GEORGIA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Air Protection Branch
Ambient Monitoring Program

2014 Ambient Air Monitoring Plan

Table of Contents

Glossary

Aerosols	A gaseous suspension of fine solid or liquid particles
AM	Annual Mean
Anthropogenic	Resulting from human activity
APB	Air Protection Branch
AQCR	Air Quality Control Region
AQS	Air Quality System
ARITH MEAN	Arithmetic Mean
BAM	Beta Attenuation Monitor
CAA	Clean Air Act
CBSA	Core Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CV	Coefficient of Variation
EPA	Environmental Protection Agency
EPD	Environmental Protection Division
FEM	Federal Equivalent Method
FRM	Federal Reference Method- the official measurement technique for a given pollutant
GEO MEAN	Geometric Mean
HAP	Hazardous Air Pollutant
LOD	Limit of Detection
$\mu g/m^3$	Micrograms per cubic meter
m/s	Meter per second
MSA	Metropolitan Statistical Area, as defined by the US Census Bureau
NAAQS	National Ambient Air Quality Standard
NAMS	National Ambient Monitoring Site
NATTS	National Air Toxics Trends Station
NCore	National Core Multipollutant Monitoring Network
NMHC	Non-Methane Hydrocarbons
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NO_y	Reactive oxides of Nitrogen
NWS	National Weather Service
ODC	Ozone depleting Chemicals
O_3	Ozone
PAH	Polycyclic Aromatic Hydrocarbons
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
$PM_{2.5}$	Particles with an aerodynamic diameter of 2.5 microns or less
PM_{10}	Particles with an aerodynamic diameter of 10 microns or less
$PM_{10-2.5}$	Particles with an aerodynamic diameter between 2.5 and 10 microns
ppb	Parts per Billion
ppm	Parts per Million
Precursor	A substance from which another substance is formed
PUF	Polyurethane Foam
QTR	Calendar Quarter
Rawinsonde	A source of meteorological data for the upper atmosphere
SLAMS	State and Local Air Monitoring Site
SO_2	Sulfur Dioxide

SPMS	Special Purpose Monitoring Site
STN	Speciation Trends Network
TBD	To Be Determined
TEOM	Tapered Element Oscillating Microbalance
TNMOC	Total Non-Methane Organic Compounds
TRS	Total Reduced Sulfur
UV	Ultraviolet
VOC	Volatile Organic Compound
W/m2	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

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

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

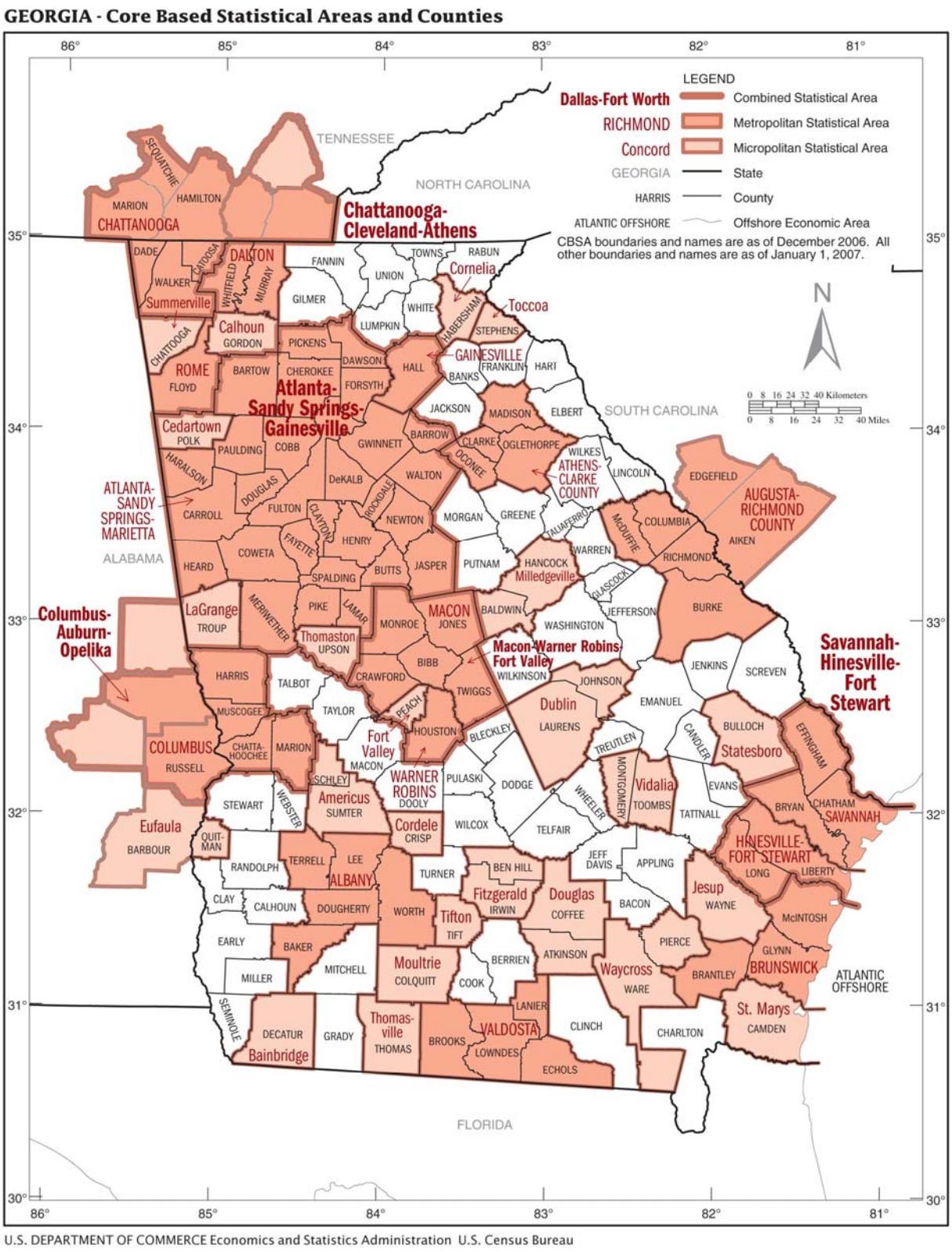


Figure 1: Map of Statistical Areas in Georgia

Section 2.0 describes the pollutants, analysis methods, and quality assurance schedules. Section 3.0 gives a description of the networks, and updates GA EPD's plans to meet EPA's

new monitoring requirements. Section 4.0 outlines the standards applied to criteria pollutant concentrations established by the EPA and the State of Georgia to protect human health (primary standards) and plants, animals and property (secondary standards). Section 5.0 describes the monitoring objectives and spatial scales. Section 6.0 provides a list of site evaluations performed on the monitoring stations. Appendix A includes the comprehensive list of sites with their detailed information. Appendix B includes an inventory of the current ambient monitoring equipment. Appendix C gives a detailed description of Georgia's NCore site. Appendix D gives a list of monitors that have been shut down, the date the monitors were shut down, and the last Annual Plan that included those monitors. Appendix E gives a detailed description of the NO_2 near-road monitoring site. Appendix F includes comments that were received by GA EPD during the public comment period for this document, and GA EPD's response to those comments.

1.1 Mandate

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

> ***40 CFR PARTS 58.10: Annual Monitoring Network Plan and Periodic Network Assessment.***
>
> *(A)(1) Beginning July 1, 2007, the State, or where applicable local, agency shall adopt and submit to the Regional Administrator an annual monitoring network plan which shall provide for the establishment and maintenance of an air quality surveillance system that consists of a network of SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations. The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable. The annual monitoring network plan must be made available for public inspection for at least 30 days prior to submission to EPA.*
> *(2) Any annual monitoring network plan that proposes SLAMS network modifications including new monitoring sites is subject to the approval of the EPA Regional Administrator, who shall provide opportunity for public comment and shall approve or disapprove the plan and schedule within 120 days. If the State or local agency has already provided a public comment opportunity on its plan and has made no changes subsequent to that comment opportunity, the Regional Administrator is not required to provide a separate opportunity for comment.*
> *(3) The plan for establishing required NCore multipollutant stations shall be submitted to the Administrator not later than July 1, 2009. The plan shall provide for all required stations to be operational by January 1, 2011.*
>
> > *(b) The annual monitoring network plan must contain the following information for each existing and proposed site:*
> >
> > *(1) The AQS site identification number.*
> > *(2) The location, including street address and geographical coordinates.*
> > *(3) The sampling and analysis method(s) for each measured parameter.*
> > *(4) The operating schedules for each monitor.*
> > *(5) Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.*
> > *(6) The monitoring objective and spatial scale of representativeness for each monitor as defined in appendix D to this part.*

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

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

(c) The annual monitoring network plan must document how States and local agencies provide for the review of changes to a PM2.5 monitoring network that impact the location of a violating PM2.5 monitor or the creation/change to a community monitoring zone, including a description of the proposed use of spatial averaging for purposes of making comparisons to the annual PM2.5 NAAQS as set forth in appendix N to part 50 of this chapter. The affected State or local agency must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan.

(d) The State, or where applicable local, agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in appendix D to this part, whether new sites are needed, whether existing sites are no longer needed and can be terminated, and whether new technologies are appropriate for incorporation into the ambient air monitoring network. The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals (e.g., children with asthma), and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself, such as nearby States and Tribes or health effects studies. For PM2.5, the assessment also must identify needed changes to population-oriented sites. The State, or where applicable local, agency must submit a copy of this 5-year assessment, along with a revised annual network plan, to the Regional Administrator. The first assessment is due July 1, 2010.

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

1.2 Procedures for Making Changes to the Monitoring Network

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

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

1.3 Memorandum of Agreement

As stated in the Memorandum of Agreement dated January 13, 2009, "The purpose of the Memorandum of Agreement (MOA) is to establish the Chattanooga-Hamilton County-Walker County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between CHCAPCB [Chattanooga-Hamilton County Air Pollution Control Bureau] and

GAEPDAPB [Georgia Environmental Protection Division Air Protection Branch] (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Chattanooga–Hamilton County-Walker Co, GA MSA as required by 40 CFR 58 Appendix D, Section 2, (e) (October 17, 2006)."

The Memorandum of Agreement dated October 9, 2007 states, "The purpose of the Memorandum of Agreement (MOA) is to establish the Augusta-Richmond County Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement between SCDHEC [South Carolina Department of Health and Environmental Control] and GA EPDAPB (collectively referred to as the "affected agencies") to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less (PM10), particles of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will establish the terms and conditions of this collective agreement to provide adequate criteria pollutant monitoring for the Augusta–Richmond County MSA as required by 40 CFR 58 Appendix D, Section 2, (e) (October 17, 2006)."

1.4 Air Quality Index (AQI)

The Air Quality Index (AQI) is a method of reporting air quality that converts concentration levels of pollution to a simple number scale of 0-500. Intervals on the AQI scale are related to potential health effects of the daily measured concentrations of the major pollutants. Certain stations in the SLAMS network provide data for daily index reporting. Index reporting is required for all urban areas with a population exceeding 350,000, which in Georgia include the Atlanta-Sandy Springs-Marietta MSA; the Augusta-Richmond County, Georgia-South Carolina MSA; and the Chattanooga Tennessee-Georgia MSA. The Georgia Environmental Protection Division provides this service to the general public for seven statewide areas with the Georgia Ambient Monitoring Program website (http://www.air.dnr.state.ga.us/amp/index.php). The areas are as follows: Athens, Atlanta, Augusta, Columbus, Macon, North Georgia (Fort Mountain, Dawsonville, Summerville) and Savannah. The Chattanooga Tennessee-Georgia MSA AQI reporting is covered by the Chattanooga-Hamilton County Air Pollution Control Bureau.

1.5 QAPP and QMP

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

QAPP ID	QAPP Title	Submittal	Approval
GA-AAQMP-QAPP-NR-04-2014	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Near Road Monitoring Network (April 2014 Version)	To be submitted	
GA-AAQMP-QAPP-CAP-02-2014	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Criteria Air Pollutants (February 2014 Version)	3-31-2014	To be approved by EPA
GA-AAQMP-QAPP-CAP-08-2009	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Criteria Air Pollutants (August 2009 Version)	9-30-2009	No response from EPA
GA-AAQMP-QAPP-CAP-01-2007	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Criteria Air Pollutants (January 2007 Version)	1-31-2007	No response from EPA
GA-AAQMP-QAPP-PM25-01-2013	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for $PM_{2.5}$ (January 2013 Version)	1-29-2013	No response from EPA
GA-AAQMP-QAPP-PM25-05-2008	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for $PM_{2.5}$ (May 2008 Version)	6-20-2008	1-28-2009
GA-AAQMP-QAPP-NATTS-03-2011	Quality Assurance Project Plan for the Georgia National Air Toxics Trends Project (March 2011 Version)	4-26-2011	4-22-2014
GA-AAQMP-QAPP-NATTS-01-2007	Quality Assurance Project Plan for the Georgia National Air Toxics Trends Project (January 2007 Version)	1-12-2007	3-19-2007
GA-AAQMP-QAPP-NCORE-01-2010	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the National Core Multi-Pollutant Network (June 2010 Version)	6-30-2010	5-23-2011
GA-AAQMP-QAPP-PAMS-02-2010	Quality Assurance Project Plan of the Georgia Ambient Air Quality Monitoring Project for the Photochemical Assessment Monitoring Stations State of Georgia (February 2010 Version)	2-24-2010	7-21-2010

Table 1: List of Georgia EPD's QAPPS

1.6 Public Notice and Comment Procedures

This document and any certain future changes to the monitoring network are subject to a required public notice and comment process before EPA approval is sought for the changes. Any public comments submitted in response to this document's notice and comment process will be submitted to EPA along with the final document. Persons wishing to comment on the draft Ambient Air Monitoring Plan are required to submit their comments, in writing, to GA EPD at the following address:

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

In addition, public comments can be submitted in writing to Susan Zimmer-Dauphinee, Program Manager of the Ambient Monitoring Program, at Susan.Zimmer-Dauphinee@dnr.state.ga.us.

Comments must be received by the GA EPD no later than 30 days after the date on which this document is published on http://www.georgiaair.org/airpermit/html/hottopics.htm and http://www.air.dnr.state.ga.us/amp/. Should the comment period end on a weekend or holiday, comments will be accepted up until the next working day. GA EPD, in soliciting comments for the final draft before submittal to EPA as required by 40CFR58, will consider all comments received on or prior to that date.

After the comment period has expired, GA EPD will consider all comments received. GA EPD's responses to comments and any other relevant information will then be made available for public review during normal business hours at the office of the Air Protection Branch.

1.7 Changes to Previous Ambient Air Monitoring Plan

Since the publication of the 2013 Ambient Air Monitoring Plan, there have been some changes to the state's ambient air monitoring network that should be noted.

As proposed in the 2013 Ambient Air Monitoring Plan, following federal monitoring regulations, and with the EPA's approval, several monitors were shut down:

GA EPD permanently closed the total reduced sulfur (TRS) monitor at the Brunswick-Risley Middle School site (13-127-0006) that had been temporarily discontinued as of October 31, 2008.

The ozone monitor and meteorological equipment that were temporarily discontinued as of October 2008 at Fayetteville-GA DOT site (13-113-0001) in Fayette County were permanently closed.

The meteorological equipment at the Tucker-Idlewood Road site (13-089-3001) was shut down as of May 31, 2013.

As of February 22, 2014, the lead sampler at the Cartersville site (13-015-0003) was shut down.

The continuous gas chromatograph that collects samples in the summer months (June-August) at the Conyers-Monastery site (13-247-0001) was shut down as of August 31, 2013.

The hexavalent chromium sampler at South DeKalb (13-089-0002) was shut down as of July 15, 2013.

Due to the extenuating circumstances of a vehicular accident, the Atlanta-Roswell Road (13-121-0099) was shut down as of March 5, 2014. The CO monitor that was housed at this site began sampling along with the near-road NO_2 monitor in the Georgia Institute of Technology area on June 15, 2014.

To meet siting criteria listed in Appendix E of 40CFR58, platform and trailer containing the sampling equipment at the Savannah-E. President Street (13-051-0021) was moved within the same site.

The sampling platform at the Douglas-General Coffee State Park (13-069-0002) was moved within the same site in order to meet siting criteria listed in Appendix E of 40CFR58.

The sampling schedule for the collocated lead sampler at the Decatur-DMRC site (13-089-0003) changed from 1 in 6 day to 1 in 12 day collection frequency as of May 1, 2014.

Due to construction at the Kennesaw-National Guard site (13-067-0003), GA EPD was unable to start sampling ozone at the beginning of ozone season (March 1), and is awaiting electricity at this site to be able to restart sampling.

On June 15, 2014, GA EPD began sampling NO_2 at the new near-road monitoring site at the Georgia Institute of Technology in the Atlanta-Sandy Springs-Marietta MSA. Please see Section 3.3 for more details.

Per EPA's recommendations, GA EPD is considering shutting down four of the eight $PM_{2.5}$ speciation samplers across the state of Georgia. These four samplers are located in Rossville (13-295-0002), Athens (13-059-0002), Augusta (13-245-0091), and General Coffee (13-069-0002). The continuation of these samplers will depend on the beneficial uses of the data collected from these samplers.

According to the 2010 census, the Savannah MSA population was 347,611. However, since the 2012 estimated population was 361,941 and the 2010-2012 ozone design value was greater than or equal to 85% of the ozone standard (0.064 ppm), the Savannah MSA will need an additional ozone monitor (Table D-5 of Appendix D to 40CFR58). GA EPD has performed modeling of ozone concentrations to determine the proper placement and is evaluating where to place the additional ozone monitor in the Savannah MSA. The site location and monitoring is pending EPA's initiation.

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.

SITE ID	COMMON NAME	COUNTY	O_3	CO	$PM_{2.5}$ FRM	$PM_{2.5}$ Cont.	$PM_{2.5}$ Spec.	PM Coarse	NO/ NOx	NO_2	NOy	SO_2	TRS	Pb	PM_{10}	PM_{10} Cont.	Acid Rain	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Aethal-ometer	Metals
Rome MSA																								
131150003	Coosa Elementary	Floyd			S	S	X					S												
Brunswick MSA																								
131270006	Risley Middle	Glynn	S		S																	NR		
Valdosta MSA																								
131850003	Mason Elem.	Lowndes			S	S																		
Warner Robins MSA																								
131530001	Robins Air Base	Houston			S	S																		
Dalton MSA																								
132130003	Fort Mountain	Murray	S																			NR		
Albany MSA																								
130950007	Turner Elem.	Dougherty			S	S																		
Gainesville MSA																								
131390003	Boys and Girls Club	Hall			S	S																		
Athens-Clark County MSA																								
130590002	College Station Rd.	Clarke	S		S	S	X																	
Macon MSA																								
130210007	Allied Chemical	Bibb			S		X																	
130210012	Forestry	Bibb	S		S	S						S							NR	NR		NR		NR
Columbus Georgia- Alabama MSA																								
132150001	Health Dept.	Muscogee			S																			
132150008	Airport	Muscogee	S		S	S																		
132150009	UPS	Muscogee												S										
132150010	Fort Benning	Muscogee												S										
132150011	Cusseta Elementary	Muscogee			S		X							S										
132151003	Crime Lab	Muscogee																				NR		
Savannah MSA																								
130510021	E. President St.	Chatham	S									S							NR	NR	NR	NR		NR
130510091	Mercer Middle	Chatham			S																			
130511002	W. Lathrop & Augusta Ave.	Chatham				S						S										NR		
Augusta-Richmond County, Georgia-South Carolina MSA																								
130730001	Riverside Park	Columbia	S																			NR		
132450091	Bungalow Rd.	Richmond	S		S	S	X					S			S							NR		

SITE ID	COMMON NAME	COUNTY	O_3	CO	$PM_{2.5}$ FRM	$PM_{2.5}$ Cont.	$PM_{2.5}$ Spec.	PM Coarse	NO/ NOx	NO_2	NOy	SO_2	TRS	Pb	PM_{10}	PM_{10} Cont.	Acid Rain	PAMS VOC	VOC	SVOC	Carb-onyls	Meteo-rology	Aethal-ometer	Metals
Atlanta-Sandy Springs-Marietta MSA																								
130630091	Georgia DOT	Clayton			S																			
130670003	National Guard	Cobb	S		S																			
130770002	Univ. of West GA	Coweta	S			S																NR		
130850001	GA Forestry	Dawson	S																NR	NR	NR	NR		NR
130890002	South DeKalb	DeKalb	S/P/C	S/P/C	S/C	S/C	T/C	C	S/P	S/P	S/P/C	C				C		P	N	N	P/N	P/C	N	N
130890003	DMRC	DeKalb												S										
130970004	W. Strickland St.	Douglas	S																			NR		
131210039	Fire Station #8	Fulton			S										S									
131210049	Georgia Tech	Fulton		R		R*				R												R*	R*	
131210055	Confederate Ave.	Fulton	S			S						S										NR		
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		
Chattanooga Tennessee-Georgia MSA																								
132950002	Maple Street	Walker			S	S	X																	
Not in an MSA																								
130550001	Fish Hatchery	Chattooga	S																					
130690002	General Coffee State Park	Coffee					X												NR	NR				NR
132611001	Union High	Sumter	S																					
133030001	Co. Health Dept.	Washington			S																			
133190001	Police Dept.	Wilkinson			S																			

Monitoring Types: S=SLAMS; P=PAMS; C=NCore; M=SPM; X=Supplemental Speciation; T=STN; N=NATTS; R=Near-road; NR=Non-Regulatory; G=General Information
*Will be sampling in near future

Table 2: 2014 Georgia Air Monitoring Network

2.0 Pollutant Description, Analysis Method, and Quality Assurance Schedule

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

Monitoring and analysis are performed according to a set of standard operating procedures. Field personnel will typically visit manual sampling sites at least once every six days to replace sample media and check the operation and calibration of monitors. Personnel will check continuous monitors at least twice monthly for correct instrument operation.

Quality assurance activities are carried out to determine the quality of the collected ambient data, improve the quality of the data, and evaluate how well the entire monitoring system operates. The goal of quality assurance activities is to produce high quality air pollution data with defined completeness, precision, accuracy, representativeness and comparability.

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

2.1 Particulate Matter

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

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

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

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

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

a. Particulate Matter (PM_{10}) Integrated

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

b. Particulate Matter (PM_{10}) Continuous

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

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

At sites where mass $PM_{2.5}$ samples are taken on an integrated basis, the samples are measured using very similar techniques utilized for measuring PM_{10}. The official reference method requires that samples are collected on Teflon filters with a $PM_{2.5}$ sampler for 24 hours. A specialized particle size sorting device is used to filter the air, collecting only particles 2.5 microns in size and smaller. The filters are weighed in a laboratory before and after the sampling period. The change in the filter weight corresponds to the mass weight of $PM_{2.5}$ particles collected. That mass weight, divided by the total volume of air sampled, corresponds to the mass concentration

of the particles in the air for that 24-hour period. The reference method filters are used for attainment determinations. However, due to the delay in collecting each filter, shipping it to the laboratory, and weighing, weeks may pass before the results are known. Although this method is very accurate, it is not useful for real-time determinations of $PM_{2.5}$ concentrations in ambient air. Because the data is collected using the Federal Reference Method, the data is appropriate to use for making attainment decisions relative to the $PM_{2.5}$ NAAQS. The sampling frequency for integrated $PM_{2.5}$ sampling varies by site, based on EPA rules, and is listed with each individual site's information in Appendix A and in Table 3 below. On a semi-annual basis, EPD's Quality Assurance Unit audits these $PM_{2.5}$ samplers.

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

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

At the other locations where Georgia EPD samples $PM_{2.5}$ on a continuous basis, GA EPD uses the Rupprecht & Patashnick tapered element oscillating microbalance (TEOM) Series 1400/1400a monitors. These monitors use an inline $PM_{2.5}$ cyclone for particle size selection and an inline Sample Equilibration System (SES), which uses a diffusion drying technique to minimize water vapor interference with the particle mass measurement. The instrument oscillates the sample filter on a microbalance continuously while particles are collected from ambient air. By measuring the change in the oscillation frequency, the change in filter mass can be determined. As configured in the Georgia ambient air monitoring network, 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, including the Air Quality Index (AQI), and to provide the public with information about pollutant concentrations in real time. Both types of analyzers are subject to monthly flow checks and are audited by EPD's Quality Assurance Unit on a semi-annual basis.

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

Particle speciation measurements require the use of a wide variety of analytical techniques, but all generally use filter media to collect the particles to be analyzed. Laboratory techniques

currently in use are gravimetric (micro weighing); X-ray fluorescence and particle-induced X-ray emission for trace elements; ion chromatography for anions and selected cations; controlled combustion for carbon; and gas chromatography/mass spectroscopy (GC/MS) for semi-volatile organic particles. Samples are collected for 24 hours and shipped to an EPA-appointed laboratory for analysis. The sampling frequency varies by site and is detailed in Table 3 below. On a quarterly basis, EPD's Quality Assurance Unit subjects these samplers to audits.

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

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

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

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

Highlighted samplers used for comparison to NAAQS

Table 3: $PM_{2.5}$ Sampling Frequency

2.2 Carbon Monoxide (CO)

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

Breathing carbon monoxide affects the oxygen-carrying capacity of the blood. Hemoglobin in the blood binds with CO more readily than with oxygen, starving the body of vital oxygen.

Individuals with lung and heart diseases or anemia are particularly sensitive to CO health effects. Low concentrations affect mental function, vision, and alertness. High concentrations can cause fatigue, reduced work capacity and may adversely affect fetal development. Chronic exposure to CO at concentrations as low as 70 parts per million (ppm) (80 mg/m³) can cause cardiac damage. Other health effects associated with exposure to CO include central nervous system effects and pulmonary function difficulties. Ambient CO apparently does not adversely affect vegetation or materials.

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

2.3 Ozone (O_3)

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

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

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

Ozone is a pulmonary irritant, affecting the respiratory mucous membranes, as well as other lung tissues and respiratory functions. Ozone has been shown to impair normal function of the lung causing shallow, rapid breathing and a decrease in pulmonary function. Other symptoms of exposure include chest tightness, coughing and wheezing. People with asthma, bronchitis, or emphysema probably will experience breathing difficulty when exposed to short-term concentrations above 0.076 ppm. Continued or repeated long-term exposure may result in permanent lung structure damage.

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

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

According to 40 CFR Part 58, the State of Georgia operates ozone monitors each year from March 1st through October 31st, with the exception of the NCore (National Core Monitoring Network) ozone monitor. The NCore ozone monitor, located at the South DeKalb site (13-089-0002), samples year round, also according to 40 CFR Part 58. During the monitoring season, analyzers are subjected to weekly ZPS checks and quarterly multipoint calibrations. On an annual basis, EPD's Quality Assurance Unit audits these samplers.

2.4 Sulfur Dioxide (SO_2)

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

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

Sulfur dioxide is measured in the ambient air using EPA-approved reference method instruments as defined in 40 CFR Part 53. Georgia's sulfur dioxide network consists of continuous instruments using a pulsed ultraviolet (UV) fluorescence technique. This monitoring technique is based on measuring the emitted fluorescence of SO_2 produced by its absorption of UV radiation. Pulsating UV light is focused through a narrow bandpass filter allowing only light wavelengths of 1,900 to 2,300 angstrom units (A) to pass into the fluorescence chamber. SO_2 absorbs light in this region without any quenching by air or most other molecules found in polluted air. The SO_2 molecules are excited by UV light and emit a characteristic decay radiation. A second filter allows only this decay radiation to reach a photomultiplier tube. Electronic signal processing transforms the light energy impinging on the photomultiplier tube

into a voltage which is directly proportional to the concentration of SO_2 in the sample stream being analyzed. The sampler outputs the SO_2 concentration to the front panel display and analog or digital output. These analyzers are subjected to weekly ZPS checks, quarterly multipoint calibrations, and are audited by EPD's Quality Assurance Unit on an annual basis.

2.5 Nitrogen Oxides (NOx)

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

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

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

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

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

Oxides of nitrogen, particularly NO_2, are monitored using specialized analyzers that continuously measure the concentration of oxides of nitrogen in ambient air using the ozone-phase chemiluminescent method. Nitric oxide (NO) and ozone (O_3) react to produce a characteristic luminescence with intensity linearly proportional to the NO concentration. Infrared light emission results when electronically excited NO_2 molecules decay to lower energy states. NO_2 must first be converted to NO before it can be measured using the chemiluminescent reaction. NO_2 is converted to NO by a molybdenum NO_2-to-NO converter heated to about 325^{o}C. The ambient air sample is drawn into the sample bulkhead. The sample flows through a particulate filter, a capillary, then to the mode solenoid valve. The solenoid valve routes the sample either straight to the reaction chamber (NO mode) or through the NO_2-to-NO converter and then to the reaction chamber (NO_x mode). Dry air enters the dry air bulkhead through a flow sensor, and then through a silent discharge ozonator. The ozonator generates the necessary ozone concentration needed for the chemiluminescent reaction. The ozone reacts with the NO

in the ambient air to produce electronically excited NO_2 molecules. A photomultiplier tube housed in a thermoelectric cooler detects the NO_2 luminescence. The NO and NO_2 concentrations calculated in the NO and NO_x modes are stored in memory, and the difference between the concentrations are used to calculate the NO_2 concentration. The sampler outputs NO, NO_2, and NO_x concentrations on the front panel display and the analog or digital outputs. There are two major instrument designs. While they are closely related, they do not monitor the same species. NO_x analyzers measure NO, NO_2, and NO_x. NO_y analyzers measure NO and NO_y, but cannot measure NO_2. The NO_y analyzers are also specialized for measuring trace-level concentrations; as such, they cannot measure higher concentrations. Because of these tradeoffs, it is necessary to operate a network of both instrument types to get a complete picture of local conditions.

Of the oxides of nitrogen, only NO_2 is regulated under the NAAQS. Therefore, only the NO_x type analyzers produce data directly relevant to the standard. These analyzers are subjected to weekly ZPS checks, quarterly multipoint calibrations, and are audited by EPD's Quality Assurance Unit on an annual basis.

2.6 Lead (Pb)

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

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

Since lead is a particulate, the measurement for ambient air lead concentrations is performed using a manual method, unlike measurements for the gaseous pollutants discussed earlier (ozone, SO_2, NO_2 and CO). Samples are collected on 8" x 10" pre-weighed fiberglass filters with a high-volume total suspended (TSP) sampler for 24 hours, collecting particles with diameters of 100 microns or less. High volumes of ambient air in the flow range of 40-60 cubic feet per minute are sampled at a constant rate during the sampling period. This produces a uniform distribution of particles deposited on the sample filter downstream of the sampler inlet. Samples collected with the TSP high-volume sampler can be used to determine the average ambient TSP concentration over a sampling period followed by subsequent analysis to determine the identity and quantity of inorganic metals present in the TSP. The filter sample is shipped to a laboratory for analysis using inductively coupled plasma mass spectroscopy (commonly known as ICP-MS). Data gained from the criteria lead samplers is used to determine compliance with the National Ambient Air Quality Standards for lead. On a semi-annual basis, EPD's Quality Assurance Unit audits these samplers.

In addition to the criteria lead network sites, lead is monitored as a trace metal in the Georgia Air Toxics Monitoring Network, the National Air Toxics Trends Station (NATTS), and with the $PM_{2.5}$ speciation samplers. With the Air Toxics Network, samples are obtained with a high-volume sampler collecting total suspended particles in the ambient air. The NATTS lead is sampled using a PM_{10} sampler, and particles are sampled up to 10 microns in size. With the

$PM_{2.5}$ speciation sampler, samples are collected that include particles up to 2.5 microns in size. All three of these additional sampling techniques also collect 24-hour samples on pre-weighed filters, have samples sent to a laboratory for analysis, and are analyzed with ICP-MS. On an annual basis, EPD's Quality Assurance Unit audits these lead samplers.

2.7 Volatile Organic Compounds (VOCs)

All Volatile Organic Compounds (VOCs) contain carbon, the basic chemical element found in living beings. Carbon-containing chemicals are called organic. Volatile chemicals escape into the air easily. Many VOCs are also hazardous air pollutants, which can cause very serious illnesses. VOCs are released from burning fuel (gasoline, oil, coal, natural gas, etc.), solvents, paints, glues, and other products used at work or at home. Cars are an important source of VOCs. VOCs include chemicals such as benzene, toluene, methylene chloride and methyl chloroform. In addition to ozone (smog) effects, many VOCs can cause serious health problems such as cancer and other effects directly. Some VOCs such as ethylene may also harm plants.

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

2.8 Carbonyls

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

The carbonyls are sampled with two types of methods. One type is an absorbent cartridge filled with dinitrophenylhydrazine (DNPH)-coated silica that is attached to a pump to allow approximately 180 liters of air to be sampled. The cartridge is then analyzed using high performance liquid chromatography (HPLC). For the PAMS network, during June, July, and August, four integrated 3-hour carbonyls samples are taken every third day. A 24-hour integrated carbonyls sample is also taken every 6 days throughout the year at the South DeKalb NATTS site. The other method used for collecting carbonyls is the canister sampler that is used for sampling volatile organic compounds. Acrolein is a carbonyl compound that is collected using this canister method, described above, and analyzed with the GC/MS method. The PAMS and NATTS carbonyls samplers are subjected to quarterly checks and audited by EPD's Quality Assurance department every six months. Also at select Air Toxics sites, carbonyls samples are collected on a DNPH cartridge for a 24-hour period, every 12 days. The Air Toxic carbonyls samplers are subjected to quarterly checks and audited by EPD's Quality Assurance Unit annually.

2.9 Semi-Volatile Organic Compounds

Polycyclic aromatic hydrocarbons (PAHs), also called semi-volatile organic compounds are chemical compounds that consist of fused, six-carbon aromatic rings. They are formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel fuels, fat or tobacco. The PUF (polyurethane foam) sampler used for sampling 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 gas chromatography.

2.10 Aethalometer

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

2.11 Meteorological Parameters

GA EPD has seventeen meteorological stations across the state. Surface meteorological measurements, including wind speed and wind direction, are measured at every location. In addition, as part of the Photochemical Assessment Monitoring Sites (PAMS) around the metropolitan Atlanta area, a complete suite of meteorological instrumentation is used to characterize meteorological conditions. All PAMS stations measure hourly-averaged scalar wind speed and vector-averaged wind direction at the 10-meter level, and hourly-averaged surface temperature, relative humidity and barometric pressure at the 2-meter level. Several sites include instruments to record hourly-averaged precipitation, global solar radiation, and total ultraviolet radiation. In addition, the standard deviation of the wind direction is computed at the NCore site (South DeKalb). These parameters are audited by the EPD's Quality Assurance Unit on an annual basis. For upper air measurement, GA EPD uses a SODAR PA5-LR system in conjunction with balloon rawinsonde data collected from NWS at Peachtree City. This upper air system proves especially useful for monitoring low-level winds during smoke transport events.

3.0 Description of Networks

3.1 NCore

The National Core (NCore) Multipollutant Monitoring network is a network measuring several pollutants including particles, gases, and meteorology. Site selection was due July 1, 2009 and the site was fully operational by January 1, 2011. When complete, the network will consist of approximately 75 stations across the United States. The NCore site for the State of Georgia is the South DeKalb site (site ID 13-089-0002) in DeKalb County. Refer to Appendix C, Ambient Air Monitoring Plan for National Core (NCore) Multipollutant Monitoring Station for full description.

3.2 Sulfur Dioxide

On June 2, 2010, EPA strengthened the sulfur dioxide (SO_2) standard to include a 1-hour primary standard of 75 ppb, and new SO_2 ambient monitoring requirements for the 1-hour standard (Federal Register: Vol. 75, No. 119, 06/22/10). The rule was written to use a hybrid approach combining air quality modeling and monitoring. The rule includes refined dispersion modeling to determine if areas with sources that have the potential to cause or contribute to a violation of the new SO_2 standard can comply with the standard. The final monitoring regulations require monitors to be placed in Core Based Statistical Areas (CBSAs) based on a population weighted emissions index (PWEI) for the area. The final rule requires three monitors in CBSAs with index values of 1,000,000 or more; two monitors in CBSAs with index values less than 1,000,000 but greater than 100,000; and one monitor in CBSAs with index values greater than 5,000. According to this monitoring rule, GA EPD will need five monitors to accommodate the new SO_2 rule. Two monitors should be in place in the Atlanta-Sandy Springs-Marietta CBSA, one in the Augusta-Richmond County, GA-SC CBSA, one in the Macon CBSA, and one in the Savannah CBSA. According to 40 CFR 58.10 (a) (6), the Annual Plan submitted by July 1, 2011 was to include a plan for establishing SO_2 monitoring sites to meet the new monitoring requirements of Appendix D. These sites were to be operational by January 1, 2013. In addition, the SO_2 5-minute maximum for every hour was to start being reported as of August 23, 2010.

At the time of the finalized rule (June 2, 2010), the SO_2 samplers for the State of Georgia included Rome-Coosa Elementary (13-115-0003), Brunswick-Risley Middle School (13-127-0006), Macon-Forestry (13-021-0012), Columbus-Airport (13-215-0008), Savannah-East President Street (13-051-0021), Savannah-L&A (13-051-1002), and the Confederate Avenue (13-121-0055) sites. As of August 1, 2010, GA EPD began collecting 5-minute maximum data with these SO_2 samplers.

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

According to this SO_2 rule revision, the State of Georgia is required to have two SO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA, one SO_2 monitor in the Augusta-Richmond County, GA-SC MSA, one in the Macon MSA, and one SO_2 monitor in the Savannah MSA. To accommodate the rule change, GA EPD started sampling at one additional location. A sampler was added to the Augusta-Richmond County, GA-SC MSA at the Augusta-Bungalow Road site (13-245-0091) as of January 14, 2013. GA EPD will continue monitoring at the Confederate Avenue site (13-121-0055), the South DeKalb site (13-089-0002), and the Macon-Forestry site (13-021-0012). In addition, GA EPD will continue sampling with both monitors in the Savannah MSA (Savannah-E. President Street, 13-051-0021 and Savannah-L&A, 13-051-1002) and at the Rome-Coosa Elementary site (13-115-0003) since these three monitors have concentrations close to or above 85% of the new SO_2 standard. GA EPD closed the SO_2 samplers in the Columbus GA-AL MSA (13-215-0008) and the Brunswick MSA (13-127-0006) as of December 31, 2012 since these monitors are not required and the design values are well below the standard.

3.3 Nitrogen Dioxide

On January 22, 2010, EPA revised the nitrogen dioxide (NO_2) National Ambient Air Quality Standard and monitoring requirements. According to 40 CFR 58.10 (a) (5), the Annual Plan submitted by July 1, 2012 would include a plan for establishing NO_2 monitoring sites to meet the new monitoring requirements of Appendix D. These sites were to be operational by January 1, 2013 (Federal Register, Vol. 75, No. 26, 02/09/10). Then on October 5, 2012, EPA proposed to

change the establishment dates of these monitors, and that the first phase of near-road monitoring site establishment would be January 1, 2014. The second phase of site establishment would be January 1, 2015, and the third phase would be January 1, 2017 (Docket No. EPA-HQ-OAR-2012-0486). These monitors are to be set up in CBSAs with 500,000 or more population (additional monitor with CBSA population above 2,500,000), average traffic counts of 250,000 vehicles or greater, and represent a microscale (no more than 50 meters from the edge of the nearest traffic lane). According to these requirements, GA EPD would need to have two near-road NO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA and one near-road NO_2 monitor in the Augusta-Richmond County, GA-SC MSA. GA EPD has located an area on the Georgia Institute of Technology campus along the I-75/I-85 corridor for one of the near-road monitoring sites in the Atlanta-Sandy Springs-Marietta MSA. For details regarding the establishment of the first near-road NO_2 monitor (site ID 13-121-0056) in the Atlanta-Sandy Springs-Marietta MSA, refer to Appendix E. According to EPA's above proposed schedule, GA EPD will establish the second near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA by January 1, 2015. GA EPD is in the process of locating a suitable location for this second near-road NO_2 monitor that will meet proper siting.

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

In addition, with these NO_2 requirements, GA EPD would need one area-wide NO_2 monitor in the Atlanta-Sandy Springs-Marietta MSA. These monitors should be placed in CBSAs with a population of 1,000,000 or more, and are expected to have the highest concentrations representing a neighborhood or larger spatial scale. Currently GA EPD has three NO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA, which has a population above 1,000,000. These monitors are located at the three PAMS sites: South DeKalb (13-089-0002), Yorkville (13-223-0003), and Conyers (13-247-0001). Of the three NO_2 monitors currently collecting data, the South DeKalb site has historically collected the highest concentrations, is located within an urban area, represents the urban spatial scale, and operates year round. Therefore, the South DeKalb NO_2 monitor satisfies the area-wide requirement.

3.4 Carbon Monoxide

On August 12, 2011, EPA finalized changes to the monitoring requirements for the carbon monoxide (CO) monitoring network. According to these changes, EPA is requiring that a CO monitor be collocated with an NO_2 near-road monitor in urban areas with populations of one million or more. EPA specified that in areas with 2.5 million or more, the CO monitors should be operational by January 1, 2015 (Federal Register: Vol. 76, No. 169, Page 54293, 08/31/11). For the State of Georgia, this monitoring requirement would be one CO monitor located in the Atlanta-Sandy Springs-Marietta MSA, collocated with the NO_2 near-road monitor.

GA EPD has had three CO monitors collecting samples at the South DeKalb (13-089-0002), and Yorkville (13-223-0003), and Roswell Road (13-121-0099) sites. However, the Roswell Road site CO monitor was shut down on March 5, 2014 due to extenuating circumstances of a vehicular accident. GA EPD re-established this CO monitor at the new near-road site at Georgia Institute of Technology (13-121-0056) in schedule with the NO_2 monitor on June 15, 2014.

3.5 Lead

Georgia EPD's ambient lead monitoring network currently consists of monitors located at five sites. Two of these lead monitoring sites are located in the Atlanta-Sandy Springs-Marietta Metropolitan Statistical Area. One monitor is at the DMRC site in DeKalb County (13-089-0003) and consists of two collocated monitors. The other lead monitor is located at the Cartersville site, in Bartow County (13-015-0003). Three of these lead monitoring sites are in the Columbus Georgia-Alabama Metropolitan Statistical Area in Muscogee County. There is one monitor located at the Cusseta Elementary School (13-215-0011), one at Columbus-UPS (13-215-0009), and one at Columbus-Fort Benning (13-215-0010).

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

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

For the monitors to be placed near industrial facilities that emit greater than 0.5 tpy, EPA had compiled a list of lead sources from the 2008 National Emissions Inventory and 2009 Toxic Release Inventory. GA EPD reviewed EPA's list of lead sources, and submitted updated lead emissions and modeling data to EPA. EPA concurred with the updated lead data, and granted a waiver for a second source-oriented monitoring in the Cartersville area. The waiver will need to be reviewed and submitted every 5 years. In addition, per EPA's recommendation, GA EPD has reopened two additional monitors surrounding an industrial facility in the Columbus GA-AL MSA to help determine proper siting to monitor this source. These samplers had been inactive since March 31, 2004. Columbus-Fort Benning (13-215-0010) began collecting samples on December 27, 2011. Columbus-UPS (13-215-0009) began collecting samples on February 3, 2012. For a full description of EPA's list of lead sources in Georgia and GA EPD's response, refer to Appendix D: Ambient Air Monitoring Plan for Lead Network Requirements in the 2011 Ambient Air Monitoring Plan.

In addition, the Columbus-Fort Benning (13-215-0010) criteria lead monitor in the Columbus GA-AL MSA collects the highest ambient lead concentration for the state. Therefore, GA EPD began collocating this lead monitor on April 10, 2013.

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

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

3.7 Photochemical Assessment Monitoring Stations (PAMS)

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

On November 6, 1991, the Atlanta nonattainment area was classified as serious, with the 1-hour ozone standard (56FR56694). By 2003, the area was labeled in severe nonattainment of the 1-hour ozone standard (68FR55469) effective January 1, 2004, but by June 15, 2005, was listed as maintenance/attainment (70FR34660). With the 8-hour ozone standard, the Atlanta nonattainment area was classified as marginal, effective June 15, 2004 (69FR23857) and then as moderate nonattainment effective April 7, 2008 (73FR12013).

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

based on the afternoon winds occurring between 1:00 PM and 4:00 PM, when titration of the precursors has occurred and the ozone is at its highest concentration. The data measurements are used in determination of attainment with the NAAQS for O_3 and NO_2, evaluation of future photochemical grid modeling applications, future development and evaluation of control strategies, development of pollutant trends, and characterization of ozone pollutant exposures.

The PAMS VOCs are collected and analyzed with a Gas Chromatograph/Flame Ionization Detector (GC/FID) at the Yorkville (13-223-0003), Conyers (13-247-0001), and South DeKalb (13-089-0002) sites. Throughout the year, a 24-hour VOCs sample is collected every 6 days at all three PAMS sites. During June, July, and August, an hourly VOCs sample is collected at the Yorkville and South DeKalb sites. The PAMS carbonyls samples are analyzed by drawing approximately 180 liters of air through an absorbent cartridge filled with dinitrophenylhydrazine (DNPH)-coated silica. The cartridge is then analyzed using High Performance Liquid Chromatography (HPLC). During June, July, and August, four integrated 3-hour carbonyls samples are taken every third day at the South DeKalb (13-089-0002) site. A 24-hour integrated carbonyls sample is also taken every 6 days throughout the year at the South DeKalb (13-089-0002) site. The VOCs sampler and carbonyls samplers in the PAMS network are audited every six months by the Quality Assurance Unit. The Quality Assurance Unit audits the PAMS meteorological equipment on an annual basis.

3.8 Air Toxics

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

Toxic air pollutants, also known as Hazardous Air Pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Air toxic compounds are released from many different sources, including mobile sources (such as vehicles), stationary industrial sources, small area sources, indoor sources (such as cleaning materials), and other environmental sources (such as wildfires). The lifetime, transportation, and make-up of these pollutants are affected by weather (rain and wind) and landscape (mountains and valleys). They can be transported far away from the original source, or be caught in rain and brought down to waterways or land.

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

People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems. These effects can vary depending on how often one is exposed, how long one is exposed, the person's health that is exposed, and the toxicity of the compound. Some of the substances tend to have only one critical effect, while others may have several. These air pollutants also affect the environment. Wildlife experience symptoms similar to those in humans. Many air pollutants can also be absorbed into waterways and have toxic effects on aquatic wildlife. In addition to exposure from breathing air toxics, some toxic air pollutants such as mercury can deposit onto soils or surface waters, where plants take them up, are ingested by animals, and are eventually magnified up through the food chain. Through this process, known as bioaccumulation, larger animals build up concentrations of these pollutants in their tissues that may be thousands of times higher than that found in the most polluted water or soil. Like humans, animals may experience health problems if exposed to sufficient quantities of air toxics over time. Humans who eat animals that have accumulated large concentrations of these pollutants are at the very top of this bioaccumulative food chain and as such are at particular risk for experiencing health effects.

The Air Toxics equipment samples for metals, semi-volatile organic compounds, volatile organic compounds, and three sites have carbonyls samplers. The samplers run once every twelve days following a pre-established schedule that corresponds to a nationwide sampling schedule. On the twelfth day the sampler runs midnight to midnight and takes a 24-hour composite sample.

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

The PUF (polyurethane foam) sampler used for sampling for semi-volatile organic compounds is a timed sampler. The sampler is calibrated to collect 198 to 242 liters (L) of air per minute. A multi-layer cartridge is prepared which collects both the particulate fraction and the volatile fraction of this group of compounds. The plug, filter and absorbent are extracted at a remote state laboratory and analyzed using gas chromatography.

The canister sampler used for sampling Volatile Organic Compounds (VOCs) is a timed sampler. A polished canister is evacuated to a near-perfect vacuum and attached to a sampler with a pump controlled by a timer. The canister is filled to greater than 10 psig. The canister is analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS).

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

3.9 National Air Toxics Trends Station (NATTS)

The National Air Toxics Trends Stations (NATTS) program is a nationwide monitoring project for the assessment of national trends and variations of several selected air toxics. The location of the station in Georgia is the South DeKalb site (13-089-0002). With the exception of the

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

The PM_{10} sampler used for sampling toxic metal particles less than or equal to 10 microns in diameter is a timed sampler. Collecting 1020 to 1240 liters (L) of air per minute, the sampler uses an 8.5" x 11" quartz glass fiber filter to trap particulate matter. The sample is analyzed using inductively coupled plasma mass spectrometry (ICP/MS). With ICP/MS, an argon gas is used to atomize and ionize the elements in a sample. The resulting ions are used to identify the isotopes of the elements and a mass spectrum is used to identify the element proportional to a specific peak formed from an isotope.

The volatile organic compound (VOCs) samples are collected with a canister method. A polished canister is evacuated to a near-perfect vacuum and attached to a sampler with a pump controlled by a timer. The canister is filled to greater than 10 psig. The canister is analyzed using a gas chromatograph with mass spectroscopy detection (GC/MS).

The PUF (polyurethane foam) sampler used for sampling for semi-volatile organic compounds is a timed sampler. The sampler is calibrated to collect 198 to 242 liters (L) of air per minute. A multi-layer cartridge is prepared which collects both the particulate fraction and the volatile fraction of this group of compounds. The plug, filter and absorbent are extracted at a remote laboratory and analyzed using a gas chromatograph with an electron capture detector (ECD).

The carbonyls are sampled with two types of methods. One type is an absorbent cartridge filled with dinitrophenylhydrazine (DNPH)-coated silica that is attached to a pump to allow approximately 180 liters (L) of air to be sampled. The cartridge is then analyzed using high performance liquid chromatography (HPLC). A 24-hour integrated carbonyls sample is taken every 6 days throughout the year. The other method used for collecting carbonyls is the canister sampler that is used for sampling volatile organic compounds. Acrolein is a carbonyl compound that is collected using this canister method, described above, and analyzed with the GC/MS method. These parameters are subjected to quarterly checks and audited by EPD's Quality Assurance Unit every six months.

4.0 Standards

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

The National Ambient Air Quality Standards (NAAQS) are divided into primary and secondary standards. For a list of the most current standards, please refer to EPA's website http://www.epa.gov/air/criteria.html. Primary standards are those established to protect public health. Secondary standards are those established to protect the public welfare from adverse pollution effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, climate, property, transportation, economy, personal comfort and well-being. The scientific criteria upon which the standards are based are reviewed periodically by the EPA, which may reestablish or change the standards according to its findings. Note that there are

hundreds of compounds that are generally considered pollutants when found in ambient air but whose health and welfare effects are not well enough understood for ambient standards to be defined.

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

5.0 Monitoring Objectives and Spatial Scale

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

The categories of spatial scale are:
Micro Scale: An area of uniform pollutant concentrations ranging from several meters up to 100 meters.
Middle Scale: Uniform pollutant concentrations in an area of about 100 meters to 0.5 kilometer.
Neighborhood Scale: An area with dimensions in the 0.5 to 4.0 kilometer range.
Urban Scale: Citywide pollutant conditions with dimensions ranging from 4 to 50 kilometers.
Regional Scale: An entire rural area of the same general geography (this area ranges from tens to hundreds of kilometers).

