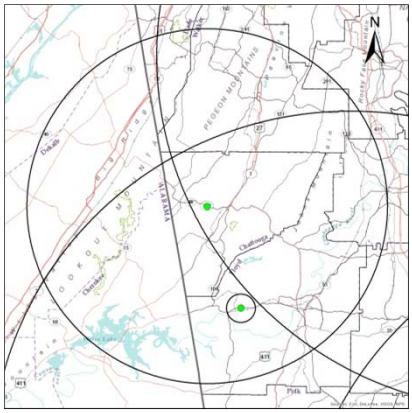
Recommendations: Continue monitoring

Sites Not in an MSA

(Listed in AQS ID Order)

Summerville- DNR Fish Hatchery





AQS ID: 130550001

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

Site Established: 1985

Latitude/Longitude: N34.474167/W-85.408056

Elevation: 276 meters

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

Site History: Established as Acid Rain site

North

South

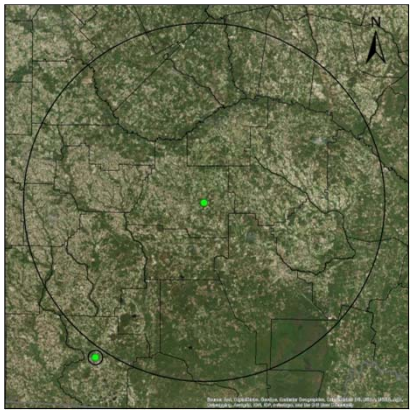
East

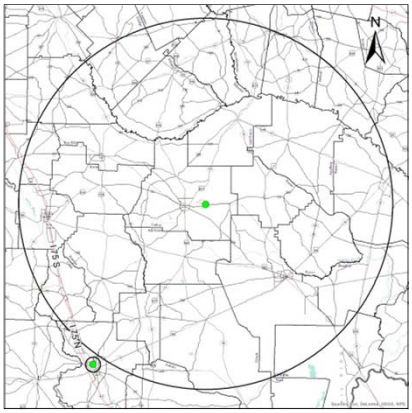
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Regional Transport	Continuous (Mar-Oct)	5 m	Urban	3/1/04

Recommendations: Continue monitoring

Douglas- General Coffee State Park





AQS ID: 130690002
Address: General Coffee State Park, 6635 State Highway 32, Nicholls, Coffee County, Georgia 31554
Site Established: 1/1/99
Latitude/Longitude: N31.51309/W-82.75027
Elevation: 49 meters
Area Represented: Not in an MSA, Douglas Micropolitan Statistical Area
Site History: Established as Air Toxics site

Northwest

South

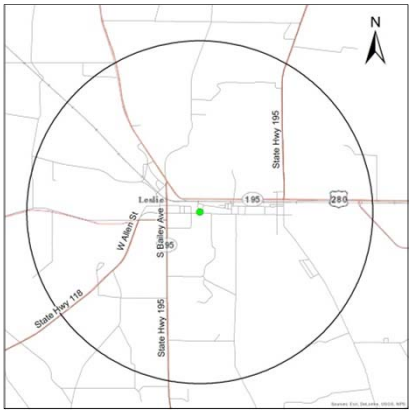
Southeast

West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$ Speciation	General Background	Every 6 days	3 m	Regional	3/1/02
Toxics	General Background	Every 12 days	2 m	Regional	1/1/99

Recommendations: Continue monitoring

Leslie- Union High School



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: N31.954112/W-84.081149
Elevation: 100 meters
Area Represented: Not in an MSA, Americus Micropolitan Statistical Area
Site History: Established as O_3 site

Northwest

Southeast

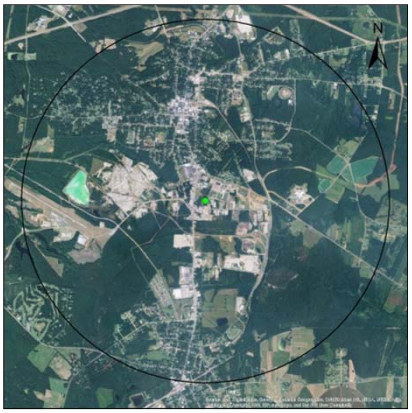
East

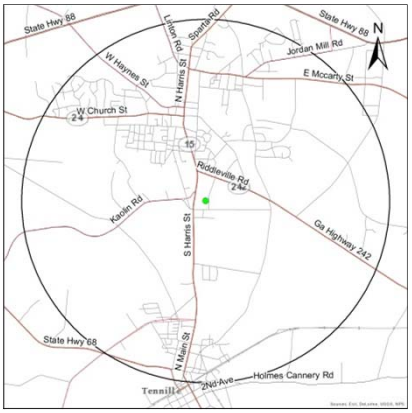
West

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

Recommendations: Continue monitoring

Sandersville- Health Department





AQS ID: 133030001

Address: Oconee Center Washington County Service Center, 824 Golden Hawk Drive, Sandersville, Washington County, Georgia 31082

