Final Submittal for Georgia's Redesignation Request and Maintenance Plan for the Atlanta Ozone Nonattainment Area for the 2015 8-Hour Ozone NAAQS

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Air Protection Branch

February 25, 2022

Executive Summary

This is the Georgia Environmental Protection Division's (EPD's) request, on behalf of the State of Georgia, to redesignate the metro Atlanta ozone nonattainment area to attainment with respect to the 2015 8-hour ozone National Ambient Air Quality Standard (NAAQS). This document also includes Georgia's plan to maintain attainment of the 2015 8-hour ozone standard in the Atlanta Area which includes the counties of Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry.

EPD's request for redesignation is based on three years (2018-2020) of ambient monitoring data showing attainment of the standard (0.070 ppm). Georgia has implemented permanent and enforceable reductions in ozone precursor emissions and demonstrated compliance with all applicable requirements for the Atlanta Area under Title 1 (Part A, Section 110 and Part D) of the Clean Air Act (CAA). Atlanta Area emissions from 2018 are representative of emission levels during the 2018-2020 clean data period. This Maintenance Plan demonstrates continued maintenance by showing that the Atlanta Area will not exceed 2018 emission levels through the year 2033. Therefore, EPD requests that EPA approve the attached redesignation request and maintenance plan as expeditiously as possible.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

List of Acronyms

Acronym	Meaning
AEO	Annual Energy Outlook
AERR	Air Emissions Reporting Requirements
ARC	Atlanta Regional Commission
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CASTNET	Clean Air Status and Trends Network
CERR	Consolidated Emissions Reporting Rule
CFR	Code of Federal Regulations
CI	Compression Ignition
CO	Carbon Monoxide
CSAPR	Cross-State Air Pollution Rule
CTG	Control Techniques Guidelines
EGU	Electric Generating Unit
EPA	Environmental Protection Agency
EPD	Environmental Protection Division
FTP	Federal Test Procedure
GCAF	Georgia's Clean Air Force
GDOT	Georgia Department of Transportation
GFC	Georgia Forestry Commission
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
HCl	Hydrochloric Acid
HJAIA	Hartsfield - Jackson Atlanta International Airport
HP	Horsepower
I/M	Inspection and Maintenance
LTO	Landing and Take-Off
MATS	Mercury and Air Toxics Standards

MPO	Metropolitan Planning Organization
MOVES	Motor Vehicle Emissions Simulator
MVEB	Motor Vehicle Emissions Budget
MWe	Megawatts electric
NEI	National Emissions Inventory
NAAQS	National Ambient Air Quality Standard
NCORE	National Core Monitoring Network
NHTSA	National Highway Traffic Safety Administration
NMOG	Non-methane Organic Gases
NO_x	Nitrogen Oxides
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NGCC	Natural Gas Combined Cycle
NSPS	New Source Performance Standard
OAQPS	Office of Air Quality Planning and Standards
PAMS	Photochemical Assessment Monitoring Stations
PM	Particulate Matter
PPM	Parts Per Million
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
RIA	Regulatory Impact Analysis
RICE	Reciprocating Internal Combustion Engine
SAFE	Safer Affordable Fuel-Efficient
SCC	Source Classification Code
SCR	Selective Catalytic Reduction
SEMAP	Southeastern Modeling and Analysis Planning
SFTP	Supplemental Federal Test Procedure
SI	Spark Ignition
SIP	State Implementation Plan
SLAMS	State and Local Ambient Monitoring Stations
SMOKE	Sparse Matrix Operator Kerner Emissions

SQL	Structured Query Language
SO_2	Sulfur Dioxide
SUV	Sport Utility Vehicle
TAF	Terminal Area Forecasts
TPD	Tons per Day
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

1.0 Introduction

This document contains technical support for the Georgia Environmental Protection Division's (EPD's) request to redesignate Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry counties (Atlanta Area) to attainment for the 2015 8-hour ozone National Ambient Air Quality Standard (NAAQS) 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 memos issued on September 4, 1992 and October 28, 1992 from John Calcagni[1], and EPA's 2015 Ozone Implementation Guidance[2].

1.1 Atlanta Area Nonattainment Designation

On October 1, 2015, EPA promulgated the 8-hour ozone standard of 0.070 ppm. On June 4, 2018, EPA published a final rule in the Federal Register designating 7-counties surrounding the City of Atlanta as marginal nonattainment for the 2015 8-hour ozone National Ambient Air Quality Standard (83 FR 25776). The 7-county area includes the counties of Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry (Atlanta Nonattainment Area).

According to EPA's 2015 Ozone Implementation Guidance, the attainment deadline for marginal areas was August 3, 2021. The CAA allows a three-year period from the effective date of designation for a 'Marginal' nonattainment area to attain the NAAQS. In this case, the last designations were effective on August 3, 2018 (83 FR 25776).

On February 11, 2021, EPD submitted 2020 ozone ambient air quality data to EPA. EPA concurred with the certification on February 23, 2021. With an attainment deadline of August 3, 2021, marginal areas were required to attain the National Ambient Air Quality Standard (NAAQS) by the end of the 2020 ozone season (October 31, 2020). EPD has determined that the Atlanta Area has attained the 8-hour ozone NAAQS of 0.070 ppm based on ambient air quality data from 2018-2020 and is requesting redesignation to attainment. This request is based on ambient air quality data from 2018-2020. The Atlanta Area will continue to be in marginal nonattainment until this request to be redesignated to attainment, along with an applicable Section 175A Maintenance Plan, is approved by EPA.

[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, USEPA.

[2] "Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule"; 83 FR 62998-63036.

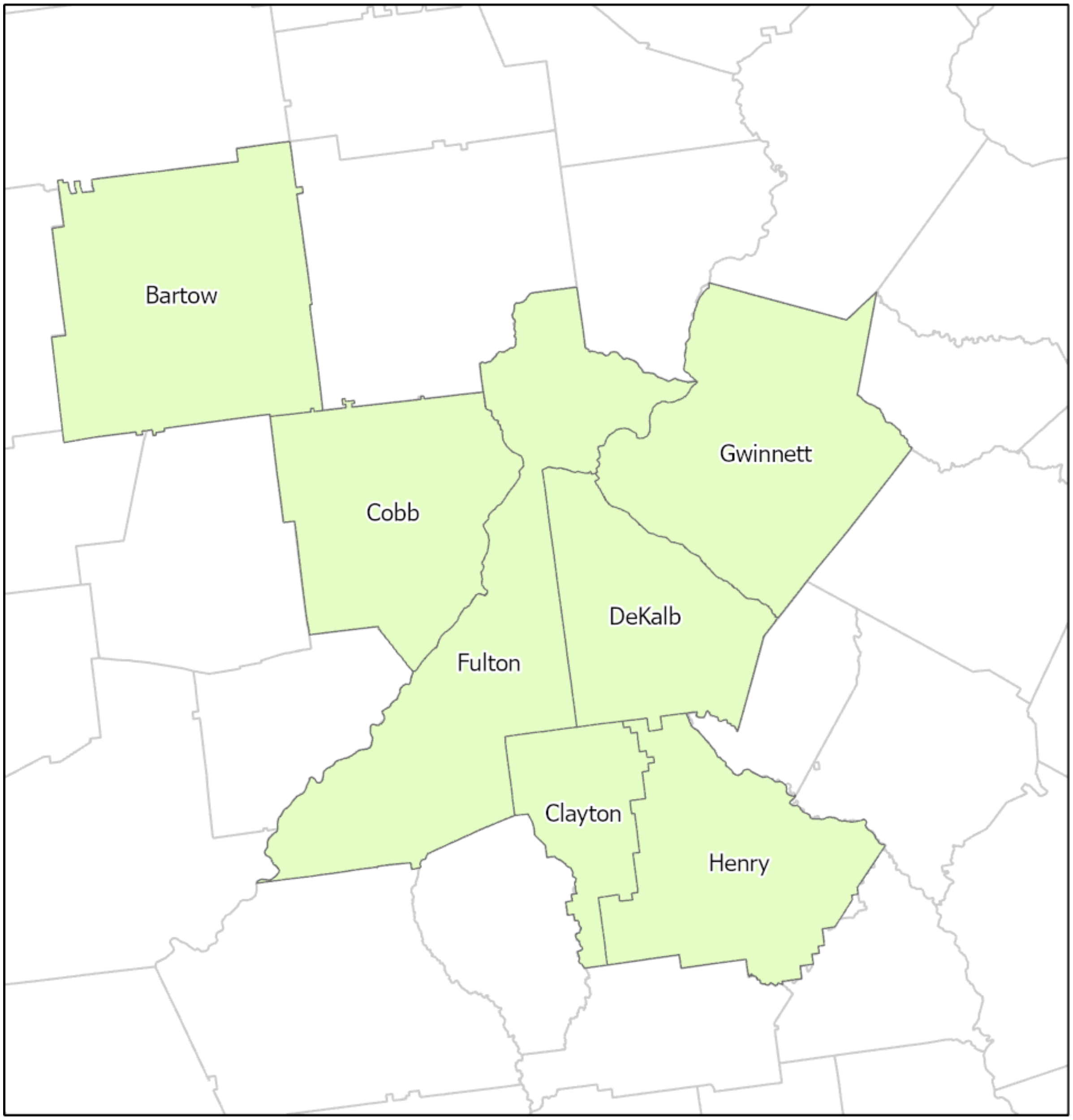


Figure 1-1. 2015 Ozone NAAQS Nonattainment Area in Georgia

1.2 Redesignation Request

This document contains Georgia's request that the metro Atlanta nonattainment area be redesignated to attainment with respect to the 2015 8-hour ozone NAAQS. 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) of the CAA.
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 Title 1 (Part A, Section 110 and Part D) of the CAA.
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 items 1 through 4 have been met is contained in Section 2 of this document. EPA's approval of the maintenance plan detailed in Section 3.0 of this document will satisfy item 5.

1.3 Maintenance Plan

The maintenance plan (see item 5 under Section 1.2 above) has two required components under Section 175A of the CAA:

- 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[3], 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.

[3] "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) of the CAA.
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 Title 1 (Part A, Section 110 and Part D) of the CAA.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under Section 175A of the CAA.

This section of the document includes supporting documentation for items 1 through 4 above.

2.1 Attainment of the 8-Hour Ozone 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 0.070 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.

EPD maintains eight ozone monitoring sites in the Atlanta Core-Based Statistical Area (Atlanta CBSA). The design values for the Atlanta CBSA monitors, based on data from 2018 through 2020, range from 0.062 ppm to 0.070 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. EPD operates seven of nine ozone monitors located in the Atlanta CBSA from March 1st through October 31st. The eighth monitor is a National Core Monitoring Network (NCore) ozone monitor (South DeKalb, 13-089-0002) that EPD operates year-round. The ninth monitor is part of the Clean Air Status and Trends Network (CASTNET, 13-231-9991) that EPA operates year-round. All the ozone monitors in the Atlanta CBSA are operated according to the requirements of 40 CFR Part 58. During the monitoring season analyzers are subjected to multiple calibration checks, and on an annual basis EPD's Quality Assurance Unit audits these samplers.

EPD began monitoring ozone at the South DeKalb site (13-089-0002) in 1974. Since that time, the EPD ozone-monitoring network has grown to eight ozone monitors operating within the Atlanta CBSA. All eight ozone monitors are part of the State and Local Ambient Monitoring Stations (SLAMS) network. Also, the South DeKalb (13-089-0002) ozone monitor is designated a Photochemical Assessment Monitoring Stations (PAMS) site.

In addition, as part of the Clean Air Status and Trends Network (CASTNET), EPA established a monitoring site in Georgia in 1988. The CASTNET site is part of a national air quality monitoring network put in place to assess long-term trends in atmospheric deposition and ecological effects of air pollutants. The CASTNET site is one of 85 regional sites across rural areas of the United States and Canada measuring nitrogen, sulfur, and ozone concentrations, and deposition of sulfur and nitrogen. Like the South DeKalb ozone monitor, the CASTNET ozone monitor also collects data year-round. As of 2011, the CASTNET ozone monitor met the Code of Federal Regulations (40 CFR) quality assurance and completeness criteria. Therefore, data collected by this monitor in 2011 and beyond can be used for comparison to the NAAQS. Table 2-1 lists the metro Atlanta ozone monitors shown in Figure 2-1 and their respective start dates.

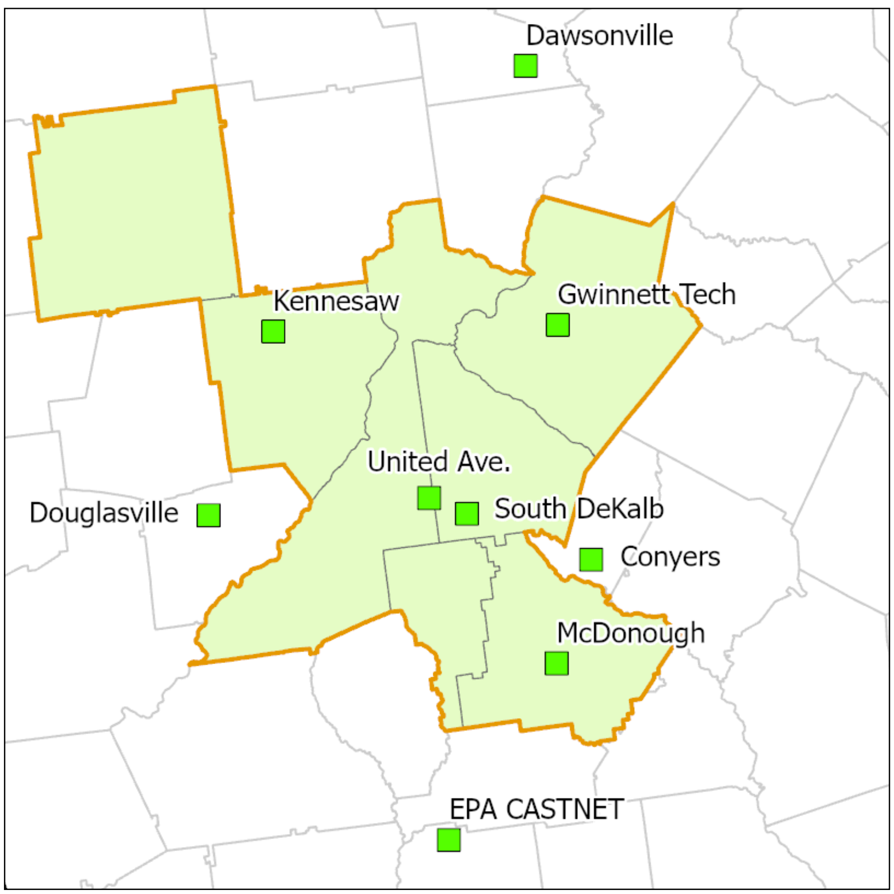


Figure 2-1. Locations of Ozone Monitors in the Atlanta Area

Table 2-1. Metro Atlanta Data Collection Sites

Site Name – Address	AQS Site ID	Start Date
Kennesaw – Georgia National Guard, 1901 McCollum Parkway	13-067-0003	Sept. 1, 1999
South DeKalb – 2390-B Wildcat Road	13-089-0002	Jan. 1, 1974
Douglasville – Douglas County Water Authority, 7725 W. Strickland St.	13-097-0004	Aug. 15, 1997
Gwinnett Tech – 5150 Sugarloaf Pkwy, Lawrenceville	13-135-0002	March 17, 1995
McDonough – Blessings Thrift Store, 86 Work Camp Road	13-151-0002	June 7, 1999
Conyers – Monastery, 2625 GA Highway 212	13-247-0001	July 26, 1978
United Ave. – 945 East United Ave.	13-121-0055	Oct. 1, 1991
Dawsonville – Georgia Forestry Commission, 4500 Georgia Highway 53 East	13-085-0001	January 1, 1985
CASTNET – GA Agricultural Experiment Station, Pike County	13-231-9991	Jan. 1, 2011[+]

[+]As of 2011, the CASTNET ozone monitor met the Code of Federal Regulations (40 CFR) quality assurance and completeness criteria. Therefore, as of 2011, data collected by this monitor can be used for comparison to the NAAQS.

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 Atlanta Area. The 2018–2020 3-year design values range from 0.061 ppm to 0.070 ppm, all of which meet the standard of 0.070 ppm.

Table 2-2. 2018, 2019, and 2020 4th High Maximum Values and 2018-2020 8-Hour Ozone Design Values for Counties in the Atlanta Area

County	Monitor Location (AQS Site ID)	2018 4th max (ppb)	2019 4th max (ppb)	2020 4th max (ppb)	2018-2020 Design Value (ppb)
Cobb	Kennesaw (13-067-0003)	65	67	56	62
Dawson	Dawsonville (13-085-0001)	65	62	57	61
DeKalb	South DeKalb (13-089-0002)	67	73	61	67
Douglas	Douglasville (13-097-0004)	64	72	56	64
Fulton	United Avenue (13-121-0055)	72	75	63	70
Gwinnett	Gwinnett (13-135-0002)	65	68	66	66
Henry	McDonough (13-151-0002)	69	75	58	67
Pike	CASTNET (13-231-9991)	65	68	54	62
Rockdale	Conyers (13-247-0001)	69	72	60	67

2.1.3 Determination of Attainment by Applicable Attainment Date

With an attainment deadline of August 3, 2021, marginal areas were required to attain the National Ambient Air Quality Standard (NAAQS) by the end of the 2020 ozone season (October 31, 2020). EPD's ozone data for 2018 through 2020 was certified and quality assured by EPD's Ambient Monitoring Program and the 2020 data was certified on February 11, 2021 showing that the Atlanta area attained the 2015 ozone standard before the August 3, 2021 attainment deadline. EPA concurred with the certification on February 23, 2021. Item 1 in Section 2.0 of this document has been met.

2.2 Requirements Under Section 110(k)

Section 110(k) of the CAA addresses EPA's responsibilities and requirements for acting on state implementation plan submittals including completeness criteria, completeness findings, effect of findings of incompleteness, deadlines for action by EPA, full and partial approvals and disapprovals, conditional approvals, calls for plan revisions, and corrections. A September 4, 1992 memo from John Calcagni of EPA[4] 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."

EPA accepted and concurred that EPD's ozone data for 2018 through 2020 was certified and quality assured. This data demonstrated that the Atlanta Area had attained the 2015 8-Hour Ozone NAAQS. When EPA designates the Atlanta Area in the Federal Register, the Atlanta

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

nonattainment area will have attained the 2015 8-hour ozone NAAQS. Item 2 in Section 2.0 of this document has been met.

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 concur) that the improvement of ambient ozone concentrations during the years 2018-2020 is due to permanent and enforceable reductions in emissions. This subsection contains EPD's demonstration that the improved air quality is due to permanent and enforceable emissions reductions.

Table 2-3 and Figure 2-2 show the measured annual fourth highest daily maximum 8-hour ozone concentration at each of the monitors in the Atlanta Area. Table 2-4 and Figure 2-3 show design values at each of the monitors in the Atlanta Area. The continuing drop in ozone concentrations and the implementation of federally enforceable control measures lend strong evidence that the improvements in air quality are a result of reductions in emissions and not a meteorological influenced phenomenon.

Figure 2-4 shows the average temperature and precipitation during May-September in Atlanta, Georgia from 1930-2020. The 2018-2020 average temperature and precipitation fluctuates around the average meteorological conditions, with 2018, 2019, and 2020 being hotter than the 1930-2020 average temperature and 2018 and 2020 wetter than the 1930-2020 average precipitation. Figure 2-5 compares the 2020 temperature and precipitation and shows the departure from the mean of 1930-2019. Figure 2-6 compares the ratio of 2020 temperature and precipitation to the mean from 1930-2019. In 2020, four of eight ozone season months were above the monthly average temperature and six of eight months were above the monthly average precipitation. Similar results are shown in Figure 2-7 which ranks temperature and precipitation across the continental U.S. Based on this information, it was concluded that the 2018-2020 period for the Atlanta Area was not unusually cool or wet and that meteorology is not responsible for the decreasing ozone trends.

Table 2-3. 4th Highest Ozone Concentration (ppb) – Atlanta Area Monitors

Ozone Monitor Name (AIRS ID)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Kennesaw (13-067-0003)	76	79	79	75	67	63*	66	70	65	65	67	56
Dawsonville (13-085-0001)	67	73	66	63	63	66	63	67	65	65	62	57
South DeKalb (13-089-0002)	77	75	80	85	62	70	71	74	68	67	73	61
Douglasville (13-097-0004)	72	74	78	73	63	65	70	71	66	64	72	56
United Avenue (13-121-0055)	77	80	84	87	69	73	77	75	74	72	75	63
Gwinnett (13-135-0002)	73	72	82	80	69	68	71	78	65	65	68	66
McDonough (13-151-0002)	74	78	82	88	70	75	70	78	67	69	75	58
CASTNET (13-231-9991)			75	77	64	66	68	71	62	65	68	54
Conyers (13-247-0001)	70	76	81	81	71	79	68	76	65	69	72	60
AVERAGE	**73**	**76**	**79**	**79**	**66**	**69**	**69**	**73**	**66**	**67**	**70**	**59**

**The Kennesaw monitor did not meet the annual data completeness requirements of 75% in 2014.*

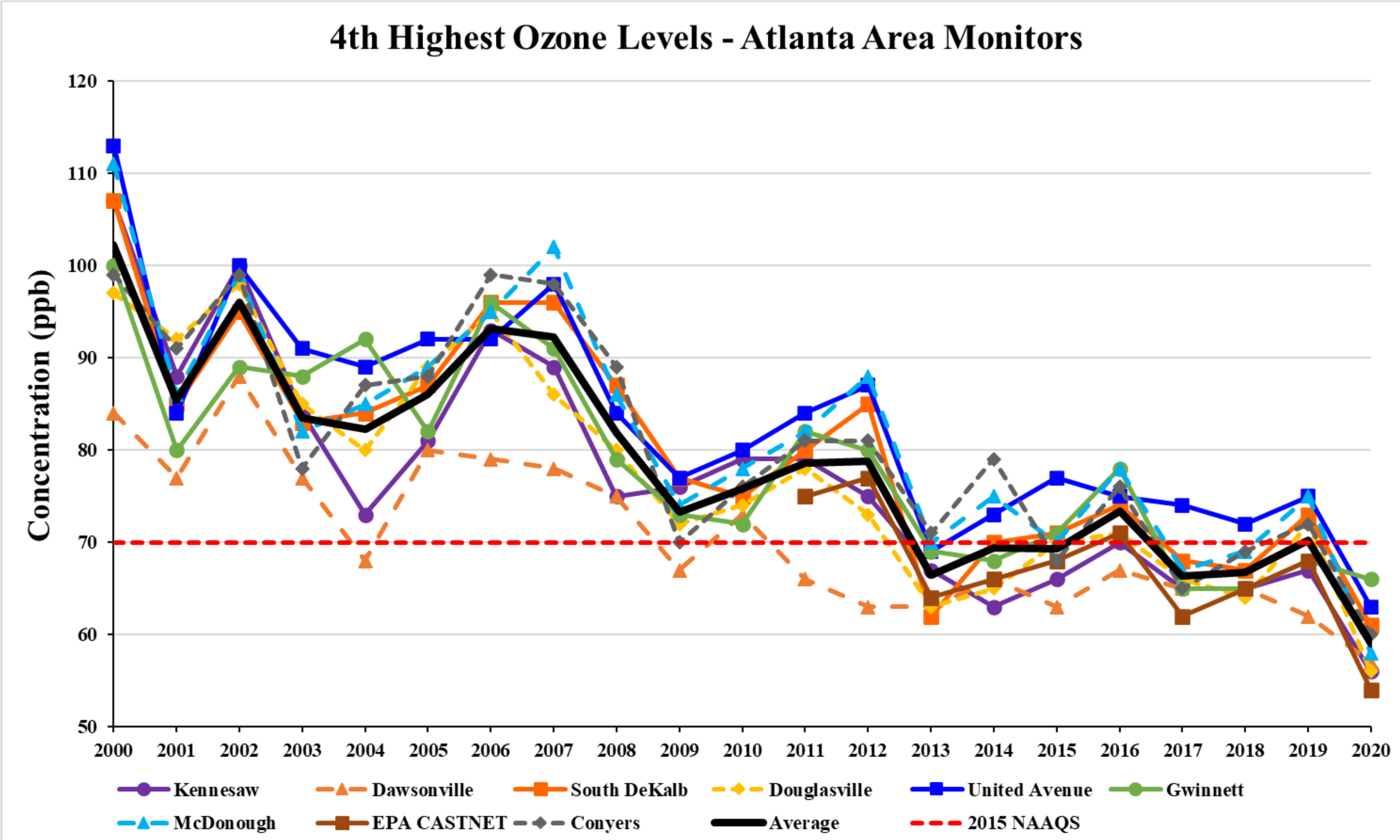


Figure 2-2. Annual 4th High Daily Maximum 8-Hour Ozone Concentrations for 2000 to 2020 for Atlanta Area Ozone Monitors.

Table 2-4. Ozone Design Value Concentrations (ppb) – Atlanta Area Monitors

Ozone Monitor Name (AIRS ID)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Kennesaw (13-067-0003)	80	76	78	77	73	68*	65*	66*	67	66	65	62
Dawsonville (13-085-0001)	73	71	68	67	64	64	64	65	65	65	64	61
South DeKalb (13-089-0002)	86	79	77	80	75	72	67	71	71	69	69	67
Douglasville (13-097-0004)	79	75	74	75	71	67	66	68	69	67	67	64
United Avenue (13-121-0055)	86	80	80	83	80	76	73	75	75	73	73	70
Gwinnett (13-135-0002)	81	74	75	78	77	72	69	72	71	69	66	66
McDonough (13-151-0002)	87	79	78	82	80	77	71	74	71	71	70	67
CASTNET (13-231-9991)					72	69	66	68	67	66	65	62
Conyers (13-247-0001)	85	78	75	79	77	77	72	74	69	70	68	67
AVERAGE	**82**	**77**	**76**	**78**	**74**	**71**	**68**	**70**	**69**	**68**	**67**	**65**

**The Kennesaw monitor did not meet the annual data completeness requirements of 75% in 2014; therefore, 2014, 2015, and 2016 design values are not valid.*

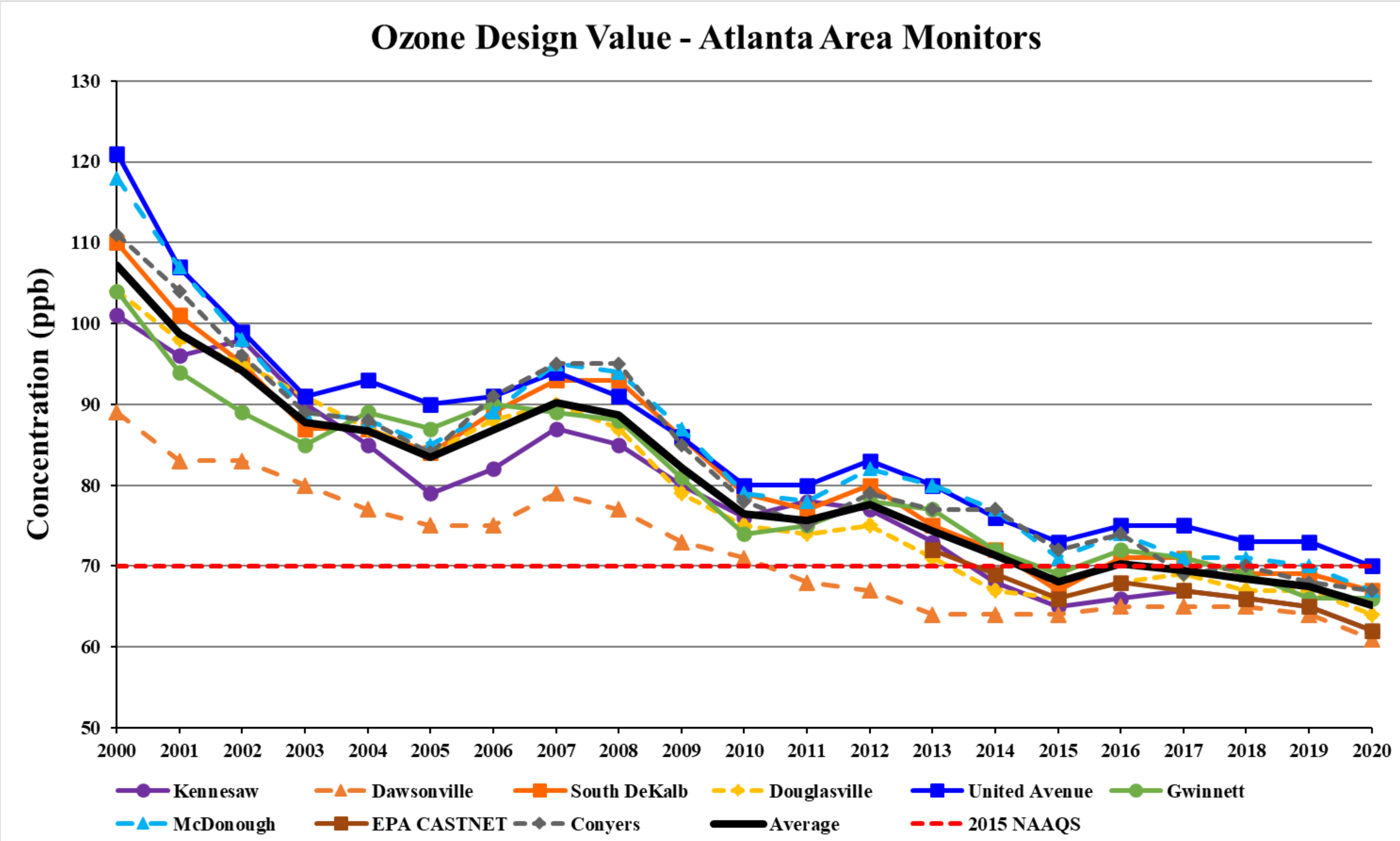
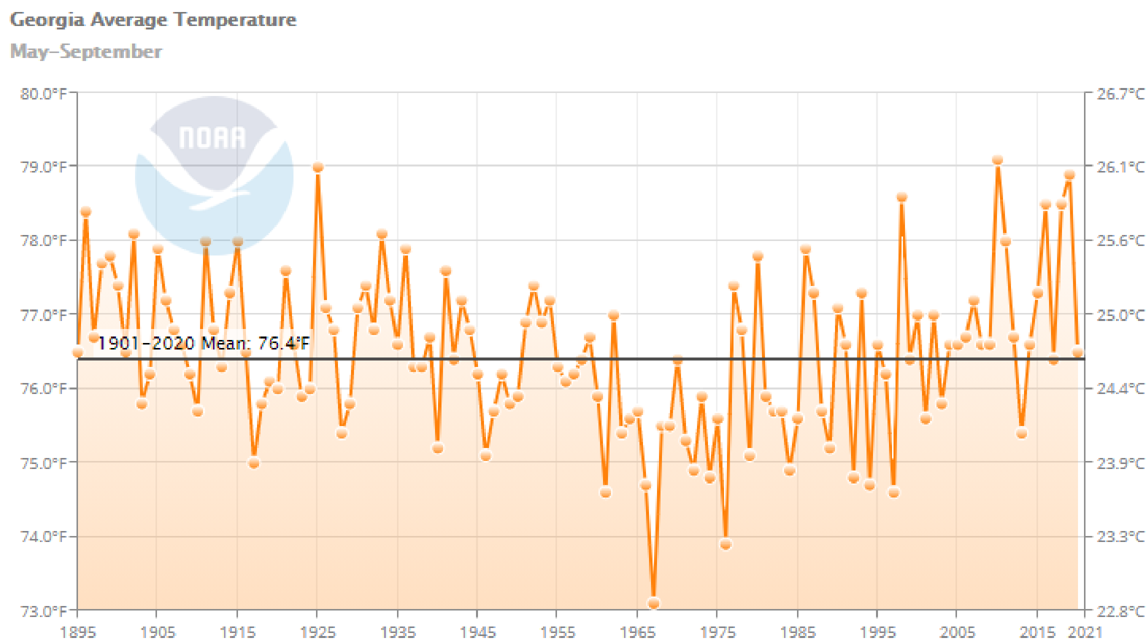
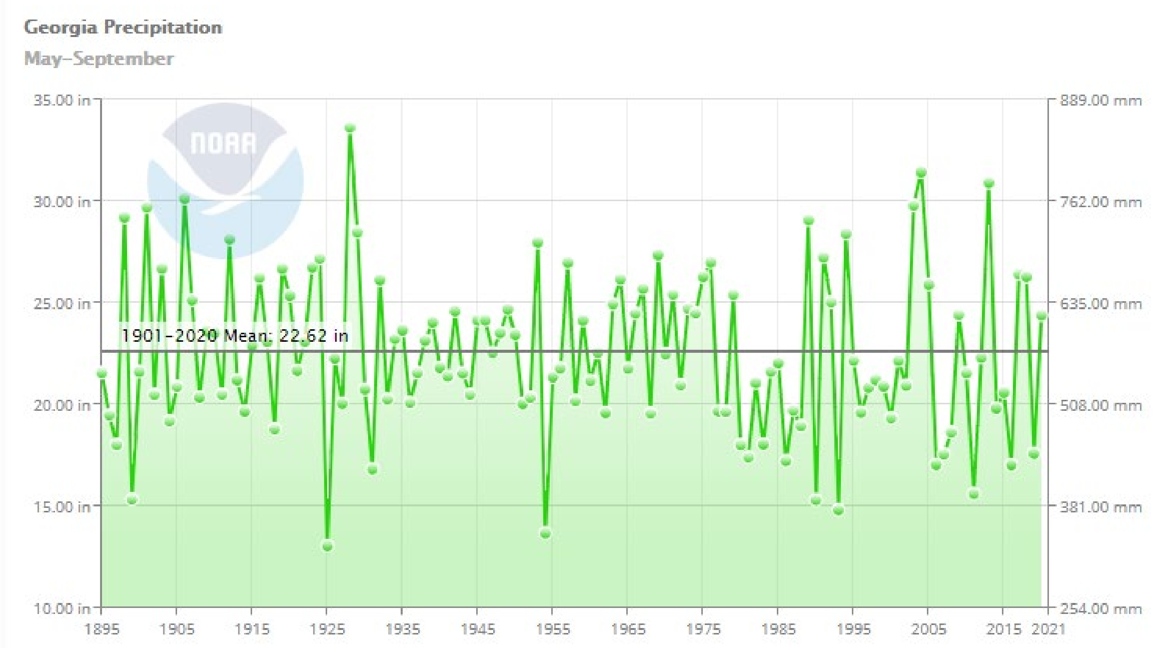


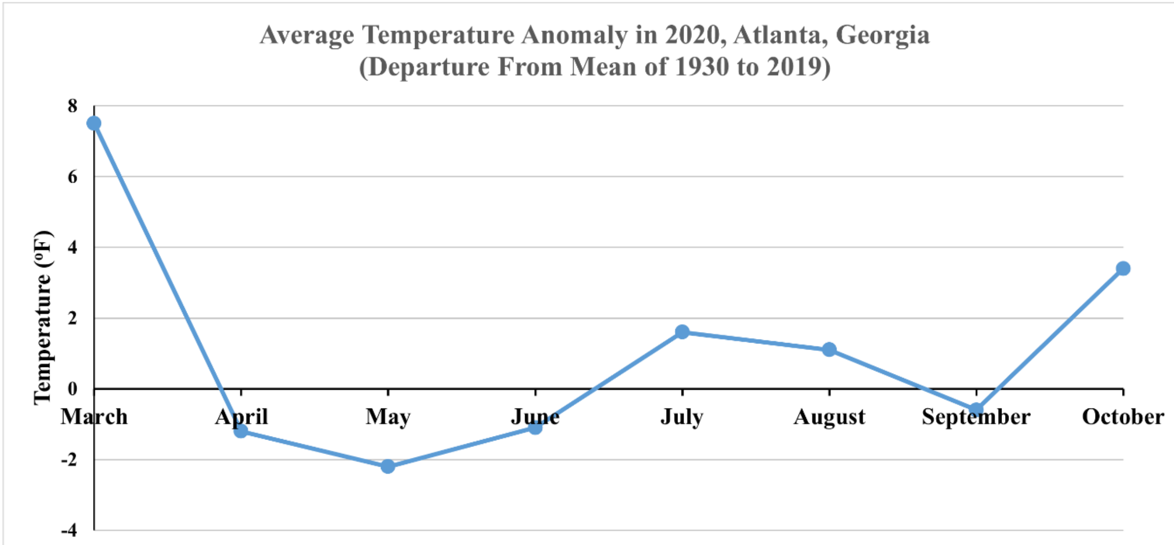
Figure 2-3. Ozone Design Values for 2000 to 2020 for Atlanta Area ozone monitors.





*Obtained from NOAA website (http://www.ncdc.noaa.gov/cag).

Figure 2-4. Trend of Average Temperatures (top) and Precipitation (bottom) during May-September in Atlanta, Georgia



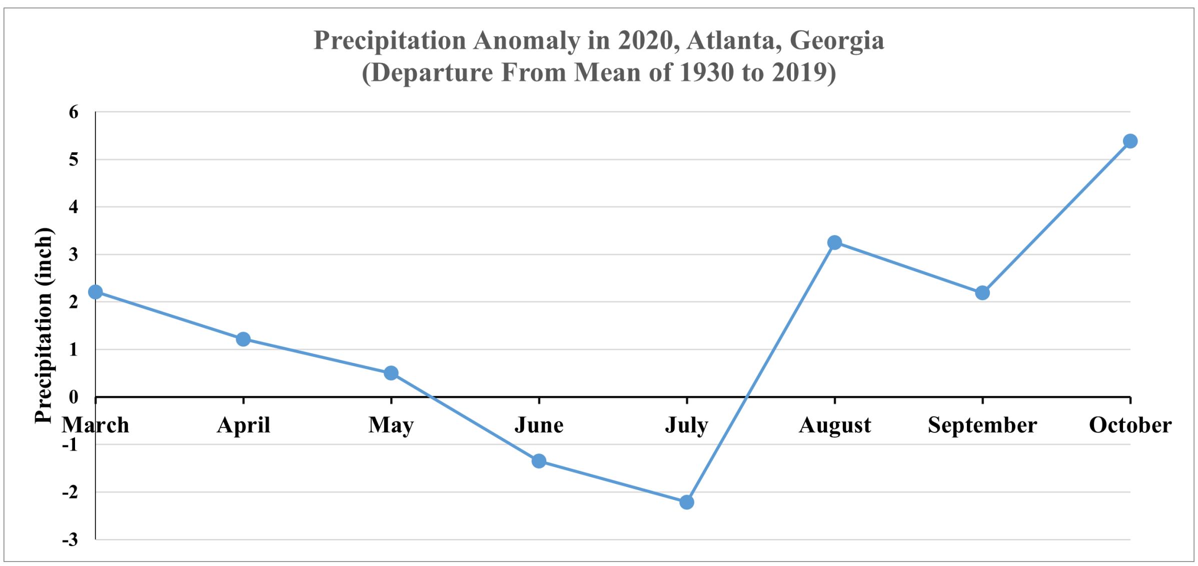
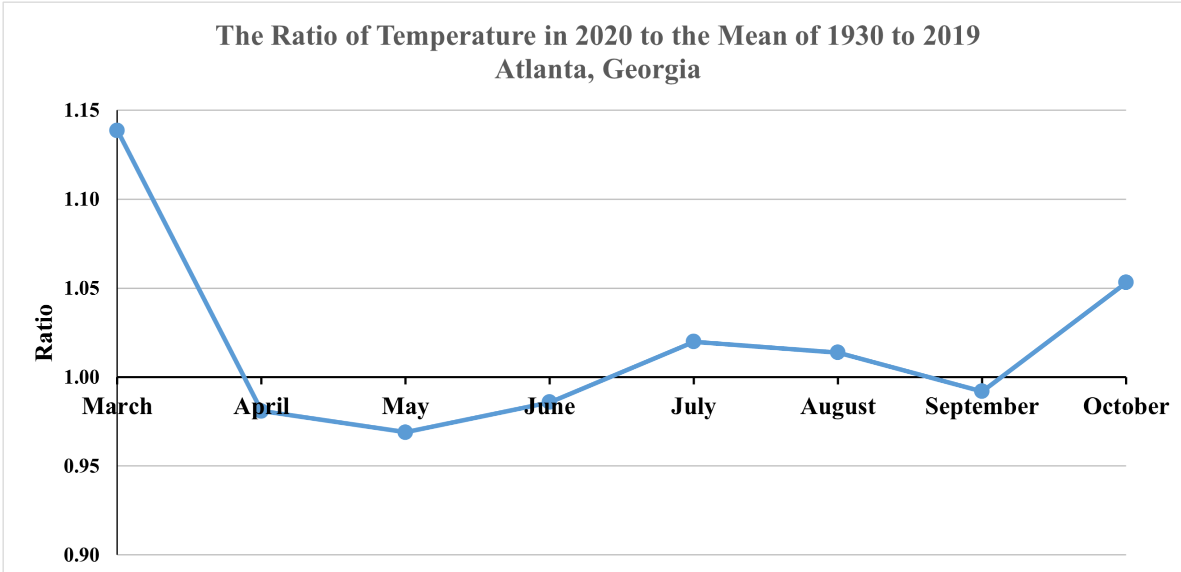


Figure 2-5. Trend of Temperature Anomaly in 2020 (top) and Precipitation (bottom) (Departure of the Mean of 1930 to 2019) in Atlanta, Georgia



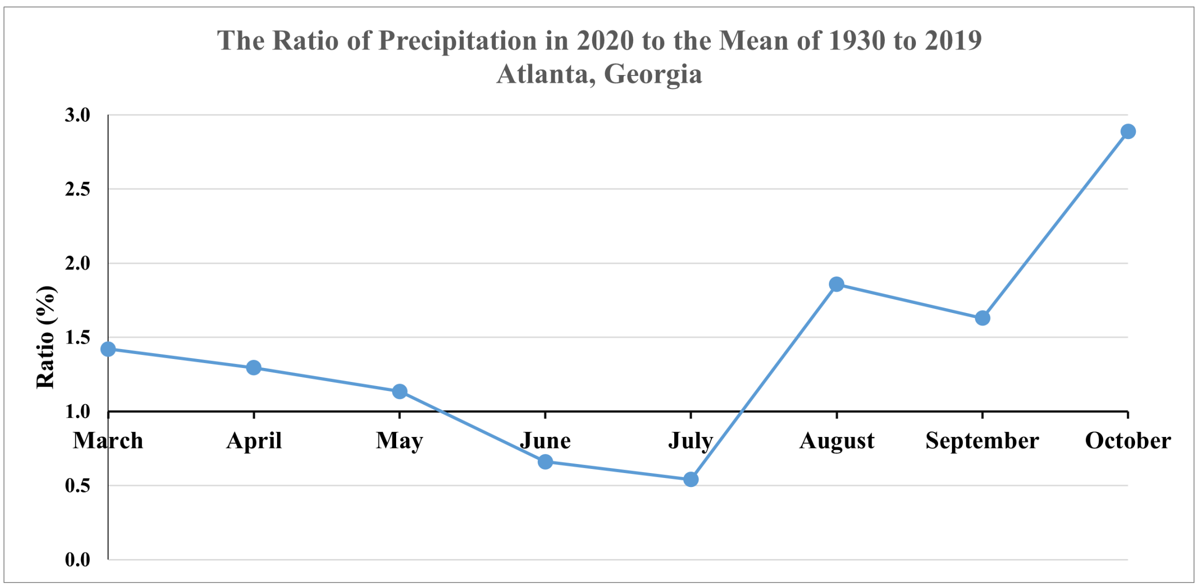
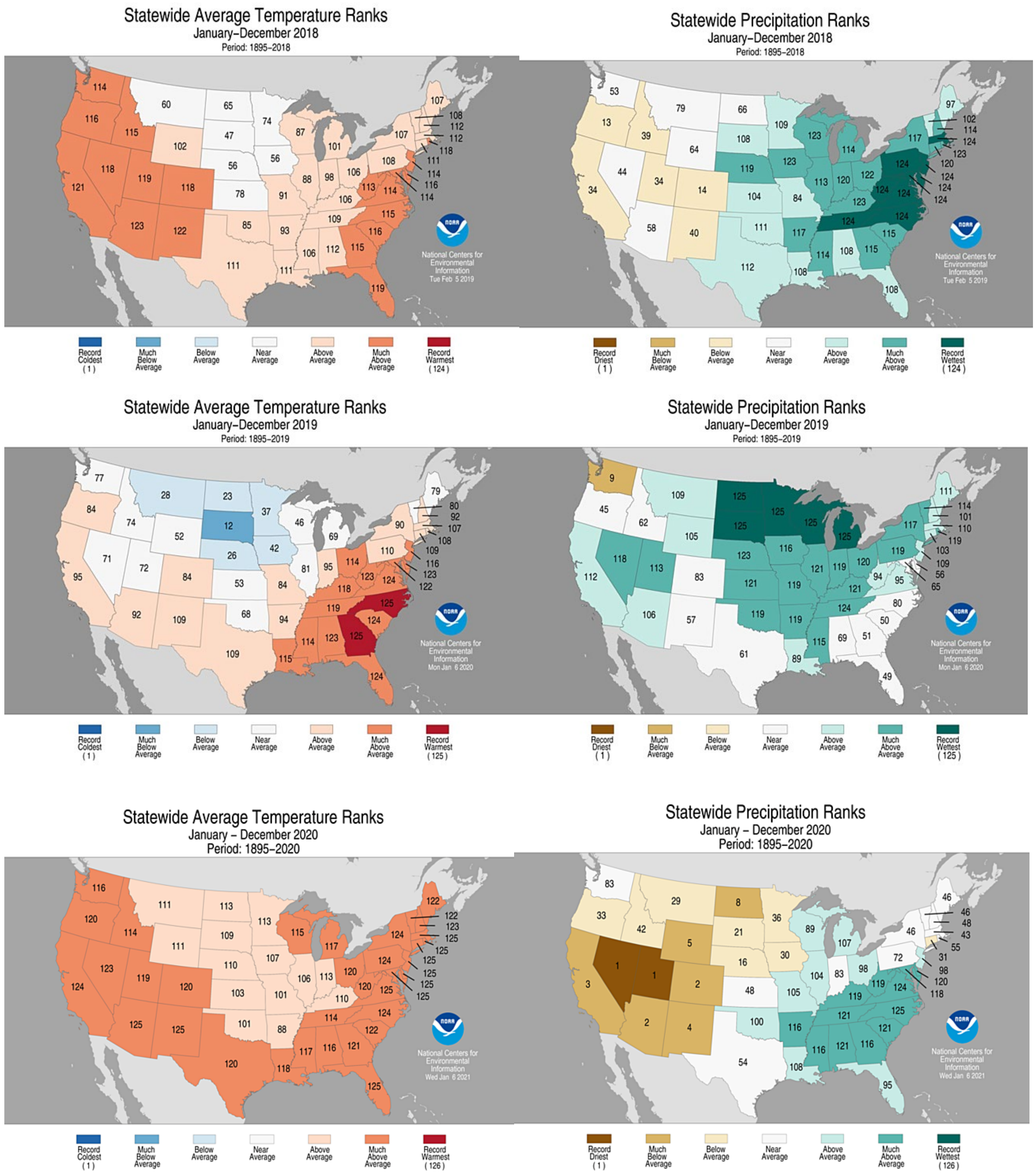


Figure 2-6. Trend of Ratio of Temperature in 2020 to the Mean of 1930 to 2019 (top) and Precipitation (bottom) in Atlanta, Georgia



*Obtained from NOAA website (http://www.ncdc.noaa.gov/temp-and-precip/us-maps/)

Figure 2-7. Statewide Ranks of Average Temperature (left) and Precipitation (right) during 2018 (top), 2019 (middle), and 2020 (bottom)

In order to evaluate the impact of COVID-19 on vehicle traffic in 2020, a comparison was made between Atlanta area traffic in the three years composing the attaining 2018-2020 design value for the 2015 ozone NAAQS. EPD acquired traffic count data at 15-minute intervals from the Georgia Department of Transportation (GDOT) for all traffic counter sites in the state of Georgia from 2018-2020. Each vehicle passing a sensor was counted as one vehicle. This pool of data was filtered for the 7-county nonattainment area as well as for all traffic counter sites where data was available in each month of 2018, 2019, and 2020 to ensure an apples-to-apples comparison. Within this group of sites, the data was further filtered to guarantee all sites covered the same periods across years (e.g., if a site had invalidated data on October 22, 2018, then October 22, 2019 and October 22, 2020 were also excluded). A total of 58 qualified sites covering 6 of the 7 counties in the nonattainment area were used in the comparison (Figure 2-8). The shaded area in Figure 2-8 represents the 7-county Atlanta nonattainment area for the 2015 ozone NAAQS. Once all the data filters were applied, the remaining data were grouped into 36 monthly files and all the counts were summed for each month. Detailed data is available in Appendix A-1.

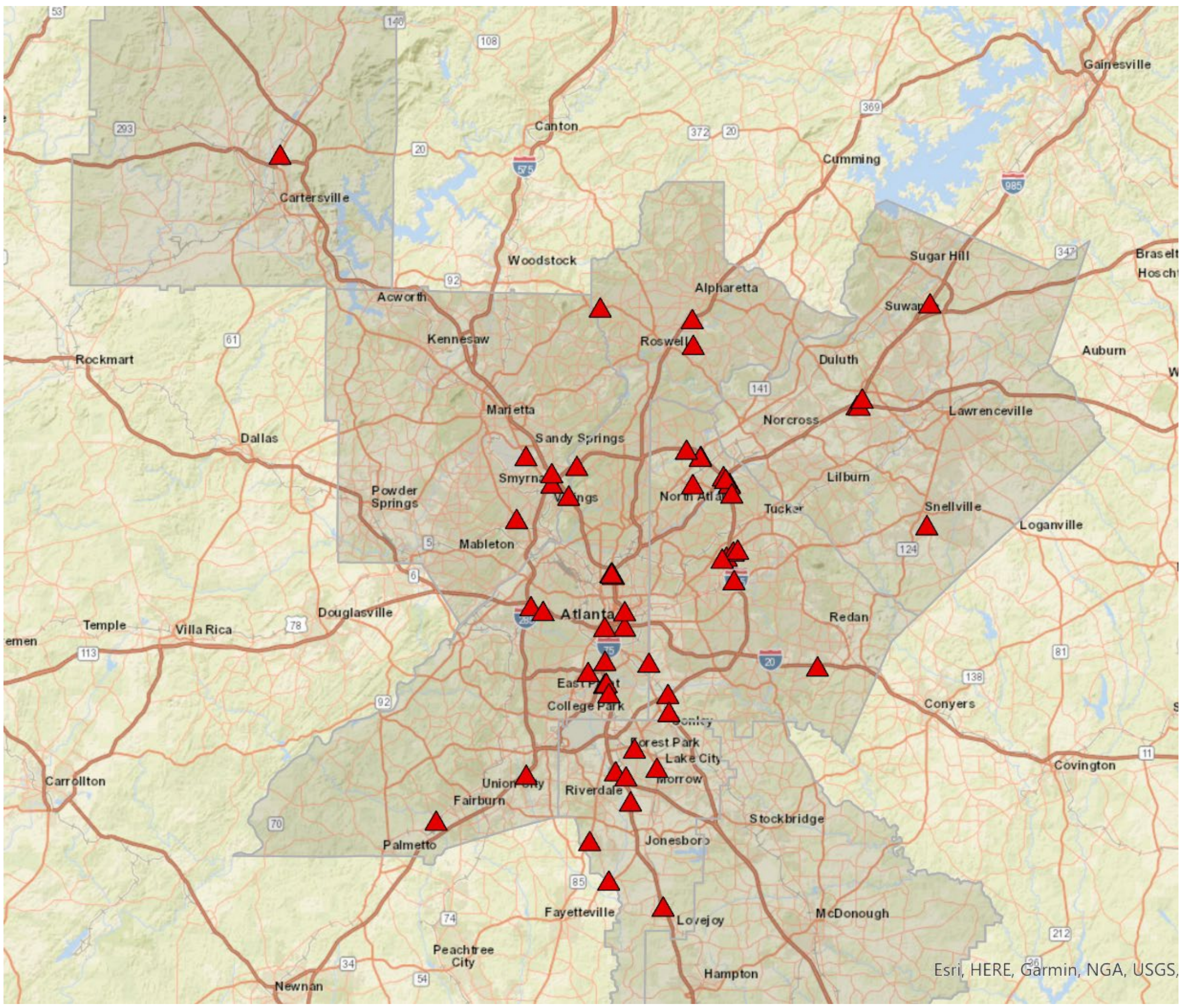


Figure 2-8. Map of Traffic Counter Sites Used in the Comparison Study

The 36 monthly traffic count sums were split by year and the results are shown in Figure 2-9. Figure 2-10 shows the total traffic count differences between 2020 and the average of 2018 and 2019 expressed as a percentage. During January, the 2020 counts were 10.6% higher than 2018 counts and 5.7% higher than the average of 2018 and 2019 counts. With the shutdown starting in mid-March and continuing through April 2020, traffic counts fell relative to 2018 and 2019 (with a maximum drop of 40%). A partial reopening in May 2020, led to increased traffic counts; although still lower than 2018 and 2019 traffic counts (25% lower). Further relaxing of restrictions going into the summer of 2020 (June to September) resulted in traffic counts that were 9-13% lower than the previous two years. The remaining months of the year saw only a 7-9% lower count compared to pre-pandemic years.

Before the pandemic began, the January 2019 counts were 9.3% higher than the January 2018 counts, and the January 2020 counts were 10.6% higher than the January 2018 counts. These variations are very similar to the 9-13% variation in traffic counts during the most crucial months in the ozone season (June-September). The most significant traffic count deviations were seen from March to May 2020; however, Atlanta ozone monitors typically measure fewer exceedances of the ozone standard in these months.

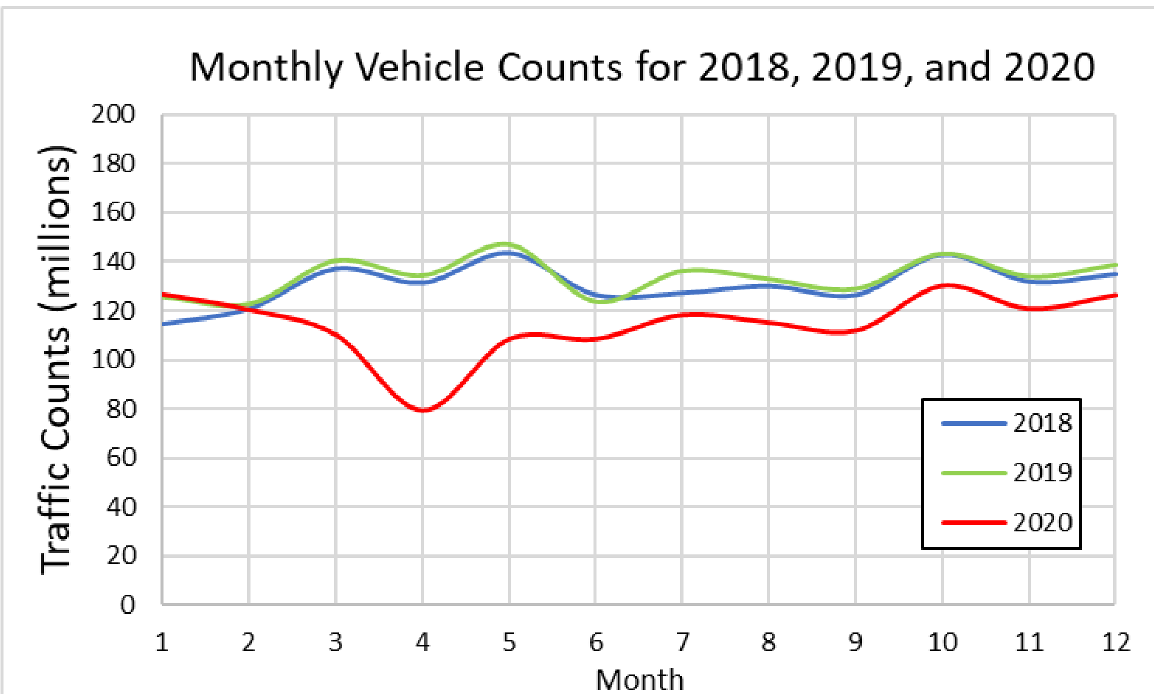


Figure 2-9. Comparison of Traffic Count Totals by Monthly Totals

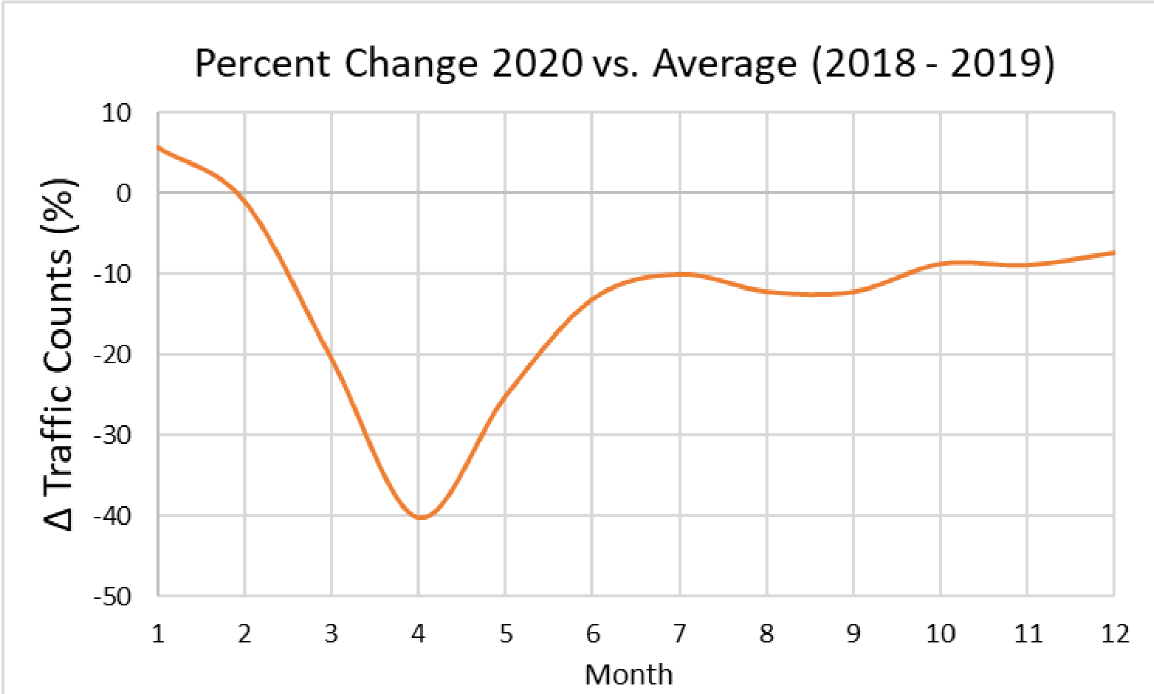


Figure 2-10. Percent (%) Difference of Traffic Counts Between 2020 and Average of 2018 and 2019

Although the NOx and VOC emissions in 2020 were lower due to COVID-19, there is sufficient evidence that the emissions will not return to 2019 levels after the pandemic is over. Studies indicate that many employees may be permanently working from home or will continue to telework more frequently than they did prior to the pandemic.[5] In addition, airport emissions will not return to 2019 levels for several years as businesses are replacing in-person business trips with less costly virtual options.[6] Also, much of the power plant emissions decrease in 2020 was not related to COVID-19, but rather due to a significant increase in the use of renewable power generation.[7] Finally, on-road mobile emissions continue to drop year after year due to vehicle fleet turnover where older dirty vehicles are replaced with new clean vehicles. As a result, we expect future NOx and VOC emissions to remain well below 2019 levels for the foreseeable future.

To add further support, the 2021 preliminary 4th highest 8-hour ozone value at the United Avenue monitor (historically the highest monitor in the Atlanta Area) is 66 ppb and the preliminary 2019-2021 ozone design value for the Atlanta Area is 68 ppb. The 2021 ozone data will be certified by the EPD Ambient Monitoring Program by May 1, 2022. A continued decrease in ozone design values is being observed despite preliminary traffic and congestion

[5] https://gacommuteoptions.com/home/return-to-office/covid-19-commute-impact-report/
[6] https://aci.aero/news/2021/03/25/the-impact-of-covid-19-on-the-airport-business-and-the-path-to-recovery/
[7] https://ieefa.org/ieefa-u-s-georgia-solarhydro-electricity-output-tops-in-state-coal-generation-during-first-half-of-2020/

data from GDOT, TomTom International BV (TomTom), and FHWA indicating increased VMT from 2020 to 2021, but still below 2019 pre-pandemic levels. Table 2-5 contains the average traffic volumes in Atlanta (third week of September) on key traffic corridors in 2019, 2020, and 2021 (snapshot from GDOT[8]).

Table 2-5. Average Traffic Volumes in Atlanta (third week of September) on Key Traffic Corridors in 2019, 2020, and 2021.

Location	2019	2020	2021	Change (2020 – 2021)	Change (2019 – 2021)
I-75 SB-Delk Road	138,002	128,083	132,466	+3.4%	– 4.2%
I-85 SB – Beaver Ruin	150,227	144,317	144,271	0%	-4.1%
GA 400 SB- Pitts Road	92,470	73,806	81,103	9.9%	-14%
I-285 WB at Cham-Dunwdy	102,878	92,179	94,577	2.6%	-8.8%
I-20 WB at Columbia Dr	94,577	41,456	44,523	7.4%	-0.2%
I-20 EB at MLK Jr. Dr	83,224	72,915	79,677	9.3%	-4.5%
I-75 NB at I-675	91,852	89,180	92,812	4%	-1%

Figure 2-11 uses TomTom traffic data[9] to illustrate the daily and weekly difference in congestion between 2021 and 2019. Daily and weekly differences are based on weighted averages derived from hourly data. In the top graphic, blue indicates less congestion in 2021, red indicates more congestion in 2021, and the size of the circle represents the magnitude of the difference. Congestion is measured as the additional time required to reach a destination compared to an uncongested traffic pattern (e.g., 50% congestion means a 1-hour trip takes 1.5 hours). The magnitude of the weekday congestion reduction decreases from January (weeks 1-4) through March (weeks 9-12). The rest of the year, the reduction in weekday congestion remains relatively steady with the exception of the holidays (Memorial Day, Independence Day, Labor Day, and Thanksgiving) where the reductions remained large and weekends where traffic congestion was often greater in 2021 compared to 2019. The lower graphic represents the relative difference (e.g., 0.2 = 20%) between 2021 congestion and 2019 congestion as a weekly average. Average weekly congestion reduction decreases over time but continues to show all weeks in 2021 thru early December (the latest data available) are less congested than 2019.

Figure 2-12 uses TomTom traffic data[9] to show the changes in working day travel patterns in 2019-2021. In January and February, 2019 and 2020 (both pre-pandemic) have similar traffic while 2021 is much lower (post-pandemic). In March, 2020 (start of the pandemic) and 2021 (post-pandemic) both have less traffic than 2019 (pre-pandemic). In April-December, 2019 (pre-pandemic) has the most traffic, 2020 (post-pandemic) has the least traffic, and 2021 (post-pandemic with recovery) is between 2019 and 2020.

---

8 https://atlantaregional.org/whats-next-atl/articles/how-traffic-patterns-in-atl-have-changed-during-pandemic/
9 https://www.tomtom.com/en_gb/traffic-index/atlanta-traffic/

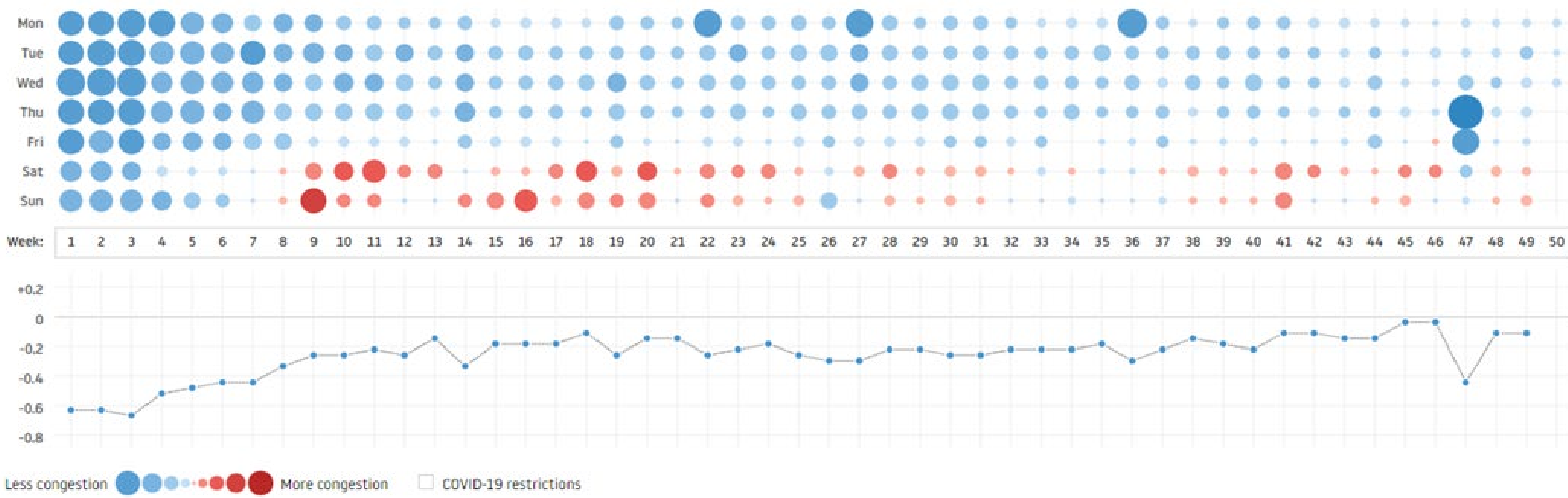


Figure 2-11. Daily and weekly congestion levels in Atlanta (2021 compared to 2019) based on TomTom traffic data.

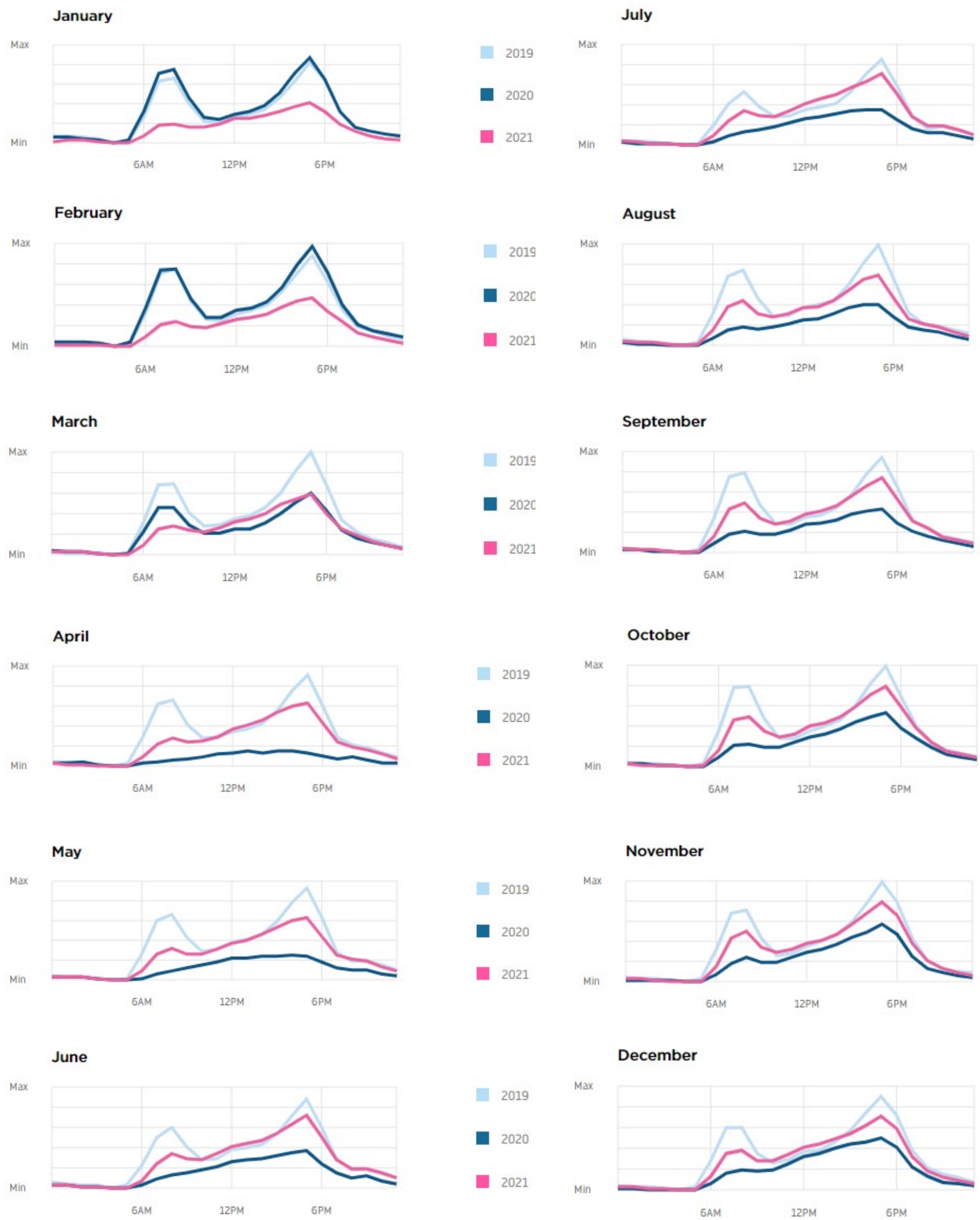


Figure 2-12. Changes in Working Day Travel Patterns in 2019-2021.

Figure 2-13 contains 2019, 2020, and 2021 FHWA VMT data (2019 normalized to match sites used for 2020 and 2021) for Georgia urban roads.[10] The vast majority of urban VMT in Georgia comes from the Atlanta area. This plot shows that after the start of the pandemic, 2021 VMT is higher than 2020 VMT, but lower than 2019 (pre-pandemic) VMT.

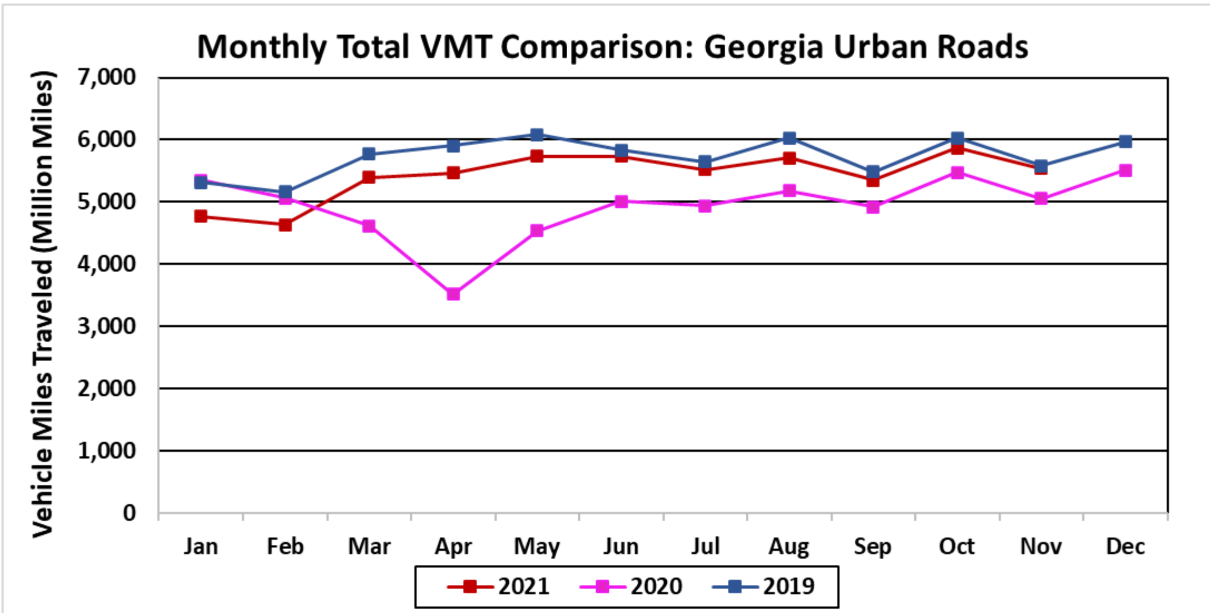


Figure 2-13. FHWA Georgia Urban Road VMT in 2019, 2020, and 2021

[10] https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm

2.3.1 State Control Measures - Georgia

The metro Atlanta region was previously designated nonattainment for the 1979 1-hour, 1997 8-hour, and 2008 8-hour ozone NAAQS. Control of anthropogenic NO_x and VOC emissions is generally considered the most important component of an ozone control strategy. However, the metro Atlanta nonattainment area has shown a greater sensitivity to NO_x controls rather than VOC controls due to the large biogenic component of VOC emissions in Georgia. Anthropogenic NO_x emissions are primarily from combustion devices. Therefore, control measures have focused on the control of NO_x emissions from combustion devices.

NO_x emission limitations and standard provisions in Georgia Rule 391-3-1-.02(2) are established for various external and internal combustion devices and include numerical emission standards and work practice requirements. State measures that target the reductions of NO_x emissions include the following:

- Georgia Rule (yy) – Emissions of Nitrogen Oxides
- Georgia Rule (jjj) – NO_x from EGUs
- Georgia Rule (lll) – NO_x from Fuel Burning Equipment
- Georgia Rule (nnn) – NO_x from Large Stationary Gas Turbines
- Georgia Rule (rrr) – NO_x from Small Fuel Burning Equipment
- Vehicle Emissions Inspection and Maintenance (I/M) Program

2.3.1.1 Georgia Rule (yy)

Georgia Rule (yy) is a case-by-case RACT determination for major sources of NO_x emissions that applies to sources with the potential to emit more than 25 tons of NO_x per year in the following 13 counties: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale; and to those sources that have the potential to emit more than 100 tons of NO_x per year in these seven counties: Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton. This rule has changed over the years based on the major source threshold for NO_x. This rule was adopted as a state rule on June 8, 2008 and adopted into the Georgia SIP on September 28, 2012 (77 FR 59554). As part of the federally approved SIP, this rule is permanent and federally enforceable.

Georgia Rule (yy) continues to be in effect for affected sources in all counties in the Atlanta Area, and some counties outside the Atlanta Area.

2.3.1.2 Georgia Rule (jjj)

NO_x emissions from coal-fired external combustion devices that generate steam for electricity generation are regulated under Georgia Rule 391-3-1-.02(2)(jjj). This rule was adopted into the Georgia SIP on July 10, 2001 (66 FR 35906). As part of the federally approved SIP, this rule is permanent and federally enforceable. As required by the SIP adopted in 2001 (66 FR 35906), Georgia Rule (jjj) established a more stringent NO_x emission standard from May 1 – September 30 (starting in 2003) averaged across affected sources in the affected counties. Plant Bowen is the only remaining coal-fired EGU in the Atlanta Area (see Figure 2-14). In order to comply with Rule (jjj), Plant Bowen incorporated a 0.07 lb/MMBtu permit limit from

May 1 – September 30 into its Title V permit. Plant Bowen has been operating at or below 0.07 lb/MMBtu each year from May 1 – September 30 since 2003 in order to comply with Georgia Rule (jjj).

Figure 2-14. Location of the Coal-fired EGU Facility (Plant Bowen) in the Atlanta Area

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 NO_x emissions. This rule was adopted into the Georgia SIP on July 10, 2001 (66 FR 35906). As part of the federally approved SIP, this rule is permanent and federally enforceable. This rule applies to fuel-burning equipment with maximum design heat input capacities ≥ 10 MMBtu/hr and ≤ 250 MMBtu/hr in 45 counties, including all of the counties in the Atlanta Area and counties in the surrounding area. Georgia Rule (lll) established a compliance date for this standard beginning May 1, 2000, and it affects all fuel burning equipment installed from that date forward. This rule affects future possible emissions for new or modified sources by requiring the operation of equipment during the control season to meet emission limits based on the use of natural gas. The continued implementation of this rule will support the maintenance of the ozone NAAQS for the Atlanta Area.

2.3.1.4 Georgia Rule (nnn)

Stationary gas turbines greater than 25 MW are regulated under Georgia Rule 391-3-1-.02(2)(nnn) for NO_x emissions. This rule was adopted into the Georgia SIP on July 10, 2001 (66 FR 35906). As part of the federally approved SIP, this rule is permanent and federally enforceable. Georgia Rule (nnn) establishes ozone-season NO_x emissions limits for large stationary gas turbines located in 45 counties, all of the counties in the Atlanta Area and counties in the surrounding area. Plant McDonough-Atkinson in Cobb County (in the Atlanta Area) is the only electric generation unit (EGU) subject to Georgia Rule (nnn), which requires combustion turbines permitted on or after April 1, 2000, to emit no more than 6 ppm NO_x at 15% oxygen during the period May 1 through September 30 of each year.

2.3.1.5 Georgia Rule (rrr)

Georgia Rule (rrr) is a Reasonably Available Control Technology (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 oxides emissions. This rule was adopted into the Georgia SIP on September 28, 2012 (77 FR 59554) and remains in effect. As part of the federally approved SIP, this rule is permanent and federally enforceable.

The deadline for full compliance with Georgia Rule (rrr) was May 15, 2005, in the following 13 counties: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale; and March 1, 2009, in the additional 7 counties: Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton. This continues to be in effect in the 2015 Atlanta nonattainment area.

2.3.1.6 Vehicle Emissions Inspection and Maintenance (I/M) Program

Georgia's Clean Air Force (GCAF) was created in 1996 as a result of the CAA and the support of the Georgia General Assembly to reduce VOC and NOx emissions from passenger vehicles. GCAF is administered by EPD and serves as the state's Enhanced Vehicle Emission Inspection and Maintenance (I/M) Program for the following 13 counties: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale. Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry are part of the 7-county Atlanta Nonattainment Area. This rule was adopted into the Georgia SIP on April 17, 2009 (74 FR 17783) and remains in effect. As part of the federally approved SIP, this rule is permanent and federally enforceable.

2.3.2 Federal Control Measures

Federal control measures related to the reduction of VOCs and NO_x emissions are discussed below. All the emission reductions discussed below are federally enforceable.

<u>VOCs</u>

Federal measures that target 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 NO_x emissions are as follows:

- Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR), which replaced CAIR;
- Tier 2 Vehicle Standards;
- Tier 3 Vehicle Standards;
- Heavy-duty Gasoline and Diesel Highway Vehicles Standards & Ultra Low-Sulfur Diesel Rule;
- Medium- and Heavy-duty Vehicle Fuel Consumption and GHG Standards;
- Large Nonroad Diesel Engines Rule & Ultra Low-Sulfur Diesel Rule;
- Non-Road Large Spark Ignition Engines and Recreational Engines Standard;
- Greenhouse Gas Emissions and Fuel Economy Standards;
- Boiler and Reciprocating Internal Combustion Engine (RICE) NESHAP;
- Mercury and Air Toxics Standards (MATS); and
- New Source Performance Standards (NSPS).

Table 2-6 shows the maximum ozone design values and ozone design values averaged across all Atlanta Area monitors combined with the control measures applied to the area during those years. The ozone design values averaged across all Atlanta Area monitors are included to demonstrate the overall impact of emission controls across the entire Atlanta Area. To see ozone design values at specific monitors, please see Table 2-4. Additional federal control measures will take effect after the attainment year so that the Atlanta Area will continue to maintain the standard.

Table 2-6. Ozone Design Values at Atlanta Area Monitors Combined with the Control Measures Applied during those Years.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Maximum Ozone Design Value (ppb)	80	80	83	80	77	73	75	75	73	73	70
Average Ozone Design Value (ppb)	77	76	78	74	71	68	70	69	68	67	65
Clean Air Interstate Rule and Cross-State Air Pollution Rule											
Tier 2 Vehicle Standards[a]											
Tier 3 Vehicle Standards											
Heavy-Duty Gasoline and Diesel Highway Vehicle Standards & Ultra Low-Sulfur Diesel Rule											
Medium- and Heavy-Duty Vehicle Fuel Consumption and GHG Standards											
Large Nonroad Diesel Engines Rule & Ultra Low-Sulfur Diesel Rule											
Nonroad Large Spark-Ignition Engines and Recreational Engines Standard											
Greenhouse Gas Emissions and Fuel Economy Standards											
Boiler and Reciprocating Internal Combustion Engine (RICE) National Emissions Standards for Hazardous Air Pollutants (NESHAP)											
Utility Mercury Air Toxics Standards (MATS) and New Source Performance Standards (NSPS)											

[a] *All passenger vehicle manufacturers had to comply with Tier 2 vehicle standards by 2009. More stringent Tier 3 vehicle standards took effect in 2017.*

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 NO_x and sulfur dioxide (SO_2) and a model rule for the states to use in developing their rules. The purpose of CAIR was to reduce interstate transport of precursors of fine particulate matter and ozone.

CAIR applied to fossil-fuel-fired electric generation units (EGUs), including certain cogeneration units, with nameplate capacities of greater than 25 megawatts electric (MWe). This rule set annual state caps for NO_x and SO_2 in two phases, with the Phase I caps starting in 2009 and 2010, respectively. Phase II caps for NO_x and SO_2 were to become effective in 2015.

As part of CAIR, EPA determined that Georgia contributed significantly to downwind $PM_{2.5}$ nonattainment areas and/or interfered with maintenance of the $PM_{2.5}$ NAAQS (70 FR 25246-25250). Accordingly, Georgia's state CAIR rule [Georgia rule 391-3-1-.02(12) and Georgia rule 391-3-1-.02(13)] were adopted that mirror the provisions of the federal CAIR.

On July 11, 2008, the U.S. District Court of Appeals in the District of Columbia vacated CAIR 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 Cross-State Air Pollution Rule (CSAPR) on August 8, 2011 (76 FR 48208). CSAPR imposes restrictions on emissions of NO_x and SO_2 from states identified as having significant impacts on ozone and/or $PM_{2.5}$ NAAQS attainment, or as interfering with maintenance of these same standards in downwind states. The requirements of CSAPR were to become effective in 2012 and 2014. 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. The timing of CSAPR's implementation has been affected by a number of court actions. On December 30, 2011, CSAPR was stayed prior to implementation. On April 29, 2014, the U.S. Supreme Court issued an opinion reversing an August 21, 2012 D.C. Circuit decision that had vacated CSAPR. Following the remand of the case to the D.C. Circuit, EPA requested that the court lift the CSAPR stay and delay the CSAPR compliance deadlines by three years. On October 23, 2014, the D.C. Circuit granted EPA's request. Accordingly, CSAPR Phase 1 implementation began in 2015 and Phase 2 began in 2017.

On March 15, 2021, EPA finalized the Revised Cross-State Air Pollution Rule Update for the 2008 ozone National Ambient Air Quality Standards (NAAQS). Starting in the 2021 ozone season, the rule will require additional emissions reductions of nitrogen oxides (NO_X) from power plants in 12 states. Georgia wasn't one of those states but is still part of the Group 1 trading program for ozone season NOx and part of the Group 2 trading program for SO_2. Georgia is covered by CSAPR for both fine particles (SO_2 and annual NO_x) and ozone season NO_x.

2.3.2.2 Tier 2 Vehicle Standards

Federal Tier 2 vehicle standards have reduced NO_x 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 NO_x 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) beginning in 2005, with full compliance in 2009. The new standards required 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 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. With fleet turnover it took several years for Tier 2 to be fully implemented; therefore, Tier 2 emission reductions contributed to the Atlanta Area attaining the 2015 8-hour ozone NAAQS. Once Tier 3 (described below) is in effect, it will provide additional controls for maintenance.

2.3.2.3 Tier 3 Vehicle Standards

The Tier 3 program sets new vehicle emissions standards and lowers the sulfur content of gasoline in order to reduce air pollution from passenger cars and trucks, with implementation beginning in 2017 and phasing in through 2025. Tailpipe and evaporative emissions will be reduced for passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. The Tier 3 vehicle standards for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles will be 0.03 grams of NO_x per mile as measured on the Federal Test Procedure (FTP), and 0.05 grams of NO_x per mile as measured on the Supplemental Federal Test Procedure (SFTP). The Tier 3 vehicle standards for heavy-duty pick-ups and vans will be 0.178 grams of NO_x per mile for Class 2b vehicles and 0.630 grams of NO_x per mile for Class 3 vehicles, as measured on the FTP. The Tier 3 gasoline sulfur standard requires federal gasoline to meet an annual average standard of 10 parts per million (ppm) of sulfur by January 1, 2017. The Tier 3 tailpipe standards for light-duty vehicles will reduce the fleet average standards for the sum of non-methane organic gases (NMOG) and nitrogen oxides (NO_x), NMOG+NO_x, by approximately 80% from the current fleet average standards, and will reduce the per-vehicle particulate matter (PM) standards by 70%. The Tier 3 program for heavy-duty vehicles will reduce the fleet average standards for NMOG+NO_x and PM by approximately 60% from the current fleet average standards. The Tier 3 program is also reducing the evaporative VOCs by approximately 50% from the current standards, and these standards apply to all light-duty and onroad gasoline-powered heavy-duty vehicles.

2.3.2.4 Heavy-Duty Gasoline and Diesel Highway Vehicle Standards & Ultra Low-Sulfur Diesel Rule

EPA standards designed to reduce NO_x and VOC emissions from heavy-duty gasoline and diesel highway vehicles (14,001 pounds or more) took effect in 2004. A second phase of standards and testing procedures, which began in 2007, reduced particulate matter from heavy-duty highway engines. The standards also reduced highway diesel fuel sulfur content to 15 ppm to prevent damage to the catalytic converters. The total program achieves a 90% reduction in particulate matter (PM) emissions and a 95% reduction in NO_x emissions, compared to older engines using diesel with higher sulfur content. SO_2 emissions will also be reduced due to the lower fuel sulfur content. With fleet turnover it took several years for this rule to be fully implemented; therefore, emission reductions from this rule contributed to the Atlanta Area attaining the 2015 8-hour ozone NAAQS.

2.3.2.5 Medium- and Heavy-Duty Vehicle Fuel Consumption and GHG Standards

In September 2011, the EPA and the National Highway Traffic Safety Administration (NHTSA) adopted joint rules to reduce greenhouse gas (GHG) emissions and increase fuel efficiency from combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles. The agencies' complementary standards, which form the Heavy-Duty National Program, cover model years 2014 – 2018. The standards for combination tractors will reduce CO_2 emissions and fuel consumption by 9% to 23% over the 2010 baselines. The standards for heavy-duty pickup trucks and vans will reduce CO_2 emissions by 17% for diesel vehicles and 12% for gasoline vehicles, on average per vehicle over the 2010 baselines, and will reduce fuel consumption by 15% for diesel vehicles and 10% for gasoline vehicles, on average per vehicle compared to a common baseline. The standards for vocational vehicles will reduce CO_2 emissions and fuel consumption by 6% to 9% over the 2010 baselines. The decreased fuel consumption due to the Heavy-Duty National Program will result in decreased NO_x emissions from vehicles as the fleet turns over.

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

In May 2004, the EPA promulgated new rules for large nonroad diesel engines, such as those used in construction, agricultural, and industrial equipment, to be phased in between 2014 and 2015. The nonroad diesel rules reduced the allowable sulfur in nonroad diesel fuel by over 99%. Prior to 2006, nonroad diesel fuel averaged about 3,400 ppm sulfur. The rule limited nonroad diesel sulfur content to 500 ppm in 2006 and 15 ppm in 2010. The combined engine and fuel rules reduced NO_x and PM emissions from large nonroad diesel engines by over 90%, compared to older engines using diesel with higher sulfur content. SO_2 emissions were also reduced due to the lower fuel sulfur content.

2.3.2.7 Nonroad Large Spark-Ignition Engines and Recreational Engine Standard

This standard regulates nitrogen oxides (NO_x), 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 model year 2006 off-highway motorcycles and all-terrain-vehicles, 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.

The final rule was published in the Federal Register (67 FR 68241) and became effective January 7, 2003. Now that the rule is fully implemented, we have a reduction of the nonroad spark-ignition engines and recreational engines emissions, with estimates of overall 72% reduction in HC, 80% reduction in NO_x, and 56% reduction in CO emissions which are documented in the rule text. These controls helped reduce ambient concentrations of ozone, CO, and fine PM.

2.3.2.8 Greenhouse Gas Emissions and Fuel Economy Standards

The National Program for greenhouse gas emissions (GHG) and fuel economy standards was developed by the EPA along with the National Highway Traffic Safety Administration (NHTSA) and affects light-duty cars and trucks in model years 2012 – 2016 for phase 1, and model years 2017 – 2025 for phase 2. Additionally, the Tier 3 program for vehicle emission standards and gasoline sulfur content will be implemented during the same period as the second phase of the GHG standards for light-duty vehicles, beginning in model year 2017. The final GHG and fuel economy standards were estimated to give an average industry fleet-wide level of 163 grams of carbon dioxide (CO_2) per mile in model year 2025, equivalent to 54.5 miles per gallon if attained entirely through fuel economy improvements. This program will reduce the precursors of ambient ozone from light duty vehicles in MOVES slightly by improving fuel economy thus reducing the amount of VOC emissions slightly from less refueling emissions, thus slightly reducing the amount of VOC emissions released.

The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule was issued on March 20, 2020 by EPA as an update to Phase 2. The new standard sets tough but feasible fuel economy and carbon dioxide standards that increase 1.5% in stringency each year from model years 2021 through 2026. These standards apply to both passenger cars and light trucks. On December 30, 2021, EPA revised[11] the GHG emissions standards for light-duty vehicles to be more stringent than the SAFE rule standards in each model year from 2023 through 2026.

[11] 86 FR 74434, effective February 28, 2022.

2.3.2.9 Boiler and Reciprocating Internal Combustion Engine (RICE) National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The NESHAP for industrial, commercial, and institutional boilers (40 CFR Part 63 Subpart DDDDD) and the NESHAP for reciprocating internal combustion engines (40 CFR Part 63 Subpart ZZZZ) are projected to reduce VOC emissions.

The NESHAP for industrial, commercial, and institutional boilers and process heaters applies to boiler and process heaters located at major sources of hazardous air pollutants (HAP) that burn natural gas, fuel oil, coal, biomass, refinery gas, or other gas. The compliance deadline for existing boilers was January 31, 2016. The NESHAP includes work practice standards such as regular boiler tune-ups and a one-time energy assessment, emission limitations for pollutants including filterable particulate matter (PM), hydrochloric acid (HCl), Mercury, and carbon monoxide (CO), and operating limitations for control devices. The emission limits and operating limits only apply to larger boilers of at least 10 million BTU/hr that burn fuels other than natural gas, refinery gas, or other gas 1 fuels (gaseous fuel containing no more than 10 $\mu g/m^3$ mercury).

The NESHAP for reciprocating internal combustion engines (RICE) applies to existing, new, or reconstructed stationary RICE located at major or area sources of HAP, excluding stationary RICE being tested at a stationary RICE test cell/stand. The compliance date for existing stationary RICE, excluding existing non-emergency stationary compression ignition (CI) RICE, with > 500 brake HP located at a major source of HAP emissions was June 15, 2007. The compliance date for existing non-emergency stationary CI RICE with > 500 brake HP located at a major source of HAP, existing stationary CI RICE with ≤ 500 brake HP located at a major source of HAP, or existing stationary CI RICE located at an area source of HAP was May 3, 2013. The compliance date for existing stationary spark ignition (SI) RICE with ≤ 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions was October 19, 2013. The NESHAP includes work practice standards such as engine maintenance, fuel requirements, regular performance testing, operating limitations, and emission limitations for pollutants including formaldehyde and CO.

2.3.2.10 Mercury and Air Toxics Standards (MATS) and New Source Performance Standards (NSPS)

EPA published the final rules for the MATS for new and existing coal- and oil-fired electric generation units (EGU) and the NSPS for fossil-fuel-fired electric utility, industrial-commercial-institutional, and small industrial-commercial-institutional steam generating units on February 16, 2012 (77 FR 9304). The purpose of the MATS is to reduce mercury and other toxic air pollutant emissions from coal- and oil-fired EGUs with a capacity of 25 megawatts or more that generate electricity for sale and distribution through the national electric grid to the public. The NSPS has revised emission standards for NO_x, SO_2, and particulate matter (PM) that apply to new coal- and oil-fired power plants.

The compliance date for existing sources subject to MATS was April 16, 2015, although all coal-fired EGUs in Georgia sought and received a one-year compliance extension. The MATS rule has resulted in further reductions of both NO_x and SO_2 emissions in addition to the reduction in mercury and other air toxic emissions.

The control measures listed in Section 2.3.1 and 2.3.2 of this document demonstrate that Item 3 in Section 2.0 has been met.

2.4 Title 1 Part A, Section 110 and Part D Requirements of the Clean Air Act

Title 1 Part A, 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 the National Ambient Air Quality Standards (NAAQS). Title 1 Part D, of CAA (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 2015 8-hour ozone standard on June 4, 2018, effective August 3, 2018.

With an attainment deadline of August 3, 2021, marginal areas were required to attain the National Ambient Air Quality Standard (NAAQS) by the end of the 2020 ozone season. EPD's ozone data for 2018 through 2020 was certified and quality assured by EPD's Ambient Monitoring Program. The 2020 data was certified on February 11, 2021 showing that the Atlanta Area attained the 2015 ozone standard before the August 3, 2021 attainment deadline. When EPA determines that the Atlanta Area has attained the NAAQS, the area will no longer be subject to the nonattainment provisions of Section 110 and Part D. All other Section 110 and Part D Clean Air Act requirements pertaining to the Atlanta Area have previously been approved or are currently subject to approval by EPA or will be suspended upon submittal of this plan.

The requirements that have previously been submitted by the state include ozone monitoring, emissions inventory, and emission statement requirements. EPD submitted its current annual monitoring network plan to EPA on June 25, 2021. The current monitors are operated consistent with 40 CFR Part 58 and any changes will only be made if they are consistent with 40 CFR Part 58. On July 1, 2020, EPD submitted to EPA, the base year emissions inventory (2014) and emissions statements SIP in order to fulfill the requirements of Part D, Sections 182(a)(1) and 182(a)(3)(B) of the CAA.

The state has met all applicable requirements for the Atlanta Area under Section 110 of the CAA and Sections 171 through 179 of the CAA (Part D). Therefore, Item 4 in Section 2.0 of this document has been met.

3.0 Maintenance Plan

Any state seeking redesignation of an area to attainment must submit documentation to EPA that the area will continue to attain the standard in the form of a maintenance plan. Title 1 Part D, Section 175A of the CAA defines maintenance plan requirements. Requirements include 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[12], this maintenance plan also includes a method to verify continued attainment of the 2015 8-hour ozone standard to support the maintenance demonstration. This plan also includes a plan to use the ambient monitoring network for verification of continued attainment or for triggering contingency provisions, if required.

3.1 Maintenance Demonstration

Part D Section 175A of the CAA requires any state requesting a redesignation to submit a revision to its SIP demonstrating maintenance of the applicable standard for a minimum of 10 years after the redesignation date. Section 107(d)(3)(D) allows EPA up to 18 months from receipt of a complete submittal to process a redesignation request. Therefore, EPD is providing a demonstration of maintenance through the year 2033.

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 is called the attainment year inventory. Emissions are projected for the final year of the maintenance period (called the maintenance inventory) and for intermediate years. If the projected emission levels in each of the intermediate and maintenance years are less than the emission level for the attainment year, then maintenance of the standard is demonstrated. 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.

EPD selected 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 for the maintenance year and intermediate years, and a demonstration that the Atlanta Area will continue to attain the standard.

Provision 175A(b) of the Clean Air Act requires that "8 years after redesignation of any area as an attainment area under section 107(d), the State shall submit to the Administrator an additional revision of the applicable State implementation plan for maintaining the national

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

primary ambient air quality standard for 10 years after the expiration of the 10-year period referred to in subsection (a)." EPD intends to address this provision in the future.

3.1.1 Attainment and Maintenance Year Emissions Inventories

EPD prepared 2018 and 2033 summer day emissions inventories of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) for the following 7 counties in the Atlanta Area: Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry.

The 2018 emissions developed by EPD to meet the Air Emissions Reporting Requirements (AERR) are used when available. Sources without 2018 emission estimates are estimated using different approaches that vary by source category as documented below. Then, the base year 2018 emissions are projected to 2033 using different methods for each source category, including:

- EGU point sources
- Non-EGU point source
- Area sources
- Fires – Agricultural burning and land clearing
- Fires – Wildfire and prescribed burning
- Nonroad mobile sources – NONROAD model category
- Nonroad mobile sources – Marine, aircraft and railroad
- Onroad mobile sources

The summer day emission calculations are performed creating emissions fractions of the typical summer ozone day and annual value broken down by county and sector in the 2016 Emissions Modeling Platform version 1. These spreadsheets can be found in Appendix A-3.

All the detailed calculations by source categories can be found in the Appendices A-2 through A-11, as well as emission summary by counties, SCC, and facilities (Appendix A-12). Emissions in Tables 3-2, 3-3, 3-4, 3-5, 3-7, 3-8, 3-10, 3-12, 4-3 and 4-4 are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table. The actual values in the intermediate calculations have more digits than displayed. The exact emission numbers used to generate the total emissions can be found in Excel files located in the appropriate Appendix.

3.1.1.1 Point Sources

Point sources in the 2018 emission inventory include stationary sources whose actual emissions equal or exceed 250 tons per year of VOC or 2,500 tons per year of NO_x in the following 7 counties: Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry counties. Emissions from point sources have been calculated for EGU and non-EGU sources. The 2017 emissions inventory (most recent triennial NEI year) includes all stationary sources whose actual emissions equal or exceed 100 tons per year of VOC or 100 tons per year of NO_x. Therefore, 2017 point source emissions for the smaller point sources that were not included in the 2018 inventory were added to provide a comprehensive 2018 point emissions inventory.

EGU Point Sources:

2018 NO_x and VOC emissions from two power plants in the Atlanta Area (Plant Bowen and Plant McDonough/Atkinson) were submitted by Georgia Power during the 2018 EPD emission data collection process[13].

The 2033 emissions from Plant Bowen (coal-fired with SCR) and Plant McDonough/Atkinson (gas-fired NGCC with SCR) are projected from their 2018 emissions using growth factors based on fuel consumption for the Southeastern region in the Annual Energy Outlook 2018[14]. The growth factors vary by fuel types (Table 3-1) and are applied to 2018 process-level emissions by Source Classification Code (SCC). Detailed information can be found in Appendix A-2. No control factors are applied since no additional controls are expected for Plant Bowen and Plant McDonough/Atkinson during the period from 2018 to 2033.

Table 3-1. Growth Factors by SCC s for EGU Sources

SCC	Fuel Type	2033/2018
20100101	Distillate Fuel Oil	0.3811
10100501	Distillate Fuel Oil	0.3811
20100201	Natural Gas	1.0816
10100604	Natural Gas	1.0816
10100602	Natural Gas	1.0816
10100212	Coal	0.9449

The summer day NO_x emissions from EGU point sources are calculated by summing the hourly CEMS NO_x emission measurements during the 20 weekdays in July 2018 and then dividing by 20 days. The summer day VOC emissions are calculated by multiplying the annual VOC emissions with fractions of average heat input during July weekdays to annual total heat input.

$$emis_{summer-day} = emis_{annual} \times \frac{\sum_j HeatInput_j / 20}{\sum_i HeatInput_i}$$

Where i refers to every day during 2018 and j refers to every day during July weekdays listed in Table 3-1. Specifically, the above data are downloaded from the EPA Air Markets Program Data (AMPD) website[15]. Detailed calculations can be found in Appendix A-2.

Summer day emissions during 2018 and 2033 were summarized by each EGU facility (Table 3-2).

[13] https://epd.georgia.gov/forms-permits/air-protection-branch-forms-permits/air-emissions/submit-emissions-inventory
[14] Energy Information Administration, Department of Energy, "Annual Energy Outlook, 2018".
[15] http://ampd.epa.gov/ampd/

Table 3-2. Summer Day Emissions by EGU Facilities in 2018 and 2033 (tons/day)

Facility Name	Facility ID	Summer Day Emissions (TPD)			
		2018		2033	
		NO_x	VOC	NO_x	VOC
Ga Power Company – Plant Bowen	1500011	19.95	0.60	18.85	0.56
Ga Power Company – Plant McDonough/Atkinson	6700003	1.25	0.37	1.36	0.40
Total*		**21.20**	**0.97**	**20.20**	**0.96**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

Non-EGU Point Sources:

2018 NO_x and VOC emissions from non-EGU point sources were submitted by facilities during the 2018 EPD emission data collection process[16]. The 2033 emissions from non-EGU point sources were not grown from the 2018 emissions based on the following guidance from the EPA[17]:

> "Since 2006 (EPA, 2006a), the EPA has been assuming that emissions growth does not track with economic growth for many stationary sources (both point and nonpoint). This "no-growth" assumption is based on an examination of historical emissions and economic data. Emissions (as of 2005) had declined for several years and those reductions could not be directly attributed to specific control programs despite increasing economic-based growth factors for many metrics over the same time period. While the EPA continues to work toward improving the projection approach in its own work, we are still using this no-growth assumption for many emissions sectors."

In addition, EPD checked the growth and control data in the 2016 Emissions Modeling Platform version 1[18] and found that no growth or control factors were applied for non-EGU point sources in the Atlanta Area. EPD is also not aware of other significant controls that will be applied to these non-EGU point sources during the period from 2018 to 2033. Therefore, the 2033 emissions are kept the same as 2018 emissions for these non-EGU point sources.

The summer day emissions from non-EGU point sources are calculated by applying the emissions fractions from the SMOKE monthly and weekly temporal profiles to the annual non-EGU point source emissions. The SMOKE monthly temporal profiles include weighting factors by month, and the weekly profiles include weighting factors by day of week. These

[16] https://epd.georgia.gov/forms-permits/air-protection-branch-forms-permits/air-emissions/submit-emissions-inventory
[17] U.S. EPA, 2015. Technical Support Document: Preparation of Emissions Inventories for the Version 6.2, 2011 Emissions Modeling Platform, Office of Air and Radiation, Office of Air Quality Planning and Standards, Air Quality Assessment Division.
[18] https://gaftp.epa.gov/Air/emismod/2016/v2/2016emissions/

profiles vary with SCCs. More detailed information can be found in the SMOKE manual[19]. Specifically, emissions during July are first calculated following the equation:

$$emis_{July} = emis_{annual} \times \frac{wf_{July}}{\sum_{i=1}^{12} wf_i}$$

where wf_{July} refers to weighting factor for July and wf_i refers to weighting factor for each month. Then the summer day emissions are calculated following the equation:

$$emis_{summer-day} = emis_{July} \times \frac{\sum_{j=1}^{5} n_j wf_j}{\sum_{i=1}^{7} n_i wf_i} \div 20$$

where i refers to everyday in a week, j refers to every weekday, wf_i or wf_j refers to the weighting factors for a specific day, and n_i or n_j refers to the number of days for a specific day during July. Since the 2016 temporal profiles were not available at the time this project began, temporal profiles were downloaded from the EPA 2011 modeling Platform ftp site[20]. Detailed calculation and a list of non-EGU point sources in the Atlanta ozone nonattainment area and facility-specific VOC and NO_x summer day emissions for 2018 and 2033 can be found in Appendices A-3 and A-4.

2018 and 2033 summer day emissions of NO_x and VOC from EGU and non-EGU facilities are shown in Table 3-3.

Table 3-3. Summer Day Point Source Emissions in 2018 and 2033 (tons/day)

Source	Summer Day Emissions (TPD)			
	2018		2033	
	NO_x	VOC	NO_x	VOC
EGU Point Sources	21.20	0.97	20.20	0.96
Non-EGU Point Sources	6.82	7.10	6.82	7.10
Total*	**28.02**	**8.07**	**27.02**	**8.06**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

[19] https://www.cmascenter.org/smoke/
[20] https://gaftp.epa.gov/air/emismod/2011/v2platform/ancillary_data/

3.1.1.2 Nonpoint Sources

Area Sources:

Since 2018 is not an NEI year, area source 2018 emissions are estimated as the interpolation between 2016 and 2023 emissions in the 2016 Emissions Modeling Platform v1. These 2016 and 2023 emissions have been carefully reviewed by EPD and are considered the best available emission estimates for area sources in Georgia.

2033 emissions from area sources were estimated by multiplying 2018 emissions by growth factors calculated using 2016, 2023, and 2028 emissions in EPA's 2016 modeling platform. The 2023 and 2028 emissions were developed by EPA using growth factors based on surrogate data varying by source sectors (e.g., AEO growth rates for energy sectors) and control factors due to new regulations or amendments to regulations (NESHAP-RICE, NSPS-RICE, Boiler MACT, etc.). After EPD reviewed the methodology and data in the 2016 Emissions Modeling Platform v1, EPD concluded that the 2023 and 2028 emissions could reasonably reflect the area source emission trends in Georgia. Therefore, these emissions are used to develop the growth factors used to project 2033 emissions.

The 2018 and 2033 emissions were calculated as follows:

$$E_{2033} = (E_{2028} - E_{2023}) \times 2 + E_{2023}$$

$$E_{2018} = (E_{2016} + E_{2020})/2$$

These growth factors vary with SCC, county, and pollutants.

Summer day emissions for area sources were calculated using the average summer weekday ozone season for NOx and VOC estimates by county and sector in the 2016 modeling platform v.1. Appendix A-5 contains SCC-specific VOC and NO_X summer day emissions for 2018 and 2033, and Appendix A-3 contains the average ozone summer day emissions used for nonpoint sources.

Fires - Agricultural Burning and Land Clearing:

2018 emissions from agricultural burning and land clearing were developed using detailed 2018 burning records collected from Georgia Forestry Commission (GFC). The emission factors for agricultural burning are provided by the EPA Office of Air Quality Planning and Standards (OAQPS) during the development of 2011 agricultural burning emissions for the 2011 NEI. The emissions for land clearing are estimated using the same method used in SEMAP 2007[21] and the 2011 NEI fire inventory. Emissions in future year 2033 were assumed to be the same as base year 2018.

[21] AMEC, 2012. Development of the 2007 Base Year and Typical Year Fire Emission Inventory for the Southeastern States Air Resource Managers, Inc. (Final Report)

Summer day emissions from agricultural burning and land clearing are calculated using emissions during July. Daily emissions are obtained by using monthly totals and applying the same formula used to calculate summer day emissions as described for non-EGU sources. Detailed information can be found in Appendix A-6.

Fires - Wildfire and Prescribed Burning:

2018 emissions from wildfires and prescribed burning were developed using detailed 2018 burning records collected from the GFC, United States Forest Service, United States Fish & Wildlife Service, and military bases. The detailed burning records showed burned area per day. The emissions are estimated using the same method used in SEMAP 2007[22] and the 2011 NEI fire inventory. The fuel consumption and emission factors used in this method are considered to be the best available for fires in the southeast. These emission estimates have been submitted to EPA to meet the AERR and have been included as part of the 2014 NEI and 2017 NEI. Emissions in future year 2033 were assumed to be the same as base year 2018.

The summer day emissions from wildfires and prescribed burning are calculated by summing the daily emissions from fires that occurred during the 20 July weekdays as mentioned above and then dividing the total emissions during July weekdays by 20 days. Appendix A-7 contains VOC and NO_x summer day emissions summary by fire types and county in Atlanta ozone nonattainment area for 2018.

The 2018 and 2033 summer day emissions of NO_x and VOC from nonpoint sources are shown in Table 3-4.

Table 3-4. Summer Day Nonpoint Source Emissions in 2018 and 2033 (tons/day)

Source	Summer Day Emissions (TPD)			
	2018		2033	
	NO_x	VOC	NO_x	VOC
Area Sources	2.69	23.35	2.69	25.94
Fire – Ag & Land Clearing	0.00	0.01	0.00	0.01
Fire – Wild & Prescribed	0.00	0.00	0.00	0.00
Total	**2.70**	**23.36**	**2.70**	**25.95**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.1.3 Nonroad Mobile Sources

NONROAD Model Category:

NONROAD model within MOVES calculates emissions from a diverse collection of nonroad equipment such as logging, agricultural, construction, industrial, residential and commercial lawn and garden equipment, as well as nonroad vehicles. This model does not calculate

[22] AMEC, 2012. Development of the 2007 Base Year and Typical Year Fire Emission Inventory for the Southeastern States Air Resource Managers, Inc. (Final Report)

emissions from marine, aircraft, and locomotives which are separately estimated as documented below.

2018 and 2033 emissions from NONROAD model category were calculated using the NONROAD portion of MOVES3 model released on November 16, 2020, which reflects all of EPA's final nonroad standards to date. Defaults in MOVES3 were used with 2018 meteorological data based on observations at Hartsfield-Jackson Atlanta International Airport (HJAIA). Default fuel properties with MOVES3 have been updated for the Atlanta area so they were used. Emissions were calculated by county, SCC, day, and hour. Summer day emissions were calculated by running MOVES for a typical July weekday. Detailed MOVES run specification files, output database, SQL query codes for analysis and SCC-specific VOC and NO_x emissions by county are provided in Appendix A-8.

Marine, Aircraft, and Locomotives:

Emissions from locomotives in 2018 were grown from 2017 emissions obtained from the 2017 NEI version 2[23] because locomotive fuel consumption changed very little from 2017 to 2018 according to the Bureau of Transportation. For detailed historical fuel use, refer to the Fuel Use Data Summary in Appendix A-9. Emissions from Georgia yard locomotives were obtained from the 2017 NEI[24].

Emissions from locomotives in 2033 are projected from 2018 emissions using growth and control factors. 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 from the Annual Energy Outlook (AEO), 2019. Growth factors for passenger and commuter rail were developed from national forecasts of passenger rail diesel consumption. Control factors were based on EPA's locomotive engine Regulatory Impact Analyses[25] (RIA) and associated emission factor guidance from EPA[26]. