

# **Georgia Department of Natural Resources**

**Environmental Protection Division • Air Protection Branch  
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To: Susan Zimmer-Dauphinee, Ambient Monitoring Program Manager  
From: Janet Aldredge-Byars, Data Analysis Unit Manager

After posting the 2010 Ambient Air Monitoring Plan, a few changes were found that need to be addressed. The required changes are as follows:

1. In Section 1.7, there is a statement about the Meteorological equipment at the Evans site (13-073-0001) restarting as of 'May 1, 2010'. The data will begin insertion into AQS as of 'May 8, 2010'.
2. In Section 2.3 Ozone, the analysis method is stated as 'non-dispersive infrared analysis and gas filter correlation techniques'. It should be 'ultraviolet photometric'.
3. In Section 2.8 VOCs, the laboratory analysis method for 24-hour PAMS canister is stated as 'GC/MS'. It should be 'GC/FID'.
4. In Appendix B, the Gainesville site should have a continuous PM<sub>2.5</sub> monitor (BAM 1020) listed.
5. In Appendix B, there should be a listing for the Valdosta site that includes the PM<sub>2.5</sub> FRM sampler, continuous PM<sub>2.5</sub> monitor (BAM 1020), Graseby PUF sampler, Andersen Hi-VOL sampler, and ATEC VOCs sampler.
6. In Appendix C, Section 9.0, the shelter temperature is listed as 30-40°C. This should be 20-30°C.

Aside from EPD personnel comments, there were no other comments received.



GEORGIA DEPARTMENT OF NATURAL RESOURCES

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## **ENVIRONMENTAL PROTECTION DIVISION**

Air Protection Branch

Ambient Monitoring Program

### **2010 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
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
$\mu\text{g}/\text{m}^3$	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
$\text{NO}_2$	Nitrogen Dioxide
$\text{NO}_x$	Oxides of Nitrogen
$\text{NO}_y$	Reactive oxides of Nitrogen
NWS	National Weather Service
ODC	Ozone depleting Chemicals
$\text{O}_3$	Ozone
PAH	Polycyclic Aromatic Hydrocarbons
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
$\text{PM}_{2.5}$	Particles with an aerodynamic diameter of 2.5 microns or less
$\text{PM}_{10}$	Particles with an aerodynamic diameter of 10 microns or less
$\text{PM}_{10-2.5}$	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
$\text{SO}_2$	Sulfur Dioxide

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SPMS	Special Purpose Monitoring Site
TEOM	Tapered Element Oscillating Microbalance
TNMOC	Total Non-Methane Organic Compounds
TRS	Total Reduced Sulfur
UV	Ultraviolet
VOC	Volatile Organic Compound
w/m <sup>2</sup>	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:

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#### Regarding the meteorology monitoring program:

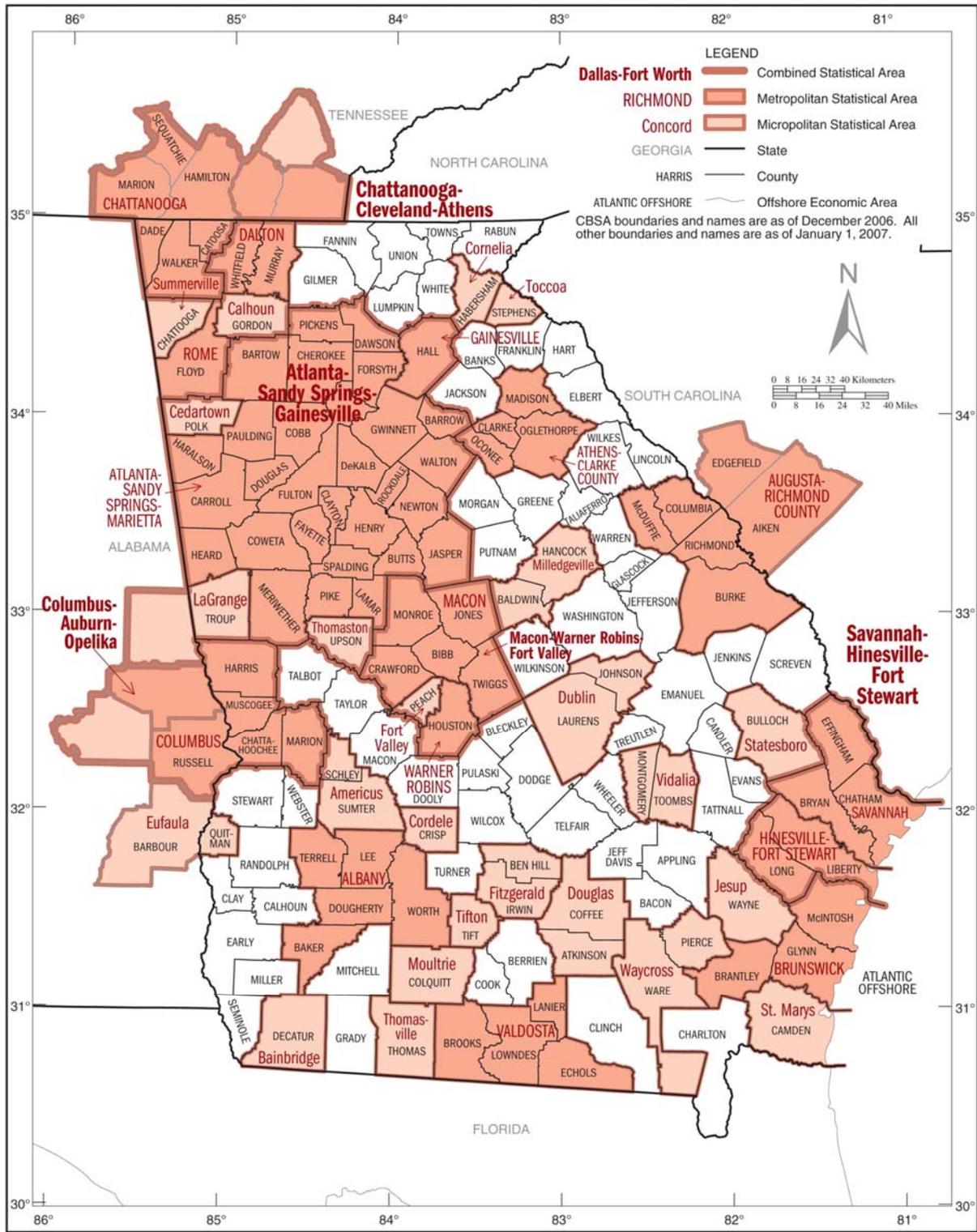
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## 1.0 Introduction

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 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 classify each monitoring station. Second, the plan serves as a directory of existing State and Local Air Monitoring Stations (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 60 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 Appendix A. The site information also includes the statistical area represented by each site, which was derived from the following map (Figure 1).

**GEORGIA - Core Based Statistical Areas and Counties**



**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. 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. The Appendix A includes the comprehensive list of sites with their detailed information. The Appendix B includes an inventory of the current ambient monitoring equipment. The Appendix C gives a detailed description of Georgia's NCore site.

## 1.1 Mandate

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

**40 CFR § 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 PM<sub>2.5</sub> 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 PM<sub>2.5</sub> monitoring network that impact the location of a violating PM<sub>2.5</sub> 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 PM<sub>2.5</sub> 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 PM<sub>2.5</sub>, 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 and GAEPDAPB (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM<sub>10</sub>), particles of an aerodynamic diameter of 2.5 micrometers and less (PM<sub>2.5</sub>), 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 November 8, 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 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).”

#### **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 Plan (QAPP) and Quality Monitoring Plan (QMP). The QMP was last submitted March 16, 2010. The criteria network QAPP was submitted January 2007. The PM<sub>2.5</sub> network QAPP was submitted June 2008. The National Air Toxics Trends Station (NATTS) QAPP was approved March 2007. The VOC QAPP for Photochemical Assessment Monitoring Stations (PAMS) was submitted February 2010.

#### **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. Georgia EPD’s Public Affairs Unit handles this notice and comment process in the same way that other required notice and comment processes are handled (such as for the review of a major source’s Title V permit to discharge air pollutants). Any public comments submitted in response to this document’s notice and comment process will be submitted to EPA along with the final document.

#### **1.7 Changes to Previous Ambient Air Monitoring Plan**

Since the publication of the 2009 Ambient Air Monitoring Plan, there have been some changes to the State’s ambient air monitoring network that should be noted.

GA EPD has been in the process of replacing all of the PM<sub>2.5</sub> FRM monitors from the Andersen RAAS 300 and 100 samplers to the Thermo 2025 model. GA EPD plans to replace all of these PM<sub>2.5</sub> monitors by the end of 2010.

As of August 5, 2009, the criteria lead samplers at DMRC (13-089-0003) and Columbus-Cusseta Elementary School (13-215-0011) began to have samples analyzed with inductively coupled plasma mass spectroscopy (ICP/MS) and reported every six days instead of a monthly composite sample. In addition, the DMRC collocated lead data is being reported as of August 5, 2009.

The ozone sampler at the South DeKalb site (13-089-0002) began year-round continuous sampling. Previously, the ozone season for this monitor had been March 1 through October 31. To accommodate NCore requirements at this site, as of November 1, 2009 this monitor is sampling ozone all year.

The meteorological equipment at the Evans site (13-073-0001) had temporarily discontinued operation on October 28, 2008. As of May 8, 2010, this equipment is collecting data.

To meet the new PM<sub>2.5</sub> monitoring and collocation regulations, GA EPD has analyzed the current network and come up with plans to make the following implementations when the PM<sub>2.5</sub> BAM sampler satisfies the FEM requirements:

- Rome-Coosa Elementary (13-115-0003) will have FEM collocated with FRM (in place)
- Macon-Allied Chemical (13-021-0007) will have FRM collocated with FRM (in place)
- Savannah-Market Street (13-051-0017) will have FRM collocated with FRM (in place)
- Augusta-Medical College (13-245-0005) will have FRM collocated with FRM (in place)
- Doraville-Police Department (13-089-2001) will have FEM collocated with FEM
- Atlanta-E. Rivers School (13-121-0032) will have FEM collocated with FRM
- Forest Park (13-063-0091) will have FRM collocated with FRM

As of the publication of this document, the PM<sub>2.5</sub> BAM samplers are not being run as FEMs. GA EPD is continuing investigation as described above. GA EPD will continue to run as non-FEM samplers until investigation is complete.

The Albany PM<sub>2.5</sub> FRM sampler began operating on a daily schedule as of September 1, 2009.

GA EPD is evaluating the continuation of the SO<sub>2</sub> monitors at the Macon-GA Forestry Commission site (13-021-0012), the Savannah-E. President Street site (13-051-0021), the Columbus-Airport site (13-215-0008), the Atlanta-Confederate Avenue site (13-121-0055), and the Atlanta-Georgia Tech site (13-121-0048). Due to proposed changes to the SO<sub>2</sub> air monitoring rule, GA EPD is re-evaluating the SO<sub>2</sub> network. These SO<sub>2</sub> monitors will be left in place until evaluation has been completed.

## **1.8 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.

## **1.9 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. The parameters highlighted in red are temporarily discontinued.

SITE ID	COMMON NAME	COUNTY	O <sub>3</sub>	CO	PM <sub>2.5</sub> FRM	PM <sub>2.5</sub> Cont.	PM <sub>2.5</sub> Spec.	PM Coarse	NO/ NOx	NO <sub>2</sub>	NOy	SO <sub>2</sub>	TRS	Pb	PM <sub>10</sub>	PM <sub>10</sub> Cont.	Acid Rain	PAMS VOC	VOC	SVOC	Carb- onyls	Meteo- rology	Aethal- ometer	Cr6	Metals	
<b>Rome MSA</b>																										
131150003	Coosa Elementary	Floyd			S	S	X					S			S											
131150004	Co. Health Dept.	Floyd																	NR	NR						NR
<b>Brunswick MSA</b>																										
131270004	Arco Pump Station	Glynn													S											
131270006	Risley Middle	Glynn	S		S							S	M									NR				
131273001	Brunswick College	Glynn																	NR	NR	NR					NR
<b>Valdosta MSA</b>																										
131850003	Mason Elem.	Lowndes			S	S													NR	NR						NR
<b>Warner Robins MSA</b>																										
131530001	Robins Air Base	Houston			S	S													NR	NR						NR
<b>Dalton MSA</b>																										
132130003	Fort Mountain	Murray	S																			NR				
<b>Albany MSA</b>																										
130950007	Turner Elem.	Dougherty			S	S									S											
<b>Gainesville MSA</b>																										
131390003	Fair St. Elementary	Hall			S	S													NR	NR						NR
<b>Athens-Clark County MSA</b>																										
130590002	College Station Rd.	Clarke	S		S	S	X																			
<b>Macon MSA</b>																										
130210007	Allied Chemical	Bibb			S		X								S											
130210012	Forestry	Bibb	S		S	S						S							NR	NR		NR				NR
130210013	Lake Tobesofkee	Bibb	S								S											NR				
<b>Columbus Georgia- Alabama MSA</b>																										
132150001	Health Dept.	Muscogee			S																					
132150008	Airport	Muscogee	S		S	S						S														
132150011	Cusseta Elementary	Muscogee			S		X							S	S											
132151003	Crime Lab	Muscogee																				NR				
132155000	Columbus State	Muscogee																	NR	NR						NR
<b>Savannah MSA</b>																										
130510014	Shuman Middle School	Chatham													S											
130510017	Market St.	Chatham			S																					
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				
<b>Augusta-Richmond County, Georgia-South Carolina MSA</b>																										
130730001	Riverside Park	Columbia	S								S											NR				
131890001	Fish Hatchery	McDuffie																G								
132450005	Med. College GA	Richmond			S																					
132450091	Bungalow Rd.	Richmond	S		S	S	X								S							NR				
132450092	Clara Jenkins School	Richmond																		NR	NR					NR

SITE ID	COMMON NAME	COUNTY	O <sub>3</sub>	CO	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM <sub>2.5</sub>	PM	NO/							PM <sub>10</sub>	Acid	PAMS			Carb-	Meteo-	Aethal-				
					FRM	Cont.	Spec.	Coarse	NOx	NO <sub>2</sub>	NOy	SO <sub>2</sub>	TRS	Pb	PM <sub>10</sub>	Cont.	Rain	VOC	VOC	SVOC	onyls	rology	ometer	Cr6	Metals		
<b>Atlanta-Sandy Springs-Marietta MSA</b>																											
130150003	Cartersville	Bartow													S												
130630091	Georgia DOT	Clayton				S																					
130670003	National Guard	Cobb	S			S																					
130670004	Macland Aquatic Center	Cobb				S																					
130770002	Univ. of West GA	Coweta	S				S																				
130850001	GA Forestry	Dawson	S														G			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*						P	N	N	P/N	P/C	N	N	N		
130890003	DMRC	DeKalb												S													
130892001	Police Dept.	DeKalb				S									S												
130893001	Tucker	DeKalb																								NR	
130970004	W. Strickland St.	Douglas	S																							NR	
131130001	Georgia DOT	Fayette	S																							NR	
131210020	Utoy Creek	Fulton																								NR	
131210032	E. Rivers School	Fulton				S									S												
131210039	Fire Station #8	Fulton				S																					
131210048	Georgia Tech	Fulton							S	S						S										NR	
131210055	Confederate Ave.	Fulton	S			S						S														NR	
131210099	Roswell Road	Fulton		S																							
131350002	Gwinnett Tech	Gwinnett	S			S	S																				
131510002	County Extension	Henry	S				S																				
132230003	Yorkville	Paulding	S/P	S/P	S	S			S/P	S/P								P	NR	NR		P				NR	
132470001	Monastery	Rockdale	S/P						S/P	S/P								P				P					
132970001	Fish Hatchery	Walton																									
<b>Chattanooga Tennessee-Georgia MSA</b>																											
132950002	Co. Health Dept.	Walker				S	S	X																			
<b>Not In An MSA</b>																											
130090001	Baldwin Co. Airport	Baldwin																									NR
130550001	Fish Hatchery	Chattooga	S												S			G									NR
130690002	General Coffee State Park	Coffee						X																			NR
132410002	Lake Burton	Rabun																									
132611001	Union High	Sumter	S																								
133030001	Co. Health Dept.	Washington				S									S												
133190001	Police Dept.	Wilkinson				S																					

Monitoring Types: S=SLAMS; P=PAMS; C=NCore; M=SPM; X=Supplemental Speciation; T=STN; N=NATTS; NR=Non-Regulatory; G=General Information  
 \*to be installed by January 1, 2011

**Samplers in red are temporarily not operational**

**Table 1: 2010 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<sub>10</sub>, PM<sub>2.5</sub>, and PM<sub>coarse</sub> (10-2.5). PM<sub>10</sub> is particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (µm) as measured according to EPA regulations 40 CFR 50, Appendix J (United States Environmental Protection Agency [US EPA] 1993, P. 769-773). The U.S. EPA defines PM<sub>2.5</sub> 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<sub>2.5</sub>). PM<sub>10-2.5</sub> is also called PM<sub>coarse</sub>. The PM<sub>coarse</sub> 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  $\mu\text{m}$  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<sub>10</sub>) Integrated**

At sites where Particulate Matter (PM<sub>10</sub>) is monitored on an integrated basis, Georgia EPD uses EPA-approved reference or equivalent methods. The samplers collect particulate matter on a pre-weighed filter for 24 hours. The filter is returned to the state laboratory for gravimetric analysis after the sample is collected. The sampling frequency varies by site. 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<sub>10</sub>) Continuous**

At sites where Particulate Matter (PM<sub>10</sub>) is monitored on a continuous basis, Georgia EPD uses an EPA-approved equivalent method. Particulate matter is collected on a filter tape for 50 minutes each hour. The pre-exposure and post-exposure filter mass is determined by beta attenuation during the remaining 10 minutes. 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<sub>2.5</sub>) Integrated**

At sites where Particulate Matter (PM<sub>2.5</sub>) is monitored on an integrated basis, Georgia EPD is currently using Andersen/Graseby RAAS-series equipment. Some sites use the single-filter style sampler (RAAS2.5-100 PM2.5 Ambient Air Sampler, EPA Manual Reference Method: RFPS-0598-119 [Federal Register: Vol. 63, page 31991, 06/11/98]). Sites with higher sampling frequency typically use the sequential-filter sampler (RAAS2.5-300 PM2.5 Sequential Ambient Air Sampler, EPA Manual Reference Method: RFPS-0598-120 [ibid.]). When new integrated PM<sub>2.5</sub> samplers are placed on site, the samplers will be Thermo Electron Corporation owned Rupprecht & Patashnick Company, Incorporated Partisol-Plus Model 2025 PM2.5 Sequential Air Samplers, EPA Manual Reference Method: RFPS-0498-118 (Federal Register: Vol. 63, page 18911, 04/16/98). Because these instruments use the Federal Reference Method, their data is appropriate for use for making attainment decisions relative to the PM<sub>2.5</sub> NAAQS.

The analyzers collect particulate matter on a pre-weighed filter for 24 hours. The filter is returned to the state laboratory for gravimetric analysis after the sample is collected. The filter handling procedures required for gravimetric analysis in this case require several weeks, so the data is not available promptly after the samples are collected. The sampling frequency for integrated PM<sub>2.5</sub> sampling varies by site, based on EPA rules, and is listed with each individual site's information in Appendix A and in Table 2 below. On a semi-annual basis, EPD's Quality Assurance Unit audits these PM<sub>2.5</sub> analyzers.

#### **d. Fine Particulate Matter (PM<sub>2.5</sub>) Continuous**

At sites where PM<sub>2.5</sub> is monitored on a continuous basis, Georgia EPD uses two types of instruments. One type is the MetOne BAM-1020, adapted from PM<sub>10</sub> service to PM<sub>2.5</sub> service by use of an inline BGI “Sharp Cut Cyclone”. The sampling method for the BAM type of continuous PM<sub>2.5</sub> 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. At the other locations where Georgia EPD samples PM<sub>2.5</sub> on a continuous basis, GA EPD uses the Rupprecht & Patashnick TEOM Series 1400/1400a monitors, using an inline PM<sub>2.5</sub> 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. Because these analyzers (TEOM) are not approved as reference or equivalent method, the data collected from these samplers cannot be used for making attainment decisions relative to the NAAQS. Both types of samplers are used to support development of air quality models and forecasts, 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<sub>2.5</sub>) Speciation**

There are two types of speciation samplers used in the state of Georgia. One is the MetOne SASS, and the other is the URG 3000N. 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 (microweighing); 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 Research Triangle Institute RTP, North Carolina for analysis. The sampling frequency varies by site and is detailed in Table 2 below. On a quarterly basis, EPD’s Quality Assurance Unit subjects these samplers to audits.

#### **f. Coarse Particulate Matter (PM<sub>10-2.5</sub>)**

As part of the NCore requirements (discussed in Section 3.1 and Appendix C), the South DeKalb site will begin PMcoarse sampling as of January 1, 2011. GA EPD will use the ‘Met One Instruments BAM-1020 PM<sub>10-2.5</sub> Measurement System Automated Equivalent Method: EQPM-0709-185 consisting of 2 BAM-1020 monitors, the first of which (PM<sub>2.5</sub> measurement) is configured as a PM<sub>2.5</sub> FEM (EQPM-0308-170). The second BAM-1020 monitor (PM<sub>10</sub> measurement) is configurable as a PM<sub>2.5</sub> FEM (EQPM-0308-170), but set to monitor PM<sub>10</sub>. The BAM-1020 monitors are collocated to within 1-4 meters of one another. The BAM-1020 performing the PM<sub>2.5</sub> 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 PM<sub>10-2.5</sub> 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<sub>2.5</sub> samplers is detailed in Table 2 below, as well as listed in the attached Appendix A for clarity.

Site ID	Common Name	City	County	Integrated	Continuous	Speciation
<b>Rome MSA</b>						
131150003	Coosa Elementary	Rome	Floyd	PM <sub>2.5</sub> (Daily)	BAM PM <sub>2.5</sub>	6 Day
<b>Brunswick MSA</b>						
131270006	Risley Middle	Brunswick	Glynn	PM <sub>2.5</sub> (3 Day)		
<b>Valdosta MSA</b>						
131850003	Mason Elem.	Valdosta	Lowndes	PM <sub>2.5</sub> (3 Day)	BAM PM <sub>2.5</sub>	
<b>Warner Robins MSA</b>						
131530001	Robins Air Base	Warner Robins	Houston	PM <sub>2.5</sub> (3 Day)	BAM PM <sub>2.5</sub>	
<b>Albany MSA</b>						
130950007	Turner Elem.	Albany	Dougherty	PM <sub>2.5</sub> (Daily)	BAM PM <sub>2.5</sub>	
<b>Gainesville MSA</b>						
131390003	Fair St. Elementary	Gainesville	Hall	PM <sub>2.5</sub> (3 Day)	BAM PM <sub>2.5</sub>	
<b>Athens-Clark County MSA</b>						
130590002	College Station Rd.	Athens	Clarke	PM <sub>2.5</sub> (3 Day)	TEOM PM <sub>2.5</sub>	6 Day
<b>Macon</b>						
130210007	Allied Chemical	Macon	Bibb	2 PM <sub>2.5</sub> (Daily, 12 Day)		6 Day
130210012	Forestry	Macon	Bibb	PM <sub>2.5</sub> (3 Day)	TEOM PM <sub>2.5</sub>	
<b>Columbus Georgia- Alabama MSA</b>						
132150001	Health Dept.	Columbus	Muscogee	PM <sub>2.5</sub> (3 Day)		
132150008	Airport	Columbus	Muscogee	PM <sub>2.5</sub> (6 Day)	TEOM PM <sub>2.5</sub>	
132150011	Cusseta Elementary	Columbus	Muscogee	PM <sub>2.5</sub> (3 Day)		6 Day
<b>Savannah MSA</b>						
130510017	Market St.	Savannah	Chatham	2 PM <sub>2.5</sub> (3 Day, 12 Day)		
130510091	Mercer Middle	Savannah	Chatham	PM <sub>2.5</sub> (3 Day)		
130511002	W. Lathrop & Augusta Ave.	Savannah	Chatham		TEOM PM <sub>2.5</sub>	
<b>Augusta Georgia-South Carolina MSA</b>						
132450005	Med. College GA	Augusta	Richmond	2 PM <sub>2.5</sub> (3 Day, 12 Day)		
132450091	Bungalow Rd.	Augusta	Richmond	PM <sub>2.5</sub> (3 Day)	TEOM PM <sub>2.5</sub>	6 Day
<b>Atlanta MSA</b>						
130630091	Georgia DOT	Forest Park	Clayton	PM <sub>2.5</sub> (3 Day)		
130670003	National Guard	Kennesaw	Cobb	PM <sub>2.5</sub> (Daily)		
130670004	Macland Aquatic Center	Powder Springs	Cobb	PM <sub>2.5</sub> (3 Day)		
130770002	Univ. of West GA	Newnan	Coweta		TEOM PM <sub>2.5</sub>	
130890002	South DeKalb	Decatur	DeKalb	2 PM <sub>2.5</sub> (Daily, 12 Day)	TEOM PM <sub>2.5</sub>	3 Day
130892001	Police Dept.	Doraville	DeKalb	PM <sub>2.5</sub> (Daily)		
131210032	E. Rivers School	Atlanta	Fulton	2 PM <sub>2.5</sub> (Daily, 12 Day)		
131210039	Fire Station #8	Atlanta	Fulton	PM <sub>2.5</sub> (3 Day)		
131210055	Confederate Ave.	Atlanta	Fulton		TEOM PM <sub>2.5</sub>	
131350002	Gwinnett Tech	Lawrenceville	Gwinnett	PM <sub>2.5</sub> (3 Day)	TEOM PM <sub>2.5</sub>	
131510002	County Extension	McDonough	Henry		TEOM PM <sub>2.5</sub>	
132230003	Yorkville	Yorkville	Paulding	PM <sub>2.5</sub> (3 Day)	TEOM PM <sub>2.5</sub>	
132970001	Fish Hatchery	Social Circle	Walton		TEOM PM <sub>2.5</sub>	
<b>Chattanooga Tennessee-Georgia MSA</b>						
132950002	Co. Health Dept.	Rossville	Walker	PM <sub>2.5</sub> (3 Day)	BAM PM <sub>2.5</sub>	6 Day
<b>Not In An MSA</b>						
130690002	General Coffee State Park	Douglas	Coffee			6 Day
133030001	Co. Health Dept.	Sandersville	Washington	PM <sub>2.5</sub> (3 Day)		
133190001	Police Dept.	Gordon	Wilkinson	PM <sub>2.5</sub> (3 Day)		

**Sampler in red temporarily not operational**

**Table 2: PM<sub>2.5</sub> 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 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/m<sup>3</sup>) 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 continuously measure the concentration of CO in ambient air using the non-dispersive infrared analysis and gas filter correlation techniques. 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<sub>3</sub>)

Ozone (O<sub>3</sub>) 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 and high temperatures. 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 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.

Ozone ( $O_3$ ) is monitored using EPA-approved reference or equivalent methods. These analyzers continuously measure the concentration of  $O_3$  in ambient air using the ultraviolet photometric method. According to 40 CFR Part 58, the State of Georgia operates ozone monitors each year from March 1<sup>st</sup> through October 31<sup>st</sup>. In preparation for ozone NCore (National Core Monitoring Network) requirements, also according to 40 CFR Part 58, GA EPD started sampling ozone year round at the South DeKalb site starting November 1, 2009. This was a continuation from the March 1<sup>st</sup> to October 31<sup>st</sup>, 2009 sampling season. 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.

## 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 ( $SO_2$ ) is monitored using EPA-approved reference or equivalent methods. These analyzers continuously measure the concentration of  $SO_2$  in ambient air using a pulsed UV fluorescence technique. At one Brunswick location, a variation of this instrument is configured to monitor for total reduced sulfur (TRS), which monitors for other sulfur-bearing compounds such as hydrogen sulfide. The TRS sampler was temporarily discontinued as of October 31, 2008. 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 (NO)

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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub>, 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<sub>2</sub> can react with moisture in the air to produce nitric acid, which corrodes metal surfaces and contributes to acid rain. High concentrations of NO<sub>2</sub> may reduce visibility.

Nitrogen dioxide (NO<sub>2</sub>) is monitored using EPA-approved reference or methods. These analyzers continuously measure the concentration of oxides of nitrogen in ambient air using the ozone-phase chemiluminescence technique. 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.

At sites where criteria lead is monitored, samples are collected on 8" X 10" pre-weighed fiberglass filters with a High-Volume sampler for 24 hours. The sample filters are shipped to the state laboratory for analysis using inductively coupled plasma mass spectroscopy. On a semi-annual basis, EPD's Quality Assurance Unit audits these samplers.