Site Established: 1/1/74

Latitude/Longitude: N32.967251/W-82.806780

Elevation: 140 meters

Area Represented: Not in an MSA, Washington County

Site History: Established as TSP site

North

South

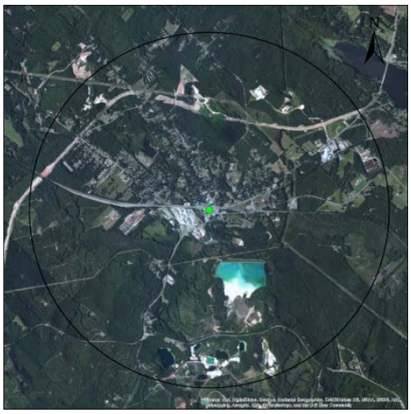
East

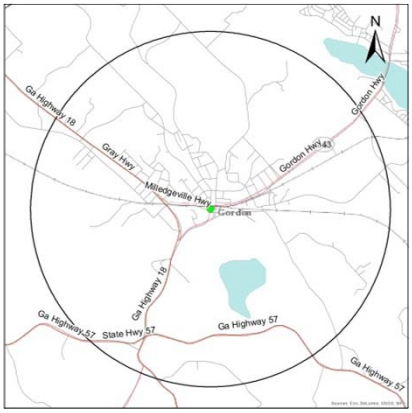
West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	3 m	Neighborhood	1/30/99

Recommendations: Building being renovated, site being moved approximately 0.5 mile away

Gordon- Police Department





AQS ID: 133190001
Address: Police Department, 105 Railroad Street, Gordon, Wilkinson County, Georgia 31031
Site Established: 1/1/99
Latitude/Longitude: N32.881667/W-83.333889
Elevation: 103 meters
Area Represented: Not in an MSA, Wilkinson County
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	5 m	Neighborhood	1/1/99

Recommendations: Continue monitoring

Inventory of Ambient Monitoring Equipment

Georgia Department of Natural Resources
Environmental Protection Division

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Rome MSA			
Rome - Coosa Elementary	ESC DAS	Datalogger 8832	good/ >2
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146C	good/ >2
	Gast Zero Air System	M1006X	good/ >5
	Thermo 2025	PM2.5 Sampler	good/new
	Met-One SASS	Speciated PM2.5 Sampler	good/ >2
	TEOM	Continuous PM2.5 Sampler	good/ >2
Brunswick MSA			
Brunswick - Risley Middle School	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo 2025	PM2.5 Sampler	good/ >5
	Thermal Oxidizer	CDN-101	good/ >5
	Sonic Anemometer	81000	good/ >2
Valdosta MSA			
Valdosta - Mason Elementary	Thermo 2025	PM2.5 Sampler	good/1
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ <2
	ESC DAS	Datalogger 8832	good/ >2
Warner Robins MSA			
Warner Robins - Air Force Base	Thermo 2025	PM2.5 Sampler	good/1
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ <2
	ESC DAS	Datalogger 8832	good/ >2
Dalton MSA			
Chatsworth - Fort Mountain	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
	RM Young Temp/Relative Humidity	41375VC	good/ >2
Gainesville MSA			
Gainesville - Girls & Boys Club	Thermo 2025	PM2.5 Sampler	good/ <2
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	fair/>3
	ESC DAS	Datalogger 8832	good/ >2
Albany MSA			
Albany - Turner Elementary	Thermo 2025	PM2.5 Sampler	good/new
	Thermo 2025	PM2.5 Sampler Co-locate	good/ <2
	Met-One BAM Monitor	Continuous PM2.5 Sampler	good/ >2
	ESC DAS	Datalogger 8832	good/ >2
Athens-Clarke County MSA			
Athens - College Station Road	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo 2025	PM2.5 Sampler	good/new
	R&P PM2.5 Sampler	1400 A series TEOM	good/ >6
	ESC DAS	Datalogger 8832	good/ >2
Macon MSA			
Macon - Allied Chemical	Thermo 2025	PM2.5 Sampler	good/ <2
	Thermo 2025	PM2.5 Sampler Co-locate	good/ <2
	Met-One SASS	Speciated PM2.5 Sampler	good/ >8
	URG Sequential Sampler	Speciation Particulate 3000N MOD C	good/ >8
Macon - GA Forestry Commission	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49-103	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >8
	Thermo SO2 Analyzer	43i	good/ >5
	Thermo SO2 Calibrator	146T	good/ >8
	PermaPure Zero Air Supply	ZA-750-12	good/ >8