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

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
Rome MSA				
131150003	Coosa Elementary	Floyd	3/26/2014	Sampler meets siting criteria. Two tall oak trees form an obstruction to the west. 90% of the monitoring path is not affected by the trees. Predominant wind direction is from W/SW. The school to the north has been torn down since the last survey.
Brunswick MSA				
131270006	Risley Middle	Glynn	10/17/2013	Samplers meet siting criteria. No deficiencies.
Valdosta MSA				
131850003	Mason Elem.	Lowndes	2/10/2014	Samplers meet siting criteria. No deficiencies.
Warner Robins MSA				
131530001	Robins Air Base	Houston	8/22/2013	Sampler does not meet siting criteria. The shrubs and trees higher than inlets are less than 10m away. Vines on the fence enclosure are less than 10 meters away.
Dalton MSA				
132130003	Fort Mountain	Murray	12/15/2013	Samplers meet siting criteria. Few trees to the south are inside 10X height differential with the Meteorological tower. Ground slopes off severely to the north and east.
Albany MSA				
130950007	Turner Elem.	Dougherty	2/17/2014	Samplers meet siting criteria. No deficiencies. The site now has collocated 2025 $PM_{2.5}$ monitors.
Gainesville MSA				
131390003	Boys and Girls Club	Hall	12/11/2013	Samplers meet siting criteria. No deficiencies.
Athens-Clark County MSA				
130590002	College Station Rd.	Clarke	4/14/2014	Samplers meet siting criteria. No deficiencies.
Macon MSA				
130210007	Allied Chemical	Bibb	7/16/2013	Samplers meet siting criteria. Bradford pear drip line 13.5m from URG inlet. Mimosa drip line 2 meters from collocated 2025 inlet. Mimosa has since been removed from fence to meet siting criteria.
130210012	Forestry	Bibb	3/3/2014	Samplers meet siting criteria except metals and PUF samplers. The 2025 $PM_{2.5}$ and air toxics samplers have been relocated to a newly erected deck to the east side of the shelter to meet siting criteria. The metals and PUF samplers need at least 0.3meters further elevation to meet inlet siting requirements of two to seven meters.
Columbus MSA				
132150001	Health Dept.	Muscogee	8/15/2013	Sampler meets siting criteria. No deficiencies.
132150008	Airport	Muscogee	7/24/2013	Samplers meet siting criteria. No deficiencies.
132150009	UPS-Allied	Muscogee	2/27/2014	Sampler meets siting criteria. The top of the sampling platform is deteriorating and needs refurbishing. The door to the fence enclosure is bent along with part of the fence.
132150010	Fort Benning-Joy Rd	Muscogee	2/27/2014	Samplers meet siting criteria. Pines to the west are not intruding upon the monitoring path, but are almost overhanging to the edge of the sampling platform.
132150011	Cusseta Elementary	Muscogee	2/27/2014	Samplers meet siting criteria. No deficiencies.
132151003	Crime Lab	Muscogee	2/27/2014	Samplers meet siting criteria. Only meteorological instruments are operated at the site presently.
Savannah MSA				
130510017	Market St.	Chatham	6/25/2013	Samplers meet siting criteria. The site is inactive.
130510021	E. President St.	Chatham	6/25/2013	Site was moved approximately 100yds on Red Cross property to meet siting criteria. SO2 went offline on 12/30/2013 and back on-line on 2/18/2014. Ozone online on 2/19/2014.
130510091	Mercer Middle	Chatham	5/15/2013	Sampler meets siting criteria. No deficiencies.
130511002	W. Lathrop & Augusta Ave.	Chatham	5/14/2013	Samplers did not meet siting criteria. Spacing from drip line is 2 meters. Trees should be removed or shelter moved to adjacent field.

SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
Augusta MSA				
130730001	Riverside Park	Columbia	8/19/2013	Sampler meets siting criteria. Integrity and sample lines are routed on floor of shelter, along ground outside, and then up to tower inlet. Recommend lines are replaced and rerouted to avoid contamination and standardize with other sites.
132450091	Bungalow Rd.	Richmond	9/26/2013	Sampler meets siting criteria. CSN, $PM_{2.5}$ and PM_{10} samplers are now located on a platform adjacent to shelter. TEOM inlet is unstable.
Atlanta-Sandy Springs-Marietta MSA				
130150003	Cartersville	Bartow	10/3/2013	Sampler meets siting criteria. No deficiencies.
130630091	Georgia DOT	Clayton	10/22/2013	Sampler meets siting criteria. No deficiencies.
130670003	National Guard	Cobb	1/22/2014	Samplers meet siting criteria. No deficiencies.
130770002	Univ. of West GA	Coweta	2/4/2014	Samplers meet siting criteria. No deficiencies.
130850001	GA Forestry	Dawson	10/31/2013	Sampler does not meet siting criteria. Trees to the south are slightly inside of the required height distance differential between obstacles and all inlets. Met tower is inside 10x height differential with a few trees to the north. New PUF and Hi-Vol platforms have been built and moved closer to the site trailer, toward the east.
130890002	South DeKalb	DeKalb	4/17/2014	A new sampling platform, 12 meters south of the previous platform, was installed. Tall trees to the north are inside twice the height-distance differential for the samplers. The predominant wind direction is not from the north.
130890003	DMRC	DeKalb	12/26/2013	Samplers meet siting criteria. A new sampling platform has been installed 9m west of the old platform location and 2 meters closer to I-285.
130970004	W. Strickland St.	Douglas	4/8/2014	A small oak tree is 14 meters to the northwest.
131210039	Fire Station #8	Fulton	5/8/2013	Sampler meets siting criteria. No deficiencies. A PM_{10} monitor has been added since the last annual survey. A White Pine tree northeast of sampler is closer than twice height differential but is not in the path of prevailing winds. All other criteria are met.
131210055	Confederate Ave.	Fulton	8/1/2013	Samplers meet siting criteria. No deficiencies.
131210099	Roswell Road	Fulton	7/8/2013	Sampler meets siting criteria. No deficiencies.
131350002	Gwinnett Tech	Gwinnett	1/21/2014	Samplers meet siting criteria. Plywood beneath floor of trailer showing water infiltration and causing floor to buck up.
131510002	County Extension	Henry	8/8/2013	Samplers meet siting criteria. No deficiencies.
132230003	Yorkville	Paulding	2/17/2014	Samplers meet siting criteria. The Hi-Vol and PUF samplers have been moved from the south side to the north side of the compound and placed upon a new wooden platform. New wooden steps have also been built to the continuous trailer.
132470001	Monastery	Rockdale	7/22/2013	Samplers meet siting criteria. No deficiencies.
Chattanooga Tennessee-Georgia MSA				
132950002	Maple Street	Walker	10/29/2013	Samplers meet siting criteria. No deficiencies.

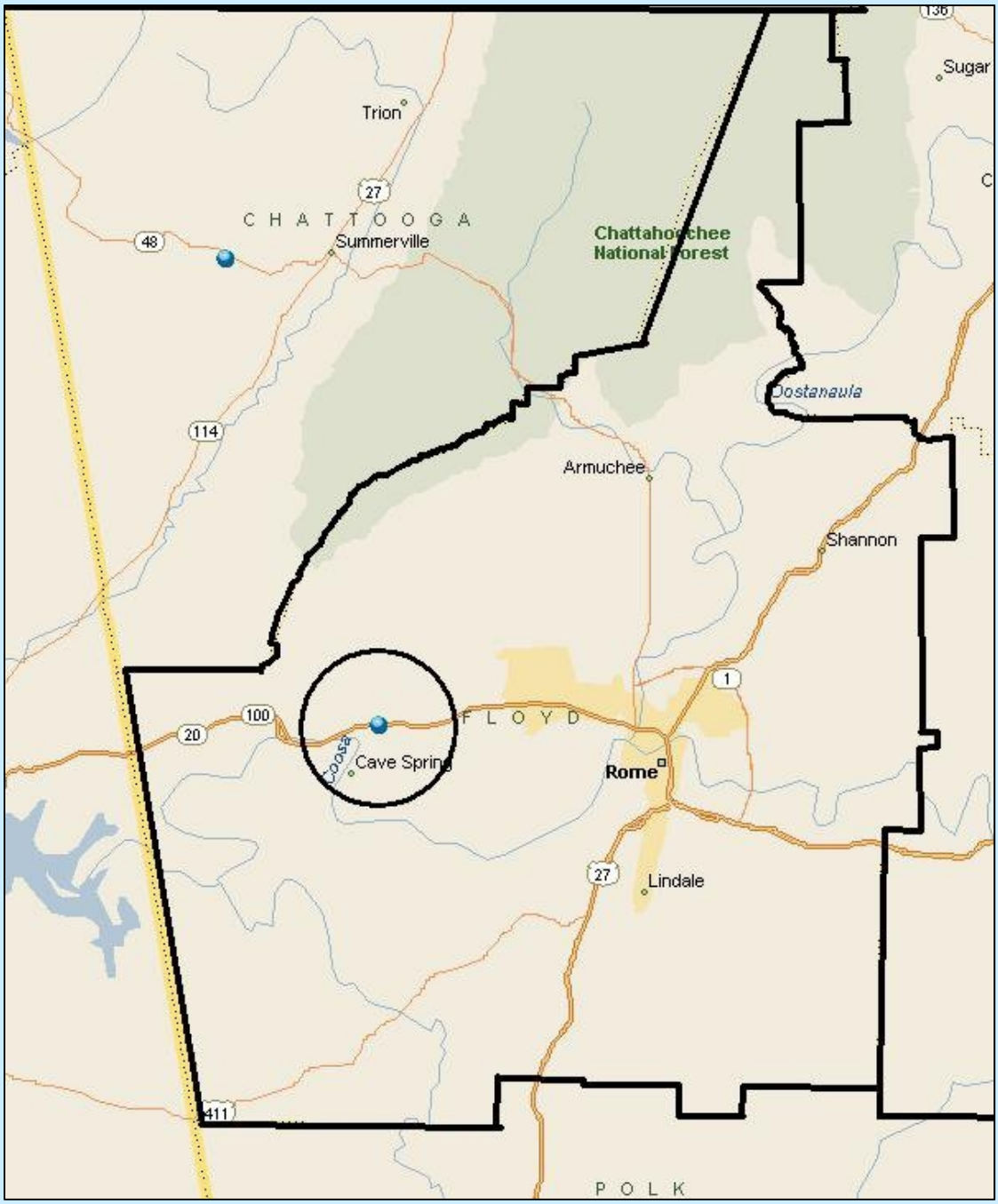
SITE ID	COMMON NAME	COUNTY	SITE EVALUATION DATE	COMMENTS
Not in an MSA				
130550001	Fish Hatchery	Chattooga	3/28/2014	Samplers meet siting criteria. No deficiencies.
130690002	General Coffee State Park	Coffee	10/24/2013	Samplers meet siting criteria. A new sampling platform was built in Sep. 2013.
132611001	Union High	Sumter	3/7/2014	The shelter has been replaced. The inlet was relocated. The drip-line is now 6.5 meters East of inlet. Trees should be removed.
133030001	Co. Health Dept.	Washington	5/8/2013	Samplers meet siting criteria. Water collects in puddles on the roof. A power cord lies in water.
133190001	Police Dept.	Wilkinson	4/4/14	Samplers meet siting criteria. No deficiencies.

Table 5: Site Evaluations

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

Georgia Department of Natural Resources
Environmental Protection Division

Rome MSA



See Figure 1 on page 2 for complete map of Georgia

Rome- Coosa Elementary

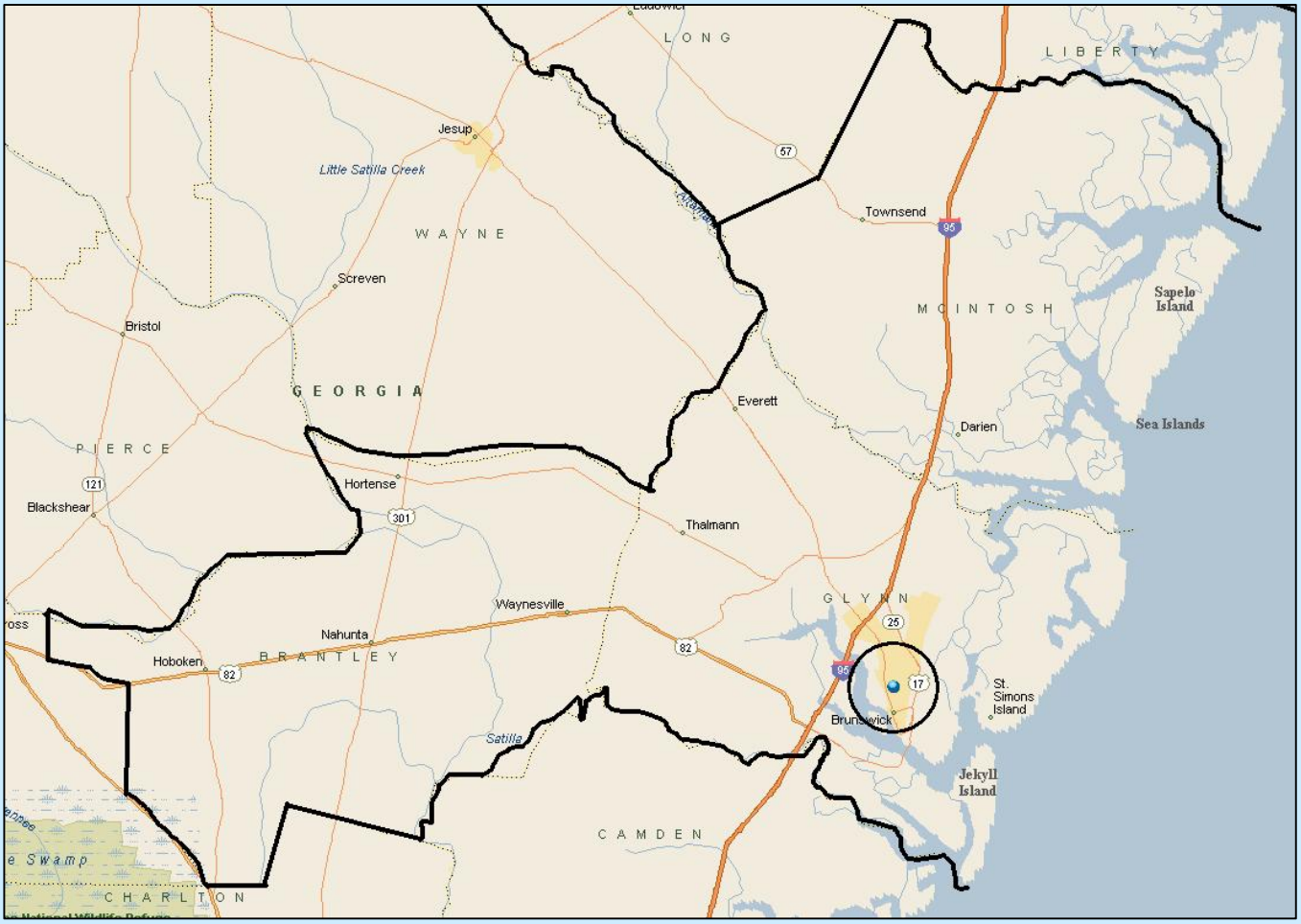
AQS ID: 131150003
Address: Coosa Elementary School, Highway 20, Rome, Floyd County, Georgia 30165
Site Established: 1/1/74
Latitude/Longitude: N34.26051/W-85.32328
Elevation: 186 meters
Area Represented: Rome MSA
Site History: Established as SO_2 site

North South East West

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

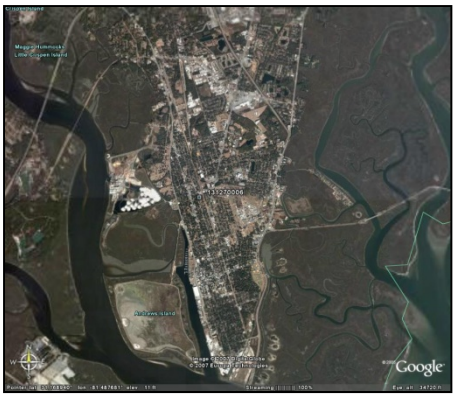
Recommendations: Continue monitoring

Brunswick MSA



See Figure 1 on page 2 for complete map of Georgia

Brunswick- Risley Middle School



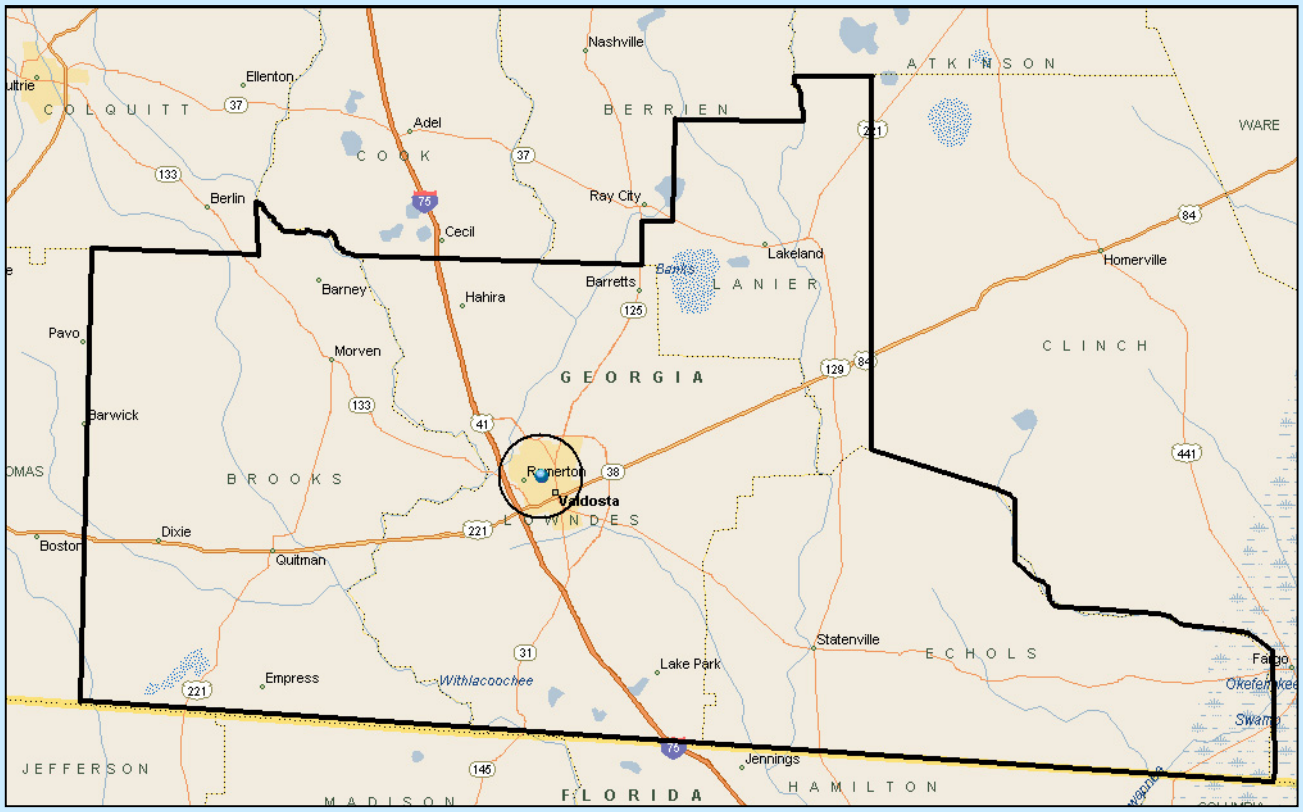
AQS ID: 131270006
Address: Risley Middle School, 2900 Albany Street, Brunswick, Glynn County, Georgia 31520
Site Established: 1/1/87
Latitude/Longitude: N31.169530/W-81.496046
Elevation: 2 meters
Area Represented: Brunswick MSA
Site History: Established as SO_2 site

North South West

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

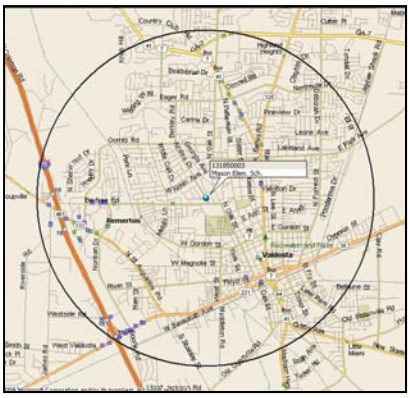
Recommendations: Continue monitoring

Valdosta MSA



See Figure 1 on page 2 for complete map of Georgia

Valdosta- Mason Elementary



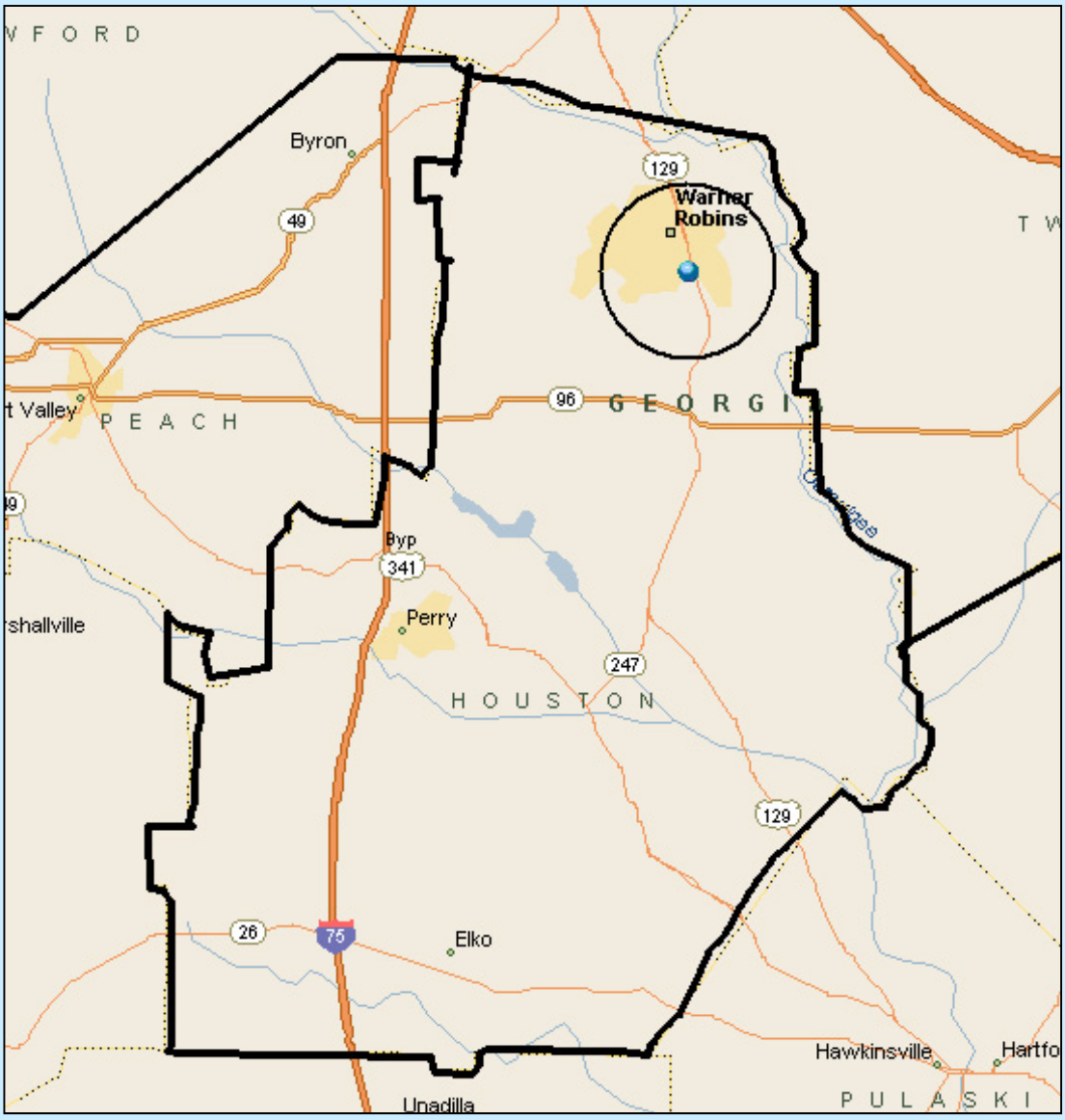
AQS ID: 131850003
Address: S.L. Mason Elementary School, 821 West Gordon Street, Valdosta, Lowndes County, Georgia 31601
Site Established: 12/17/99
Latitude/Longitude: N30.848056/W-83.294444
Elevation: 58 meters
Area Represented: Valdosta MSA
Site History: Established as $PM_{2.5}$ site

North South East West

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

Recommendations: Continue monitoring

Warner Robins MSA



See Figure 1 on page 2 for complete map of Georgia

Warner Robins- Air Force Base

AQS ID: 131530001

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

Site Established: 6/15/00

Latitude/Longitude: N32.605600/W-83.597907

Elevation: 113 meters

Area Represented: Warner Robins MSA

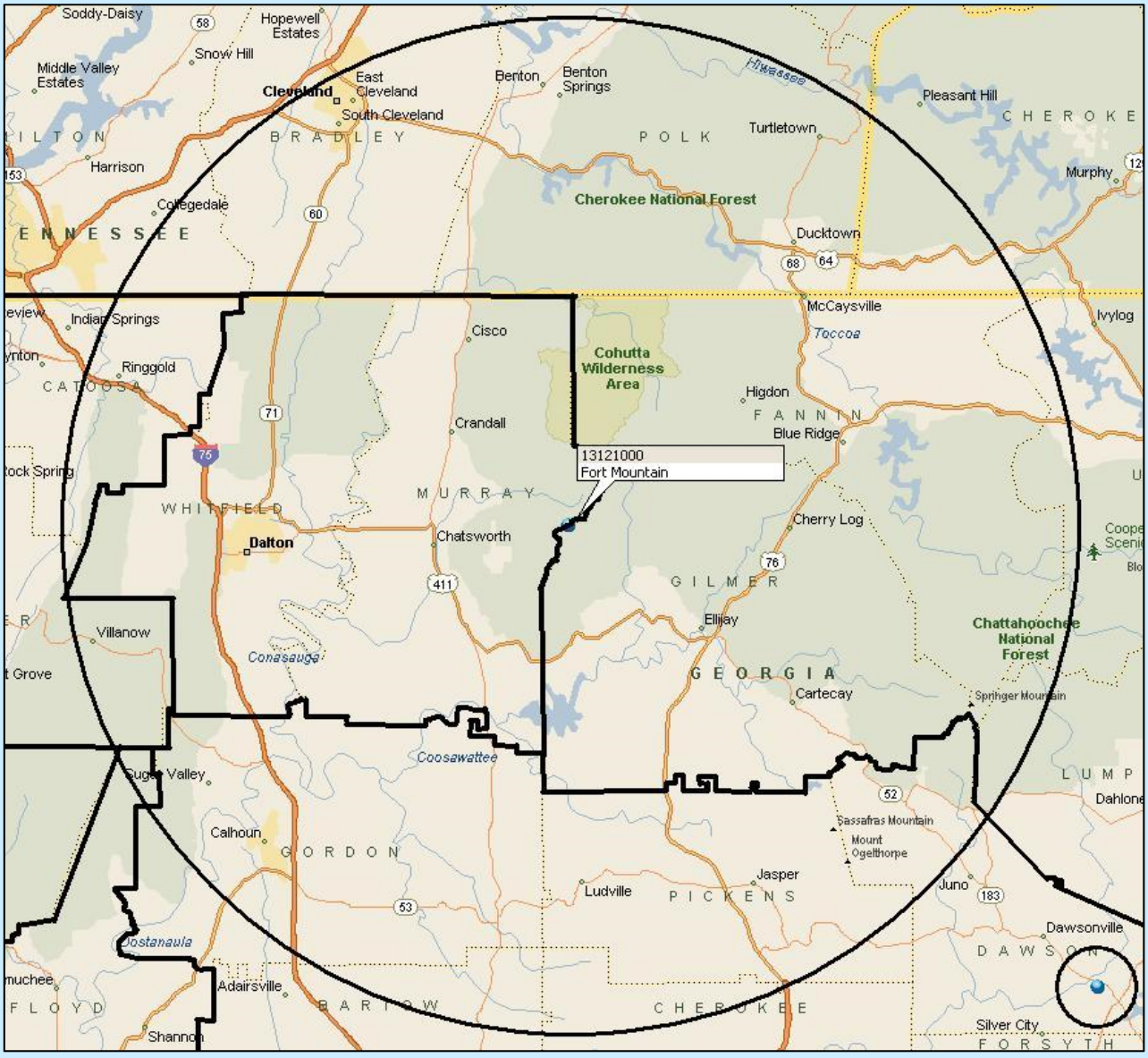
Site History: Established as $PM_{2.5}$ site

North South East West

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

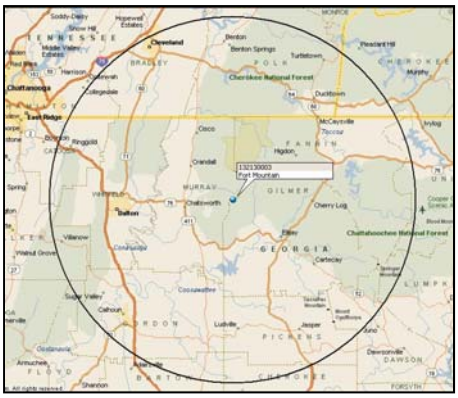
Recommendations: Continue monitoring

Dalton MSA



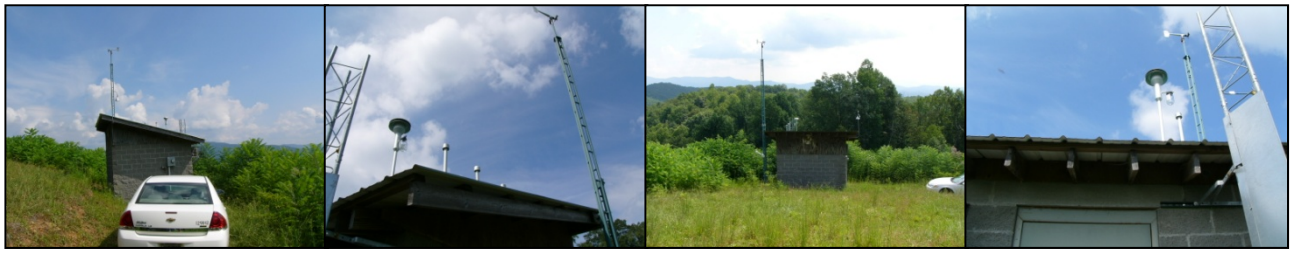
See Figure 1 on page 2 for complete map of Georgia

Chatsworth- Fort Mountain



AQS ID: 132130003
Address: Fort Mountain, State Highway 52, Cohutta Overlook, Chatsworth, Murray County, Georgia 30705
Site Established: 3/23/99
Latitude/Longitude: N34.785078/W-84.626499
Elevation: 980 meters
Area Represented: Dalton MSA
Site History: Established as O_3 site

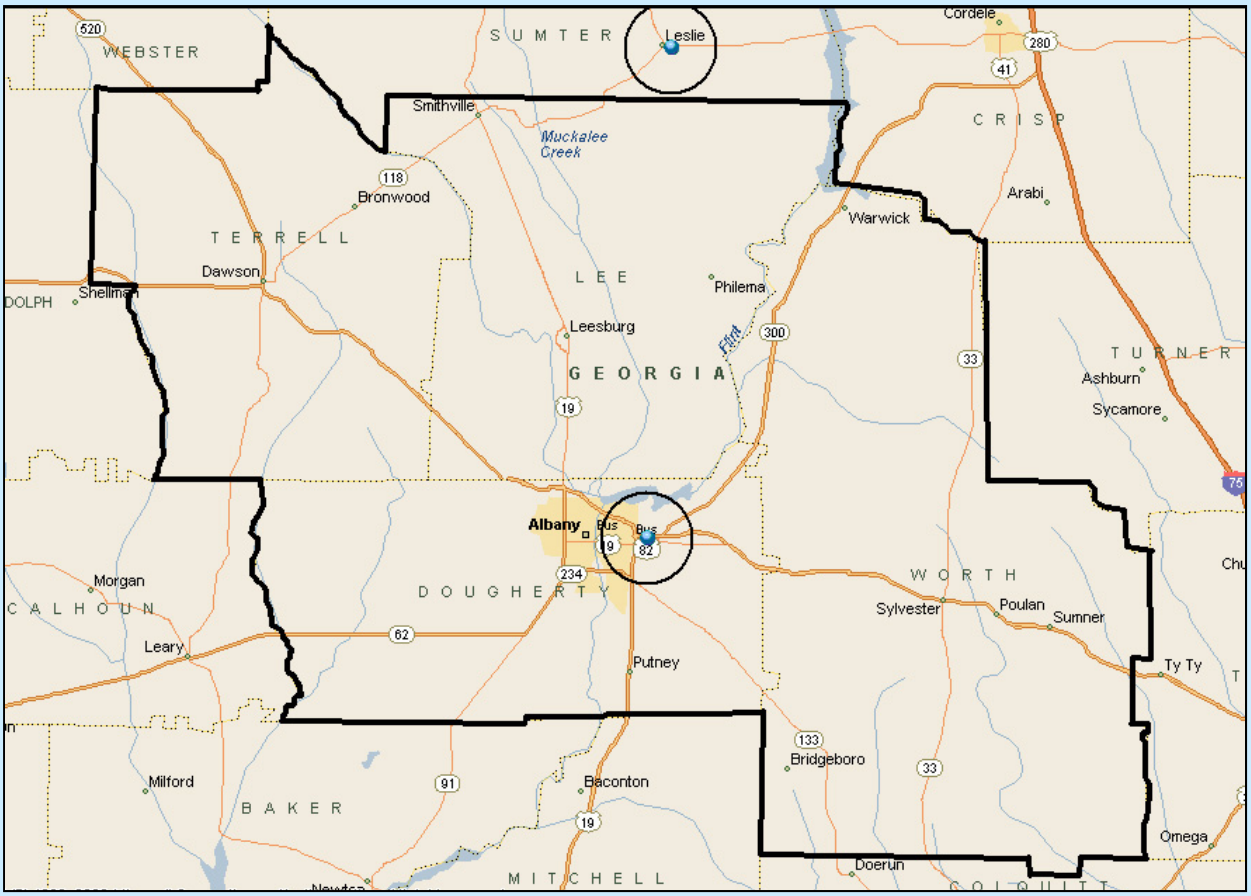
North South East West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Regional	3/1/00
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	2/7/02
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	2/7/02
Temperature	General/ Background	Continuous	2 m	Neighborhood	2/7/02
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	2/7/02

Recommendations: Continue monitoring

Albany MSA



See Figure 1 on page 2 for complete map of Georgia

Albany- Turner Elementary

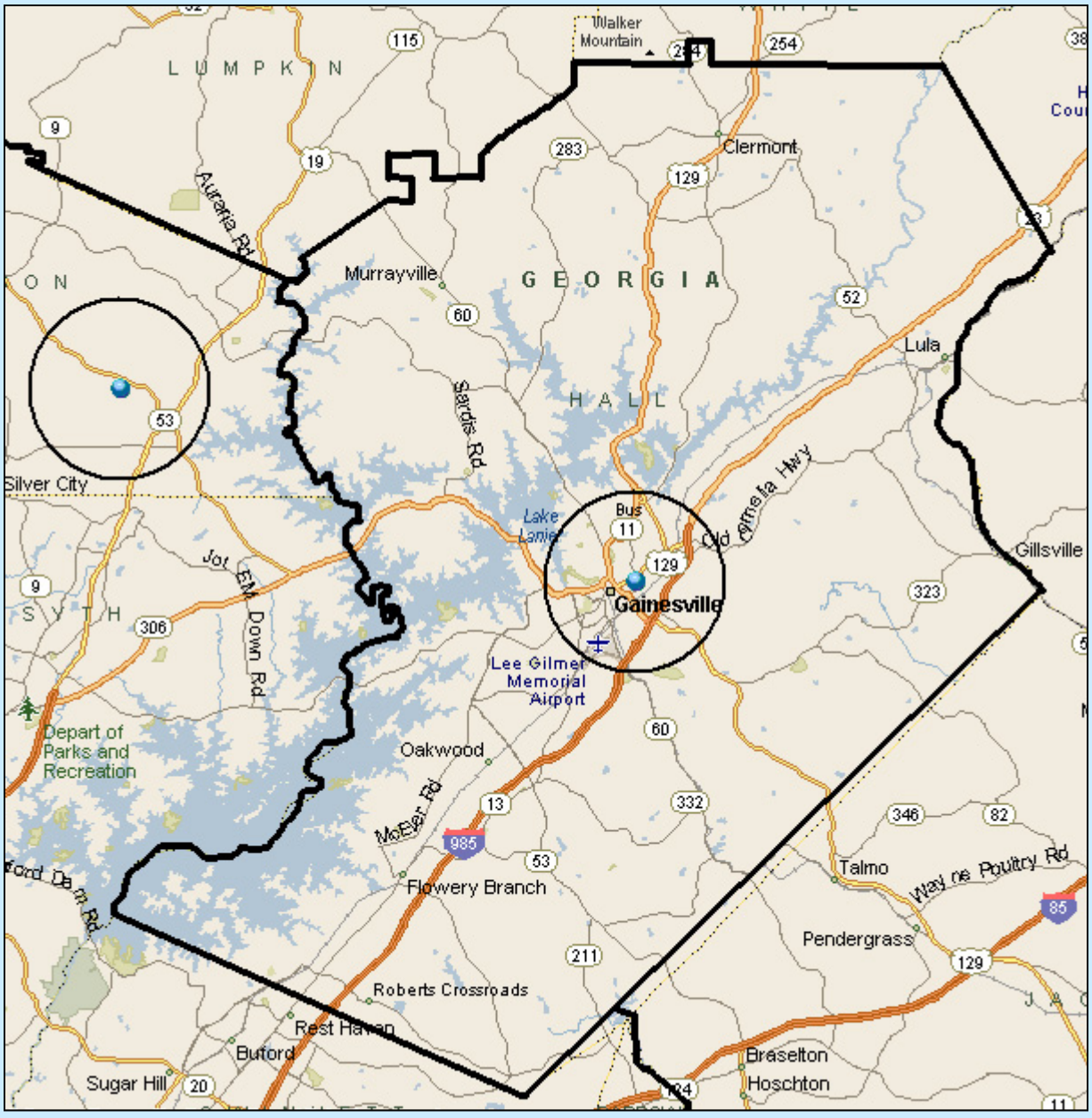
AQS ID: 130950007
Address: Turner Elementary School, 2001 Leonard Avenue, Albany, Dougherty County, Georgia 31705
Site Established: 7/31/91
Latitude/Longitude: N31.576917/W-84.100194
Elevation: 61 meters
Area Represented: Albany MSA
Site History: Established as TSP site

North South East West

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

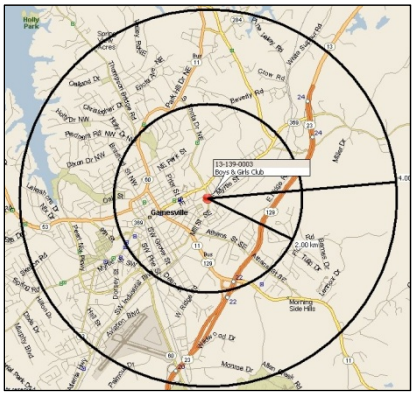
Recommendations: Continue monitoring; Running continuous monitor as FEM as of 1/10/13

Gainesville MSA



See Figure 1 on page 2 for complete map of Georgia

Gainesville- Boys and Girls Club



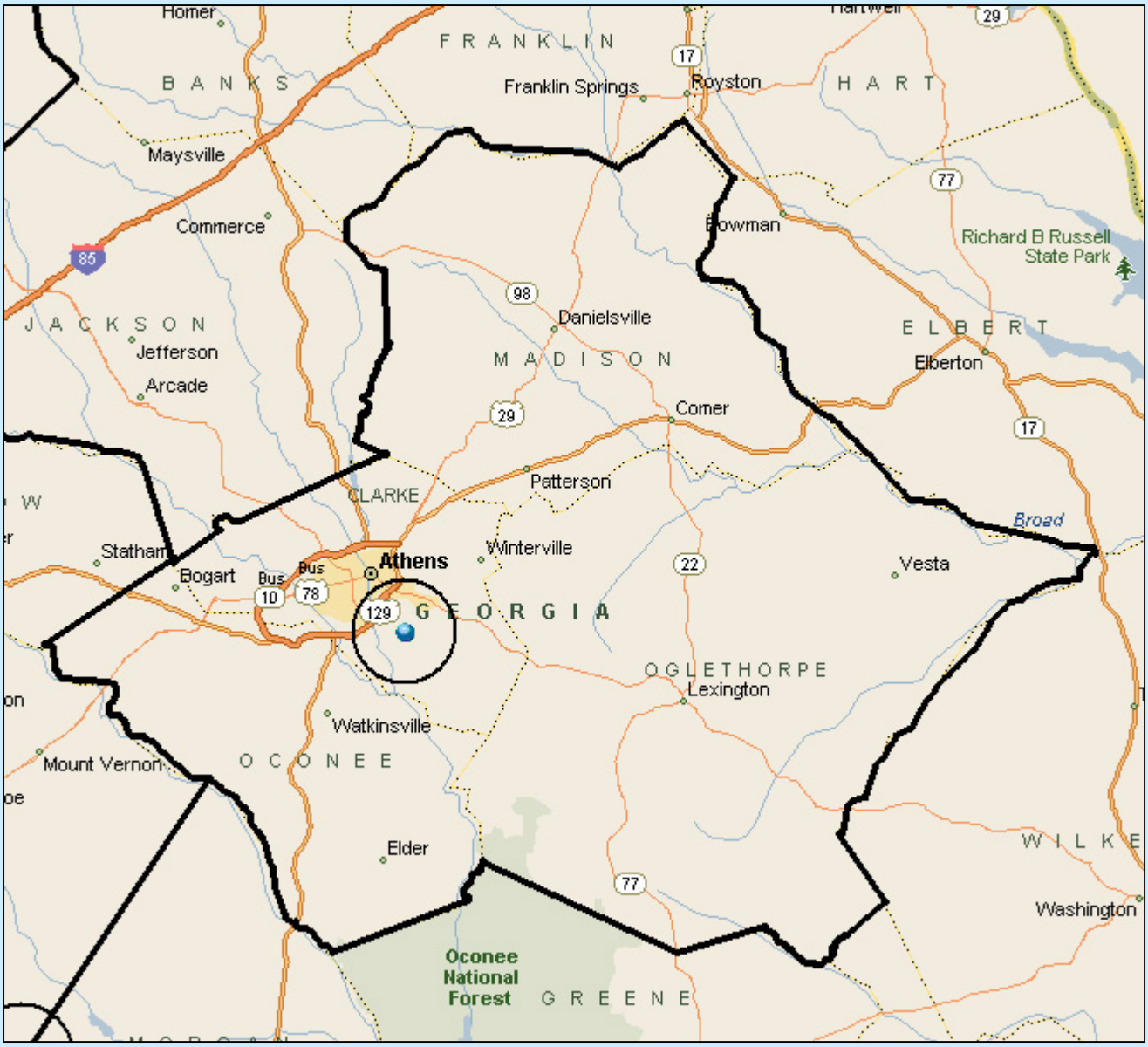
AQS ID: 131390003
Address: Boys and Girls Club, 1 Positive Place, Gainesville, Hall County, Georgia 30501
Site Established: 1/1/97
Latitude/Longitude: N34.30008/W-83.81217
Elevation: 353 meters
Area Represented: Gainesville MSA
Site History: Established as $PM_{2.5}$ site

North South East West

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

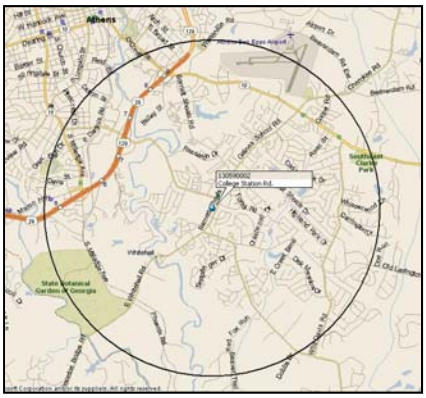
Recommendations: Continue monitoring

Athens-Clark County MSA



See Figure 1 on page 2 for complete map of Georgia

Athens- College Station Road



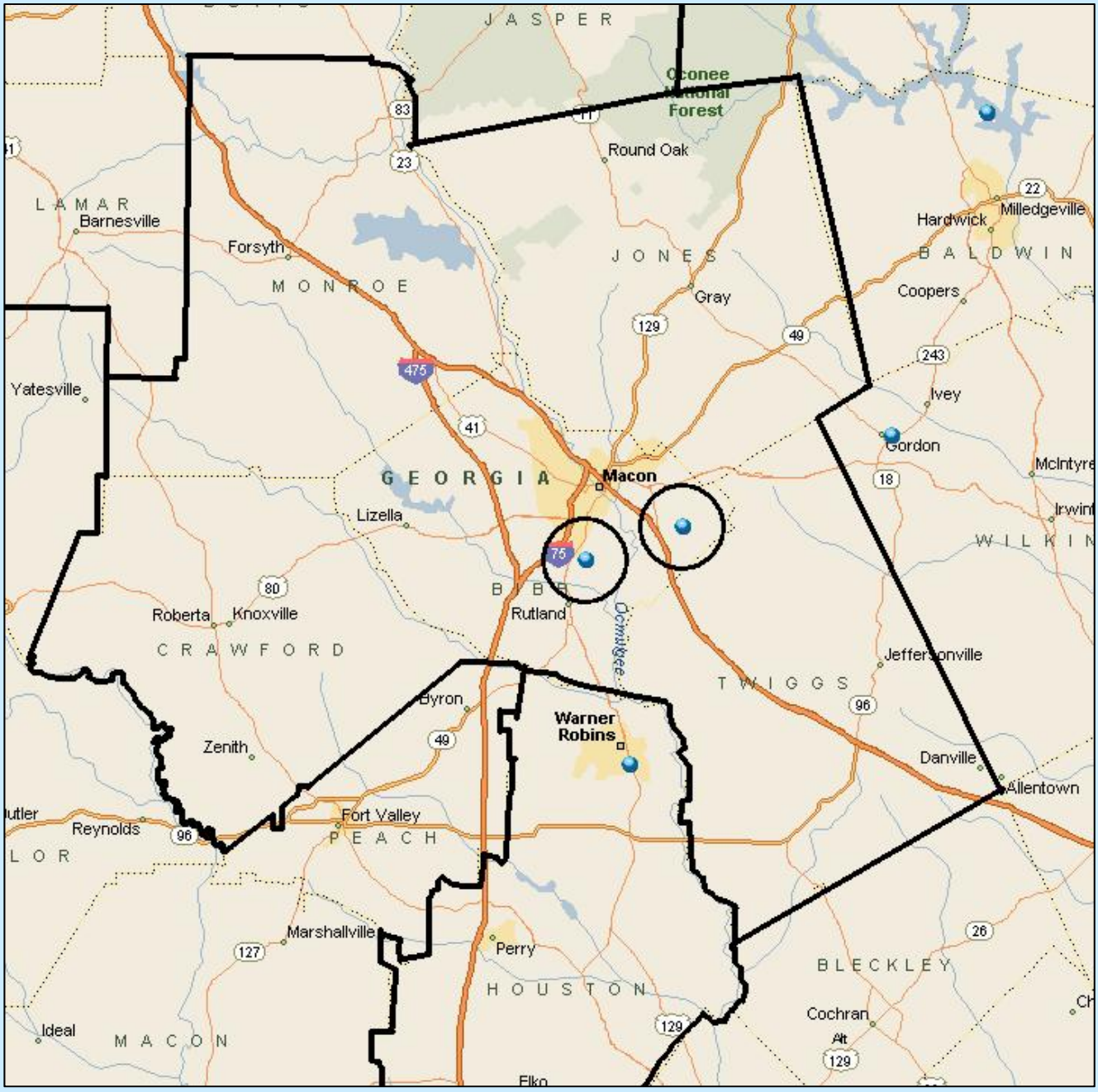
AQS ID: 130590002
Address: Fire Station #7, 2350 Barnett Shoals Road, Athens, Clarke County, Georgia 30603
Site Established: 3/1/02
Latitude/Longitude: N33.91793/-W83.34461
Elevation: 233 meters
Area Represented: Athens-Clarke County MSA
Site History: Established as O_3 and PM site

North South West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	6.80 m	Urban	5/1/02
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	2/12/05
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	8/1/04
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	4 m	Neighborhood	3/1/02

Recommendations: Continue monitoring

Macon MSA



See Figure 1 on page 2 for complete map of Georgia

Macon- Allied Chemical

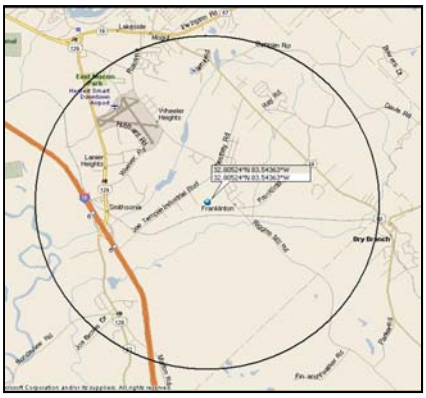
AQS ID: 130210007
Address: Allied Chemical, 600 Guy Paine Road, Macon, Bibb County, Georgia 31206
Site Established: 1/1/74
Latitude/Longitude: N32.77729/W-83.64120
Elevation: 106 meters
Area Represented: Macon MSA
Site History: Established as TSP site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	4 m	Neighborhood	3/1/02
$PM_{2.5}$	Population Exposure	Daily	4 m	Neighborhood	2/2/99
$PM_{2.5}$	Quality Assurance	Every 12 days	4 m	Neighborhood	2/2/99

