Georgia's Redesignation Request and Maintenance Plan for the Atlanta Ozone Nonattainment Area for the 1997 8-Hour Ozone NAAQS

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Environmental Protection Division

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Executive Summary

This document contains Georgia's request under the Clean Air Act Amendment (CAA) of 1990 that the metro Atlanta region 8-hour ozone nonattainment area be redesignated to attainment with respect to the 1997 National Ambient Air Quality Standard (NAAQS) for Ozone. This document also includes Georgia's plan to maintain attainment of the ozone standard in the Atlanta area for the counties of Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding, and Walton.

This request is based on three years, 2008-2010, of ambient monitoring data showing attainment of the standard (0.084 ppm) consistent with the policy memo addressing clean data for ozone (John S. Seitz 05/10/1995); the implementation of permanent and enforceable reductions in ozone precursor emissions; compliance with all applicable requirements, and the Atlanta Area Maintenance Plan with emission projections demonstrating that the 2008 emissions levels (emissions levels during clean data period) will not be exceeded through the year 2024.

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List of Acronyms

Acronym	Meaning	Acronym	Meaning
AEO	Annual Energy Outlook	MVEB	Motor Vehicle Emissions Budget
AERR	Annual Emissions Reporting Requirements	NEI	National Emissions Inventory
AQS	Air Quality System	NEMS	National Energy Modeling System
ARC	Atlanta Regional Commission	NMIM	National Mobile Inventory Model
CAA	Clean Air Act	NOx	Nitrogen Oxides
CAMD	Clean Air Markets Division	NTE	Not-to-exceed
CARB	California Air Resources Board	PMF	Positive Matrix Factorization
CERR	Consolidated Emissions Reporting Rule	RACM	Reasonably Available Control Measures
E-GAS	Economic Growth Analysis System	RACT	Reasonably Available Control Technology
EGU	Electric Generating Unit	RFP	Reasonable Further Progress
EIA	Energy Information Administration	SCC	Source Classification Code
EPD	Environmental Protection Division	SEMAP	Southeastern Modeling And Planning
ERTAC	Eastern Regional Technical Advisory Committee	SIP	State Implementation Plan
FRM	Federal Reference Method	SOA	Secondary Organic Aerosols
GDOT	Georgia Dept. of Transportation	STN	Speciated Trends Network
HPMS	Highway Performance Monitoring System	TDM	Travel Demand Model
ICI	Industrial and Commercial/Institutional	VISTAS	Visibility Improvement State and Tribal Association of the Southeast
MPO	Metropolitan Planning Org.	VMT	Vehicle Miles Traveled
MOVES	Motor Vehicle Emissions Simulator	VOC	Volatile Organic Compounds
MSA	Metropolitan Statistical Area		

1.0 Introduction

This document contains the technical support for the Georgia Environmental Protection Division's (EPD's) request that the metro Atlanta nonattainment area be redesignated as an area attaining the 1997 National Ambient Air Quality Standard (NAAQS) for ozone pursuant to Sections 107(d)(3)(D) and (E) of the Clean Air Act (CAA), as amended. This redesignation request was prepared in accordance with U.S. EPA Guidance issued in 1992, in memorandums on September 4 and October 28 of that year from John Calcagni.[1]

1.1 Atlanta Area Nonattainment Designations

1990 1-Hour Ozone Standard

Pursuant to the Clean Air Act Amendments of 1990 (CAAA), the Atlanta area was designated as nonattainment for the 1-hour ozone NAAQS by U.S. EPA and was classified as a serious nonattainment area on November 6, 1991. The nonattainment area (NAA) was, at that time, geographically defined as the following 13 Georgia counties: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale. Because Atlanta failed to attain the 1-hour ozone NAAQS by November 15, 1999, EPA issued a final rulemaking action in the September 26, 2003, Federal Register (68 FR 55469) determining that, by operation of law, the Atlanta area was being reclassified as a "severe" ozone nonattainment area effective January 1, 2004. In addition to having been required to submit state implementation plan (SIP) revisions meeting requirements for marginal, moderate, and serious ozone nonattainment areas, Georgia was required to submit plans meeting the additional requirements for areas classified as severe. As a result of EPA's implementation of the original federal Clean Air Act of 1970, the Clean Air Act Amendments of 1977, and the Clean Air Act Amendments of 1990, Georgia EPD completed, and EPA approved (67 FR 30574), SIP revisions to address the 1-hour ozone Atlanta NAA.

On February 1, 2005, EPD requested under the CAAA of 1990 that the Atlanta area be redesignated from nonattainment to attainment with respect to the 1-hour ozone NAAQS. This request was based on three years, 2002 through 2004, of ambient monitoring data at all 11 ozone monitors in the Atlanta NAA showing no violation of the 1-hour ozone NAAQS; the implementation of permanent and enforceable reductions in ozone precursor emissions; compliance with all applicable requirements; and the Atlanta Maintenance Plan with projections demonstrating that the 2002 emission levels in this area will not be exceeded through at least the year 2015. EPD also petitioned EPA to make a determination that the Atlanta area was eligible for application of EPA's Clean Data Policy, based on the Atlanta area's attainment of the 1-hour ozone NAAQS. EPA approved the plan and redesignation request effective June 14, 2005 (70 FR 34660).

1997 8-Hour Ozone Standard

Georgia EPD submitted its nonattainment area designation recommendations under the 8-hour ozone standard to EPA on July 15, 2003. Georgia recommended the following counties be designated

[1] "Procedures for Processing Requests to Redesignate Areas to Attainment", September 4, 1992, and "State Implementation Plan (SIP) Requirements Submitted in Response to Clean Air Act (Act) Deadlines", October 28, 1992.

John Calcagni, Director, Air Quality Management Division, OAQPS, USEPA.

nonattainment for the 8-hour ozone standard: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding, and Walton. Georgia recommended that Pickens County be excluded from the nonattainment designation even though the county is part of the Atlanta MSA. Georgia based this exclusion, in part, on the fact that the county did not exceed any of the State's criteria for inclusion into a nonattainment area. Other parameters used in the analysis included the county's population and summer day NOx and VOC emissions. EPA concurred with Georgia's recommendations in a letter dated December 3, 2003.

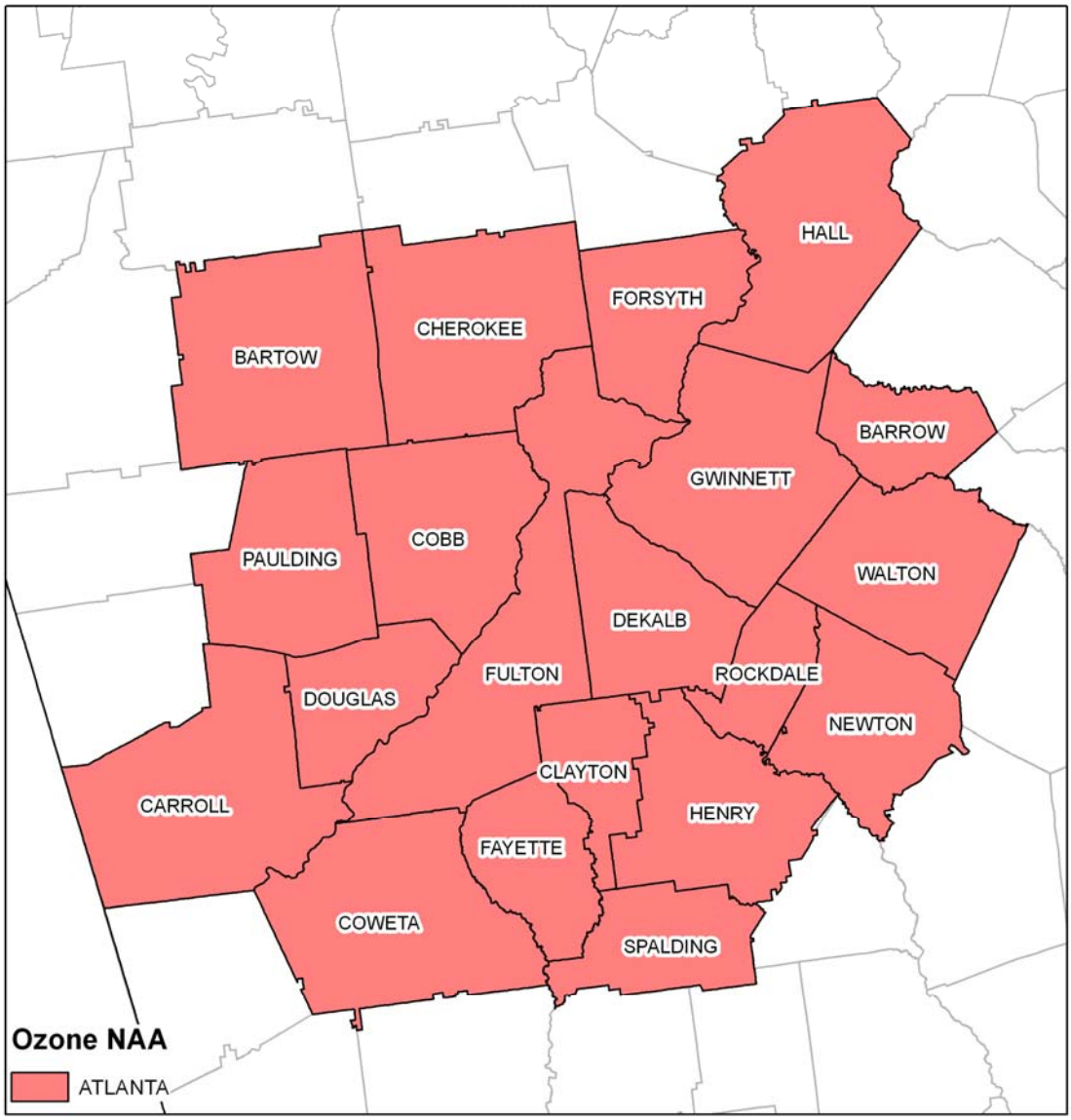

Figure 1-1. 1997 Ozone NAAQS Nonattainment Area in Georgia

On April 30, 2004, EPA designated 20 metropolitan Atlanta counties as a "marginal" nonattainment area under the 1997 8-hour ozone standard. The eight-hour ozone nonattainment area encompasses the 13 counties of the former 1-hour ozone nonattainment area plus seven additional "ring" counties:

Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton. With an attainment deadline of June 15, 2007, marginal areas were required to attain the National Ambient Air Quality Standard (NAAQS) by the 2006 ozone season. On October 16, 2007, the U.S. EPA published a rulemaking proposing its determination that the Atlanta Area did not attain the 8-hour ozone NAAQS by June 15, 2007, the applicable attainment date for marginal nonattainment areas. The proposed finding was based on ambient air quality data from years 2004, 2005, and 2006. The U.S. EPA explained that, consistent with Section 181(b)(2) of the Clean Air Act (CAA), when EPA finalizes its determination that the Atlanta Area failed to attain, and that requirement becomes effective, the Atlanta Area would be reclassified by operation of law to the next highest classification or "moderate" nonattainment. The "moderate" area attainment date for the Atlanta, Georgia, area would then be "as expeditiously as practicable," but no later than June 15, 2010. The U.S. EPA finalized this finding on March 6, 2008 [73FR 12013-12017].

The State of Georgia prepared and submitted an ozone attainment demonstration plan for the metro Atlanta 8-hour Ozone Nonattainment Area to EPA Region 4 on October 21, 2009. The plan was based on a modeled attainment demonstration performed according to EPA guidance. The modeling resulted in a single monitor in the Atlanta NAA exceeding the 8-hour ozone NAAQS (design value of 86 ppb at the Confederate Avenue monitoring site). However, the weight of evidence analysis demonstrated in Section 6.2 of the October 2009 plan provides strong evidence that the Atlanta 8-Hour Ozone NAA would demonstrate attainment of the ozone NAAQS by 2009. The attainment demonstration with the weight of evidence analysis was shown to be effective since the unmonitored area analysis showed no modeling grid cell greater than 86 ppb.