## **2.7 Acid Rain**

Acid ions are produced when sulfur dioxide and nitrogen dioxide reach equilibrium with water to form sulfuric acid and nitric acid. Acid rain is produced when nitrate and sulfate ions from

automobile and industrial sources are released into the atmosphere, undergo a reaction with moisture in the air, and are deposited as acid precipitation.

Many agricultural crops are sensitive to acid rain. Soil is subject to mineral loss from acid rain exposure, and vegetation may also suffer root damage. Acid fogs and mists, typical in the mountains can expose trees and plants to even higher acid concentrations and cause direct damage to foliage. Lakes, rivers, and streams that are too acidic can impede fish and plant growth. In extreme cases, acid rain has caused surface waters to become sterile, and has destroyed manmade surfaces such as painted surfaces on vehicles.

The Acid Rain sampler collects all falling precipitation, yet prevents the sample from evaporating between precipitation events. Once a week, the precipitation sample is removed and sent to the state laboratory for analysis. These samples are analyzed for pH, conductivity, and gravimetry. The Acid Rain samplers were temporarily discontinued as of October 31, 2008.

## **2.8 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 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.

## **2.9 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 department annually.

## 2.10 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 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 a gas chromatograph with an Electron Capture Detector (ECD). The Air Toxics Semi-VOCs are subjected to quarterly checks and are audited by EPD's Quality Assurance Unit on an annual basis.

## 2.11 Aethalometer

The aethalometer is a continuous sampler used for sampling black carbon. Black carbon is 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.

## 2.12 Hexavalent Chromium (Cr<sup>+6</sup>)

Hexavalent chromium (chromium in its +6 oxidation state) in the environment is almost always related to human activity. The presence of chromium compounds is common at hazardous waste sites. From locations such as these, exposure of populations residing or working nearby can occur through exposure to air containing particulates or mists of chromium compounds. These particles can also find their way into drinking water if soluble forms of chromium leach into groundwater. Human exposure can also occur through skin contact with soil at hazardous waste sites.

The hexavalent chromium sampler used for sampling Cr+6 is a timed sampler. Samples are collected at a flow rate of 15 liters of air per minute using a 37 mm diameter substrate of bicarbonate impregnated cellulose. The filter is controlled by an auto cover remains closed until sampling and fully exposes the filter when the sampler is running. The sample is analyzed using the modified California Air Resources Board (CARB) SOP 039. The filters are extracted in deionized water via sonication, which is analyzed by ion chromatography. Cr+6 is separated

through a column, forming a complex with diphenylcarbohydrazide. Dianex Peaknet chromatography software is used to determine the peak analysis. CR<sup>+6</sup> samplers are subjected to quarterly checks and audited by EPD's Quality Assurance Unit every six months.

## **2.13 Meteorological Parameters**

A complete suite of meteorological instrumentation is used to characterize meteorological conditions around metropolitan Atlanta. All Photochemical Assessment Monitoring Sites (PAMS) sensors 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 to the PAMS sites, surface meteorological measurements are made at several locations across the state. These parameters are audited 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. The Quality Assurance Unit audits the meteorological equipment on an annual basis.

## **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. Site selection was due July 1, 2009 and to be fully operational by January 1, 2011. When complete, the network will consist of approximately 75 stations across the United States. The state of Georgia has proposed that the South DeKalb site (site ID 13-089-0002) in DeKalb County be the NCore site for Georgia. Refer to Appendix C, Ambient Air Monitoring Plan for National Core (NCore) Multipollutant Monitoring Station for full description.

### **3.2 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 (NO<sub>x</sub>), reactive oxides of nitrogen (NO<sub>y</sub>), 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 metropolitan area was classified as serious nonattainment with the 1-hour ozone standard (56FR56694). By 2003, the Atlanta metropolitan area was

labeled in severe nonattainment of the 1-hour ozone standard (68FR55469) effective January 1, 2004, but by June 15, 2005, was listed as maintenance/attainment (70FR34660). With the 8-hour ozone standard, the Atlanta metropolitan area was classified as marginal nonattainment effective June 15, 2004 (69FR23857) and then moderate nonattainment effective April 7, 2008 (73FR12013).

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 Metropolitan 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 NO<sub>x</sub> 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<sub>3</sub>, PM<sub>2.5</sub>, CO, and NO<sub>2</sub>. 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 NO<sub>x</sub> 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<sub>3</sub>, PM<sub>2.5</sub>, CO, and NO<sub>2</sub>. 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<sub>3</sub> and NO<sub>2</sub>, 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). During June, July, and August, an hourly VOCs sample is collected. Throughout the year, a 24-hour VOCs sample is collected every 6 days. 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. A 24-hour integrated carbonyls sample is also taken every 6 days throughout the year. 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.

### **3.3 PM<sub>2.5</sub> Speciation Trends Network (STN)**

With the monitoring of ambient levels of PM<sub>2.5</sub>, EPA wanted to expand the sampling to characterize the make up of the PM<sub>2.5</sub> 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 seven more PM<sub>2.5</sub> speciation monitors in the state of Georgia, located in Rome (started 3/1/02), Athens (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<sub>2.5</sub> speciation samplers monitor for 53 species. The speciation samplers are audited quarterly by the Quality Assurance Unit.

### 3.4 Lead

On November 12, 2008, EPA revised the Lead Standard levels from 1.5 µg/m<sup>3</sup> for a calendar quarter to 0.15 µg/m<sup>3</sup> averaged over a three-month rolling period [Federal Register: Vol. 73, page 66964, 11/12/08]. Included in this revision were changes to the current network design in order to ensure proper location of monitoring. This revised standard will allow EPA to provide increased protection to the population, as well as the environment, against exposure to lead.

According to Code of Federal Regulations, Part 58, Appendix D, 4.5 Lead (Pb) Design Criteria: *State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring taking into account Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, the potential for population exposure, and logistics. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each Pb source which emits 1.0 or more tons per year based on either the most recent National Emission Inventory (<http://www.epa.gov/ttn/chief/eiinformation.html>) or other scientifically justifiable methods and data (such as improved emissions factors or site-specific data) taking into account logistics and the potential for population exposure.*

EPA compiled a list of stationary sources of lead emissions that would have required ambient monitoring for the revised lead NAAQS. The data sources used in compiling this list of sources were the 2005 National Emissions Inventory (NEI) version 2, the 2007 Toxics Release Inventory, the "Lead Emissions from the Use of Leaded Aviation Gasoline in the United States" Technical Support Document (EPA 420-R-08-020), and state or local emissions inventory data.

#### EPA Region 4 Lead Sources with Required Ambient Air Monitoring

Facility Name	City	State	Lead Emissions (tpy)	Data Source	Latitude	Longitude
Gerdau Ameristeel US Inc.	CARTERSVILLE	GA	1.75	2005 NEI v2	34.242779	-84.797775

Emissions data from 2005 National Emissions Inventory (NEI) version 2, 2007 Toxics Release Inventory (TRI) and from State and Local emissions inventories. Airports emissions data from "Lead Emissions from the use of Leaded Aviation Gasoline in the United States" Technical Support Document (EPA 420-R-08-020)

EPD researched all available data for the facility. As a result of EPD's research, the following was discovered:

Gerdau Ameristeel in Cartersville - Based on updated test data, estimated 2005 lead emissions are reduced from 1.75 tons/year to 1.41 tons/year. The following table shows the revised 2005 lead emission rates for Gerdau Ameristeel in Cartersville.

<b>Changes to GA 2005 NEI Lead Data</b>	
<b>Facility Name</b>	Gerdau Ameristeel US Inc.
<b>City</b>	CARTERSVILLE
<b>State</b>	GA
<b>2005 NEI Emissions (tpy)</b>	1.75
<b>2002 NEI Emissions (tpy)</b>	1.05
<b>2006 TRI Emissions (tpy)</b>	1.94
<b>2005 TRI Emissions (tpy)</b>	1.75
<b>Revised Emissions Data</b>	1.41
<b>Latitude</b>	34.242779
<b>Longitude</b>	-84.797775

**Table 3: Changes to Georgia 2005 NEI Lead Data**

GA EPD determined that the above source would need to be monitored. Installation of an ambient lead monitor near this facility was to be addressed in EPD's ambient monitoring plan.

To meet the 2008 lead requirements, Georgia EPD evaluated its current lead monitoring network. Until December 2009, Georgia EPD has had two criteria lead monitors operating in the state of Georgia. One is located in the Atlanta-Sandy Springs-Marietta Metropolitan Statistical Area, at DMRC in DeKalb County (13-089-0003), and the other is at the Cusseta Elementary School, Muscogee County (13-215-0011), in the Columbus Georgia-Alabama Metropolitan Statistical Area. In 2009, GA EPD began the process of establishing a new source-oriented site in Cartersville, Bartow County (13-015-0003), in the Atlanta-Sandy Springs-Marietta Metropolitan Statistical Area, to reflect effects of industry. To begin this process, the wind speed and wind direction monitors began sampling on February 23, 2009. On December 9, 2009, the lead monitor began sampling. Refer to Appendix D, Lead Network Requirements of the 2009 Ambient Air Monitoring Plan for a full description.

On December 30, 2009, EPA proposed to strengthen the November 2008 lead monitoring rule [Federal Register: Vol. 74, page 69050, 12/30/09]. GA EPD is awaiting the finalization of the December 2009 proposed lead standard revisions to make further changes to the lead network. At that time, modeling will be performed to make siting determinations for future establishment of lead monitors based on modeling and other factors.

### 3.5 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 2002 the Air Toxics Network consisted of fifteen (15) sites statewide.

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; perchlorethylene, 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 experiences 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 a few sites 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 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 a gas chromatograph with an Electron Capture Detector (ECD).

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.

### **3.6 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<sub>10</sub> 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 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 hexavalent chromium sampler used for sampling Cr+6 is a timed sampler. Samples are collected at a flow rate of 15 liters of air per minute using a 37 mm diameter substrate of bicarbonate impregnated cellulose. The filter is controlled by an auto cover remains closed until sampling and fully exposes the filter when the sampler is running. The sample is analyzed using the modified California Air Resources Board (CARB) SOP 039. The filters are extracted in deionized water via sonication, which is analyzed by ion chromatography. Cr+6 is separated through a column, forming a complex with diphenylcarbohydrazide. Dianex Peaknet chromatography software is used to determine the peak analysis.

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), using method TO14/15.

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 Semi-VOCs are shipped to an EPA contracted laboratory and detected using gas chromatography.

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). 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.

#### **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<sub>2.5</sub> and PM<sub>10</sub>), 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 4 below.

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

**Table 4: Monitoring Objective and Spatial Scale**

## 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 the sites.

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
<b>Rome MSA</b>				
131150003	Coosa Elementary	Floyd	3/8/2010	All outside samplers on platform with inlets >2.0m above ground level. All inlets > 2.0m apart from each other. Distance to samplers on the platform is between 6 and 8 meters and is greater than twice the height differential between trailer and sampler inlets.
131150004	Co. Health Dept.	Floyd	N/A	Samplers temporarily discontinued
<b>Brunswick MSA</b>				
131270004	Arco Pump Station	Glynn	6/11/2009	Sewer vents 1.7m and 6m from inlet, antenna 1.9m from inlet, inlet 1.9m above roof
131270006	Risley Middle	Glynn	6/3/2009	Samplers meet siting criteria, new buildings in area but inlet above, school buses near samplers
131273001	Brunswick College	Glynn	N/A	Site temporarily shut down, samplers removed
<b>Valdosta MSA</b>				
131850003	Mason Elem.	Lowndes	1/25/2010	The Metals, Semi-VOCs, and VOCs samplers (Air Toxics) are temporarily shut down.
<b>Warner Robins MSA</b>				
131530001	Robins Air Base	Houston	7/22/2009	The bushes and trees around the samplers have grown tall enough to violate siting guidelines. Trees and bushes should be trimmed back. The air toxics equipment is stored on site, but is not used.
<b>Dalton MSA</b>				
132130003	Fort Mountain	Murray	12/17/2009	Few trees to the south are inside 10X height differential with the Met tower. Ground slopes off severely to the north and east.
<b>Albany MSA</b>				
130950007	Turner Elem.	Dougherty	1/28/2010	There is a high volume building ventilation outlet 2.3m from the BAM inlet. There is no ladder available to climb onto the higher level.
<b>Gainesville MSA</b>				
131390003	Fair St. Elementary	Hall	8/11/2009	As trees to the northwest continue to grow taller, the samplers should be moved eventually away from the trees, on the roof in a southerly direction.
<b>Athens-Clark County MSA</b>				
130590002	College Station Rd.	Clarke	1/19/2010	Tree and shrubs should be removed. TEOM inlet should be more firmly secured to roof. Deck boards are beginning to pull free. There are no extra outlets available on the roof. There is road construction activity near the site.
<b>Macon MSA</b>				
130210007	Allied Chemical	Bibb	7/23/2009	The vegetation must be removed for the site to meet requirements.
130210012	Forestry	Bibb	2/23/2010	Rope on tower is rotten
130210013	Lake Tobesofkee	Bibb	N/A	Samplers temporarily discontinued
<b>Columbus MSA</b>				
132150001	Health Dept.	Muscogee	11/18/2009	Sampler meets siting criteria
132150008	Airport	Muscogee	8/3/2009	Cannot access ozone Model 49 diagnostics, samplers meet siting criteria
132150011	Cusseta Elementary	Muscogee	3/1/2010	Samplers meet siting criteria
132151003	Crime Lab	Muscogee	11/18/2009	Only Meteorological instruments being run at the site presently.
132155000	Columbus State	Muscogee	N/A	Samplers temporarily discontinued

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
<b>Savannah MSA</b>				
130510014	Shuman Middle School	Chatham	6/10/2009	Sampler stand rotten, Samplers meet siting criteria.
130510017	Market St.	Chatham	6/11/2009	Unrestricted airflow, on roof
130510021	E. President St.	Chatham	6/10/2009	AVOCS should be moved further from PUF. The trees and bushes should be trimmed back or removed.
130510091	Mercer Middle	Chatham	6/11/2009	Samplers meet siting criteria
130511002	W. Lathrop & Augusta Ave.	Chatham	06/02/09	TEOM Inlet tethers have rotted and broken. There is nothing holding the inlet down except the sample train tubing. Trees along fence line should be removed. Some parts of met tower tubing are bent or have split seams. Cords are rotten and broken.
<b>Augusta MSA</b>				
130730001	Riverside Park	Columbia	3/30/2009	Samplers meet siting criteria, NOy temporarily shut down
131890001	Fish Hatchery	McDuffie	N/A	Sampler temporarily discontinued
132450005	Med. College GA	Richmond	3/30/2009	Samplers meet siting criteria, on roof top
132450091	Bungalow Rd.	Richmond	3/30/2009	Samplers meet siting criteria
132450092	Clara Jenkins School	Richmond	N/A	Samplers temporarily discontinued
<b>Atlanta-Sandy Springs-Marietta MSA</b>				
130150003	Cartersville	Bartow	12/14/2009	Trees to south are not within twice height differential
130630091	Georgia DOT	Clayton	12/9/2009	Samplers meet siting criteria
130670003	National Guard	Cobb	3/30/2010	Samplers meet siting criteria, tree driplines >40m away
130670004	Macland Aquatic Center	Cobb	3/25/2009	Sampler meets siting criteria, driplines >10m away
130770002	Univ. of West GA	Coweta	1/11/2010	The met tower is not 10x the height of the trees distance away from the tallest trees to the north or east.
130850001	GA Forestry	Dawson	7/29/2009	One tree east of Ozone, Carbonyl, and VOCs inlets exceed inlets' height by 14 meters and is 15 meters from inlets.
130890002	South DeKalb	DeKalb	4/16/2009	Trees to north continue to get taller and encroach on site, Met tower within 10X differential
130890003	DMRC	DeKalb	11/17/2009	Samplers meet siting criteria
130892001	Police Dept.	DeKalb	4/13/2009	Samplers meet siting criteria
130893001	Tucker	DeKalb	11/12/2009	Met only at site, Trees continue to grow taller, but are still shorter than the Met tower.
130970004	W. Strickland St.	Douglas	4/15/2010	Samplers meet siting criteria
131130001	Georgia DOT	Fayette	N/A	Samplers temporarily discontinued
131210020	Utoy Creek	Fulton	N/A	Samplers temporarily discontinued
131210032	E. Rivers School	Fulton	12/9/2009	Samplers meet siting criteria
131210039	Fire Station #8	Fulton	7/15/2009	White Pine tree northeast of sampler is closer than twice height differential but is not in the path of prevailing winds.
131210048	Georgia Tech	Fulton	12/16/2009	Sampler height of 25 meters above the ground exceeds maximum allowed (15 meters).
131210055	Confederate Ave.	Fulton	7/21/2009	Samplers meet siting criteria
131210099	Roswell Road	Fulton	4/5/2010	Microscale site measures CO from traffic on adjacent Roswell Rd.
131350002	Gwinnett Tech	Gwinnett	2/18/2010	Platform on top of shelter has broken boards. Lock on shelter needs to be fixed or replaced. Samplers meet siting criteria.

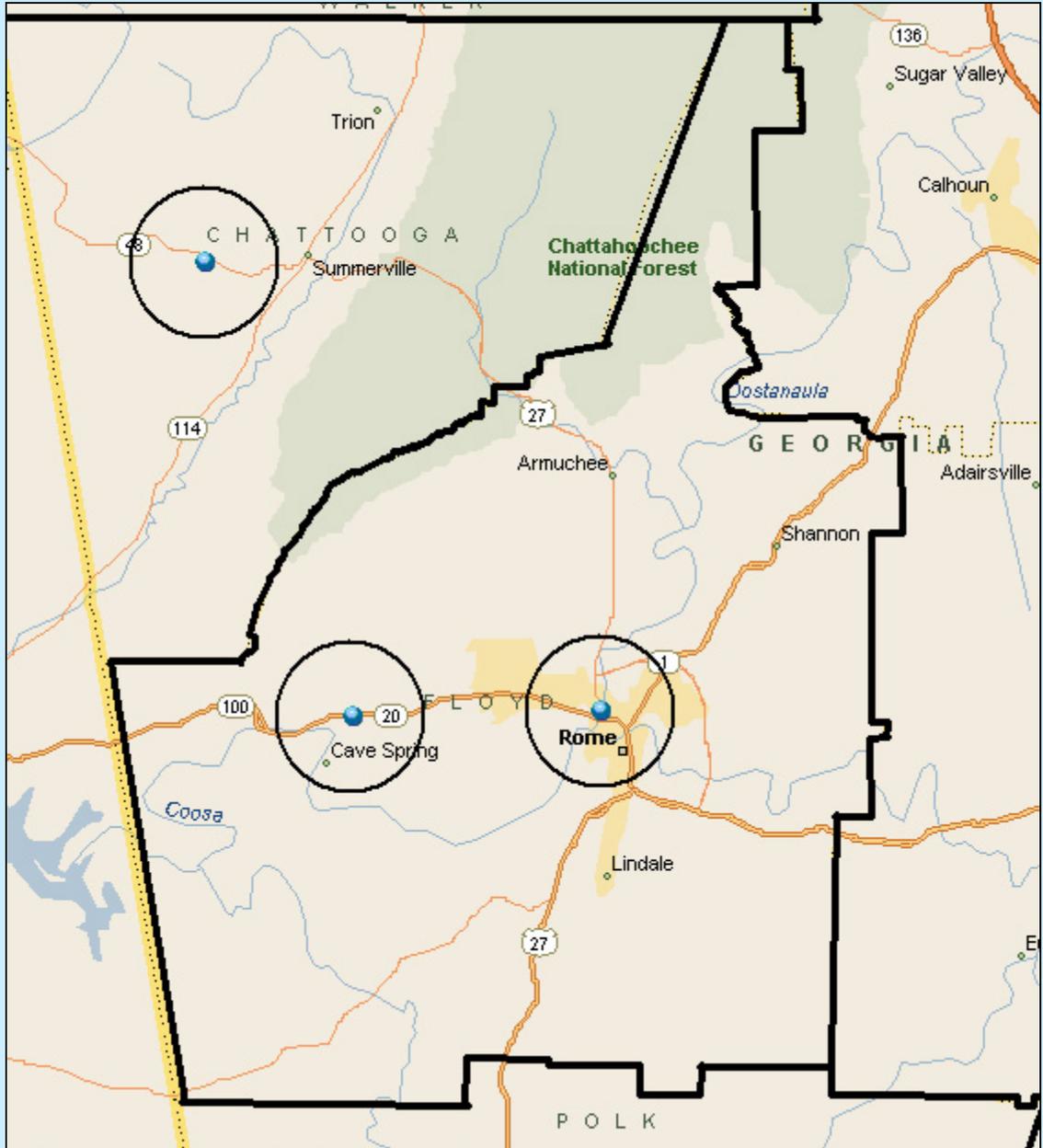
SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
<b>Atlanta-Sandy Springs-Marietta MSA continued</b>				
131510002	County Extension	Henry	9/2/2009	Samplers meet siting criteria
132230003	Yorkville	Paulding	2/23/2010	The wooden structure that houses the gas cylinders next to the GC trailer needs refurbishing.
132470001	Monastery	Rockdale	8/25/2009	Samplers meet siting criteria
132970001	Fish Hatchery	Walton	N/A	Sampler temporarily discontinued
<b>Chattanooga Tennessee-Georgia MSA</b>				
132950002	Co. Health Dept.	Walker	9/3/2009	Samplers meet siting criteria
<b>Not in an MSA</b>				
130090001	Baldwin Co. Airport	Baldwin	12/8/08	Samplers temporarily discontinued
130550001	Fish Hatchery	Chattooga	3/16/2010	Samplers meet siting criteria
130690002	General Coffee State Park	Coffee	12/7/2009	All the samplers are too close to drip lines. The site should be moved elsewhere in the field.
132410002	Lake Burton	Rabun	N/A	Sampler temporarily discontinued
132611001	Union High	Sumter	3/3/2010	Trees should be removed. Zero air generator silica gel was not blue. Gel should be replaced.
133030001	Co. Health Dept.	Washington	6/17/2009	Samplers meet siting criteria
133190001	Police Dept.	Wilkinson	10/26/2009	Samplers meet siting criteria

Table 5: Site Evaluations

**Appendix A:  
Individual Site Information  
Grouped by MSA  
(Smallest to Largest)**

**Georgia Department of Natural Resources  
Environmental Protection Division**

# Rome MSA



## Rome- Coosa Elementary



AQS ID: 131150003

Address: Coosa Elementary School, Highway 20, Rome,  
Floyd County, Georgia

Site Established: 1/1/74

Latitude/Longitude: N34.261113/W-85.323018

Elevation: 186 meters

Area Represented: Rome MSA

North

South

East

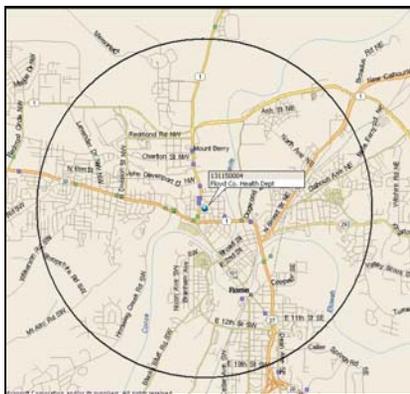
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Every 6 days	2 m	Neighborhood	10/24/96
PM <sub>2.5</sub>	Population Exposure	Daily*	2 m	Neighborhood	1/18/99
PM <sub>2.5</sub>	Population Exposure	Continuous*	3 m	Neighborhood	1/1/08
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	2 m	Neighborhood	3/1/02
SO <sub>2</sub>	Population Exposure	Continuous	4 m	Neighborhood	1/1/75

**Recommendations:** Continue monitoring; \*When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM

## Rome- Floyd County Health Department



AQS ID: 131150004

Address: Floyd County Health Department, 315 W. Tenth Street, Rome,  
Floyd County, Georgia

Site Established: 1/1/85

Latitude/Longitude: N34.263182/W-85.178782

Elevation: 180 meters

Area Represented: Rome MSA

North

South

East

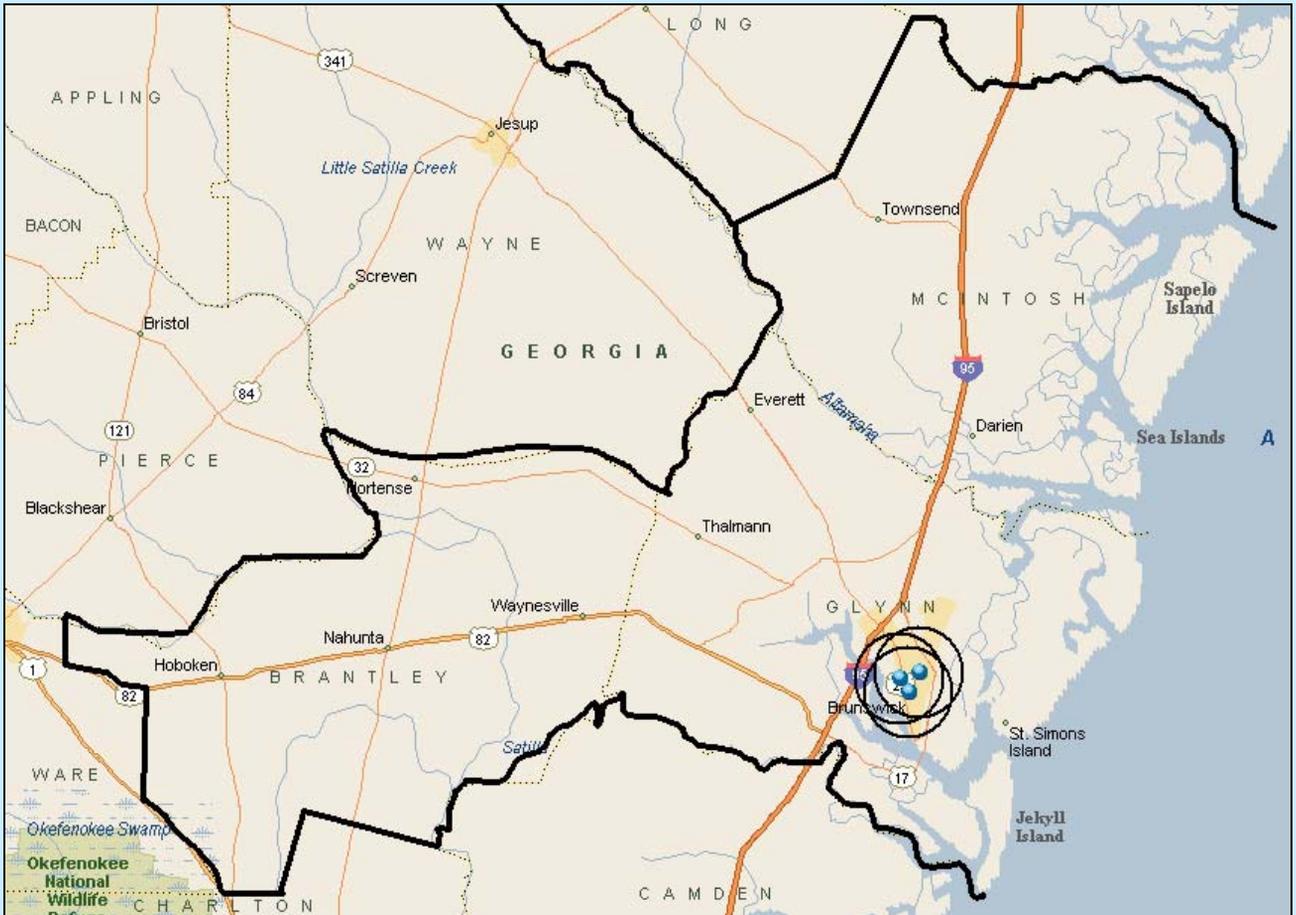
West



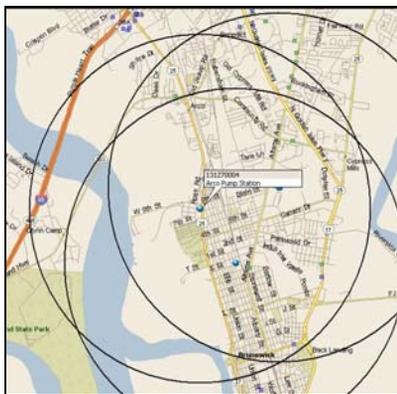
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	6 m	Neighborhood	1/1/99

Recommendations: Parameters in red have temporarily suspended operation as of 10/31/08

# Brunswick MSA



## Brunswick- Arco Pump Station



AQS ID: 131270004

Address: Arco Pump Station, Newcastle Road, Brunswick,  
Glynn County, Georgia

Site Established: 1/1/78

Latitude/Longitude: N31.180688/W-81.504787

Elevation: 3 meters

Area Represented: Brunswick MSA

North

South

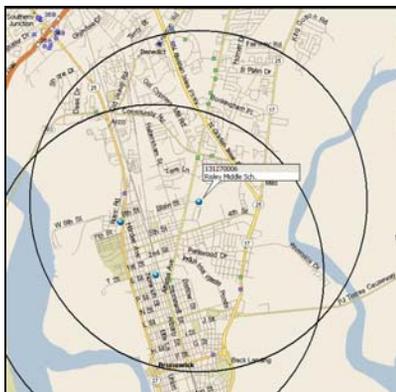
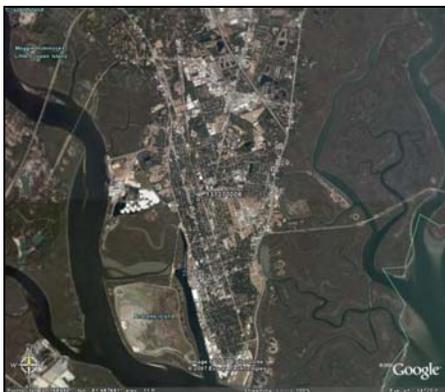
Southeast



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Every 3 days	4 m	Neighborhood	7/2/96

Recommendations: Consider consolidating monitor with another nearby Brunswick site

## Brunswick- Risley Middle School



AQS ID: 131270006

Address: Risley Middle School, 2900 Albany Street, Brunswick,  
Glynn County, Georgia

Site Established: 1/1/87

Latitude/Longitude: N31.169530/W-81.496046

Elevation: 2 meters

Area Represented: Brunswick MSA

North

South

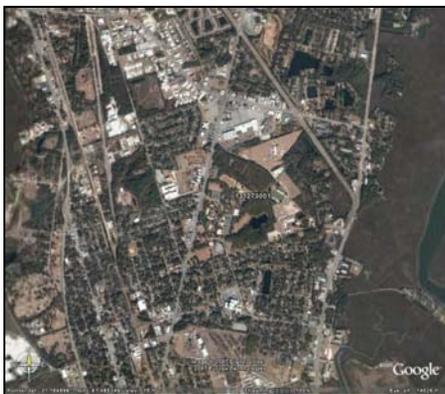
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 6 days	5 m	Neighborhood	8/31/95
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	8 m	Neighborhood	3/1/95
SO <sub>2</sub>	Population Exposure	Continuous	8 m	Neighborhood	1/1/87
Total Reduced Sulfur	Population Exposure	Continuous	8 m	Neighborhood	1/12/06
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; Parameter in red has temporarily suspended operation as of 10/31/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Brunswick- Community College



AQS ID: 131273001

Address: Brunswick Coastal Community College, Brunswick,  
Glynn County, Georgia

Site Established: 9/18/96

Latitude/Longitude: N31.184983/W-81.485332

Elevation: 4 meters

Area Represented: Brunswick MSA

North

South

East

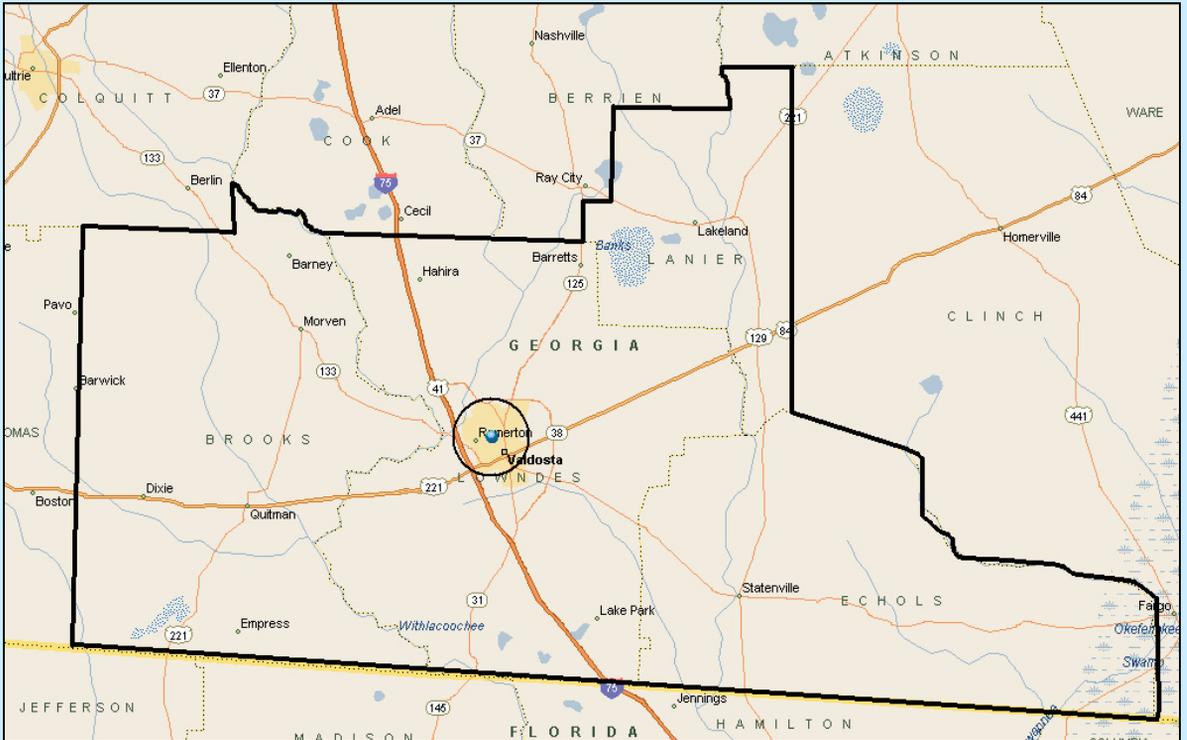
West



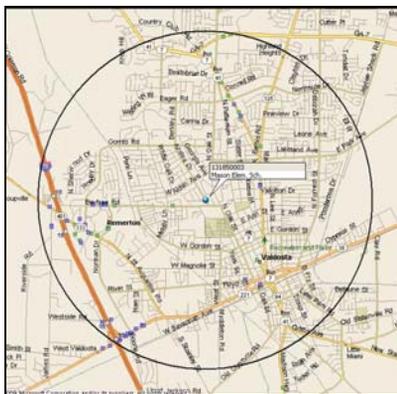
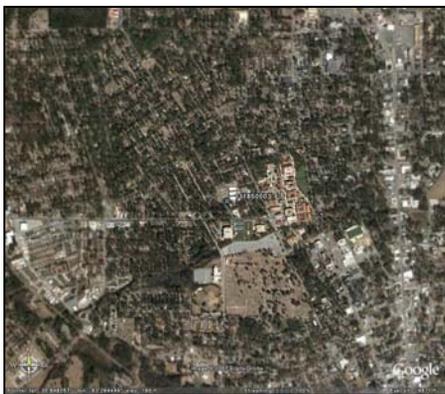
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	8 m	Neighborhood	9/18/96
Carbonyls	Population Exposure	Every 12 days	8 m	Neighborhood	1/1/99

Recommendations: Parameters in red have temporarily suspended monitoring as of 10/31/08

# Valdosta MSA



## Valdosta- Mason Elementary



AQS ID: 131850003

Address: S.L. Mason Elementary School, Valdosta,  
Lowndes County, Georgia

Site Established: 12/17/99

Latitude/Longitude: N30.848056/W-83.294444

Elevation: 58 meters

Area Represented: Valdosta MSA

North

South

East

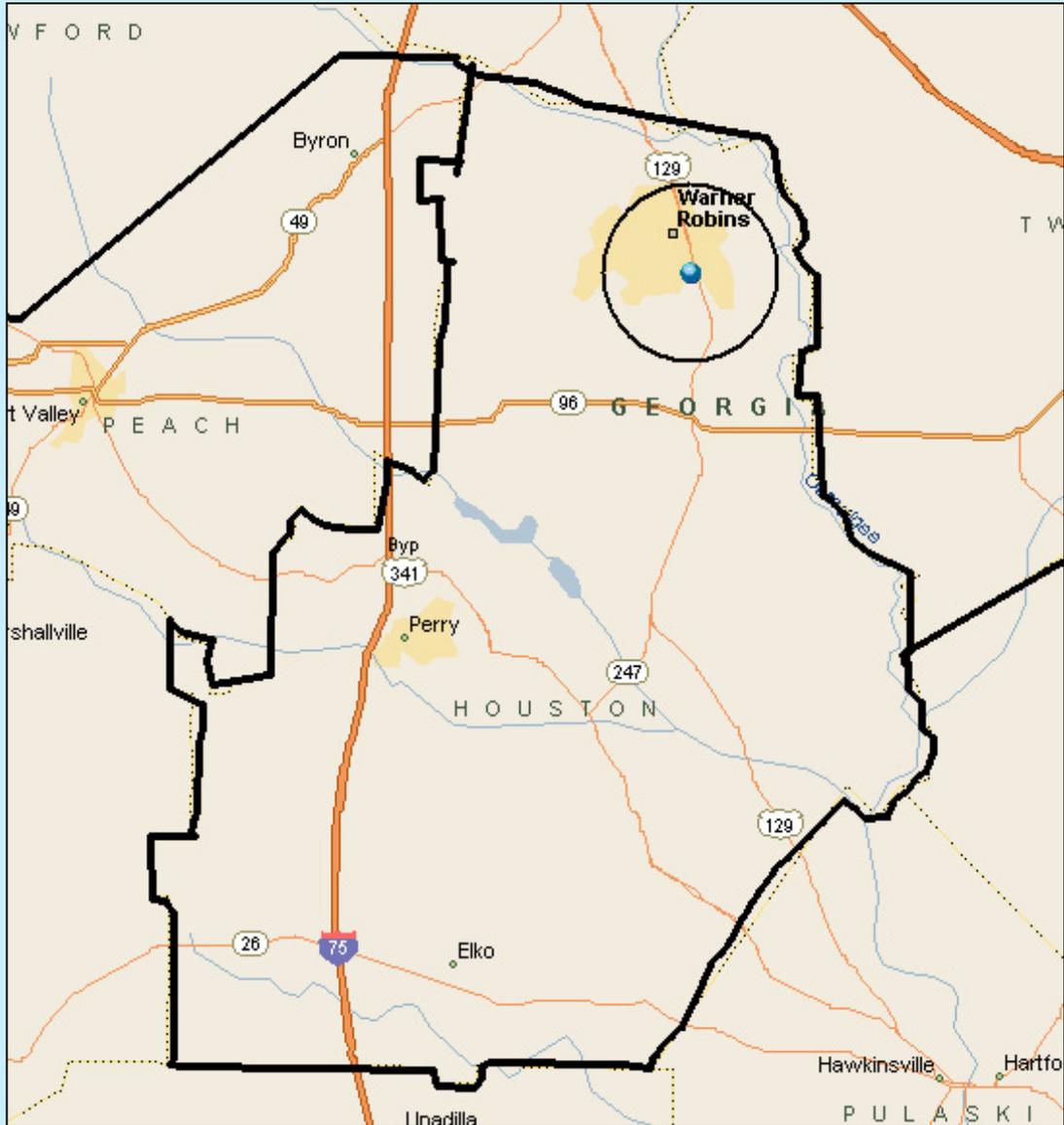
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days*	8 m	Neighborhood	1/1/00
PM <sub>2.5</sub>	Population Exposure	Continuous*	8 m	Neighborhood	1/1/08
Toxics	Population Exposure	Every 12 days	8 m	Neighborhood	1/1/00

Recommendations: Continue monitoring; \* When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM; Parameters in red have temporarily suspended operation as of 10/31/08

# Warner Robins MSA



## Warner Robins- Air Force Base



AQS ID: 131530001

Address: Warner Robins Air Force Base, Warner Robins,  
Houston County, Georgia

Site Established: 6/15/00

Latitude/Longitude: N32.605600/W-83.597907

Elevation: 113 meters

Area Represented: Warner Robins MSA

North

South

East

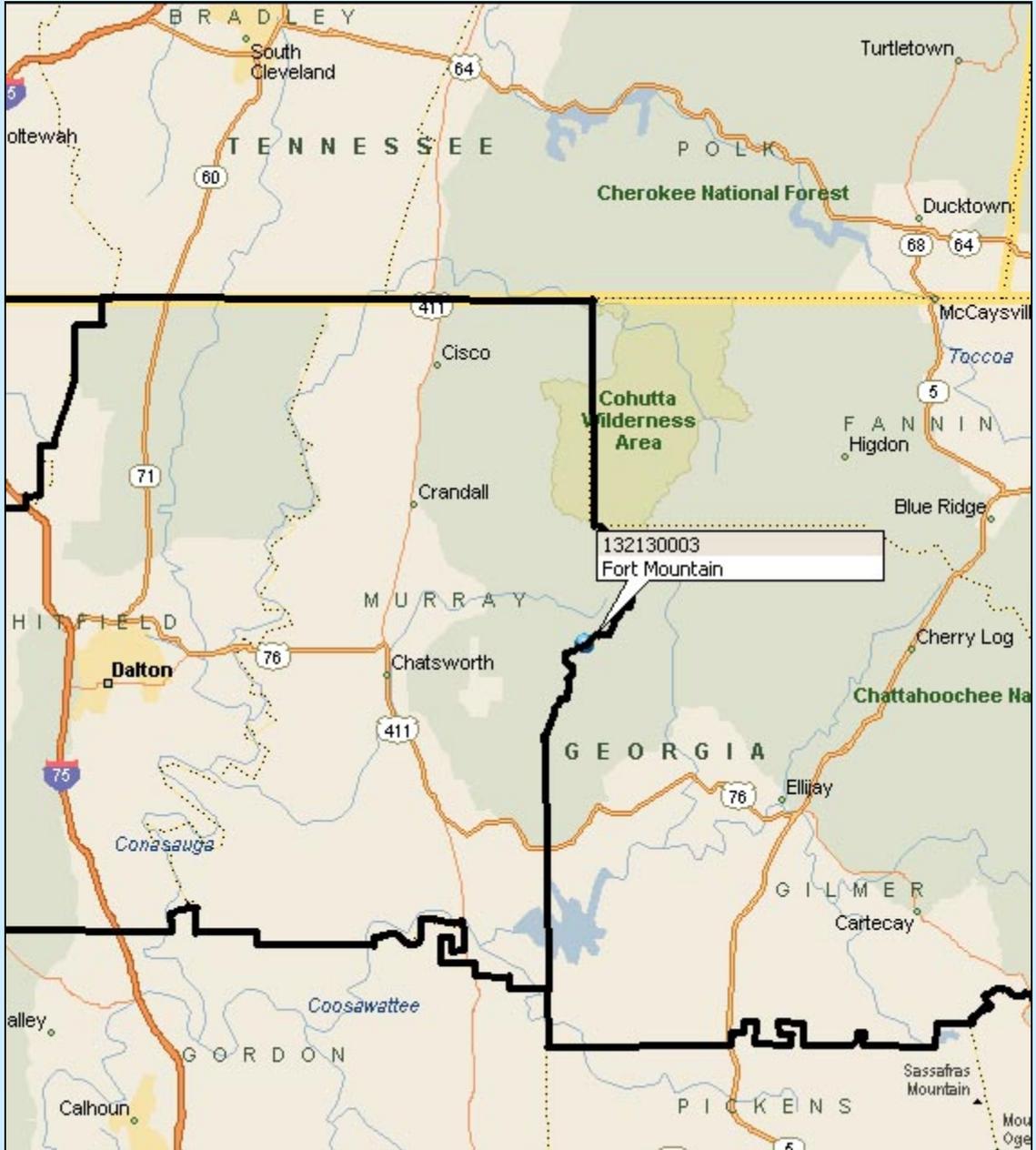
West



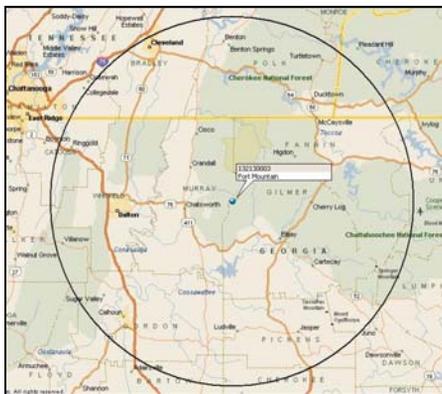
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days*	2 m	Neighborhood	7/5/00
PM <sub>2.5</sub>	Population	Continuous*	2 m	Neighborhood	1/1/08
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	7/5/00

**Recommendations:** Continue monitoring; \* When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM; Parameters in red have temporarily suspended operation as of 10/31/08

# Dalton MSA



## Chatsworth- Fort Mountain



AQS ID: 132130003

Address: Fort Mountain, Cohutta Overlook, Chatsworth,  
Murray County, Georgia

Site Established: 3/23/99

Latitude/Longitude: N34.785078/W-84.626499

Elevation: 980 meters

Area Represented: Dalton MSA

North

South

East

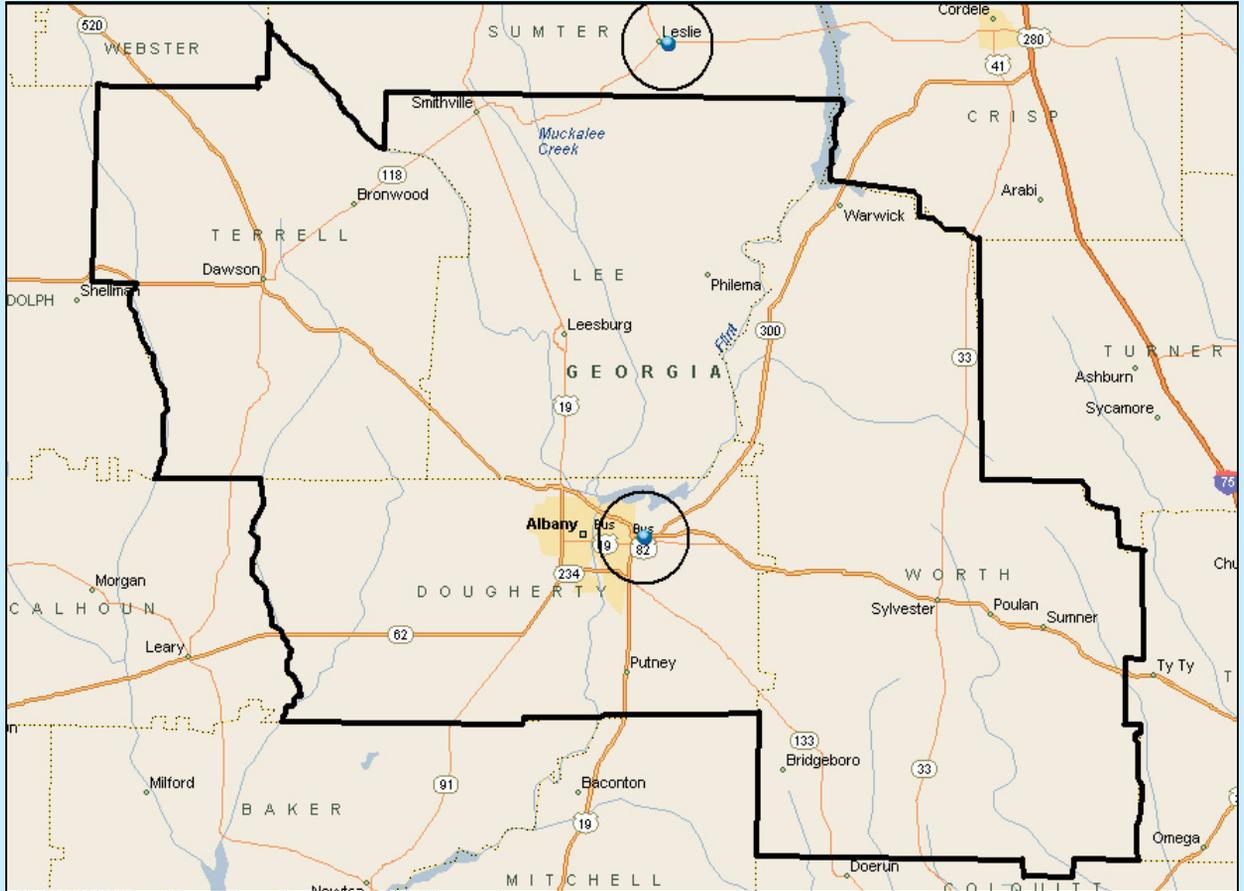
West



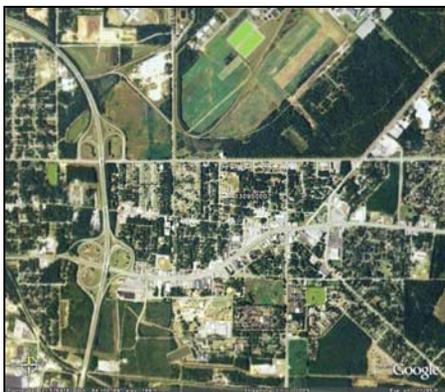
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Regional	3/1/00
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	2/7/02
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	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; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

# Albany MSA



## Albany- Turner Elementary



AQS ID: 130950007

Address: Turner Elementary School, Albany,  
Dougherty County, Georgia

Site Established: 7/31/91

Latitude/Longitude: N31.576917/W-84.100194

Elevation: 61 meters

Area Represented: Albany MSA

North

South

East

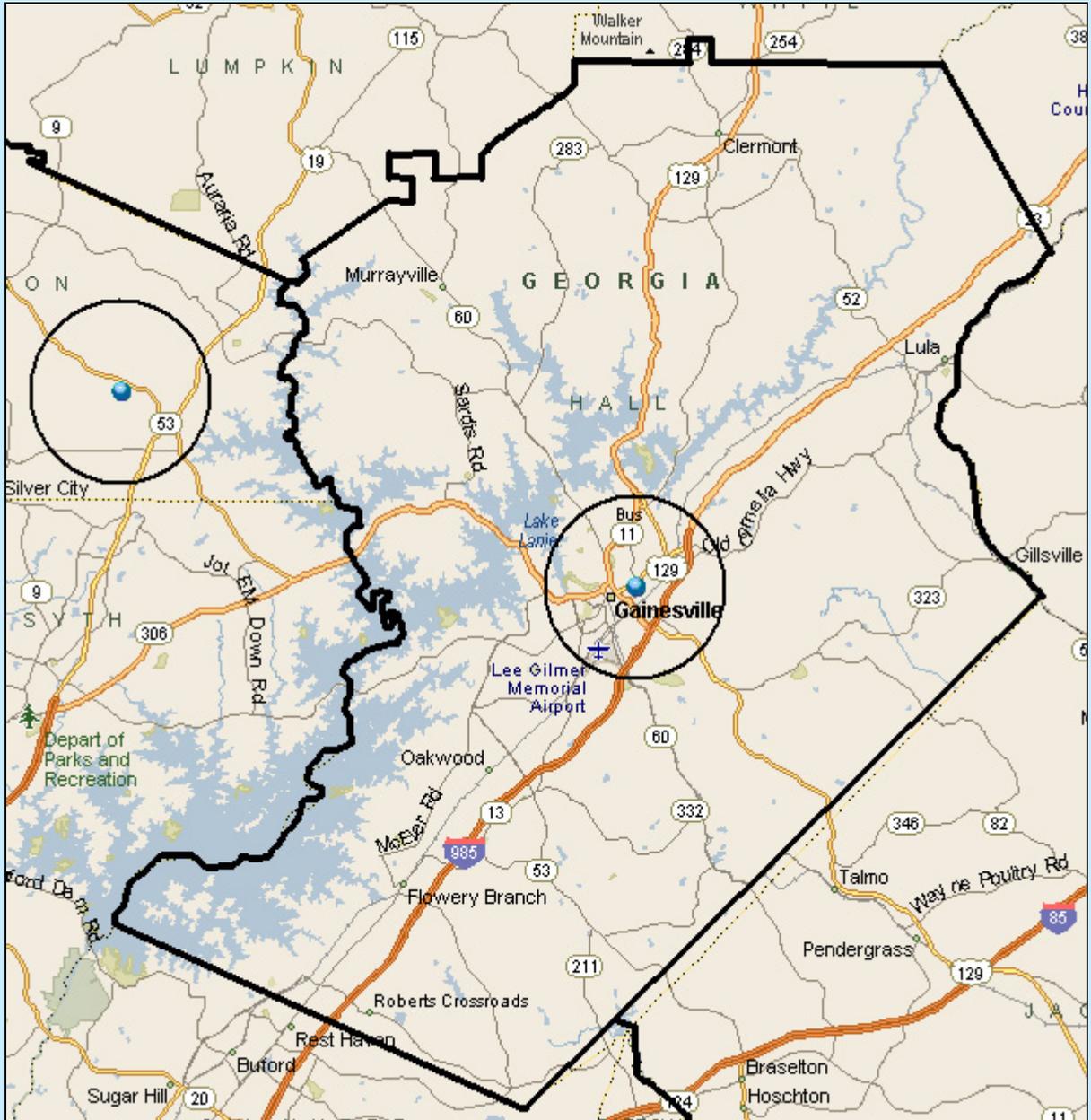
West



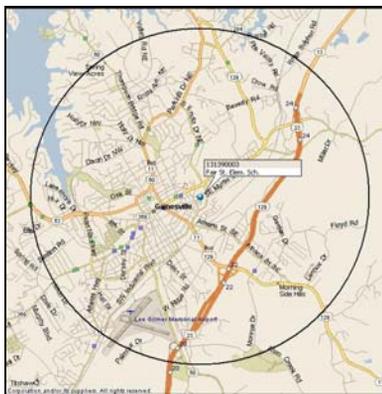
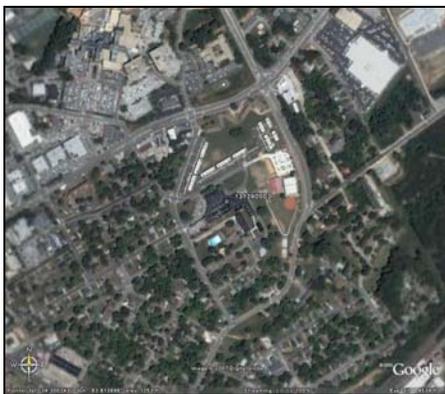
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Daily*	6 m	Neighborhood	2/2/99
PM <sub>2.5</sub>	Population Exposure	Continuous*	6 m	Neighborhood	5/11/08
PM <sub>10</sub>	Population Exposure	Every 6 days	6 m	Neighborhood	9/24/96

Recommendations: Continue monitoring; \* When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM

# Gainesville MSA



## Gainesville- Fair Street School



AQS ID: 131390003

Address: Fair Street Elementary School, Fair Street, Gainesville,  
Hall County, Georgia

Site Established: 1/1/97

Latitude/Longitude: N34.30022/W-83.81355

Elevation: 353 meters

Area Represented: Gainesville MSA

North

South

East

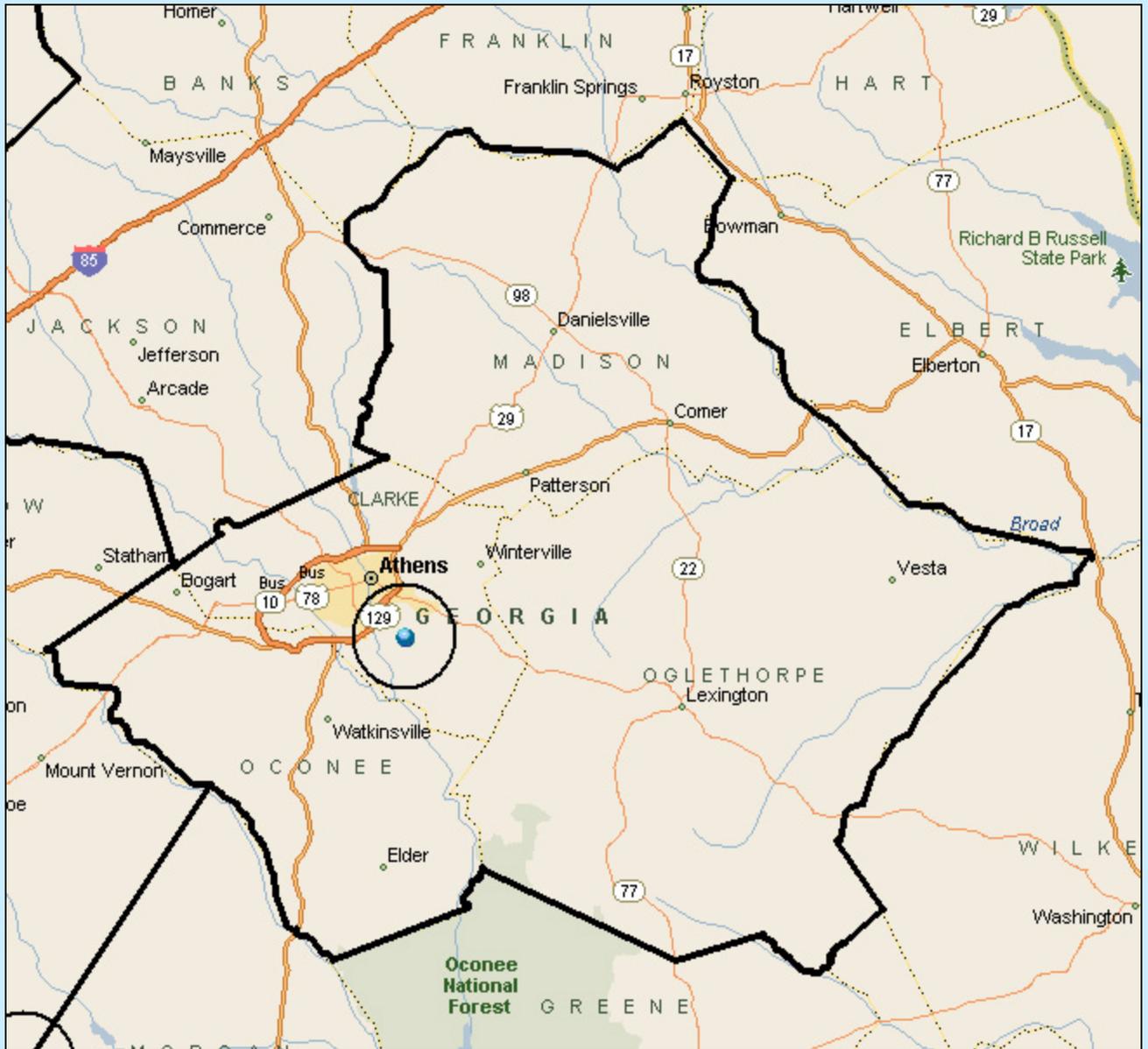
West



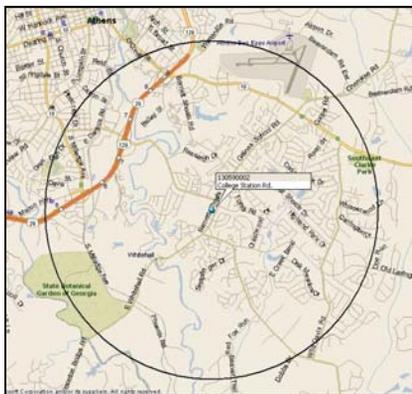
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days*	5 m	Neighborhood	2/14/99
PM <sub>2.5</sub>	Population Exposure	Continuous*	5 m	Neighborhood	1/1/08
Toxics	Population Exposure	Every 12 days	5 m	Neighborhood	1/1/97

**Recommendations:** Continue monitoring; \* When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM; Parameters in red have temporarily suspended operation as of 10/31/08

# 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

North

South

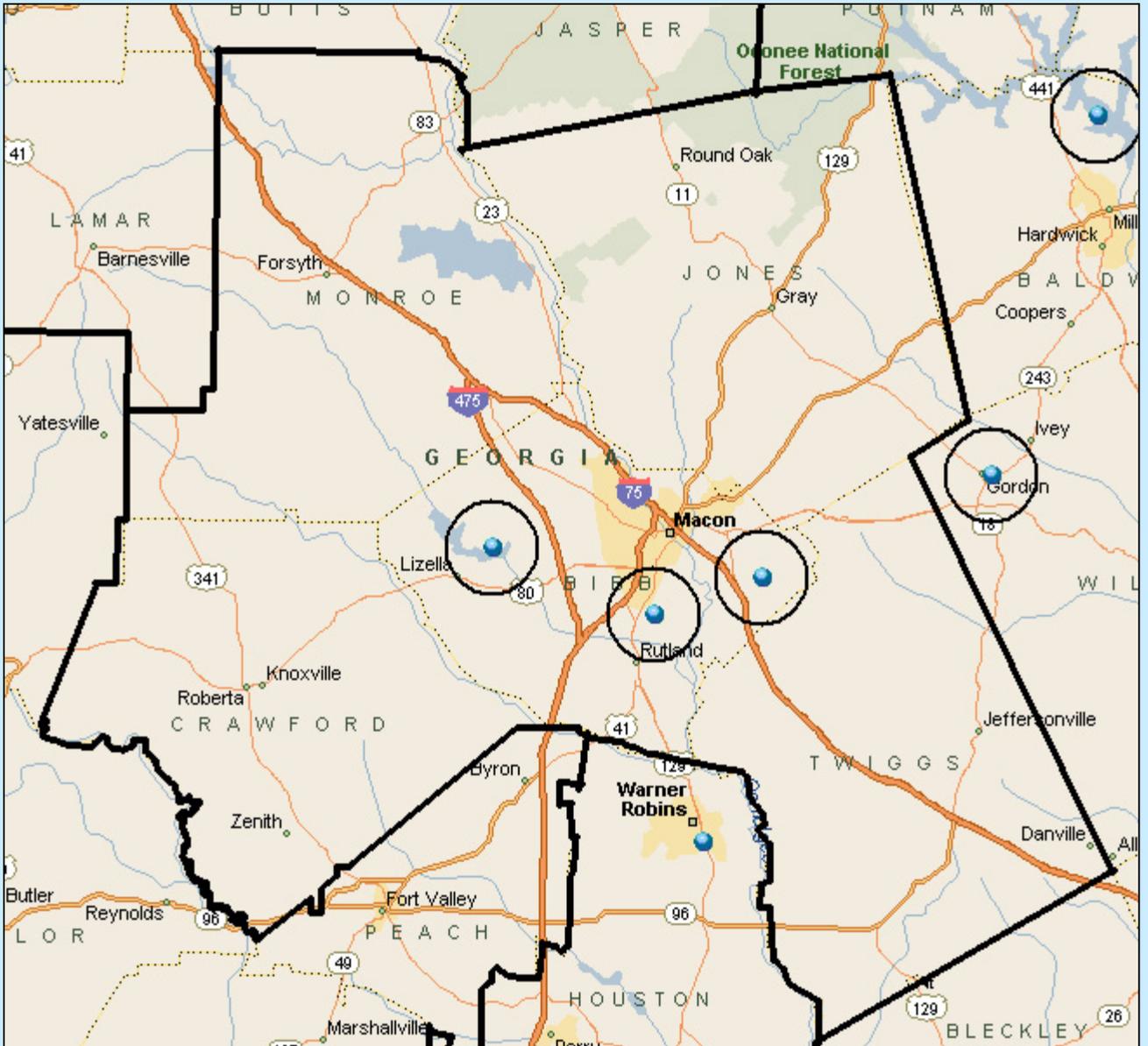
West



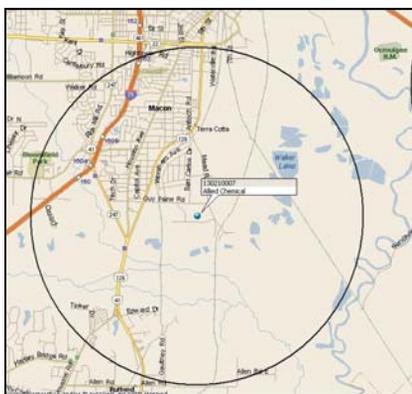
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	6.80 m	Urban	5/1/02
PM <sub>2.5</sub>	Population Exposure	Every 3 days	4 m	Neighborhood	2/12/05
PM <sub>2.5</sub>	Population Exposure	Continuous	4 m	Neighborhood	8/1/04
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	4 m	Neighborhood	3/1/02

Recommendations: Continue monitoring; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

# Macon MSA



## Macon- Allied Chemical



AQS ID: 130210007

Address: Allied Chemical, 600 Guy Paine Road, Macon,  
Bibb County, Georgia

Site Established: 1/1/74

Latitude/Longitude: N32.77729/W-83.64120

Elevation: 106 meters

Area Represented: Macon MSA

North

South

East

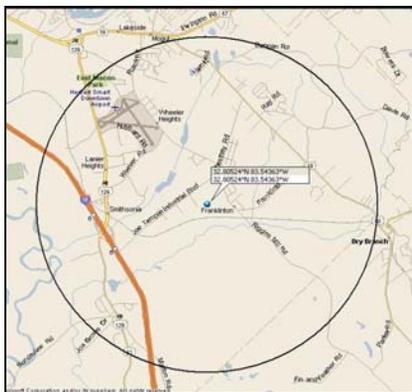
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Every 6 days	4 m	Neighborhood	9/6/96
PM <sub>10</sub>	Quality Assurance	Every 6 days	4 m	Neighborhood	7/1/05
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	4 m	Neighborhood	3/1/02
PM <sub>2.5</sub>	Population Exposure	Daily	4 m	Neighborhood	2/2/99
PM <sub>2.5</sub>	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

Site Established: 5/7/97

Latitude/Longitude: N32.805244/W-83.543628

Elevation: 103 meters

Area Represented: Macon MSA

North

South

East

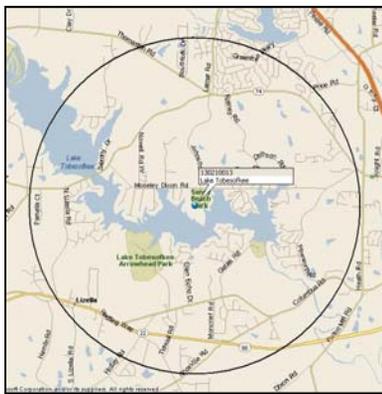
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	4 m	Neighborhood	2/1/99
PM <sub>2.5</sub>	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 <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	5/7/97
SO <sub>2</sub>	Population Exposure	Continuous*	4 m	Urban	5/7/97
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	1/1/99

Recommendations: Continue monitoring; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> monitor; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Macon- West



AQS ID: 130210013

Address: 6890 Moseley Dixon Road, Macon,  
Bibb County, Georgia 31220-8517

Site Established: 5/1/05

Latitude/Longitude: N32.827803/W-83.788849

Elevation: 106 meters

Area Represented: Macon MSA

North

South

East

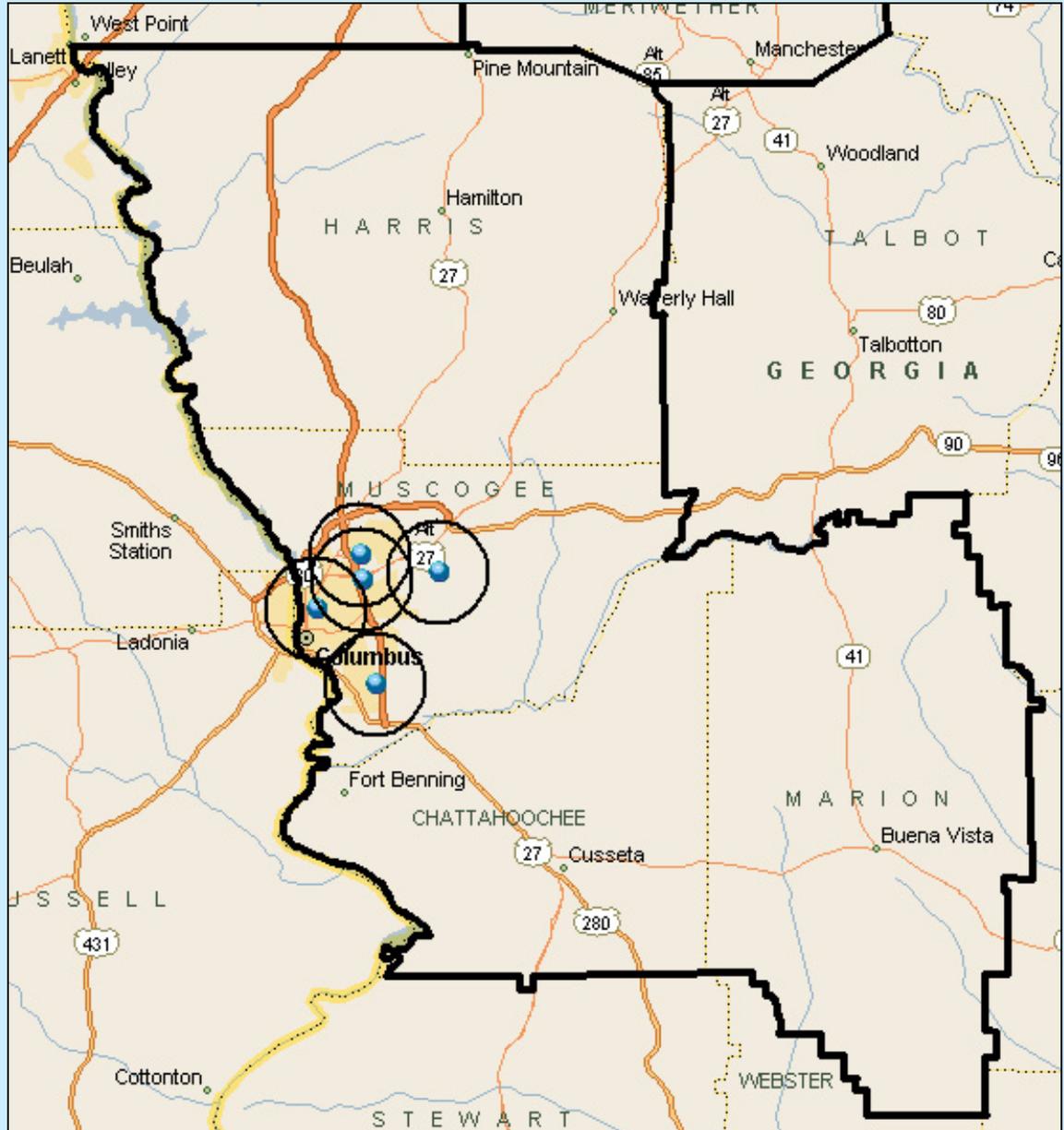
West



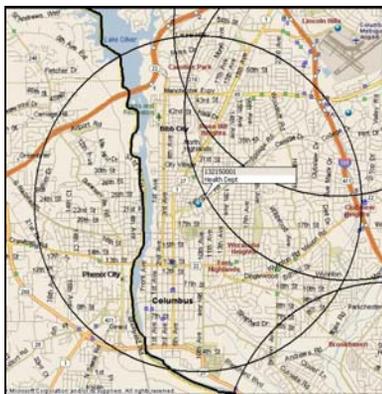
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	5/1/05
NO <sub>y</sub>	Population Exposure	Continuous	4 m	Neighborhood	5/26/05
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	7/6/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	7/6/05
Temperature	General/ Background	Continuous	2 m	Neighborhood	7/6/05
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	7/6/05

**Recommendations:** Parameters in red have temporarily suspended operation: O<sub>3</sub> as of 10/31/08, NO<sub>y</sub> as of 4/30/08, Meteorological parameters as of 10/20/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

# Columbus Georgia-Alabama MSA



## Columbus- Health Department



AQS ID: 132150001

Address: Muscogee City Health Department, 1958 8<sup>th</sup> Avenue, Columbus,  
Muscogee County, Georgia

Site Established: 1/1/57

Latitude/Longitude: N32.483543/W-84.980977

Elevation: 101 meters

Area Represented: Columbus Georgia-Alabama MSA

North

South

East

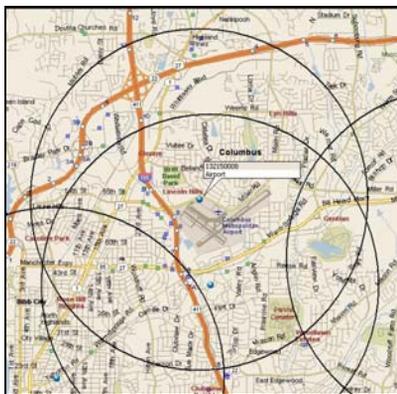
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	7 m	Neighborhood	3/4/99

Recommendations: Continue monitoring

## Columbus- Airport



AQS ID: 132150008

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

Site Established: 7/1/82

Latitude/Longitude: N32.52113/W-84.94486

Elevation: 135 meters

Area Represented: Columbus Georgia-Alabama MSA

North

South

East

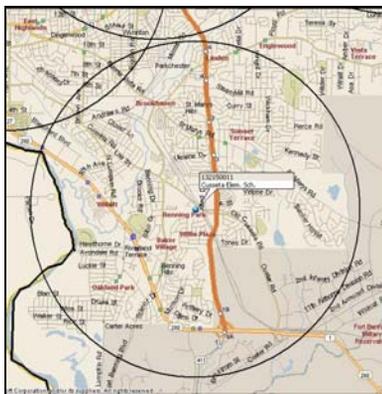
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	7/1/82
SO <sub>2</sub>	Population Exposure	Continuous*	4 m	Neighborhood	1/1/84
PM <sub>2.5</sub>	Population Exposure	Every 6 days	4 m	Neighborhood	6/2/03
PM <sub>2.5</sub>	Population Exposure	Continuous	4 m	Neighborhood	6/1/03

Recommendations: Continue monitoring; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> monitor; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Columbus- Cusseta Road Elementary



AQS ID: 132150011

Address: Cusseta Road Elementary School, Columbus,  
Muscookee County, Georgia

Site Established: 9/4/91

Latitude/Longitude: N32.430944/W-84.931818

Elevation: 88 meters

Area Represented: Columbus Georgia-Alabama MSA

North

South

East

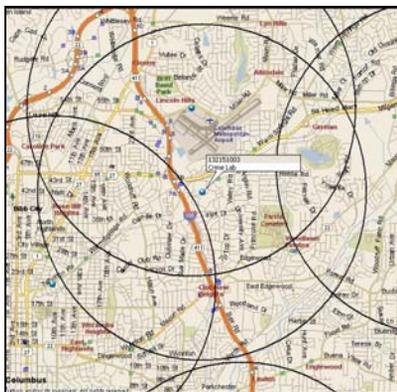
West



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 <sub>10</sub>	Population Exposure	Every 6 days	5 m	Neighborhood	8/7/95
PM <sub>2.5</sub>	Population Exposure	Every 3 days	5 m	Neighborhood	1/21/99
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	5 m	Neighborhood	5/1/02

Recommendations: Continue monitoring

## Columbus- Crime Lab



AQS ID: 132151003

Address: Columbus Crime Lab, 8695 Beaver Run Road, Columbus,  
Muscookee County, Georgia

Site Established: 6/30/80

Latitude/Longitude: N32.50854/W-84.88037

Elevation: 122 meters

Area Represented: Columbus Georgia-Alabama MSA

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

# Columbus- Columbus State University



AQS ID: 132155000

Address: Columbus State University, Columbus,  
Muscookee County, Georgia

Site Established: 1/1/99

Latitude/Longitude: N32.503100/W-84.942100

Elevation: 106 meters

Area Represented: Columbus Georgia-Alabama MSA

North

South

East

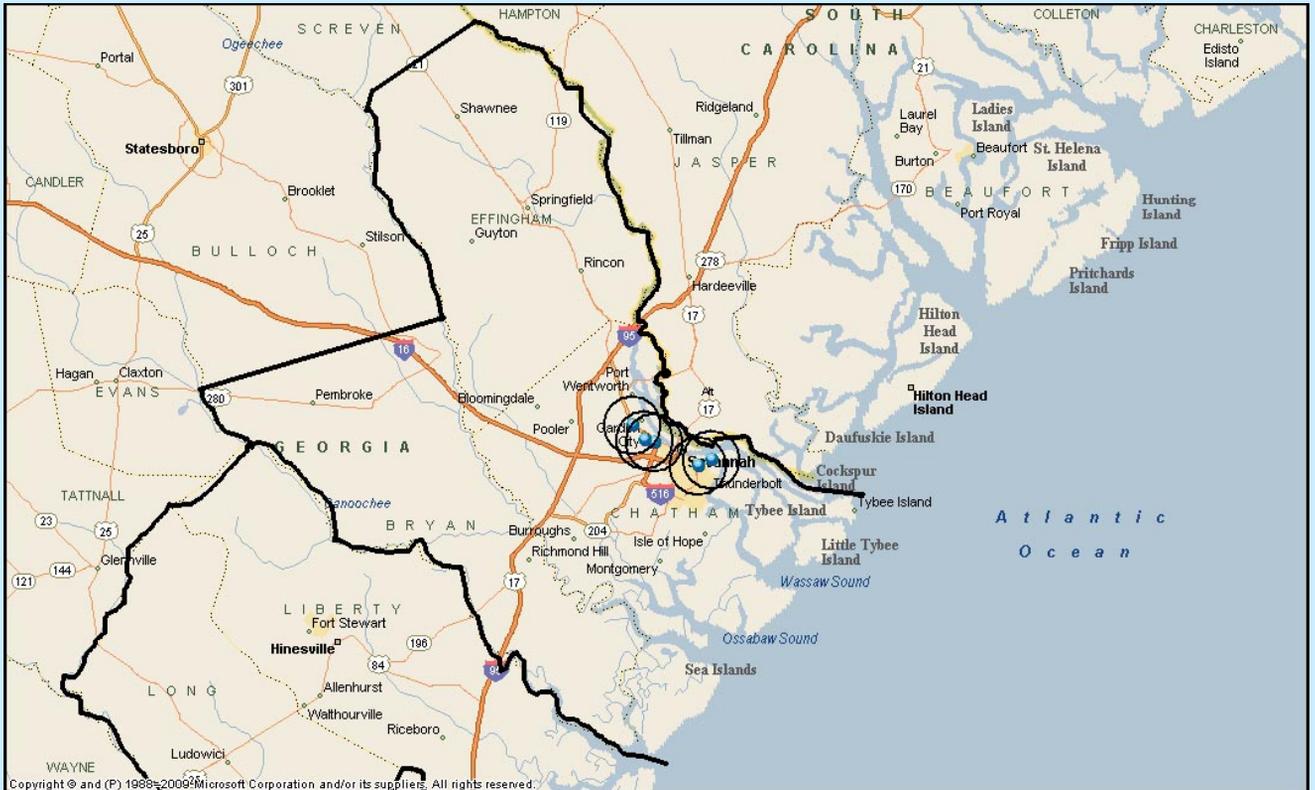
West



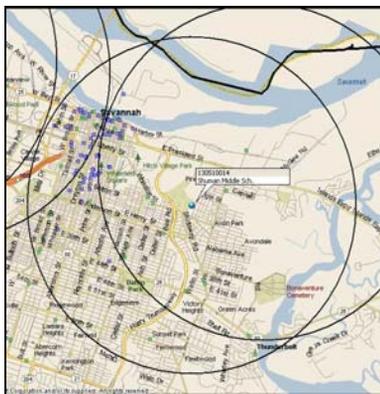
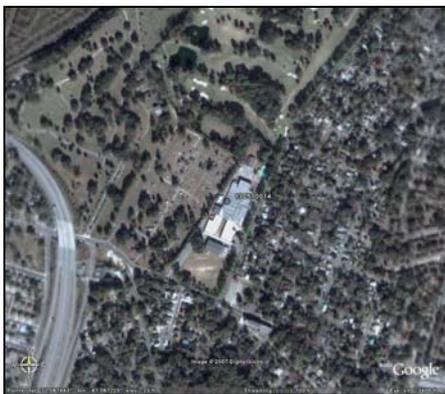
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	8 m	Neighborhood	1/1/99

Recommendations: Parameters in red have temporarily suspended operation as of 10/31/08

# Savannah MSA



## Savannah- Shuman Middle School



AQS ID: 130510014

Address: Shuman Middle School, 415 Garrard Street, Savannah,  
Chatham County, Georgia

Site Established: 1/1/79

Latitude/Longitude: N32.061944/W-81.067222

Elevation: 6 meters

Area Represented: Savannah MSA

North

South

East

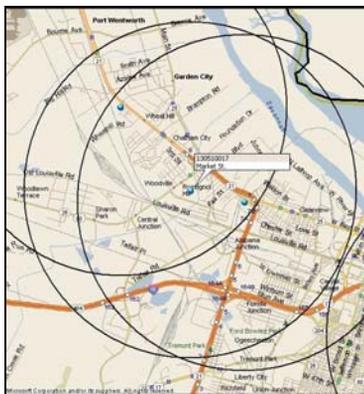
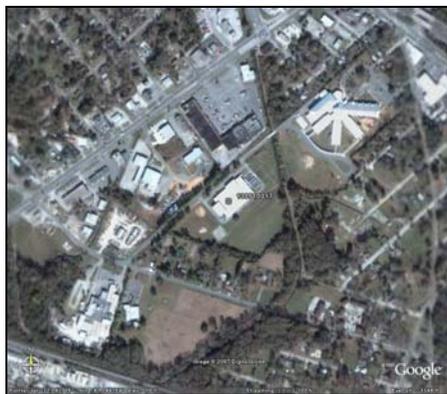
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Every 6 days	5 m	Neighborhood	12/4/96

Recommendations: Consider consolidating monitor with another nearby Savannah site

## Savannah- Market Street



AQS ID: 130510017

Address: 402 Market Street, Savannah,  
Chatham County, Georgia

Site Established: 1/1/81

Latitude/Longitude: N32.092778/W-81.144167

Elevation: 2 meters

Area Represented: Savannah MSA

North

South

East

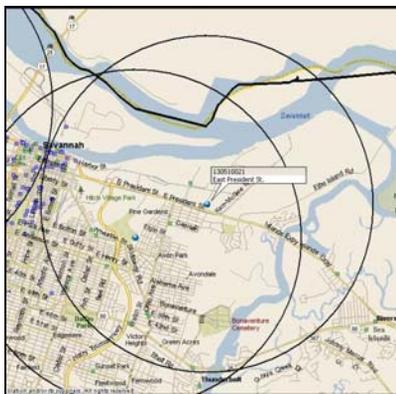
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/99
PM <sub>2.5</sub>	Quality Assurance	Every 12 days	5 m	Neighborhood	1/1/99

Recommendations: Continue monitoring; Consider consolidating with Savannah-Lathrop & Augusta and Savannah-Mercer School sites

## Savannah- E. President Street



AQS ID: 130510021

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

Site Established: 2/1/95

Latitude/Longitude: N32.069050/W-81.048949

Elevation: 2 meters

Area Represented: Savannah MSA

North

South

East

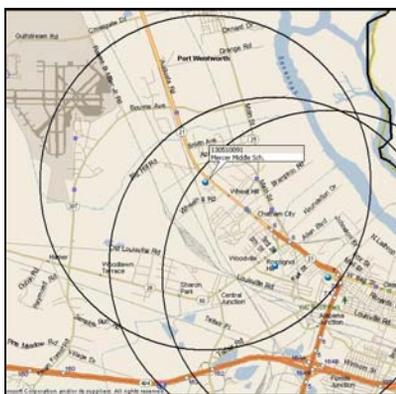
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	4/19/95
SO <sub>2</sub>	Source Oriented	Continuous/ Every 3 years*	4 m	Neighborhood	3/29/95
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:** Consider relocating to new location that meets siting guidelines-present location may be too close to trees; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> sampling since source is no longer in area and have another SO<sub>2</sub> sampler in Savannah area; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Savannah- Mercer School



AQS ID: 130510091

Address: Mercer Junior High School, Garden City,  
Chatham County, Georgia

Site Established: 7/7/76

Latitude/Longitude: N32.110580/W-81.162024

Elevation: 4 meters

Area Represented: Savannah MSA

North

South

East

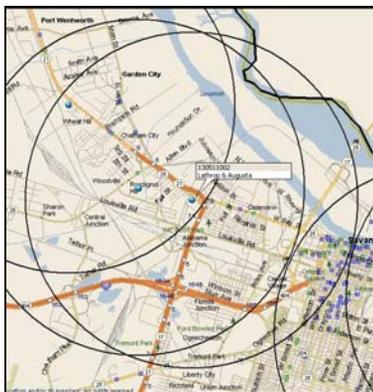
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/99

Recommendations: Consider consolidating with Savannah-Market Street and Savannah-Lathrop & Augusta sites

## Savannah- Lathrop and Augusta



AQS ID: 130511002

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

Site Established: 1/1/72

Latitude/Longitude: N32.090278/W-81.130556

Elevation: 4 meters

Area Represented: Savannah MSA

Northeast

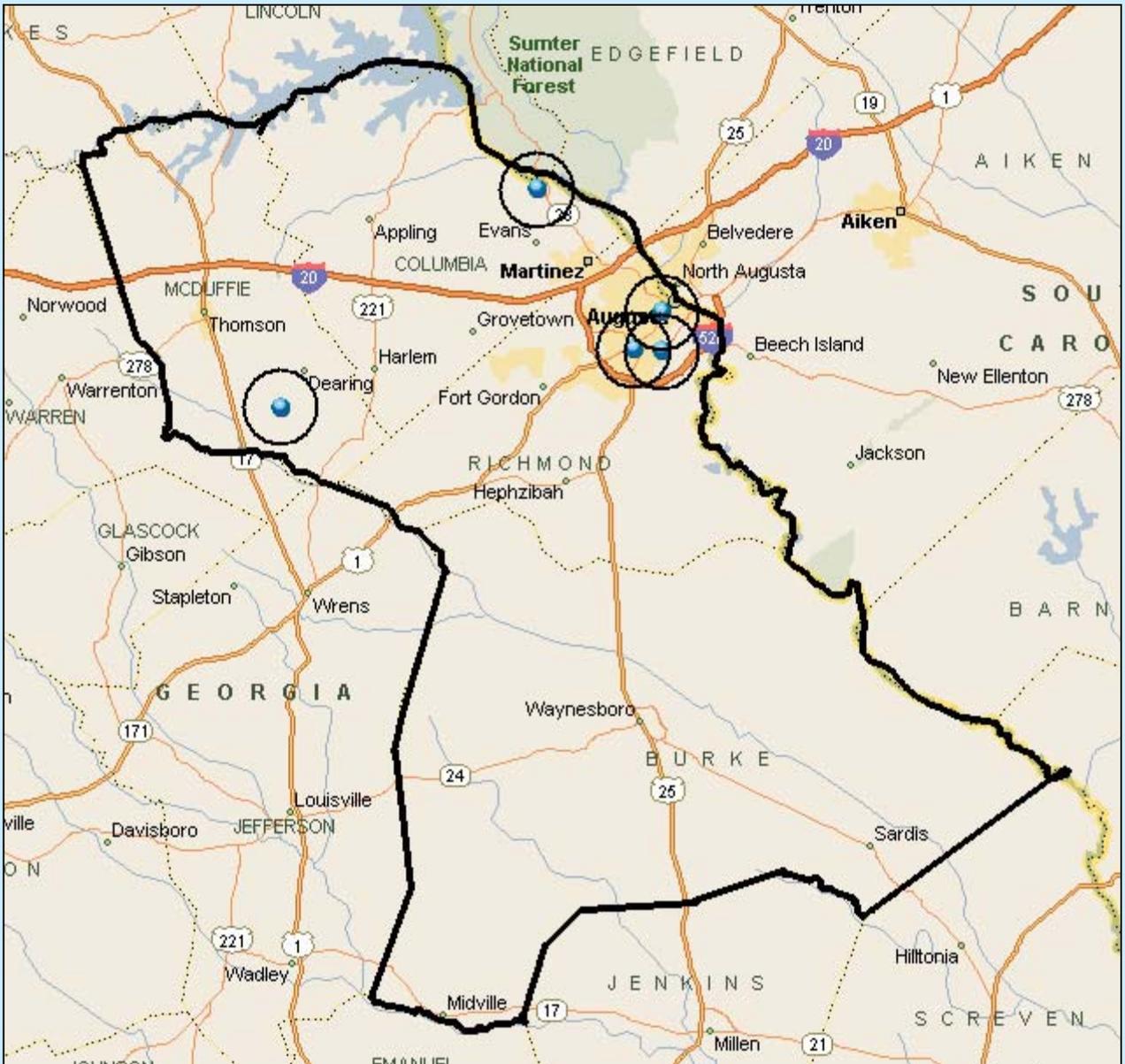
Southwest



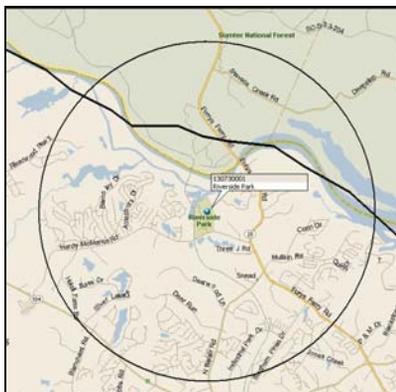
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO <sub>2</sub>	Population Exposure	Continuous*	4 m	Neighborhood	1/1/98
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/79
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/79
PM <sub>2.5</sub>	Population Exposure	Continuous	5 m	Neighborhood	10/1/03

Recommendations: Consider consolidating with Savannah-Market Street and Savannah-Mercer School sites; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> monitor

# 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

North

Southeast

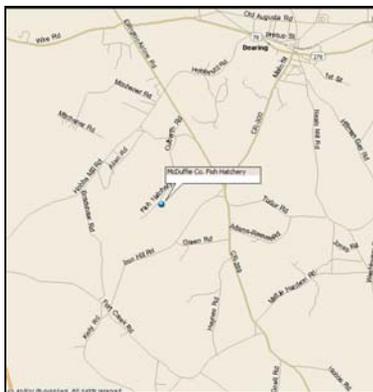
East



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	5 m	Neighborhood	3/1/05
NO <sub>y</sub>	Population Exposure	Continuous	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; Parameter in red has temporarily suspended operation as of 7/28/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Thomson- DNR Fish Hatchery



AQS ID: 131890001

Address: DNR Fish Hatchery, 4695 Fish Hatchery Road SE, Dearing,  
McDuffie County, Georgia 30808

Site Established: 1987

Latitude/Longitude: N33.380678/W-82.419409

Elevation: 121 meters

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

North

South

East

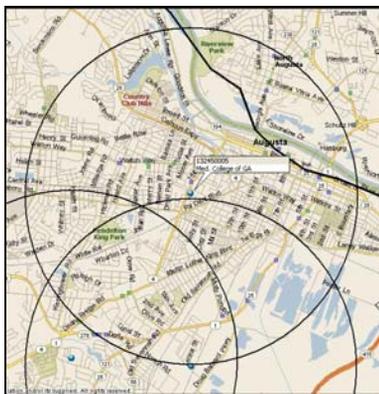
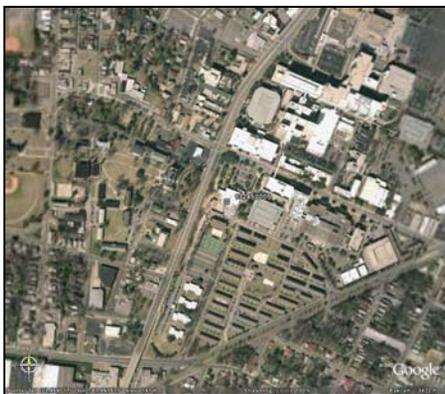
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Acid Rain	Regional Transport	7-day samples	1.50 m	Urban	1987

Recommendations: Parameter in red has temporarily suspended operation as of 10/31/08

## Augusta- Medical College of Georgia



AQS ID: 132450005

Address: Medical College of Georgia, Augusta,  
Richmond County, Georgia

Site Established: 1/1/79

Latitude/Longitude: N33.469018/W-81.991581

Elevation: 42 meters

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

North

South

East

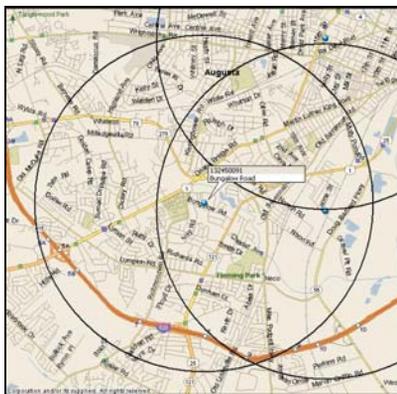
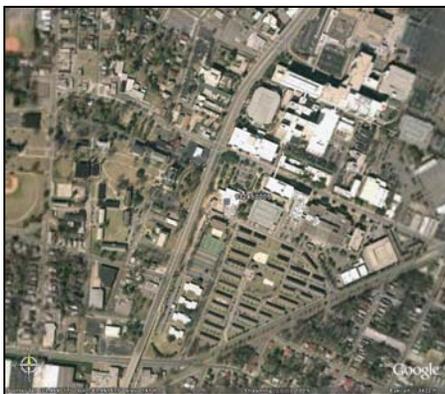
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	14 m	Neighborhood	1/21/99
PM <sub>2.5</sub>	Quality Assurance	Every 12 days	14 m	Neighborhood	1/21/99

Recommendations: Continue monitoring

## Augusta- Bungalow Road Elementary



AQS ID: 132450091

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

Site Established: 1/1/76

Latitude/Longitude: N33.433883/W-82.022414

Elevation: 46 meters

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

North

South

East

West



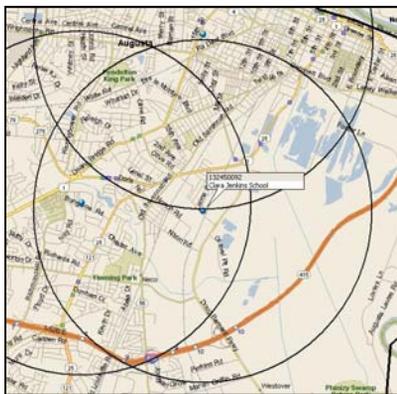
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	5 m	Neighborhood	4/27/89
PM <sub>10</sub>	Population Exposure	Every 6 days	6 m	Neighborhood	4/9/96
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	6 m	Neighborhood	3/2/02
PM <sub>2.5</sub>	Population Exposure	Every 3 days	6 m	Neighborhood	2/8/99
PM <sub>2.5</sub>	Population Exposure	Continuous	6 m	Neighborhood	10/1/03
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

**Augusta- Bungalow Road Elementary (continued)**

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
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; †Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Augusta- Clara Jenkins School



AQS ID: 132450092

Address: Clara Jenkins School, 101 Dan Bowles Road, Augusta,  
Richmond County, Georgia

Site Established: 1/1/78

Latitude/Longitude: N33.432206/ W-81.991527

Elevation: 42 meters

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

North

South

East

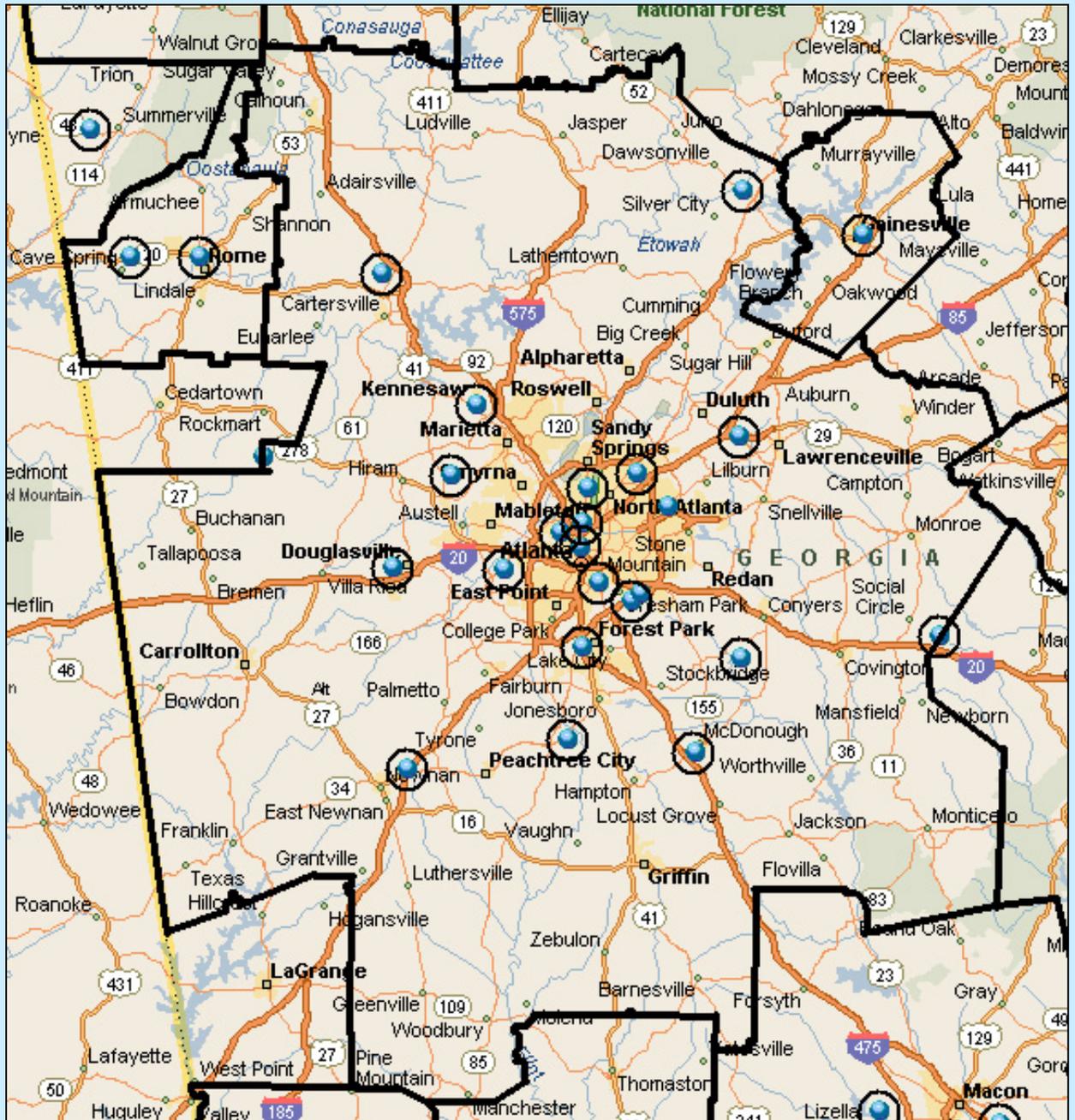
West



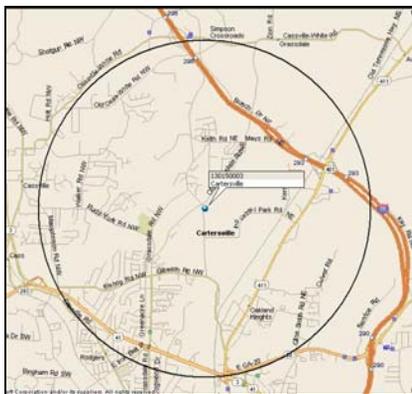
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	8 m	Neighborhood	9/18/96

Recommendations: Parameters in red have temporarily suspended operation as of 10/31/08

# Atlanta-Sandy Springs-Marietta MSA



## Cartersville - Lead



AQS ID: 130150003

Address: Cartersville Lead, 420 Peebles Valley Road NE, Cartersville,  
Bartow County, Georgia 30121

Site Established: 12/09/09

Latitude/Longitude: N34.236667/W-84.805

Elevation: 800 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

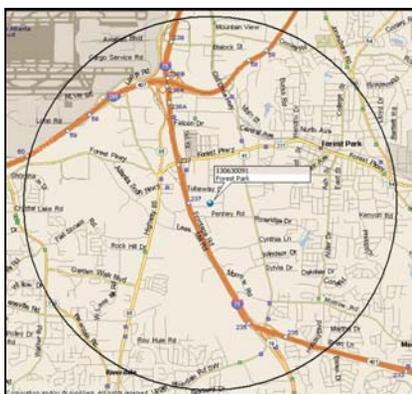
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Source Oriented	Every 6 days	4 m	Neighborhood	12/09/09
Wind Direction	Source Oriented	Continuous	10 m	Neighborhood	2/23/09
Wind Speed	Source Oriented	Continuous	10 m	Neighborhood	2/23/09

Recommendations: Continue monitoring

## Forest Park- Georgia DOT



AQS ID: 130630091

Address: 25 Kennedy Drive, Forest Park,  
Clayton County, Georgia

Site Established: 1/1/78

Latitude/Longitude: N33.609722/W-84.391111

Elevation: 288 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days*	5 m	Neighborhood	1/9/99

Recommendations: Continue monitoring; \*Plan to add PM<sub>2.5</sub> FRM; After second PM<sub>2.5</sub> installed, propose to run quality assurance PM<sub>2.5</sub> FRM sampler on 1 in 12 day schedule

## 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

North

South

East

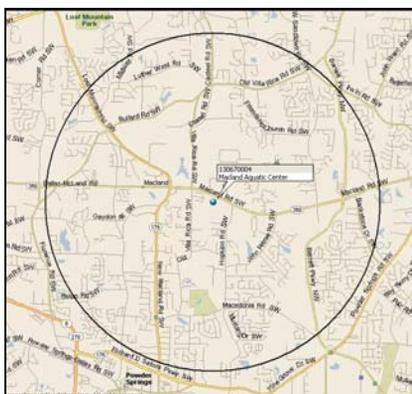
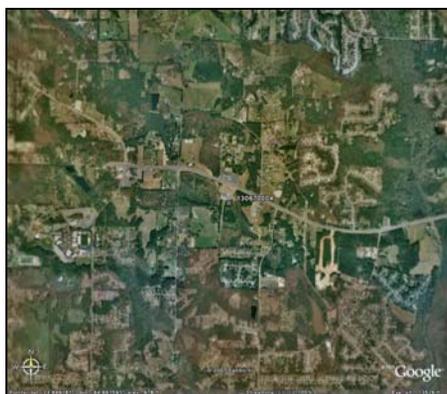
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	9/1/99
PM <sub>2.5</sub>	Population Exposure	Daily	4 m	Neighborhood	2/7/99

Recommendations: Continue monitoring; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Powder Springs- Macland Aquatic Center



AQS ID: 130670004

Address: Macland Aquatic Center, Powder Springs,  
Cobb County, Georgia

Site Established: 2/5/03

Latitude/Longitude: N33.899182/W-84.661589

Elevation: 312 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

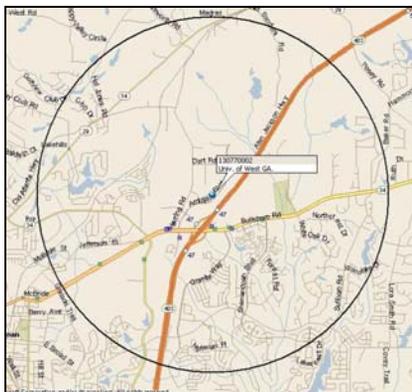
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	2 m	Neighborhood	2/5/03

Recommendations: Continue monitoring

## Newnan- University of West Georgia



AQS ID: 130770002

Address: University of West Georgia, 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

North

South

East

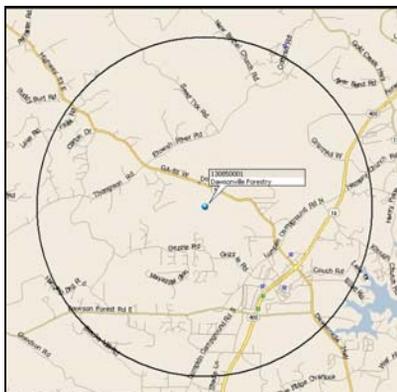
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	5/5/99
PM <sub>2.5</sub>	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; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## 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

North

South

East

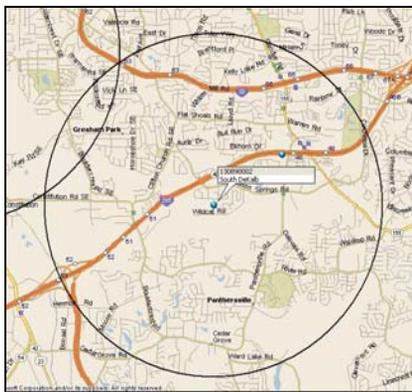
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (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
Acid Rain	Regional Transport	7-day samples	1.50 m	Urban	1987
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; Parameter in red has temporarily suspended operation as of 10/31/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Decatur- South DeKalb



AQS ID: 130890002

Address: 2390-B Wildcat Road, Decatur,  
DeKalb County, Georgia 30034

Site Established: 1/1/74

Latitude/Longitude: N33.68808/-84.29018

Elevation: 308 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Daily	2 m	Neighborhood	1/22/99
PM <sub>2.5</sub>	Quality Assurance	Every 12 days	2 m	Neighborhood	12/20/08
PM <sub>2.5</sub>	Population Exposure	Continuous	4 m	Neighborhood	5/1/03
PM <sub>2.5</sub> Speciation	Population Exposure	Every 3 days	2 m	Neighborhood	10/1/00
O <sub>3</sub>	Highest Concentration	Continuous	4 m	Neighborhood/ Urban	1/1/74
CO	Population Exposure	Continuous	4 m	Neighborhood	5/19/03
NO <sub>y</sub>	Population Exposure	Continuous	10 m	Neighborhood/ Urban	1/1/98

**Decatur- South DeKalb (continued)**

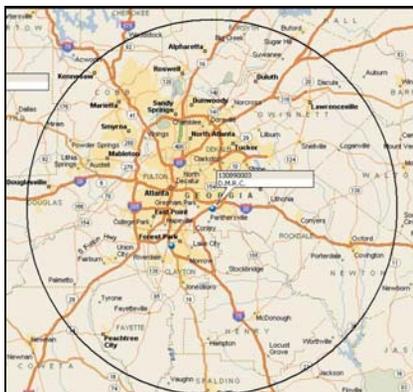
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NO <sub>x</sub>	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NO <sub>2</sub>	Population Exposure	Continuous	5 m	Neighborhood/ Urban	7/21/78
Hexavalent Chromium	Population Exposure	Every 6 days	2 m	Neighborhood	2/27/05
Hexavalent Chromium	Quality Assurance	Every 2 months	2 m	Neighborhood	2/27/05
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 <sub>10</sub> Select Metals (Toxics)	Population Exposure	Every 6 days	2 m	Neighborhood	1/1/00
PM <sub>10</sub> Select Metals (Toxics)	Quality Assurance	Every 12 days	2 m	Neighborhood	1/1/05
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
Semi-VOCs	Population Exposure	Every 6 days	2 m	Neighborhood	4/30/07
Semi-VOCs	Quality Assurance	Every 2 months	2 m	Neighborhood	4/30/07
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/93

**Decatur- South DeKalb (continued)**

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
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; Consider reposition of monitors on site to accommodate growth of trees; Complete preparation to begin NCore sampling by January 1, 2011 (see Appendix C for details)

## Decatur- DMRC



AQS ID: 130890003

Address: D.M.R.C., 3073 Panthersville Road, Decatur,  
DeKalb County, Georgia

Site Established: 7/1/86

Latitude/Longitude: N33.698468/W-84.272694

Elevation: 238 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

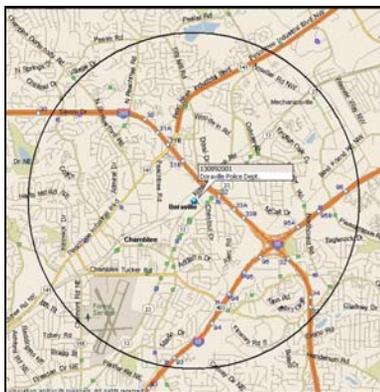
West



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 6 days	2 m	Regional	8/5/09

Recommendations: Continue monitoring; Lead monitor for NCore Station at South DeKalb site (see Appendix C for full description)

## Doraville- Police Department



AQS ID: 130892001

Address: Doraville Health Center, 3760 Park Street, Doraville,  
DeKalb County, Georgia

Site Established: 7/1/70

Latitude/Longitude: N33.90133/W-84.28007

Elevation: 314 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

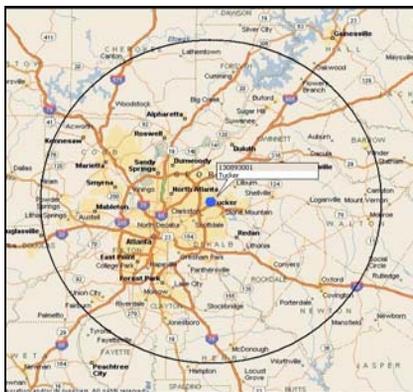
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Daily*	6 m	Neighborhood	1/1/99
PM <sub>10</sub>	Population Exposure	Every 6 days	6 m	Neighborhood	12/1/87

Recommendations: Continue monitoring; \*Plan to move two continuous PM<sub>2.5</sub> BAM samplers to site; When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FEM collocation

## Tucker- Idlewood Road



AQS ID: 130893001

Address: Idlewood Road, Tucker,  
DeKalb County, Georgia

Site Established: 7/19/90

Latitude/Longitude: N33.845602/W-84.213486

Elevation: 324 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



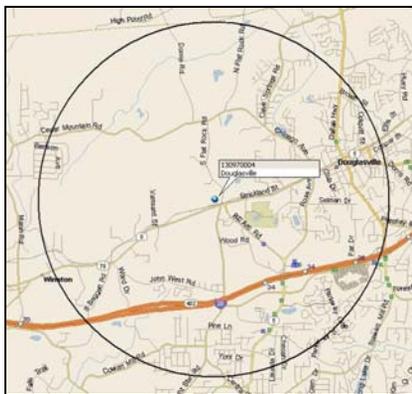
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Speed	General/ Background	Continuous	10 m	Urban	4/1/95
Wind Direction	General/ Background	Continuous	10 m	Urban	4/1/95
Outdoor Temperature	General/ Background	Continuous	2 m	Urban	4/1/95
Relative Humidity	General/ Background	Continuous	2 m	Urban	4/1/95
Solar Radiation	General/ Background	Continuous	3 m	Urban	4/1/95
Ultraviolet Radiation	General/ Background	Continuous	3 m	Urban	1/1/97

**Tucker- Idlewood Road (continued)**

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Barometric Pressure	General/ Background	Continuous	2 m	Urban	4/1/95
Rain/Melt Precipitation	General/ Background	Continuous	3 m	Urban	1/1/97

Recommendations: Continue monitoring

## Douglasville- W. Strickland Street



AQS ID: 130970004

Address: Douglas County Water Authority, 7725 West Strickland Street, Douglasville,  
Douglas County, Georgia

Site Established: 8/15/97

Latitude/Longitude: N33.743514/W-84.779263

Elevation: 368 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

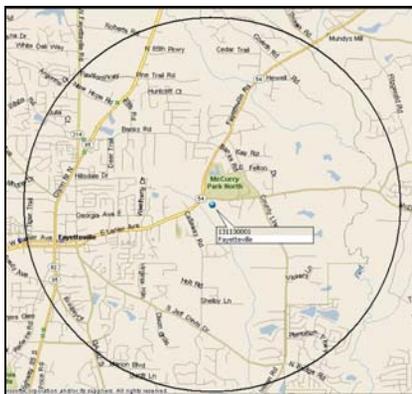
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (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; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Fayetteville- GA DOT



AQS ID: 131130001

Address: Georgia DOT, 145 McDonough Road, Fayetteville,  
Fayette County, Georgia

Site Established: 4/1/98

Latitude/Longitude: N33.45559/W-84.41908

Elevation: 258 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

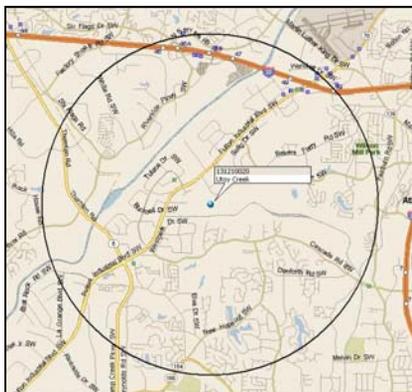
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	4/1/98
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/05

Recommendations: Parameters in red have temporarily suspended operation: O<sub>3</sub> as of 10/31/08, Meteorological parameters as of 10/29/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Atlanta- Utoy Creek



AQS ID: 131210020

Address: Utoy Creek Wastewater Treatment Facility, 736 Selig Drive, Atlanta,  
Fulton County, Georgia

Site Established: 1/1/80

Latitude/Longitude: N33.741111/W-84.552778

Elevation: 297 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

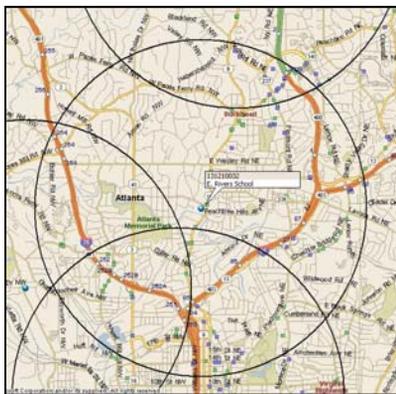
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	6 m	Neighborhood	9/18/96
Toxics	Quality Assurance	Every 12 days	6 m	Neighborhood	9/18/96

Recommendations: Parameters in red have temporarily suspended operation as of 10/31/08

## Atlanta- E. Rivers School



AQS ID: 131210032

Address: E. Rivers School, 8 Peachtree Battle Avenue NW, Atlanta,  
Fulton County, Georgia