Recommendations: Continue monitoring

Macon- GA Forestry Commission



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

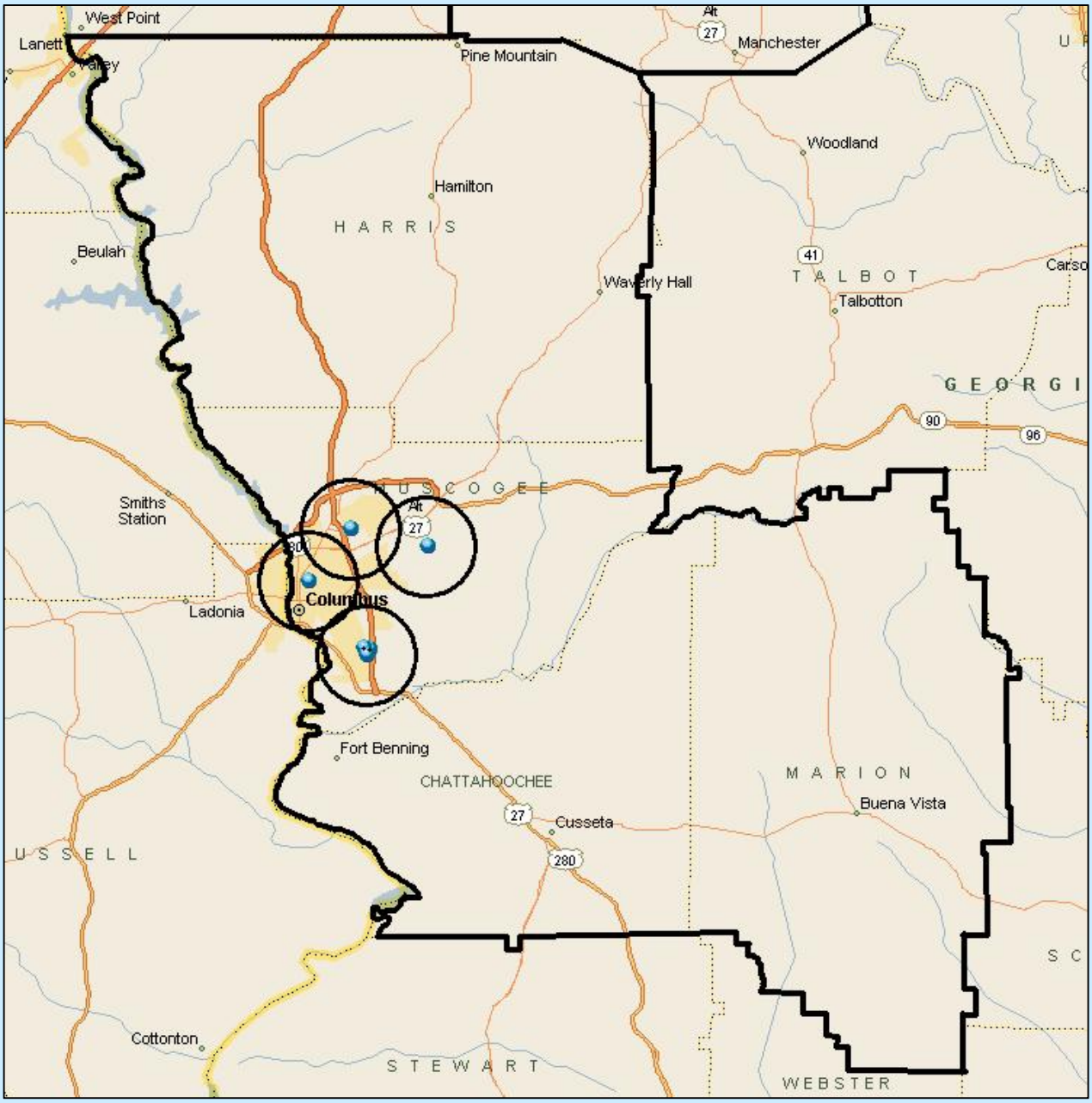
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	2/1/99
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	5/5/03
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	5/7/97
SO_2	Population Exposure	Continuous	4 m	Urban	5/7/97
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	1/1/99

Macon- GA Forestry Commission (continued)

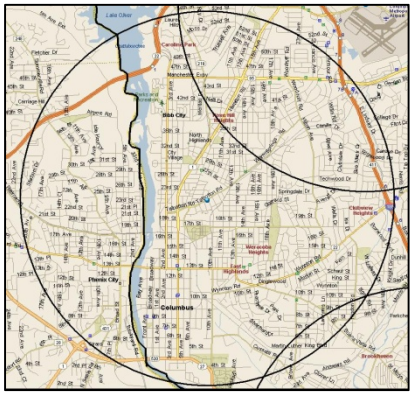
Recommendations: Continue monitoring

Columbus Georgia-Alabama MSA



See Figure 1 on page 2 for complete map of Georgia

Columbus- Health Department



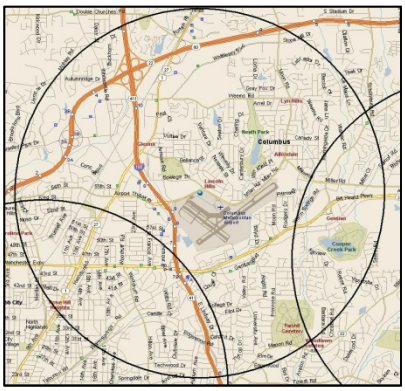
AQS ID: 132150001
Address: Muscogee City Health Department, 1958 8th Avenue, Columbus, Muscogee County, Georgia 31904
Site Established: 1/1/57
Latitude/Longitude: N32.484226/W-84.978925
Elevation: 101 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as TSP site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Every 3 days	7 m	Neighborhood	3/4/99

Recommendations: Continue monitoring

Columbus- Airport



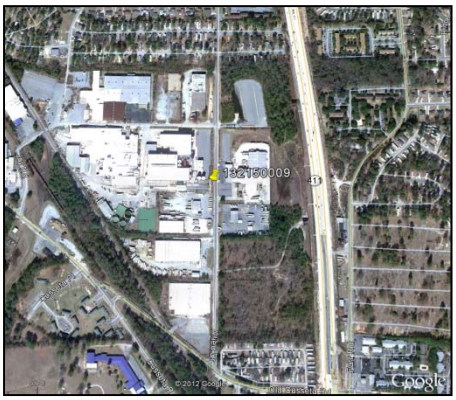
AQS ID: 132150008
Address: Columbus Airport, 3100 Thruway Drive, Columbus, Muscogee County, Georgia 31909
Site Established: 7/1/82
Latitude/Longitude: N32.52113/W-84.94486
Elevation: 135 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as O_3 site

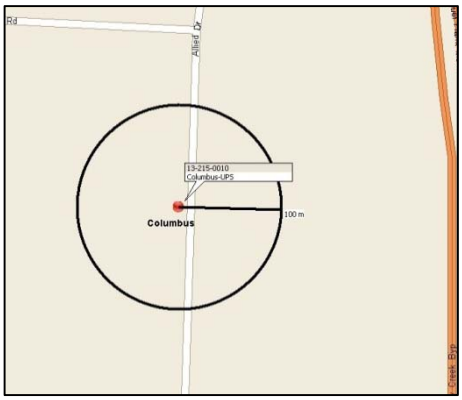
North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	7/1/82
$PM_{2.5}$	Population Exposure	Every 3 days	4 m	Neighborhood	6/2/03
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	6/1/03

Recommendations: Continue monitoring

Columbus- UPS





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

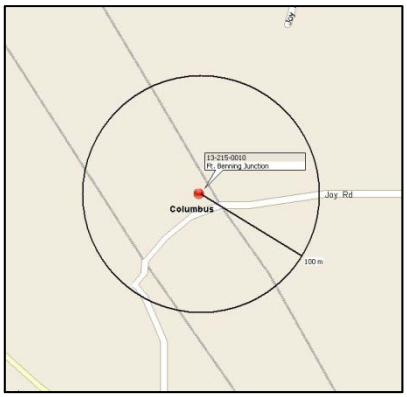
North South East West

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

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

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

Columbus- Fort Benning



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

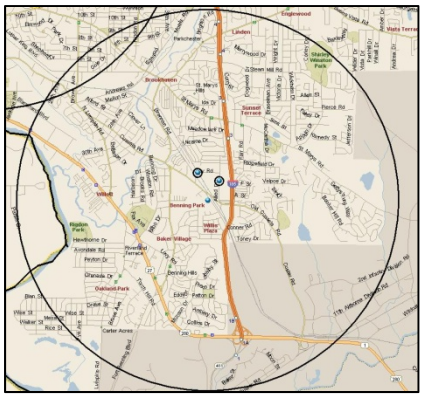
North South East West

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

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

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

Columbus- Cusseta Road Elementary



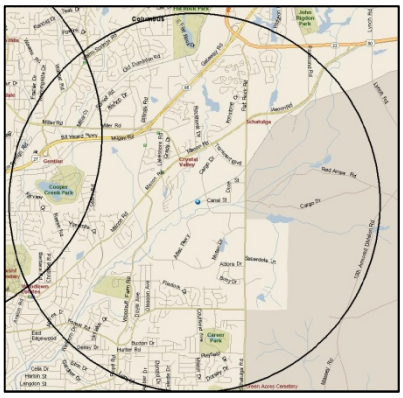
AQS ID: 132150011
Address: Cusseta Road Elementary School, 4150 Cusseta Road, Columbus, Muscogee County, Georgia 31903
Site Established: 9/4/91
Latitude/Longitude: N32.42905/W-84.93160
Elevation: 88 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as lead site

North South East West

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

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

Columbus- Crime Lab



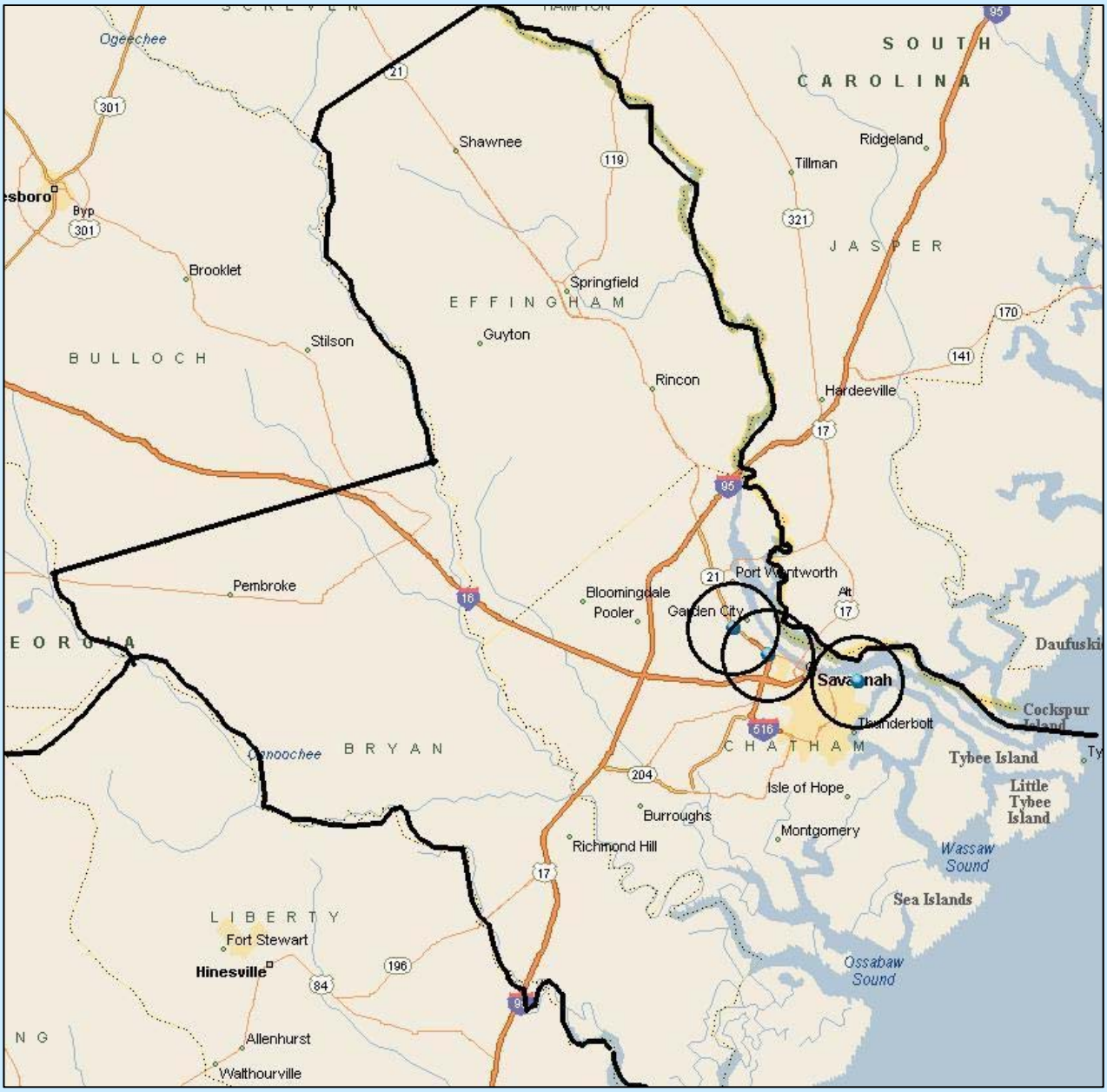
AQS ID: 132151003
Address: Columbus Crime Lab, 8695 Beaver Run Road, Midland, Muscogee County, Georgia 31820
Site Established: 6/30/80
Latitude/Longitude: N32.50854/W-84.88037
Elevation: 122 meters
Area Represented: Columbus Georgia-Alabama MSA
Site History: Established as O_3 site

North South West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/5/06
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/5/06
Temperature	General/ Background	Continuous	2 m	Neighborhood	1/5/06
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	1/5/06
Precipitation	General/ Background	Continuous	3 m	Neighborhood	1/5/06
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	1/5/06

Recommendations: Continue monitoring

Savannah MSA



See Figure 1 on page 2 for complete map of Georgia

Savannah- E. President Street

AQS ID: 130510021

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

Site Established: 2/1/95

Latitude/Longitude: N32.069050/W-81.048949

Elevation: 2 meters

Area Represented: Savannah MSA

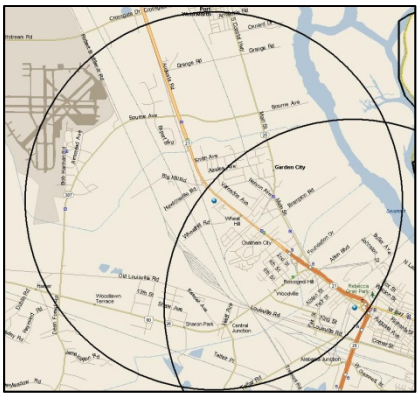
Site History: Established as SO_2 and H_2S site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	4/19/95
SO_2	Source Oriented	Continuous	4 m	Neighborhood	3/29/95
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1//04
Toxics	Population Exposure	Every 12 days	2 m	Neighborhood	9/18/96
Carbonyls	Population Exposure	Every 12 days	4 m	Neighborhood	1/1/99

Recommendations: Continue monitoring

Savannah- Mercer School



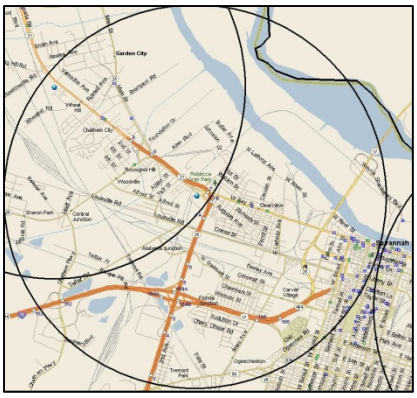
AQS ID: 130510091
Address: Mercer Middle School, 201 Rommel Avenue, Savannah, Chatham County, Georgia 31408
Site Established: 7/7/76
Latitude/Longitude: N32.110580/W-81.162024
Elevation: 4 meters
Area Represented: Savannah MSA
Site History: Established as TSP site

North South East West

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

Recommendations: Continue monitoring

Savannah- Lathrop and Augusta



AQS ID: 130511002

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

Site Established: 1/1/72

Latitude/Longitude: N32.090278/W-81.130556

Elevation: 4 meters

Area Represented: Savannah MSA

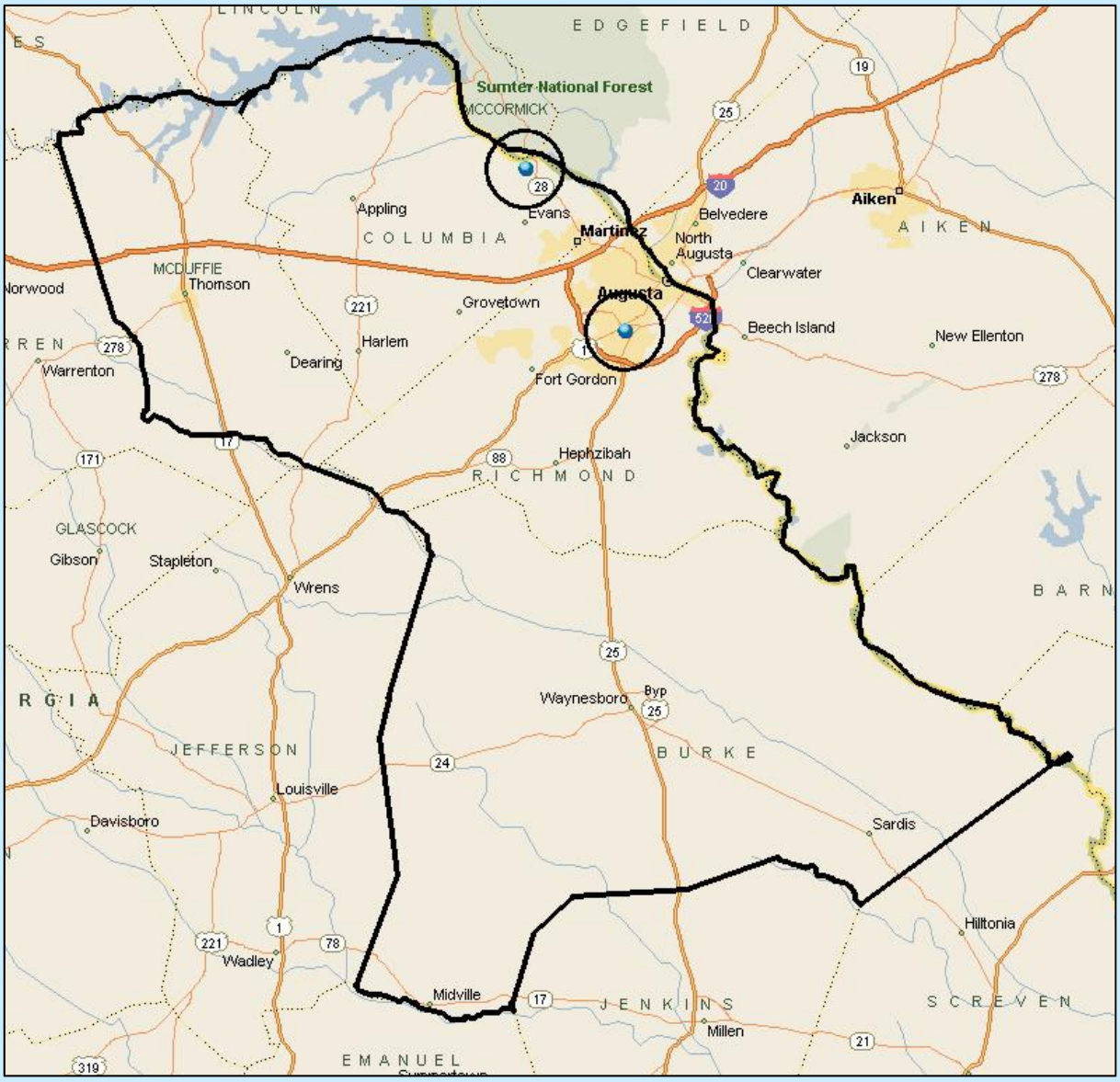
Site History: Established as TSP site

Northeast Southwest

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

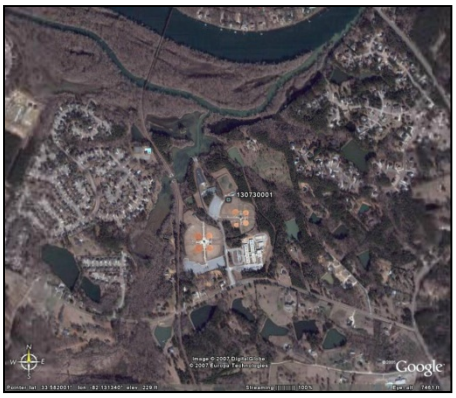
Recommendations: Continue monitoring; propose to add an ozone monitor when initiated by EPA

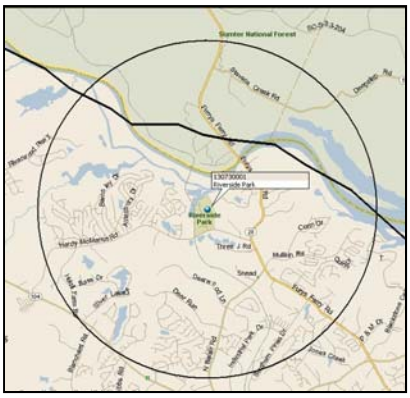
Augusta-Richmond County, Georgia-South Carolina MSA



See Figure 1 on page 2 for complete map of Georgia

Evans- Riverside Park





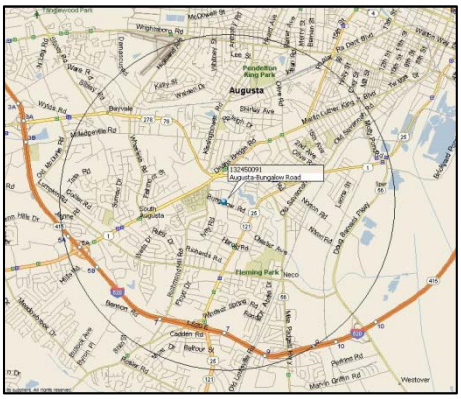
AQS ID: 130730001
Address: Riverside Park, 4431 Hardy McManus Road, Evans, Columbia County, Georgia 30809
Site Established: 2/17/05
Latitude/Longitude: N33.582000/W-82.131340
Elevation: 74 meters
Area Represented: Augusta-Richmond County, Georgia-South Carolina MSA
Site History: Established as O_3 and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

North Southeast East

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

Recommendations: Continue monitoring

Augusta- Bungalow Road Elementary



AQS ID: 132450091

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

Site Established: 1/1/76

Latitude/Longitude: N33.433349/W-82.022217

Elevation: 46 meters

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

Site History: Established as TSP site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	5 m	Neighborhood	4/27/89
PM_{10}	Population Exposure	Every 6 days	6 m	Neighborhood	4/9/96
PM_{10}	Quality Assurance	Every 12 days	6 m	Neighborhood	1/10/13
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days	6 m	Neighborhood	3/2/02
$PM_{2.5}$	Population Exposure	Every 3 days	6 m	Neighborhood	2/8/99
$PM_{2.5}$	Population Exposure	Continuous	6 m	Neighborhood	10/1/03
SO_2	Population Exposure	Continuous	6 m	Neighborhood	1/14/13
SO_2 5-Minute Maximum	Population Exposure	Continuous	6 m	Neighborhood	1/14/13

Augusta- Bungalow Road Elementary (continued)

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

Recommendations: Continue monitoring

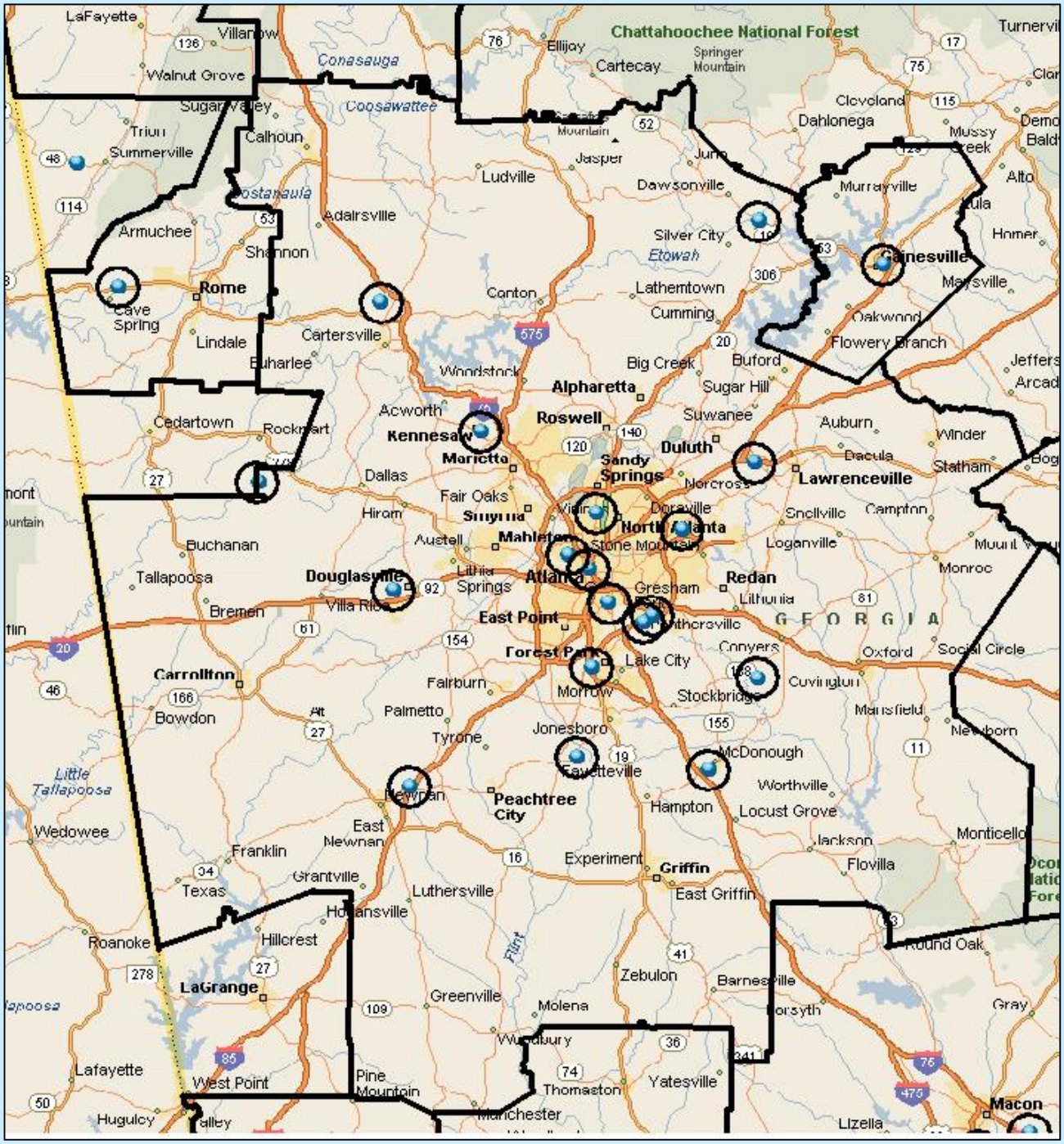
Augusta- Near-Road Monitoring Site

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

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

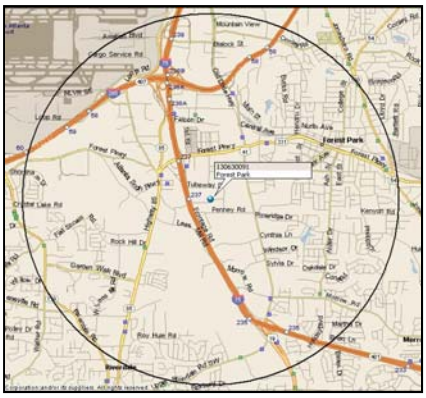
Due to changes in establishment schedule by EPA, site should be set up by January 1, 2017 (see Section 3.3 of Introduction for details)

Atlanta-Sandy Springs-Marietta MSA



See Figure 1 on page 2 for complete map of Georgia

Forest Park- Georgia DOT



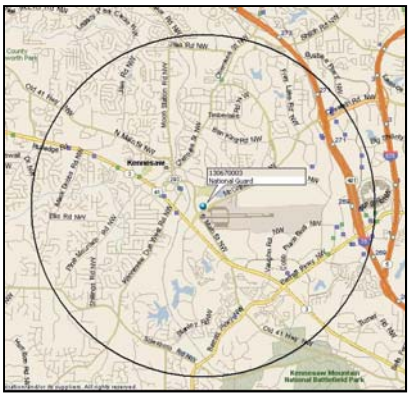
AQS ID: 130630091
Address: 25 Kennedy Drive, Forest Park, Clayton County, Georgia 30297
Site Established: 1/1/78
Latitude/Longitude: N33.609722/W-84.391111
Elevation: 288 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as TSP site

North South East West

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

Recommendations: Continue monitoring

Kennesaw- National Guard



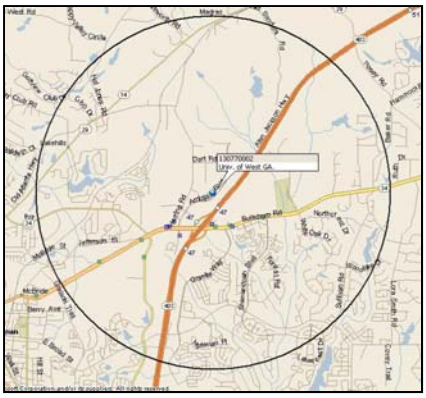
AQS ID: 130670003
Address: Georgia National Guard, 1901 McCollum Parkway, Kennesaw, Cobb County, Georgia, 30144
Site Established: 2/7/99
Latitude/Longitude: N34.015346/W-84.607484
Elevation: 317 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as $PM_{2.5}$ site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	9/1/99
$PM_{2.5}$	Population Exposure	Daily	4 m	Neighborhood	2/7/99

Recommendations: Continue monitoring

Newnan- University of West Georgia



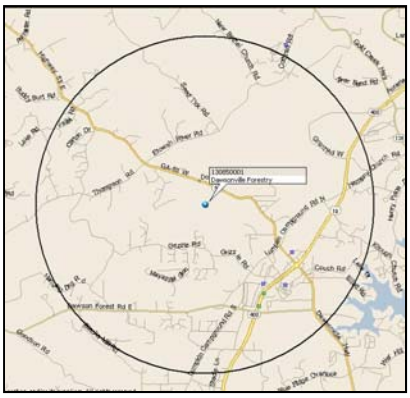
AQS ID: 130770002
Address: Univ. of West GA, Newnan Campus, 7 Solar Circle, Newnan, Coweta County, Georgia 30265
Site Established: 5/5/99
Latitude/Longitude: N33.40389/W-84.74606
Elevation: 271 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

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

Recommendations: Continue monitoring

Dawsonville- GA Forestry Commission



AQS ID: 130850001

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

Site Established: 1/1/85

Latitude/Longitude: N34.37619/W-84.05986

Elevation: 372 meters

Area Represented: Atlanta-Sandy Springs-Marietta MSA

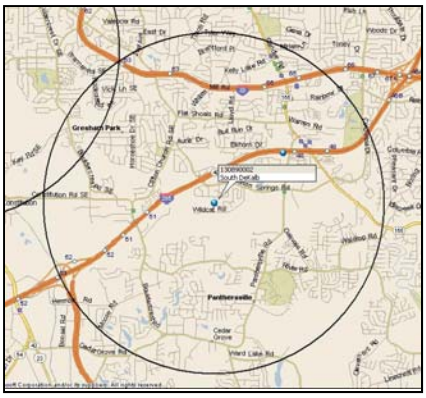
Site History: Established as O_3 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	1/1/85
Toxics	General/ Background	Every 12 days	2 m	Neighborhood	12/11/96
Carbonyls	General/ Background	Every 12 days	4 m	Neighborhood	1/1/99
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/05

Recommendations: Continue monitoring

Decatur- South DeKalb



AQS ID: 130890002
Address: 2390-B Wildcat Road, Decatur, DeKalb County, Georgia 30034
Site Established: 1/1/74
Latitude/Longitude: N33.68797/-84.29048
Elevation: 308 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure	Daily	2.7 m	Neighborhood	1/22/99
$PM_{2.5}$	Quality Assurance	Every 12 days	2.7 m	Neighborhood	12/20/08
$PM_{2.5}$	Population Exposure	Continuous	4 m	Neighborhood	5/1/03
$PM_{2.5}$ Speciation	Population Exposure	Every 3 days	2.6 m	Neighborhood	10/1/00
SO_2	Population Exposure	Continuous	4 m	Neighborhood	10/1/10
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	10/1/10
O_3	Highest Concentration	Continuous	4 m	Neighborhood/ Urban	1/1/74

Decatur- South DeKalb (continued)

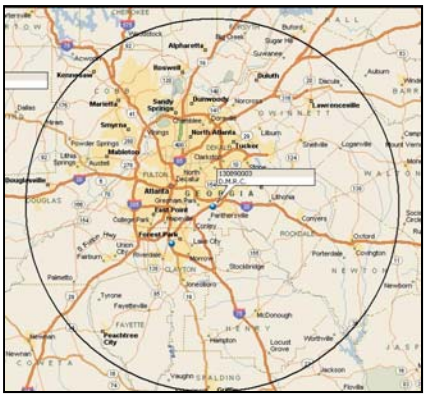
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
CO	Population Exposure	Continuous	4 m	Neighborhood	5/19/03
NOy	Population Exposure	Continuous	10 m	Neighborhood/ Urban	1/1/98
NO	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NOx	Population Exposure	Continuous	4 m	Neighborhood/ Urban	4/1/94
NO_2	Population Exposure	Continuous	5 m	Neighborhood/ Urban	7/21/78
Carbonyls (PAMS)	Max Precursor Emissions	3-hour Samples in Summer	4 m	Neighborhood	6/1/93
Carbonyls (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	4 m	Neighborhood	6/1/93
Carbonyls	Quality Assurance	Every 12 days	4 m	Neighborhood	1/1/06
PM_{10} Select Metals (Toxics)	Population Exposure	Every 6 days	2 m	Neighborhood	1/1/00
PM_{10} Select Metals (Toxics)	Quality Assurance	Every 12 days	2.3 m	Neighborhood	1/1/05
PM_{10} Continuous	Population Exposure	Continuous	4 m	Neighborhood	1/1/11
PM_{coarse} Continuous	Population Exposure	Continuous	4 m	Neighborhood	1/1/11
VOCs (PAMS)	Max Precursor Emissions	Continuous in Summer	4 m	Neighborhood	6/1/93
VOCs (PAMS/Toxics)	Max Precursor Emissions/ Population Exposure	Every 6 days	4 m	Neighborhood	6/1/93
VOCs (Toxics)	Quality Assurance	Every 12 days	4 m	Neighborhood	1/1/05
Elemental Carbon (Aethalometer)	Population Exposure	Continuous	4 m	Neighborhood	6/12/03

Decatur- South DeKalb (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Semi-VOCs	Population Exposure	Every 6 days	1.6 m	Neighborhood	4/30/07
Semi-VOCs	Quality Assurance	Every 12 days	2 m	Neighborhood	4/30/07
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/93
Rain/Melt Precipitation	General/ Background	Continuous	3 m	Neighborhood	1/1/97
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	6/1/93
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	6/1/93
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	6/1/93
Sigma Theta	General/ Background	Continuous	10 m	Neighborhood	1/1/02
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	6/1/93

Recommendations: Continue monitoring; NCore site (see Appendix C for full description)

Decatur- DMRC



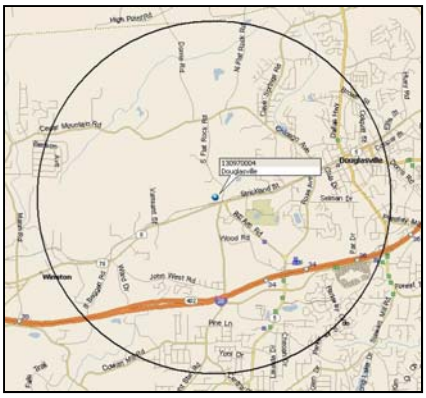
AQS ID: 130890003
Address: D.M.R.C., 3073 Panthersville Road, Decatur, DeKalb County, Georgia 30034
Site Established: 7/1/86
Latitude/Longitude: N33.698468/W-84.272694
Elevation: 238 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as lead site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Lead	Regional Transport	Every 6 days	2 m	Regional	7/1/86
Lead	Quality Assurance	Every 12 days	2 m	Regional	8/5/09

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

Douglasville- W. Strickland Street



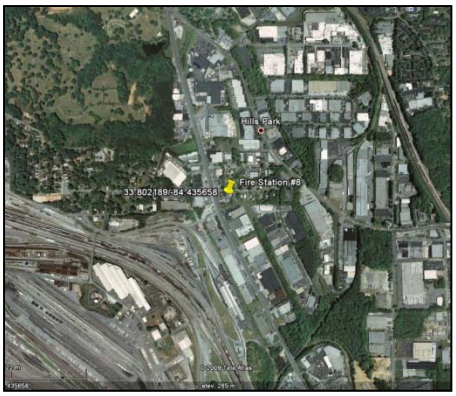
AQS ID: 130970004
Address: Douglas County Water Authority, 7725 W. Strickland St., Douglasville, Douglas County, Georgia 30134
Site Established: 8/15/97
Latitude/Longitude: N33.743514/W-84.779263
Elevation: 368 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

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

Recommendations: Continue monitoring

Atlanta- Fire Station #8



AQS ID: 131210039
Address: Fire Station #8, 1711 Marietta Blvd., Atlanta, Fulton County, Georgia 30318
Site Established: 1/1/73
Latitude/Longitude: N33.802189/W-84.435658
Elevation: 265 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as TSP site

North South East West

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

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

Recommendations: Continue monitoring

Atlanta-Georgia Tech Near-Road

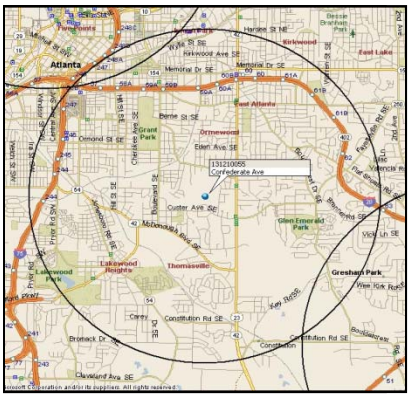
AQS ID: 131210056
Address: Georgia Institute of Technology, 6th Street, Atlanta, Fulton County, Georgia, 30313
Site Established: 6/15/14
Latitude/Longitude: N33.778315/W-84.391418
Elevation: 286 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as near-road site

Northeast Southeast East

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
NO_2	Source Oriented	Continuous	4 m	Micro	6/15/14
CO	Source Oriented	Continuous	4 m	Micro	6/15/14
$PM_{2.5}$	Source Oriented	Continuous	TBD	Micro	TBD
Black Carbon	Source Oriented	Continuous	TBD	Micro	TBD
Wind Speed	Source Oriented	Continuous	TBD	Micro	TBD
Wind Direction	Source Oriented	Continuous	TBD	Micro	TBD

Site is under construction. GA EPD anticipates the wind speed, wind direction, $PM_{2.5}$ and black carbon samplers will be running in near future. See Appendix E for near-road site details.

Atlanta- Confederate Avenue



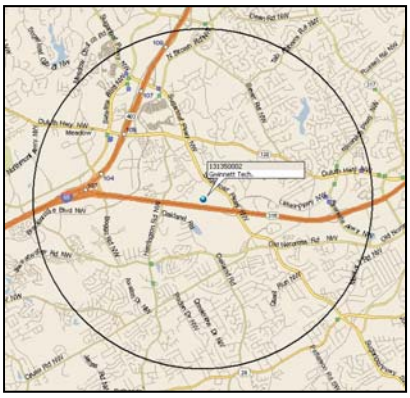
AQS ID: 131210055
Address: 935 East Confederate Avenue, Atlanta, Fulton County, Georgia 30316
Site Established: 10/1/91
Latitude/Longitude: N33.72005/W-84.35714
Elevation: 292 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 and SO_2 site

North South East West

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
SO_2	Population Exposure	Continuous	4 m	Neighborhood	10/1/91
SO_2 5-Minute Maximum	Population Exposure	Continuous	4 m	Neighborhood	8/1/10
O_3	Population Exposure	Continuous (Mar-Oct)	4 m	Neighborhood	10/1/91
$PM_{2.5}$	Population Exposure	Continuous	4.80 m	Neighborhood	7/1/05
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	1/1/04
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	1/1/04

Recommendations: Continue monitoring

Lawrenceville- Gwinnett Tech



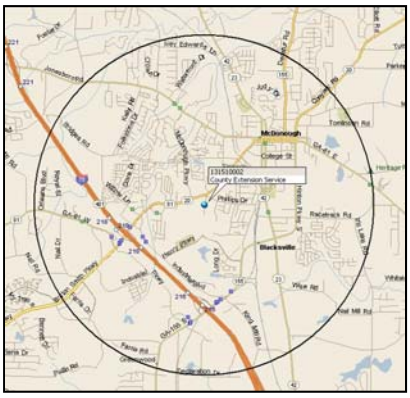
AQS ID: 131350002
Address: Gwinnett Tech, 5150 Sugarloaf Parkway, Lawrenceville, Gwinnett County, Georgia 30043
Site Established: 3/17/95
Latitude/Longitude: N33.96127/W-84.06901
Elevation: 290 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

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

Recommendations: Continue monitoring

McDonough- County Extension Office



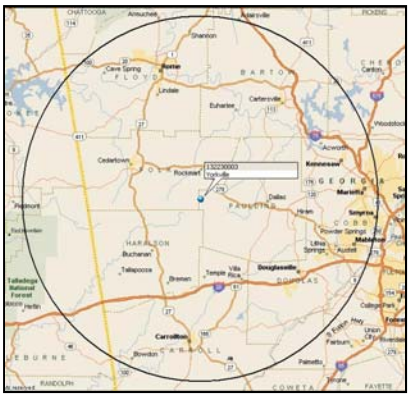
AQS ID: 131510002
Address: Henry County Extension Office, 86 Work Camp Rd, McDonough, Henry County, Georgia 30253
Site Established: 6/7/99
Latitude/Longitude: N33.433426/W-84.161797
Elevation: 249 meters
Area Represented: Atlanta-Sandy Springs-Marietta MSA
Site History: Established as O_3 site

North South East West

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

Recommendations: Continue monitoring

Yorkville- King Farm



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

North South East

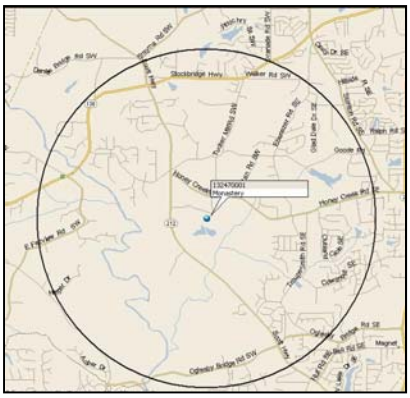
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Population Exposure/ Upwind Background	Continuous (Mar-Oct)	4 m	Regional	1/1/96
CO	Population Exposure/ Upwind Background	Continuous	4 m	Regional	7/16/02
NO	Population Exposure/ Upwind Background	Continuous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

Yorkville- King Farm (continued)

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

Recommendations: Continue monitoring

Conyers- Monastery



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

North South East West

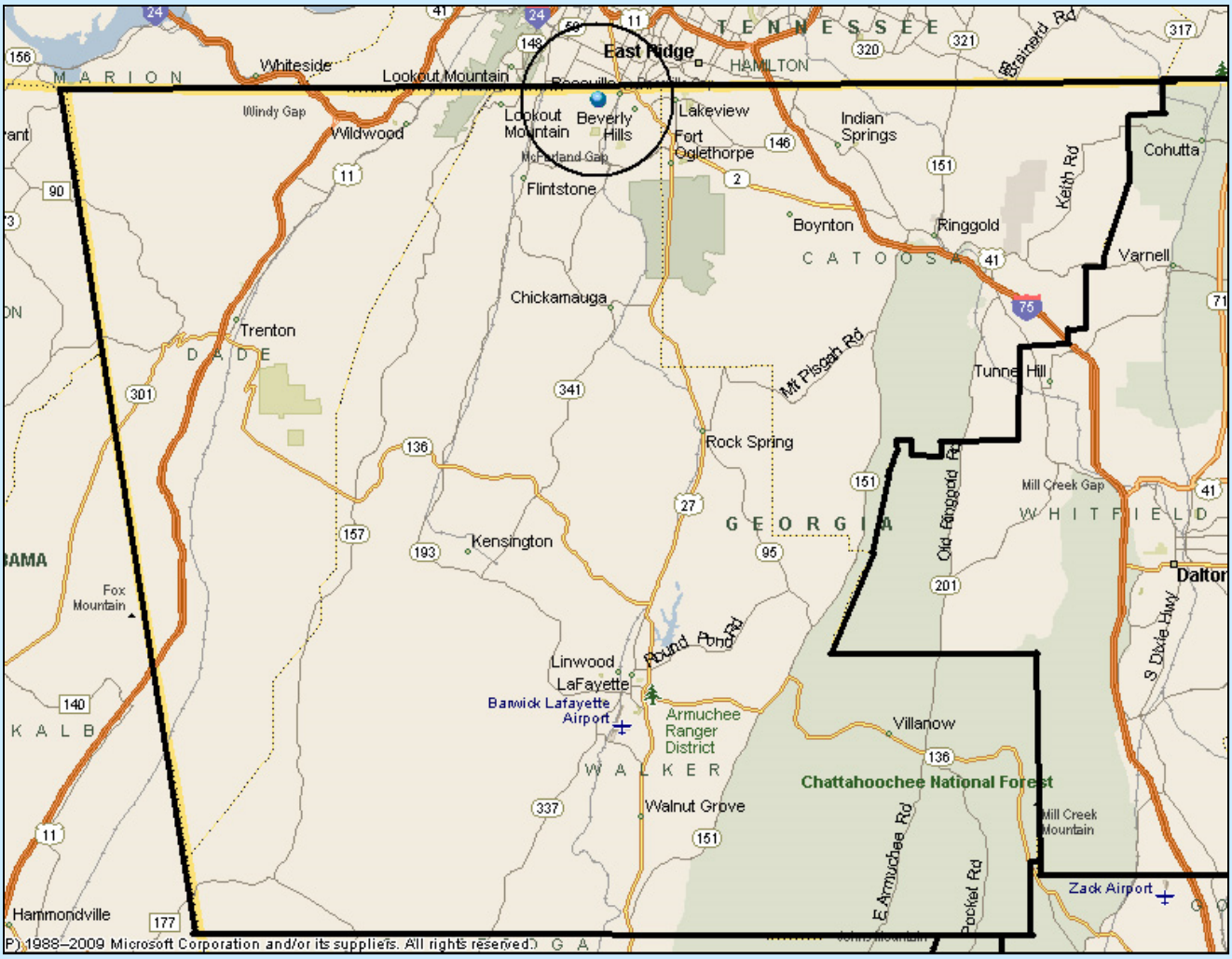
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
O_3	Maximum Concentration	Continuous (Mar-Oct)	5 m	Neighborhood	7/26/78
NOx	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94
NO_2	Max Precursor Emissions Impact	Continuous	5 m	Neighborhood	4/1/94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

Conyers- Monastery (continued)

Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
VOCs (PAMS)	Max Precursor Emissions Impact	Every 6 days	5 m	Neighborhood	1/1/94
Relative Humidity	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Barometric Pressure	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Ultraviolet Radiation	General/ Background	Continuous	1.50 m	Neighborhood	1/1/97
Outdoor Temperature	General/ Background	Continuous	2 m	Neighborhood	6/1/94
Solar Radiation	General/ Background	Continuous	1.50 m	Neighborhood	6/1/94
Wind Direction	General/ Background	Continuous	10 m	Neighborhood	6/1/94
Wind Speed	General/ Background	Continuous	10 m	Neighborhood	6/1/94
Rain/Melt Precipitation	General/ Background	Continuous	3 m	Neighborhood	7/1/03

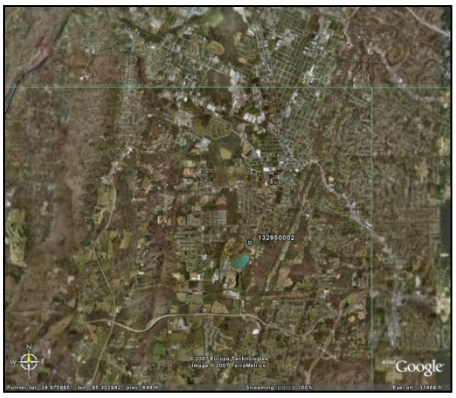
Recommendations: Continue monitoring

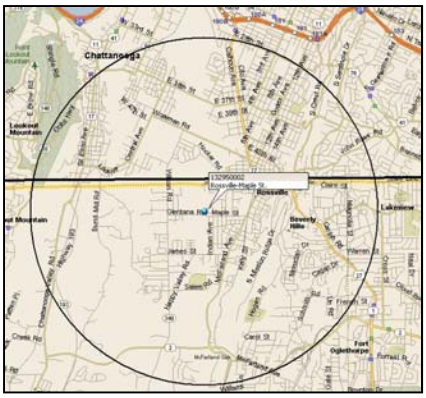
Chattanooga Tennessee-Georgia MSA



See Figure 1 on page 2 for complete map of Georgia

Rossville- Maple Street





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

North South East West

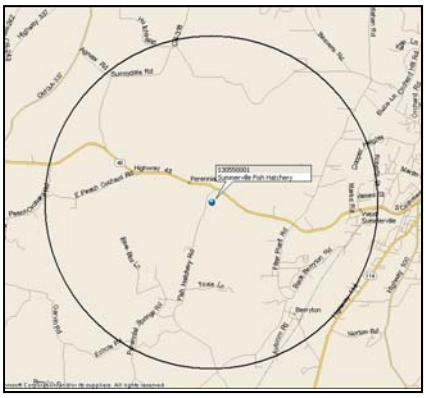
Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
$PM_{2.5}$	Population Exposure/ Regional Transport	Continuous	6 m	Neighborhood	1/24/07
$PM_{2.5}$	Population Exposure	Every 3 days	6 m	Neighborhood	1/1/00
$PM_{2.5}$ Speciation	Population Exposure	Every 6 days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

Recommendations: Continue monitoring

Sites Not in an MSA

(Listed in AQS ID Order)

Summerville- DNR Fish Hatchery



AQS ID: 130550001
Address: DNR Fish Hatchery, 231 Fish Hatchery Road, Summerville,
Chattooga County, Georgia 30747
Site Established: 1985
Latitude/Longitude: N34.474167/W-85.408056
Elevation: 276 meters
Area Represented: Not in an MSA, Summerville Micropolitan Statistical Area
Site History: Established as Acid Rain site

North South East West

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

Recommendations: Continue monitoring

Douglas- General Coffee State Park

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

Northwest

South

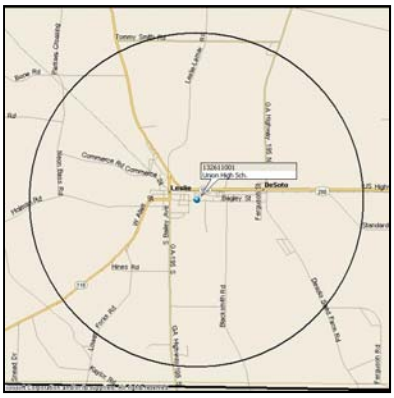
Southeast

West

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

Recommendations: Continue monitoring

Leslie- Union High School



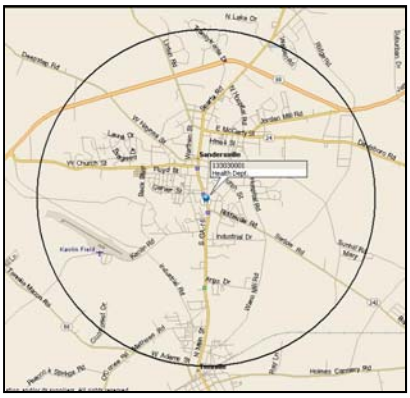
AQS ID: 132611001
Address: Leslie Community Center, N Bass St/E Allen St, Leslie, Sumter County, Georgia 31764
Site Established: 1/1/81
Latitude/Longitude: N31.954112/W-84.081149
Elevation: 100 meters
Area Represented: Not in an MSA, Americus Micropolitan Statistical Area
Site History: Established as O_3 site

Northwest Southeast East West

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

Recommendations: Continue monitoring

Sandersville- Health Department



AQS ID: 133030001

Address: Washington County Health Dept, 201 Morningside Drive, Sandersville, Washington County, Georgia 31082

Site Established: 1/1/74

Latitude/Longitude: N32.974722/W-82.808889

Elevation: 135 meters

Area Represented: Not in an MSA, Washington County

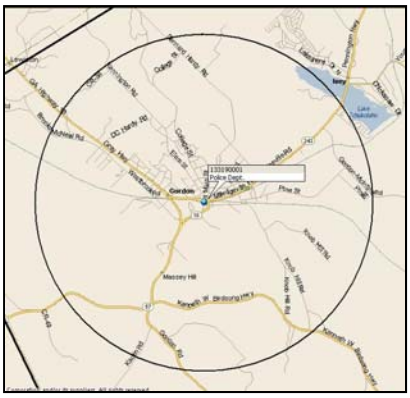
Site History: Established as TSP site

North South East West

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

Recommendations: Continue monitoring

Gordon- Police Department



AQS ID: 133190001
Address: Police Department, 105 Railroad Street, Gordon, Wilkinson County, Georgia 31031
Site Established: 1/1/99
Latitude/Longitude: N32.881667/W-83.333889
Elevation: 103 meters
Area Represented: Not in an MSA, Wilkinson County
Site History: Established as $PM_{2.5}$ site

North South East West

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

Recommendations: Continue monitoring

Appendix B:
Inventory of Ambient Monitoring Equipment

Georgia Department of Natural Resources
Environmental Protection Division

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

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Macon - GA Forestry Commission (cont'd)	Thermo SO2 Calibrator	146T	good/ >8
	PermaPure Zero Air Supply	ZA-750-12	good/ >8
	Thermo 2025	PM2.5 Sampler	good/new
	Graseby PUF Sampler	GPS1-11	good/ >8
	Graseby HIVOL Sampler (metals)	2000H	good/ >8
	Andersen VOC Sampler	97-323	good/ >8
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
Columbus Georgia-Alabama MSA			
Columbus - Health Department	Thermo 2025	PM2.5 Sampler	good/new
Columbus - Airport	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >8
	Thermo O3 Calibrator	49C-PS	good/ >3
	Thermo 2025	PM2.5 Sampler	good/new
	R&P PM2.5 Sampler	TEOM 1400 A	good/ >5
	R&P	Sample Equil System	good/ >8
Columbus - UPS	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Fort Benning	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Cusseta Elementary	Thermo 2025	PM2.5 Sampler	good/new
	Met-One SASS	Speciation Control Box	good/ >3
	URG Sequential Sampler	Speciation Particulate 3000N MOD C	good/ <2
	General Metal Hi-Volume	HIVOL Sampler (lead) 2000H	good/ >8
Columbus - Crime Lab	Sonic Anemometer	81000	good/ >3
	RM Young BP Sensor	Barometric Pressure	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	ESC DAS	Datalogger 8832	good/ >2
Savannah MSA			
Savannah - E. President Street	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146C	good/ >5
	Dayton Zero Air System	2Z866 Ozone	good/ >5
	Brey Zero Air System	50376 TRS and SO2	good/ >5
	GRASEBY/GMW PUF Sampler	GSP1	good/ >5
	Andersen HIVOL Sampler	GBM2000HBL Metals Sampler	good/ >5
	ATEC Carbonyl Sampler	100	good/ >5
	PermaPure Zero Air Supply	ZA-750-12	good/ >5
	Sonic Anemometer	81000	good/ <2
Savannah - Mercer School	Thermo 2025	PM2.5 Sampler	good/new
Savannah - Lathrop & Augusta Ave.	ESC DAS	Datalogger 8832	good/ >3
	Thermo SO2 Analyzer	43C	good/ >5
	Thermo SO2 Calibrator	146C	good/ >5
	Thermo 2025	PM2.5 Sampler	good/new
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	Sonic Anemometer	81000	good/ <2
Augusta-Richmond County, Georgia-South Carolina MSA			
Evans - Riverside Park	Thermo O3 Analyzer	Thermo 49C	good/ >3
	Thermo O3 Calibrator	Thermo 49C-PS	good/ >3
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
	Tower	Fold Over	good/ >3
	ESC DAS	Datalogger 8832	good/ >2
	RM Young Temp/Relative Humidity	41375VC	good/ <2
Augusta - Bungalow Road Elem.	Thermo O3 Analyzer	49C	good/ >5

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

SITE NAME	EQUIPMENT NAME	EQUIPMENT DESCRIPTION	COND./ AGE
Decatur - South DeKalb (cont'd)	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
	Shawnee Instruments	PM10 Sampler	good/ >5
	Shawnee Instruments	PM10 Sampler Co-locate	good/ >5
	PUF	Semi-VOCs Sampler	good/ >3
	PUF	Semi-VOCs Sampler Co-locate	good/ >3
	ATEC 2200	VOCs Sampler	good/ >5
	ATEC 2200	VOCs Sampler Co-locate	good/ >5
	RM Young Wind Instrument	05305vm (AQ)	good/ >8
	RM Young Temp/Relative Humidity	41375VC	good/ >2
	Nova Lynx	Tipping Bucket	good/ >2
	RM Young BP Sensor	Barometric Pressure	good/ >2
Decatur - DMRC	Graseby HIVOL Sampler (metals)	2000H	fair/ >8
	Graseby HIVOL Sampler (metals)	2000H Co-locate	fair/ >8
Douglasville - W. Strickland Street	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	RM Young Wind Instrument	05605VM	good/ >2
	ESC DAS	Datalogger 8832	good/ >2
Atlanta - Fire Station #8	Thermo 2025	PM2.5 Sampler	good/<2
	Partisol PM10 Sampler	Model 2000-H	good/ <2
Atlanta - Confederate Avenue	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49I	good/ <1
	Thermo O3 Calibrator	49I-PS	good/ <1
	Thermo SO2 Analyzer	43C	good/ >3
	Thermo SO2 Calibrator	146I	good/ <1
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >3
	RM Young Wind Instrument	05305vm (AQ)	good/ >2
Atlanta- Near-road	ESC DAS	Datalogger 8832	good/ >2
	Thermo NO2 Analyzer	42I	good/new
	Thermo CO Analyzer	48C	good/ >5
Lawrenceville - Gwinnett Tech.	ESC DAS	Datalogger 8832	good/ >2
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Gast Zero Air System	4Z024 pump and cannisters	good/ >8
	Thermo 2025	PM2.5 Sampler	good/ <2
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
McDonough - County Extension	ESC DAS	Datalogger 8832	good/ >3
	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	PermaPure Zero Air System	ZA-750-12	good/ >5
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
Yorkville - King Farm	Thermo O3 Analyzer	49C	good/ >5
	Thermo O3 Calibrator	49C-PS	good/ >5
	Thermo NOx Analyzer	42C	good/ >5
	Thermo CO Analyzer	48C	good/ >5
	Thermo Dynamic Gas Calibrator	146C Gas Dilution Calibrator	good/ >5
	Thermo 2025	PM2.5 Sampler	good/ <3
	R&P PM2.5 Sampler	TEOM 1400 A Series Continuous	good/ >5
	Graseby PUF Sampler	BMPS1-11	good/ >15

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

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

Appendix C:
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 many years. The final network plan was to be submitted to EPA by July 1, 2009, and the stations were to 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 recommended 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_3 and NO, NO_2, NOx and NOy. It meets neighborhood scale criteria for $PM_{2.5}$, PM_{10}, and CO.

2.2 The $PM_{10-2.5}$ mass sampler was installed according to regulations by January 1, 2011.

2.3 The SO_2 high sensitivity sampler was installed according to regulations before January 1, 2011. This sampler began collecting data on October 1, 2010.

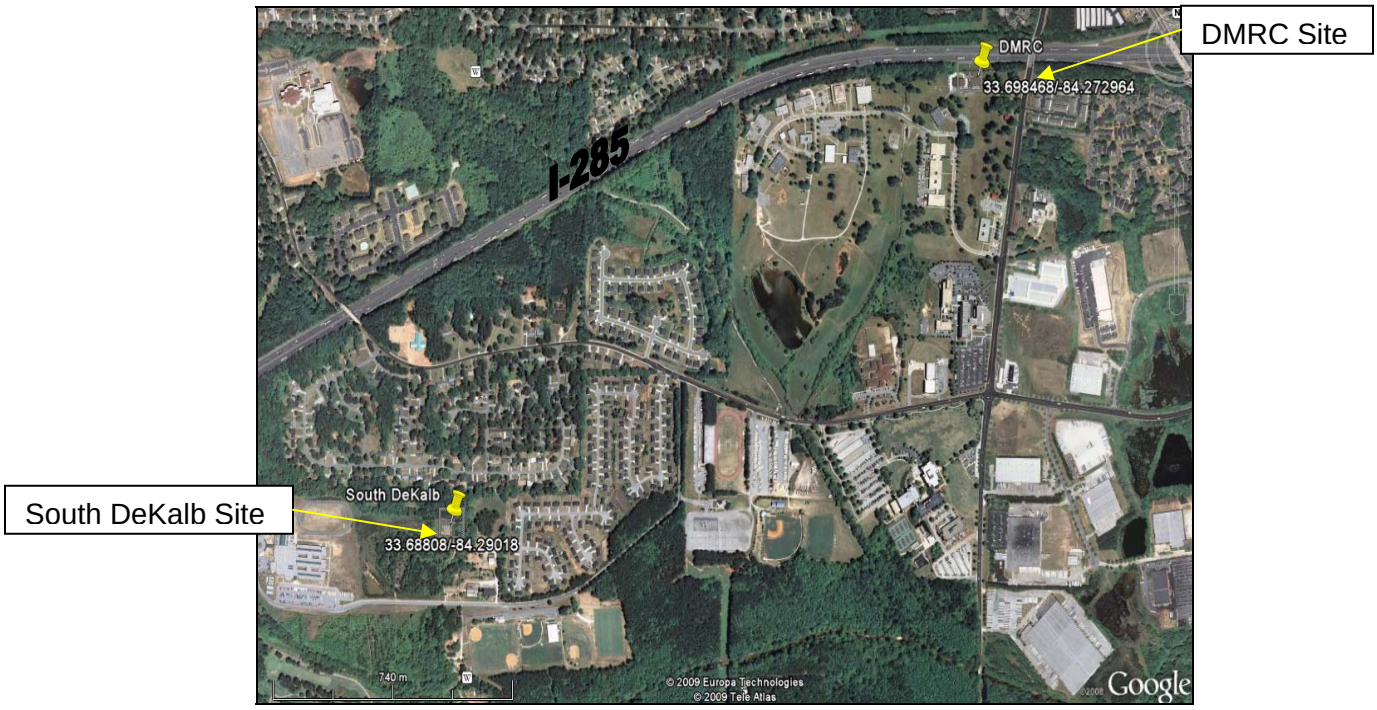
2.4 $PM_{10-2.5}$ speciation sampler will be installed as necessary, according to regulations. The date for the installation of this sampler is to be determined.

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 as of November 1, 2009. Previously, the ozone season for this monitor had been March 1 through October 31.

2.7 In December 2011, GA EPD moved the sampler platform to meet siting criteria due to height and location of trees. The platform is in the same general location, but was 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 is the location for the NCore lead sampling. Refer to the following map for site 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 $PM_{2.5}$ 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
$PM_{2.5}$	Population Exposure	Daily	Manual Reference Method utilizing gravimetric analysis	2.7 m	Neighborhood	1/22/99
$PM_{2.5}$	Population Exposure	Every 12 days	Manual Reference Method utilizing gravimetric analysis	2.7 m	Neighborhood	12/20/08
$PM_{2.5}$	Population Exposure	Continuous	Beta Attenuation Monitor analysis	4 m	Neighborhood	5/1/03 (changed methods 1/1/11)
PM_{10}	Population Exposure	Continuous	Beta Attenuation Monitor analysis	4 m	Neighborhood	1/1/11
PMcoarse	Population Exposure	Continuous	Beta Attenuation Monitor analysis	4 m	Neighborhood	1/1/11
$PM_{2.5}$ Speciation	Population Exposure	Every 3 days	Multi-species manual collection method utilizing thermal optical, ion chromatography, gravimetric, and X-ray fluorescence analyses	2.6 m	Neighborhood	10/1/00
SO_2	Population Exposure	Continuous	Automated Reference Method utilizing trace level pulsed fluorescence	4 m	Neighborhood	10/1/10
CO	Population Exposure	Continuous	Automated Reference Method utilizing trace level non-dispersive infrared	4 m	Neighborhood	5/19/03
NOy	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
NOx	Population Exposure	Continuous	Automated Reference Method utilizing chemiluminescence	4 m	Neighborhood/ Urban	4/1/94
NO_2	Population Exposure	Continuous	Automated Reference Method utilizing chemiluminescence	4 m	Neighborhood/ Urban	7/21/78
O_3	Highest Concentration	Continuous	Ultraviolet photometric	4 m	Neighborhood/ Urban	1/1/74
Elemental Carbon (Aethalometer)	Population Exposure	Continuous	Spectrophotometery	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_{10} select metals(Toxics)	Population Exposure	Every 6 days	Inductively coupled plasma mass spectroscopy	2 m	Neighborhood	1/1/00
PM_{10} select metals(Toxics)	Quality Assurance	Every 12 days	Inductively coupled plasma mass spectroscopy	2.3 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	1.6 m	Neighborhood	4/30/07
Semi-VOCs	Quality Assurance	Every 12 days	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

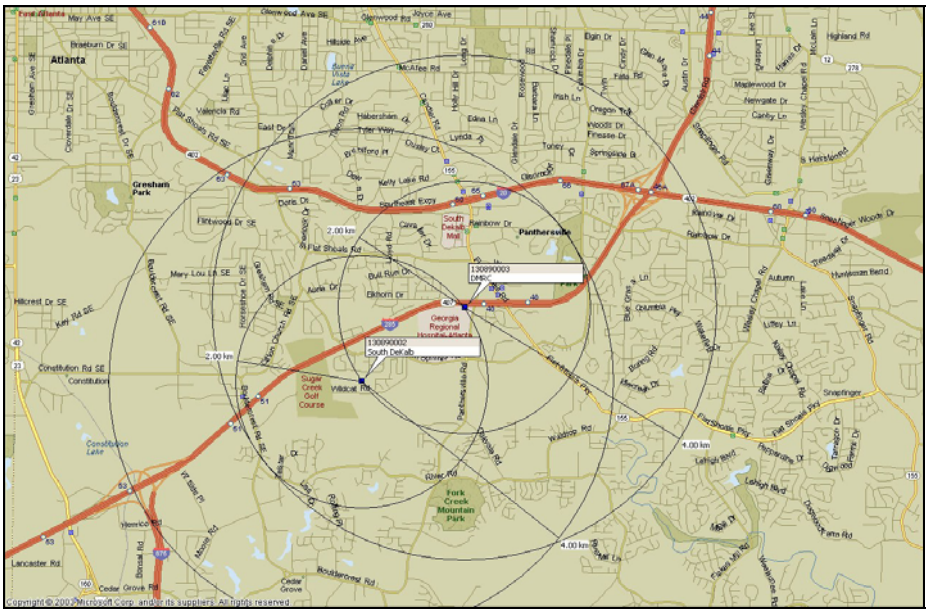
5.0 Quality Assurance Status

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 July 2010. The criteria network QAPP was submitted September 30, 2009. The $PM_{2.5}$ network QAPP was submitted January 23, 2013. The National Air Toxics Trends Station (NATTS) QAPP was approved March 19, 2007. A new NATTS QAPP was submitted April 26, 2011. The VOC QAPP for Photochemical Assessment Monitoring Stations (PAMS) was approved July 21, 2010. For the NCore station, the Quality Assurance Project Plan was approved by EPA May 23, 2011. The Standard Operating Procedures (SOPs) for trace level instruments were completed before January 1, 2011.

6.0 Area of Representativeness

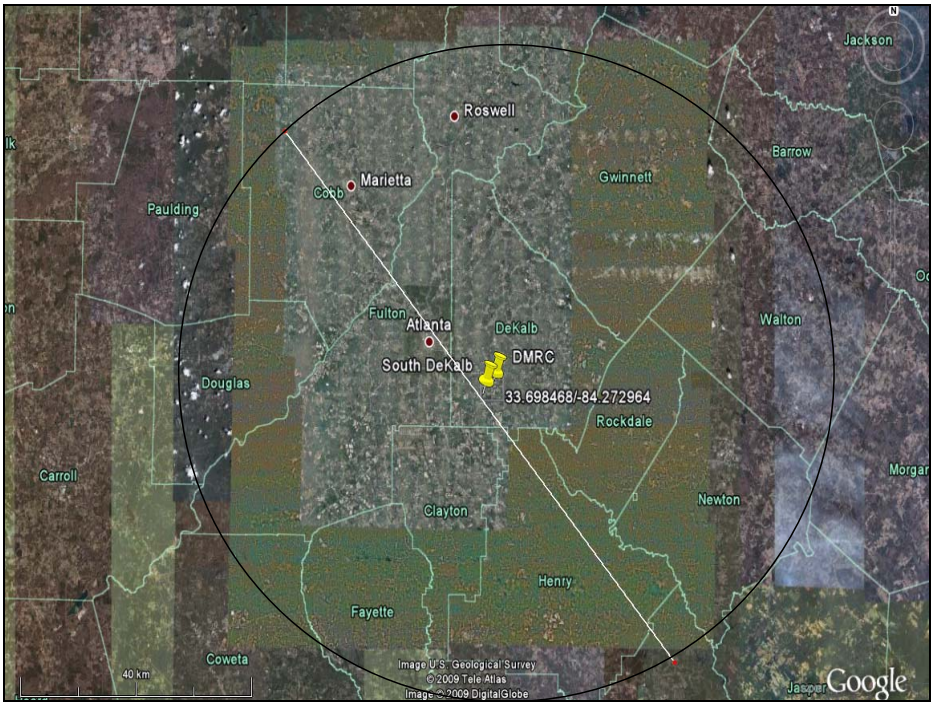
40 CFR Part 58 Appendix D provides design criteria for ambient air monitoring. The monitoring objective for the NCore site is to produce data that represents a fairly large area and therefore the spatial scale of the site is important. The spatial scale defines the physical dimensions of the air parcel 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 both the South DeKalb and DMRC air monitoring sites. 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 each site.

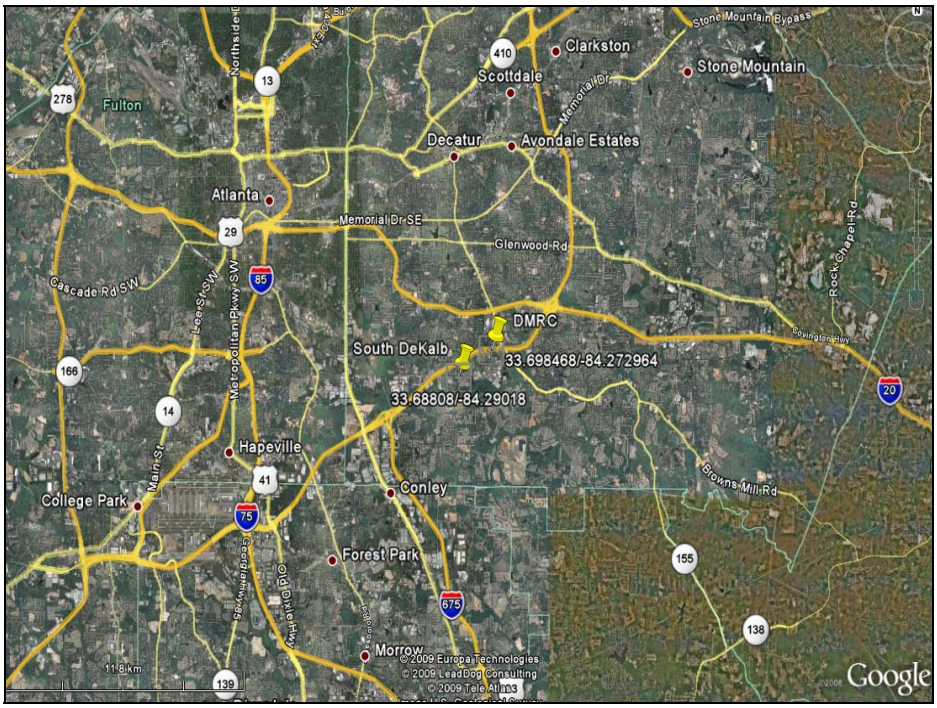


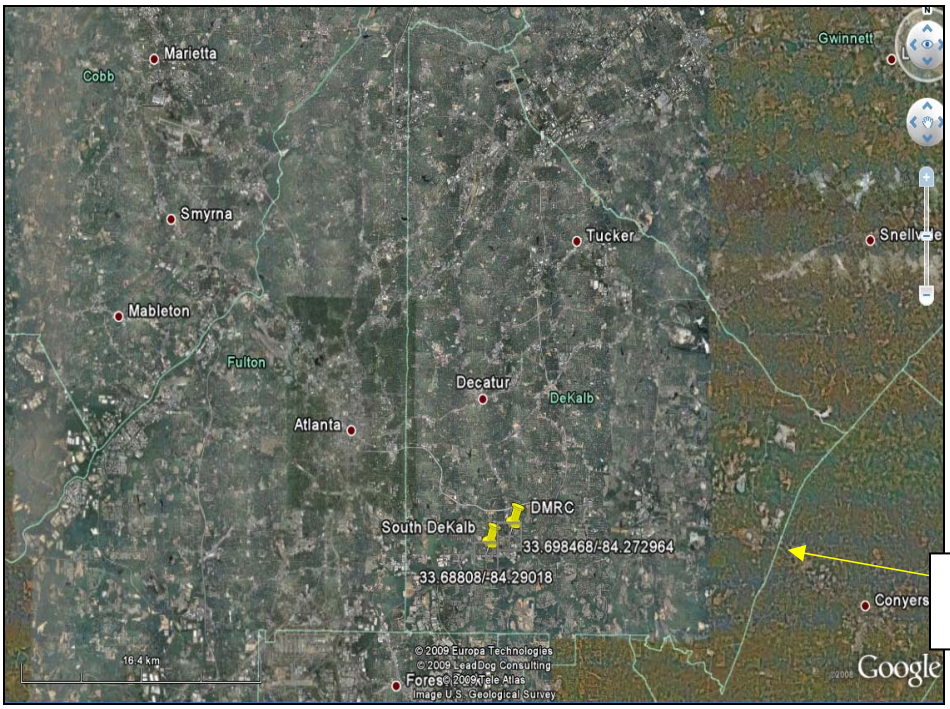
Urban scale is 4 km up to 50 km radius around the air monitoring site. 50 km covers most of the Atlanta-Sandy Springs-Marietta MSA. Approximately 70% of the total Atlanta-Sandy Springs-

Marietta MSA population lives within 50 km of the site. The following map shows a 50 km radius around the South DeKalb site.

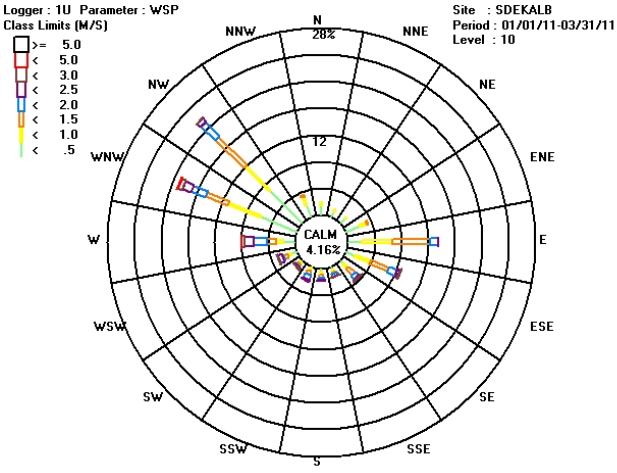


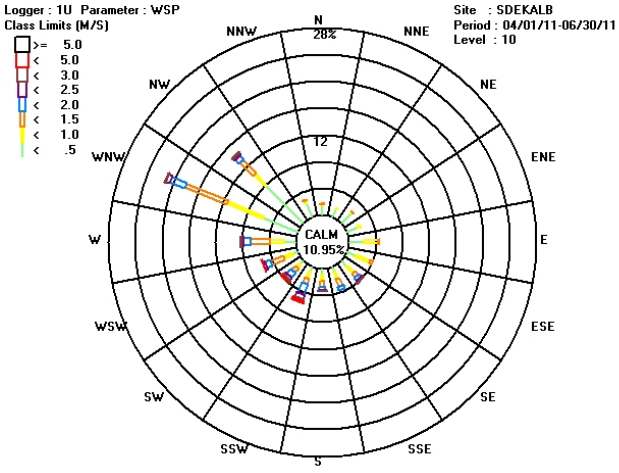
The following map shows the South DeKalb site in relation to downtown Atlanta, the larger metropolitan area, and the four major highways; I-75, I-85, I-20, I-285 and I-675.

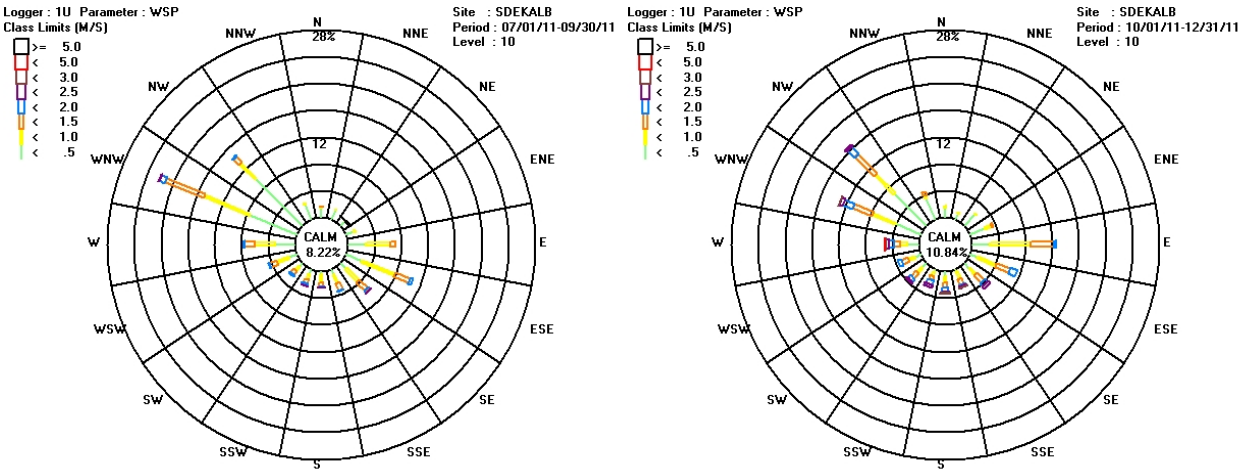




As can be seen from the countywide view above, the NCore site is located southeast of the urban core. The placement of the NCore site provides the best location for measuring transport and secondary pollutant formation from that area. The placement of the NCore site downwind of the more industrialized 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 NW/WNW, which is the general direction of downtown Atlanta. Each wind rose represents a quarterly average for 2011. Seasonal differences and shorter time periods capture more subtleties for meso-synoptic processes, however this gives a general idea of primary and secondary wind direction.







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 tree line 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 sampler’s 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 27.8 m. Trees are approximately 14-23 m tall.
Tree distance south of platform is 26.5 m. Trees are approximately 14 m tall.
Tree distance east of platform is 17 m. Trees are approximately 15 m tall.
Tree distance west of platform is 27.5 m. Trees are approximately 12 m tall.
Tree distance north of continuous monitor sampling trailer is 15.5 m. Trees are approximately 14-23 m tall.
Tree distance south of continuous monitor sampling trailer is 26 m. Trees are approximately 14 m tall.
Tree distance east of continuous monitor sampling trailer is 25.9 m. Trees are approximately 15 m tall.
Tree distance west of continuous monitor sampling trailer is 30.6 m. Trees are approximately 12 m tall.

Gravel road is 3 meters south of sampling platform.
Continuous monitor sampling trailer is 5.8 m north 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.ga.gov/statistics/stars/Pages/TrafficCounterSearch.aspx) 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. 'TC#' indicates traffic counter number used to obtain AADT data.

Roadway	AADT for 2011	TC #	Estimated Distance from Site (meters)	Minimum Distance Required (meters)			
				Ozone Table E-1	NO/NO_y Table E-1	CO Table E-2	PM Figure E-1
Wildcat Road	Estimated </= 1,000	N/A	205	10	10	10	20
Clifton Springs Road (from Wildcat Rd to Clifton Church Rd)	7920	3957	690	10	10	10	20
Panthersville Road(from Flat Shoals Rd to Clifton Springs Rd)	19,210	3416	1,751	30	30	45	20
Bouldercrest Road (from I-285 to River Road)	17,660	3407	1,878	30	30	45	20
River Road (from Bouldercrest Rd to River Lake Shore)	7,200	0417	1,402	10	10	10	20
Panthersville Road (from Oakvale Road to Bouldercrest Rd)	6,770	0412	2,329	10	10	10	20
I-285	140,820	3343	751	250	250	150	100

Table 2: Spacing from Roadways Analysis

7.4 Spacing from Potential Sources and Surrounding Area

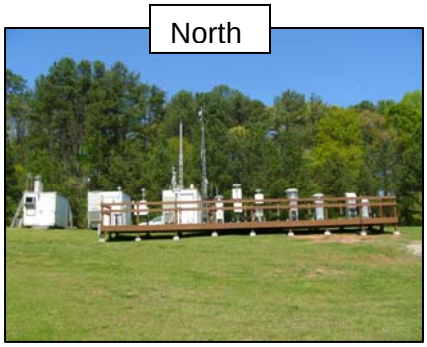
The following table gives a description of potential sources, the direction from the South DeKalb site, and approximate distance from the South DeKalb site. The information was derived from Google Earth.

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	Entrenchment 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

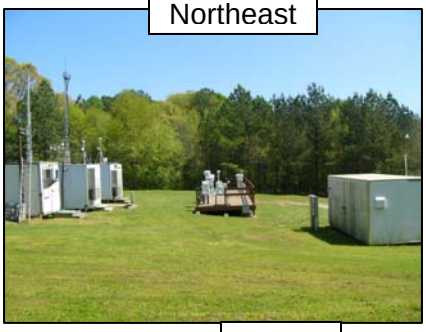
8.0 Directional Photographs
South DeKalb:

North



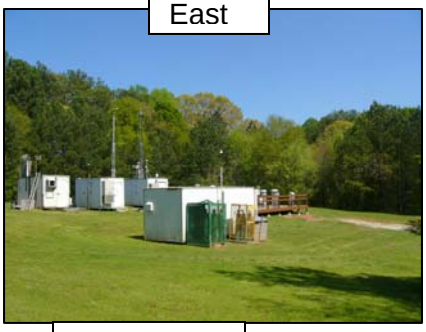
Northwest

Northeast



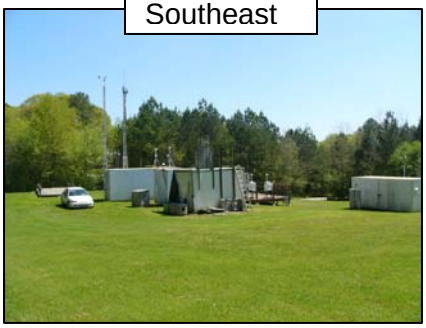
West

East

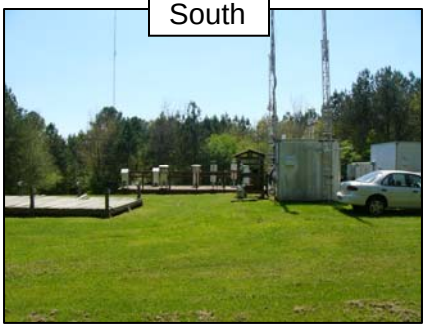


Southwest

Southeast



South



DMRC:

North

South

East

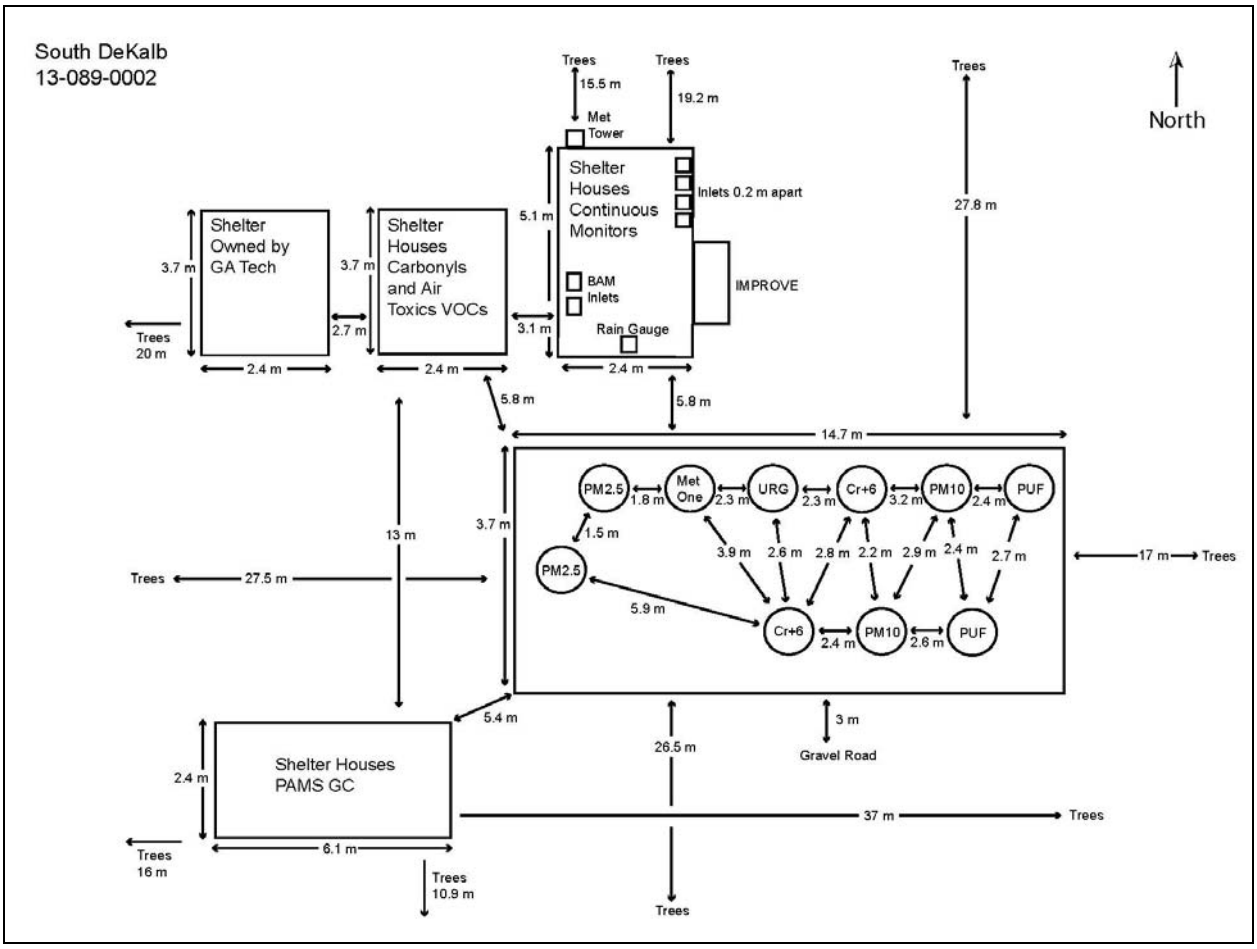
West

9.0 Site Details

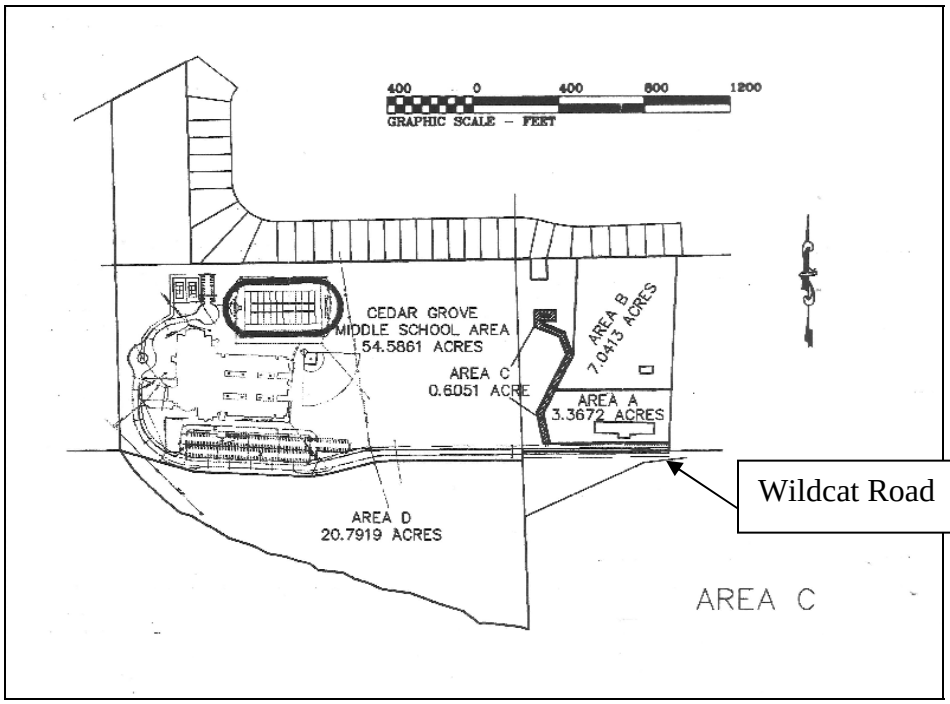
The previous pictures were taken toward each of the eight cardinal directions for the South DeKalb site. The sampling platform is 3.7 m x 10 m. The sample inlets are 2 m above the ground. The platform supports the $PM_{2.5}$ FRM, PM_{10} (Metals), $PM_{2.5}$ Speciation, URG Carbon, Semi-VOCs, and Hexavalent 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.

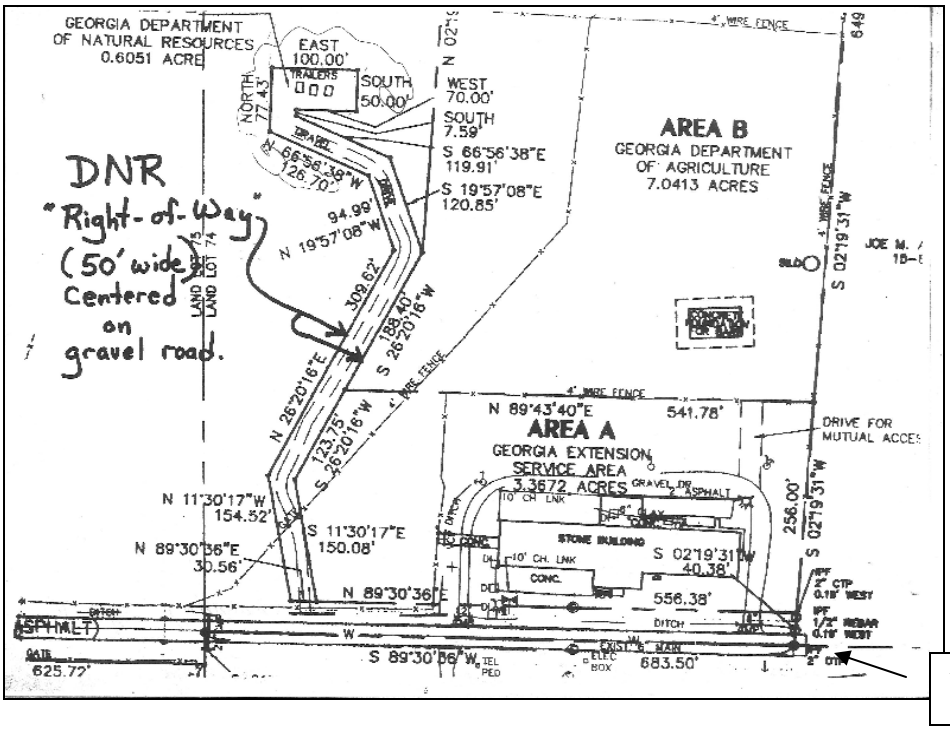
The air monitoring shelters are approximately 5.4 m from the sampling platform. The shelter directly beside the platform is 2.4 m wide x 5.1 m long x 2.7 m high. It houses the continuous $PM_{2.5}$ (BAM), continuous PM_{10} (BAM), O_3, NOx, NO_2, NOy, CO, and Aethalometer. The roof of the shelter is 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 NOy 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 20-30ºC, 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.


400 0 400 800 1200
GRAPHIC SCALE – FEET
CEDAR GROVE
MIDDLE SCHOOL AREA
54.5861 ACRES
AREA C
0.6051 ACRE
AREA B
7.0413 ACRES
AREA A
3.3672 ACRES
AREA D
20.7919 ACRES
Wildcat Road
AREA C


GEORGIA DEPARTMENT
OF NATURAL RESOURCES
0.6051 ACRE
EAST
100.00'
SOUTH
50.00'
WEST
70.00'
SOUTH
7.59'
S 66°56'38"E
119.91'
S 19°57'08"E
120.85'
N 66°56'38"W
126.70'
94.99'
N 19°57'08"W
309.62'
S 26°20'16"W
188.40'
N 26°20'16"E
123.75'
S 26°20'16"W
DNR
"Right-of-Way"
(50' wide)
Centered
on
gravel road.
AREA B
GEORGIA DEPARTMENT
OF AGRICULTURE
7.0413 ACRES
AREA A
GEORGIA EXTENSION
SERVICE AREA
3.3672 ACRES
N 89°43'40"E
541.78'
S 02°19'31"W
256.00'
S 02°19'31"W
40.38'
556.38'
N 11°30'17"W
154.52'
S 11°30'17"E
150.08'
N 89°30'36"E
30.56'
N 89°30'36"E
S 89°30'36"W
625.72'
683.50'
DRIVE FOR
MUTUAL ACCES
Wildcat Road

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.

Attachment A: NCore Readiness Self-Assessment for State/local/Tribal Agencies

Agency Name Georgia Dept of Natural Resources/ Environmental Protection Division Date May 2012

Prepared By Susan Zimmer-Dauphinee

A. NETWORK DESIGN

a. Proposed NCore Station #1 ___NEW SITE __**X**_EXISTING SITE AQS # 13-089-0002_
b. Proposed NCore Station #2 ___NEW SITE ___EXISTING SITE AQS #_____
c. Proposed NCore Station #3 ___NEW SITE ___EXISTING SITE AQS #_____

	Item	Criteria	Status	Next Steps
1	Urban or Rural	Largest MSA(s) covered by urban station.	The Georgia Site is located at the urban South DeKalb and meets the criteria of the largest MSA	Approved October 30, 2009 (see Attachment B)
2	Scale of Representation	Neighborhood __ Urban _**X**_ Regional __ Other __	The Site has been established for a number of years as an urban site	Neighborhood scale or larger highly recommended.
3	Population Oriented	Yes _**X**_ No __		Population oriented monitoring highly recommended.
4	Proximity to local emissions sources	No biasing local sources within 500 meters for urban stations. No biasing sources or large urban population centers within 50 km for rural stations.	Please see page 116. There are a number of sources both mobile and stationary, but nothing different from what would normally be expected in neighborhood/urban monitoring site.	Approved October 30, 2009 (see Attachment B)
5	Suitability for meteorological measurements	Distance from obstructions is 10x height of obstruction above station. See Volume IV: Meteorological Measurements Version 1.0 (Draft)	The site is borderline for met parameters due to nearby trees and other monitoring shelters. The predominant wind direction is good and site currently meets all siting requirements except for	Monitor tree growth.

	Item	Criteria	Status	Next Steps
			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 117	
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 **X** Supplemental CSN__ NATTS **X** CASTNET __ IMPROVE **X*** NADP __ PAMS **X** 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"	
LOGISTICAL CONSIDERATIONS				
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	

	Item	Criteria	Status	Next Steps
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	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)

B. REQUIRED PARAMETER/METHODOLOGICAL EVALUATION

d. Proposed NCore Station #1 ___NEW SITE _**X**__EXISTING SITE AQS #_13-089-0002_____
e. Proposed NCore Station #2 ___NEW SITE ___EXISTING SITE AQS #_____
f. Proposed NCore Station #3 ___NEW SITE ___EXISTING SITE AQS #_____

	Parameter	**Existing Measurements**		**Future Measurements**		**Notes**
		Sampling Began	**Method**	**Date Expected**	**New or Relocated**	
1	Ozone	1/1/74	Ultraviolet photometric			Year-round operation (not seasonal)
2	Sulfur dioxide	10/1/11	Trace level pulsed fluorescence			High sensitivity
3	Carbon monoxide	6/1/09	Trace level non-dispersive infrared			High sensitivity
4	Nitrogen oxides (NOy)*	4/1/94	Automated Chemiluminescence			High sensitivity External converter mounted at 10m
5	PM2.5 mass	1/22/99	Manual reference method using gravimetric analysis			1-in-3 day FRM/FEM integrated
6	PM2.5 continuous	5/1/03, changed method on 1/1/11	BAM-Beta Attenuation Monitor			FEM or ARM preferred but not required
7	PM2.5 speciation	10/1/00	Multi-species manual collection method utilizing thermal optical, ion chromatography, gravimetric, and x-ray fluorescence analyses			1-in-3 day (Met One & URG 3000N samplers) or IMPROVE
8	PM10-2.5 mass	1/1/11	BAM-Beta Attenuation Monitor			Met One BAM Continuous monitor

	Parameter	Existing Measurements		Future Measurements		Notes
		Sampling Began	Method	Date Expected	New or Relocated	
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 wind speed 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 NOy is required in support of a number of monitoring objectives, available commercial instruments may indicate little difference in their measurement of NOy compared to the conventional measurement of NOx, particularly in areas with relatively fresh sources of nitrogen emissions. Therefore, in areas with negligible expected difference between NOy and NOx measured concentrations, the Administrator may allow for waivers that permit high-sensitivity NOx monitoring to be substituted for the required NOy 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

C. SUPPORTING EQUIPMENT EVALUATION

a. Proposed NCore Station #1 ___NEW SITE ___EXISTING SITE AQS #___13-089-0002_____
b. Proposed NCore Station #2 ___NEW SITE ___EXISTING SITE AQS #_____
c. Proposed NCore Station #3 ___NEW SITE ___EXISTING SITE AQS #_____

	Item	Criteria	Status	Next Steps
1	Calibrator (field)	Suitable for trace-level dilutions, see Appendix A audit concentrations. Capable of automated QC checks. Internal O3 generator – photometer preferred.	Ready	
2	Calibrator (lab or field)	Suitable for generation of MDL-level concentrations	Ready	
3	Zero Air Source	Compliant with TAD recommendations. Ultra-pure air cylinder recommended for occasional comparison to zero air source. Capacity for 20+ LPM of dilution air.	Ready	
4	Data acquisition system	Digital-capable system	Ready	
5	Gas cylinder standards	Suitable for trace-level dilutions, see Appendix A audit concentrations, EPA Protocol certifications. Special low-level standards needed for MDL concentrations (CO, SO2, NOy)	Ready	
6	Meteorological calibration devices	Provide NIST traceability of required meteorological parameters.	Ready	
7	Sampling manifold	Per Appendix E. Residence time <20 seconds, only glass or Teflon materials, probe and monitor inlets acceptable heights.	Meets Appendix E requirements.	

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	

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 NOy, which is a required measurement. After assessing available NOy observations and modeling outputs and to assure consistency across all NCore stations, we are affirming the requirement to measure NOy 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.

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 and 919-541-4417, or David Shelow at shelow.david@epa.gov and 919-541-3776.

Sincerely,

Richard A. Wayland

Richard A. Wayland
Director
Air Quality Assessment Division

2 Enclosures

cc: Doug Neeley – EPA Region 4

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

Georgia Department of Natural Resources
Environmental Protection Division

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

	Aquatic Ctr.			
130210007	Macon-Allied Chemical	PM_{10}	12/31/12	2012
130510014	Savannah-Shuman Middle	PM_{10}	12/31/12	2012
130550001	Summerville-Fish Hatchery	PM_{10}	12/31/12	2012
130892001	Doraville Health Center	PM_{10}	12/31/12	2012
130950007	Albany-Turner Elementary	PM_{10}	12/31/12	2012
131150003	Rome-Coosa Elementary	PM_{10}	12/31/12	2012
131210048	Atlanta-Georgia Tech	PM_{10}	12/31/12	2012
131270004	Brunswick-Arco Pump Station	PM_{10}	12/31/12	2012
132150011	Columbus-Cusseta Road	PM_{10}	12/31/12	2012
133030001	Sandersville-Health Dept	PM_{10}	12/31/12	2012
130893001	Tucker-Idlewood Road	Wind Speed, Wind Direction, Temp, RH, Solar Radiation, UV Radiation, BP, Precip	5/31/13	2013
130890002	Decatur-South DeKalb	Hexavalent chromium	7/15/13	2013
132470001	Conyers-Monastery	Continuous Gas Chromatograph	8/31/13	2013
130150003	Cartersville	Lead	2/22/14	2013
131210099	Roswell Road	CO	3/5/14	2013

Appendix E:
Ambient Air Monitoring Plan
for
Near-Road Air Monitoring Station

Georgia Department of Natural Resources
Environmental Protection Division

1.0 Introduction

On January 22, 2010, EPA revised the nitrogen dioxide (NO_2) National Ambient Air Quality Standard and monitoring requirements. Included in these revisions is the establishment of near-road monitoring sites. The monitors are to be set up in CBSAs with 500,000 or more population (additional monitor with CBSA population above 2,500,000), annual average daily traffic counts of 250,000 vehicles or greater, and represent a microscale (no more than 50 meters from the edge of the nearest traffic lane) (Federal Register, Vol. 75, No. 26, 02/09/10). With these requirements, GA EPD would need to have two near-road NO_2 monitors in the Atlanta-Sandy Springs-Marietta MSA and one near-road NO_2 monitor in the Augusta-Richmond County, GA-SC MSA. According to the U.S. Census Bureau (http://www.census.gov/compendia/statab/cats/population.html), the Atlanta-Sandy Springs-Marietta MSA had a 2010 population of 5,268,860, and the Augusta-Richmond County, GA-SC MSA had a 2010 population of 556,877. On October 5, 2012, EPA proposed that the first phase of site establishment would be January 1, 2014. The second phase of site establishment would be January 1, 2015, and the third phase would be January 1, 2017 (Docket# EPA-HQ-OAR-2012-0486). GA EPD has located an area for one of the near-road monitoring sites in the Atlanta-Sandy Springs-Marietta MSA. The second near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA and the one near-road NO_2 monitoring site in the Augusta-Richmond County, GA-SC MSA will be established according to the above proposed schedule (January 1, 2015 and January 1, 2017). This document provides the supporting information necessary to show that GA EPD has found a suitable location for the establishment of the initial near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA.

For the initially established ambient air near-road monitoring site in the Atlanta-Sandy Springs-Marietta MSA, GA EPD proposes the area through downtown Atlanta in which Interstate 75 and Interstate 85 combine. According to the 2011 Annual Average Daily Traffic (AADT) count provided by the Georgia Department of Transportation (http://www.dot.ga.gov/statistics/stars/Pages/FultonTraffic.aspx), this area along I-75/I-85 in Fulton County has a 2011 estimated AADT of 348,900. GA EPD previously collected traditionally sited NO_2 data in the Georgia Institute of Technology (Georgia Tech) area along this corridor from 1982 until 2009. When the Georgia Tech traditionally sited NO_2 monitor collected data, it showed the highest concentrations compared to the other traditionally sited NO_2 monitors in Georgia. Therefore, the Georgia Tech area could show the maximum hourly concentrations of near-road NO_2 in the Atlanta-Sandy Springs-Marietta MSA. As an example of previous NO_2 data collected by GA EPD, the following graph shows the NO_2 data compared to the January 22, 2010 hourly standard with three-year averages of the 98% of maximum 1-hour averages.

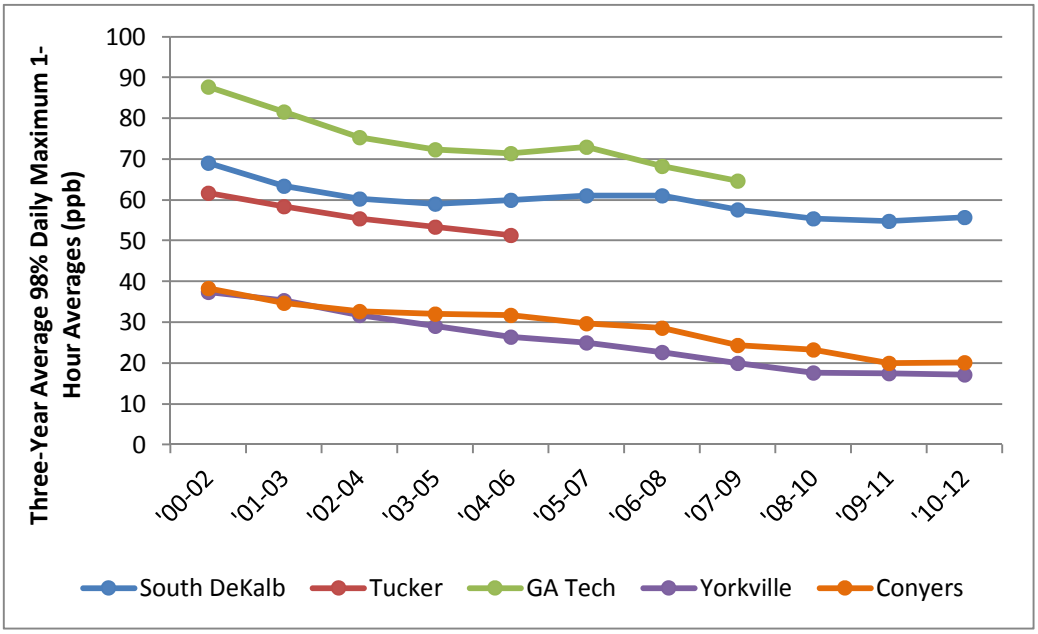


Figure 1: NO_2 Data Compared to January 2010 Standard, 2000 to 2012

The road segment for the proposed near-road monitor is adjacent to the Georgia Institute of Technology's O'Keefe Building, and would be accessed for near-road monitoring from the Georgia Institute of Technology campus, on 6th Street. The proposed area is large enough to house a shelter which would allow for expansion of multi-pollutant monitoring. GA EPD also plans to establish carbon monoxide (CO) monitor, fine particulate matter ($PM_{2.5}$), black carbon, wind speed, and wind direction at this site. The metadata needed for EPA's Air Quality System (AQS) will be developed as all the essential information is gathered. Refer to Section 2.13, below, for more details.

To provide the essential information for setting up the near-road monitoring site, the draft of EPA's 'Near-Road NO_2 Monitoring Technical Assistance Document' dated August 11, 2011 and final version dated June 2012 was used for guidance. The following sections are provided to address the points shown in those documents.

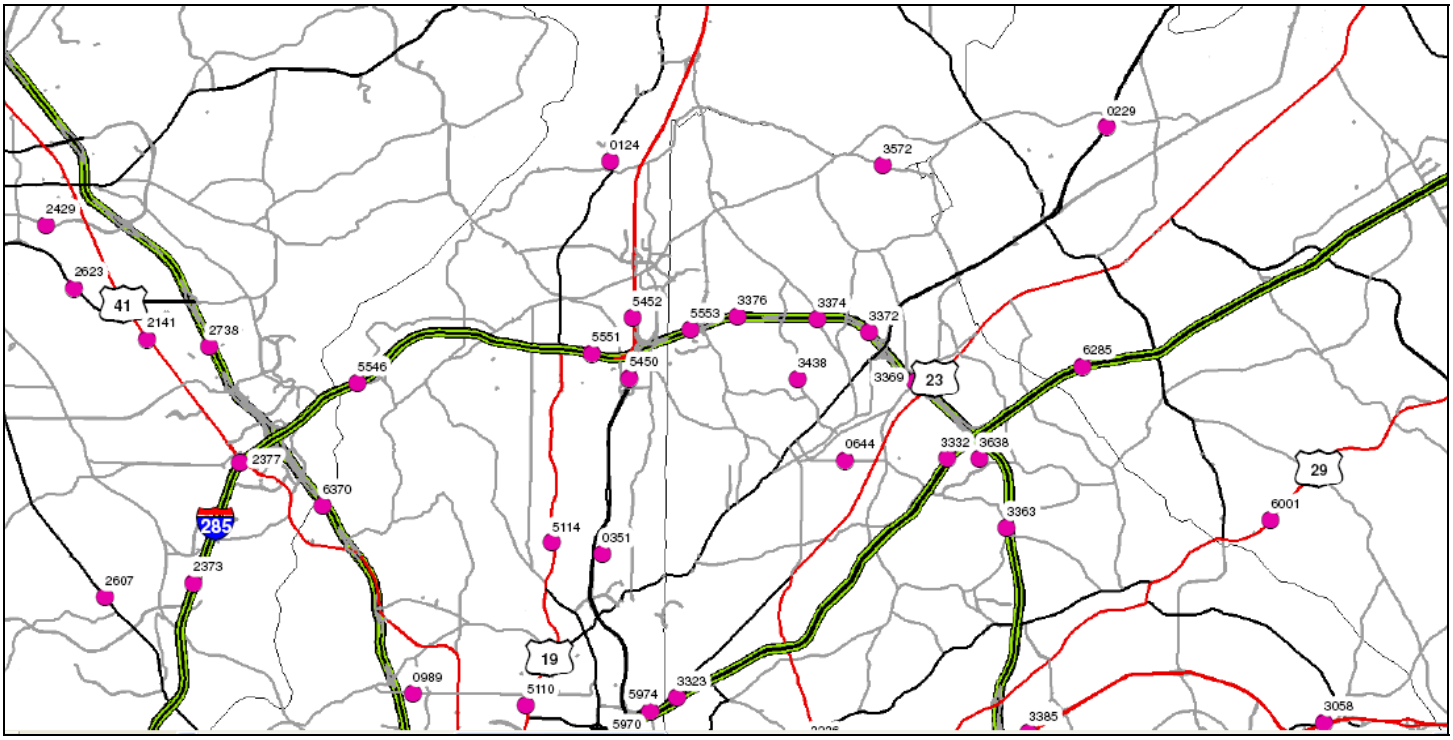
2.0 Site Selection Requirements

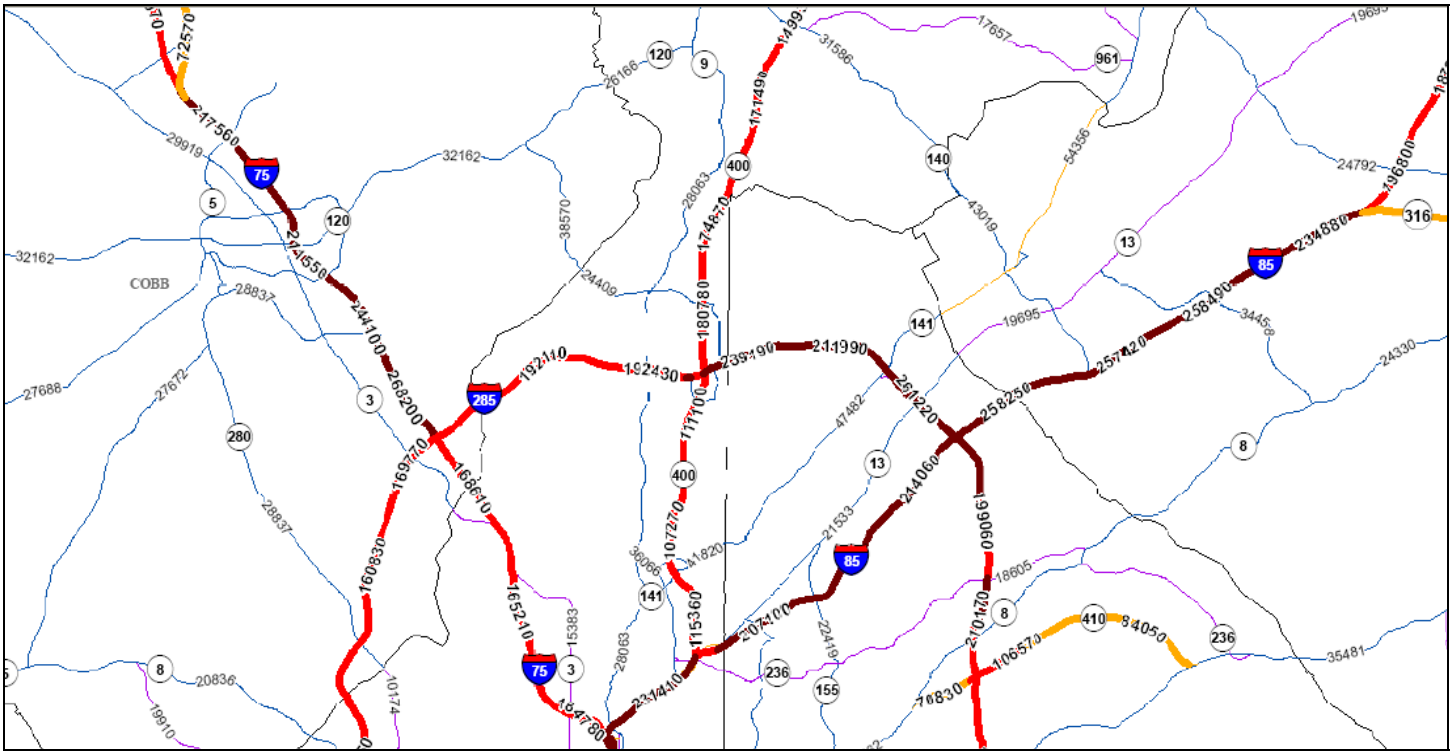
As discussed in the draft of 'Near-Road NO_2 Monitoring Technical Assistance Document' dated August 11, 2011 and final version dated June 2012, the near-road monitoring should be selected by certain factors. Included in these factors are road segments with more than 250,000 annual average daily traffic (AADT), fleet mix data, congestion patterns, physical considerations for this site including roadway design, roadside structures, terrain, meteorology, and siting criteria. The following section discusses these factors for GA EPD's site selection of the near-road monitoring site in the Georgia Institute of Technology area.

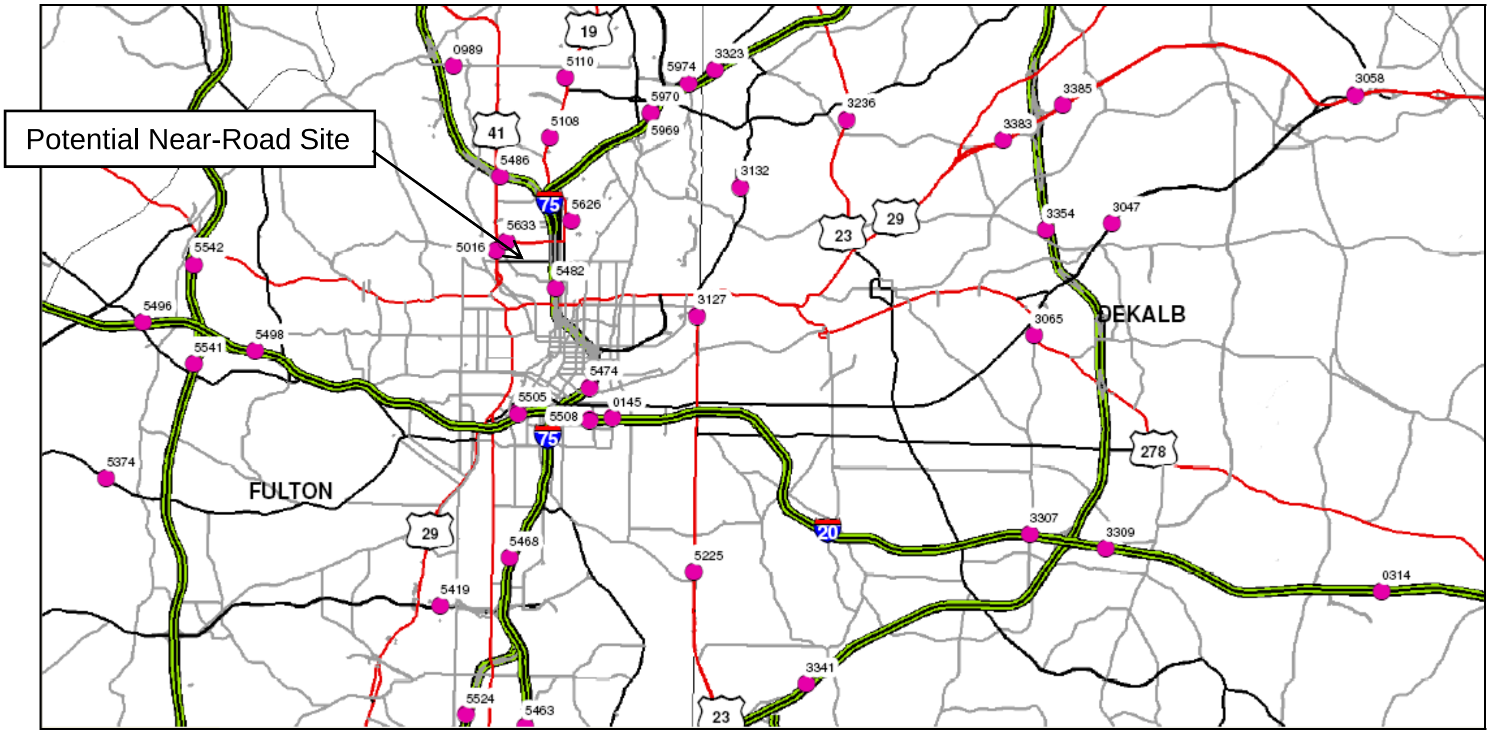
2.1 Identifying Candidate Road Segments

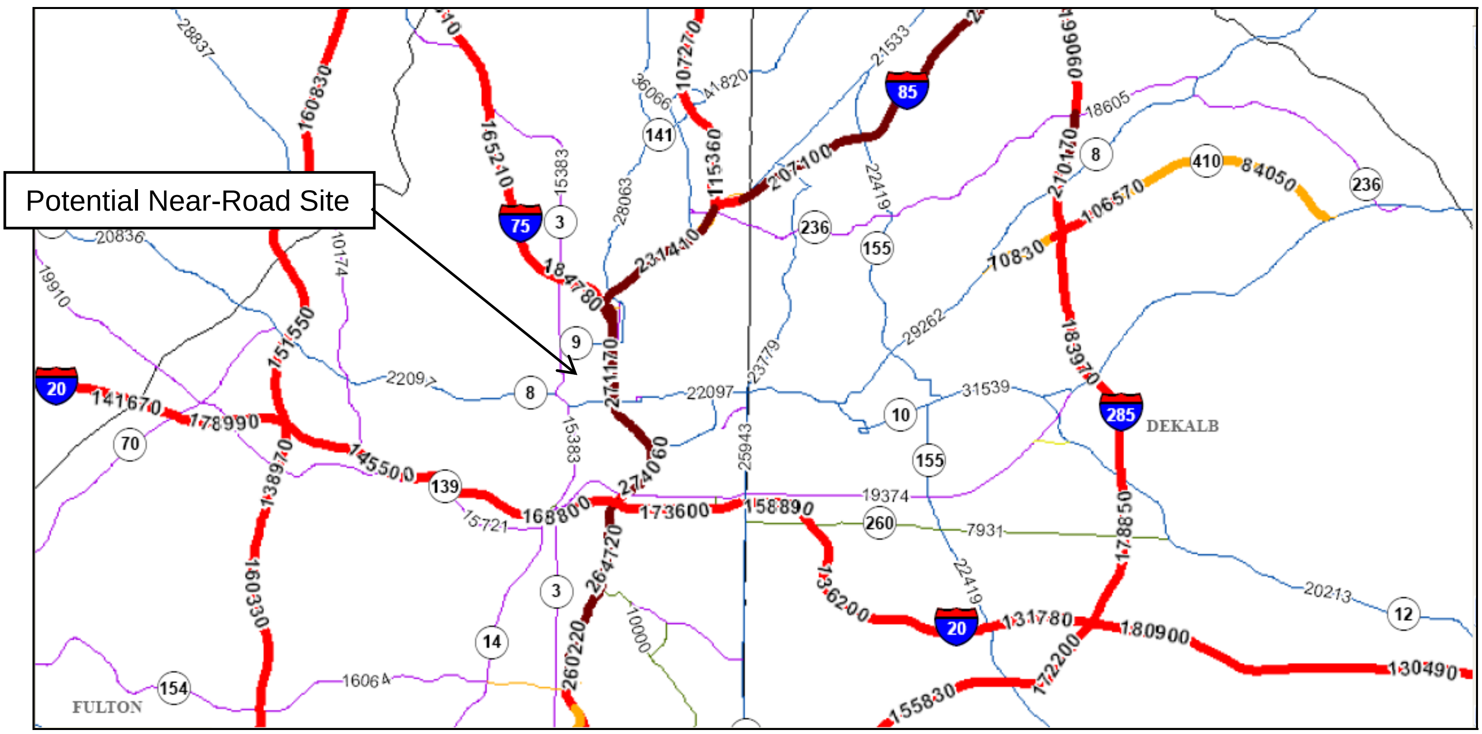
Initially, the AADT was determined using Georgia DOT's traffic counter map (http://www.dot.state.ga.us/maps/Documents/ATR/atrlocation_07_insetmap.pdf) in conjunction with the traffic flow maps (http://www.dot.state.ga.us/maps/Documents/TrafficFlowMap/TrafficFlowMap.pdf) and the

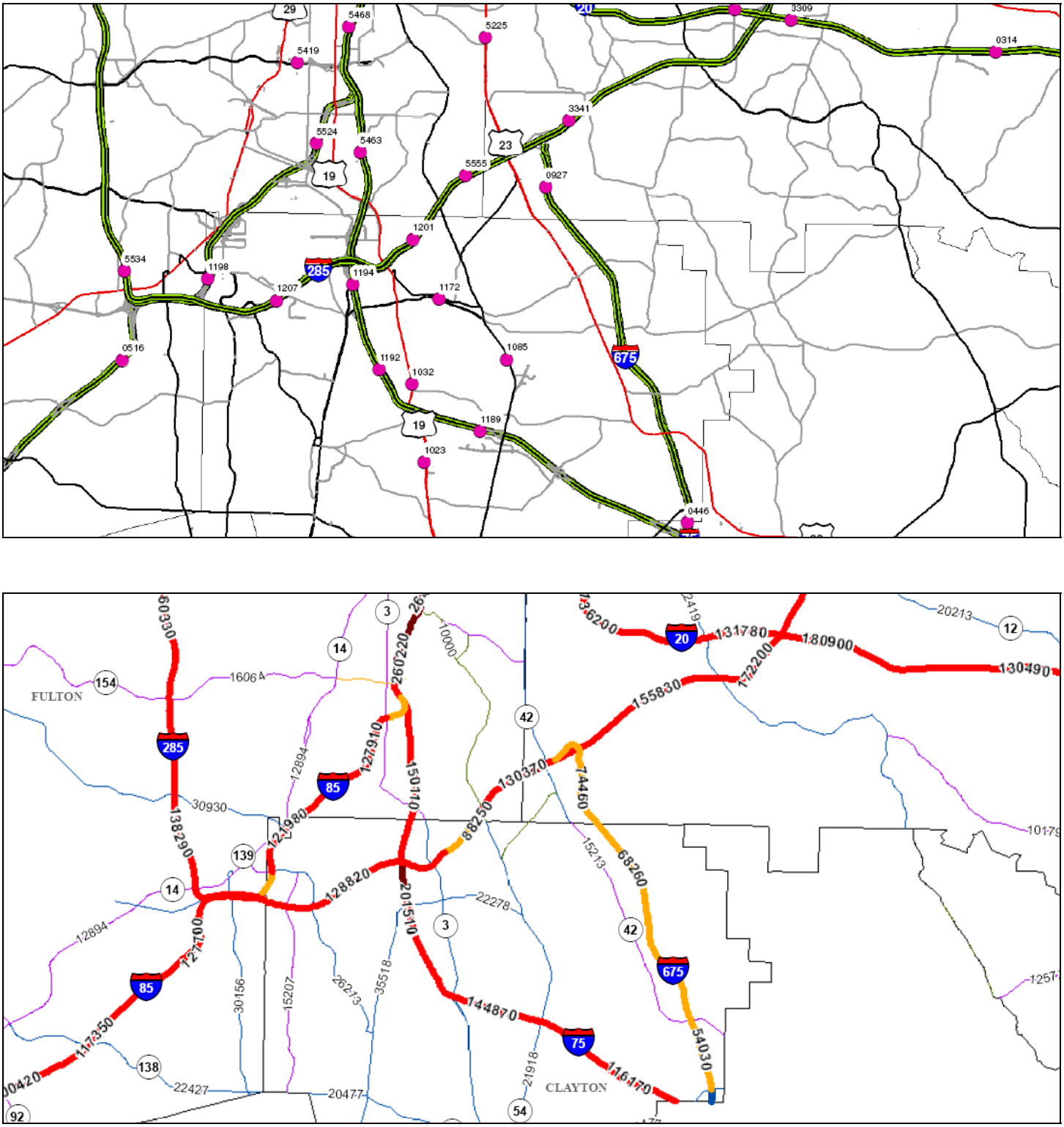
following maps were produced for the Atlanta-Sandy Springs-Marietta MSA. The maps are in sets of two, first showing the traffic counters and the second showing the traffic flows.






Potential Near-Road Site
FULTON
DEKALB

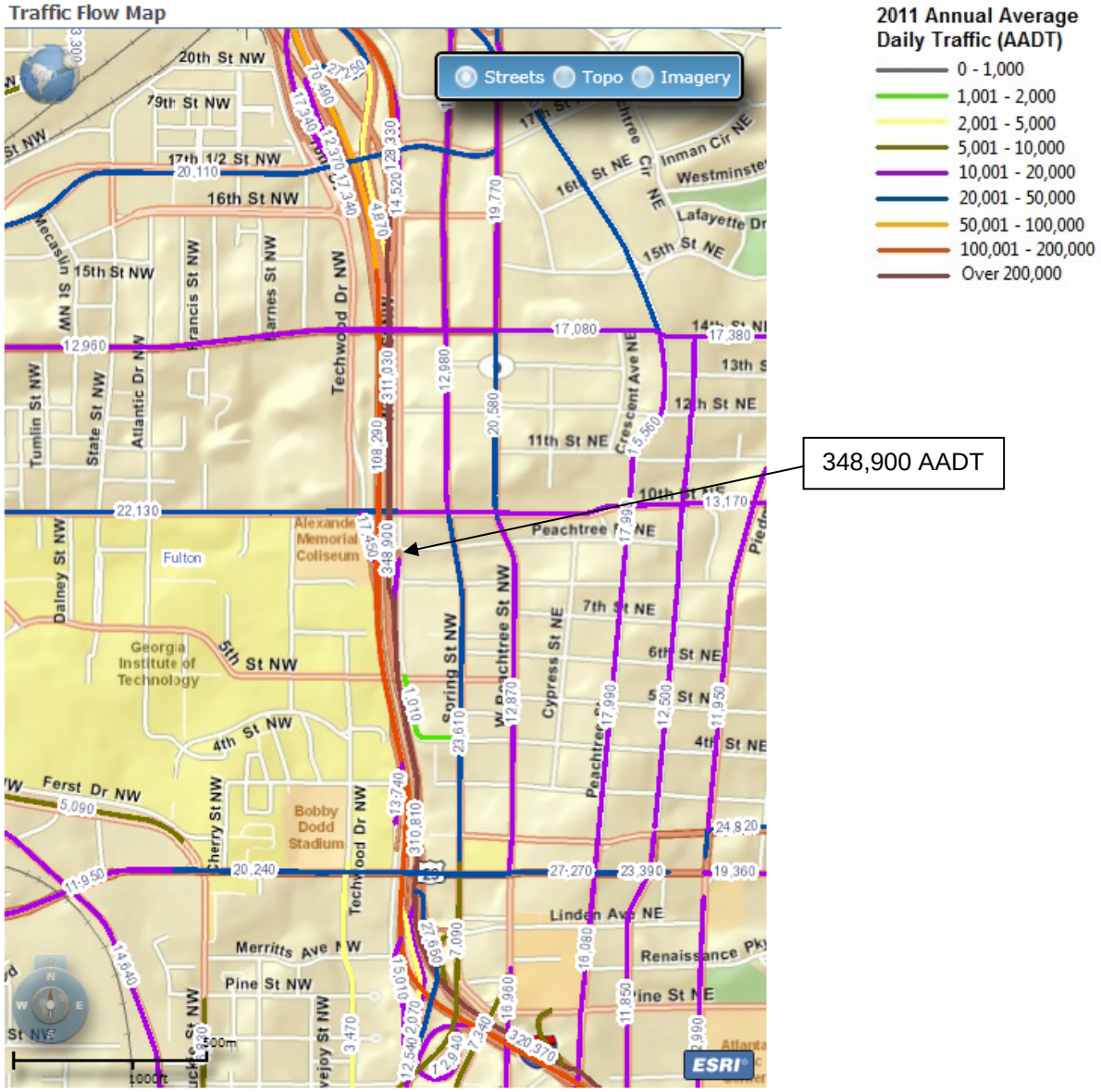

Potential Near-Road Site
FULTON
DEKALB



(http://www.dot.state.ga.us/maps/Documents/ATR/atrlocation_07_insetmap.pdf
http://www.dot.state.ga.us/maps/Documents/TrafficFlowMap/TrafficFlowMap.pdf)

Figure 2: Atlanta-Sandy Springs-Marietta MSA Traffic Flow and Traffic Counter Location Maps

According to these maps, the area through downtown Atlanta on I-75/I-85 had one of the highest traffic flows, with a 2008 count of 271,170 adjacent to the Georgia Institute of Technology. Therefore, potential near-road areas were identified using this data. In addition, as timelines for site establishment were revised and the GA DOT data was updated with 2011 data, the estimate of 348,900 was found on the GA DOT website (http://www.dot.ga.gov/statistics/stars/Pages/default.aspx), making this the highest traffic count in the Atlanta-Sandy Springs-Marietta MSA. This is shown in the following figure and Table 1 below.



http://www.dot.ga.gov/statistics/stars/Pages/default.aspx

Figure 3: Traffic Flow Map and AADT by Georgia Institute of Technology

2.2 Fleet Mix

Initially, the fleet mix was determined using GA DOT data from their website, http://www.dot.ga.gov/statistics/TrafficData/Pages/default.aspx. The latest data available for the annual average daily traffic (AADT) was 2008 data, and the top ten AADT traffic counts were

available for each county at GA DOT's website (http://www.dot.ga.gov/statistics/trafficdata/documents/atrtrafficdatareports/top_ten_aadt_by_county_2008.pdf). As timelines were revised, the 2011 data was obtained in a look-up table from the State Traffic and Report Statistics (STARS) section (http://www.dot.ga.gov/statistics/stars/Pages/default.aspx). Therefore, the following table shows both the 2008 and 2011 data. Also, in the STARS section of GA DOT's website, the percentage of trucks were shown, if the data was available. As displayed in Table 1, the truck percentage was not available for most sites in the top ten list of AADT counts by county.

Top Ten AADT for Georgia for 2008 (taken from Top Ten AADT by County data)

Rank by AADT	Roadway	County	Traffic Counter	Begin MP	End MP	Top 10 AADT 2008	Truck % (Heavy Duty)
1	I-75/85	Fulton	5474	7.31	7.91	274,060	N/A
2	I-75/85	Fulton	5482	9.35	10	271,170	N/A
3	I-75	Cobb	2738	2.38	3.96	268,200	9
4	I-75/85	Fulton	5469	5.33	6.4	264,720	N/A
5	I-285	DeKalb	3369	3.79	4.64	261,220	N/A
6	I-75/85	Fulton	5468	3.5	5.26	260,220	N/A
7	I-85	Gwinnett	292	3.94	5.04	258,490	N/A
8	I-85	Gwinnett	6285	0	1.8	258,250	N/A
8	I-85	DeKalb	3336	7.75	8.16	258,250	N/A
9	I-85	Gwinnett	294	5.06	6.44	257,590	N/A
10	I-85	Gwinnett	6287	1.95	3.74	257,420	N/A

Top Ten AADT for Georgia for 2011 (from GASTARS Traffic Counters)

Rank by AADT	Roadway	County	Traffic Counter	Begin MP	End MP	Top 10 AADT 2011	Truck % (Heavy Duty)
1	I-75/85	Fulton	5482	9.76	10.08	348,900	N/A
2	I-75/85	Fulton	5473	7.35	7.92	325,490	N/A
3	I-75/85	Fulton	5478	8.86	9.10	320,370	N/A
4	I-75/85	Fulton	5477	8.54	8.86	319,490	N/A
5	I-75/85	Fulton	5483	10.08	10.68	311,030	N/A
6	I-75/85	Fulton	5481	9.22	9.76	310,810	N/A
7	I-75/85	Fulton	5471	7.92	8.15	304,930	N/A
8	I-75/85	Fulton	5480	9.10	9.22	296,150	N/A
9	I-75/85	Fulton	5476	8.35	8.54	295,930	N/A
10	I-85	Gwinnett	294	5.06	6.56	287,170	N/A

Table 1: Top Ten AADT Counts for 2008 and 2011

Then, the top 10 areas were calculated and sorted according to truck percentages for 2011 and the Fleet-Equivalent Annual Average Daily Traffic (FE AADT) using the GA DOT website http://www.dot.ga.gov/statistics/TrafficData/Documents/ATRTrafficDataReports/2011_TruckPercByLocation.pdfdata. To determine the Fleet-Equivalent AADT value for each road segment, the formula given in the draft 'Near-Road NO_2 Monitoring Technical Assistance Document' was used. The formula is:

*Fleet-Equivalent (FE) AADT = (AADT – HDc) + (HDm * HDc)*

where AADT is the total traffic volume count for a particular road segment, the HDc variable is the total number of heavy-duty vehicles for a particular road segment, and the HDm variable is a multiplier that represents the heavy-duty to light-duty NOx emission ratio for a particular road segment

For the 'HDm', the national default value of 10 was used.
As can be seen in Table 2, most of the traffic counters are different from Table 1, as this was the available 'Truck %' data.

Rank by FE AADT	Roadway	County	Traffic Counter #	Location	AADT Total	Truck % (Heavy Duty)	Number Trucks (Heavy Duty)	FE AADT
1	I-85	Gwinnett	6287	I-85 N/B Btwn Jimmy Carter exit and Indian Trail exit	285,530	9.1%	25,983	519,379
2	I-75	Cobb	2749	I-75 near Bells Ferry Rd. Between SR 5(Exit 267) and I-575 (Exit 268)	217,560	11.3%	24,584	438,819
3	I-75/85	Fulton	5474	I-75/I-85 at Grady Curve	284,920	4.4%	12,536	397,748
4	I-285	DeKalb	3374	I-285:@Shallowford Rd	208,330	8.7%	18,125	371,452
5	I-285	Cobb	2373	I-285:@Orchard Rd	158,680	14.1%	22,374	360,045
6	I-285	DeKalb	3354	I-285 btwn Memorial Dr & Church St MP 40.4	174,680	9.8%	17,119	328,748
7	I-85	Gwinnett	305	I-85NB:btwn Lawrenceville-Suwanee Rd and I-85/I985 split	148,180	13.2%	19,560	324,218
8	I-285	Fulton	5534	I-285:bn I-85 & Washington Rd CR1389	130,880	16.0%	20,941	319,347
9	I-75	Henry	412	I-75:bn I-675 & Hudson Bridge Rd	145,530	12.9%	18,773	314,490
10	I-85	Gwinnett	298	I-85 btwn SR316 & SR120	145,490	12.0%	17,459	302,619

Table 2: Top Ten Areas for FE AADT, 2011

2.3 Congestion

To determine the congestion pattern, the GA DOT website (http://www.dot.ga.gov/statistics/trafficsurvey/Pages/SurveyData.aspx) was used. The level of service (LOS) values were found, however, there were 6 values for each road segment per year, depending on time of day and direction of traffic. It was determined that the worst LOS rating for the road segment should be used since the NO_2 data would be compared to a 1-hour standard. However, in an effort to give the most accurate information, the AADT by lane was

also calculated. After using GA DOT to determine the location of the traffic counter, Google Earth was used to determine the number of lanes per road segment. Then the AADT was divided by the number of lanes, using the formula: AADT by lane=AADT/Number of lanes. The following tables were developed with this process. The first table uses the original 2011 data set (from Table 1) where the traffic counters did not have the truck %, or heavy duty traffic, data available. The next table uses the traffic counters where the truck %, or heavy duty traffic, (from Table 2) data was available.

Rank by AADT	Roadway	County	Traffic Counter	Begin MP	End MP	Top 10 AADT 2011	Number of Lanes	AADT by Lane	2010 LOS
1	I-75/85	Fulton	5482	9.76	10.08	348,900	14	27,493	F
2	I-75/85	Fulton	5473	7.35	7.92	325,490	14	23,249	F
3	I-75/85	Fulton	5478	8.86	9.10	320,370	13	24,644	F
4	I-75/85	Fulton	5477	8.54	8.86	319,490	14	22,821	F
5	I-75/85	Fulton	5483	10.08	10.68	311,030	14	22,216	F
6	I-75/85	Fulton	5481	9.22	9.76	310,810	14	22,201	F
7	I-75/85	Fulton	5471	7.92	8.15	304,930	13	23,456	F
8	I-75/85	Fulton	5480	9.10	9.22	296,150	12	24,679	F
9	I-75/85	Fulton	5476	8.35	8.54	295,930	12	24,661	F
10	I-85	Gwinnett	294	5.06	6.56	287,170	14	20,512	F

Table 3: Congestion for Road Segments with AADT Data

The highest congestion level (AADT by Lane) for the top ten road segments ranked by 2011 AADT was also the Georgia Institute of Technology area, where the highest 2011 AADT was found. The AADT by lane for this area was 27,493. In addition, the 2010 LOS ratings were 'F' for the Georgia Institute of Technology area.

The following table ranks the AADT by lane for the top ten areas that had 'Truck %', or 'Heavy Duty' vehicle data available. For this calculation, the 3rd ranked road segment by FE AADT (traffic counter 5474) had the highest AADT by lane, with 23,743. The 2010 LOS data ranked the road segment with an 'F'.

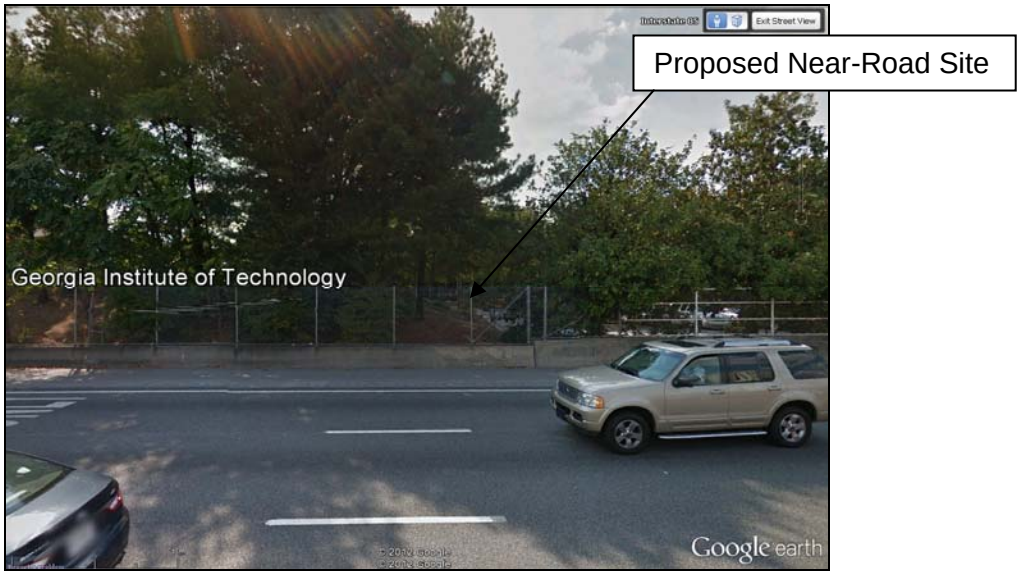
Rank by FE AADT	Roadway	County	Traffic Counter #	Location	AADT Total	Truck % (Heavy Duty)	Number Trucks (Heavy Duty)	FE AADT	Number of Lanes	AADT by Lane	2010 LOS
1	I-85	Gwinnett	6287	I-85 N/B Btwn Jimmy Carter exit and Indian Trail exit	285,530	9.1%	25,983	519,379	13	21,964	F
2	I-75	Cobb	2749	I-75 near Bells Ferry Rd. Between SR 5(Exit 267) and I-575 (Exit 268)	217,560	11.3%	24,584	438,819	12	18,130	F
3	I-75/85	Fulton	5474	I-75/I-85 at Grady Curve	284,920	4.4%	12,536	397,748	12	23,743	F
4	I-285	DeKalb	3374	I-285:@Shallowford Rd	208,330	8.7%	18,125	371,452	10	20,833	F
5	I-285	Cobb	2373	I-285:@Orchard Rd	158,680	14.1%	22,374	360,045	8	19,835	F
6	I-285	DeKalb	3354	I-285 btwn Memorial Dr & Church St MP 40.4	174,680	9.8%	17,119	328,748	8	21,835	F
7	I-85	Gwinnett	305	I-85NB:btwn Lawrenceville-Suwanee Rd and I-85/I985 split	148,180	13.2%	19,560	324,218	8	18,523	D
8	I-285	Fulton	5534	I-285:bn I-85 & Washington Rd CR1389	130,880	16.0%	20,941	319,347	8	16,360	D
9	I-75	Henry	412	I-75:bn I-675 & Hudson Bridge Rd	145,530	12.9%	18,773	314,490	7	20,790	E
10	I-85	Gwinnett	298	I-85 btwn SR316 & SR120	145,490	12.0%	17,459	302,619	12	12,124	F

Table 4: Congestion for Road Segments with FE AADT Data

2.4 Roadway Design

The Georgia Institute of Technology proposed near-road monitoring site roadway design is 'at-grade' with the surrounding terrain. Generally, the roadway surface is the same elevation as the surrounding terrain, as can be seen in the following photos taken from Google Earth. These photos are facing the site, from Interstate 75/85. Generally, the roadway design and adjacent roadside area along this road segment are relatively flat, with gently rolling hills.

The roadway is a controlled access roadway. It is a divided highway that has no adjoining property with driveways accessing the road segment, and the traffic is free-flowing with no traffic signals or intersections causing traffic to stop.



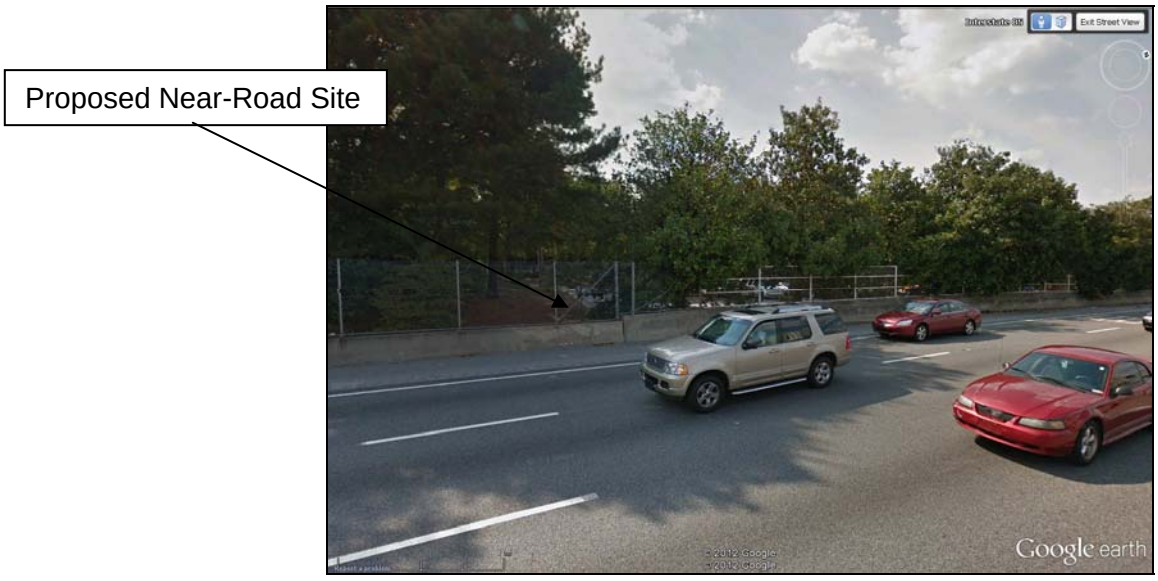


Figure 4: Proposed Near-Road Site Photos

The area for the proposed near-road site is located on Interstate 75/85, a major thoroughfare through downtown Atlanta. The two interstates merge together for approximately 8 miles as they pass through downtown Atlanta. With the merging of traffic through this area, there is a high volume of vehicles and congestion at peak traffic times. The following maps show the location of the proposed site within downtown Atlanta with merging interstates.

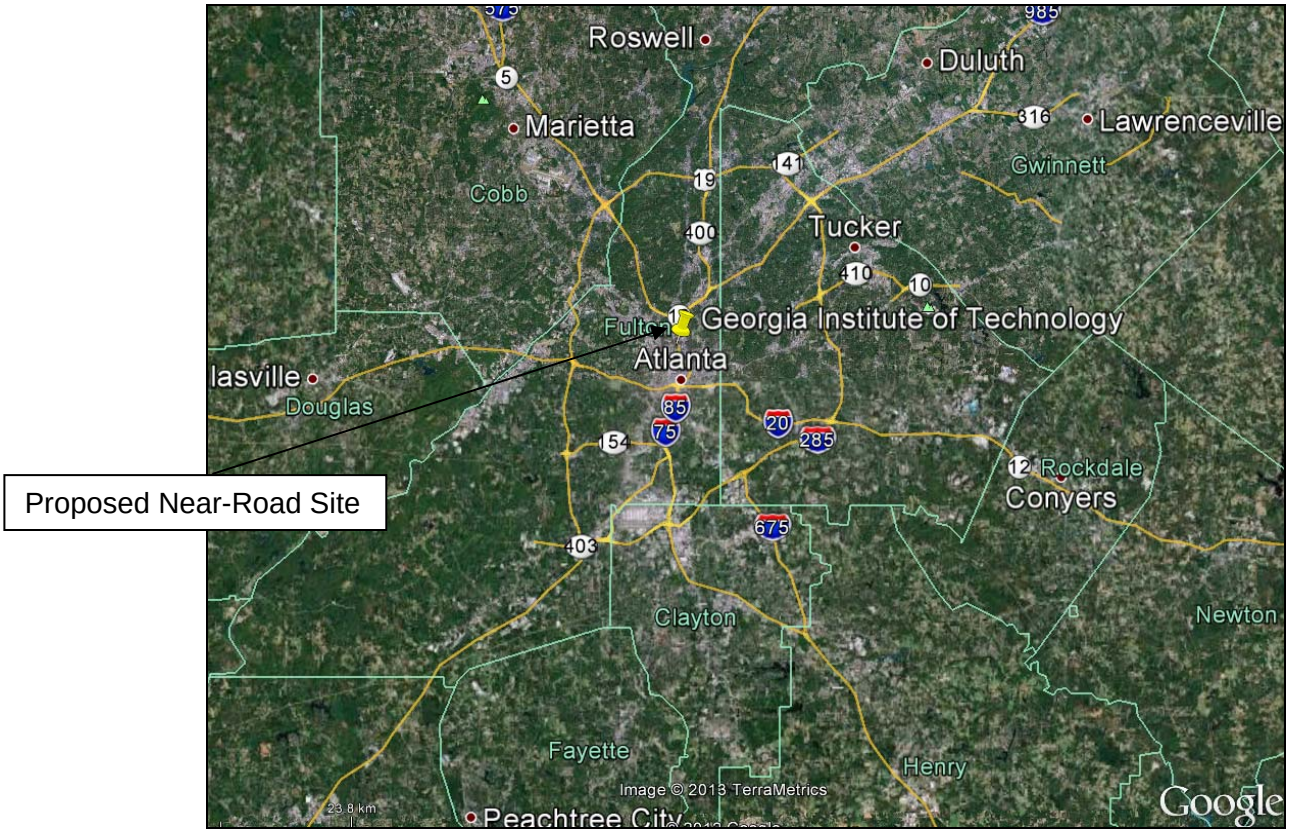


Figure 5: Map of Proposed Site Situated in Downtown Atlanta

The next map shows a closer view of the area surrounding the proposed near-road site with the merging Interstate 75 and 85 as it passes through downtown Atlanta.

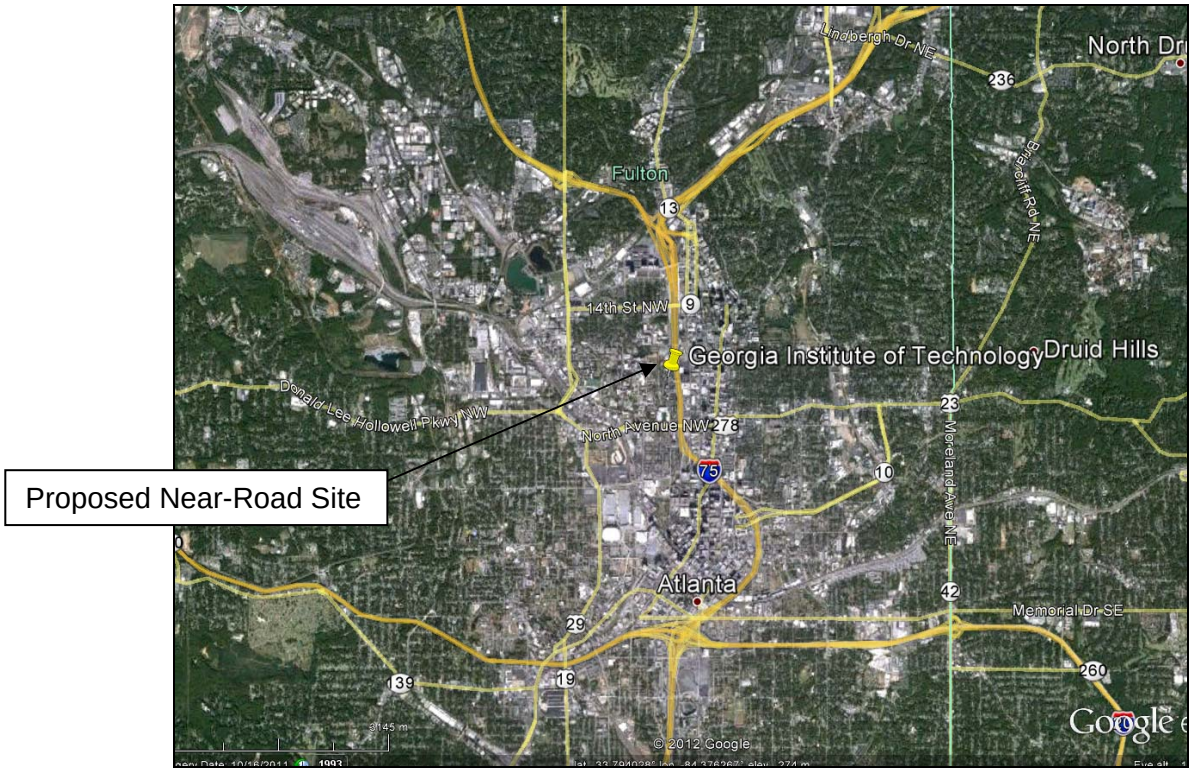
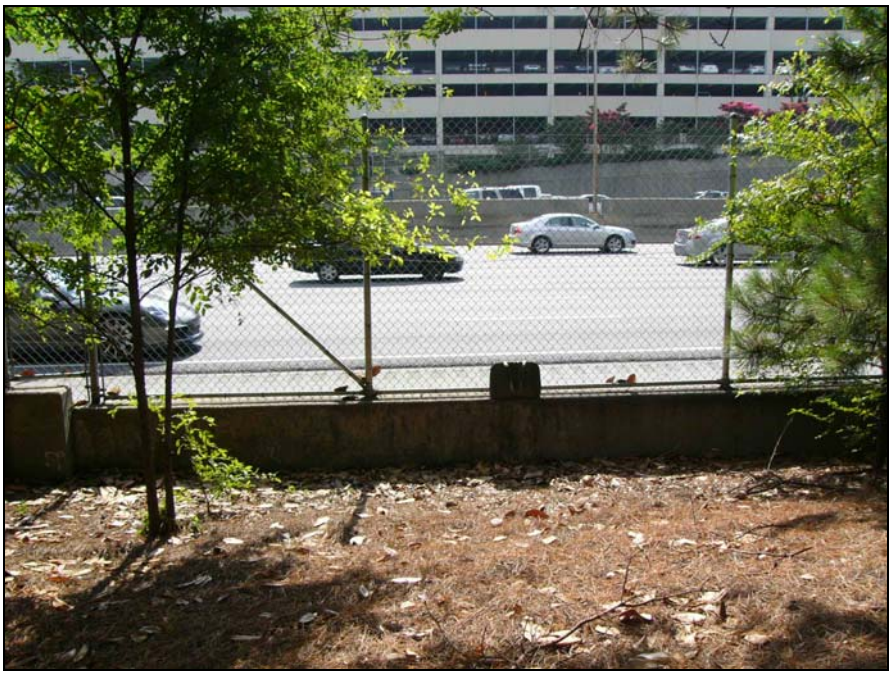


Figure 6: Closer View of Proposed Site in Downtown Atlanta

2.5 Roadside Structures

At the proposed near-road air monitoring site, there are low barriers along the highway, approximately 2 feet high and a chain link fence that separates Interstate 75/85 from the proposed site. There are no physical barriers separating the location where the sampling probe would be placed and the adjacent roadway that would interfere with air flow. This can be seen in the following site photos facing the interstate, as well as the previous photos (Figure 4) above taken from the interstate.



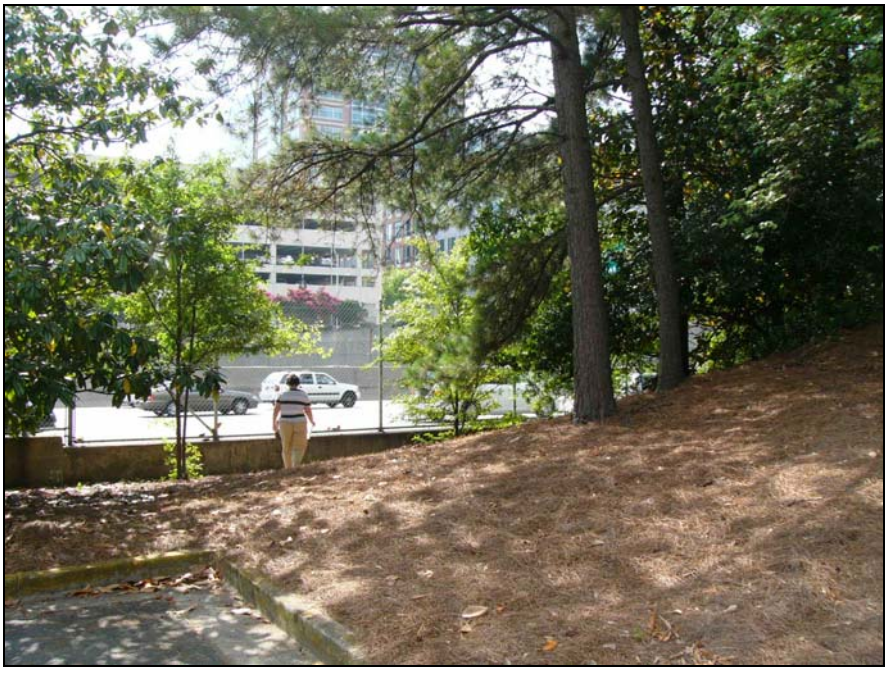


Figure 7: Proposed Near-Road Site Photos

The monitor would be placed adjacent to the chain-link fence (seen in the above photos). To enable unrestricted air flow, the sampling probe would be placed on the chain-link fence. Before placing the monitoring shelter on site, the land will be graded and two pine trees, scrub bushes, and two large magnolia trees will be removed. The following pictures, taken from Google Earth, show a 360 degree view of the road segment, including both sides of Interstate 75/85.

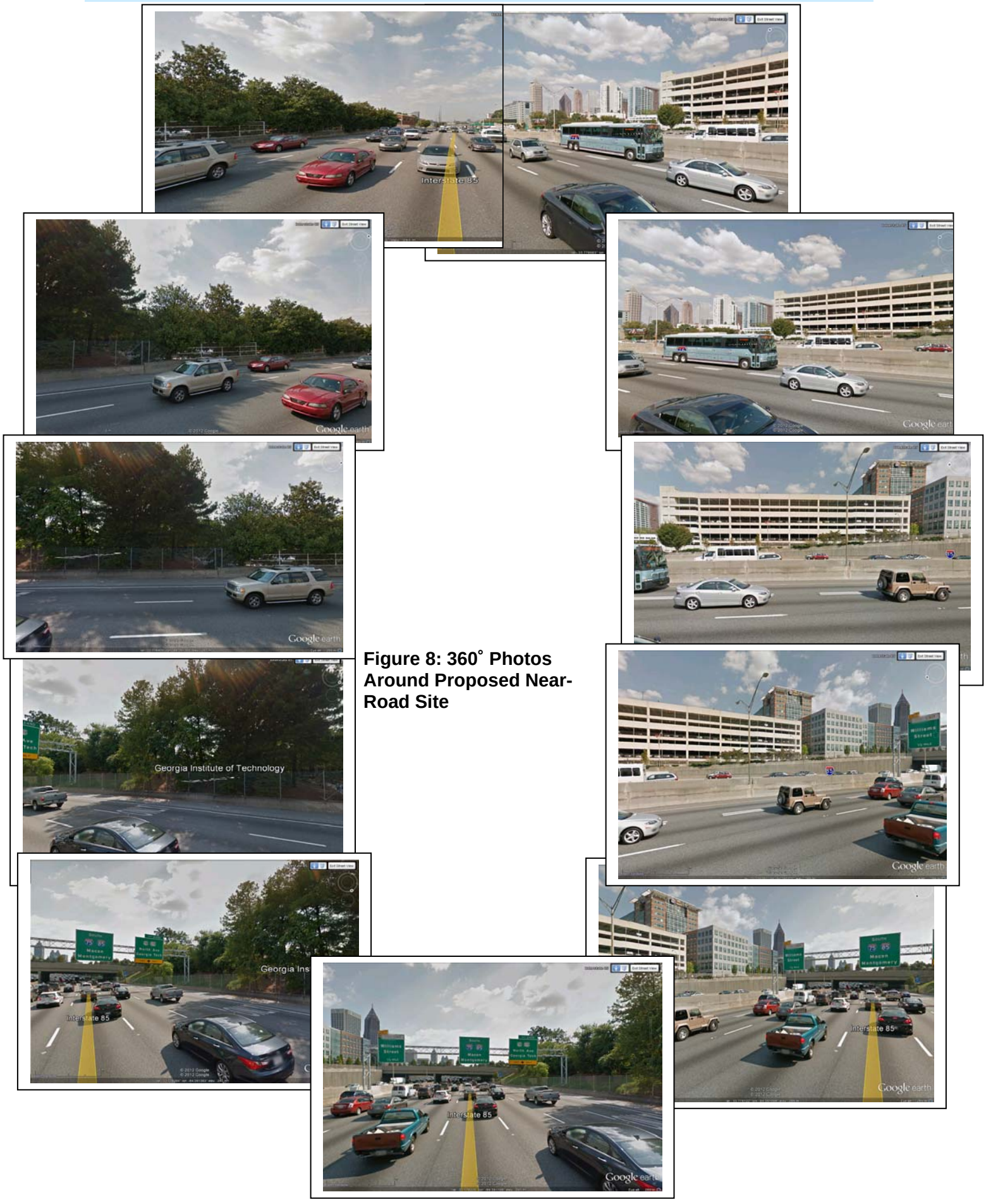


Figure 8: 360˚ Photos Around Proposed Near-Road Site

To detail the roadside structures, the follow paragraph and map describe the area surrounding the proposed near-road site. The approximate measurements and map were obtained from Google Earth. There is a highway divider between the northbound and southbound traffic that is approximately 3 to 4 feet high. Approximately 91 meters to the north, there is a 2 story building. There is a 3 to 4 story parking garage on the opposite side of the road segment that is approxiamtely 87 meters to the east. Also on the opposite side of the road segment, to the southeast, there is a 5 to 7 story building that is approximately 112 meters from the site. There is a bridge to the south of the site that is approximately 124 meters. There are 2 to 3 story high buildings approximately 87 meters to the southwest, approximately 49 meters to the west/southwest, approximately 66 meters to the West, approximately 60 meters to the west/northwest, and approximately 104 meters to the northwest. There are bushes and trees around the site that will be removed, as well as land grading that will take place, to prepare the site for the monitoring shelter. There is ample room for placement of the sampling probe on the fence to collect data from the roadway. The following map is a visual for the above measurements.

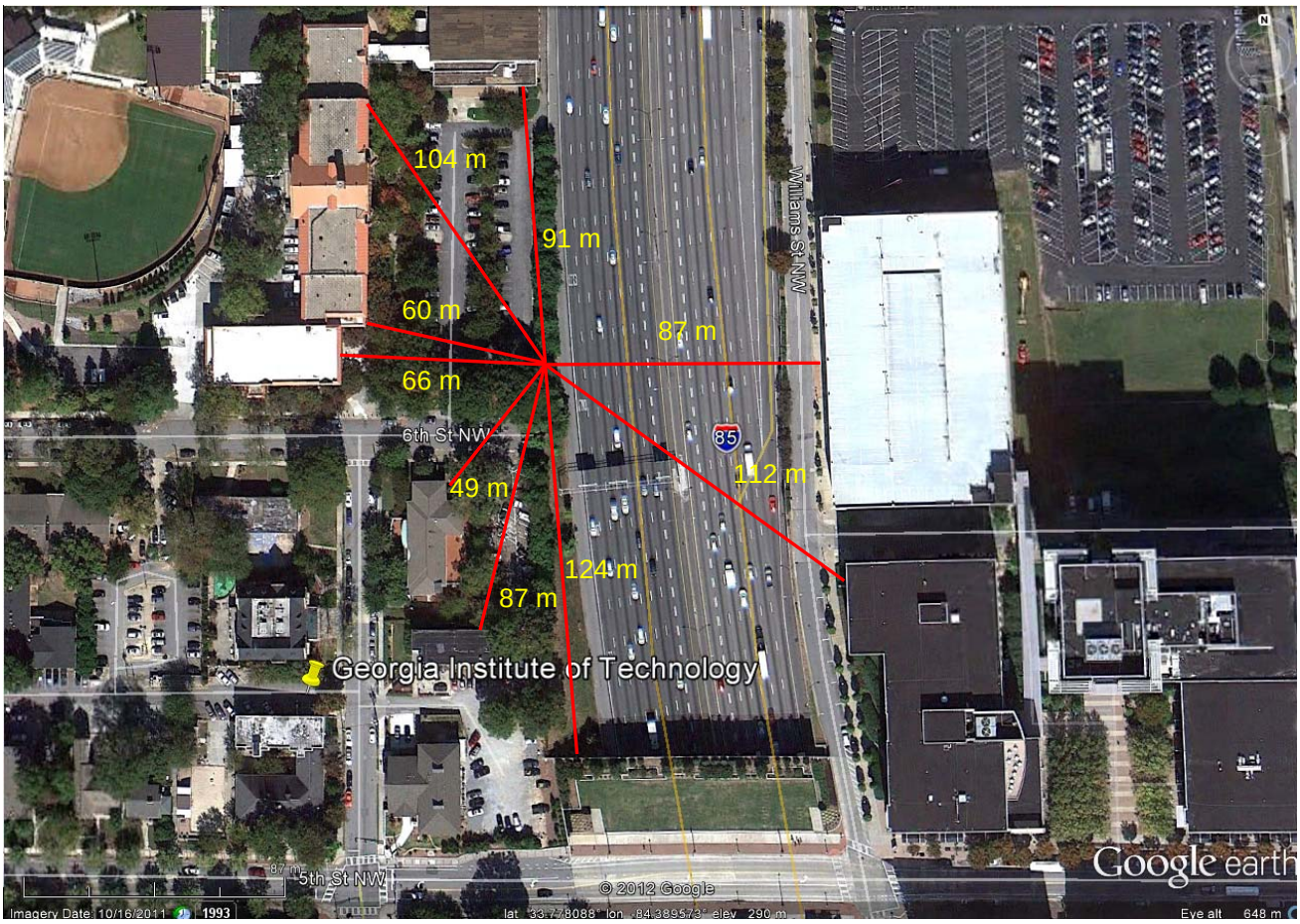
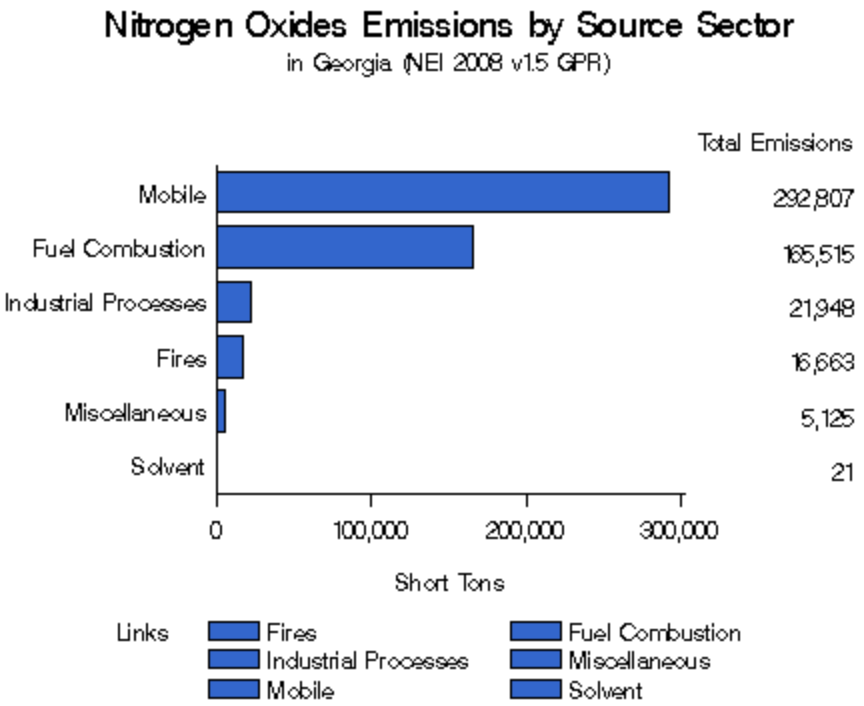
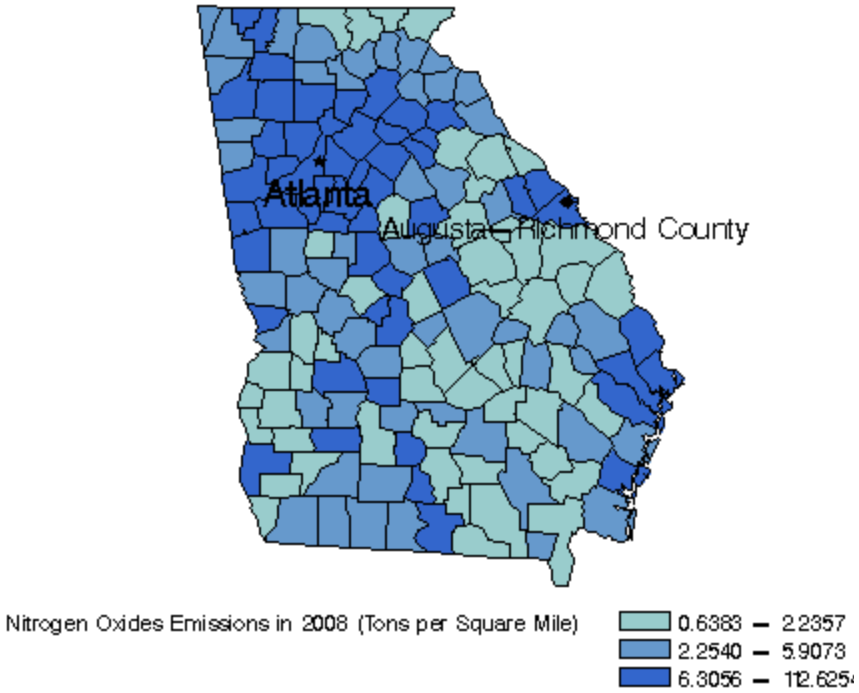


Figure 9: Measurements from Proposed Near-Road Site to Roadside Structures

2.6 Surrounding Land Use

The road segment is in an urban, commercial area with low-rise and high-rise buildings in the vicinity. On one side of the road segment, the Georgia Institute of Technology campus resides. The following maps show the potential emission sources in the area of the proposed site. Two resources were explored to find potential emission sources. The following graph and map were taken from EPA's Air Emissions website (http://www.epa.gov/air/emissions/) and reflect emissions data from 2008. In the graph, each of the main emissions sources are identified with the 2008 total emissions for each shown. Mobile emissions were the highest level, with 292,807 tons in 2008. In the map, Fulton County, where the proposed near-road site would be located, is shown with the darker blue color, representing more than 6.3056-112.6254 tons per square mile of nitrogen oxides emitted in 2008.

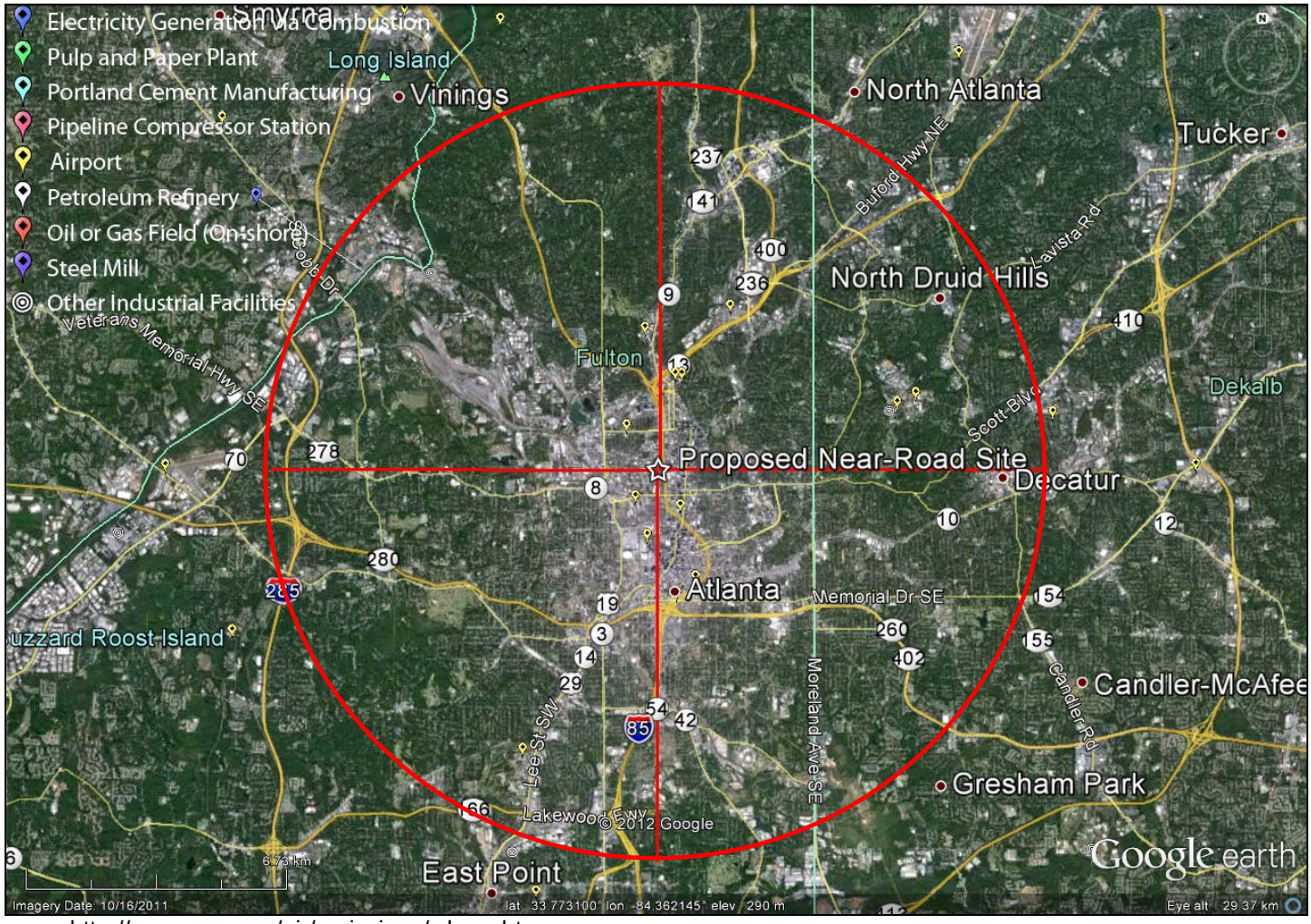




(http://www.epa.gov/air/emissions/)

Figure 10: County Emissions Map of 2008 Data

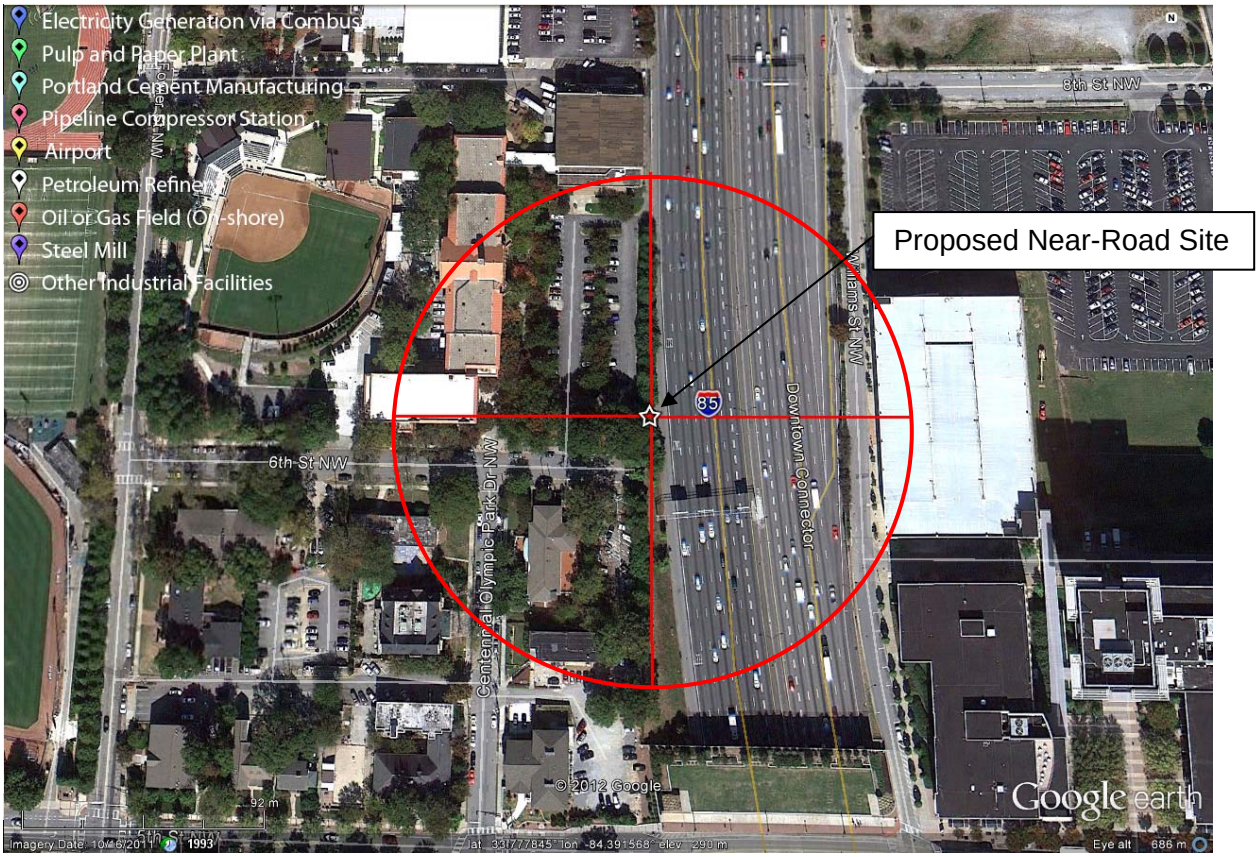
The next map was taken from EPA's Air Emission Sources website using Google Earth (http://www.epa.gov/air/emissions/where.htm) and show potential emissions sources in the vicinity of the proposed near-road site with 2008 data. The facilities displayed include electricity generation via combustion, pulp and paper plant, Portland cement manufacturing, pipeline compressor station, airport, petroleum refinery, oil or gas field (on-shore), steel mill, and other industrial facilities. The red circle shows a 10 kilometer radius around the proposed near-road site (indicated by the white star). Each source was reviewed on the webpage, to ensure that emissions were reported in 2008. For more details about each emission source, see Appendix E-1.



http://www.epa.gov/air/emissions/where.htm

Figure 11: Potential Emission Sources Surrounding Proposed Near-Road Site

Considering that the near-road site will be a microscale site, the following map shows a 100 meter radius around the proposed near-road site (indicated by the white star). There are no potential emissions sources in the direct vicinity of the Georgia Institute of Technology area where the near-road proposed site would be located.

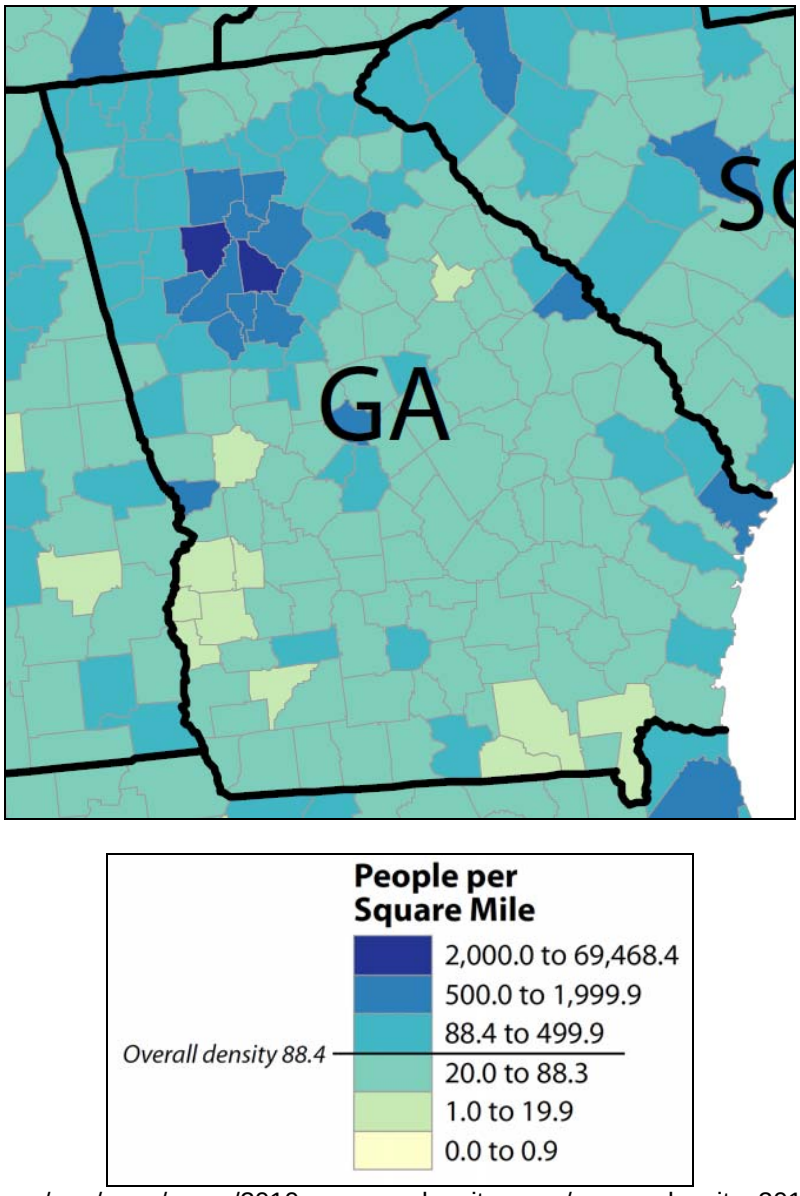


http://www.epa.gov/air/emissions/where.htm

Figure 12: Proposed Near-Road Microscale Site

2.7 Population

The following section addresses the population in the vicinity of the proposed near-road monitoring site. County level population, census block level population, and change in population were explored, as well as socioeconomic and age demographics. The U.S. Census Bureau's website (http://www.factfinder2.census.gov), the EPA's EJView website (http://epamap14.epa.gov/ejmap/entry.html), and EPA's network assessment tools were used as resources for the following discussion. To get an overall picture, the first map below shows the population at the county level for the State of Georgia. Fulton County, where the proposed near-road site would be located, has a 2010 population in the range of 500.0 to 1,999.9 individuals per square mile.

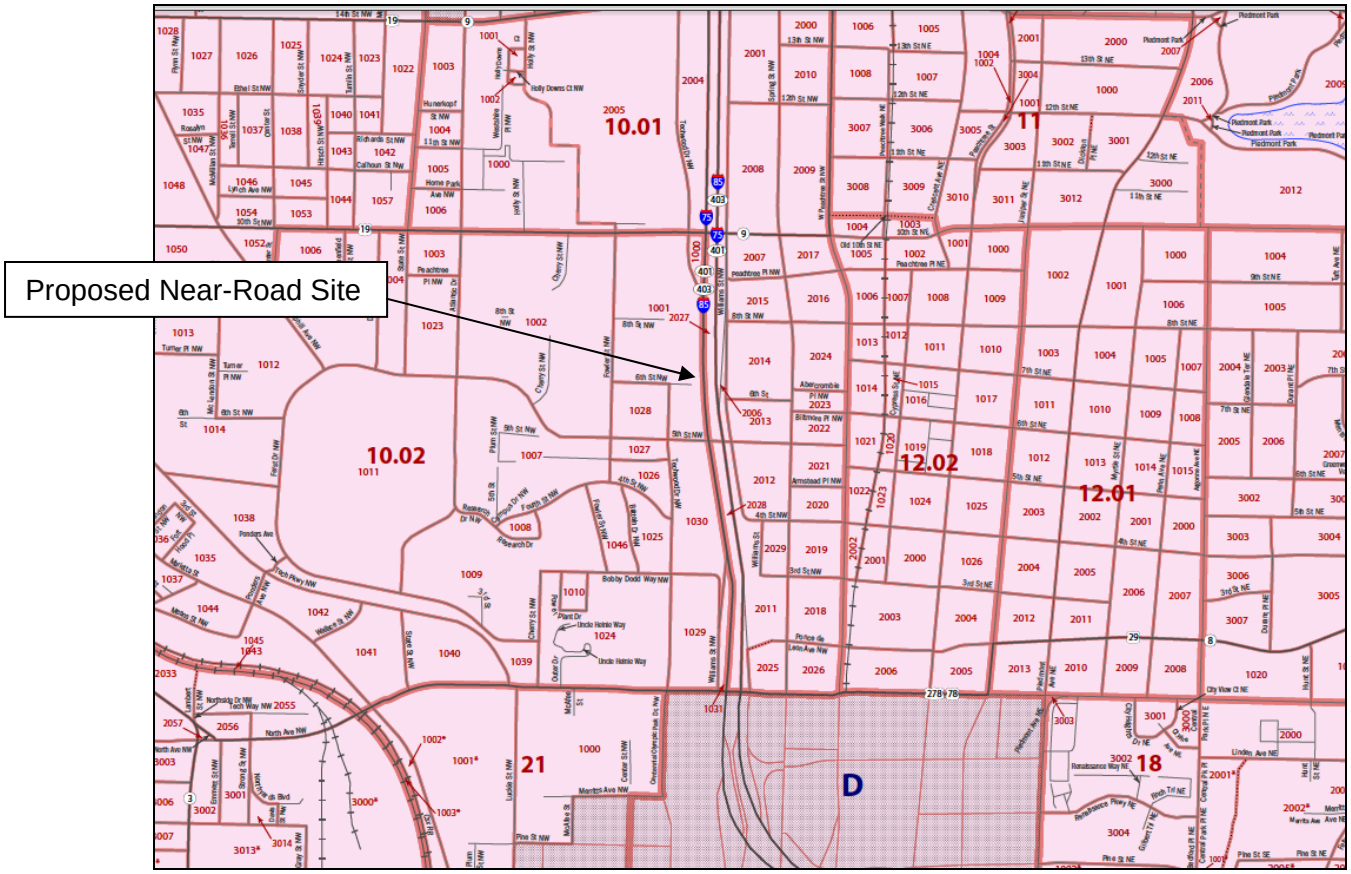


http://www.census.gov/geo/www/maps/2010_census_density_map/us_popdensity_2010map.pdf

Figure 13: Georgia's Population per Square Mile

To find more specific information about the population in the vicinity of the proposed near-road monitoring site, the U.S. Census Bureau's website

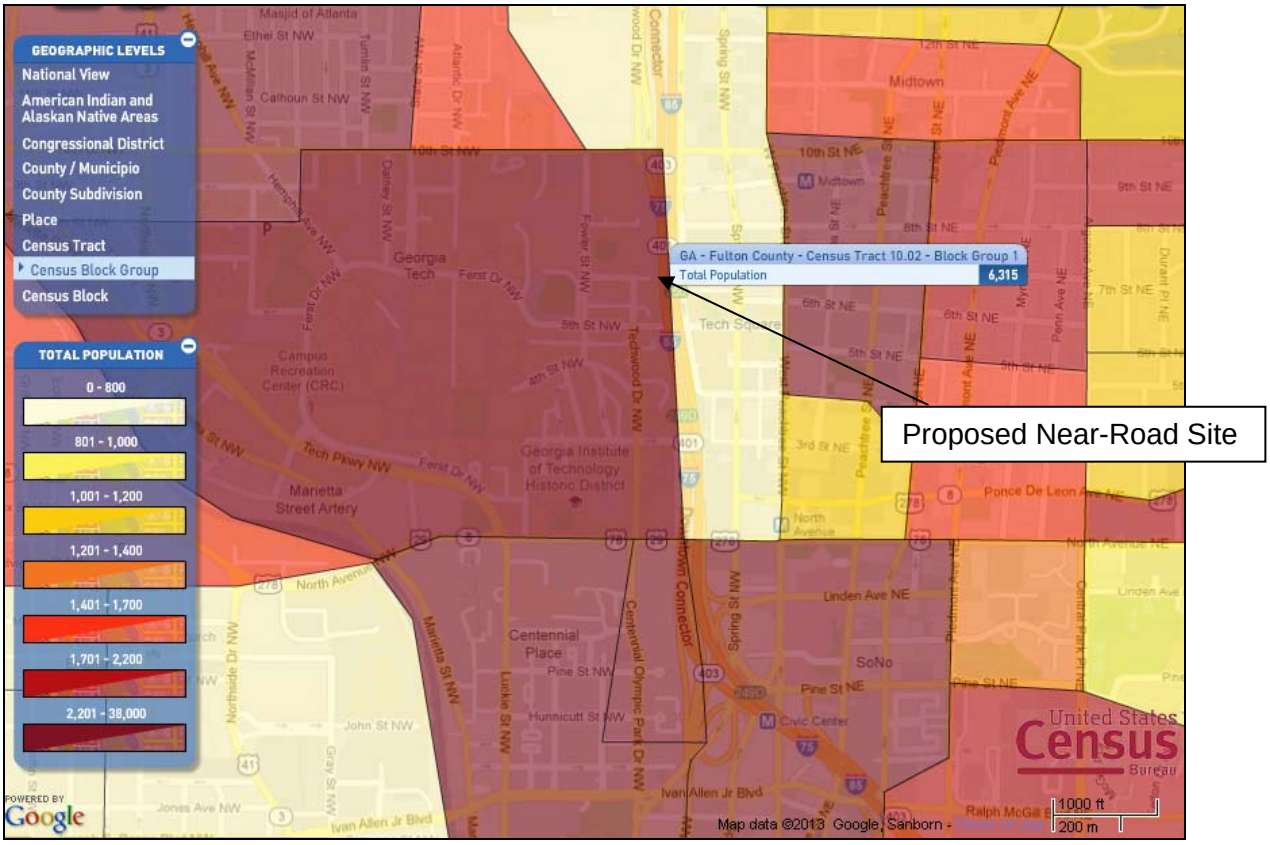
(http://www2.census.gov/geo/maps/dc10map/GUBlock/st13_ga/place/p1304000_atlanta/DC10BLK_P1304000_005.pdf) was explored. The following map shows the census block and census tract for the proposed site. The proposed near-road site is within the 1001 census block, and the 10.02 census tract. The census tract directly across Interstate 75/85 is 10.01, and the census block is 2027.



http://www2.census.gov/geo/maps/dc10map/GUBlock/st13_ga/place/p1304000_atlanta/DC10BLK_P1304000_005.pdf

Figure 14: Census Block and Census Tract for Proposed Near-Road Site

To research the information from a wider view and a more detailed view, both the census tract data and the census block data were explored. The following figures show the detailed demographics for the two census tracts (10.01 and 10.02) in the direct vicinity of the proposed near-road site.



http://www.census.gov/2010census/popmap/

Figure 15: Total Population by Census Tract

The two following figures give detailed information for the 10.01 and 10.02 census tracts mapped above. Census tract 10.01 has a total population of 2,272, and census tract 10.02 has a total population of 6,315.

GA - Fulton County - Census Tract 10.01

Population

Total Population	2,272

Housing Status
(in housing units unless noted)

Total	867
Occupied	748
Owner-occupied	399
Population in owner-occupied (number of individuals)	588
Renter-occupied	349
Population in renter-occupied (number of individuals)	655
Households with individuals under 18	33
Vacant	119
Vacant: for rent	75
Vacant: for sale	13
Vacant: for seasonal/recreational/occasional use	6

Population by Sex/Age

Male	1,486
Female	786
Under 18	41
18 & over	2,231
20 - 24	609
25 - 34	1,063
35 - 49	379
50 - 64	125
65 & over	27

Population by Ethnicity

Hispanic or Latino	117
Non Hispanic or Latino	2,155

Population by Race

White	1,144
African American	188
Asian	833
American Indian and Alaska Native	4
Native Hawaiian and Pacific Islander	1
Other	32
Identified by two or more	70

http://2010.census.gov/2010census/popmap/ipmtext.php

Figure 16: Population Demographics for Census Tract 10.01

GA - Fulton County - Census Tract 10.02

Population

Total Population	6,315

Housing Status
(in housing units unless noted)

Total	608
Occupied	341
Owner-occupied	6
Population in owner-occupied (number of individuals)	19
Renter-occupied	335
Population in renter-occupied (number of individuals)	688
Households with individuals under 18	22
Vacant	267
Vacant: for rent	262
Vacant: for sale	3
Vacant: for seasonal/recreational/occasional use	0

Population by Sex/Age

Male	4,373
Female	1,942
Under 18	73
18 & over	6,242
20 - 24	2,922
25 - 34	203
35 - 49	126
50 - 64	62
65 & over	5

Population by Ethnicity

Hispanic or Latino	296
Non Hispanic or Latino	6,019

Population by Race

White	4,064
African American	582
Asian	1,351
American Indian and Alaska Native	9
Native Hawaiian and Pacific Islander	4
Other	74
Identified by two or more	231

http://2010.census.gov/2010census/popmap/ipmtext.php

Figure 17: Population Demographics for Census Tract 10.02

For more detailed information concerning age groups, the next table shows the breakdown of age demographics for census tract 10.01 and 10.02.

P12: SEX BY AGE - Universe: Total population
2010 Census Summary File 1
NOTE: For information on confidentiality protection, nonsampling error, and definitions, see http://www.census.gov/prod/cen2010/doc/sf1.pdf.

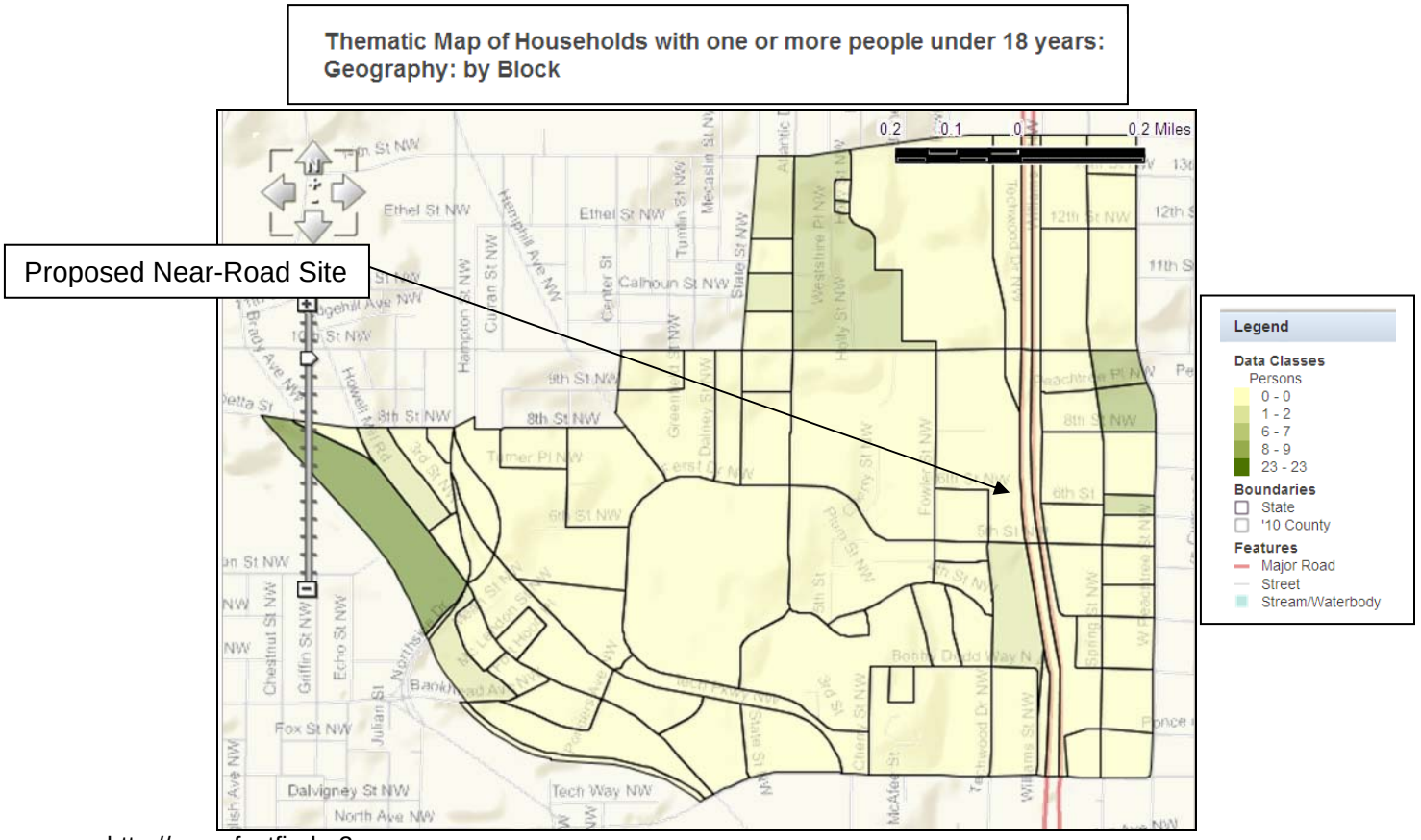
	Census Tract 10.01, Fulton County, Georgia	Census Tract 10.02, Fulton County, Georgia
Total:	2,272	6,315
Male:	1,486	4,373
Under 5 years	14	9
5 to 9 years	4	7
10 to 14 years	1	4
15 to 17 years	1	20
18 and 19 years	16	1,973
20 years	21	770
21 years	39	636
22 to 24 years	346	677
25 to 29 years	394	88
30 to 34 years	278	37
35 to 39 years	149	25
40 to 44 years	75	30
45 to 49 years	58	42
50 to 54 years	38	27
55 to 59 years	28	22
60 and 61 years	8	4
62 to 64 years	3	1
65 and 66 years	0	0
67 to 69 years	6	0
70 to 74 years	4	1
75 to 79 years	3	0
80 to 84 years	0	0
85 years and over	0	0
Female:	786	1,942
Under 5 years	12	5
5 to 9 years	1	4
10 to 14 years	5	4
15 to 17 years	3	20
18 and 19 years	12	951
20 years	19	331
21 years	31	305
22 to 24 years	153	203
25 to 29 years	216	57
30 to 34 years	175	21
35 to 39 years	56	15
40 to 44 years	24	10
45 to 49 years	17	4
50 to 54 years	26	3
55 to 59 years	15	5

60 and 61 years	1	0
62 to 64 years	6	0
65 and 66 years	3	1
67 to 69 years	4	0
70 to 74 years	0	1
75 to 79 years	5	0
80 to 84 years	0	0
85 years and over	2	2

Source: U.S. Census Bureau, 2010 Census.
http://www.factfinder2.census.gov

Table 5: Detailed Population Demographics by Age for Census Tracts 10.01 and 10.02

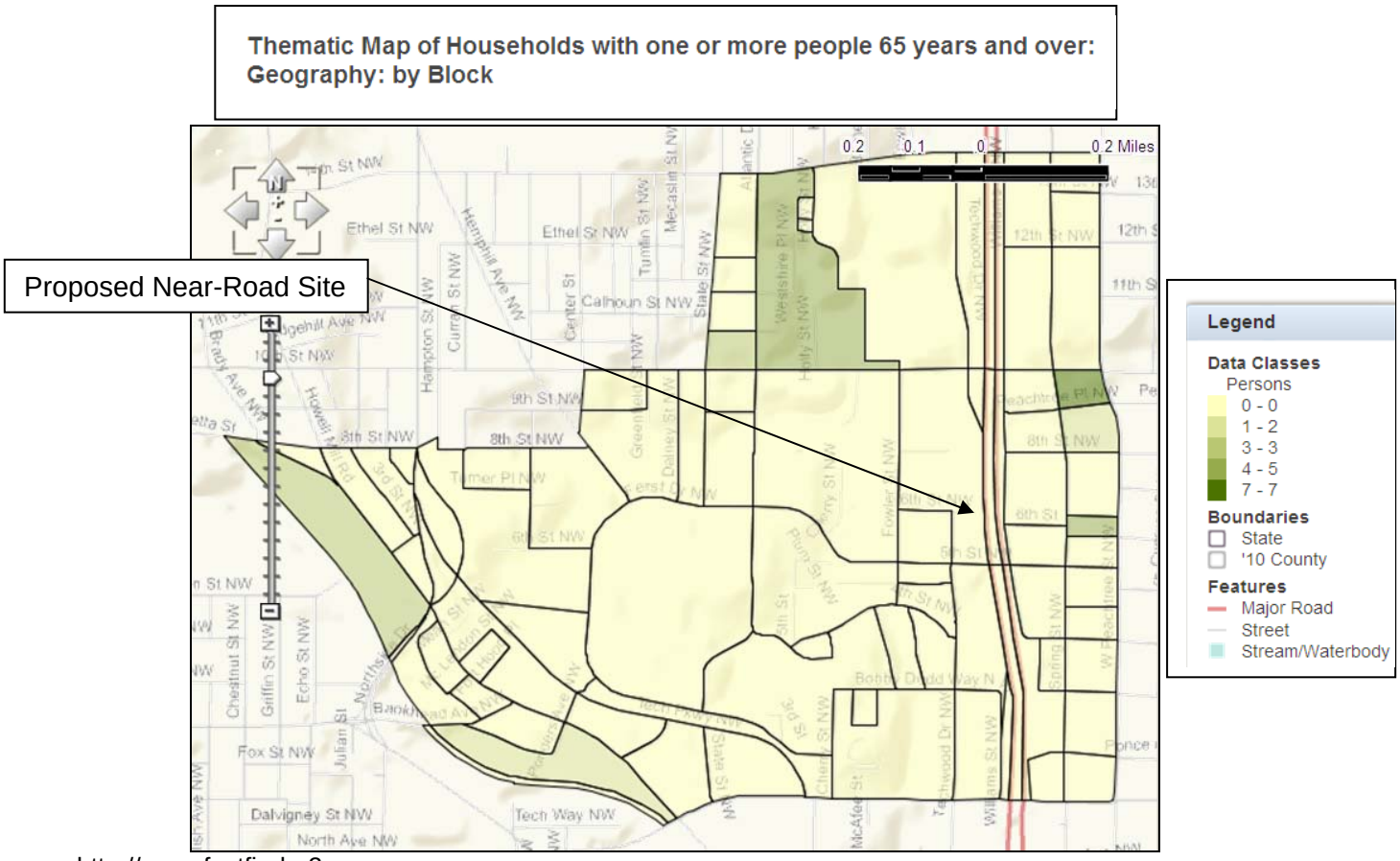
Since the census tracts shown above give information for a larger area, the following maps explore the census data by census block to give a more detailed view. The following map gives a visual of the number of households with children under 18 years of age by census block for census tract 10.01 and 10.02. Census block 1001, where the proposed site would be located, shows the 0-0 category for children under 18 years of age.



http://www.factfinder2.census.gov

Figure 18: Households with Children under 18 Years by Census Block

The next map shows the number of households with adults age 65 and over, by census block, for census tract 10.01 and 10.02. Census block 1001, where the proposed site would be located, shows the 0-0 category for adults age 65 and over.



http://www.factfinder2.census.gov

Figure 19: Household with Adults over Age 65 by Census Block

To understand how the population has changed in the vicinity of the near-road monitoring site, the following map was created. This map uses a Network Assessment tool, called Population Animation, that was developed by EPA for the Five-Year Network Assessment in 2010 (http://www.epa.gov/ttn/amtic/network-assessment.html). It shows the change in population from 1990 to 2008, using a population estimate. In the area around the proposed near-road monitoring site, there has been a 100% growth in population from 1990 to 2008.

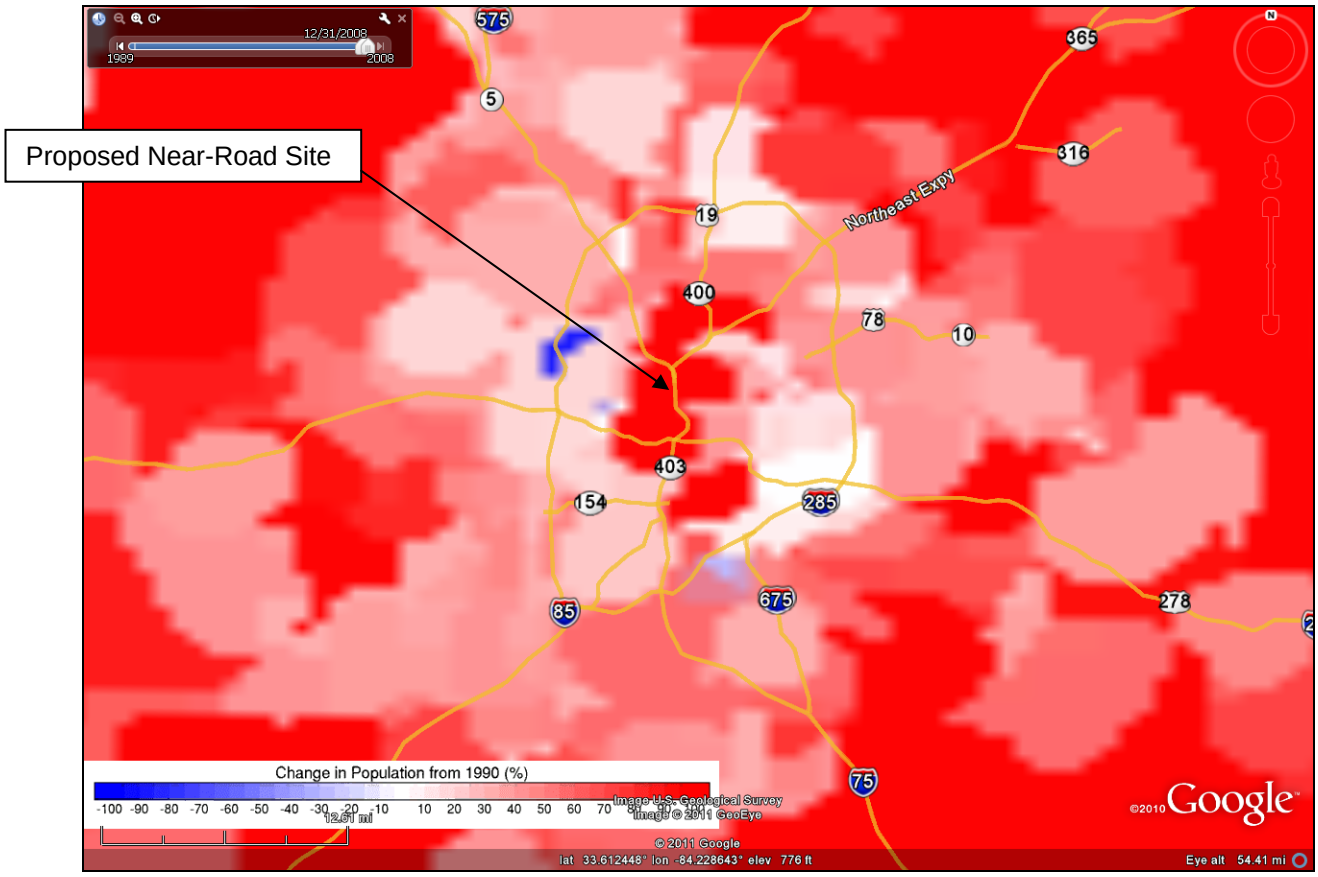
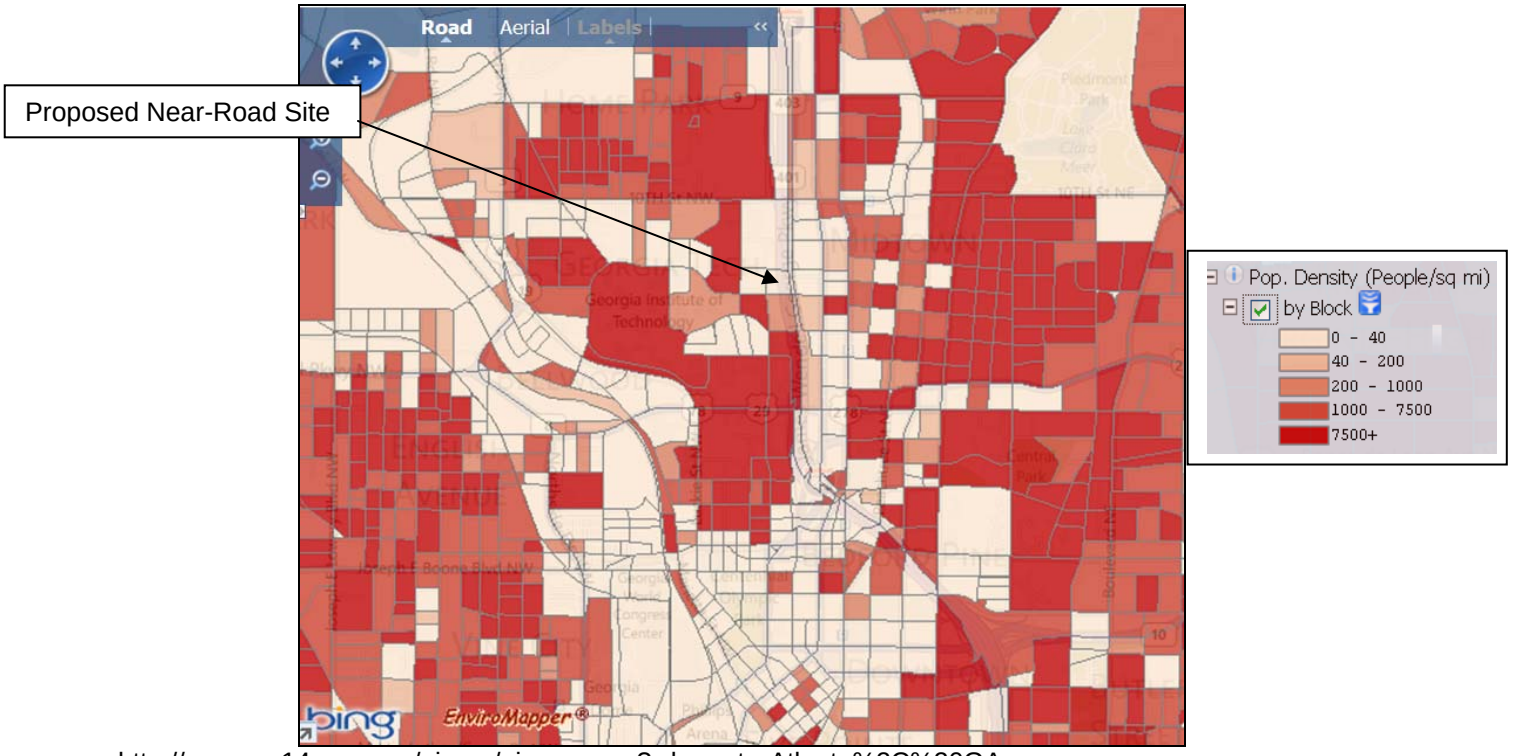


Figure 20: Change in Population from 1990 to 2008

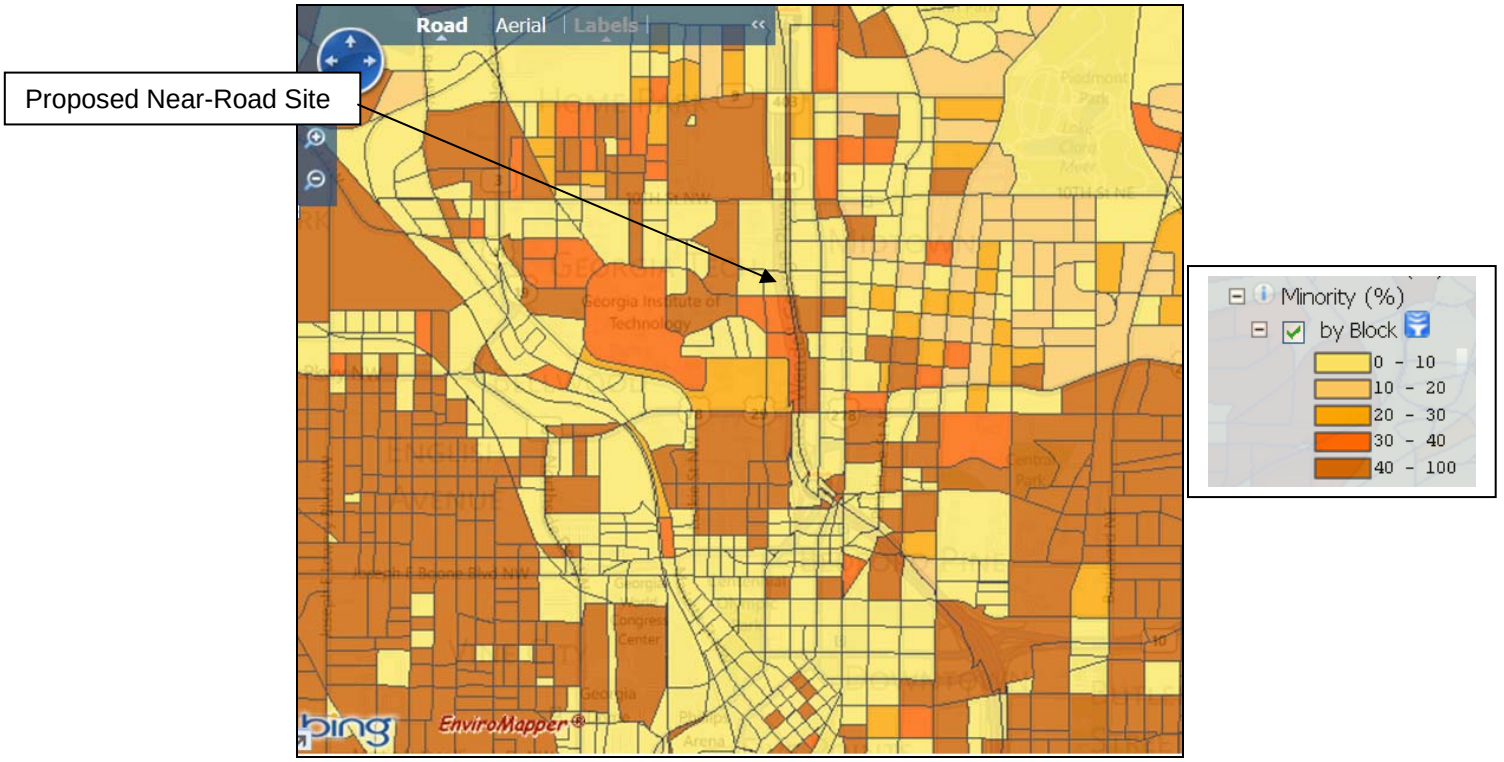
For the following maps, the EPA's EJView website (http://epamap14.epa.gov/ejmap/entry.html) was used. The population density and socioeconomic factors were examined with this website. The information on this website is based on 2000 census data from the U.S. Census Bureau, as opposed to the 2010 census data in the previous maps and tables. Therefore, the following data was used as an estimated guide to give indicative information regarding socioeconomic demographics since the data is outdated. The EJView website describes that the data is derived as follows: '*EJView uses an area-weighted method of population estimation. Population and housing statistics are created by overlaying the specified study area (buffered point, user-digitized polygon or map window) with the appropriate Census summary level geography (block, block group, tract, or county). For each Census polygon the respective population values are adjusted proportionally (area-weighted) based on the percentage of the polygon that lies within the study area.*' The first map below shows the population density per square mile. The 1001 census block has 0-40 people per square mile.



http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Atlanta%2C%20GA

Figure 21: Population Density by Census Block

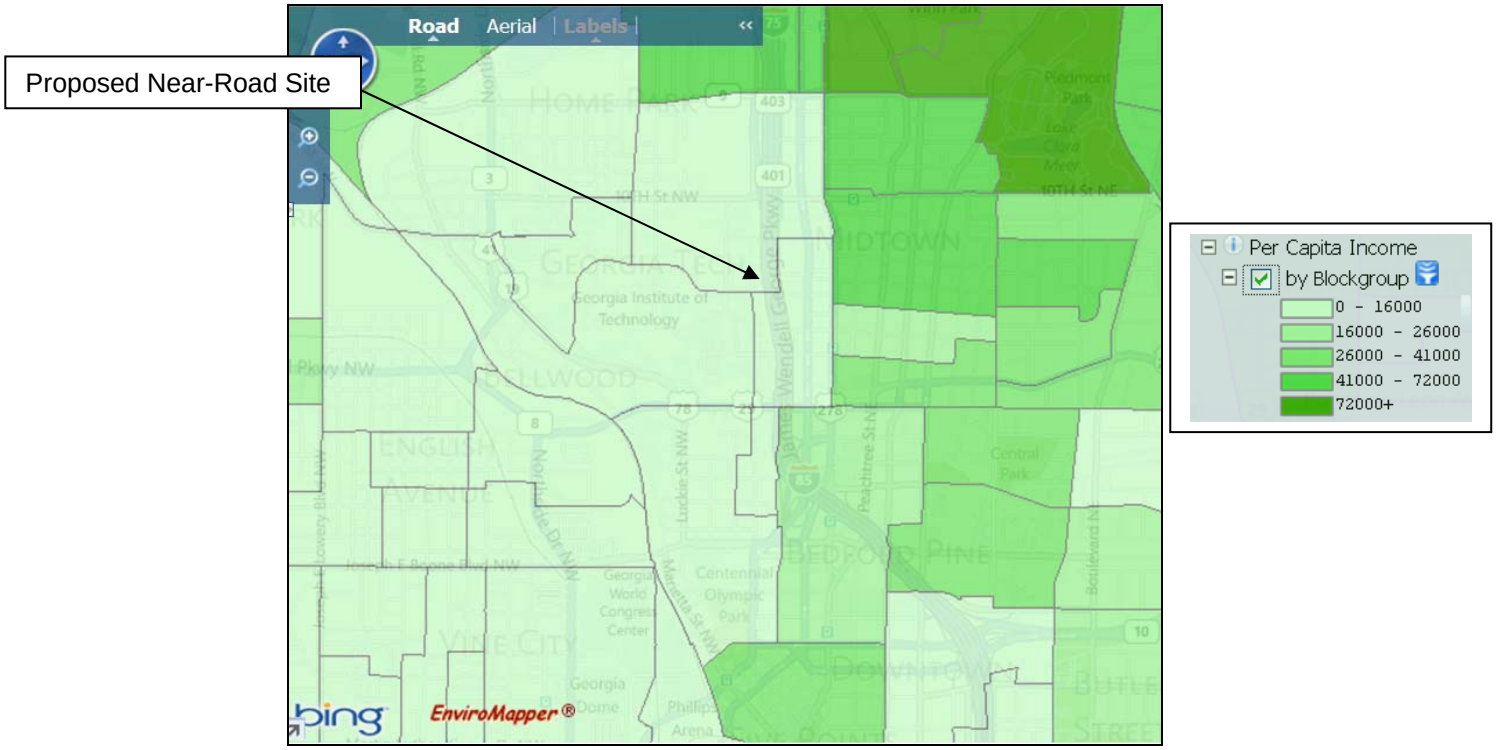
The next map shows the percent minority population for the 1001 census block. There is a 0-10% minority population in the 1001 census block.



http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Atlanta%2C%20GA

Figure 22: Percent Minority by Census Block

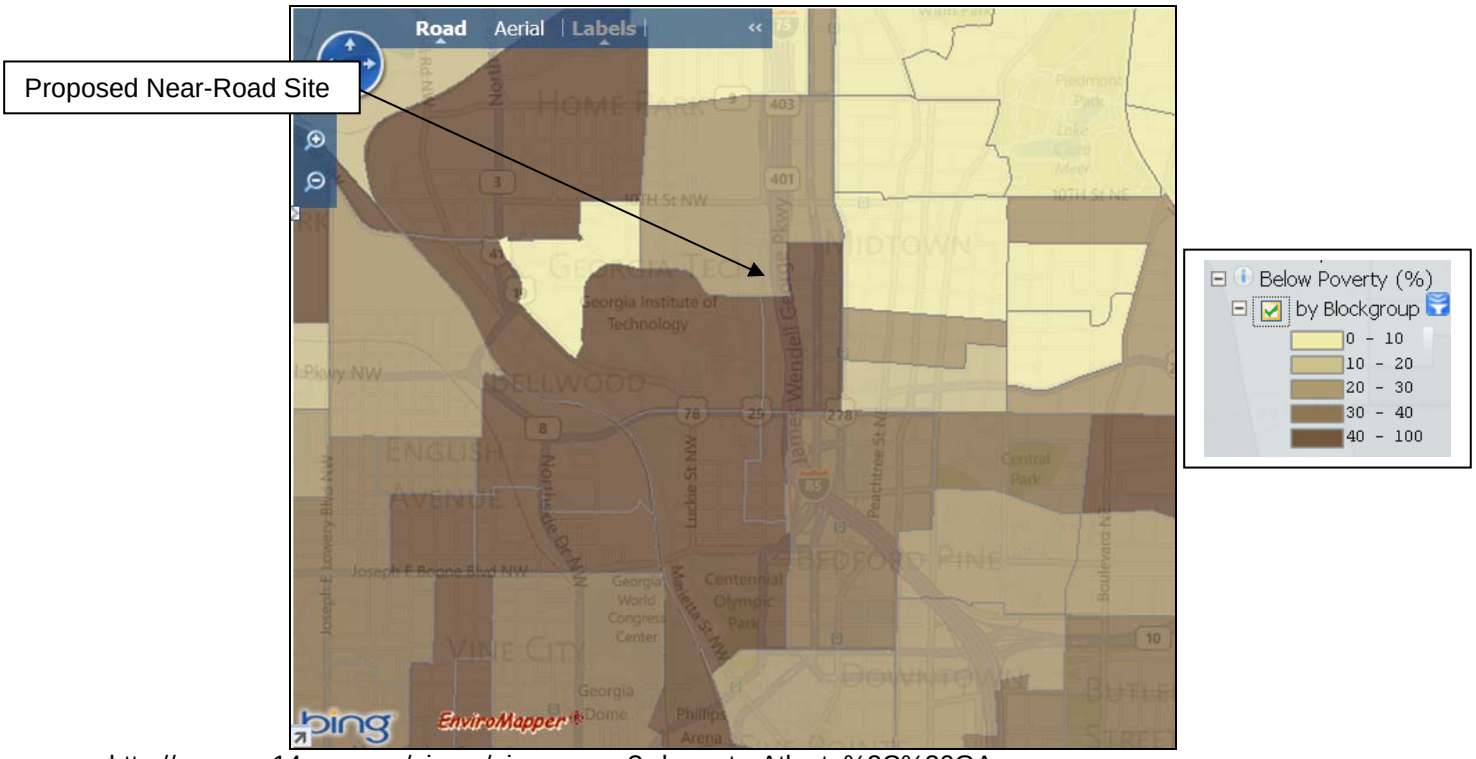
The following map shows the per capita income blockgroup including blocks 1001 and 2027. The per capita income is $0-$16,000 for this area.



http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Atlanta%2C%20GA

Figure 23: Per Capita Income by Blockgroup

In the following map, the percent population below poverty is shown for the blockgroup that include blocks 1001 and 2027. The percent population below poverty for this area is 20-30%.



http://epamap14.epa.gov/ejmap/ejmap.aspx?wherestr=Atlanta%2C%20GA

Figure 24: Percent below Poverty by Blockgroup

2.8 Terrain

The terrain surrounding the proposed near-road monitoring site is relatively flat, with gently rolling hills. This can be seen in the above photos (Figure 8). In addition, the following figures show details of the proposed near-road monitoring site's surrounding terrain. Figure 25, below, shows an aerial photo of the direct vicinity of the proposed site. Figure 26, also below, shows the terrain in Google Maps.

Figure 25: Aerial Photo of Surrounding Area

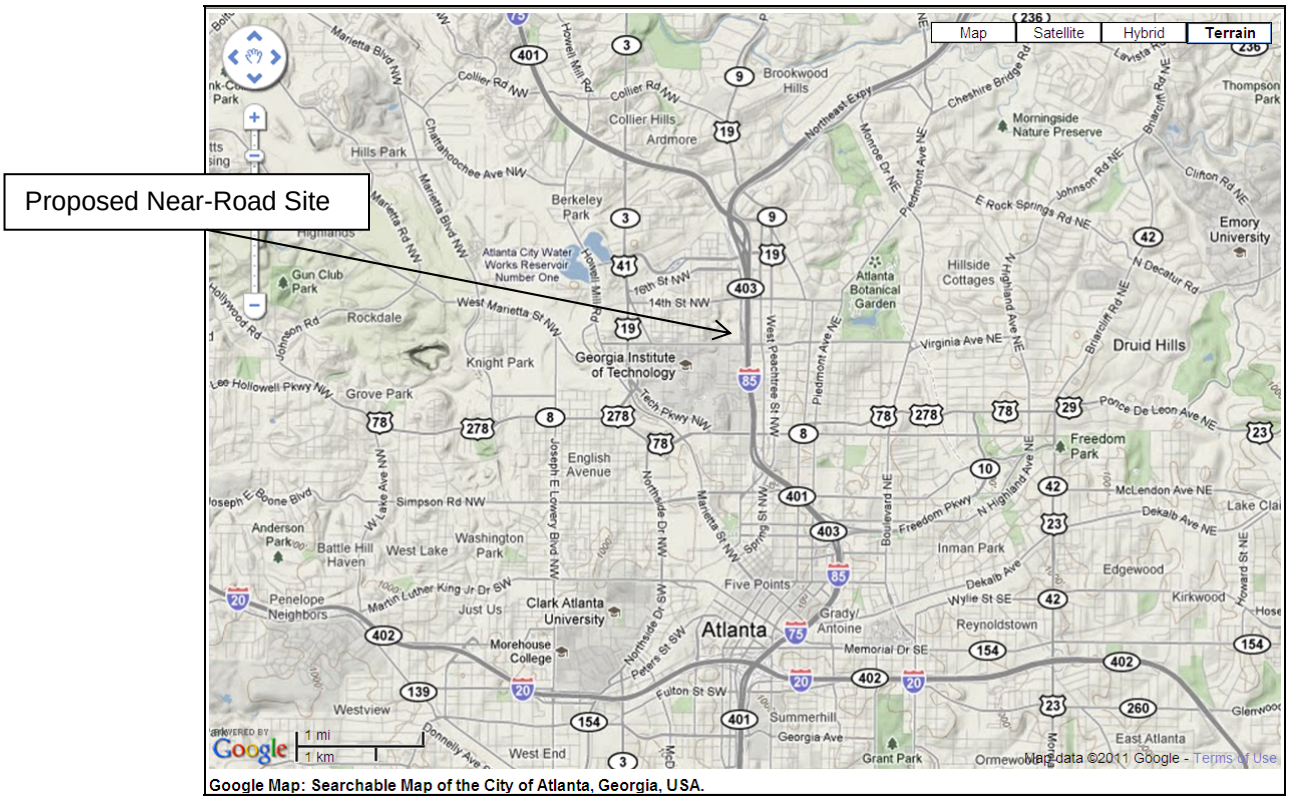


Figure 26: Google Map of Terrain Surrounding Proposed Near-Road Monitoring Site

The following topographical map was copied from the U.S. Department of Interior, U.S. Geological Survey, Northwest Atlanta Quadrangle, 7.5 Minute Series (Topographic) map. This map shows the gently rolling hills surrounding the proposed near-road monitoring site. There is about a 10 feet gradual change in elevation from approximately 940 feet above sea level to the north of the site gradually sloping up toward the South, across the proposed site to approximately 950 feet in elevation.

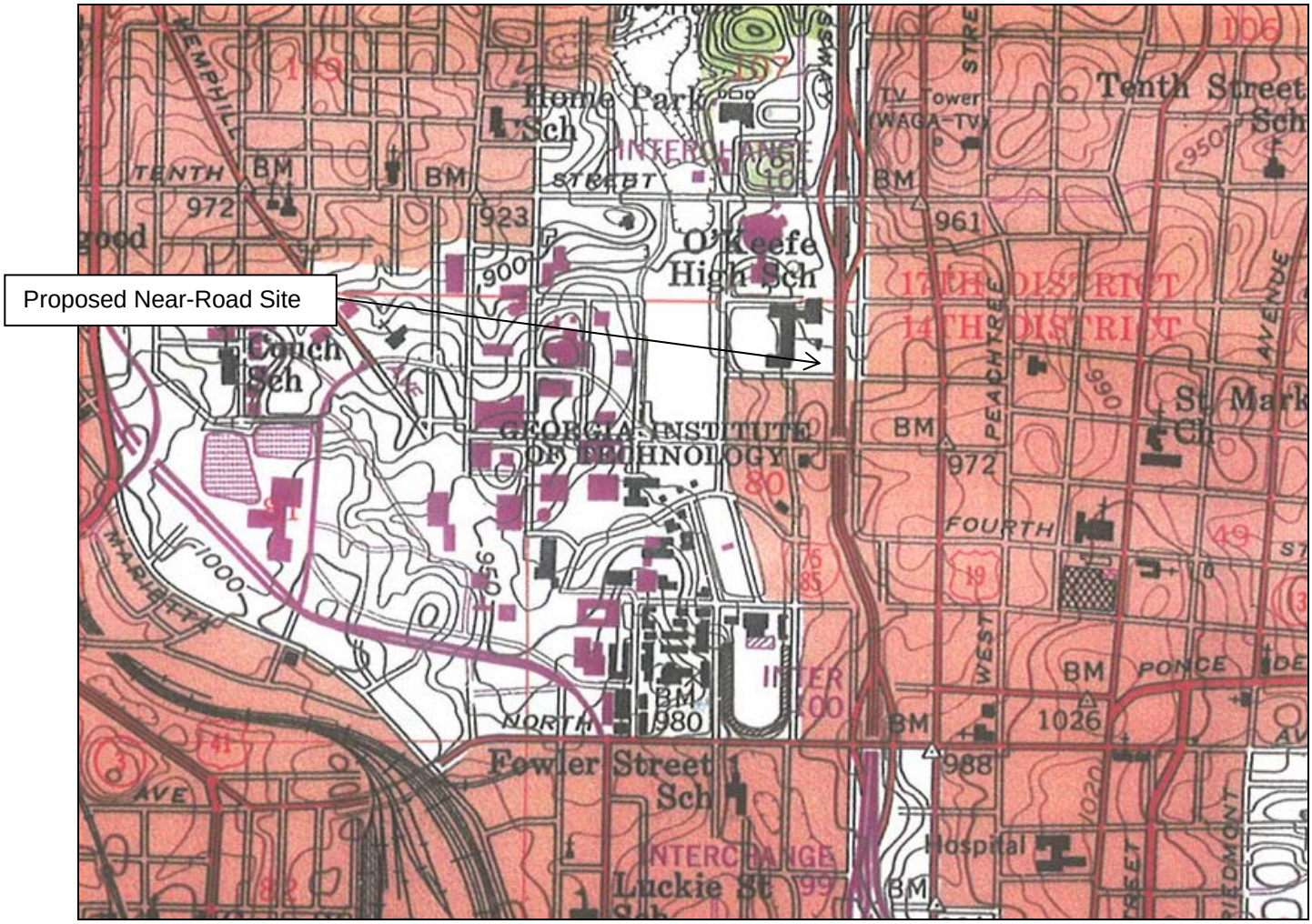
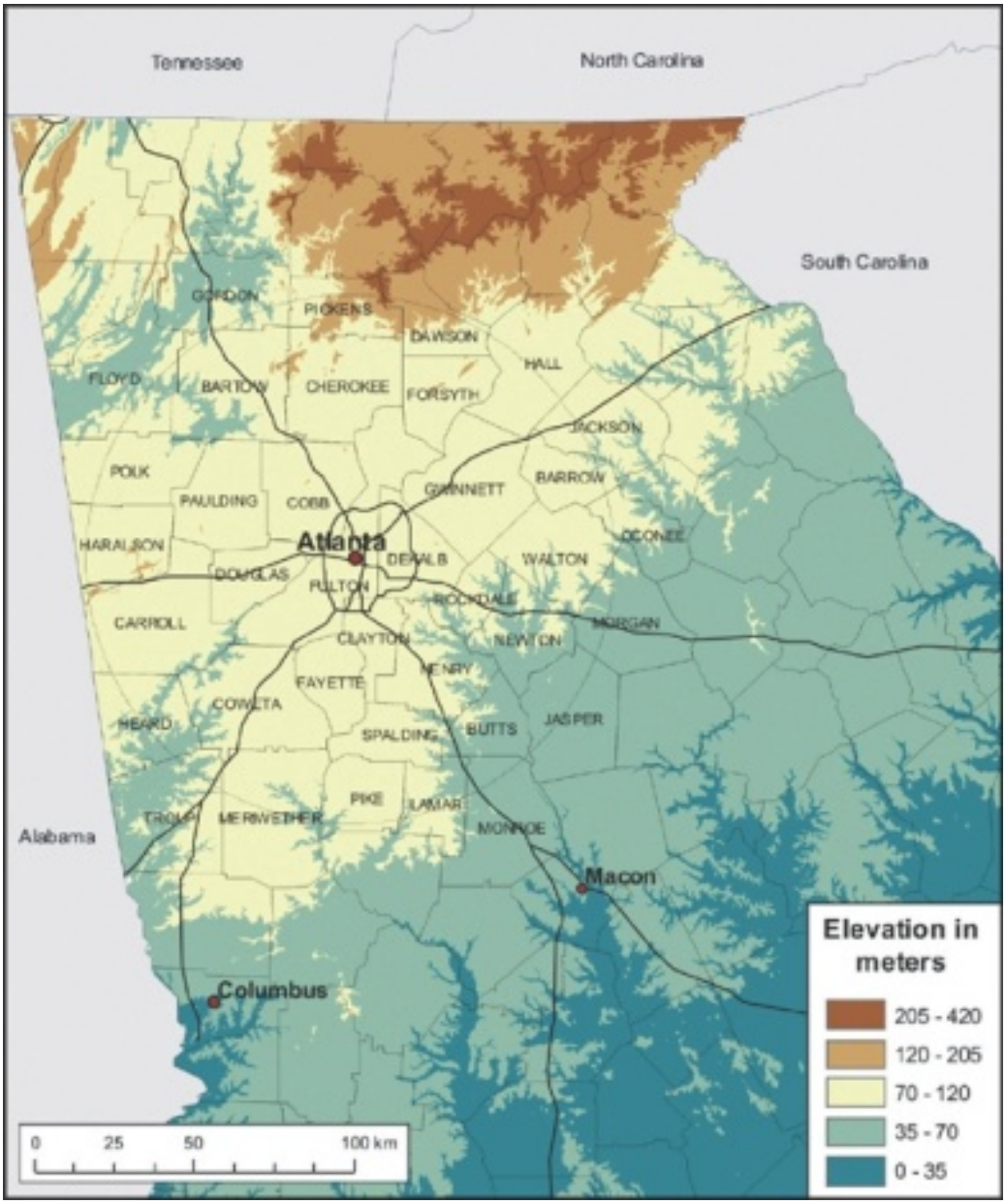


Figure 27: Topographical Map Showing Area Surrounding Proposed Near-Road Monitoring Site

The following map of Georgia also shows the terrain for the whole state. The map was taken from http://www.weatherwise.org/Archives/Back%20Issues/2010/March-April%202010/Atlanta-full.html. The map shows that through the Atlanta area, the elevation is relatively consistent, from 70-120 meters. The area surrounding the proposed near-road monitoring site is within the same air basin.



http://www.weatherwise.org/Archives/Back%20Issues/2010/March-April%202010/Atlanta-full.html

Figure 28: Map of Georgia's Elevation Ranges

The following maps were taken from http://www.griffin.uga.edu/aemn/cgi-bin/CLIMATE.pl?map=t&b=01&e=12 showing the average precipitation and temperature across Georgia. Along with the above elevation map, these maps show that the area surrounding the proposed near-road monitoring site is essentially within the same air basin. The annual average precipitation for the Atlanta area from 1961-1990 was 50-52 inches. The annual average temperature for the Atlanta area from 1961-1990 was 61-62˚F.

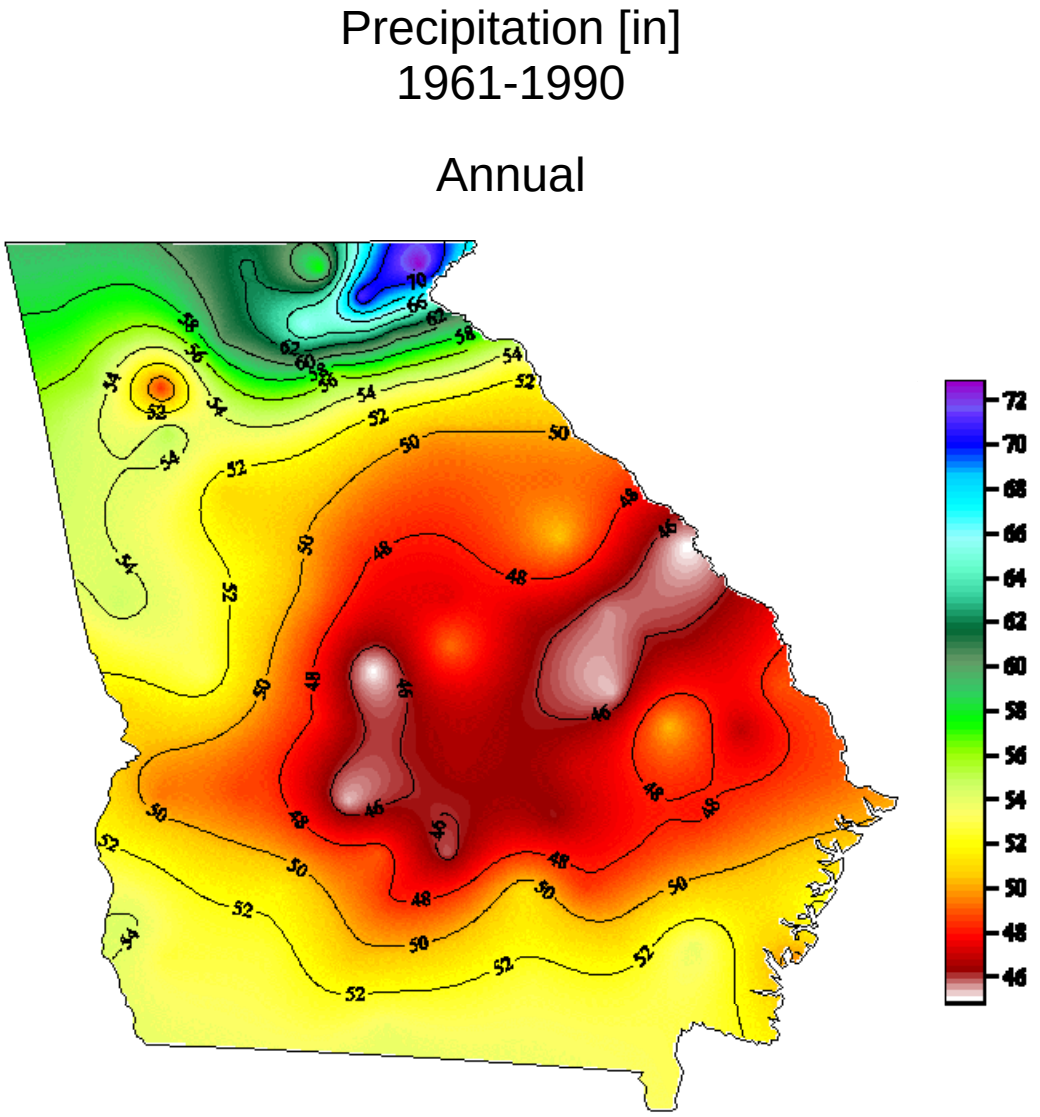


Figure 29: Map of Georgia's Average Precipitation

Average Air Temperature [°F]
1961-1990
Annual

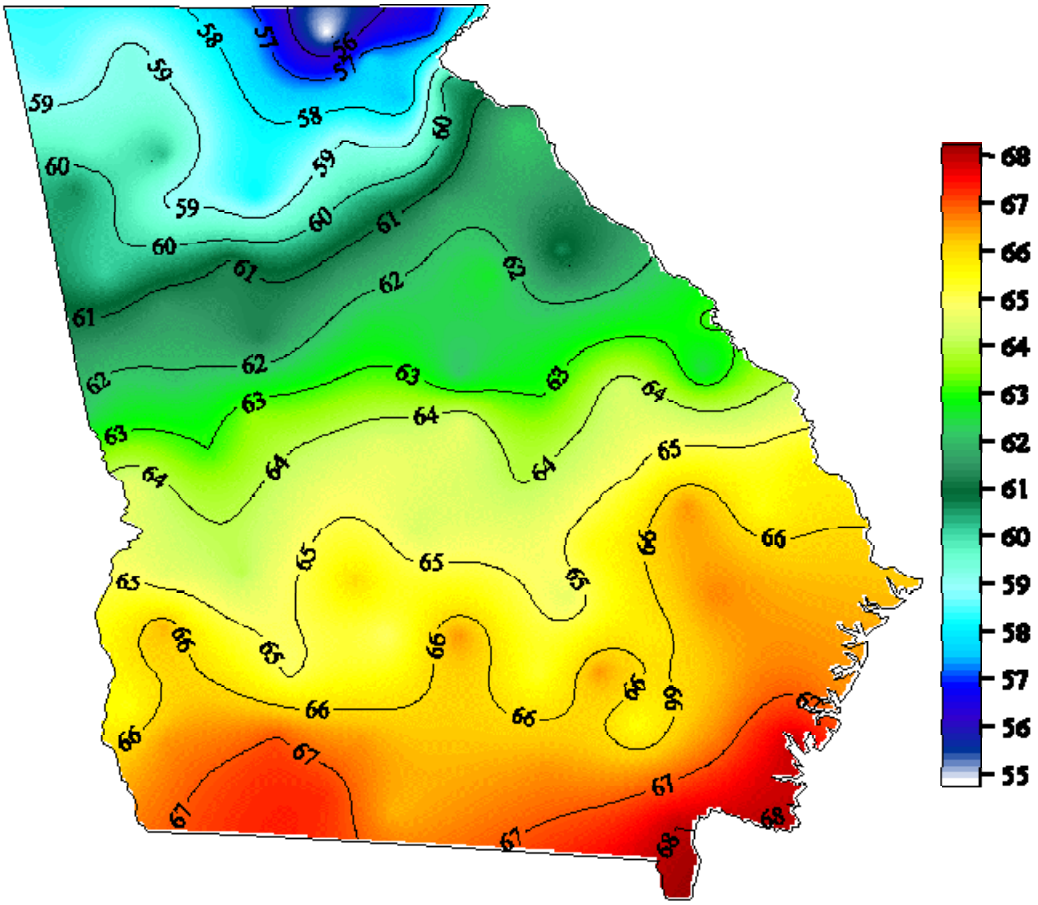


Figure 30: Map of Georgia's Average Temperatures

2.9 Meteorology

To obtain the wind patterns across the proposed near-road monitoring location, the wind speed and wind direction data was taken from GA EPD's surrounding meteorological stations in the Atlanta metropolitan area. These sites included the Confederate Avenue site (13-121-0055) in Fulton County, the Conyers site (13-247-0001) in Rockdale County, the Dawsonville site (13-085-0001) in Dawson County, the Douglasville site (13-097-0004) in Douglas County, the Newnan site (13-077-0002) in Coweta County, the South DeKalb (13-089-0002) site and Tucker site (13-089-3001) in DeKalb County, the Yorkville site (13-223-0003) in Paulding County, and the Fayetteville site (13-113-0001) in Fayette County. The following map shows the locations of the meteorological stations in relation to the proposed near-road monitoring site. Using data from 2000 to 2012 when available, wind roses were produced from these sites and are shown following the map.

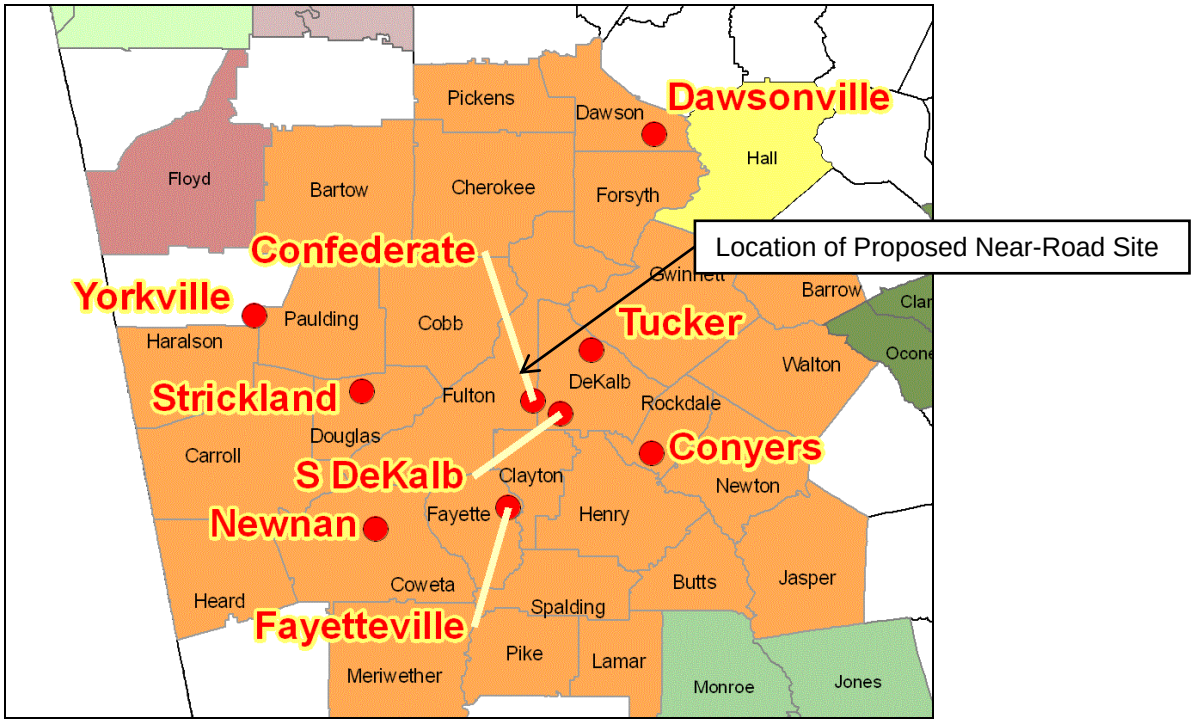
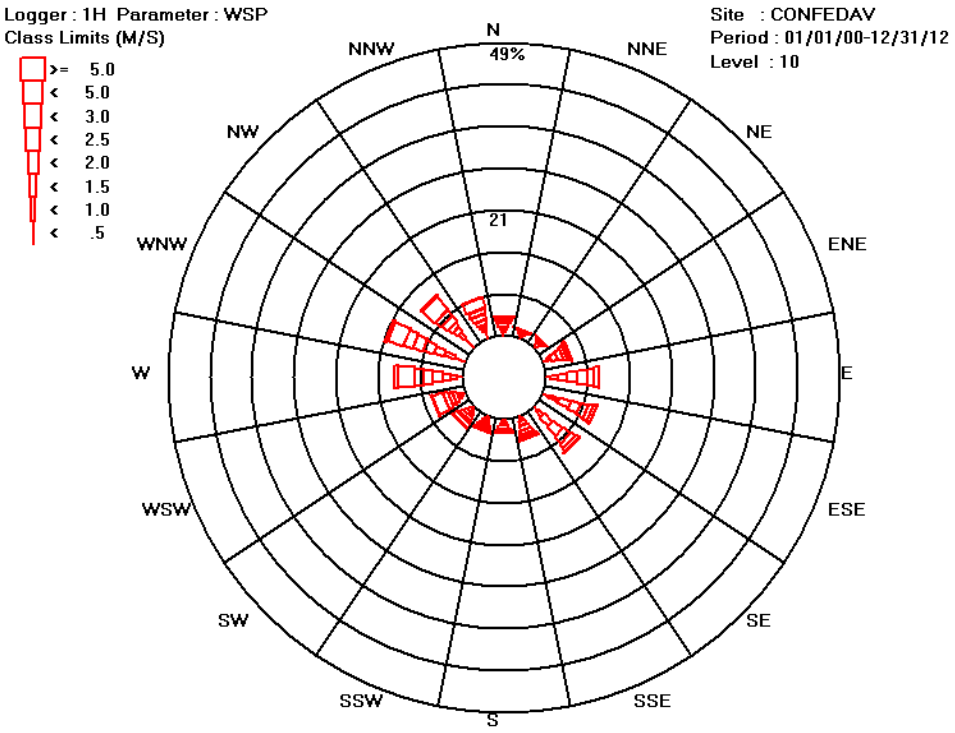


Figure 31: Map of Meteorological Sites in Atlanta MSA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< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : CONFEDAV
Period : 01/01/00-12/31/12
Level : 10
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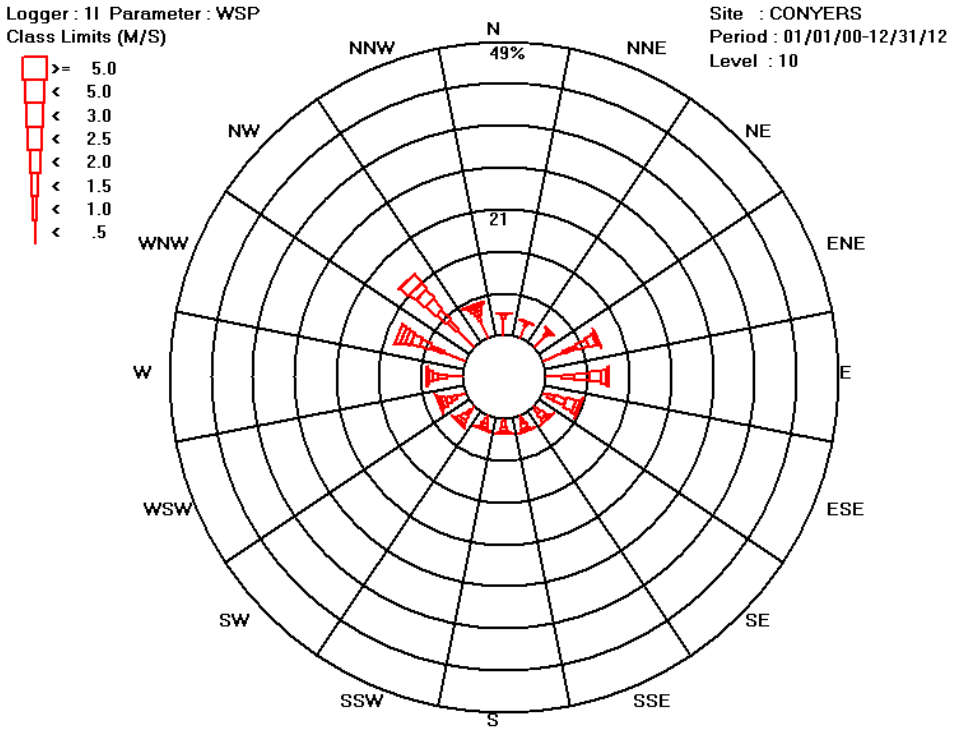
21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< 2.0
< 1.5
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< .5
Site : CONYERS
Period : 01/01/00-12/31/12
Level : 10
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NNE
NE
ENE
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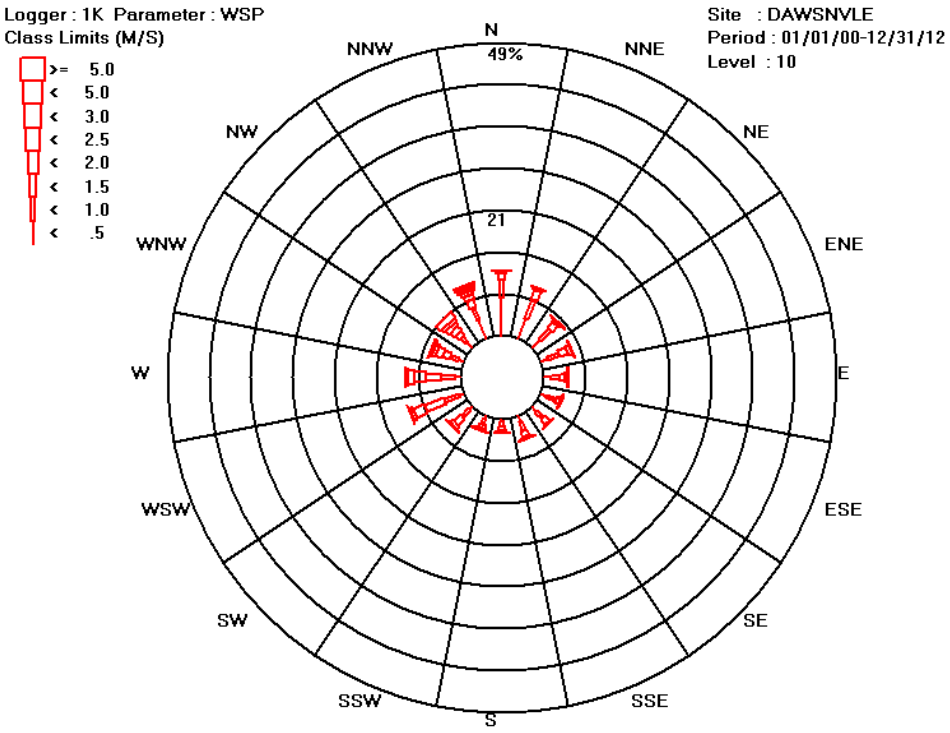
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< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : DAWSNVLE
Period : 01/01/00-12/31/12
Level : 10
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NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
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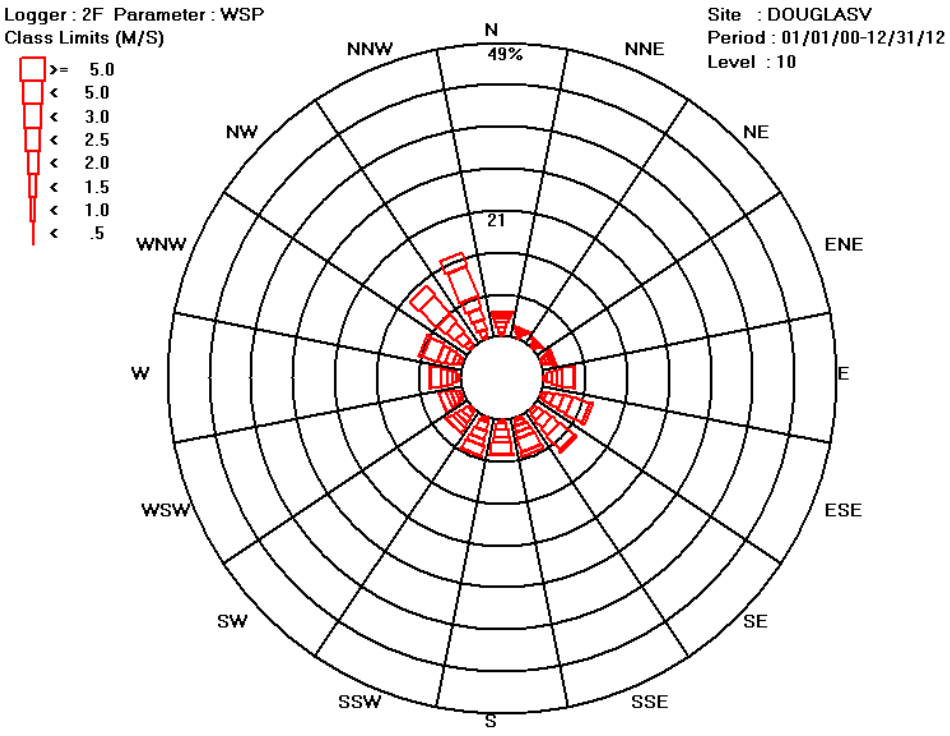
21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< 5.0
< 3.0
< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : DOUGLASV
Period : 01/01/00-12/31/12
Level : 10
N
NNE
NE
ENE
E
ESE
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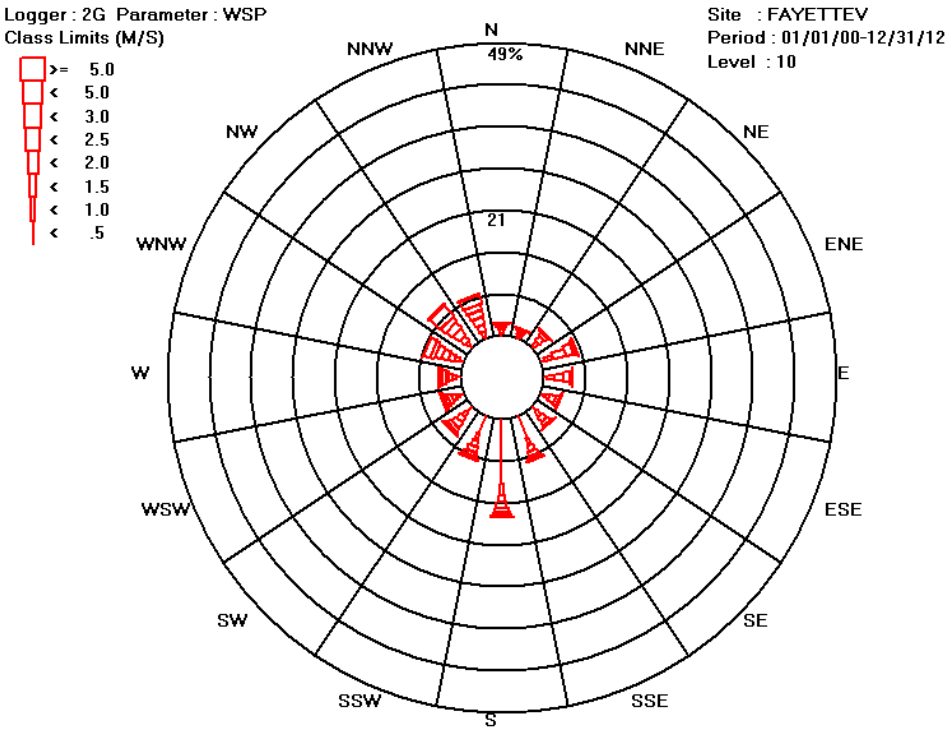
S
SSW
SW
WSW
W
WNW
NW
NNW
49%
21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< 5.0
< 3.0
< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : FAYETTEV
Period : 01/01/00-12/31/12
Level : 10
N
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NW
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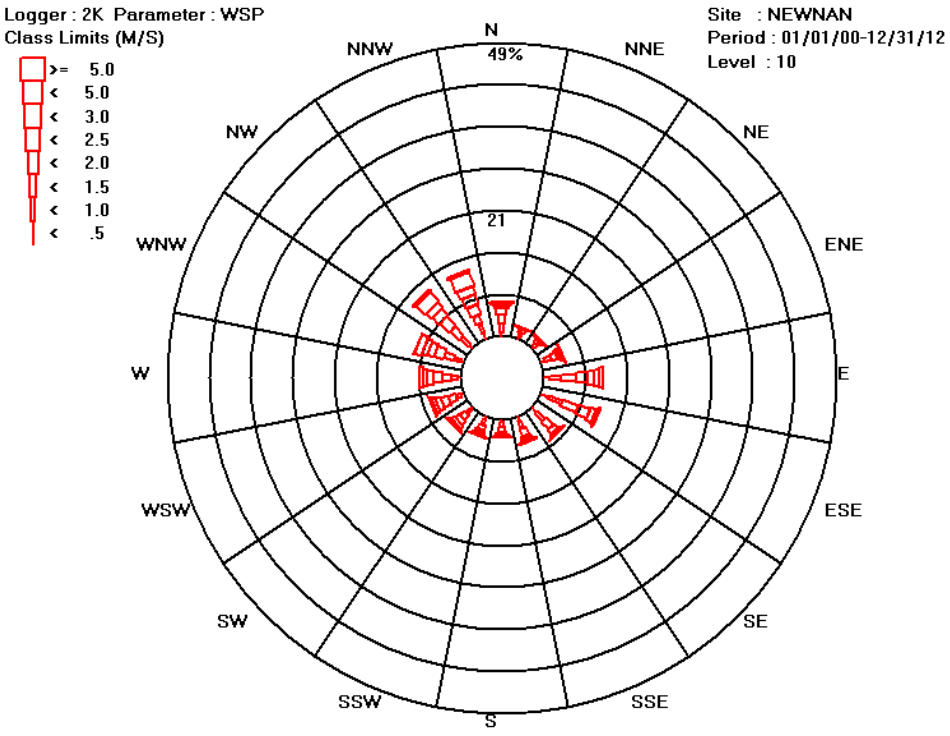
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Class Limits (M/S)
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< 5.0
< 3.0
< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : NEWNAN
Period : 01/01/00-12/31/12
Level : 10
N
NNE
NE
ENE
E
ESE
SE
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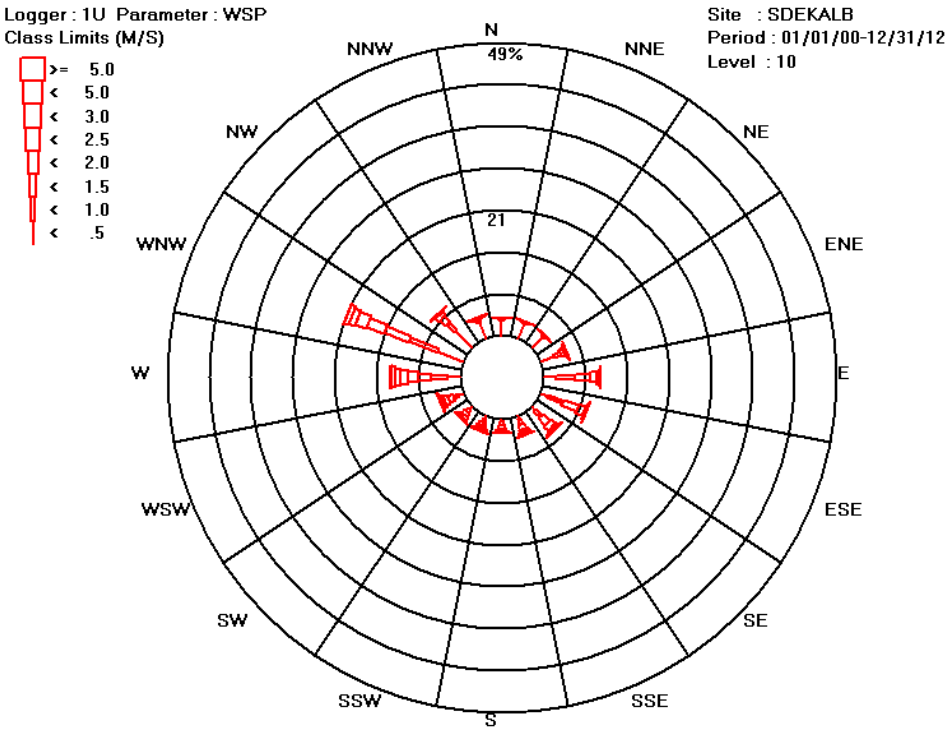
S
SSW
SW
WSW
W
WNW
NW
NNW
49%
21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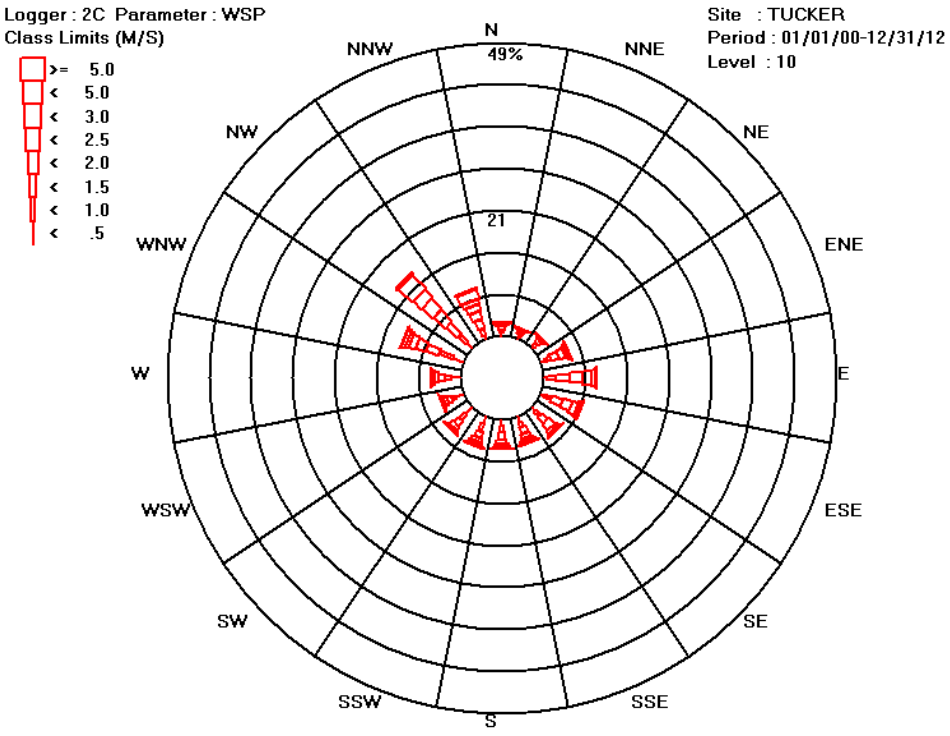
< 3.0
< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : SDEKALB
Period : 01/01/00-12/31/12
Level : 10
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
49%
21


Logger : 2C Parameter : WSP
Class Limits (M/S)
>= 5.0
< 5.0
< 3.0
< 2.5
< 2.0
< 1.5
< 1.0
< .5
Site : TUCKER
Period : 01/01/00-12/31/12
Level : 10
N
NNE
NE
ENE
E
ESE
SE
SSE
S
SSW
SW
WSW
W
WNW
NW
NNW
49%
21

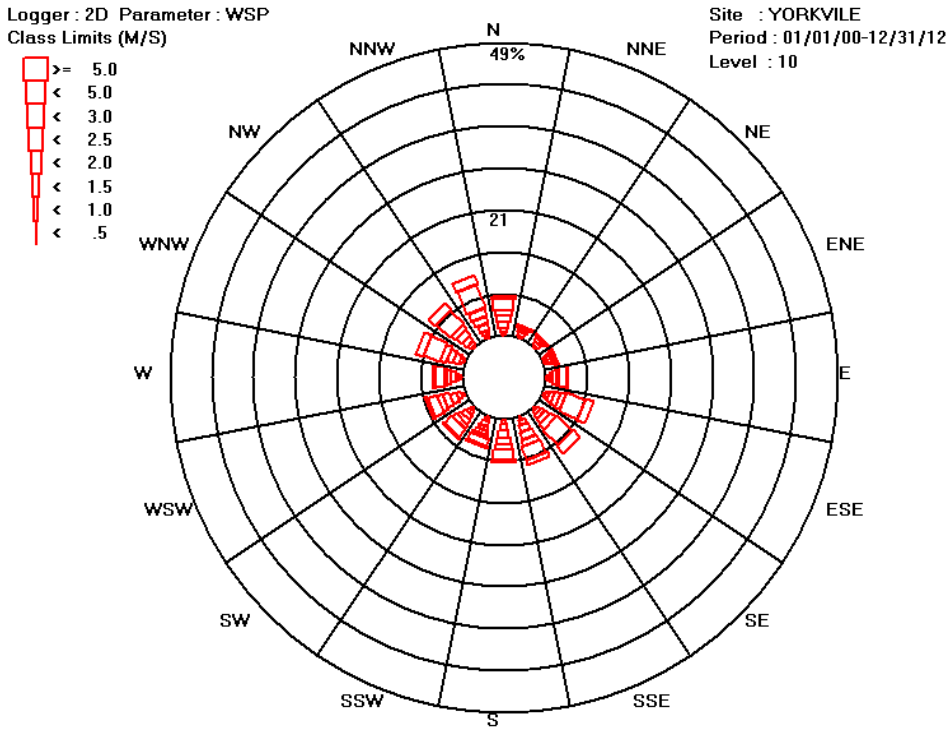


Figure 32: Atlanta-Sandy Springs-Marietta MSA Wind Roses

The meteorological sites closest to the proposed near-road monitoring site are the Confederate Avenue and South DeKalb sites. At these sites, the predominant wind pattern appears to be from the WNW. The following map shows the approximate location of the Confederate Avenue and South DeKalb meteorological stations with the respective wind roses in relation to the proposed near-road monitoring site.

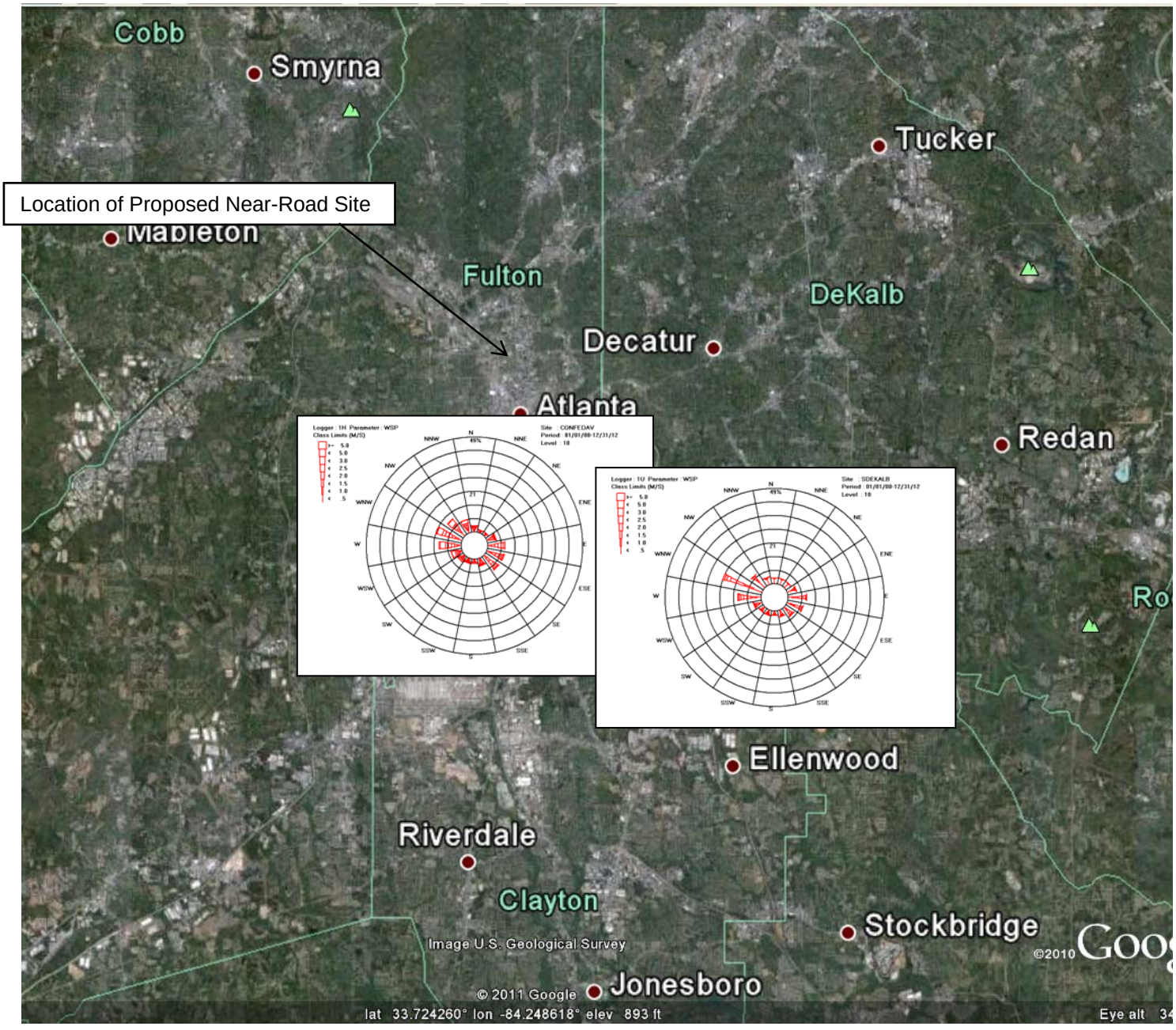


Figure 33: Map of Proposed Site with Nearby Wind Roses

2.10 Siting Criteria

As can be seen in earlier discussion and previous photos (Figure 4 and Figure 7), the proposed site is directly beside the nearest edge of traffic lanes, approximately 1-2 meters away. This location is closer than the recommended 20 meters from the outside nearest edge of traffic lanes. With the only structure between the proposed site and Interstate 75/85 being a chain link fence, there are no obstructions of air flow from the traffic to the site. Before placing the monitoring shelter on site, the land will be graded and two pine trees, scrub bushes, and two large magnolia trees will be removed. There is ample room to place the probe more than the required 1 meter vertically and horizontally away from structures. In addition, there is ample room to meet the microscale near-road monitoring requirement for the sampler inlet to be between 2 and 7 meters above ground level.

2.11 Monitoring Site Logisitcs

Since the proposed site will be located on Georgia Institute of Technology property, GA EPD will not need to acquire right-of-way access from the GA Department of Transportaion (GA DOT). Georgia Institute of Technology has granted GA EPD permission to place sampling equipment on the Georgia Institute of Technology property. GA EPD and Georgia Institute of Technology are in the beginning stages of planning and preparing the site. A shelter will be placed in the area beside the parking lot, adjacent to the chain-link fence (seen in Figure 7 above). A sampling inlet will be placed from the shelter to the chainlink fence.

The proposed site will be accessed from Georgia Institute of Technology property through secondary roads (6^{th} Street) opposite the sample area (on the West side). There are parking lots available adjacent to the site, to ensure safety for site operators while maintaining the site. In addition, the site will be located opposite a low concrete safety barrier and chainlink fence, ensuring the safety of those traveling on the interstate and the safety of the operators. There is a clear zone approximately the size of a traffic lane between the low concrete safety barrier/chainlink fence and first lane of traffic.

2.12 Construction Projects

To search for planned construction projects, the Georgia Department of Transportation website, http://www.dot.ga.gov/maps/geotraqs/Pages/default.aspx, was investigated. The following map shows the current projects in pink and the planned projects in purple. For a more detailed list of projects in the surrounding area, see Appendix E-2 below, and for complete details, see the above GA DOT website.

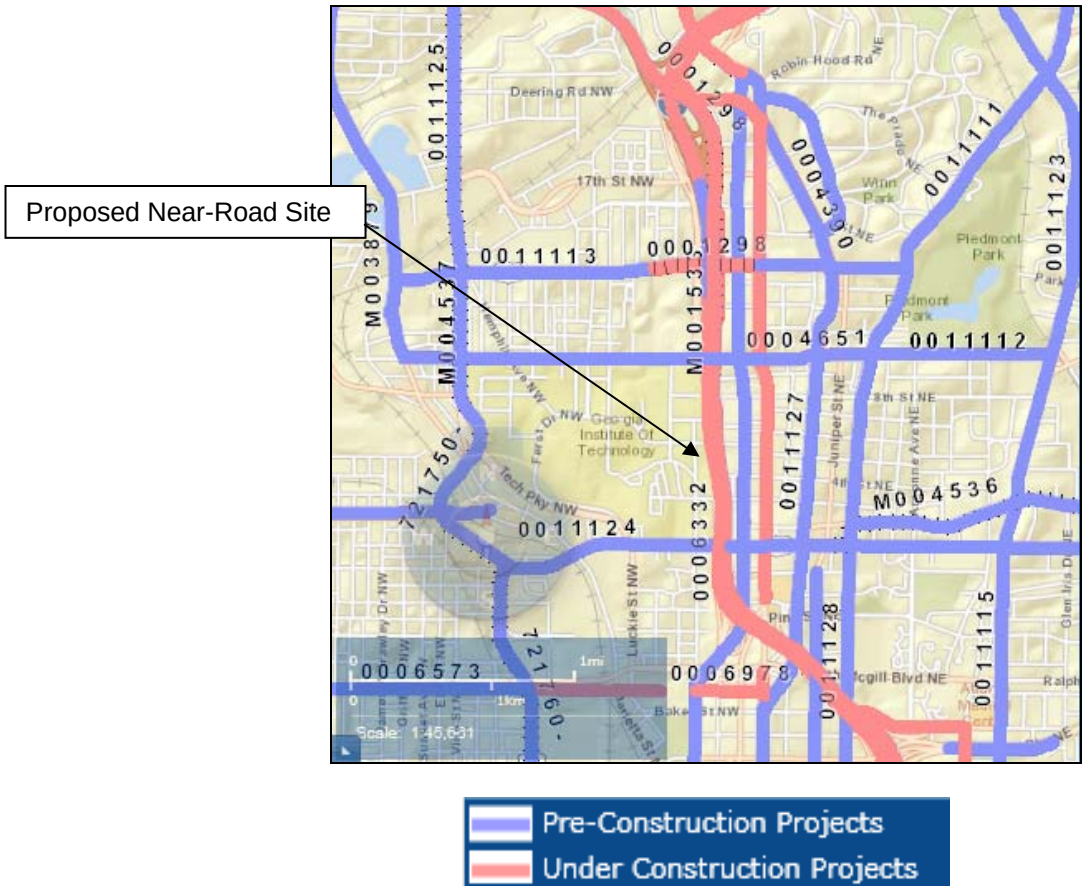


Figure 34: Current and Future GA DOT Projects in Vicinity of Proposed Near-Road Site

2.13 Site Details

The following information provides the site details, including site identification number, street address, latitude/longitude, and details regarding each parameter that will be monitored at the near-road site.

Site ID: 13-121-0056
Street Address: Georgia Institute of Technology, 6th Street, Atlanta, Fulton County, GA
Latitude/Longitude: 33.778315/-84.391418

Parameter	Monitoring Objective	Sampling Schedule	Sampling Method	Analysis Method	Spatial Scale
NO_2	Source Oriented	Continuous	EPA Approved Automated Reference Method	Chemiluminescence or Photolytic	Micro
CO	Source Oriented	Continuous	EPA Approved Automated Reference Method	Non-dispersive Infrared	Micro
$PM_{2.5}$	Source Oriented	Continuous	Thermo 2025	Gravimetric	Micro
Black Carbon	Source Oriented	Continuous	Thermo 5012 MAAP	Multi-Angle Absorption Photometer (MAAP)	Micro
Wind Speed	Source Oriented	Continuous	RM Young	Sonic Anemometer	Micro
Wind Direction	Source Oriented	Continuous	RM Young	Sonic Anemometer	Micro

Table 6: Detailed Site Information

Updated information:
As of June 15, 2014, GA EPD began collecting NO_2 and CO data at the near-road site. The site is under construction, and GA EPD will add and begin operation of the other parameters listed in the above table in the near future. The following pictures display site photos with the trailer and site in process of this construction.

Northeast

Southeast

East

Appendix E-1: Potential Emissions Sources in Vicinity of Proposed Near-Road Site

Facility Name	Facility Address	Latitude	Longitude	NAICS Code	NAICS Description	Pollutant	Emission	Year
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Ammonia	0	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Lead	0.000352	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	PM10	0.016687	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
WGCL-TV	Unknown	33.7874	-84.4011	48811	Airport Operations	Carbon Monoxide	0.737201	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Ammonia	0	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Lead	0.000352	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	PM10	0.016687	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
SMYRNA HOSPITAL	Unknown	33.8598	-84.5138	48811	Airport Operations	Carbon Monoxide	0.737201	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Ammonia	0	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Lead	0.000352	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	PM10	0.016687	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
SKYPAD	Unknown	33.7993	-84.3874	48811	Airport Operations	Carbon	0.737201	2008

						Monoxide		
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Ammonia	0	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Lead	0.000352	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	PM10	0.016687	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
GRADY MEMORIAL HOSPITAL	Unknown	33.7522	-84.3822	48811	Airport Operations	Carbon Monoxide	0.737201	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Ammonia	0	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Lead	0.000352	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	PM10	0.016687	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
GALLERIA	Unknown	33.8851	-84.4627	48811	Airport Operations	Carbon Monoxide	0.737201	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Ammonia	0	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Lead	0.000352	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	PM10	0.016687	2008
DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008

DE KALB GENERAL HOSPITAL	Unknown	33.7897	-84.2822	48811	Airport Operations	Carbon Monoxide	0.737201	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Ammonia	0	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Lead	0.000352	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	PM10	0.016687	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
WSB-TV	Unknown	33.7993	-84.3856	48811	Airport Operations	Carbon Monoxide	0.737201	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Ammonia	0	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Lead	0.000352	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	PM10	0.016687	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
HILTON GARDEN INN DOWNTOWN	Unknown	33.7619	-84.3956	48811	Airport Operations	Carbon Monoxide	0.737201	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Ammonia	0	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Lead	0.000352	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	PM10	0.016687	2008
EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008

EMORY UNIVERSITY HOSPITAL	Unknown	33.7923	-84.3255	48811	Airport Operations	Carbon Monoxide	0.737201	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Ammonia	0	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Lead	0.000352	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	PM10	0.016687	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
TRICO	Unknown	33.6643	-84.3391	48811	Airport Operations	Carbon Monoxide	0.737201	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Ammonia	0	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Lead	0.000352	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	PM10	0.016687	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
LEGACY MEDICAL CENTER	Unknown	33.7403	-84.5114	48811	Airport Operations	Carbon Monoxide	0.737201	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Ammonia	0	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Lead	0.000352	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	PM10	0.016687	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
EGLESTON HOSPITAL	Unknown	33.7944	-84.3203	48811	Airport Operations	Carbon Monoxide	0.737201	2008

RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Ammonia	0	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Lead	0.000352	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	PM10	0.016687	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
RUFFWOOD	Unknown	33.8825	-84.4358	48811	Airport Operations	Carbon Monoxide	0.737201	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Ammonia	0	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Sulfur Dioxide	0.000045	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Lead	6.92E-05	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.000138	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Nitrogen Oxides	0.000293	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Volatile Organic Compounds	0.000677	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	PM10	0.001065	2008
ROLLINS	Unknown	33.8151	-84.3719	48811	Airport Operations	Carbon Monoxide	0.054063	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Ammonia	0	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Lead	0.000352	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	PM10	0.016687	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
THE COCA COLA COMPANY	Unknown	33.7709	-84.3988	48811	Airport Operations	Carbon Monoxide	0.737201	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Ammonia	0	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Lead	0.000352	2008

DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	PM10	0.016687	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
DEKALB POLICE DEPT	Unknown	33.7773	-84.2424	48811	Airport Operations	Carbon Monoxide	0.737201	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Ammonia	0	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Lead	0.000352	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	PM10	0.016687	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
CRAWFORD W. LONG MEMORIAL HOSPITAL	Unknown	33.7687	-84.3863	48811	Airport Operations	Carbon Monoxide	0.737201	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Ammonia	0	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Lead	0.000352	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	PM10	0.016687	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
BRIDGE BUILDING	Unknown	33.8101	-84.3958	48811	Airport Operations	Carbon Monoxide	0.737201	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Ammonia	0	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Lead	0.000352	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008

SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	PM10	0.016687	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
SOUTH FULTON MEDICAL CENTER	Unknown	33.6796	-84.4271	48811	Airport Operations	Carbon Monoxide	0.737201	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Ammonia	0	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Lead	0.000352	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	PM10	0.016687	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
STATE CAPITAL PARKING LOT	Unknown	33.7484	-84.3874	48811	Airport Operations	Carbon Monoxide	0.737201	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Ammonia	0	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Lead	0.000352	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.002169	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Sulfur Dioxide	0.003569	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Nitrogen Oxides	0.016239	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	PM10	0.016687	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Volatile Organic Compounds	0.028433	2008
FORT MCPHERSON	Unknown	33.7125	-84.4306	48811	Airport Operations	Carbon Monoxide	0.737201	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Lead	0	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Ammonia	16.68193	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Volatile Organic Compounds	43.393	2008

Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	PM2.5 Primary (Filt + Cond	201.931	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Carbon Monoxide	309.725	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	PM10	466.187	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Nitrogen Oxides	3491.5	2008
Ga Power Company - Plant McDonough/Atkinson	5551 S Cobb Dr.	33.8244	-84.475	221112	Fossil Fuel Electric Power Generation	Sulfur Dioxide	24330.31	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Ammonia	0	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Lead	0	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Sulfur Dioxide	0.019	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	PM2.5 Primary (Filt + Cond	0.058	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	PM10	0.175	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Carbon Monoxide	2.714	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Nitrogen Oxides	3.291	2008
Earthgrains Baking Co., Inc.	3310 Panthersville Rd	33.6885	-84.2724	311812	Commercial Bakeries	Volatile Organic Compounds	33.91	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	Ammonia	0	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	Carbon Monoxide	0	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	Lead	0	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	Nitrogen Oxides	0	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	PM10	0	2008
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	PM2.5 Primary (Filt + Cond	0	2008
Chattahoochee BP	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk	Sulfur Dioxide	0	2008

Terminal.					Stations and Terminals			
Chattahoochee BP Terminal.	3132 Parrott Avenue NW	33.8047	-84.4868	424710	Petroleum Bulk Stations and Terminals	Volatile Organic Compounds	45.432	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Ammonia	0	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Lead	0.003	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Nitrogen Oxides	13.23	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Volatile Organic Compounds	26.586	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	PM2.5 Primary (Filt + Cond	26.81233	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Carbon Monoxide	64.51	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	Sulfur Dioxide	84.39	2008
Owens Corning Roofing And Asphalt, Llc	4795 Frederick Dr	33.7635	-84.543	324122	Asphalt Shingle and Coating Materials Manufacturing	PM10	98.221	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Ammonia	0	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Lead	0	2008

Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Sulfur Dioxide	1.06	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Volatile Organic Compounds	2.6	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	PM2.5 Primary (Filt + Cond	4.014568	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	PM10	4.03	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Nitrogen Oxides	36.1	2008
Emory University	201 Dowman Drive	33.7906	-84.3279	611310	Colleges, Universities, and Professional Schools	Carbon Monoxide	39.91	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Lead	0.037	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Ammonia	2.28	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Volatile Organic Compounds	2.83	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Carbon Monoxide	25.72	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	PM10	137.038	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	PM2.5 Primary (Filt + Cond	137.038	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Sulfur Dioxide	378.61	2008
Owens Brockway Glass Container Inc.	3107 Sylvan Rd	33.6694	-84.4191	327213	Glass Container Manufacturing	Nitrogen Oxides	458.01	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Lead	0	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air	Ammonia	0.043	2008

					Transportation			
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM10	0.2	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM2.5 Primary (Filt + Cond	0.2	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Sulfur Dioxide	0.86	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Carbon Monoxide	1.498	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Nitrogen Oxides	3.472	2008
Delta Air Lines Inc - Atlanta Station	1500 Aviation Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Volatile Organic Compounds	27.271	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Lead	0	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Ammonia	0.959	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM10	8.304	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM2.5 Primary (Filt + Cond	8.304	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Sulfur Dioxide	14.616	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Carbon Monoxide	45.982	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Nitrogen Oxides	95.287	2008
Delta Airlines - Technical Operations	1775 Charles W Grant Pkwy	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Volatile Organic Compounds	215.684	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Ammonia	0	2008

Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Lead	0	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	PM10	0	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	PM2.5 Primary (Filt + Cond	0	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Sulfur Dioxide	0.02	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Carbon Monoxide	3.06	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Nitrogen Oxides	3.64	2008
Rexam Beverage Can Company	48 Royal Drive	33.6298	-84.3891	332431	Metal Can Manufacturing	Volatile Organic Compounds	130.79	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Lead	0	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Ammonia	0.022	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM10	0.257	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	PM2.5 Primary (Filt + Cond	0.257	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Volatile Organic Compounds	0.386	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Sulfur Dioxide	1.043	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Carbon Monoxide	2.03	2008
Delta Airlines - General Office Facilities	1030 Delta Blvd	33.6433	-84.4139	481111	Scheduled Passenger Air Transportation	Nitrogen Oxides	7.116	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	Ammonia	0	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	PM10	0	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	PM2.5 Primary (Filt + Cond	0	2008
R. M. Clayton Water	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment	Lead	0.813	2008

Reclamation Center					Facilities			
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	Sulfur Dioxide	1.76	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	Volatile Organic Compounds	18.105	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	Nitrogen Oxides	42.031	2008
R. M. Clayton Water Reclamation Center	2400 Bolton Road	33.8233	-84.4553	221320	Sewage Treatment Facilities	Carbon Monoxide	282.607	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Ammonia	0	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Carbon Monoxide	0	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Lead	0	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	PM10	0	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	PM2.5 Primary (Filt + Cond	0	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Sulfur Dioxide	0.007	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Nitrogen Oxides	1.22	2008
PPG Industries Inc.	1377 Oakliegh Drive	33.6889	-84.4336	325510	Paint and Coating Manufacturing	Volatile Organic Compounds	27.154	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Ammonia	0	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Lead	0.597028	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Sulfur Dioxide	1.473988	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	PM2.5 Primary (Filt + Cond	1.749377	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Nitrogen Oxides	7.633584	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Volatile Organic Compounds	13.38687	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	PM10	13.44819	2008
Dekalb-Peachtree	Unknown	33.8739	-84.3073	48811	Airport Operations	Carbon Monoxide	566.1896	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Ammonia	0	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Lead	0.045072	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	PM2.5 Primary (Filt + Cond	232.0262	2008

The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	PM10	236.3779	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Sulfur Dioxide	1126.791	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Volatile Organic Compounds	2223.988	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Nitrogen Oxides	10002.3	2008
The William B Hartsfield International Airport	Unknown	33.6306	-84.4479	48811	Airport Operations	Carbon Monoxide	21736.95	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Ammonia	0	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Lead	0.289901	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	PM2.5 Primary (Filt + Cond	0.963604	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Sulfur Dioxide	0.976456	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Nitrogen Oxides	4.931465	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	PM10	7.355397	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Volatile Organic Compounds	8.539058	2008
Fulton County Airport-B	Unknown	33.7788	-84.5301	48811	Airport Operations	Carbon Monoxide	312.136	2008

Appendix E-2: Current and Future Construction Projects in Vicinity of Proposed Near-Road Site

PROJECT_ID	OBJECTID	DESCRIPTION	DESCR	TYPE	STATUS
M003753	5100		SR 8/US 29 FROM COBB COUNTY LINE TO SR 3	Maintenance	Under Construction
731875-	2765	NORTHSIDE DR @ NORFOLK SOUTHERN RR NORTH OF BANKHEAD HWY	SR 3/NORTHSIDE DR @NORFOLK SOUTHERN RR NORTH OF BANKHEAD HWY	Replacement	Long Range Program
9726	4315	SR 3/US 19 FROM CS 2415/HILL AVE TO CS 3480/14TH STREET	SR 3/US 19 FROM CS 2415/HILL AVE TO CS 3480/14TH STREET	Safety	Construction Work Program
1298	4447	ATLANTIC STEEL: 14TH ST BR; NB I-75 RAMP; WILLIAMS ST RELOC	I-75/85 ATLANTIC STATION:14TH ST BR; RAMP; WILLIAMS ST RELOC	Reconstruction/Rehabilitation	Under Construction
M003858	6317		I-85 SB RAMP @ 14TH STREET OVER I-75 SB - BRIDGE REPAIR	Maintenance	Under Construction
4390	5835		PEACHTREE STREET FROM 10TH STREET TO I-85	Enhancement	Under Construction
4393	2959	FOURTEENTH STREET FROM WEST PEACHTREE ST TO PIEDMONT AVE	FOURTEENTH STREET FM WEST PEACHTREE ST TO PIEDMONT AVE-GRTA	Enhancement	Under Construction
M004586	6671	I-75 @ WASHINGTON ST;@ COURTLAND ST;@DECATUR ST &@ MLK JR DR	I-75 @ WASHINGTON ST;@ COURTLAND ST;@DECATUR ST &@ MLK JR DR	Maintenance	Construction Work Program
11124	6697	NORTH AVE FROM SR 3 TO SR 42 - TIA	NORTH AVE FROM SR 3 TO SR 42 - TIA	Reconstruction/Rehabilitation	Construction Work Program
6460	2633	I-85 NOISE WALLS FROM SR 154 TO COLLINSWORTH RD	I-85 NOISE WALLS FM SR 154/COWETA TO SR 92/FULTON	New Construction	Construction Work Program
780580-	4331	SR 3 FM WHITEHALL ST TO MARIETTA ST	SR 3 FM WHITEHALL ST TO MARIETTA ST	Maintenance	Under Construction
7557	4834	NORTHSIDE DRIVE MULTI MODAL CORRIDOR	SR 3 NORTHSIDE DR FM WHITEHALL ST/I-20 TO I-75	Planning	Construction Work Program
1298	131	ATLANTIC STEEL: 14TH ST BR; NB I-75 RAMP; WILLIAMS ST RELOC	I-75/85 ATLANTIC STATION:14TH ST BR; RAMP; WILLIAMS ST RELOC	Reconstruction/Rehabilitation	Under Construction
4627	3406	PEACHTREE ST/SR 9 AT BEVERLY ROAD/WEST PEACHTREE ST	SR 9/PEACHTREE ST @ BEVERLY ROAD/WEST PEACHTREE ST	Reconstruction/Rehabilitation	Long Range Program
11127	6811	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	Reconstruction/Rehabilitation	Construction Work Program

6572	4933	ANSLEY PARK PEDESTRIAN & STREETSCAPE PROJECT	ANSLEY PARK PEDESTRIAN & STREETSCAPE PROJECT	Enhancement	Construction Work Program
M004536	2105	SR 8 FROM CS 1706/STATE STREET TO SR 42	SR 8 FROM CS 1706/STATE STREET TO SR 42	Maintenance	Construction Work Program
6573	4601	SIMPSON ROAD CORRIDOR STREETSCAPE	SIMPSON ROAD CORRIDOR STREETSCAPE	Enhancement	Construction Work Program
M004428	1979	SR 13 @ SR 9 - BOX GIRDER REHAB	SR 13 @ SR 9 - BOX GIRDER REHAB	Maintenance	Construction Work Program
11127	6613	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	Reconstruction/Rehabilitation	Construction Work Program
11111	5040	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA		Construction Work Program
11123	6594	CS 520/MONROE DRIVE FM CS 3443/PIEDMONT CIRCLE TO SR 8 - TIA	CS 520/MONROE DRIVE FM CS 3443/PIEDMONT CIRCLE TO SR 8 - TIA	Reconstruction/Rehabilitation	Construction Work Program
10747	619	ATLANTA BELTLINE CITY HALL EAST BIKE & PEDESTRIAN BRIDGE	ATLANTA BELTLINE CITY HALL EAST BIKE & PEDESTRIAN BRIDGE	Enhancement	Construction Work Program
M003480	3425	I-85 FROM COWETA COUNTY LINE TO SR 74	I-85 FROM COWETA COUNTY LINE TO SR 74	Maintenance	Under Construction
721720-	2116	NORFOLK SOUTHERN RR OVER SR 3/NORTHSIDE DR	NORFOLK SOUTHERN RR @ SR 3	Replacement	Long Range Program
721730-	5280		SR 3/NORTHSIDE DR FM 14TH ST TO TRABERT AVE	Reconstruction/Rehabilitation	Long Range Program
721740-	3990	SR 3/NORTHSIDE DR @ 10TH ST| @ 14TH STREET	SR 3 @ 10TH STREET @ 14TH STREET	Reconstruction/Rehabilitation	Long Range Program
770273-	652	CS 1727/DL HOWELL PKWY/MEANS STREET IN ATLANTA @ SOUTHERN RR	CS 1727/DL HOLLOWELL PKWY/MEANS ST IN ATLANTA@SOUTHERN RR	Replacement	Long Range Program
6952	697	SIMPSON STREET/JONES AVENUE FM NORTHSIDE DR TO LUCKIE ST	SIMPSON STREET/JONES AVE FM NORTHSIDE DR TO LUCKIE ST-GRTA	Reconstruction/Rehabilitation	Under Construction
6952	1066	SIMPSON STREET/JONES AVENUE FM NORTHSIDE DR TO LUCKIE ST	SIMPSON STREET/JONES AVE FM NORTHSIDE DR TO LUCKIE ST-GRTA	Reconstruction/Rehabilitation	Under Construction
M004431	1779	AMTRACK STATION @ NORFOLK SOUTHERN RAILROAD	AMTRACK STATION @ NORFOLK SOUTHERN RAILROAD	Maintenance	Under Construction
11130	6827	SPRING STREET FROM SR 9 TO SR 154 - TIA	SPRING STREET FROM SR 9 TO SR 154 - TIA	Reconstruction/Rehabilitation	Construction Work Program

5945	1500	14TH ST FM SPRING ST TO WEST PEACHTREE ST	SR 9/14TH ST FM SPRING ST TO WEST PEACHTREE ST	Reconstruction/Rehabilitation	Under Construction
11124	6645	NORTH AVE FROM SR 3 TO SR 42 - TIA	NORTH AVE FROM SR 3 TO SR 42 - TIA	Reconstruction/Rehabilitation	Construction Work Program
M004252	3013	I-75/I-85 @ 3 LOCS & I-285 @ 3 LOCS - LIGHTING	I-75/I-85 @ 3 LOCS & I-285 @ 3 LOCS - LIGHTING	Maintenance	Construction Work Program
M004161	2842	I-75/I-85 @ SR 10 - REHAB BOX BEAMS	I-75/I-85 @ SR 10 - REHAB BOX BEAMS	Maintenance	Under Construction
10760	3132	SR 10 @ CS 520/BLVD DRIVE	SR 10 @ CS 520/BLVD DRIVE	Reconstruction/Rehabilitation	Construction Work Program
11115	4711	CS 520/BOULEVARD FROM SR 8 TO SR 42 SPUR - TIA	CS 520/BOULEVARD FROM SR 8 TO SR 42 SPUR - TIA		Construction Work Program
721700-	1154	CSX RR BRIDGE OVER SR 3/NORTHSIDE DR	SR 3/NORTHSIDE DR @ CSX RR BRIDGE	Replacement	Long Range Program
721750-	3937	SR 3/NORTHSIDE DR @ DL HOWELL PKWY|@ NORTH AVE @ MARIETTA ST	SR 3 @ DL HOLLOWELL PKWY|@ NORTH AVE@MARIETTA ST	Reconstruction/Rehabilitation	Construction Work Program
11125	6740	SR 3 FROM WEST PACES FERRY ROAD TO WHITEHALL STREET - TIA	SR 3 FROM WEST PACES FERRY ROAD TO WHITEHALL STREET - TIA	Reconstruction/Rehabilitation	Construction Work Program
713270-	5409		I-75 SOUTH TO I-85 NORTH FLY OVER BRIDGE @ BROOKWOOD STATION	New Construction	Long Range Program
6978	4859	SIMPSON & WEST PEACHTREE PED RAIL CONNECTIONS - LCI PROJECT	SIMPSON & WEST PEACHTREE PED RAIL CONNECTIONS - LCI PROJECT	Enhancement	Under Construction
6978	3270	SIMPSON & WEST PEACHTREE PED RAIL CONNECTIONS - LCI PROJECT	SIMPSON & WEST PEACHTREE PED RAIL CONNECTIONS - LCI PROJECT	Enhancement	Under Construction
6980	2780	WEST PEACHTREE ST FROM 14TH ST TO PEACHTREE ST - LCI PROJECT	CS 3586/WEST PEACHTREE ST FM 14TH TO PEACHTREE ST- LCI PROJ	Enhancement	Under Construction
11128	6614	PIEDMONT ROAD FROM SR 9 TO EDGEWOOD AVE - TIA	PIEDMONT ROAD FROM SR 9 TO EDGEWOOD AVE - TIA	Reconstruction/Rehabilitation	Construction Work Program
11111	2603	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA		Construction Work Program
M003832	5285		SR 9 FROM SR 9 SO TO CS 327/SARDIS WAY	Maintenance	Under Construction
6332	2746	ATMS/I-85 S COMMUNIC/SURVEILANCE FM CAMP CREEK PKWY TO SR 74	I-85 FM CAMP CREEK PKWY TO SR 74 - ATMS COMMUNIC/SURVEILANCE	Safety	Under Construction

4393	1119	FOURTEENTH STREET FROM WEST PEACHTREE ST TO PIEDMONT AVE	FOURTEENTH STREET FM WEST PEACHTREE ST TO PIEDMONT AVE-GRTA	Enhancement	Under Construction
11128	6592	PIEDMONT ROAD FROM SR 9 TO EDGEWOOD AVE - TIA	PIEDMONT ROAD FROM SR 9 TO EDGEWOOD AVE - TIA	Reconstruction/Rehabilitation	Construction Work Program
10350	4203	SR 8/SR 10 FROM CS 1860/PIEDMONT AVE TO SR 42	SR 8/SR 10 FROM CS 1860/PIEDMONT AVE TO SR 42	Safety	Construction Work Program
M004411	1030	SR 13 FROM SR 9 SO TO DEKALB COUNTY LINE	SR 13 FROM SR 9 SO TO DEKALB COUNTY LINE	Maintenance	Under Construction
11149	6562	I-75 & SR 3 FM ACWORTH TO ARTS CENTER MARTA STATION - TIA	I-75 & SR 3 FM ACWORTH TO ARTS CENTER MARTA STATION - TIA	Capital	Construction Work Program
M003879	5155		SR 1; SR 10LP; SR 54; CS 135 @ 4 LOCS - STEEL BEAM REPAIR	Maintenance	Construction Work Program
11117	6752	SR 8 FROM SR 70 TO SR 3/US 41 - TIA	SR 8 FROM SR 70 TO SR 3/US 41 - TIA	Enhancement	Construction Work Program
M003587	4548	I-75 FROM BROOKWOOD INTERCHANGE TO I-285	I-75 FROM BROOKWOOD INTERCHANGE TO I-285	Maintenance	Under Construction
10641	2809	SR 8 FROM CS 1708/WILLIAMS STREET TO CS 3461/LUCKIE STREET	SR 8 FROM CS 1708/WILLIAMS STREET TO CS 3461/LUCKIE STREET	Enhancement	Construction Work Program
11113	1148	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA		Construction Work Program
11127	6581	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	PEACHTREE STREET FROM SR 9 SO TO SR 154 - TIA	Reconstruction/Rehabilitation	Construction Work Program
M003358	2969	SR 9 FM CS 3586/14TH STREET TO CS 661/PEACHTREE STREET	SR 9 FM CS 3586/14TH STREET TO CS 661/PEACHTREE STREET	Maintenance	Under Construction
11116	6617	CS 1868/COURTLAND STREET FM LINDEN AVE TO GILMER STREET-TIA	CS 1868/COURTLAND STREET FM LINDEN AVE TO GILMER STREET-TIA	Reconstruction/Rehabilitation	Construction Work Program
4651	1470	CS 654/TENTH STREET FM WILLIAMS STREET TO PIEDMONT AVE-GRTA	CS 654/TENTH STREET FM WILLIAMS STREET TO PIEDMONT AVE-GRTA	Enhancement	Under Construction
11119	6593	CS 135/HOWELL MILL ROAD FM CS 654/10TH STREET TO I-75 - TIA	CS 135/HOWELL MILL ROAD FM CS 654/10TH STREET TO I-75 - TIA	Reconstruction/Rehabilitation	Construction Work Program
11113	1999	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA		Construction Work Program

M004420	6135	ARRA 2011 - CONSTRUCTION FOR PI# M003587	ARRA 2011 - CONSTRUCTION FOR PI# M003587	Maintenance	Under Construction
1792	4611	ATLANTIC STATION: I-75 AT 15TH STREET BR & HOV INTERCHANGE	I-75 @ 15TH STREET BR & HOV INTERCHANGE ATLANTIC STATION	New Construction	Long Range Program
1298	327	ATLANTIC STEEL: 14TH ST BR; NB I-75 RAMP; WILLIAMS ST RELOC	I-75/85 ATLANTIC STATION:14TH ST BR; RAMP; WILLIAMS ST RELOC	Reconstruction/Rehabilitation	Under Construction
M004252	4568	I-75/I-85 @ 3 LOCS & I-285 @ 3 LOCS - LIGHTING	I-75/I-85 @ 3 LOCS & I-285 @ 3 LOCS - LIGHTING	Maintenance	Construction Work Program
M004424	6375				Approved
M004042	2093	BOX BEAM REHAB PLANS - PE ONLY	I-75; I-85 & I-285 @ 5 LOCS - BOX BEAM REHAB PLANS - PE ONLY	Maintenance	Under Construction
10219	5571		I-75/I-85 - VARIABLE SPEED LIMIT SIGNS	Safety	Construction Work Program
721710-	5520		SR 3/NORTHSIDE DR FM TRABERT AVE TO I-75	Reconstruction/Rehabilitation	Long Range Program
721750-	740	SR 3/NORTHSIDE DR @ DL HOWELL PKWY|@ NORTH AVE @ MARIETTA ST	SR 3 @ DL HOLLOWELL PKWY|@ NORTH AVE@MARIETTA ST	Reconstruction/Rehabilitation	Construction Work Program
M004537	4386	SR 3 FROM CS 1790/CS 3498/MARIETTA STREET TO I-75	SR 3 FROM CS 1790/CS 3498/MARIETTA STREET TO I-75	Maintenance	Construction Work Program
721760-	3431	SR 3/NORTHSIDE DR @ MCDANIEL-FAIR-MITCHELL-SIMPSON & MLK	SR 3/NORTHSIDE DR @ MCDANIEL-FAIR-MITCHELL-SIMPSON & MLK	Reconstruction/Rehabilitation	Long Range Program
7841	1187	I-85 @ SR 74/SENOIA ROAD	I-85 @ SR 74/SENOIA ROAD	Reconstruction/Rehabilitation	Construction Work Program
M004511	2221	I-75/I-85 @ 17TH STREET	I-75/I-85 @ 17TH STREET	Maintenance	Under Construction
11113	2933	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA		Construction Work Program
M001533	5157		SR 401/I-75/SR 403/I-85/SR 407/I-285 RAMPS	Maintenance	Under Construction
11113	2990	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA	14TH ST FM CS 135/HOWELL MILL RD TO CS 3463/PIEDMONT AVE-TIA		Construction Work Program
8132	6141		CENTENNIAL PARK CONNECTOR TRAIL - PHASE I	Enhancement	Under Construction

11112	3392	CS 654/10TH ST FROM HOWELL MILL ROAD TO MONROE DRIVE - TIA	CS 654/10TH ST FROM HOWELL MILL ROAD TO MONROE DRIVE - TIA		Construction Work Program
11111	4744	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA	PIEDMONT AVE FROM CHESHIRE BRIDGE ROAD TO MLK DRIVE - TIA		Construction Work Program
11129	6643	SR 8 FROM SPRING STREET/FULTON TO CLIFTON ROAD/DEKALB - TIA	SR 8 FROM SPRING STREET/FULTON TO CLIFTON ROAD/DEKALB - TIA	Reconstruction/Rehabilitation	Construction Work Program

Appendix F:
Comments

Georgia Department of Natural Resources
Environmental Protection Division

Since the publication of the 2014 Ambient Air Monitoring Plan on May 27, 2014, GA EPD began operation of NO_2 and CO at the near-road site at Georgia Tech (13-121-0056). Therefore, changes were made throughout the document to reflect this update.