On June 9, 2010, Georgia EPD submitted a request for a one-year extension of the attainment date in accordance with 40 CFR 51.907. The Atlanta nonattainment area qualified for an extension because it had met the condition specified in 69 FR 23968 in which an area is eligible for the first of the 1-year extensions if, for the attainment year, the area's fourth highest daily 8-hour average is 0.084 ppm or less. On November 30, 2010, EPA published a final rule extending the attainment date for the Atlanta nonattainment area to June 15, 2011 [75FR 73969-73972].

EPA has since determined that the area has met attainment (see Section 2). Thus, the SIP requirements that the October 21, 2009 attainment demonstration submission were required to fulfill are no longer applicable. The attainment demonstration plan has been withdrawn and will be replaced with this maintenance plan. Relief from the requirement to submit an attainment demonstration as well as Reasonable Further Progress (RFP) and contingency requirements upon clean data determination is specified and authorized in a May 10, 1995 memo from John S. Seitz of U.S. EPA.

1.2 Redesignation Request

This document contains Georgia's request that the metro Atlanta nonattainment area be redesignated to attainment with respect to the 1997 8-hour NAAQS for ozone. Section 107(d) of the CAA states that an area can be redesignated to attainment if the following conditions are met:

1. The EPA has determined that the NAAQS has been attained.

2. The applicable implementation plan has been fully approved by EPA under Section 110(k).

3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.

4. The state has met all applicable requirements for the area under Section 110 and Part D.

5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area as required by CAA Section 175A.

The supporting documentation to show that the above conditions have been met is contained in Sections 2 and 3. EPA's approval of this document will satisfy the 5th condition.

1.3 Maintenance Plan

The maintenance plan (see above) has two required components under Section 175A:

- A demonstration of maintenance of the standard for at least ten years after redesignation; and
- Contingency provisions for prompt correction of any future violations.

Per EPA guidance,[2] the metro Atlanta 8-hour ozone maintenance plan also includes the following elements:

- An attainment year emissions inventory (to support the maintenance demonstration);
- A commitment to continued operation of ambient monitoring equipment in the area; and
- Verification of continued attainment.

The maintenance plan is presented in Section 3.

[2] "Procedures for Processing Requests to Redesignate Areas to Attainment", September 4, 1992, John Calcagni, Director, Air Quality Management Division, OAQPS, USEPA.

2.0 Redesignation Request

As noted in Section 1.2 of this document, Section 107(d) of the CAA states that an area can be redesignated to attainment if the following conditions are met:

1. The EPA has determined that the NAAQS has been attained.
2. The applicable implementation plan has been fully approved by EPA under Section 110(k).
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
4. The state has met all applicable requirements for the area under Section 110 and Part D.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under CAA Section 175A.

This section of the document includes supporting documentation for the following:

- Attainment of the 8-hour ozone NAAQS based on ambient data from 2008 through 2010
- Approval by EPA of the implementation plan under Section 110(k).
- Improvement of air quality with respect to ozone that is due to permanent and enforceable reductions in emissions.
- The state has met all applicable requirements for the area under Section 110 and Part D.

2.1 Attainment of the Ozone 8-Hour NAAQS

A monitoring site is in attainment of the 8-hour ozone standard when the average of the annual fourth-highest daily maximum concentration over three consecutive years measured at the monitor does not exceed 0.084 ppm. This 3-year average is termed the design value for the monitor. The data must be complete and quality-assured, consistent with 40 CFR Part 58 requirements and other relevant EPA guidance. Therefore, for a single site to meet the standard, the design value calculated from the previous three calendar years must be less than or equal to the standard. For a nonattainment area to achieve attainment, all monitoring sites in the nonattainment area must be in attainment.

The design values for metro Atlanta monitors, based on data from 2008 through 2010, ranges from 0.068 ppm to 0.080 ppm, which demonstrates attainment of the standard. The monitoring network and ambient ozone data are presented below.

2.1.1 Monitoring Network

Ozone is monitored using EPA-approved reference or equivalent methods. These analyzers continuously measure the concentration of ozone in the ambient air using the ultraviolet photometric method. 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 that operates year-round. During the monitoring season, analyzers are subjected to multiple calibration checks, and on an annual basis, EPD's Quality Assurance Unit audits these samplers.

Georgia EPD began monitoring ozone at the South DeKalb site (13-089-0002), which is within the Atlanta-Sandy Springs-Marietta MSA, in 1974. Since that time, the ozone monitoring network has grown to more than ten ozone monitors operating within the Atlanta-Sandy Springs-Marietta MSA, currently as part of the State and Local Ambient Monitoring Stations (SLAMS). With the

development of the Photochemical Assessment Monitoring Stations (PAMS) network, the Yorkville (13-223-0003), South DeKalb (13-089-0002), and Conyers (13-247-0001) ozone monitors were designated PAMS sites, as well. Two sites are currently not operating, the Tucker-Idlewood Road monitor (13-089-3001), which is permanently shutdown, and the Fayetteville-Georgia DOT (13-113-0001) monitor, which is temporarily shutdown. Table 2-1 lists the metro Atlanta ozone monitors shown in Figure 2-1 and their respective start dates.

Figure 2-1. Locations of ozone monitors within the Atlanta 20-county nonattainment area.

Table 2-1. Metro Atlanta Data Collection Sites

Site Name	AQS* Site ID	Start Date	End Date
Kennesaw-GA National Guard McCollum Parkway	13-067-0003	Sept. 1, 1999	
Newnan-University of W. Georgia at Newnan	13-077-0002	May 5, 1999	
South DeKalb-2390-B Wildcat Road	13-089-0002	Jan. 1, 1974	
Douglasville- W. Strickland St.	13-097-0004	Aug. 15, 1997	
Gwinnett Tech- 1250 Atkinson Rd.	13-135-0002	March 17, 1995	
McDonough-Henry County Extension Office	13-151-0002	June 7, 1999	
Yorkville-King Farm	13-223-0003	Jan. 1, 1996	
Conyers-Monastery 3780 GA Highway 212	13-247-0001	June 26, 1978	
Confederate Ave.	13-121-0055	Oct. 1, 1991	
Tucker-Idlewood Road	13-089-3001	July 19, 1990	Oct. 31, 2006
Fayetteville-GA DOT	13-113-0001	April 1, 1998	Oct. 31, 2008**

*EPA's Air Quality System.
**Temporarily discontinued.

2.1.2 Ambient Ozone Data

Table 2.2 shows the 8-hour ozone concentrations and the associated 3-year design value average that demonstrate attainment of the standard in the metro Atlanta area. The 2008–2010 3-year design values range from 0.068 ppm to 0.080 ppm, all of which are below the standard of 0.084 ppm.

Table 2-2. Design Values for Counties in the Atlanta, Georgia Nonattainment Area for the 1997 8-Hour Ozone NAAQS

Design Values for Counties in the Atlanta, Georgia Nonattainment Area for the 1997 8-Hour Ozone NAAQS					
Location	AQS site ID	2008 (ppm)	2009 (ppm)	2010 (ppm)	2008-2010 Design value (ppm)
Cobb County	GA National Guard McCollum Parkway (13-067-0003)	0.075	0.076	0.079	0.076
Coweta County	University of W. Georgia at Newnan (13-077-0002)	0.075	0.065	0.065	0.068
Dekalb County	2390-B Wildcat Road Decatur, GA (13-089-0002)	0.087	0.077	0.075	0.079
Douglas County	Douglasville W. Strickland St. (13-097-0004)	0.080	0.072	0.074	0.075
Gwinnett County	Gwinnett Tech 1250 Atkinson Rd. (13-135-0002)	0.079	0.073	0.072	0.074
Henry County	Henry County Extension Office (13-151-0002)	0.086	0.074	0.078	0.079
Paulding County	Yorkville (13-223-0003)	0.072	0.067	0.071	0.070
Rockdale County	Conyers Monastery 3780 GA Hwy. 212 (13-247-0001)	0.089	0.070	0.076	0.078
Fulton County	Confederate Ave. (13-121-0055)	0.084	0.077	0.080	0.080
Fayette County	Fayetteville – GDOT (13-113-0001)	0.086	----*	----*	----*

*Temporarily discontinued as detailed in EPD's Ambient Air Monitoring Plan approved by EPA.

2.1.3 Clean Data Determination and Determination of Attainment by Applicable Attainment Date

On June 23, 2011, EPA promulgated its determination [76 FR 36873] that the metro Atlanta nonattainment area had attained the 1997 8-Hour Ozone National Ambient Air Quality Standard (NAAQS). This determination was based upon quality-assured and certified ambient air monitoring data for the 2008-2010 period, which showed design values ranging from 0.068 ppm to 0.080 ppm. With the clean data determination, EPA suspended the requirements for the nonattainment area to submit an attainment demonstration, a reasonable further progress (RFP) plan, and contingency measures. These requirements are suspended as long as the area continues to attain the standard. This final rule became effective on July 25, 2011. On December 15, 2011, EPA proposed its determination [76 FR 77950] that the metro Atlanta nonattainment area has attained the 1997 8-hour ozone NAAQS by its applicable attainment date of June 15, 2011.

2.2 Implementation Plan Under Section 110(k)

Section 110(k) of the CAA addresses EPA's actions on state implementation plan submittals (completeness, deadline for action by EPA, etc.). A September 4, 1992 memo from John Calcagni of EPA states the following:

"The SIP for the area must be fully approved under section 110(k), and must satisfy all requirements that apply to the area. It should be noted that approval action on SIP elements and the redesignation request may occur simultaneously."

The State of Georgia has prepared and submitted an ozone attainment demonstration plan for the metro Atlanta nonattainment area. The plan was submitted for approval to EPA Region 4 on October 21, 2009. As discussed in Section 1.1 of this plan, the attainment demonstration, RFP, and contingency requirements that the October 21, 2009 SIP revision were required to fulfill are no

longer applicable. Therefore, the attainment demonstration has been withdrawn and substituted with submittal of this maintenance plan.

2.3 Permanent and Enforceable Reductions in Emissions

In order for the nonattainment area to be redesignated to attainment, the State must demonstrate (and EPA must determine) that the improvement of ambient ozone concentrations during the years 2008 through 2010 is due to permanent and enforceable reductions in emissions that were implemented following the nonattainment design value period (2001–2003). This subsection contains Georgia EPD's demonstration that the improved air quality is due to permanent and enforceable emissions reductions. The elements of the demonstration described below are as follows:

- State control measures and associated emissions reductions.
- Federal control measures and associated emissions reductions.

2.3.1 State Control Measures - Georgia

Since the metro Atlanta region was designated nonattainment for both the federal ozone and PM2.5 standards, control strategies for the ozone NAAQS and PM2.5 and have been integrated and harmonized to the maximum extent possible. Control of NOx and VOC is generally considered the most important component of an ozone control strategy, and NOx and VOC make up the largest controllable contribution to ambient ozone. However, the metro Atlanta nonattainment area has shown a greater sensitivity of elevated ozone to NOx controls rather than VOC controls due to the biogenic nature of VOC emissions in Georgia. Therefore, implemented control measures have focused on the control of NOx emissions. State enforced measures that target reduction of these emissions are listed below.

NOx emission limitation and standard provisions in Georgia Rule 391-3-1-.02(2) are established for various external and internal combustion devices and consist of emission standards and work practice requirements. State measures that target the reduction of NOx emissions that have resulted in reductions since the 2002 baseline inventory are:

- Smoke Management Plan
- Georgia Rule (yy) – Emissions of Nitrogen Oxides
- Georgia Rule (lll) - NOx from Fuel Burning Equipment
- Georgia Rule (rrr) - NOx from Small Fuel Burning Equipment
- Georgia Rule (jjj) - NOx from EGUs
- Georgia Rule (sss) - Multipollutant Rule

Table 2-3 shows the timetable of implementation of these measures as well as the species controlled by each. This table also includes the measured fourth highest ozone levels at each of the monitors in the nonattainment area during this time period. The correlation between the drop in ozone concentrations and the implementation of the control measures, particularly Georgia Rule 391-3-1-.02(2)(sss), lend strong evidence that the improvements in air quality are a result of reductions in

emissions and not a meteorological influenced phenomenon. Detailed discussions of the measures are presented in the following subsections.

Table 2-3. Timetable of State NOx Measure Implementation

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ozone 4th Max Monitors	GA National Guard McCollum Parkway	0.088	0.100	0.084	0.073	0.081	0.093	0.089	0.079	0.076	0.079
	University of W. Georgia at Newnan	0.085	0.099	0.077	0.083	0.078	0.086	0.091	0.075	0.065	0.065
	2390-B Wildcat Road Decatur, GA	0.085	0.095	0.083	0.084	0.087	0.096	0.096	0.087	0.077	0.075
	Douglasville W. Strickland St.	0.092	0.098	0.085	0.080	0.089	0.095	0.086	0.080	0.072	0.074
	Gwinnett Tech 1250 Atkinson Rd.	0.080	0.089	0.088	0.092	0.082	0.096	0.092	0.081	0.073	0.072
	Henry County Extension Office	0.086	0.099	0.082	0.085	0.089	0.095	0.102	0.086	0.074	0.078
	Yorkville	0.085	0.099	0.083	0.073	0.082	0.084	0.085	0.073	0.067	0.071
	Conyers Monastery 3780 GA Hwy. 212	0.091	0.099	0.078	0.087	0.088	0.099	0.095	0.090	0.070	0.076
	Confederate Ave.	0.084	0.100	0.091	0.089	0.092	0.092	0.086	0.086	0.077	0.080
	Fayetteville – GDOT	0.099	0.091	0.083	0.083	0.082	0.087	0.090	0.086	---*	---*
Measure	**Pollutants Controlled**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Smoke Management Plan	NOx, PM								X	X	X
Georgia Rule 391-3-1-.02(2) (yy): Emissions of Nitrogen Oxides from Major Sources (expansion of applicable area)	NOx			X	X	X	X	X	X	X	X
Georgia Rule 391-3-1-.02(2) (lll): NOx from Fuel Burning Equipment	NOx	X	X	X	X	X	X	X	X	X	X

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Georgia Rule 391-3-1-.02(2) (jjj): NOx from EGUs	NOx			X	X	X	X	X	X	X	X
Georgia Rule 391-3-1-.02(2) (rrr): NOx from Small Fuel Burning Equipment	NOx								X	X	X
Georgia Rule 391-3-1-.02(2)(sss): Multipollutant Rule	NOx, SO2								X**	X	X

* Temporarily discontinued as detailed in EPD's Ambient Air Monitoring Plan approved by EPA

** Controls were required on December 31, 2008, but were actually started up in the first half of the year.

2.3.1.1 Smoke Management Plan

Forestry and agriculture, two of the Georgia's most significant industries, utilize prescribed burning practices to support production. Prescribed burning is the controlled application of fire to existing vegetative fuels to accomplish planned land management objectives or to mitigate catastrophic wildfires. In addition to managing forests and agricultural resources, prescribed burning helps protect lives and property by reducing accumulations of forest fuels and helps to sustain imperiled species and ecosystems. The Georgia General Assembly enacted the Georgia Prescribed Burning Act to authorize and promote the use of prescribed burning for community protection and for silvicultural, environmental, and wildlife purposes.

Without a prescribed burning program, there is a higher probability of catastrophic wildfires, which can threaten personal property and can have even higher negative impacts on air quality.

To prevent negative air quality impacts from prescribed burning, Georgia DNR and the Georgia Forestry Commission formulated and adopted Georgia's Basic Smoke Management Plan (SMP) dated April 16, 2008. The purpose of the SMP is to allow fire to function in its natural role in maintaining healthy wildland ecosystems while protecting public health and welfare by mitigating the impacts of air pollutants from wildland and prescribed fires on air quality and visibility. The Georgia Forestry Commission (GFC), Georgia DNR's EPD, and Georgia DNR's Wildlife Resources Division (WRD) signed a Memorandum Of Understanding (MOU) to implement the SMP on April 16, 2008. The SMP and the MOU are included as Appendix A.

The SMP identifies the following components that should be considered in the planning of prescribed burns:

- smoke mitigation,
- smoke dispersion evaluation,
- public notification, and
- air quality monitoring.

Smoke mitigation, smoke dispersion evaluation, and air quality monitoring are important to mitigating the effects of prescribed burns on air quality in smoke-sensitive areas. Smoke mitigation is accomplished by avoiding smoke-sensitive areas, performing burns under favorable smoke dispersion conditions, and managing the generation and release of emissions over time. Smoke dispersion evaluations are performed by GFC-certified prescribed fire managers and are supported by the GFC's full-time fire weather meteorologist. Air quality monitoring and forecasting, performed by Georgia EPD, provides important air quality data to assist fire managers with their decisions on when to schedule prescribed burns.

In addition to mitigating the impacts of prescribed burns on air quality, the implementation of a SMP has benefits with regard to the computation of air quality design values. Design values are statistical measures of historical ambient pollutant concentrations that are compared to EPA's air quality standards to determine if attainment of the standard has been achieved. An atypical event, such as an unusually large forest fire, can produce emissions that will significantly increase ambient concentration measurements, and, therefore, design value computations, in a nonattainment area. EPA will allow the atypical ambient measurements to be excluded from the design value computation if the fire event is deemed to be an "exceptional event". In order for a large fire to qualify as an exceptional event, the EPA has stated that a state must demonstrate that a certified SMP was in place at the time of the event, or that the state must ensure that the burner employs basic smoke management practices.

All outdoor burning in the state of Georgia is subject to enforcement through law enforcement officers of GFC, DNR and local law enforcement. The enforcement authority is the Georgia Forest Fire Protection Act, as well as EPD's authority to enforce Federal and State air quality regulations and laws. In addition, GFC has the authority to void certification of certified prescribed burners if investigation reveals that disregard for basic smoke management practices contributed to smoke intrusion into a smoke-sensitive area. This measure is a state-only requirement and is therefore not federally enforceable. This measure is not necessary for the continued maintenance of the Atlanta NAA area, however the implementation of this plan will support the maintenance of the ozone NAAQS for the Atlanta area.

2.3.1.2 Georgia Rule (yy)

Georgia Rule (yy) is a case-by-case RACT determination for major sources of NOx emissions that applies to sources with a potential to emit NOx greater than 25 tons per year in the original 13-nonattainment counties and to those sources in the additional 7-county nonattainment area that have a potential to emit greater than 100 tons of NOx per year. This rule has changed over the years based on the major source threshold for NOx in the nonattainment area.

Sources with potential NOx emissions greater than 50 tons per year in the original 13-counties that were in operation before April 1, 2004, (existing sources) should have already been in compliance with the RACT requirements in the rule when the major source threshold dropped to 25 tons per year.

For those sources with potential NOx emissions less than 50 tons per year in the original 13 counties that became subject to the rule when the threshold dropped to 25 tons per year and that were in operation before April 1, 2004 (existing sources), full compliance with their RACT demonstrations were required by May 1, 2007.

For those sources in the six counties in the expanded area (Bartow, Carroll, Hall, Newton, Spalding, and Walton) that were in operation before October 1, 1999, full compliance with their approved RACT determination was required by May 1, 2003. Those that began operation after October 1,

1999 were required to be in full compliance with their approved RACT determination immediately. Any new source in this 6-county area beginning operation after April 1, 2004, was required to be in full compliance with a case-by-case RACT demonstration upon startup.

All sources subject to this rule in Barrow County were required to be in full compliance by March 1, 2009.

2.3.1.3 Georgia Rule (lll)

Fuel burning equipment that is installed or modified after May 1, 1999 is regulated under Georgia Rule 391-3-1-.02(2)(lll) for NOx emissions. Georgia Rule (lll) established a compliance date for this standard beginning May 1, 2000 and it will affect all fuel burning equipment installed from that date forward. This rule only affects future possible emissions for new or modified sources by requiring the operation of equipment during the control season to meet emissions limits based on the use of natural gas. This measure is federally enforceable, however it is not necessary for the continued maintenance of the Atlanta NAA area. The implementation of this rule will support the maintenance of the ozone NAAQS for the Atlanta area.

2.3.1.4 Georgia Rule (jjj)

Coal-fired external combustion devices that generate steam for electricity generation are regulated under Georgia Rule 391-3-1-.02(2)(jjj) for NOx emissions. Georgia Rule (jjj) established a more stringent NOx emission standard beginning May 1, 2003. Georgia EPD estimated that NOx emissions from these point sources would be reduced by approximately 42% as a whole between 2002 and 2009. The majority of NOx emissions from point sources come from coal-fired external combustion devices that generate steam for electricity generation. There are three such plants in the 20-county metro Atlanta area and four such plants just outside the Atlanta NAA.

2.3.1.5 Georgia Rule (rrr)

Georgia Rule (rrr) is a RACT rule for small fuel-burning equipment that requires an annual tune-up and the burning of natural gas, LPG or propane during ozone season to reduce nitrogen oxide emissions.

The deadline for full compliance with Georgia Rule (rrr) was May 15, 2005, in the original 13-county nonattainment area and March 1, 2009, in the additional 7-county area.

2.3.1.6 Georgia Rule (sss) Multipollutant Rule: NOx and SO2 Controls

Coal-fired EGUs are by far the most significant point source of NOx and SO2 emissions in Georgia and in the southeast. Georgia's Multipollutant Rule [391-3-1-.02(2)(sss)] requires selective catalytic reduction (SCR) and flue gas desulfurization (FGD) controls on all large coal-fired EGUs in Georgia. It was promulgated in 2007 for the purposes of lowering ozone and PM2.5 concentrations and reducing mercury deposition. The SCR controls reduced NOx emission rates by approximately 85 percent and the FGD controls reduced SO2 emission rates from the affected emissions units by at least 95 percent.

Figure 2-3 shows the locations of the coal-fired EGU facilities in the metro Atlanta nonattainment area as well as their respective energy production (in million megawatt-hours) in the year 2007

before the control requirements went into effect. The facilities shown in the figure comprise three of the ten coal-fired EGU facilities that were operated in Georgia in 2007. In 2007, the energy produced by the three facilities made up 37 percent of the statewide energy production from coal-fired facilities.