Site Established: 9/1/71

Latitude/Longitude: N33.81923/W-84.39001

Elevation: 305 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

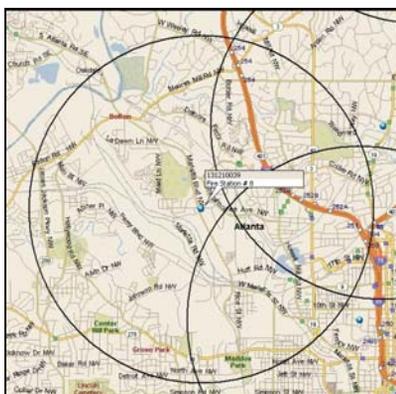
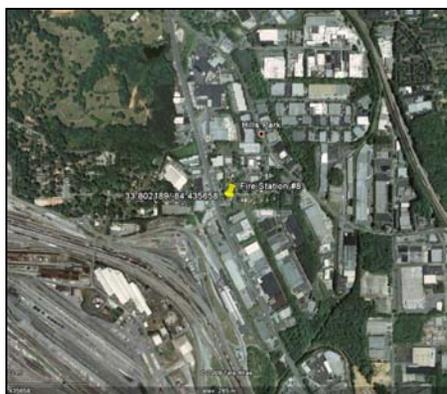
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Every 6 days	4 m	Neighborhood	8/1/96
PM <sub>10</sub>	Quality Assurance	Every 6 days	4 m	Neighborhood	8/1/96
PM <sub>2.5</sub>	Population Exposure	Daily*	4 m	Neighborhood	1/1/99
PM <sub>2.5</sub>	Quality Assurance	Every 12 days	4 m	Neighborhood	1/1/99

Recommendations: Continue monitoring; \*Plan to move one continuous PM<sub>2.5</sub> BAM sampler to site; When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation

## Atlanta- Fire Station #8



AQS ID: 131210039

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

Site Established: 1/1/73

Latitude/Longitude: N33.802189/W-84.435658

Elevation: 265 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

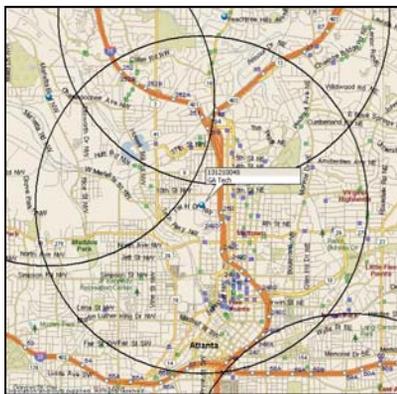
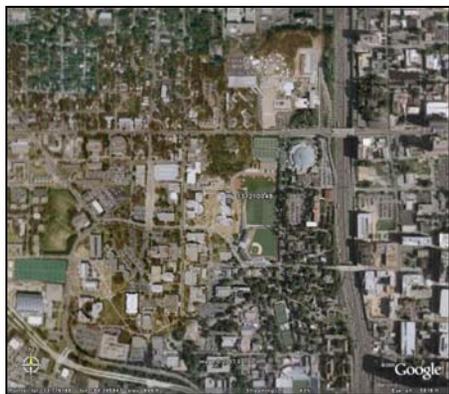
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	4 m	Neighborhood	12/2/08

Recommendations: Continue monitoring

## Atlanta- Georgia Tech



AQS ID: 131210048

Address: Georgia Tech Environmental Science Building, 311 Ferst Drive, Atlanta,  
Fulton County, Georgia

Site Established: 2/1/82

Latitude/Longitude: N33.779189/W-84.395843

Elevation: 290 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Population Exposure	Continuous	24.90 m	Neighborhood	7/1/98
SO <sub>2</sub>	Highest Concentration	Continuous*	27.55 m	Neighborhood	2/1/82
NO	Population Exposure	Continuous	27.55 m	Neighborhood	1/1/98
NO <sub>2</sub>	Highest Concentration	Continuous	27.55 m	Neighborhood	2/1/82
NO <sub>x</sub>	Population Exposure	Continuous	27.55 m	Neighborhood	1/1/98
Wind Direction	General/ Background	Continuous	32 m	Neighborhood	1/4/07
Wind Speed	General/ Background	Continuous	32 m	Neighborhood	1/4/07

Recommendations: Parameters in red have temporarily suspended operation as of 4/30/09; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> monitor

## Atlanta- Confederate Avenue



AQS ID: 131210055

Address: 945 Confederate Avenue, Atlanta,  
Fulton County, Georgia 30334

Site Established: 10/1/91

Latitude/Longitude: N33.72005/W-84.35714

Elevation: 292 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

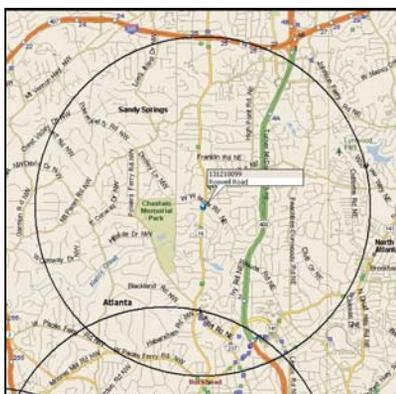
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO <sub>2</sub>	Population Exposure	Continuous*	4 m	Neighborhood	10/1/91
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	10/1/91
PM <sub>2.5</sub>	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; \*With Five-Year Assessment, evaluating continuation of SO<sub>2</sub> monitor; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Atlanta- Roswell Road



AQS ID: 131210099

Address: Georgia Power Sub-station, 4434 Roswell Road, Atlanta, Fulton County, Georgia

Site Established: 8/4/94

Latitude/Longitude: N33.87633/W-84.38041

Elevation: 270 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

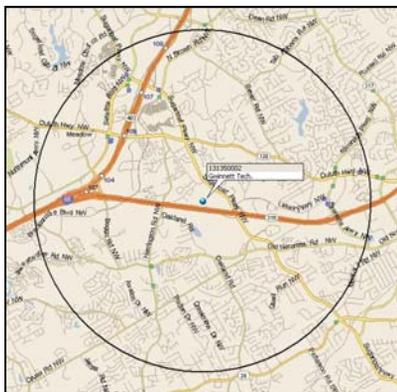
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
CO	Highest Concentration	Continuous	3 m	Microscale	8/4/94

Recommendations: Continue monitoring

## Lawrenceville- Gwinnett Tech



AQS ID: 131350002

Address: Gwinnett Tech, 1250 Atkinson Road, Lawrenceville,  
Gwinnett County, Georgia 30246

Site Established: 3/17/95

Latitude/Longitude: N33.96127/W-84.06901

Elevation: 290 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Highest Concentration	Continuous <sup>†</sup> (Mar-Oct)	5 m	Neighborhood	5/17/95
PM <sub>2.5</sub>	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/00
PM <sub>2.5</sub>	Population Exposure	Continuous	5 m	Neighborhood	9/1/03

Recommendations: Continue monitoring; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## McDonough- County Extension Office



AQS ID: 131510002

Address: Henry County Extension Office, 86 Work Camp Road, 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

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure	Continuous <sup>†</sup> (Mar-Oct)	4 m	Neighborhood	6/7/99
PM <sub>2.5</sub>	Population Exposure	Continuous	4 m	Neighborhood	9/1/03

Recommendations: Continue monitoring; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Yorkville- King Farm



AQS ID: 132230003

Address: King Farm, 160 Ralph King Path, Yorkville,  
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

North

South

East



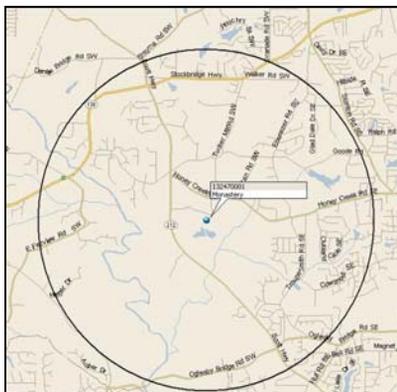
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Population Exposure/ Upwind Background	Continuous <sup>†</sup> (Mar-Oct)	4 m	Regional	1/1/96
CO	Population Exposure/ Upwind Background	Continuous	4 m	Regional	7/16/02
NO	Population Exposure/ Upwind Background	Continuous	4 m	Regional	1/1/96
NO <sub>2</sub>	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 <sub>2.5</sub>	Upwind Background	Continuous	4 m	Regional	3/1/03
PM <sub>2.5</sub>	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; †Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Conyers- Monastery



AQS ID: 132470001

Address: Monastery of the Holy Spirit, 3720 Georgia Highway 212, Conyers,  
Rockdale County, Georgia

Site Established: 7/26/78

Latitude/Longitude: N33.590932/W-84.065386

Elevation: 219 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

West



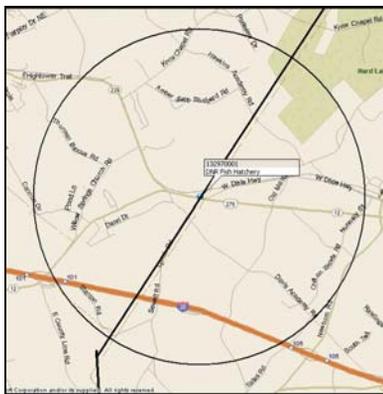
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Maximum Concentration	Continuous <sup>†</sup> (Mar-Oct)	5 m	Neighborhood	7/26/78
NO <sub>x</sub>	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
NO <sub>2</sub>	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
NO	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
VOCs (PAMS)	Max Precursor Emissions Impact	Continuous in Summer	5 m	Neighborhood	1/1/94

**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; †Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Social Circle- DNR Fish Hatchery



AQS ID: 132970001

Address: DNR Fish Hatchery, 2123 US Highway 278 SE, Social Circle, Walton County, Georgia

Site Established: 1/1/79

Latitude/Longitude: N33.62661/W-83.65896

Elevation: 229 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

North

South

East

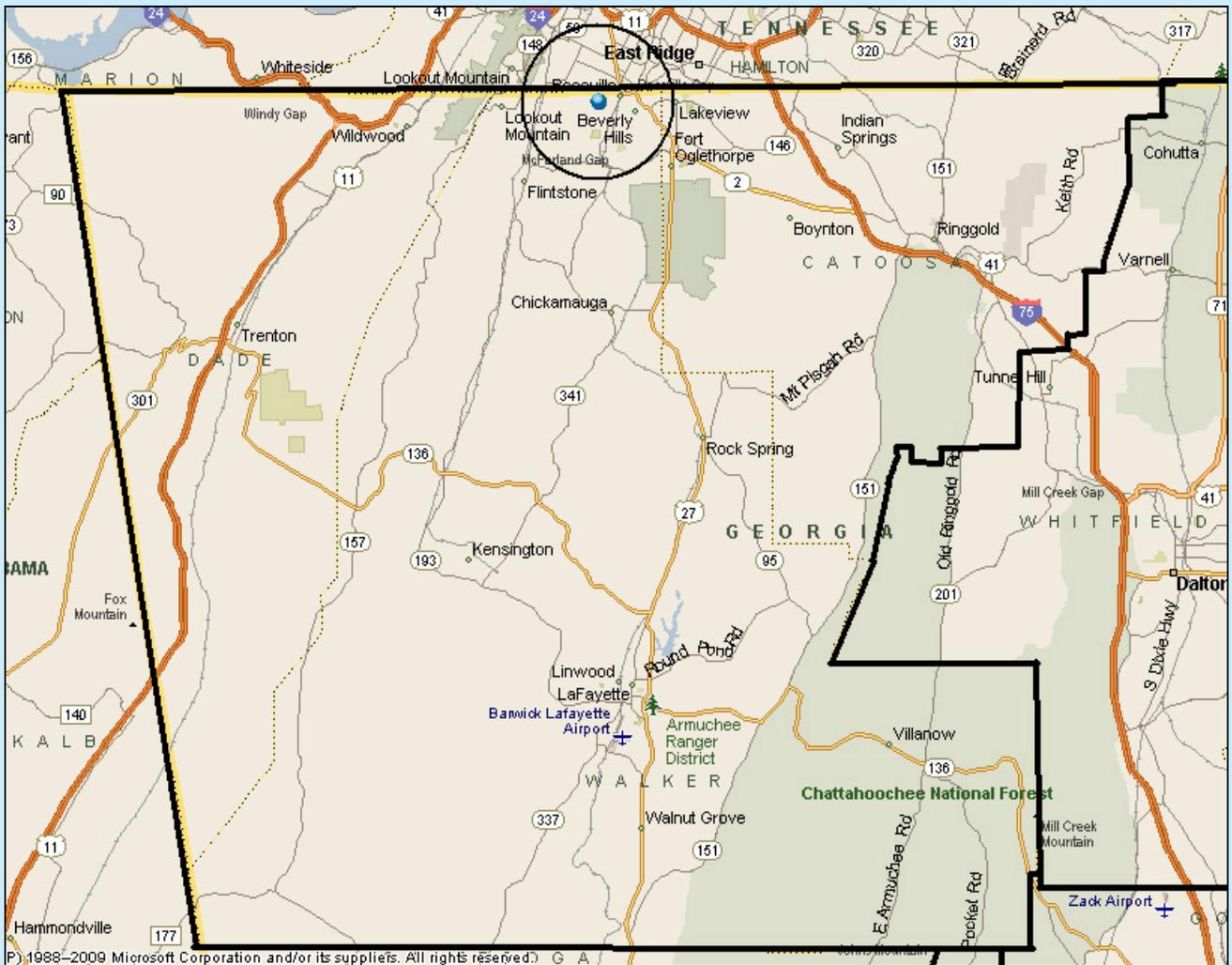
West



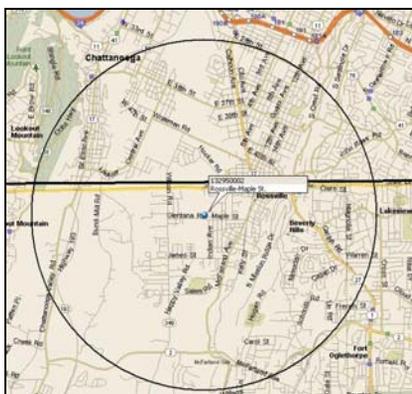
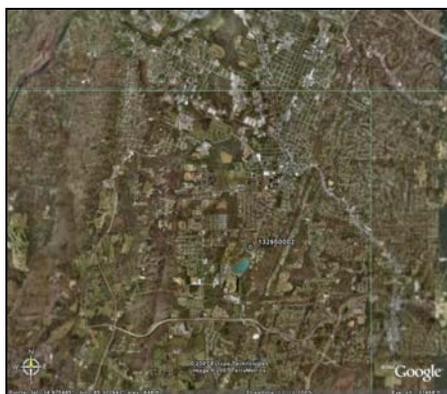
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Continuous	5 m	Neighborhood	3/24/05

Recommendations: Parameter in red has temporarily suspended operation as of 10/31/08

# 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

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure/ Regional Transport	Continuous*	6 m	Neighborhood	1/24/07
PM <sub>2.5</sub>	Population Exposure	Every 3 days*	6 m	Neighborhood	1/1/00
PM <sub>2.5</sub> Speciation	Population Exposure	Every 6 days	6 m	Neighborhood	3/23/05

**Recommendations:** Continue monitoring; \* When GA EPD begins to operate continuous PM<sub>2.5</sub> BAM sampler as an FEM, will run FEM/FRM collocation; Propose to run 1 in 12 day sampling schedule for quality assurance PM<sub>2.5</sub> FRM

# Sites Not in an MSA

(Listed in AQS ID Order)

## Milledgeville- Baldwin County Airport



AQS ID: 130090001

Address: Baldwin County Airport, Milledgeville,  
Baldwin County, Georgia

Site Established: 1/1/74

Latitude/Longitude: N33.153258/W-83.235807

Elevation: 122 meters

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

North

South

East

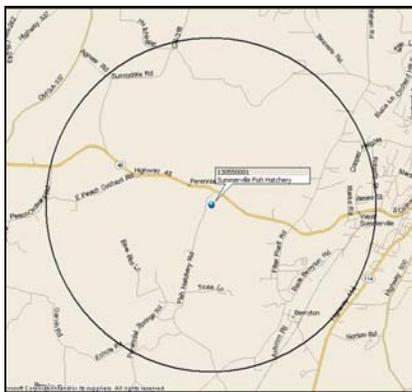
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	1/1/00

Recommendations: Parameters in red have temporarily suspended operation as of 10/31/08

## Summerville- DNR Fish Hatchery



AQS ID: 130550001

Address: Summerville 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

North

South

East

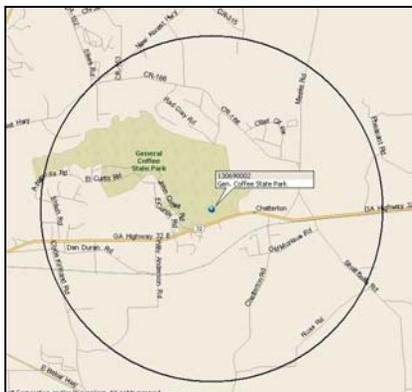
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	Regional Transport	Continuous <sup>†</sup> (Mar-Oct)	5 m	Urban	3/1/04
PM <sub>10</sub>	General Background	Every 6 days	2 m	Neighborhood	8/27/90
Acid Rain	Regional Transport	7-day samples	1.50 m	Urban	1985

Recommendations: Continue monitoring; Parameter in red has temporarily suspended operation as of 10/31/08; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Douglas- General Coffee State Park



AQS ID: 130690002

Address: General Coffee State Park, Douglas,  
Coffee County, Georgia

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

Northwest

Southeast

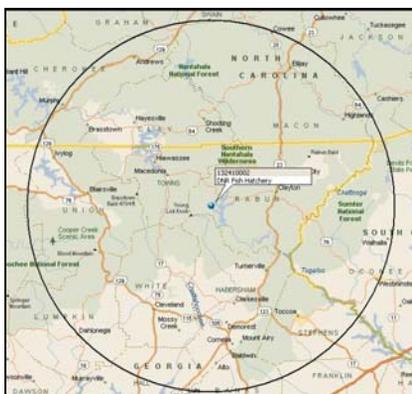
Southeast



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub> 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

# Hiwassee- Lake Burton



AQS ID: 132410002

Address: Lake Burton Fish Hatchery, 3695 Highway 197 N, Clarksville, Rabun County, Georgia 30523

Site Established: 1985

Latitude/Longitude: N34.845004/W-83.592281

Elevation: 605 meters

Area Represented: Not in an MSA, Rabun County

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Acid Rain	Regional Transport	7-day samples	1.50 m	Urban	1985

Recommendations: Parameter in red has temporarily suspended operation as of 10/31/08

## Leslie- Union High School



AQS ID: 132611001

Address: Union High School, Leslie,  
Sumter County, Georgia

Site Established: 1/1/81

Latitude/Longitude: N31.953056/W-84.079444

Elevation: 100 meters

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

North

South

East

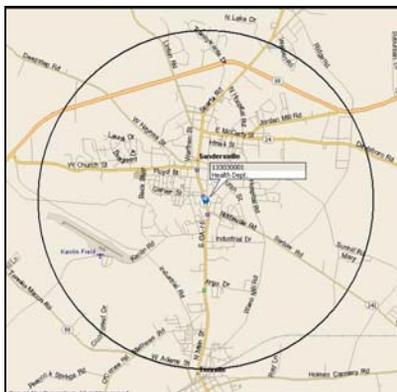
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O <sub>3</sub>	General/ Background	Continuous <sup>†</sup> (Mar-Oct)	1 m	Neighborhood	1/1/81

Recommendations: Continue monitoring; <sup>†</sup>Depending on finalization of proposed ozone rule [Federal Register: Vol. 75, page 2938, 1/19/10], monitoring season may change to February through October

## Sandersville- Health Department



AQS ID: 133030001

Address: Sandersville Health Department, 201 Morningside Drive, Sandersville, Washington County, Georgia

Site Established: 1/1/74

Latitude/Longitude: N32.974722/W-82.808889

Elevation: 135 meters

Area Represented: Not in an MSA, Washington County

North

South

East

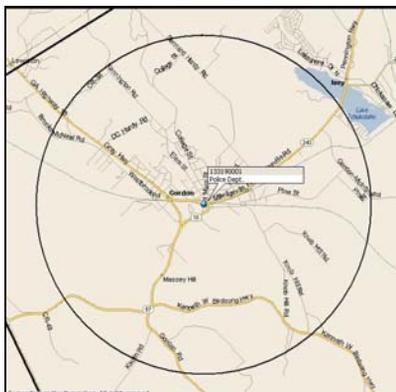
West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>10</sub>	Highest Concentration	Every 6 days	3 m	Neighborhood	6/6/91
PM <sub>2.5</sub>	Population Exposure	Every 3 days	3 m	Neighborhood	1/30/99

Recommendations: Continue monitoring

## Gordon- Police Department



AQS ID: 133190001

Address: Police Department, 105 Railroad Street, Gordon,  
Wilkinson County, Georgia

Site Established: 1/1/99

Latitude/Longitude: N32.881667/W-83.333889

Elevation: 103 meters

Area Represented: Not in an MSA, Wilkinson County

North

South

East

West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Every 3 days	5 m	Neighborhood	1/1/99

Recommendations: Continue monitoring

**Appendix B:  
Inventory of Ambient Monitoring Equipment**

**Georgia Department of Natural Resources  
Environmental Protection Division**

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE	
Albany Turner Elem.	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	fair/ >6	
	Met-One BAM Monitor	Continuous PM2.5 Sampler	good/ >2	
Athens College Station Rd.	Thermo O3 Analyzer	49C	good/ >5	
	Thermo O3 Calibrator	49C-PS	good/ >5	
	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	fair/ >6	
	Speciated PM2.5 Sampler	MetOne	good/ <3	
Atlanta Clayton Georgia DOT	Speciated PM2.5 Sampler	URG	good/new	
	R&P PM2.5 Sampler	1400 A series TEOM	good/ >6	
	2025	Thermo 2025	good/ <2	
	Atlanta Fayette Georgia DOT	ESC DAS	Datalogger 8816	good/ >5
	(temporarily discontinued)	Thermo O3 Analyzer	49	good/ >10
Atlanta Confederate Ave.	Thermo O3 Calibrator	49C-PS	good/ >5	
	PermaPure Zero Air System	ZA-750-12	good/ >5	
	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	
Atlanta County Extension	Thermo SO2 Calibrator	146I	good/ <1	
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >3	
	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	
Atlanta Dawson GA Forestry	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5	
	ESC DAS	Datalogger 8816	good/ >3	
	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	
Atlanta DMRC	ATEC Carbonyl Sampler	100	good/ >5	
	Graseby HIVOL Sampler (metals)	2000H	fair/ >8	
	Graseby HIVOL Sampler (metals)	2000H Co-locate	fair/ >8	
Atlanta E. Rivers School	2025	Thermo 2025	good/ <2	
	2025	Thermo 2025 Co-locate	good/ <2	
	Partisol PM10 Sampler	Model 2000-H	good/ <2	
	Partisol PM10 Sampler	Model 2000-H Co-locate	good/ <2	
Atlanta Fish Hatchery (temporarily discontinued)	ESC DAS	Datalogger 8816	good/ >5	
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5	
Atlanta Fire Station #8	2025	Thermo 2025	good/ <2	
Atlanta Georgia Tech. (temporarily discontinued all except PM10)	ESC DAS	Datalogger 8832	good/ >3	
	Thermo SO2 Analyzer	43C	good/ >5	
	Thermo SO2/NOx Calibrator	146I	good/ <1	
	Thermo NOx Analyzer	42C	good/ >5	
	Thermo Zero Air Supply	111 Ozone	good/ >5	
Atlanta Gwinnett Tech.	Met-One BAM 1020 Monitor	Continuous PM10 Sampler	good/ <3	
	ESC DAS	Datalogger 8816	good/ >5	
	Thermo O3 Analyzer	49C	good/ >5	
	Thermo O3 Calibrator	49C-PS	good/ >5	
	Gast Zero Air System	4Z024 pump and cannisters	good/ >8	

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Atlanta Gwinnett Tech.(continued)	2025	Thermo 2025	good/ <2
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
Atlanta Macland Aquatic Center	2025	Thermo 2025	good/ <2
Atlanta 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
Atlanta National Guard	ESC DAS	Datalogger 8816	good/ >5
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air System	ZA-750-12	good/ >5
	2025	Thermo 2025	good/ <2
Atlanta Police Dept.(Doraville)	2025	Thermo 2025	good/ <2
	R&P Partisol	PM10 Sampler	good/ >5
Atlanta 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
	2025	Thermo 2025	good/ <2
	2025	Thermo 2025 Co-locate	good/ <2
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	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
	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	
ATEC Chromium +6 Sampler	Model 3400	good/ 2	
Atlanta Univ. of West GA	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 PM10 Sampler	TEOM 1400 A Series Continuous	good/ >5
Atlanta Utoy Creek(temp discont'd)	Andersen VOC Sampler	97-323	good/ >8

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE	
Atlanta Utoy Creek(continued)	Graseby PUF Sampler	BMPS1-11	good/ >15	
	Graseby PUF Sampler	BMPS1-11 Co-locate	good/ >15	
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >8	
	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H Co-l	good/ >8	
Atlanta W. Strickland St.	Thermo O3 Analyzer	49C	good/ >5	
	Thermo O3 Calibrator	49C-PS	good/ >5	
Atlanta Yorkville	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	
	2025	Thermo 2025	good/ <3	
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5	
	Graseby PUF Sampler	BMPS1-11	good/ >15	
	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >15	
	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	
	Augusta Bungalow Road	Thermo O3 Analyzer	49C	good/ >5
		Thermo O3 Calibrator	49C-PS	good/ >5
		R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
2025		Thermo 2025	good/ new	
Partisol PM10 Sampler		Model 2000-H	good/ >5	
Met-One SASS		Speciated PM2.5 Sampler	good/ <3	
Augusta Clara Jenkins School (temporarily discontinued)	URG 3000N	Speciated PM2.5 Sampler	good/ <2	
	ATEC		good/ >3	
	HIVOL		good/ >5	
Augusta Med. College GA	PUF		good/ >5	
	2025	Thermo 2025	good/new	
Augusta Riverside Park	2025	Thermo 2025 Co-locate	good/new	
	Thermo O3 Analyzer	Thermo 49C	good/ >3	
	Thermo O3 Calibrator	Thermo 49C-PS	good/ >3	
	Thermo NOy Analyzer	42C	good/ >3	
Baldwin Co. Airport (temporarily discontinued)	Thermo NOy Calibrator	146C	good/ >3	
	ESC DAS	Datalogger 8816	good/ >5	
	Andersen VOC Sampler	97-323	good/ >5	
	Tisch Environmental	HIVOL	good/ >5	
Brunswick Arco Pump Station	Graseby PUF Sampler	PUF	good/ >5	
	R&P PM10 Partisol Sampler	2000H	good/ >5	
	Graseby PUF Sampler	BMPS1-11	good/ >15	
Brunswick College (temporarily discontinued)	Graseby HIVOL Sampler (metals)	2000H	good/ >15	
	Andersen VOC Sampler	97-323	good/ >5	
	ATEC Carbonyl Sampler	100	good/ >3	
	ESC DAS	Datalogger 8816	good/ >3	
Brunswick Risley Middle	Thermo O3 Analyzer	49C	good/ >5	
	Thermo O3 Calibrator	49C-PS	good/ >5	
	Thermo SO2 Analyzer	43C	good/ >5	
	Thermo SO2 Calibrator	146C	good/ >5	

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Brunswick Risley Middle(cont'd)	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5
	Thermal Oxidizer	CDN-101	good/ >5
Cartersville	Tisch Environmental	HIVOL	good/<2
Chattooga Fish Hatchery	ESC DAS	Datalogger 8816	good/ >5
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	R&P PM10 Sampler	2000B Partisol PM10	good/ >3
Columbus Airport	ESC DAS	Datalogger S112-0000	good/ >5
	Thermo O3 Analyzer	49C	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >3
	Thermo SO2 Analyzer	43C	good/ >3
	Thermo SO2 Calibrator	146I	good/ <2
	2025	Thermo 2025	good/new
	R&P PM2.5 Sampler	TEOM 1400 A	good/ >5
	R&P	Sample Equil System	good/ >8
Columbus Cusseta Elementary	2025	Thermo 2025	good/new
	Met-One	Speciation Control Box	good/ >3
	R&P PM10 Sampler	2000H	good/ >8
	URG Sequential Sampler	Speciation Particulate 3000N MOD	good/ <2
	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus Health Dept.	2025	Thermo 2025	good/new
Columbus State	Graseby PUF Sampler	BMPS1-11	good/ >8
(temporarily discontinued)	General Metal Hi-Volume	HIVOL Sampler (lead) 2000HBL	good/ >8
	Graseby VOC Sampler	97-323	good/ >8
	ATEC VOC Sampler	ATEC 2200	good/ <2
Dalton Fort Mountain	ESC DAS	Datalogger 8816	good/ >3
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
Gainesville Fair St. Elementary	2025	Thermo 2025	good/ <2
(temporarily discontinued Toxics)	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	fair/>3
	Andersen PUF Sampler		good/ >5
	Graseby HIVOL Sampler (metals)	2000H	good/ >8
	ATEC VOC Sampler	2200	good/ >3
Macon Allied Chemical	2025	Thermo 2025	good/ <2
	2025	Thermo 2025 Co-locate	good/ <2
	Met-One PM2.5 Sampler	Speciated PM2.5 Sampler	good/ >8
	R&P PM10 Sampler	2000H	good/ <3
	R&P PM10 Sampler	2000H Co-locate	good/ <3
	URG Sequential Sampler	Speciation Particulate 3000N MOD	good/ >8
Macon Forestry	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49-103	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >8
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146T	good/ >8
	PermaPure Zero Air Supply	ZA-750-12	good/ >8
	2025	Thermo 2025	good/new
	Graseby PUF Sampler	GPS1-11	good/ >8
	Graseby HIVOL Sampler (metals)	2000H	good/ >8
	Andersen VOC Sampler	97-323	good/ >8
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >3
Macon Lake Tobesofkee(temp disc)	ESC DAS	Datalogger 8816	good/ >5