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Macon - GA Forestry Commission (cont'd)	Thermo 2025	PM2.5 Sampler	good/new
	Graseby PUF Sampler	GPS1-11	good/ >8
	Graseby HIVOL Sampler (metals)	2000H	good/ >8
	Andersen VOC Sampler	97-323	good/ >8
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
Columbus Georgia-Alabama MSA			
Columbus - Health Department	Thermo 2025	PM2.5 Sampler	good/new
Columbus - Airport	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >3
	Thermo 2025	PM2.5 Sampler	good/new
	R&P PM2.5 Sampler	TEOM 1400 A	good/ >5
	R&P	Sample Equil System	good/ >8
Columbus - UPS	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Fort Benning	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Cusseta Elementary	Thermo 2025	PM2.5 Sampler	good/new
	Met-One SASS	Speciation Control Box	good/ >3
	URG Sequential Sampler	Speciation Particulate 3000N MOD C	good/ <2
	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Crime Lab	Sonic Anemometer	81000	good/ >3
	RM Young BP Sensor	Barometric Pressure	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	ESC DAS	Datalogger 8832	good/ >2
Savannah MSA			
Savannah - E. President Street	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146C	good/ >5
	Dayton Zero Air System	2Z866 Ozone	good/ >5
	Brey Zero Air System	50376 TRS and SO2	good/ >5
	GRASEBY/GMW PUF Sampler	GSP1	good/ >5
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >5
	ATEC Carbonyl Sampler	100	good/ >5
	PermaPure Zero Air Supply	ZA-750-12	good/ >5
	Sonic Anemometer	81000	good/ <2
Savannah - Mercer School	Thermo 2025	PM2.5 Sampler	good/new
Savannah - Lathrop & Augusta Ave.	ESC DAS	Datalogger 8832	good/ >3
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146C	good/ >5
	Thermo 2025	PM2.5 Sampler	good/new
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	Sonic Anemometer	81000	good/ <2
Augusta-Richmond County, Georgia-South Carolina MSA			
Evans - Riverside Park	Thermo O3 Analyzer	Thermo 49C	good/ >3
	Thermo O3 Calibrator	Thermo 49C-PS	good/ >3
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
	Tower	Fold Over	good/ >3
	ESC DAS	Datalogger 8832	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ <2
Augusta - Bungalow Road Elem.	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo SO2 Analyzer	43C	good/ >5

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Augusta - Bungalow Road Elem. (cont'd)	Thermo SO2 Calibrator	146C	good/ >5
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	Thermo 2025	PM2.5 Sampler	good/ new
	Partisol PM10 Sampler	Model 2000-H	good/ >5
	Met-One SASS	Speciated PM2.5 Sampler	good/ <3
	URG 3000N	Speciated PM2.5 Sampler	good/ <2
	Sonic Anemometer	81000	good/ >3
	ESC DAS	Datalogger 8832	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	RM Young BP Sensor	Barometric Pressure	good/ >2
Atlanta-Sandy Springs-Marietta MSA			
Forest Park - GA DOT	Thermo 2025	PM2.5 Sampler	good/ <2
Kennesaw - National Guard	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air System	ZA-750-12	good/ >5
	Thermo 2025	PM2.5 Sampler	good/ <2
Newnan - Univ. of West Georgia	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air System	ZA-750-12	good/ >5
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	Sonic Anemometer	81000	good/ >3
Dawsonville - GA Forestry	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air Supply	ZA-750-12	good/ >5
	Andersen PUF Sampler		good/ >5
	Graseby HIVOL Sampler (metals)	2000H	good/ >5
	ATEC VOC Sampler	2200	good/ >5
	ATEC Carbonyl Sampler	100	good/ >5
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
Decatur - South DeKalb	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49I	good/ <3
	Thermo O3 Calibrator	49I-PS	good/ <1
	Thermo Dynamic Gas Calibrator	146C Gas Dilution Calibrator	good/ >5
	Thermo Gas Calibrator	146I Gas Dilution Calibrator	good/ <1
	Thermo NOy Analyzer	42C	good/ >5
	Thermo NOx Analyzer	42C	good/ >5
	Thermo CO Analyzer	48C Trace Level Analyzer	good/ >5
	Thermo SO2 Analyzer	43i-TLE	good/new
	Thermo 2025	PM2.5 Sampler	good/ <2
	Thermo 2025	PM2.5 Sampler Co-locate	good/ <2
	Met-One	BAM 1020 PM10	good/new
	Met-One	BAM 1020 PM2.5	good/new
	Met-One SASS	Speciated PM2.5 Sampler	good/ <3
	URG 3000N	Speciated PM2.5 Sampler	good/ <2
	Thermo Zero Air Supply	111 Ozone	good/ >5
	Perkin Elmer Autosystem XL GC	Gas Chromatograph	good/ >8
	Perkin Elmer Turbomatrix TD	Thermal Desorber	good/ <3
	Perkin Elmer Nelson Interface	NCI 900 Interface	good/ >8
	Parker Balston TOC	Zero Air Gas Generator	good/ >8
	Parker Balston TOC	Zero Air Gas Generator	good/ >8

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Decatur - South DeKalb (cont'd)	Perkin Elmer Clarus 500	Gas Chromatograph	good/ <3
	Perkin Elmer Turbomatrix TD 300	Thermal Desorber	good/ <2
	Magee Scientific	Aethalometer	good/ <5
	ATEC Carbonyl Sampler	Model 8000	good/new
	ATEC Carbonyl Sampler	Model 8000	good/new
	Shawnee Instruments	PM10 Sampler	good/ >5
	Shawnee Instruments	PM10 Sampler Co-locate	good/ >5
	PUF	Semi-VOCs Sampler	good/ >3
	PUF	Semi-VOCs Sampler Co-locate	good/ >3
	ATEC 2200	VOCs Sampler	good/ >5
	ATEC 2200	VOCs Sampler Co-locate	good/ >5
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young BP Sensor	Barometric Pressure	good/ >2
Decatur - DMRC	Graseby HIVOL Sampler (metals)	2000H	fair/ >8
	Graseby HIVOL Sampler (metals)	2000H Co-locate	fair/ >8
	TAPI T200UP	NOx	good/ >1
	ATEC 2200	VOC Sampler	fair/ >5
Douglasville - W. Strickland Street	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	RM Young Wind Instrument	05605VM	good/ >2
	ESC DAS	Datalogger 8832	good/ >2
Atlanta - Fire Station #8	Thermo 2025	PM2.5 Sampler	good/<2
	Partisol PM10 Sampler	Model 2000-H	good/ <2
Atlanta - Confederate Avenue	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49I	good/ <1
	Thermo O3 Calibrator	49I-PS	good/ <1
	Thermo SO2 Analyzer	43C	good/ >3
	Thermo SO2 Calibrator	146I	good/ <1
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >3
	RM Young Wind Instrument	05305vm (AQ)	good/ >2
Atlanta- GA Tech Near-road	ESC DAS	Datalogger 8832	good/ >2
	Thermo NO2 Analyzer	42I	good/new
	Thermo CO Analyzer	48C	good/ >5
	Thermo 2025	PM2.5 Sampler	fair/ >5
Lawrenceville - Gwinnett Tech.	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Gast Zero Air System	4Z024 pump and cannisters	good/ >8
	Thermo 2025	PM2.5 Sampler	good/ <2
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
McDonough - County Extension	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air System	ZA-750-12	good/ >5
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
Yorkville - King Farm	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo NOx Analyzer	42C	good/ >5
	Thermo CO Analyzer	48C	good/ >5
	Thermo Dynamic Gas Calibrator	146C Gas Dilution Calibrator	good/ >5
	Thermo 2025	PM2.5 Sampler	good/ <3
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Yorkville - King Farm (cont'd)	Graseby PUF Sampler	BMPS1-11	good/ >15
	General Metal Hi-Volume	HIVOL Sampler 2000H	good/ >15
	ATEC VOCs Sampler	2200	good/ >5
	Tekran Vapor Analyzer	2537A Mercury Vapor Analyzer	poor/ >15
	Perkin Elmer Autosystem XL GC	Gas Chromatograph	good/ >15
	Perkin Elmer Turbomatrix TD	Thermal Desorber	good/ >15
	Perkin Elmer Nelson Interface	NCI 900 Interface	good/ >8
	Parker Balston TOC	Zero Air Gas Generator	good/ >8
	Tylan RO-32	Flow Regulator	good/ >15
	RM Young Wind Instrument	05305VM (AQ)	good/ >8
	PSP	Solar Radiation Instrument	good/ >5
	TUVR	Ultraviolet Radiation Instrument	good/ >8
	ESC DAS	Datalogger 8832	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	RM Young BP Sensor	Barometric Pressure	good/ >2
Conyers - Monastery	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo NOx Analyzer	42C	good/ >5
	Thermo NOx Calibrator	146C	good/ >5
	Thermo Zero Air Supply	111 Ozone	good/ >5
	Perkin Elmer Autosystem XL GC	Gas Chromatograph	good/ >8
	Perkin Elmer Turbomatrix TD	Thermal Desorber	good/ >4
	Perkin Elmer Nelson Interface	NCI 900 Interface	good/ >5
	Parker Balston TOC	Zero Air Gas Generator	good/ >10
	RM Young Wind Instrument	05305vm (AQ)	good/ <2
	PSP	Solar Radiation Instrument	good/ >5
	TUVR	Ultraviolet Radiation Instrument	good/ >5
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	RM Young BP Sensor	Barometric Pressure	good/ >2
Chattanooga Tennessee-Georgia MSA			
Rossville - Maple Street	ESC DAS	Datalogger 8832	good/ >2
	Thermo 2025	PM2.5 Sampler	good/new
	Met-One SASS	Speciated PM2.5 Sampler	good/ <2
	URG 3000N	Speciated PM2.5 Sampler	good/ <2
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ <2
Sites Not in an MSA			
Summerville - DNR Fish Hatchery	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
Douglas - General Coffee SP	Met-One SASS	Speciated PM2.5 Sampler	good/ <2
	URG 3000N	Speciated PM2.5 Sampler	good/ <2
	Andersen PUF Sampler		good/ >5
	Graseby HIVOL Sampler (metals)	2000H	good/ >8
	ATEC VOC Sampler	2200	good/ >3
Leslie - Union High School	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >8
	PermaPure Zero Air Supply	ZA-750-12	good/ >8
Sandersville - Health Department	Thermo 2025	PM2.5 Sampler	good/ >5
Gordon - Police Department	Thermo 2025	PM2.5 Sampler	good/new

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Georgia EPD Air Branch			
Quality Assurance Unit	TriCal (2)	Flow Standard	good/ >3
Quality Assurance Unit (cont'd)	General Metal Works	Hi-Volume Orifice	good/ >3
	Graseby GMW	PUF Orifice	good/ >3
	DC-Lite DCL-H	Flow Standard	good/ >3
	DC-Lite DCL-L	Flow Standard	good/ >3
	DC-2	DryCal Flow Standard Base	good/ >3
	DC-HC-1	DryCal High Flow Cell	good/ >3
	DC--LC-1	DryCal Low Flow Cell	good/ >3
	DC-MC-1	DryCal Medium Flow Cell	good/ >3
	49PS	Ozone Standard	good/ >3
	DeltaCal	Flow Standard	good/ >3
	Gilibrator Flow Cell (6)	Flow Standard	good/ >3
	VRC	Variable HiVol orifice	good/ >3
	Thermo 146I (2)	Multi-gas Calibrator	good/ >3
	Thermo 146T	Multi-gas Calibrator	good/ >3
	Thermo 49PS	Ozone Standard	good/ >3
	DeltaCal	Flow Standard	good/ >3
Meteorology Unit Workshop	RM Young Wind Instrument (14)	05305vm (AQ)	good/ >7
	RM Young Wind Instrument (8)	05103 coastal	good/ >8
	Sonic Anemometer (2)	81000	good/ <2
	Sonic Anemometer (4)	85000	good/ <5
	PSP (4)	Solar Radiation Instrument	good/ >8
	PSP	Solar Radiation Instrument	poor/ <2
	TUVR (3)	Ultraviolet Radiation Instrument	good/ >8
	TUVR (2)	Ultraviolet Radiation Instrument	good/ >3
	TUVR	Ultraviolet Radiation Instrument	good/ <2
Warehouse/Storage	HIVOL Sampler (9)	Metals Sampler	Varies
	PUF (9)	Semi-VOCs Sampler	Varies
	VOCs (9)	VOCs Sampler	Varies
	PM10 Sampler (12)	PM10	Varies
	ATEC Carbonyl Sampler	100	good/ >3
	ESC DAS (11)	Datalogger 8816	good/ >5
	Gast Zero Air System	M1006X	good/ >8
	Met-One BAM 1020 Monitor	Continuous PM10 Sampler	good/ <3
	R&P PM2.5 Sampler (2)	TEOM 1400 A Series Continuous	good/ >5
	Thermo 2025 (6)	PM2.5 Sampler	Varies
	Thermo NOx/NOy Analyzer (3)	42C	good/ >5
	Thermo NOy Calibrator (2)	146C	good/ >4
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo SO2 Analyzer (2)	43C	good/ >4
	Thermo SO2 Calibrator	146I	good/ <2
	Thermo SO2 Calibrator	146	good/ >5
	Thermo SO2/NOx Calibrator	146I	good/ <1
	Thermo Zero Air Supply (2)	111 Ozone	good/ >5
	Thermo Zero Air System	111 Ozone	good/ >5

Appendix C:
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-Fair St Elem	Air Toxics	10/31/08	2011
131530001	Warner Robins-AFB	Air Toxics	10/31/08	2011
131850003	Valdosta-Mason Elem	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-GA Forestry	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-Risley Middle	Total Reduced Sulfur	10/31/08	2013
131210048	Georgia Tech	$PM_{2.5}$	12/1/08	2008
131150005	Rome-Coosa High School	$PM_{2.5}$, 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 –Riverside Park	NO_y	7/28/2008	2012
130210013	Macon-Lake Tobesofkee	NO_y, O_3	10/31/2008	2012
131270006	Brunswick-Risley Middle	SO_2	12/31/12	2012
132150008	Columbus -Airport	SO_2	12/31/12	2012
130510017	Savannah-Market St.	$PM_{2.5}$	12/31/12	2012
132450005	Augusta-Medical College	$PM_{2.5}$	12/31/12	2012
131210032	Atlanta-E. Rivers School	$PM_{2.5}$, PM_{10}	12/31/12	2012
130892001	Doraville Health Center	$PM_{2.5}$	12/31/12	2012
130670004	Powder Springs-Macland	$PM_{2.5}$	12/31/12	2012

	Aquatic Ctr.			
130210007	Macon-Allied Chemical	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-Turner Elementary	PM_{10}	12/31/12	2012
131150003	Rome-Coosa Elementary	PM_{10}	12/31/12	2012
131210048	Atlanta-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-Health Dept	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	Decatur-South DeKalb	Hexavalent chromium	7/15/13	2013
132470001	Conyers-Monastery	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

Appendix D:
Comments

Georgia Department of Natural Resources
Environmental Protection Division

After posting the 2015 Ambient Air Monitoring Plan, no public comments were submitted. However, a few items were found or updated that need to be addressed. The required changes are as follows:

1. The General Coffee (13-069-0002) $PM_{2.5}$ speciation sampler had been recommended for shut down by EPA. However, GA EPD chose to continue collecting $PM_{2.5}$ speciation data and began funding the operation of this sampler as of January 1, 2015. This statement was added to Section 1.7 of the document.
2. After posting the 2015 Ambient Air Monitoring Plan, GA EPD received notification that EPA had preliminarily approved the relocation of the monitors (SO_2, $PM_{2.5}$ FRM, $PM_{2.5}$ continuous, and $PM_{2.5}$ speciation) at the Rome-Coosa site (13-115-0003). At this time, GA EPD is awaiting approval of the school board before relocation will take place. This comment was added to Section 1.7 and Appendix A of the document.
3. In addition, regarding the Rome-Coosa site (13-115-0003), GA EPD had planned to begin sampling continuous $PM_{2.5}$ data with the TEOM in May 2015. However, the plan has changed to begin sampling by the end of summer 2015. This was changed in Section 1.7, Section 2.1.d, and Appendix A.
4. A typographical error was found in Table 2 on page 13, and the correction was made.