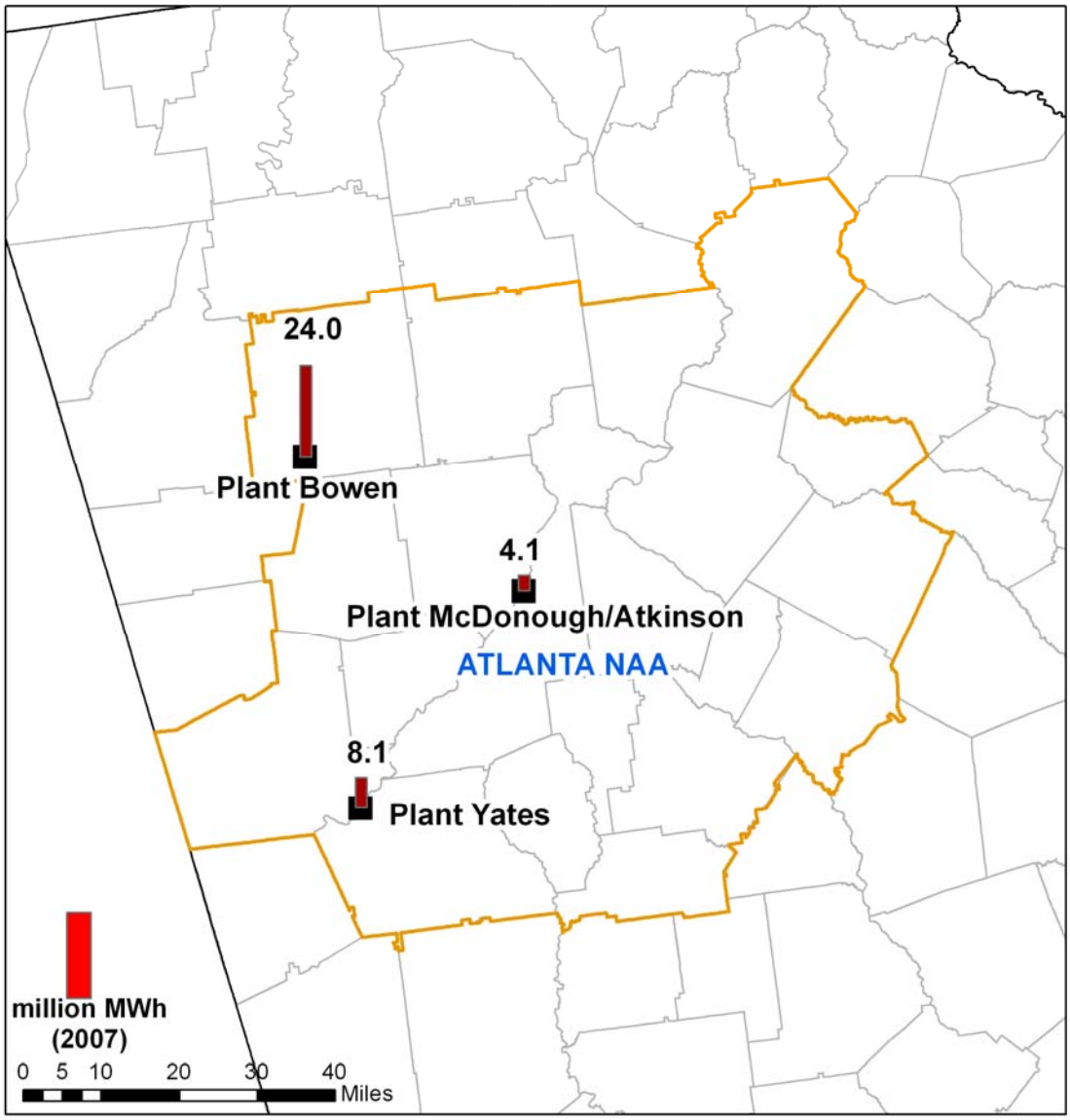

Figure 2-2. Locations and 2007 energy production of coal-fired EGU facilities in the Atlanta NAA

Rule (sss) requires SCR controls to be operated year-round, starting with six EGUs in 2008 and 2009. Of these six units, which include Bowen Units 2, 3, and 4, Wansley Units 1 and 2, and Hammond Unit 4, only Bowen's units are located in the metro Atlanta area.

The schedule for the operation of SCRs on the remaining EGUs in the Atlanta NAA is as follows:

- Bowen Unit 1 is required to operate an SCR year-round beginning in June 2010.

- McDonough Unit 2 is required to operate an SCR year-round beginning in December 2011.
- McDonough Unit 1 is required to operate an SCR year-round beginning in April 2012.
- Plant Yates Units 6 and 7 are required to operate an SCR year-round beginning in June of 2015.
- Beginning in January of 2018, the remaining units at Plant Yates are required to be evaluated for additional mercury controls if the total annual heat input of those units combined exceeds 33,608,398 million Btu. Any additional required controls could contribute to reduced NOx emissions.

Georgia Rule (sss) has not been submitted to EPA for adoption into the SIP and is therefore not federally enforceable. The rule requirements to install and operate the control equipment have been incorporated into the each facility's respective Title V Federal operating permit. The rule alone is not relied upon to meet continued maintenance; however, the rule was designed to meet the emission reductions and deadlines of the CAIR rule. Without the operation of the equipment required by Rule (sss), it would be impossible for the coal-fired EGUs operating in the state of Georgia to meet the emission budgets of either CAIR or the recently stayed Cross-State Air Pollution Rule (CSAPR).

2.3.2 Federal Control Measures

Federal control measures related to precursors of ambient ozone are also focused on the reduction of emissions associated with VOCs and NOx.

VOCs

Federal measures that targeted reduction of VOCs from stationary point sources include New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAPs), and Reasonably Available Control Technology (RACT). The State of Georgia has been delegated the authority to administer these measures.

NOx

Federal measures that targeted reduction of these emissions between nonattainment designation and the clean data period are as follows:

- Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR);
- Tier 2 Vehicle Standards;
- Heavy-duty Gasoline and Diesel Highway Vehicles Standards & Ultra Low-Sulfur Diesel Rule;
- Large Nonroad Diesel Engines Rule & Ultra Low-Sulfur Diesel Rule;
- Non-Road Large Spark Ignition Engines and Recreational Engines Standard; and
- NOx SIP Call in Surrounding States.

All of the measures were in place prior to 2007, with the exception of the large nonroad diesel rule (effective in 2008) and CAIR. Reductions associated with vehicles and engines will increase during the maintenance period as older engines are removed from service and replaced by new engines. Detailed discussions of the measures are presented in the following subsections and implementation timetable is presented in Table 2-4.

Table 2-4. Timetable of Federal NOx Measure Implementation

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ozone 4th Max	GA National Guard McCollum Parkway	0.088	0.100	0.084	0.073	0.081	0.093	0.089	0.079	0.076	0.079
	University of W. Georgia at Newnan	0.085	0.099	0.077	0.083	0.078	0.086	0.091	0.075	0.065	0.065
	2390-B Wildcat Road Decatur, GA	0.085	0.095	0.083	0.084	0.087	0.096	0.096	0.087	0.077	0.075
	Douglasville W. Strickland St.	0.092	0.098	0.085	0.080	0.089	0.095	0.086	0.080	0.072	0.074
	Gwinnett Tech 1250 Atkinson Rd.	0.080	0.089	0.088	0.092	0.082	0.096	0.092	0.081	0.073	0.072
	Henry County Extension Office	0.086	0.099	0.082	0.085	0.089	0.095	0.102	0.086	0.074	0.078
	Yorkville	0.085	0.099	0.083	0.073	0.082	0.084	0.085	0.073	0.067	0.071
	Conyers Monastery 3780 GA Hwy. 212	0.091	0.099	0.078	0.087	0.088	0.099	0.095	0.090	0.070	0.076
	Confederate Ave.	0.084	0.100	0.091	0.089	0.092	0.092	0.086	0.086	0.077	0.080
	Fayetteville – GDOT	0.099	0.091	0.083	0.083	0.082	0.087	0.090	0.086	---*	---*
Measure	**Pollutants Controlled**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Cross-State Air Pollution Rule	NOx									X	X
Tier 2 vehicle standards	NOx					X	X	X	X	X	X
Heavy Duty Vehicle Standard	NOx, VOC					X	X	X	X	X	X
Large Nonroad Diesel Engines Rule	NOx, PM									X	X
Nonroad Spark Ignition and Recreational Vehicle	NOx, VOC, CO					X	X	X	X	X	X
NOx SIP Call in Surrounding States	NOx					X	X	X	X	X	X

**Temporarily discontinued as detailed in EPD's Ambient Air Monitoring Plan approved by EPA*

2.3.2.1 Clean Air Interstate Rule and Cross-State Air Pollution Rule

On May 12, 2005, the U.S. EPA promulgated the "Rule To Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule)" referred to as CAIR. This rule established the requirement for States to adopt rules limiting the emissions of NOx and sulfur dioxide (SO2) and a model rule for the states to use in developing their rules. The purpose of the CAIR was to reduce interstate transport of precursors to fine particulate matter and ozone.

The CAIR rule applied to fossil-fuel-fired electric generation units (EGUs), including certain cogeneration units, with nameplate capacities of greater than 25 MWe. This rule set annual state caps for NOx and SO2 in two phases, with the Phase I caps starting in 2009 and 2010, respectively. Phase II caps for NOx and SO2 were planned to become effective in 2015.

As part of the CAIR rule, EPA determined that Georgia contributed significantly to downwind PM2.5 nonattainment areas and/or interfered with maintenance of the PM2.5 NAAQS (70 FR 25246-25250). Accordingly, a State CAIR rule [Georgia rule 391-3-1-.02(13)] was promulgated that, for the most part, mirrors the provisions of the federal rule.

On July 11, 2008, the U.S. District Court of Appeals in the District of Columbia vacated the Clean Air Interstate Rule and remanded it to EPA. A rehearing of the Court's decision was requested and granted. On December 23, 2008, the court remanded CAIR to EPA without vacatur (i.e., the rule was still in place). EPA was directed to correct the deficiencies in CAIR that were identified in the court's decision.

To replace CAIR, EPA promulgated the final Cross-State Air Pollution Rule (76 FR 48208) on August 8, 2011. The Cross-state rule imposes restrictions on emissions of NOx and SO2 from states identified as having significant impacts on ozone and/or PM2.5 NAAQS attainment or as interfering with maintenance of these same standards in downwind states. The requirements of the Cross-state Rule become effective in 2012 and 2014. These requirements take effect beyond the 2008-2010 clean data period for metro Atlanta, but will nevertheless result in additional NOx emission reductions from EGUs in the future. However, on December 30, 2011, the U.S. Court of Appeals for the D.C Circuit Court issued a ruling to stay CSAPR pending judicial review. Regardless of the timing of the transition from CAIR to CSAPR, or the resulting court-ordered interstate transport remedy, emissions of NO_x and SO_2 have declined significantly and are expected to continue to decrease in the future due to the continuation of CAIR and Georgia's own EGU emission rules.

2.3.2.2 Tier 2 Vehicle Standards

Federal Tier 2 vehicle standards will reduce NOx emissions from passenger vehicles. The standards require all passenger vehicles in a manufacturer's fleet, including light-duty trucks and sport utility vehicles (SUVs), to meet an average standard of 0.07 grams of NOx per mile. Implementation began in 2004 and was completely phased in by 2007. The Tier 2 standards also cover passenger vehicles over 8,500-pounds-gross-vehicle-weight rating (the larger pickup trucks and SUVs) which are not covered by the current Tier 1 regulations. For these vehicles, the standards were to be phased in beginning in 2008, with full compliance in 2009. The new standards require vehicles to be 77% to 95% cleaner than those on the road prior to implementation of Tier 2. The Tier 2 rule also reduced the sulfur content of gasoline to 30 parts per million (ppm) starting in January of 2006. Sulfur occurs naturally in gasoline but interferes with the operation of catalytic converters on vehicles resulting in higher emissions. Lower-sulfur gasoline is necessary to achieve the Tier 2 vehicle emission standards.

2.3.2.3 Heavy-Duty Gasoline and Diesel Highway Vehicles Standards & Ultra Low-Sulfur Diesel Rule

New U.S. EPA standards designed to reduce NOx and VOC emissions from heavy-duty gasoline and diesel highway vehicles (14001 pounds or more) began to take effect in 2004. A second phase of standards and testing procedures, which began in 2007, will reduce particulate matter from heavy-duty highway engines and will also reduce highway diesel fuel sulfur content to 15 ppm to prevent damage to the emission control devices. The total program is expected to achieve a 90% reduction in particulate matter (PM) emissions and a 95% reduction in NOx emissions for these new engines using low-sulfur diesel, compared to older engines using diesel with higher sulfur content. SO2 emissions will also be reduced due to the lower fuel sulfur content.

2.3.2.4 Large Nonroad Diesel Engines Rule & Ultra Low-Sulfur Diesel Rule

In May 2004, the U.S. EPA promulgated new rules for large nonroad diesel engines, such as those used in construction, agricultural, and industrial equipment, to be phased in between 2008 and 2014. The nonroad diesel rules also reduce the allowable sulfur in nonroad diesel fuel by over 99%. Prior to 2006, nonroad diesel fuel averaged about 3,400 ppm sulfur. The rule limits nonroad diesel sulfur content to 500 ppm in 2006 and 15 ppm in 2010. The combined engine and fuel rules would reduce NOx and PM emissions from large nonroad diesel engines by over 90%, compared to older engines using diesel with higher sulfur content. SO2 emissions will also be reduced due to the lower fuel sulfur content.

2.3.2.5 Nonroad Large Spark-Ignition Engines and Recreational Engines Standard

This standard, effective in July 2003, regulates NOx, hydrocarbons (HC) and carbon monoxide (CO) for groups of previously unregulated nonroad engines. The standard applies to all new engines sold in the United States and imported after these standards began and applies to large spark-ignition engines (forklifts and airport ground service equipment), recreational vehicles (off-highway motorcycles and all-terrain-vehicles), and recreational marine diesel engines. The regulation varies based upon the type of engine or vehicle.

The large spark-ignition engines contribute to ozone formation and ambient CO and PM levels in urban areas. Tier 1 of this standard was implemented in 2004 and Tier 2 started in 2007. Like the large spark-ignition engines, recreational vehicles contribute to ozone formation and ambient CO and PM levels. For the off-highway motorcycles and all-terrain-vehicles, model year 2006, the new exhaust emissions standard was phased-in by 50% and for model years 2007 and later at 100%. Recreational marine diesel engines over 37 kilowatts are used in yachts, cruisers, and other types of pleasure craft. Recreational marine engines contribute to ozone formation and PM levels, especially in marinas. Depending on the size of the engine, the standard began phasing in during 2006.

When all of the nonroad spark-ignition engines and recreational engines standards are fully implemented, an overall 72% reduction in HC, 80% reduction in NOx, and 56% reduction in CO emissions are expected by 2020. These controls will help reduce ambient concentrations of ozone, CO, and fine PM.

2.3.2.6 NOx SIP Call in Surrounding States

In October 1998, the U.S. EPA made a finding of significant contribution of NOx emissions from certain states and published a rule that set ozone season NOx budgets for the purpose of reducing

regional transport of ozone (63 FR 57356). This rule, referred to as the NOx SIP Call, called for ozone season controls to be put on utility and industrial boilers, as well as internal combustion engines in 22 states in the Eastern United States. A NOx emissions budget was set for each state and the states were required to develop rules that would allow the state to meet their budget. A NOx trading program was established, allowing sources to buy credits to meet their NOx budget as opposed to actually installing controls. The emission budgets were to be met by the beginning of 2004.

2.4 Section 110 and Part D Requirements

Section 110 of the CAA contains the requirements for state implementation plans (SIPs). The purpose of a SIP is to provide for the implementation, maintenance, and enforcement of national primary ambient air quality standards. Part D, Subpart 1, of CAA Title I (Sections 171 to 179) contains general requirements for areas that have been designated nonattainment. As stated in Section 1.1 of this maintenance plan, the Atlanta area was designated as nonattainment for the 1997 8-hour ozone standard on April 30, 2004.

Georgia EPD submitted an ozone attainment demonstration plan for the Atlanta NAA per Title I Part D of the CAA. With the determination that the metro Atlanta nonattainment area has attained the 1997 8-hour ozone NAAQS, the area is no longer subject to the nonattainment provisions of Section 110 and Part D requirements for demonstrating attainment, RFP, and contingency for areas designated as nonattainment with the NAAQS [76 FR 36873]. Therefore, the nonattainment plan was subsequently withdrawn. All other Section 110 and Part D requirements pertaining to the metro Atlanta area have previously been approved or are currently subject to approval by EPA.

3.0 Maintenance Plan

Section 175A of the Clean Air Act Amendments of 1990 defines the general framework of a maintenance plan. The core provisions of Section 175A are a quantitative demonstration of maintenance of the standard (ozone, in this case) and contingency provisions for prompt implementation of corrective measures if attainment is not maintained. Per guidance from EPA,[3] this maintenance plan includes a method to verify continued attainment to support the maintenance demonstration. Per the same guidance, this plan also includes a plan to use the ambient monitoring network for verification of continued attainment or, if applicable, for triggering contingency provisions.

3.1 Maintenance Demonstration

Section 175A of the CAA requires a state that is requesting redesignation to submit a revision to its SIP which provides for maintenance of the applicable standard for a minimum of 10 years after the redesignation date. Section 107(d)(3)(D) provides EPA up to 18 months from receipt of a complete submittal to process a redesignation request. Therefore, Georgia EPD is providing a demonstration of maintenance through the year 2024.

There are two generally accepted methodologies for demonstrating maintenance. Under the first method, an emissions inventory is compiled for one of the three years which are used to show clean (i.e., attaining) ambient data (see Section 2.1). This year is the attainment year inventory. Emissions projections are formulated for the final year of the maintenance period (maintenance inventory) and for intermediate years. If each of the projected emission levels is less than the emission level for the attainment year, maintenance of the standard is demonstrated. This assumes that ambient concentrations will remain below the standard if future ozone season summer day emissions are kept below the inventoried emissions in the chosen attainment year. Under the second maintenance demonstration method, air quality modeling is used to project ambient pollutant concentrations and annual design values for the final year and intermediate years. If all of the modeled rolling 3-year averages of the annual design values are below the standard, maintenance is demonstrated.

Georgia EPD has adopted the method of comparing attainment year emissions to projected emissions for this maintenance plan. This approach has been used in the previous maintenance plans submitted by EPD and approved by EPA. The following sections discuss the attainment year inventory, the projected inventories, and verification of continued attainment.

3.1.1 Attainment Year Emissions Inventory

Ozone season daily emissions for ozone precursors (VOC and NOx) in the Atlanta ozone nonattainment area were developed for attainment year 2008 and future years 2017 and 2024. Most of the 2008 attainment year annual emissions were obtained from the National Emissions Inventory 2008 Version 1.5 (NEI2008, http://www.epa.gov/ttnchie1/net/2008inventory.html). The attainment year emissions were projected to future years separately using different methods by seven source categories, including:

[3] "Procedures for Processing Requests to Redesignate Areas to Attainment", September 4, 1992, John Calcagni, Director, Air Quality Management Division, OAQPS, USEPA

- EGU point sources;
- Non-EGU point sources;
- Area sources;
- Fires;
- Nonroad mobile sources;
- Nonroad mobile sources - Marine, aircraft and railroad; and
- Onroad mobile sources.

Ozone season daily emissions were calculated as the average daily emissions during the period of June, July and August. The Atlanta ozone nonattainment area covers 20 counties.

The data sources for the attainment-year emissions inventories are summarized in Table 3-1. Additional details on the data sources and inventory methods are presented in the following subsections and in Appendix B and Appendices B-1 through B-7.

Table 3-1. 2007 Emissions Inventory Sources

Emissions Source Sector	Inventory Source	Version / Year Generated	Basis
Point – EGU	SEMAP Georgia Power Co.	Version 1.8, 2011	EPA's NEI
Point – non-EGU	SEMAP	Version 1.8, 2011	EPA's NEI
Nonpoint	SEMAP	Version 1.1, 2010	EPA's NEI
Onroad Mobile	EPD	2011	Georgia DOT [travel demand model and Highway Performance Monitoring System (HPMS)]
Nonroad Mobile	SEMAP	Final Report, 2010	NMIM2008, 2007 NMIM County Database, 2008 NEI, ERTAC

3.1.1.1 Point Sources

Point sources captured in the inventory include stationary sources whose actual emissions equal or exceed 25 tons per year of VOC or NOx in the original 13 counties (Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale), and 100 tons per year of VOC or NOx in the seven new counties (Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton). Emissions from point sources have been calculated for EGU and non-EGU sources.

EGU Point Sources:

Process-level emissions estimates for three EGU facilities in Atlanta ozone nonattainment area during 2008 were obtained from NEI2008 Version 1.5. The emissions were projected to year 2017 and 2024 using corresponding growth and control factors.

Ozone season daily emissions for EGU point sources were calculated by multiplying the annual total emissions with daily emissions fractions during June, July and August. The fractions for NOx and VOC emissions during June, July and August were estimated, respectively, using hourly 2008 CAMD CEM NOx emissions and heat input data, and then were divided by the number of days in these three months (92) to get ozone season daily emissions fractions. The same daily fractions have been used for both attainment year and future years. For future year emissions from Plant McDonough-Atkinson, the fraction of NOx emissions during the months of June through August was calculated as the product of the NOx ozone-season limit and three months divided by the sum of the ozone-season limit times five months and the non-ozone season limit times seven months.

Ozone season daily emissions during 2008, 2017 and 2024 were summarized by each EGU facility (Table 3-2).

Table 3-2. Ozone Season Daily Emissions by EGU facilities in 2008, 2017 and 2024, tons/day

Facility Name	AIRSID	2008		2017		2024	
		VOC	NOX	VOC	NOX	VOC	NOX
GA Power Company - Plant Bowen	01500011	1.06	18.99	1.12	19.46	1.17	20.22
GA Power Company - Plant McDonough/Atkinson	06700003	0.14	10.04	0.78	1.19	0.93	1.41
GA Power Company - Plant Yates	07700001	0.37	34.59	0.38	18.57	0.40	19.29
Total		1.57	63.62	2.29	39.22	2.50	40.92

Non-EGU Point Sources:

Appendix B-3 contains a list of non-EGU point sources in Atlanta ozone nonattainment area and facility-specific VOC and NOx ozone season daily emissions for 2008, 2017, and 2024.

Transcontinental Gas Pipe Line Company, LLC – Compressor Station 120 in Henry County is by far the largest single summer day non-EGU point source of both NOx and VOC emissions in the metro Atlanta nonattainment area with 5.91 tons per day of NOx and 1.04 tons per day of VOC. Please see

the previously mentioned list in Appendix B-3 for information on the other non-EGU point sources in the metro Atlanta area.

2008 ozone season summer-day emissions of NOx and VOC from EGU and non-EGU facilities are presented in Table 3-3.

Table 3-3. Point Source Emissions for 2008 (tons, summer day)

Pollutant	EGU Point Source Emissions	Non-EGU Point Source Emissions	Total Point Source Emissions
NOx	63.62	12.37	75.99
VOC	1.57	12.22	13.79

Emissions estimates for non-EGU point sources in 2008 were obtained from NEI2008 Version 1.5. Emissions in future years 2017 and 2024 were estimated using SCC- and county-specific growth factors generated with the U.S. EPA's Economic Growth Analysis System Version 5.0 (EGAS 5.0) with "Default REMI 6.0 SCC Configuration." Appendix B-2 contains a summary of the SCC-specific growth factors for Atlanta ozone nonattainment area. These emissions are not subject to additional controls in the future years 2017 and 2024.

Ozone season daily emissions for non-EGU point sources were estimated by multiplying the annual total emissions with ozone season daily emissions fractions, which were calculated using the same temporal allocation method used in Sparse Matrix Operator Kernel Emissions (SMOKE, http://www.smoke-model.org/index.cfm). The SMOKE temporal profiles and reference files were obtained from EPA's 2005 Modeling Platform website (ftp://ftp.epa.gov/EmisInventory/2005v4_2/ancillary_smoke). The SMOKE temporal profiles gave monthly emissions fractions, and were linked to each emission record by SCC according to the SMOKE temporal reference file. The total of the monthly fractions of June, July and August were divided by the number of days in these three months (92) to get ozone season daily emissions fractions.

3.1.1.2 Nonpoint Sources

Area Sources:

Nonpoint sources captured in the inventory include stationary sources whose emissions levels of NOx, SO_2, and particulate matter are each less than 25 tons per year. Emissions from nonpoint sources in 2008 were obtained from NEI2008 version 1.5. Ozone season daily emissions for area sources were calculated using the SMOKE temporal profiles as described for non-EGU point sources.

Appendix B-2 contains SCC-specific VOC and NOx ozone season daily emissions for 2008, 2017, and 2024.

Fires:

Emissions from fires in 2008 were obtained from NEI2008 version 1.5. These estimates were provided by Georgia Environmental Protection Division as part of AERR2008 submission (Georgia Air Protection Branch, 2011). This inventory was developed using 2008 burned area data and burning permit data provided by Georgia Forestry Commission and the same method as used for the VISTAS2002 fire inventory (www.epa.gov/ttnchie1/conference/ei13/rpo/barnard_pres.pdf). Emissions in future years 2017 and 2024 were assumed to be the same as attainment year 2008.

Ozone season daily emissions for fires were calculated by dividing the total emissions during June, July and August by the number of days in these three months (92). The emissions during these three months were estimated using monthly emissions for nonpoint fires and event emissions records for wildfires occurred during this period in NEI2008.

Appendix B-3 contains VOC and NOx ozone season daily emissions summary by fire types and county in Atlanta ozone nonattainment area for 2008, 2017, and 2024.

The 2008 nonpoint source ozone season summer day emissions for the metro Atlanta area are presented in Table 3-4.

Table 3-4. Nonpoint Source Emissions for 2008 (tons, summer day)

Pollutant	Nonpoint (excluding fire)	Fire	Total Nonpoint
NOx	49.30	0.00	49.30
VOC	216.46	0.01	216.47

3.1.1.3 Onroad Mobile Sources

EPD ran U.S. EPA's MOVES2010a mobile source emissions model in inventory mode to generate 2008 on-road mobile source emissions of NOx, VOC, and PM. The following non-default inputs to the model were used:

- registration distribution by age;
- vehicle population;
- vehicle miles traveled (VMT); and
- hourly temperature and relative humidity.

The age distribution and vehicle population inputs were based on 2002 vehicle counts by MOBILE6 vehicle type obtained from R.L. Polk & Company. The vehicle population was grown to 2008 using a combination of Georgia Department of Revenue registration data (for buses and motorcycles) and

the change in person population estimates from the U.S. Census (for the other MOBILE6 vehicle types). The 2008 weekday VMT were from Georgia DOT's "445 Report" estimate of daily 2008 VMT by county.[4] The 2008 weekend VMT were from MOVES default inputs.

Actual 2008 temperature and humidity data extracted from the "NCD20090531" version of the county database in EPA's National Mobile Inventory Model were used as meteorological inputs to MOVES2010a for 2008. For a detailed discussion on how the on-road mobile emission inventory was developed, see Appendix B-7. A summary of the 2008 on-road mobile source emissions is as follows:

- NOx 364.02 tons per day, and
- VOC 165.53 tons per day.

3.1.1.4 Nonroad Mobile Sources

The nonroad sector is comprised of nonroad engines included in EPA's NONROAD model, such as recreational marine and land-based vehicles, farm, construction and industrial machinery, and lawn and garden equipment. This sector also includes engines not modeled in NONROAD, specifically aircraft, commercial marine vessels, and locomotives.

Emissions from aircrafts and locomotives in 2008 were obtained from NEI2008 version 1.5 (http://www.epa.gov/ttnchie1/net/2008inventory.html). Emissions from yard locomotives were not included in the NEI2008, and were obtained from Eastern Regional Technical Advisory Committee (ERTAC) separately (personal communication with Dr. Michelle Bergin on 9/14/2011). There were no emissions from commercial marine vessels in the Atlanta ozone nonattainment area.

Table 3-5. Nonroad Mobile Source Emissions for 2008 (tons, ozone season summer day)

Pollutant (tons)	Nonroad - except air and rail	Aircraft	Locomotive	Total Nonroad
NOx	71.96	29.77	15.74	117.47
VOC	88.11	7.05	0.87	96.03

3.1.1.5 Summary of 2008 Emissions Inventory

The total 2008 Atlanta NAA emissions of NOx, and VOC are presented for each source sector in Table 3-6. The majority of NOx emissions is from onroad mobile sources and nonroad mobile sources. The majority of VOC emissions is from onroad mobile sources and nonpoint sources.

[4] http://www.dot.state.ga.us/statistics/RoadData/Pages/400Series.aspx

Table 3-6. Attainment-year (2008) Emissions Inventory (tons, summer day)

Pollutant (tons)	Point Total	Point EGU	Point Non-EGU	Nonpoint	Onroad Mobile	Nonroad Mobile	Total
NOx	75.99	63.62	12.37	49.30	364.02	117.47	606.78
VOC	13.79	1.57	12.22	216.47	165.53	96.03	491.82

3.1.2 Emissions Projections

As discussed previously, Georgia EPD is providing a demonstration of maintenance through the year 2024 (maintenance year). Emissions projections to support maintenance through 2024 have been prepared for the years 2017 and 2024. In addition, emissions have been calculated by interpolation for the years 2014 and 2020. Emissions for these additional years provide additional reference points for periodic assessment of maintenance of the standard. Maintenance period emissions controls, projection methods, projected inventories, and the maintenance safety margin are discussed in the remainder of this subsection.

3.1.2.1 Methods and Projected Inventories

Projected emissions inventories are calculated by applying applicable control and growth factors to the 2008 emissions of individual sources or source categories. The control and growth factors may apply for some or all of the years 2008 (attainment inventory) through 2024 (out year). The basis used to determine these factors are summarized in Table 3-7.

Table 3-7. Basis of Control and Growth Factors for 2017 and 2023 Inventories

Source Category	Control Basis	Growth Factor Basis
Point – EGU	Implementation of GA rule (sss) for SO2 and NOx controls; VISTAS 2012 projection inventory	Coal consumption forecasts in 2010 Annual Energy Outlook (AEO)
Point – non-EGU	Regulatory review - no additional controls defined at this time	EGAS growth factors by SCC and county for 2017 and 2023.
Nonpoint	Regulatory review - no additional controls defined at this time	EGAS growth factors by SCC for 2017 and 2023.
Nonpoint – fire	No additional controls anticipated	No growth anticipated
Onroad Mobile	MOVES inventory mode (PM2.5, NOx, SO2) for 2023. All known Federal controls.	MOVES inventory mode (PM2.5, NOx, SO2) for 2023. Vehicle population growth from human population projections. Vehicle miles traveled (VMT) growth from Georgia DOT.
Nonroad Mobile	NMIM 2008	NMIM 2008
Nonroad Mobile – marine, aircraft, and rail	SEMAP (Pechan) control factors by SCC for 2017 and 2023	SEMAP (Pechan) growth factors by SCC for 2017 and 2023

The pollutants whose emissions are projected are NOx, and VOC. As with the attainment inventory, emissions from the following sectors are projected:

- Point sources (EGU and non-EGU),
- Nonpoint sources (including fire),
- Onroad mobile sources, and
- Nonroad mobile sources (including marine vessels, aircraft, and rail).

The projected inventories are presented in the following subsections. The methods used to develop the emissions projections are presented in more detail in Appendix B and Appendices B-1 through B-7.

3.1.2.1.1 Point Sources

EGU Point Source:

EGU point source emissions in 2017 and 2024 were estimated using growth factors and control factors. Growth factors were calculated based on coal consumption for the southeastern region in the Energy Information Administration's AEO2010 report. Selective Catalytic Reduction (SCR) for control of NOx was applied to individual units according to the schedule specified in Georgia's Rule 391-3-1-.02(2)(sss). The dates of initial SCR operation required by the rule for the EGUs inside the nonattainment area range from December 31, 2008, through June 1, 2015. Plant Bowen, Plant McDonough, and Plant Yates are the three electric generation facilities inside the nonattainment area. Plant Bowen has four EGUs, McDonough has two EGUs and Plant Yates has seven EGUs. Units at Bowen actually began ozone-season SCR operation prior to 2008. Please refer to Appendix B-1 for detailed EGU control schedules.

Table 3-8. Growth factors by SCCs for EGU sources

SCC	Fuel Type	2017	2024
20100101	Distillate Fuel Oil	1.352	1.447
10100501	Distillate Fuel Oil	1.352	1.447
20100201	Natural Gas	0.892	1.060
10100604	Natural Gas	0.892	1.060
10100212	Steam Coal	1.058	1.099

The NOx control factor associated with SCR control was assumed to be 82.5% according to the VISTAS 2012 Projection Emissions Inventory. When SCR control was already operated fully or partially at a unit during year 2008, the control factor was applied only to uncontrolled NOx emissions that occurred in 2008. These periods were identified using CAMD hourly CEM data for NOx emissions and heat inputs. Days without SCR operation were identified as those days on which the ratio of NOx emissions to heat input exceeded 0.00004 lbs/Btu, according to correlation analysis results. In addition, NOx emissions during the period from October 1st, 2008, to December 31st, 2008, from Plant Bowen Unit 3 were projected to future years using a different method, since the

actual NOx control efficiency in this period was approximately 60% according to hourly CEM data analysis. Such NOx emissions were first adjusted to reflect before control emissions, then apply the 82.5% NOx emissions control factor for future year emissions projection.

Future year emissions for Plant McDonough-Atkinson located in Cobb County were calculated separately since this plant will undergo significant changes in generating equipment and operation during the attainment demonstration period. In 2008, Plant McDonough operated two coal-fired EGUs (Units 1 and 2) with a combined generating capacity of 530 MW. Due to the requirements specified in Georgia's Rule 391-3-1-.02(2)(sss) for EGU controls, Georgia Power plans to shut down Unit 2 by the fourth quarter of 2011 and Unit 1 by the second quarter of 2012. Unit 2 will be replaced with two gas-fired combined cycle blocks (Blocks 4 and 5) and Unit 1 will be replaced by one gas-fired combined cycle block (Block 6). Each block consists of two generating units, with each unit consisting of a combustion turbine and a duct burner. The combined generation capacity of the three blocks (six units) is 2,520 MW. NOx emissions from each unit will be controlled by an SCR and a low-NOx burner.

The facility's Title V permit (Permit No. 4911-067-0003-V-03-0) stipulates rolling 12-month limits on NOx and VOC emissions from each of the three gas-fired generating blocks. In addition, short-term average NOx and VOC emissions rates (in ppmvd) are stipulated for both the ozone and non-ozone seasons. The 12-month per block limits for Blocks 4 and 5 are 135 tons VOC and 217 tons NOx. The limits for Block 6 are 132 tons VOC and 200 tons NOx. The permitted NOx emission rates are 6.0 ppmvd for May through September and 15.0 ppmvd for the rest of the year.

Forecasts of NOx and VOC emissions from McDonough's Blocks 4, 5, and 6 were calculated by assuming that actual rolling 12-month emissions will be 75 percent of the permitted limits. It is assumed that the duration of operation for these gas-fired units will not push NOx and VOC emissions beyond 75 percent of their twelve-month permit caps. Growth factors were calculated for McDonough-Atkinson using the same fuel consumption approach that is described above, subject to the constraint that annual emissions cannot rise above the permitted 12-month limits.

Georgia has been identified as a state covered under EPA's Cross-State Air Pollution Rule, which requires covered states to comply with state-wide allocations of NOx and/or SO2 emissions from covered EGUs starting in 2012. Georgia is required to comply with state budgets for annual NOx, ozone-season NOx, and annual SO2 emissions. Georgia and affected EGU owner/operators are currently developing a strategy for complying with the rule. The effect of the rule on emissions levels from EGUs in the metro Atlanta area is not known at this time and, therefore, has not been incorporated into the emissions projections. Any further reductions that may be required by the Cross-state Rule will only strengthen the case for maintenance of the NAAQS as documented in this plan.

Projected EGU point source emissions are presented in Table 3-9. The projections show a reduction in NOx emissions but a small increase in VOC emissions. Emissions levels for 2014 were calculated by linear interpolation between 2008 and 2017. Emissions levels for 2020 were calculated by linear interpolation between 2017 and 2024.

Non-EGU Point Source:

Projected non-EGU point source emissions are also shown in Table 3-9. The emissions for 2017 and 2024 were estimated using SCC-specific and county-specific growth factors generated with EPA's

Economic Growth Analysis System Version 5.0 (EGAS 5.0) with "Default REMI 6.0 SCC Configuration." The projections show moderate increases in emissions of all three pollutants. Appendix B-2 contains a summary of the SCC-specific growth factors for the metro Atlanta area. No additional future controls can be defined for non-EGU point sources at this time. Emissions levels for 2014 and 2020 were calculated by interpolation as described above.

Projected total point source emissions (sum of EGU and non-EGU) are also shown in Table 3-9. The projections show moderate decreases in emissions of NOx, but a minor increase in VOCs overall.

Table 3-9. Projected Point Source Emissions (tons, summer day)

Pollutant	*2008 (attainment)*	2014	2017	2020	2024
EGU					
NOx	63.62	47.35	39.22	39.95	40.92
VOC	1.57	2.05	2.29	2.38	2.50
Non-EGU					
NOx	12.37	13.35	13.83	14.48	15.35
VOC	12.22	13.75	14.52	15.42	16.63
Total Point					
NOx	75.99	60.69	53.05	54.43	56.27
VOC	13.79	15.80	16.81	17.80	19.13

3.1.2.1.2 Nonpoint Sources

Emissions in future years 2017 and 2024 were estimated using SCC- and county-specific growth factors generated with the U.S. EPA's Economic Growth Analysis System Version 5.0 (EGAS 5.0) with "Default REMI 6.0 SCC Configuration." Appendix B-2 contains a summary of the SCC-specific growth factors for the Atlanta ozone nonattainment area. No additional future controls can be defined for these sources at this time.

Projections of nonpoint source emissions are presented in Table 3-10. Emissions from fire in future years 2017 and 2024 were assumed to be the same as 2008 emissions. The projections show a moderate increase in emissions of NOx as well as VOC.

Table 3-10. Projected Nonpoint Source Emissions (tons, summer day)

Pollutant	*2008 (attainment)*	2014	2017	2020	2024
Nonpoint (excluding fire)					
NOx	49.30	54.92	57.73	60.62	64.48
VOC	216.46	243.28	256.69	270.61	289.16
Fire					
NOx	0.0035	0.0035	0.0035	0.0035	0.0035
VOC	0.0149	0.0149	0.0149	0.0149	0.0149
Total Nonpoint					
NOx	49.30	54.92	57.73	60.63	64.48
VOC	216.47	243.30	256.70	270.62	289.17

3.1.2.1.3 Onroad mobile sources

EPD ran U.S. EPA's MOVES2010a mobile source emissions model in inventory mode to generate 2024 onroad mobile source emissions of NOx, and VOC. Intermediate year emissions were generated by interpolating between 2008 and 2024. The following non-default inputs to the model were used:

- age distribution,
- average speed distribution,
- vehicle population,
- vehicle miles traveled (VMT),
- road type distribution,
- ramp fraction, and
- hourly temperature and relative humidity.

The vehicle age distribution was based on R.L. Polk & Company registration data. Defaults were used for Heavy-Duty Diesel Vehicle Class 8B. Person population growth projections for the Atlanta area were used to calculate the 2024 vehicle population. The 2024 annual VMT were calculated by Georgia DOT using travel demand model outputs and HPMS counts, as well as speed distribution, road type distribution, and ramp fraction. Temperature and humidity inputs were assumed to be the same as year 2008.

The projected onroad mobile source emissions levels are presented in Table 3-11. Onroad emissions of both pollutants trend downward significantly during the maintenance period. For a detailed discussion on how the onroad mobile emission inventory was developed, see Appendix B-7.

Table 3-11. Projected Onroad Mobile Source Emissions (tons, summer day)

Pollutant (tons)	*2008 (attainment)*	2014	2017	2020	2024
NOx	364.02	264.80	215.19	165.58	99.43
VOC	165.53	126.92	107.61	88.30	62.56

3.1.2.1.4 Nonroad mobile sources

Growth and control factors that were used to develop future year emissions were provided by Pechan. For more information regarding the SEMAP marine, aircraft, and locomotives growth and control factors, please refer to Appendix B-5. (Pechan, 2011)

Growth factors for all aircraft engine and airport-related SCCs were based on landing and take-off operation (LTO) projections available from the Federal Aviation Administration's Terminal Area Forecasts (TAF). (FAA, 2010) Growth rates for military aircraft were held constant at 2008 levels. No control factors were applied to aircraft for criteria pollutant forecasts.

Growth factors for Class I and Class II/III line haul and diesel switchyard operations were calculated based on freight rail sector fuel consumption forecasts. Growth factors for passenger and commuter rail were developed from national forecasts of intercity rail diesel consumption, and commuter rail diesel consumption. Control factors were based on US EPA's locomotive engine Regulatory Impact Analyses (RIA) and associated emission factor guidance.

The SEMAP growth factors were for base year 2007 (referred as $GF_{FY-2007}$ hereafter). The growth factors for base year 2008 ($GF_{FY-2008}$) were calculated as $\frac{GF_{FY-2007}}{1+\frac{GF_{FY-2007}-1}{N_{years}}}$ assuming linear growth. N_{years} refers to the number of years between base year 2007 and future years. N_{years} is 10 years for future year 2017 and is 17 years for future year 2024.

Ozone season daily emissions for aircrafts and locomotives were calculated using the SMOKE temporal profiles as described for non-EGU point sources.

Appendix B-6 contains a list of specific aircraft and locomotives sources in Atlanta ozone nonattainment area and SCC-specific VOC and NOx emissions for 2008, 2017, and 2024 and the associated growth or control factors.

The nonroad mobile source emissions projections are presented in Table 3-12. The projections show a moderate decrease in emissions of both NOx and VOC.

Table 3-12. Projected Nonroad Mobile Source Emissions (tons)

Pollutant (tons)	*2008 (attainment)*	2014*	2017	2020*	2024
Nonroad					
NOx	71.99		42.36		30.87
VOC	88.11		55.33		52.64
Aircraft					
NOx	29.77		36.71		43.79
VOC	7.05		8.28		9.70
Locomotive					
NOx	15.74		10.97		8.35
VOC	0.87		0.50		0.35
Tot. Nonroad					
NOx	117.47	99.18	90.04	87.03	83.01
VOC	96.03	74.75	64.11	63.50	62.69

* interpolation to 2014 and 2020 performed only for total nonroad emissions
** excluding aircraft and locomotive emissions

3.1.2.1.5 Emissions Projections Summary and Demonstration of Maintenance of Attainment

The consolidated emissions projections for all metro Atlanta sources are presented in Table 3-13. Emissions of NOx and VOC drop significantly from 2008 to 2024. Overall, emissions of NOx and VOC are projected to decline by almost 50 percent and 12 percent, respectively, over the course of the maintenance period.

Table 3-13. Projected Emissions – Total of All Sectors (tons, summer day)

Pollutant (tons)	*2008 (attainment)*	2014	2017	2020	2024
NOx	606.78	479.60	416.01	367.67	303.19
VOC	491.82	460.76	445.23	440.23	433.55

3.1.2.2 Emissions Decreases

The degree of improvement (reduction) in 2024 emissions compared to the attainment year (2008) emissions can be used to determine the amount of emission that can be allocated as safety margin for the area's motor vehicle emissions budget. The decrease in emissions of NOx and VOC from 2024 to 2008 is shown in Table 3-14. Only a portion of the NOx (and VOC) margin will be allotted to the Motor Vehicle Emissions Budget (see Section 4).

Table 3-14. Emissions Decreases

Pollutant	Emissions Decrease* 2008 to 2024 (tons)
NOx **	303.59
VOC **	58.27

* Decrease in Emissions = (2008 emissions level) – (2024 emissions level)
** These quantities do not reflect allotment to Motor Vehicle Emissions Budget

3.1.3 Verification of Continued Attainment

Verification of continued attainment is accomplished through operation of the ambient ozone monitoring network and the periodic updates of the area's emissions inventory. EPD will continue to operate the current monitors located in the metro Atlanta area. There are no plans to discontinue operation, relocate, or otherwise change the existing ambient monitoring network.

The Consolidated Emissions Reporting Rule (CERR) was promulgated by EPA on June 10, 2002. The CERR was replaced by the Annual Emissions Reporting Requirements (AERR) rule on December 17, 2008. The most recent triennial inventory for Georgia was compiled for 2008. The larger point sources of air pollution will continue to submit data on their emissions on an annual basis as required by the AERR. Emissions from the rest of the point sources, the nonpoint source portion, and the onroad and nonroad mobile sources continue to be quantified on a three-year cycle. The inventory will be updated and maintained on a three-year cycle. As required by the AERR, the next overall emissions inventory will be compiled for 2011.

3.2 Contingency Provisions

Section 175A(d) of the Clean Air Act requires that the maintenance plan include provisions for contingency measures that would promptly be implemented to correct a violation of the standard, should this occur, after redesignation of an area as an attainment area. The measures may include rules or other measures that are not yet effective that EPD agrees to adopt and implement, as expeditiously as practicable, when required by this plan. The minimum requirement for contingency provisions is the implementation of all measures that were contained in the SIP for the area (i.e., the nonattainment plan) before the redesignation. In addition, EPA guidance (John Calcagni memo dated September 4, 1992) specifies the following pertaining to contingency provisions in the maintenance plan:

- identification of additional measures that would be considered for implementation should a violation occur;
- identification of triggers for the implementation of additional contingency measures; and
- a schedule and procedure for adoption and implementation of additional measures (with time limit).

3.2.1 Contingency Measure Triggers

Section 175A(d) of the Clean Air Act Amendments requires that the maintenance plan include provisions for contingency measures that would promptly be implemented by the state to correct any violation of the 8-hour ozone NAAQS after redesignation of an area as an attainment area. A list of potential contingency measures that could be considered for future implementation in such an event should also be included in the maintenance plan.

EPD has developed a contingency plan for the Atlanta 8-hour ozone nonattainment area. Contingency measures are intended to provide further emission reductions in the event that violations of the 8-hour ozone NAAQS occur after redesignation to attainment. Consistent with this plan, EPD agrees to adopt and implement, as expeditiously as practicable, the necessary corrective actions in the event that violations of the 8-hour ozone NAAQS occur within the Atlanta maintenance area after redesignation to attainment. Contingency measures as described below would be adopted and implemented within 24 months of a contingency trigger unless EPD has demonstrated that technical or economic feasibility warranted a period longer than 24 months.

EPD will use actual ambient monitoring and emissions inventory data as the indicators to determine whether contingency measures would be implemented. In accordance with 40 CFR Part 58, ambient ozone monitoring data that indicates a violation of the ozone NAAQS will begin the process to implement these contingency measures according to the protocols identified below. The contingency plan provides for corrective responses should the 8-hour ozone NAAQS be violated, or if emissions in the Atlanta maintenance area increase significantly above current levels.

Tier I. A Tier I trigger is activated when any quality-assured 8-hour ozone monitoring reading exceeds 0.084 ppm at an ambient monitoring station located in the Atlanta maintenance area or if the periodic emission inventory updates reveal excessive or unanticipated growth greater than 10% in emissions of either ozone precursor over the attainment or intermediate emissions inventories for the Atlanta maintenance area (as determined by the triennial emission reporting required by AERR). EPD will conduct an evaluation as expeditiously as practicable to determine if the trend is likely to continue. If it is determined that additional emission reductions are necessary, EPD will adopt and implement any required measures in accordance with section 3.2.2.

The ozone trigger concentrations described above apply to each monitor in the maintenance area. EPD will evaluate a Tier I condition, if it occurs, as expeditiously as practicable to determine the cause(s) of the ambient ozone or emissions inventory increase and to determine if a Tier II condition (see below) is likely to occur.

Tier II. A Tier II trigger is activated when any violation of the 8-hour ozone NAAQS at any of the metro Atlanta ambient monitoring stations in the Atlanta maintenance area is recorded, based on quality-assured monitoring data. In this event, EPD will conduct a comprehensive study to

determine the cause(s) of the ambient ozone increase and to determine if the increase is likely to continue and will implement any required measures as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of selected measures.

3.2.2 Schedule and Procedure for Adoption and Implementation of Contingency Measures

EPD will, in the event of 1) a Tier II trigger condition or 2) a Tier I condition in which EPD has determined that a Tier II condition is likely to occur, conduct a comprehensive study to determine whether or not contingency measures are required for the maintenance of the ozone standard. Since the metro Atlanta area may be influenced by emissions from outside the maintenance area, the study will attempt to determine whether the trigger condition is due to local emissions, emissions from elsewhere, or a combination of the previous. The comprehensive analysis, based on quality-assured ambient data, will examine:

- the severity of the trigger condition;
- the meteorological conditions (in the case of an ambient concentration trigger) associated with the trigger condition;
- potential contributing local emissions sources;
- potential contributing emissions resulting from regional or long-range transport;
- the geographic applicability of possible contingency measures;
- emission trends, including implementation timelines of potential control measures;
- timelines of "on-the-books" (adopted) measures that are not yet fully implemented [e.g., Georgia Rule (sss) NOx controls]; and
- current and recently identified control technologies.

The comprehensive study will be completed and submitted to EPA as expeditiously as practical but no later nine months after the Tier I or Tier II trigger is activated. If EPD determines, through the comprehensive study, that contingency measures are required for the maintenance of the ozone standard, appropriate corrective measures will be adopted and implemented within 18 to 24 months after the Tier I or II trigger occurs. These control measures which will continue to produce substantial reductions in ozone precursors in excess of what is relied upon in this maintenance plan, includes the Georgia Multipollutant Rule, which is mentioned in section 2.3.1.5 of this maintenance plan, as well as diesel engine retrofit, replacement, and repowering programs and truck stop electrification programs which are currently being implemented by Georgia EPD.

If the study determines that additional measures are required, rules will be adopted no later than 18 months following the date on which the Tier I or Tier II trigger is activated. Selection of measures will take into consideration the ease of implementation as well as technical and economic feasibility. If it is determined that adoption and implementation of a rule will take longer than 24 months following the trigger date, EPD will submit for EPA's approval a revised schedule for the development and adoption of contingency measures.

3.2.3 Contingency Measures

If the analysis required above determines emissions from the local area are contributing to the trigger condition, EPD will evaluate those measures as specified in Section 172 of the CAA for control options as well as other available measures. If a new measure/control is already promulgated and

scheduled to be implemented at the federal or state level, and that measure/control is determined to be adequate, additional local controls may be unnecessary. Under Section 175A(d), the minimum requirement for contingency measures is the implementation of all measures that were contained in the SIP before the redesignation. Currently all such measures are in effect for the Atlanta NAA; however, an evaluation of those measures, such as RACT, can be performed to determine those measures are adequate or up-to-date. In addition to those identified in section 3.2.2, contingency measure(s) will be selected from the following types of measures or from any other measure deemed appropriate and effective at the time the selection is made:

- Reasonably Available Control Measures (RACM) for sources of VOC and NOx.
- Reasonably Available Control Technology (RACT) for point sources of VOC and NOx, specifically the adoption of new and revised RACT rules based on Groups II, III, and IV CTGs.
- Expansion of RACM/RACT to area(s) of transport within the State.
- Mobile Source Measures
- Additional NOx reduction measures yet to be identified.

Any resulting contingency measure(s) will be based upon cost effectiveness, emission reduction potential, economic and social considerations, ease and timing of implementation, and other appropriate factors.

Adoption of additional control measures is subject to necessary administrative and legal processes. EPD will solicit input from interested and affected persons (stakeholders) in the area prior to selecting appropriate contingency measures. No contingency measure will be implemented without providing the opportunity for full public participation. This process will include publication of notices, an opportunity for public hearing, and other measures required by Georgia law.

4.0 Motor Vehicle Emissions Budget

The transportation conformity rule (40 CFR 93.100 - 40 CFR 93.129) ensures that projects and plans funded by the Federal Highway Administration and the Federal Transit Administration conform to air quality SIPs and maintenance plans. In the case of a NAAQS maintenance plan, the rule requires a motor vehicle emissions budget (MVEB) to be established for the last year of the plan's maintenance period. The rule, at 40 CFR 93.124(a), describes a motor vehicle emissions budget as "...the implementation plan's estimate of future [motor vehicle] emissions." Such budgets establish caps on motor vehicle emissions; projected emissions from transportation plans and programs must be equal to or less than these caps for a positive conformity determination to be made. Transportation conformity determinations are required for non-exempt federally-funded highway and transit projects before they are funded and approved and for transportation plans and transportation improvement programs.

4.1 Pollutants

For metro Atlanta, MVEBs will be set for direct NOx and VOC only. 40 CFR Parts 93.119(f)(1) through (10) identify the ozone pollutants which must be analyzed for transportation conformity purposes. These parts of the rule are listed below:

§119(f)(1) - VOC in ozone areas; and

§119(f)(2) - NOx in ozone areas, unless the EPA Administrator determines that additional reductions in NOx would not contribute to attainment.

4.2 Methodology

In preparation of this Atlanta Area Ozone Maintenance Plan, EPD worked closely with the Georgia Department of Transportation (GDOT) and the Atlanta Regional Commission (ARC) to develop the estimates of mobile source emissions for the Atlanta nonattainment area. ARC is the metropolitan planning organization (MPO) for Metro Atlanta Area. Mobile source inventories for 2024 were developed using the latest available planning assumptions, the most recent travel demand model, EPA's latest motor vehicle emission factor model, and vehicle population and age distributions developed from registration data obtained from R.L. Polk & Company. The methodology used to calculate the highway mobile source emissions on which the 2024 MVEBs are based is discussed below.

Emissions from motor vehicles were estimated as a sum of products of vehicle activity measures and vehicle emissions factors. Vehicle activity measures (e.g. vehicle miles traveled, or VMT) are determined from a county-specific travel demand model. Vehicle emissions factors are determined from a motor vehicle emissions model. See Appendix B-7 for more details on the development of the travel demand model and the determination of emissions factors.

The MOVES2010a motor vehicle emissions model was used to calculate 2024 emission factors with all currently known 2024 mobile source control rules in place. The MOVES model was run in Inventory Mode. The emission factors reflect all federal controls, e.g., the Federal Motor Vehicle Control Program including Tier 1 and (beginning with 2006 models) Tier 2 tailpipe standards; and

the National Low Emission Vehicle program. MOVES2010a produces three sets of emission factors per run:

- rate per distance;
- rate per vehicle; and
- rate per profile.

Of these three types of emission factors, the first is multiplied by VMT and the second two by vehicle population.

The ARC travel demand model is developed and maintained by GDOT. Inputs to the model are socioeconomic data and the highway network that consists of roadway segments (links) and intersections (nodes). Outputs include vehicle activity, number of trips, vehicle population, and other data. The use of a county-specific travel demand model for transportation conformity calculations is consistent with the transportation conformity rule at 40 CFR 93.122(b) and (d), which requires a network-based travel model emissions estimation methodology if the use of such procedures has been the previous practice of the MPO. The use of such a methodology has been the previous practice of ARC.

Section 93.105(b) of the Transportation Conformity Rule and Sections 106(g) and 106(h) of Georgia's transportation conformity SIP require interagency consultation for SIP development. Accordingly, a detailed listing of the procedures and planning assumptions used for the regional emissions analysis supporting development of the MVEB was presented to the ARC interagency consultation committee for review on September 15, 2011. The assumptions used to develop metro Atlanta's conforming Long Range Transportation Plan and Transportation Improvement Program were also used to develop the network and emissions for this maintenance plan MVEB.

4.3 Motor Vehicle Emissions Budgets and Safety Margins

The projected 2024 on-road motor vehicle emissions for NOx and VOC are 99.43 and 62.56 tons per day, respectively. As presented in Section 3.1.2.2, the overall surplus or overall emissions reduction from 2008 for all sectors is 302.79 tons per day for NOx and 58.84 tons per day for VOCs. A portion of these emission reductions will be used as a safety margin for the MVEB. The safety margin needed is based on determining a worst-case daily emissions projection.

The worst-case daily motor vehicle emissions projection for NOx is 27 percent above the projected 2024 on-road emissions. In a worst-case scenario, the needed safety margin for the MVEB would be 26.9 tons per day resulting in an overall MVEB of 126 tons per day.

The worst-case daily motor vehicle emissions projection for VOC is 47 percent above the projected 2024 on-road emissions. In a worst-case scenario, the needed safety margin for the MVEB would be 29.4 tons per day resulting in an overall MVEB of 92 tons per day.

The projected 2024 on-road emissions, the emissions budgets, and safety margins are presented in Table 4-1. The additional emission allotted for the safety margin is added to the overall inventory as presented in Table 5-1.

Table 4-1. Motor vehicle projected emissions, safety margins and emissions budgets

Pollutant	Projected 2024 On-Road Emissions (tons per day)	Safety Margin Allotted to MVEB (%)	Safety Margin Allotted to MVEB (tons per day)	MVEB with Safety Margin included (tons per day)
NOx	99.43	27	26.9	126
VOC	62.56	47	29.4	92

5.0 Conclusion

Section 107(d) of the CAA states that an area can be redesignated to attainment if the following conditions are met:

1. The EPA has determined that the NAAQS has been attained.

2. The applicable implementation plan has been fully approved by EPA under Section 110(k).

3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.

4. The state has met all applicable requirements for the area under Section 110 and Part D.

5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area as required by CAA Section 175A.

Table 5-1. Summary of Projected NOx Emissions – Total of All Sectors (tons, summer day)

Source	*2008 attainment* (tons/ day)	2014 (tons/ day)	2017 (tons/ day)	2020 (tons/ day)	2024 (tons/ day)
Point - total	75.99	60.69	53.05	54.43	56.27
Area - total	49.30	54.92	57.73	60.63	64.48
Non-road - total	117.47	99.18	90.04	87.03	83.01
Onroad	364.02	264.80	215.19	165.58	99.43
Onroad Safety Margin					26.90
Total	606.78	479.60	416.01	367.66	330.09

Table 5-2. Summary of Projected VOC Emissions – Total of All Sectors (tons, summer day)

Source	*2008 attainment* (tons/ day)	2014 (tons/ day)	2017 (tons/ day)	2020 (tons/ day)	2024 (tons/ day)
Point - total	13.79	15.80	16.81	17.80	19.13
Area - total	216.47	243.29	256.70	270.62	289.17
Non-road - total	96.03	74.75	64.11	63.50	62.69
Onroad	165.53	126.92	107.61	88.30	62.56
Onroad Safety Margin					29.40
Total	491.82	460.76	445.23	440.23	462.95

The supporting documentation to show that the above conditions have been met for metro Atlanta is contained in this document. Based on the 2008-2010 monitored design values for the Atlanta nonattainment area, EPA has published in the Federal Register a determination that the Atlanta, Georgia 1997 8-hour ozone nonattainment area has attained the standard [76 FR 36873]. The maintenance demonstration in this document shows that, based on comparison of projected emissions to attainment year emissions, emissions are expected to stay at or below levels commensurate with attaining air quality through the year 2024.

This document also contains provisions for contingency measures should emissions levels or ambient concentrations rise unexpectedly. EPA's concurrence that the improvement in the metro Atlanta area's air quality is due to permanent and enforceable reductions in emissions, and EPA's approval of this document will satisfy Items 3 and 5 above. Therefore, Georgia EPD requests that the metro Atlanta nonattainment area be redesignated to attainment with respect to the 1997 8-hour ozone NAAQS.

6.0 References

State of Georgia, Rules for Air Quality Control, Chapter 391-3-1, Effective September 13, 2011.

USEPA, "Reasonable Further Progress, Attainment Demonstration, and Related Requirements for Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard," Memorandum from John S. Seitz, May 10, 1995.

USEPA, "Determination of Attainment for the 1997 Ozone Standard; Atlanta, Georgia, Final Rule"; 76 FR 36874 – 36875.

USEPA, National Emissions Inventory: Inventory years 2005, 2007, and 2008.

USEPA, "Procedures for Processing Requests to Redesignate Areas to Attainment," Memorandum from John Calcagni, September 4, 1992.

USEPA, Air Quality Modeling Final [Cross-state Air Pollution] Rule Technical Support Document, June 2011, Docket ID No. EPA-HQ-OAR-2009-0491-4140.

USEPA, "Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals" [a.k.a. "Cross-State Air Pollution Rule"]; final rule, 76 FR 48208.

US Energy Information Administration, Annual Energy Outlook 2010, April 2010.