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE	
Macon Lake Tobesofkee(cont'd)	Thermo O3 Analyzer	49C	good/ >5	
	Thermo O3 Calibrator	49C-PS	good/ >5	
	Thermo NOy Analyzer	42C	good/ >5	
	Thermo NOy Calibrator	146C	good/ >5	
	Thermo Zero Air System	111 Ozone	good/ >5	
Rome Coosa Elementary	ESC DAS	Datalogger 8816	good/ >5	
	Thermo SO2 Analyzer	43C	good/ >5	
	Thermo SO2 Calibrator	146C	good/ >2	
	Gast Zero Air System	M1006X	good/ >5	
	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5	
	Met-One SASS	Speciated PM2.5 Sampler	good/ >2	
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ >2	
	R&P Partisol	2000 PM10 Partisol Sampler	good/ >10	
Rome Co. Health Dept. (temporarily discontinued)	Andersen PUF Sampler		good/ >5	
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >5	
	ATEC VOC Sampler	ATEC 2200	good/ >5	
Savannah E. President St.	ESC DAS	Datalogger 8816	good/ >5	
	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	
	Savannah Market St.	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5
	Savannah Mercer Middle	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5
	Savannah Shuman Middle School	R&P Partisol	2000 PM10 Partisol Sampler	good/ >5
Savannah W. Lathrop & Augusta	ESC DAS	Datalogger 8832	good/ >3	
	Thermo SO2 Analyzer	43C	good/ >5	
	Thermo SO2 Calibrator	146C	good/ >5	
	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5	
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5	
	Sumter Union High	ESC DAS	Datalogger S112-0000	good/ >8
	Thermo O3 Analyzer	49C	good/ >8	
	Thermo O3 Calibrator	49C-PS	good/ >8	
	PermaPure Zero Air Supply	ZA-750-12	good/ >8	
Valdosta S.L. Mason School	2025	Thermo 2025	good/new	
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ <2	
	Graseby PUF Sampler	GPS1-11	good/ >8	
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >5	
	ATEC VOC Sampler	ATEC 2200	good/ >5	
Walker Co. Health Dept.	ESC DAS	Datalogger 8816	good/ >2	
	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >2	
	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	
Warner Robins Air Base (temporarily discontinued Toxics)	2025	Thermo 2025	good/new	
	Met-One BAM Monitor	1020 Continuous PM2.5 Sampler	good/ <2	

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Warner Robins Air Base(cont'd)	Graseby PUF Sampler	GPS1-11	good/ >8
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >5
	ATEC VOC Sampler	ATEC 2200	good/ >5
Washington Co. Health Dept.	Andersen PM2.5	Andersen 2.5 (100)	good/ >5
	R&P Partisol	2000 PM10 Partisol Sampler	good/ >5
Wilkinson Co. Police Dept.	2025	Thermo 2025	good/new
GA EPD Air Branch/Workshop	Andersen PM2.5 Sampler	Andersen RAAS2.5 (300)	good/ >5
	Andersen PM10 Sampler	RAAS PM10	good/ >5
	Andersen PM10 Sampler	RAAS PM10 Co-locate	good/ >5
	ESC DAS	Datalogger 8816	good/ >5
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146	good/ >5
	Gast Zero Air System	M1006X	good/ >8
	GA EPD Air Branch/QA Unit	TriCal	Flow Standard
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		Flow Standard	good/ >3
Gilibrator Flow Cell		Flow Standard	good/ >3
Gilibrator Flow Cell		Flow Standard	good/ >3
VRC		Variable HiVol orifice	good/ >3
Thermo 146I		Multi-gas Calibrator	good/ >3
Thermo 146I		Multi-gas Calibrator	good/ >3
Thermo 146T		Multi-gas Calibrator	good/ >3
Thermo 49PS		Ozone Standard	good/ >3
DeltaCal		Flow Standard	good/ >3
Gilibrator Flow Cell	Flow Standard	good/ >3	
Gilibrator Flow Cell	Flow Standard	good/ >3	
Gilibrator Flow Cell	Flow Standard	good/ >3	
TriCal	Flow Standard	good/ >3	
GA EPD Air Branch /	Wind Instrument	05305vm (AQ)	good/ >8
Meteorology Unit Workshop	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05103 coastal	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
GA EPD Air Branch /	Wind Instrument	05103 coastal	good/ >8
Meteorology Unit Workshop	Wind Instrument	05103 coastal	good/ >8
(continued)	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >6
	Wind Instrument	05305vm (AQ)	good/ >8
	Wind Instrument	05305vm (AQ)	good/ >8
	Sonic Anemometer	81000	good/ <2
	Sonic Anemometer	81000	good/ <2
	Sonic Anemometer	85000	good/ <5
	Sonic Anemometer	85000	good/ <4
	Sonic Anemometer	85000	good/ <4
	Sonic Anemometer	85000	good/ <3
	PSP	Solar Radiation Instrument	good/ >8
	PSP	Solar Radiation Instrument	good/ >8
	PSP	Solar Radiation Instrument	good/ >8
	PSP	Solar Radiation Instrument	good/ >8
	PSP	Solar Radiation Instrument	poor/ <2
	TUVR	Ultraviolet Radiation Instrument	good/ >8
	TUVR	Ultraviolet Radiation Instrument	good/ >8
	TUVR	Ultraviolet Radiation Instrument	good/ >8
	TUVR	Ultraviolet Radiation Instrument	good/ >3
	TUVR	Ultraviolet Radiation Instrument	good/ >3
	TUVR	Ultraviolet Radiation Instrument	good/ <2
Atlanta Fayette Georgia DOT	Wind Instrument	05305vm (AQ)	good/ >8
Dalton Fort Mountain	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Clayton Georgia DOT	Wind Instrument	05305vm (AQ)	good/ >8
Macon Forestry	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Yorkville	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Dawson GA Forestry	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Tucker	Wind Instrument	05305vm (AQ)	good/ >8
Macon Lake Tobesofkee	Wind Instrument	05305vm (AQ)	good/ >8
Augusta Riverside Park	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta South DeKalb	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Monastery	Wind Instrument	05305vm (AQ)	good/ >8
Atlanta Univ. of West GA	Sonic Anemometer	85000	good/ >3
Augusta Bungalow Road	Sonic Anemometer	85000	good/ >3
Columbus Crime Lab	Sonic Anemometer	85000	good/ >3
Savannah E. President St.	Sonic Anemometer	85000	good/ <2
Atlanta Tucker	PSP	Solar Radiation Instrument	good/ >8
Atlanta Monastery	PSP	Solar Radiation Instrument	good/ >8
Atlanta Yorkville	PSP	Solar Radiation Instrument	good/ >5
Atlanta Monastery	TUVR	Ultraviolet Radiation Instrument	good/ >8
Atlanta Tucker	TUVR	Ultraviolet Radiation Instrument	good/ >8
Atlanta Yorkville	TUVR	Ultraviolet Radiation Instrument	good/ >8
Augusta Riverside Park	Tower	Fold Over	good/ >3

**Appendix C:  
Ambient Air Monitoring Plan  
for  
National Core (NCore) Multipollutant Monitoring  
Station**

**Georgia Department of Natural Resources  
Environmental Protection Division**

## 1.0 Introduction

In October 2006 the United States Environmental Protection Agency (EPA) issued final amendments to the ambient air monitoring regulations for criteria pollutants. These amendments are codified in 40 CFR parts 53 and 58. The purpose of the amendments was to enhance ambient air quality monitoring to better serve current and future air quality needs. One of the most significant changes in the regulations was the requirement to establish National Core (NCORE) Multipollutant Monitoring Stations. These stations will provide data on several pollutants at lower detection limits and replace the National Air Monitoring Station (NAMS) networks that have existed for several years. The final network plan must be submitted to EPA by July 1, 2009 and the stations must be operational by January 1, 2011.

The NCORE Network addresses the following monitoring objectives:

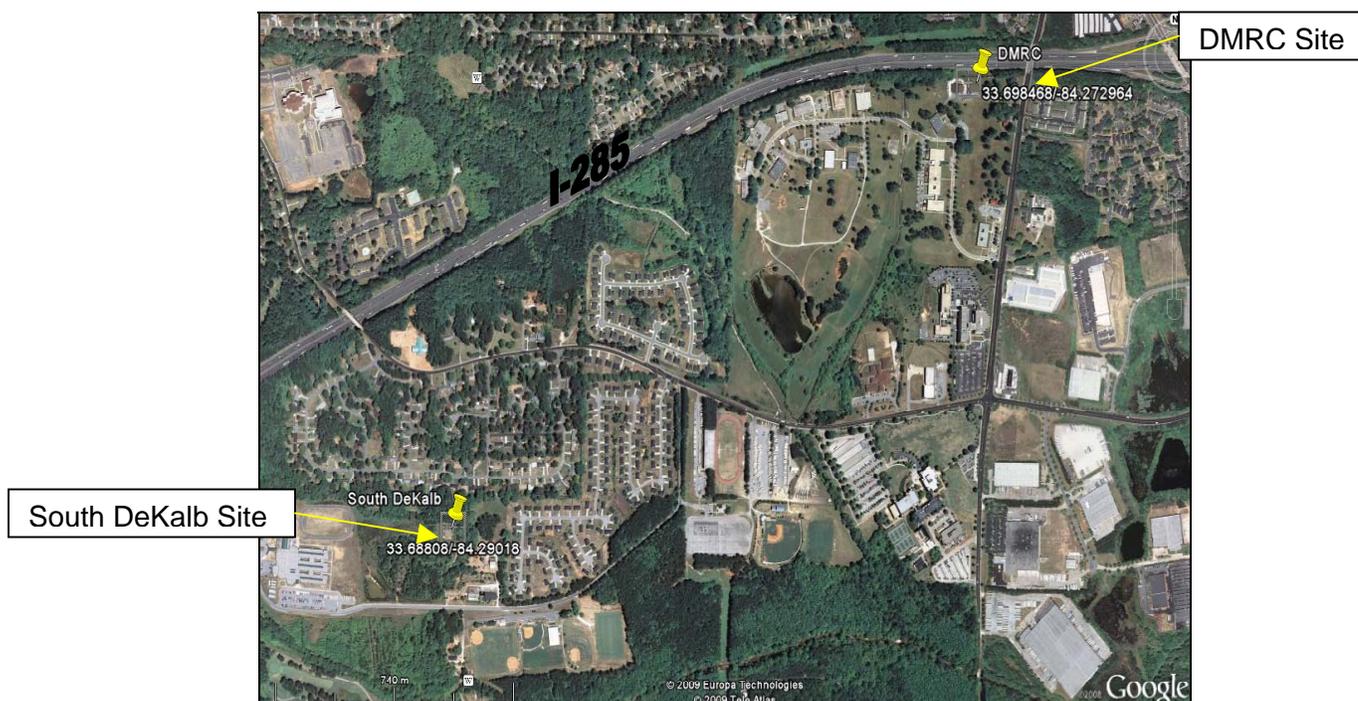
- timely reporting of data to the public through AIRNow, air quality forecasting, and other public reporting mechanisms
- support development of emission strategies through air quality model evaluation and other observational methods
- accountability of emission strategy progress through tracking long-term 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 South DeKalb site is currently a Photochemical Assessment Monitoring Station (PAMS), part of the Speciation Trends Network (STN), part of the National Air Toxics Trends Stations (NATTS) network, and part of the IMPROVE network. After evaluating the existing network, historical data, census data, meteorology, and topography GA EPD recommends the following changes to the South DeKalb site.

## 2.0 Recommended Changes to South DeKalb Site to Accommodate NCORE Sampling

- 2.1 Accommodate NCORE multi-pollutant monitoring station requirements at the South DeKalb site located in DeKalb County at 2390-B Wildcat Lane, Decatur. The location meets the objective for an NCORE site and meets neighborhood and urban scale criteria for O<sub>3</sub> and NO, NO<sub>2</sub>, NO<sub>x</sub> and NO<sub>y</sub>. It meets neighborhood scale criteria for PM<sub>2.5</sub>, PM<sub>10</sub>, and CO.
- 2.2 The PM<sub>10-2.5</sub> mass sampler will be installed according to regulations by January 1, 2011.
- 2.3 The SO<sub>2</sub> high sensitivity sampler will be installed according to regulations by January 1, 2011.
- 2.4 PM<sub>10-2.5</sub> speciation sampler will be installed as necessary, according to regulations. The date for the installation of this sampler is to be determined.
- 2.5 The meteorological equipment in place will remain. The solar radiation and total ultra violet radiation sampler would not meet siting criteria, due to height and location of trees. Therefore, these meteorological parameters will not be on site.

- 2.6** The ozone sampler began year-round continuous sampling. Previously, the ozone season for this monitor had been March 1 through October 31. As of November 1, 2009, this monitor is sampling ozone all year.
- 2.7** In the future, GA EPD will need to move sampler platform to meet siting criteria due to height and location of trees. The platform will remain in the same general location, but will be adjusted to meet siting requirements.
- 2.8** The DMRC site is located approximately 2 kilometers (km) away from the South DeKalb site. The DMRC site houses the criteria lead sampler. The lead sampler has been at this location since July 1, 1986. The DMRC site will be the location for the NCore lead sampling. Refer to following map for location.



### 3.0 Site Description



#### **South DeKalb Site Description:**

AQS ID: 130890002  
 Address: 2390-B Wildcat Road, Decatur, DeKalb  
 County, Georgia 30034  
 Site Established: 1/1/74  
 Latitude/Longitude: N33.68808/W-84.29018  
 Elevation: 308 meters  
 Area Represented: Atlanta-Sandy Springs-Marietta  
 MSA  
**Site Approval Status:** Approved October 30, 2009



#### **DMRC Site Description:**

AQS ID: 130890003  
 Address: D.M.R.C., 3073 Panthersville Road,  
 Decatur, DeKalb County, Georgia  
 Site Established: 7/1/86  
 Latitude/Longitude: N33.698468/W-84.272694  
 Elevation: 238 meters  
 Area Represented: Atlanta-Sandy Springs-Marietta  
 MSA  
**Site Approval Status:** Approved October 30, 2009

### 4.0 Monitor Information

The monitoring objectives for the South DeKalb site include determining compliance with NAAQS, observing pollution trends for national data analysis, providing pollution levels for daily index reporting, evaluating the regional air quality models used in developing emission strategies, tracking trends in air pollution abatement control measures, and providing data for scientific studies. The PM<sub>2.5</sub> mass measurements are applicable to be compared to the NAAQS for both the annual standard and the twenty-four hour standard.

The following table gives details about each parameter measured, including monitoring objective, analysis method, and spatial scale. Probe inlet height is shown in meters (m).

Parameter	Monitoring Objective	Sampling Schedule	Analysis Method	Probe Inlet Height	Spatial Scale	Begin Date
PM <sub>2.5</sub>	Population Exposure	Daily	Manual Reference Method utilizing gravimetric analysis	2 m	Neighborhood	1/22/99
PM <sub>2.5</sub>	Population Exposure	Every 12 days	Manual Reference Method utilizing gravimetric analysis	2 m	Neighborhood	12/20/08
PM <sub>2.5</sub>	Population Exposure	Continuous	Automated Method utilizing <u>Tapered Element Oscillating Microbalance</u> /gravimetric analysis	4 m	Neighborhood	5/1/03
PM <sub>2.5</sub> Speciation	Population Exposure	Every 3 days	Multi-species manual collection method utilizing thermal optical, ion chromatography, gravimetric, and X-ray fluorescence analyses	2 m	Neighborhood	10/1/00
CO	Population Exposure	Continuous	Automated Reference Method utilizing trace level non-dispersive infrared	4 m	Neighborhood	5/19/03
NO <sub>y</sub>	Population Exposure	Continuous	Automated trace level chemiluminescence	10 m	Neighborhood/ Urban	1/1/98
NO	Population Exposure	Continuous	Automated Reference Method utilizing chemiluminescence	4 m	Neighborhood/ Urban	4/1/94
NO <sub>x</sub>	Population Exposure	Continuous	Automated Reference Method utilizing chemiluminescence	4 m	Neighborhood/ Urban	4/1/94
NO <sub>2</sub>	Population Exposure	Continuous	Automated Reference Method utilizing chemiluminescence	4 m	Neighborhood/ Urban	7/21/78
O <sub>3</sub>	Highest Concentration	Continuous	Ultraviolet photometric	4 m	Neighborhood/ Urban	1/1/74
Hexavalent Chromium	Population Exposure	Every 6 days	Ion Chromatography	2 m	Neighborhood	2/27/05
Hexavalent Chromium	Quality Assurance	Every 2 months	Ion Chromatography	2 m	Neighborhood	2/27/05
Elemental Carbon (Aethalometer)	Population Exposure	Continuous	Spectrophotometry	4 m	Neighborhood	6/12/03
Carbonyls (PAMS)	Max Precursor Emissions	3-hour Samples in Summer	High performance liquid chromatography ultraviolet absorption	4 m	Neighborhood	6/1/93
Carbonyls (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	High performance liquid chromatography ultraviolet absorption	4 m	Neighborhood	6/1/93
Carbonyls	Quality Assurance	Every 12 days	High performance liquid chromatography ultraviolet absorption	4 m	Neighborhood	1/1/06

PM <sub>10</sub> select metals(Toxics)	Population Exposure	Every 6 days	Inductively coupled plasma mass spectroscopy	2 m	Neighborhood	1/1/00
PM <sub>10</sub> select metals(Toxics)	Quality Assurance	Every 12 days	Inductively coupled plasma mass spectroscopy	2 m	Neighborhood	1/1/05
VOCs (PAMS)	Max Precursor Emissions	Continuous in Summer	Gas chromatograph flame ionization detection	4 m	Neighborhood	6/1/93
VOCs (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	Gas chromatograph mass spectroscopy	4 m	Neighborhood	6/1/93
VOCs (Toxics)	Quality Assurance	Every 12 days	Gas chromatograph mass spectroscopy	4 m	Neighborhood	1/1/05
Semi-VOCs	Population Exposure	Every 6 days	Gas chromatograph electron capture detector	2 m	Neighborhood	4/30/07
Semi-VOCs	Quality Assurance	Every 2 months	Gas chromatograph electron capture detector	2 m	Neighborhood	4/30/07
Outdoor Temperature	General/ Background	Continuous	Aspirated Shield	2 m	Neighborhood	6/1/93
Rain/Melt Precipitation	General/ Background	Continuous	Bucket sensor	3 m	Neighborhood	1/1/97
Barometric Pressure	General/ Background	Continuous	Barometric sensor	2 m	Neighborhood	6/1/93
Wind Direction	General/ Background	Continuous	Ultra sonic wind sensor	10 m	Neighborhood	6/1/93
Wind Speed	General/ Background	Continuous	Ultra sonic wind sensor	10 m	Neighborhood	6/1/93
Sigma Theta	General/ Background	Continuous	Ultra sonic wind sensor	10 m	Neighborhood	1/1/02
Relative Humidity	General/ Background	Continuous	Hygroscopic plastic film	2 m	Neighborhood	6/1/93
Lead (DMRC site)	Regional Transport	Every 6 days	Inductively coupled plasma mass spectroscopy	2 m	Regional	7/1/86

**Table 1: Detailed Monitor Information**

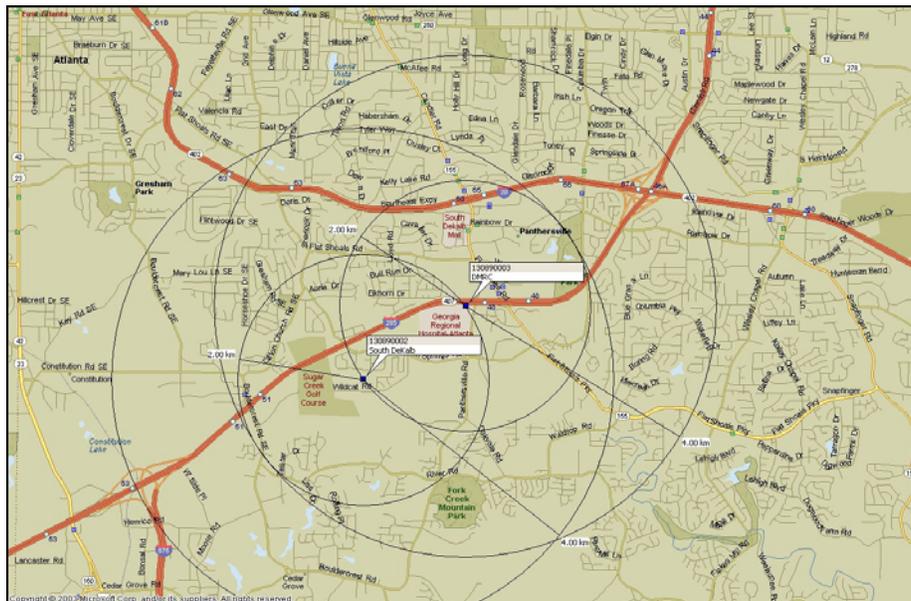
## 5.0 Quality Assurance Status

All Quality Assurance procedures shall be implemented in accordance with 40 CFR 58, Appendix A. GA EPD has submitted the appropriate Quality Assurance Project Plan (QAPP) and Quality Monitoring Plan (QMP). The QMP was last submitted November 2004. The criteria network QAPP was submitted January 2007. The PM<sub>2.5</sub> network QAPP was submitted June 2008. The National Air Toxics Trends Station (NATTS) QAPP was approved March 2007. The VOC QAPP for Photochemical Assessment Monitoring Stations (PAMS) was submitted February 2010. For the trace level instruments, a Quality Assurance Project Plan is being developed and will be submitted to EPA by July 1, 2010. The Standard Operating Procedures (SOPs) for the trace level instruments are being developed for each new instrument used in the project and will be available by January 1, 2011.

## 6.0 Area of Representativeness

40 CFR Part 58 Appendix D provides design criteria for ambient air monitoring. The monitoring objective for the NCore site is to produce data that represents a fairly large area and therefore the spatial scale of the site is important. The spatial scale defines the physical dimensions of the air parcel nearest to a monitoring site throughout which actual pollutant concentrations are reasonably similar. It is determined by the characteristics of the area surrounding the air monitoring site and the site's distance from nearby air pollution sources such as roadways, factories, etc. In the case of urban NCore sites, the spatial scales to be used are neighborhood and urban. Table 1, above, shows the area of representativeness or spatial scale, for each pollutant for the South DeKalb site.

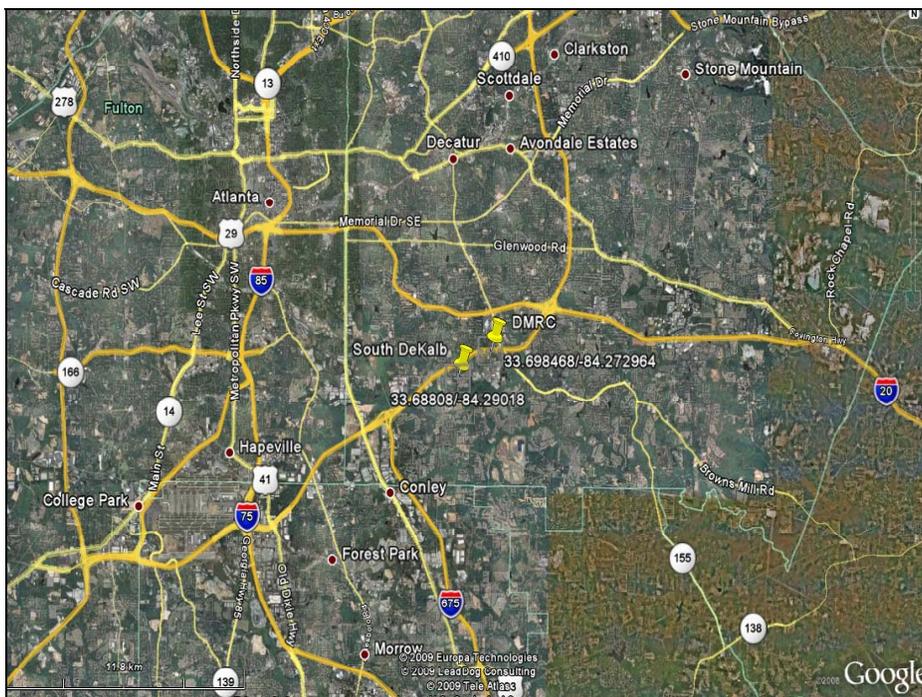
For neighborhood scale the area covered is up to a 4 km radius around the air monitoring site. This area is a mix of commercial, industry, residential (including schools, shopping area, golf course). It is representative of most areas in the Atlanta-Sandy Springs-Marietta MSA. The following map shows a 4 km radius around the South DeKalb site.

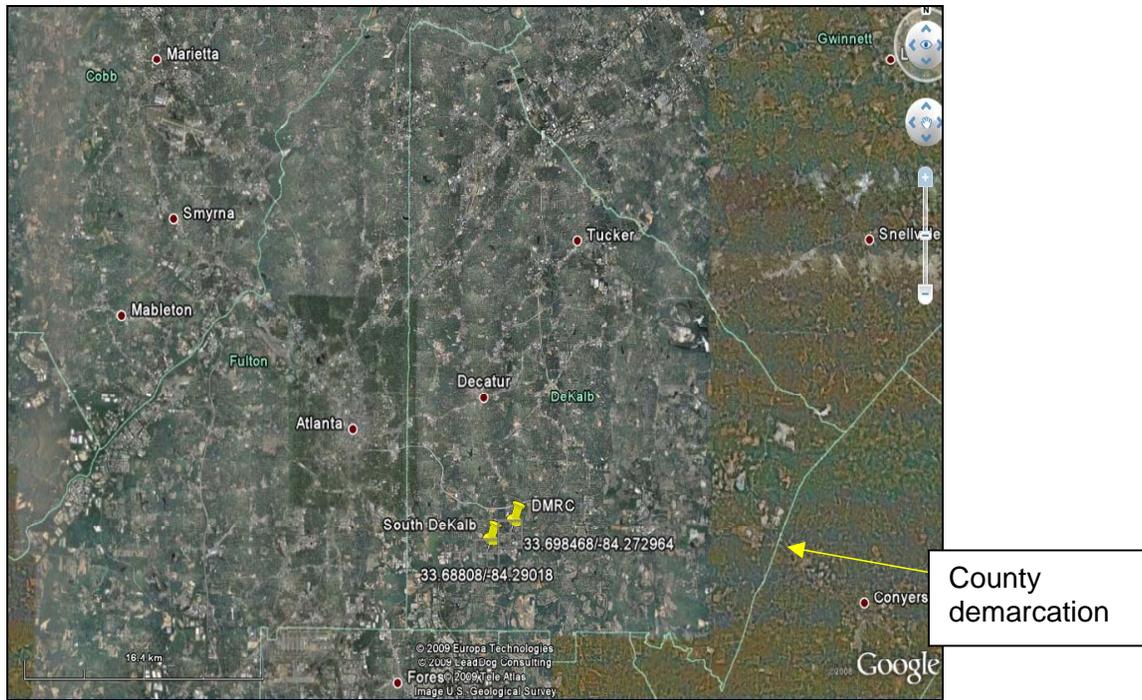


Urban scale is 4 km up to 50 km radius around the air monitoring site. 50 km covers most of the Atlanta-Sandy Springs-Marietta MSA. Approximately 70% of the total Atlanta-Sandy Springs-Marietta MSA population lives within 50 km of the site. The following map shows a 50 km radius around the South DeKalb site.

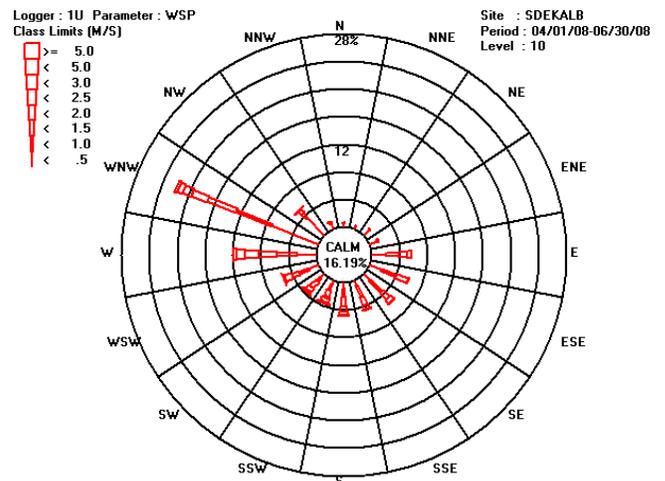
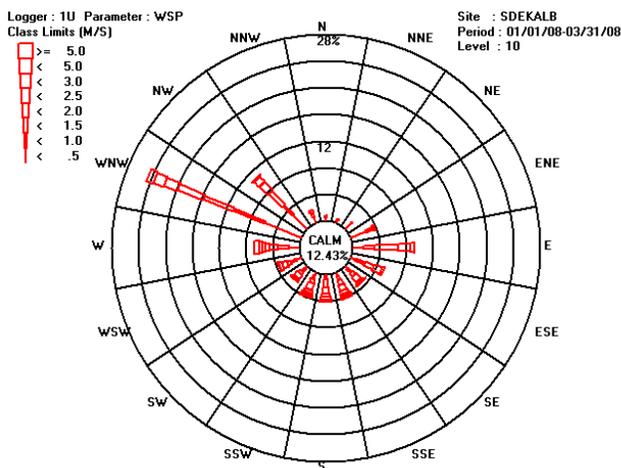


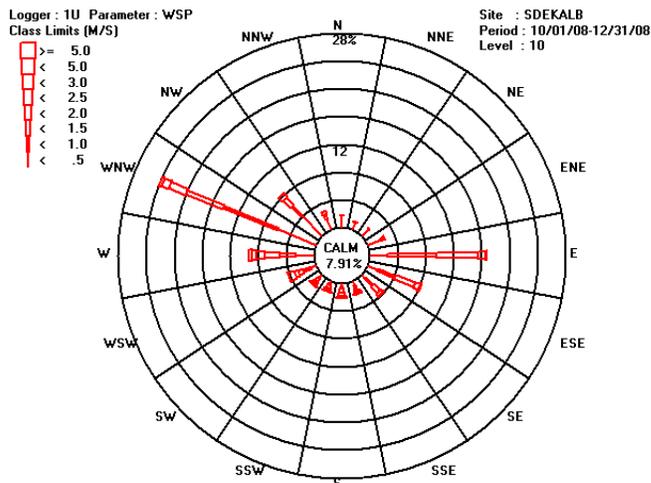
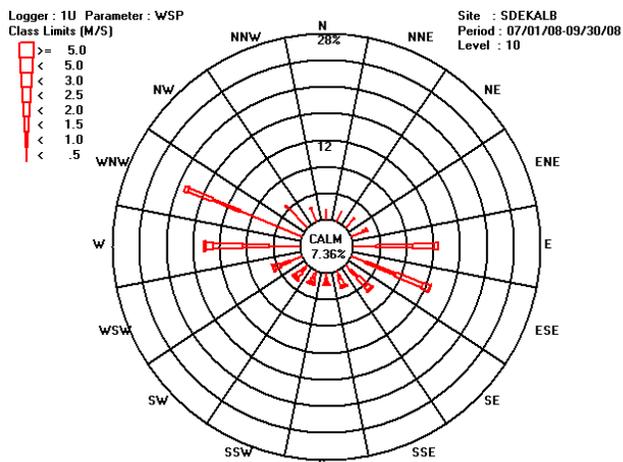
The following map shows the South DeKalb site in relation to downtown Atlanta, to the larger metropolitan area, and to the four major highways; I-75, I-85, I-20, I-285 and I-675.





As can be seen from the countywide view above, the proposed NCore site is located Southeast of the urban core. The wind rose indicates the prevailing wind directions. The placement of the NCore site Southeast of the urban core provides the best location for measuring transport and secondary pollutant formation from that area. The placement of the NCore site downwind of the more industrialized areas compliments the existing network, which is primarily designed to measure maximum concentration on a neighborhood scale. The following wind rose diagrams show the predominant winds coming from the WNW, which is the general direction of downtown Atlanta. Each wind rose represents a quarterly average for 2008. There are seasonal differences and shorter time periods capture more subtleties for meso-synoptic processes, however this gives a general idea of primary and secondary wind directions.





### 7.0 NCore and SLAMS Siting Criteria

Appendix E to 40 CFR Part 58-*Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring* contains specific location criteria applicable to NCore and SLAMS siting. The following measurements and data were obtained for evaluation of compliance with the criteria.

#### 7.1 Horizontal Placement of Sampling Probes

The gaseous instruments are housed in a 2.4 m wide x 6.1 m long x 2.7 m high air monitoring trailer located approximately 15.5 m South of the treeline with the sample probe inlets being approximately 4 m above the ground. A 10 m “nested” meteorological tower is located next to the air monitoring shelter to allow for extension of the sampling inlet for the NOy monitor to reach approximately 10 m.

The manual samplers are located on a wooden platform approximately 5.6 m away from the sampling trailer. The particulate samplers inlet heights are 2m above the ground. The inlets for the continuous particulate samplers are located on the roof of the air monitoring shelter with the sample inlets being 2 m above the roof (4 m above ground). The control units are located inside the temperature controlled shelter.

#### 7.2 Spacing from Obstructions

- Tree distance North of platform is 11.5 m. Trees are approximately 12 m tall.
- Tree distance West of platform is 38 m. Trees are approximately 8 m tall.
- Tree distance East of platform is 12.2 m. Trees are approximately 12 m tall.
- Tree distance South of continuous monitor sampling trailer is 26 m. Trees are approximately 13 m tall.
- Gravel road 45 m S of sampling platform.
- Continuous monitor sampling trailer is 5.6 m Southeast of platform.

#### 7.3 Spacing from Roadways

Tables E-1, E-2, and Figure E-1 of 40 CFR Part 58 Appendix E list the minimum distances from roadways a monitoring probe needs to be based on the annual average daily traffic

(AADT) counts. Table 2 summarizes the findings and includes the minimum separation distance from roadways for each pollutant. AADT counts were obtained from a traffic count map and table generated from the Georgia Department of Transportation website (<http://www.dot.state.ga.us/statistics/TrafficData/Documents/cov2008.xls>) and estimated distances were derived from Google Earth. An estimated average traffic count was used for Wildcat Road since the information could not be found on the website.

Roadway	AADT for 2008	Estimated Distance from Site (meters)	Minimum Distance Required (meters)			
			Ozone Table E-1	NO/NO <sub>y</sub> Table E-1	CO Table E-2	PM Figure E-1
Wildcat Road	Estimated <math>\leq 1,000</math>	205	10	10	10	20
Wildcat Road/ Clifton Springs Intersection	9,200	827	10	10	10	20
I-285/Panthersville Intersection	39,810	2,184	50	50	115	30
Bouldercrest Road	16,540	1,889	30	30	45	20
River Road	8,630	1,330	10	10	10	20
Panthersville Road (from Oakvale Road to River Road)	6,960	1,611	10	10	10	20
I-285	155,830	620	250	250	150	100

**Table 2: Spacing from Roadways Analysis**

## 7.4 Spacing from Potential Sources and Surrounding Area

The following table gives a description of potential sources, the direction from the South DeKalb site, and approximate distance from the South DeKalb site. The information was derived from Google Earth.

Direction	Description	Distance from Site
North	Neighborhood Rd (Clifton Springs Manor)	0.139km
Southeast	Horse barn	0.150km
Southeast	Georgia Extension Center	0.180km
South	Wildcat Road	0.205km
East	Neighborhood Rd (Wild Springs Court)	0.220km
Southeast	Softball field	0.359km
West	Cedar Grove Middle School	0.377km
West	Sugar Creek Golf Course	0.730km
East	Bus barn	0.945km
South	Cedar Grove High School	1.300km
East	DeKalb High School Technological School	1.360km
South	Cedar Elementary School	1.375km
East	Bakery	1.722km
West	Industry (Atlanta Roto Molding Inc)	2.45km
West	Industry on Constitution Rd/Bouldercrest Rd	2.5km
Northeast	Shopping Area	2.53km
Northeast	South DeKalb Mall	2.618km
Southeast	DeKalb County Landfill	3.56km
West	Industry on Constitution	3.9km
Northwest	Intrenchment Wastewater Reclamation Facility on Bouldercrest Rd and Key Rd	4.3km
Southwest	Industry on Old Moore Rd/Cedar Grove Rd	4.33km
Southwest	Industry on Henrico Rd/Bonsai Rd	4.37km
Southwest	Industry on Moreland Ave/Cedar Grove Rd/Thurman Rd (Old Dominion Freight Line)	4.4km
Southwest	Moreland Avenue Disposal Inc. (landfill)	4.84km
Southwest	Live Oak Landfill and Recycling Center	4.97km
Southwest	Hickory Ridge Landfill	5.12km
West	Industry on Moreland Ave/S River Industrial	5.4km
Southwest	Industry on Grant Rd/Tanners Church Rd	5.53km
Northwest	Donzi Lane Landfill	5.68km
Northwest	Industry on Moreland Ave/Moreland Industrial Blvd	5.76km
Southwest	Industry on Marbros Industrial Pkwy/Tanners Church Rd	5.82km
South	Industry on Moreland Ave/Rock Cut	5.9 km
West	South River Wastewater Reclamation Center on South River Industrial Blvd	6.5km
South	Industry on Moreland Ave/Anvil Block Rd	6.8km
West	Industry (Conglobal Industries Inc) on Constitution Rd/Jonesboro Rd	7.2km
South	Industry on Moreland Ave/Hood Ave	7.2 km
South	Industry on Moreland Ave/Campbell Blvd	7.47km
South	Industry on Ellenwood Rd/Ellenwood Trade Ct	8.1km
West	Industry (Lanport, Inc.) Sawtell Ave/McDonough Blvd	8.25 km
South	Industry on Ellenwood Rd/Grant Rd	8.77km
Southwest	Hartsfield Atlanta Airport	11.6km
Northwest	Downtown Atlanta	11.8km

**Table 3: Spacing from Potential Sources and Surrounding Area**

### 8.0 Directional Photographs

#### South DeKalb:

North



Northwest



Northeast



West



East



Southwest



Southeast



South



**DMRC:**

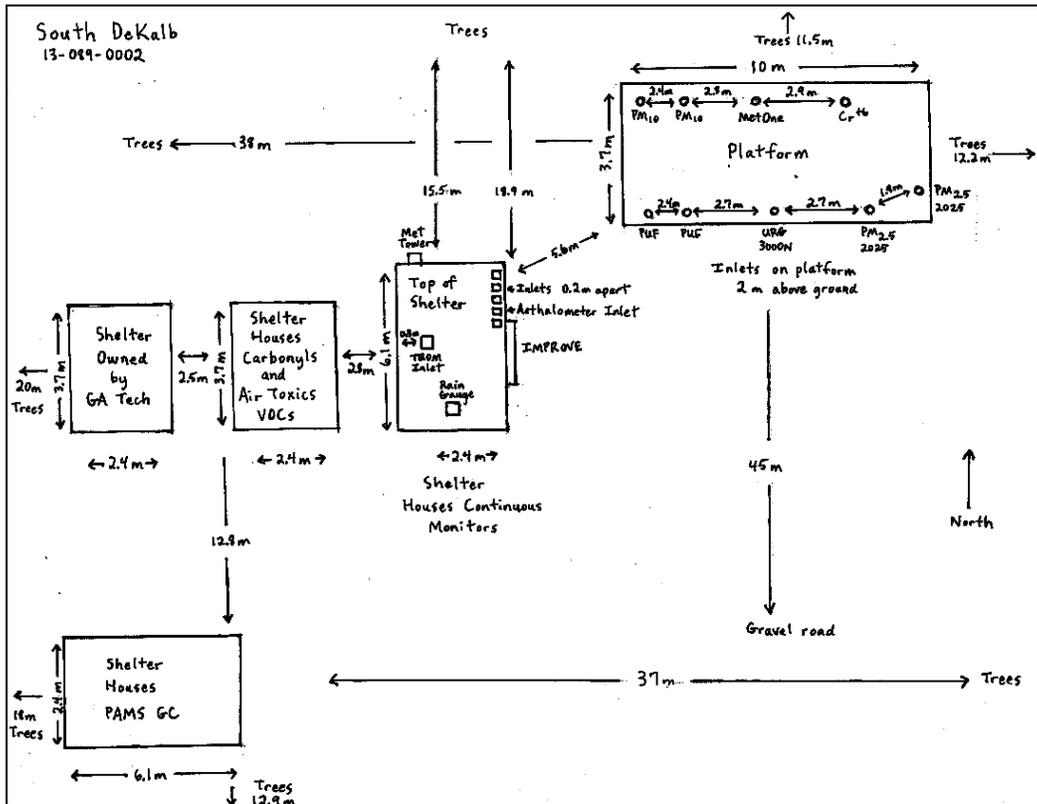


### 9.0 Site Details

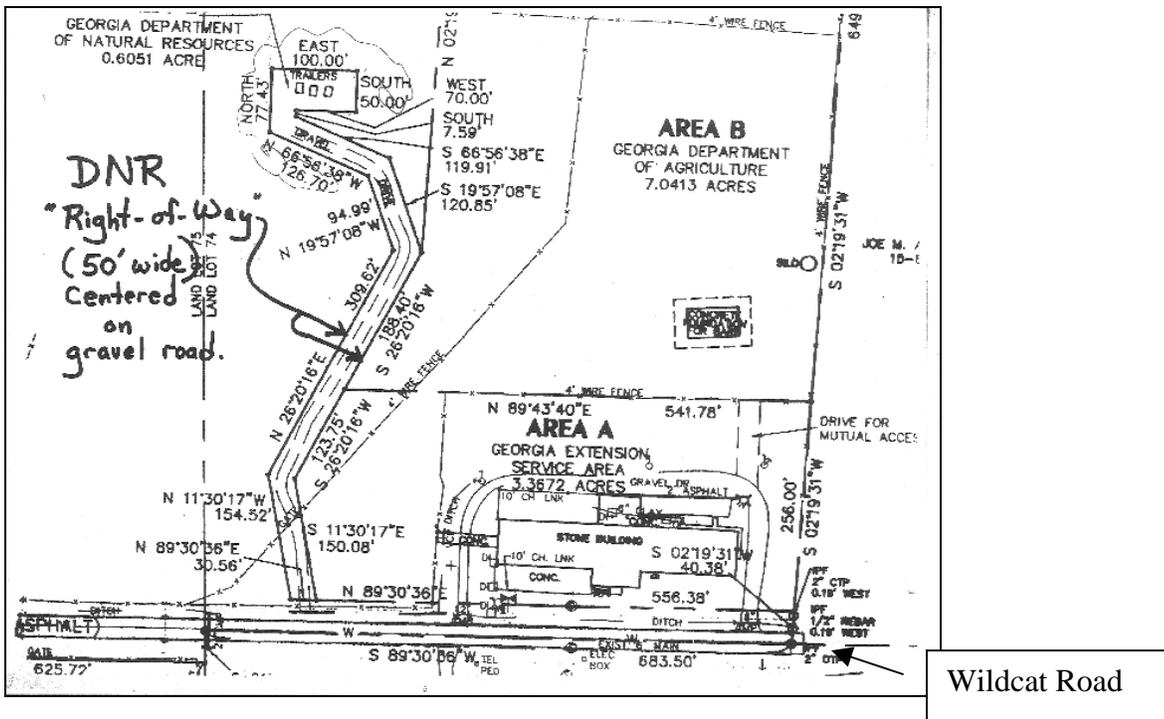
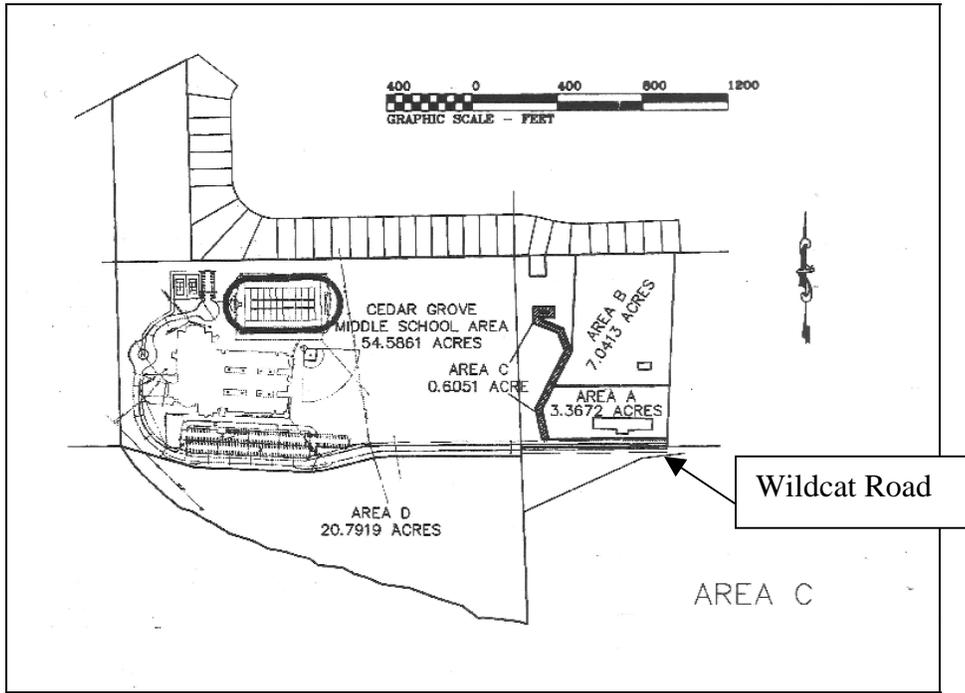
The pictures above were taken looking each of the eight cardinal directions for the South DeKalb site. The sampling platform is 3.7 m x 10 m. The sample inlets are 2 m above the ground. The platform supports the PM<sub>2.5</sub> FRM, PM<sub>10</sub> (Metals), PM<sub>2.5</sub> Speciation, URG Carbon, Semi-VOCs, and Hexavalent Chromium sampler. It also has room for the PEP audit equipment. Outlets are strategically placed on the platform to provide power to the instruments. GA EPD will build another platform as required for additional samplers.

The air monitoring shelters are approximately 5.6 m from the sampling platform. The shelter directly beside the platform is 2.4 m wide x 6.1 m long x 2.7 m high. It houses the continuous PM<sub>2.5</sub> (TEOM), O<sub>3</sub>, NO<sub>x</sub>, NO<sub>2</sub>, NO<sub>y</sub>, CO, Aethalometer. The roof of the shelter is flat to support the sample inlets for the continuous gaseous and particulate samplers and has additional room for other samplers if the need arises. Sample inlets are at 4 m. The 10 m meteorological tower is next to the shelter and is the "nested" type, allowing for the extension of the NO<sub>y</sub> inlet. The wind speed and wind direction sensors are on top of the tower. The temperature, barometric pressure, and relative humidity sensors are located on an arm that projects out from the tower. The rain gauge bucket is located on top of the shelter. The second shelter from the platform houses the Air Toxics VOCs and Carbonyls samplers. It is 2.4 m wide x 3.7 m long x 2.7 m high. The third shelter is owned by Georgia Tech and is 2.4 m wide x 3.7 m long x 2.7 m high. The fourth shelter houses the PAMS GC sampler and is 2.4 m wide x 6.1 m long x 2.7 m high. The power service at the site has been upgraded with more lines, more breakers and bigger service. The site meets minimum power requirements (200A). UPS's protect the computer, data logger and most analyzers. To maintain temperatures between 20-30°C, the shelter has an 18300 BTU heat pump with a digital thermostat.

The following drawing details the site measurements for the South DeKalb site. Measurements are given in meters.



The following two drawings are from the original plans for the current location of the South DeKalb site, showing measurements and identifying what is in the direct vicinity of the site.



## **10.0 NCore Readiness Self-Assessment Sheet**

Attachment A on the following pages is the NCore Readiness Self-Assessment Sheet. EPA provided this sheet in order for each state/local/tribal agency to address all the specificities about the site.



	<b>Item</b>	<b>Criteria</b>	<b>Status</b>	<b>Next Steps</b>
			solar radiation and TUVR. EPD currently runs the solar and TUVR at our Conyers site.	
6	Information (including site photographs) provided for AMTIC NCore web site	Photographs in 8 cardinal directions needed.	See page 131	
7	Station Coordinates	Determined by GPS	N33.68808/W-84.29018	
8	Site visited by EPA in past 3 years	Meets applicable Appendix D and E criteria.	Yes	Approved October 30, 2009 (see Attachment B)
9	Network leveraging	Collocation with other networks encouraged: STN <input checked="" type="checkbox"/> Supplemental CSN__ NATTS <input checked="" type="checkbox"/> CASTNET __ IMPROVE <input checked="" type="checkbox"/> * NADP __ PAMS <input checked="" type="checkbox"/> Other __	* GA EPD currently runs a carbon sampler as part of the IMPROVE network.	
10	Applicable site fields updated in AQS including coordinates	Consider setting additional monitor type to "Proposed NCore" (station should also be categorized as SLAMS).	Lat/Lon and traffic counts updated in AQS; where available updated monitor type to "Proposed NCore"	
<b>LOGISTICAL CONSIDERATIONS</b>				
11	Site access	Access for at least five years is suggested.	Yes	
12	Power requirements and availability	200A service suggested. 240vac service typically needed for a/c. Key power outlets protected by UPS units.	Upgraded power service with more lines, more breakers and bigger service. Meets minimum power requirements. UPS's protect the computer, data logger and most analyzers.	No plans to alter current power supply
13	Telecommunications	Minimum dial-up service. Broadband service suggested for polling of 1-minute data.	Yes	Will change as determined at a later date.
14	A/C cooling capacity	Minimum 18,000BTU a/c capacity.	Yes	

	<b>Item</b>	<b>Criteria</b>	<b>Status</b>	<b>Next Steps</b>
15	Interior space	Sufficient for minimum of two 19" inner dimension, 6' tall instrument racks and related equipment and accessories, or equivalent shelf space.	Yes	
16	Exterior space (roof and accompanying platforms)	Allow for: a) 1m spacing of low-volume PM sampler inlets – up to seven* required plus PEP audit sampler. b) 1m spacing between low-volume PM sampler inlets and gas manifold cane or Teflon tubing. Facilitate usage of TTP audit vehicle or trailer.	a) Currently have inlets for four PM samplers including PM2.5 FRM, PM2.5 continuous, PM2.5 speciation, URG carbon and PEP audit sampler.  b) Meets criteria	Will build another platform as required for the additional samplers. PM coarse speciation will be required at limited sites.
17	10m tower compatibility	Required for meteorological equipment, NOy converter. Room to drop tower for calibrations and audits.	A 10m tower is established at the site, meets all criteria.	

## \*Notes

1. PM2.5 FRM sampler
2. PM10c FRM sampler for PM10-2.5 mass (dichotomous sampler could substitute for #1 and #2 if future FRM/FEMs available) or PM10-2.5 continuous
3. PM2.5 continuous sampler (does not have to be FEM/ARM )
4. PM2.5 speciation sampler (CSN or IMPROVE)
5. URG sampler for carbon channel (PM2.5 speciation) if using CSN samplers
6. Sampler for PM10-2.5 speciation (unless dichotomous sampler or PM2.5 speciation sampler (spare channels) is used)
7. URG sampler for PM10 carbon speciation (speculative need for PM10-2.5 carbon speciation by difference)



	Parameter	Existing Measurements		Future Measurements		Notes
		Sampling Began	Method	Date Expected	New or Relocated	
8	PM10-2.5 mass	N/A	N/A	1/1/11	New	Met One BAM Continuous monitor
9	PM10-2.5 speciation			To be determined	To be determined	Details to be provided later (2008) on sampling requirements.
10	Wind speed and direction**	6/1/93	Ultra sonic wind sensor			At 10 m
11	Ambient temperature**	6/1/93	Aspirated shield			At 2 m
12	Relative humidity**	6/1/93	Hygroscopic plastic film			At 2 m
13	Optional – Vertical wind speed, solar radiation, precipitation, barometric pressure, delta-T for 2-10m.	6/1/93 a) Vertical windspeed b) Solar radiation (SOLAR & TUVR) c) Precipitation d) Barometric pressure e) Sigma theta	a) SODAR system at another site b) Measured at another site (Conyers) c) Tipping bucket  d) Barometric sensor  e) Ultra sonic wind sensor			
14	Optional – Ammonia and nitric acid	N/A	N/A			Pilot project using denuders scheduled for 2008-2009.

## Notes

\* Although the measurement of NO<sub>y</sub> is required in support of a number of monitoring objectives, available commercial instruments may indicate little difference in their measurement of NO<sub>y</sub> compared to the conventional measurement of NO<sub>x</sub>, particularly in areas with relatively fresh sources of nitrogen emissions. Therefore, in areas with negligible expected difference between NO<sub>y</sub> and NO<sub>x</sub> measured concentrations, the Administrator may allow for waivers that permit high-sensitivity NO<sub>x</sub> monitoring to be substituted for the required NO<sub>y</sub> monitoring at applicable NCore sites.

\*\* EPA recognizes that, in some cases, the physical location of the NCore site may not be suitable for representative meteorological measurements due to the site's physical surroundings. It is also possible that nearby meteorological measurements may be able to fulfill this data need. In these cases, the requirement for meteorological monitoring can be waived by the Administrator



8	Auditing equipment	Independent calibrator, zero air source and gas standards compatible with trace level specifications. Independent meteorological and flow standards, it not already available.	Ready	
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**D. ORGANIZATIONAL FACTORS**

	Item	Criteria	Status	Next Steps
1	Training considerations	Key monitoring personnel have attended OAQPS provided monitoring workshops or equivalent training.	Several team members have been through the training	
2	Monitoring station documentation	NCore station(s) described in Annual Monitoring Network Plan.	Included in 2009 plan	Must be included in plan due on or before July 1, 2009. Discuss siting with health researchers and other data stakeholders.
3	Section 103 funds received and obligated for equipment purchases		Yes	Work with EPA Regional contacts.

## **11.0 NCore Site Letter of Approval**

Attachment B on the following pages is the approval letter from EPA regarding the NCore site. The letter was dated October 30, 2009 stating that the South DeKalb site (13-089-0002) is approved as Georgia's NCore site.

**Attachment B:**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

**OCT 30 2009**

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

Mr. F. Allen Barnes, Chief  
Air Management Division  
Environmental Protection Division  
Georgia Department of Natural Resources  
4244 International Parkway, Suite 120  
Atlanta, GA 30354

**NOV 16 2009**

Dear Mr. Barnes:

This letter transmits our approval of Georgia's proposed NCore station at the South Dekalb site, AQS# 13-089-0002, as required by the Ambient Air Monitoring Regulations. According to these rules (see 40 CFR 58.11(c)), NCore network design and changes must be approved by the Environmental Protection Agency's (EPA) Administrator. This authority has been delegated to the Director of the Air Quality Assessment Division in EPA's Office of Air Quality Planning and Standards.

In considering your proposed NCore monitoring station, we worked with your Regional Office on a review of your annual monitoring network plan and an assessment of the proposed location and characteristics of the area to be monitored. After careful consideration of your proposal, we are pleased to approve this station as part of the NCore network.

In your agency's plan for NCore, a request was made to waive measuring NO<sub>y</sub>, which is a required measurement. After assessing available NO<sub>y</sub> observations and modeling outputs and to assure consistency across all NCore stations, we are affirming the requirement to measure NO<sub>y</sub> at all NCore stations.

By EPA's rules (see 40 CFR 58.13), an approved NCore station is expected to be operating with all required measurements by January 1, 2011. Enclosure A provides an update on required measurements and Enclosure B provides EPA's Air Quality System instructions on coding for NCore monitors and data. Please share this information with your staff responsible for the NCore station measurements and data submission.

Internet Address (URL) • <http://www.epa.gov>

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Thank you for your program's efforts in developing the NCore station plan and establishing the site. For questions, you may contact Tim Hanley at [hanley.tim@epa.gov](mailto:hanley.tim@epa.gov) and 919-541-4417, or David Shelow at [shelow.david@epa.gov](mailto:shelow.david@epa.gov) and 919-541-3776.

Sincerely,



Richard A. Wayland  
Director  
Air Quality Assessment Division

2 Enclosures

cc: Doug Neeley – EPA Region 4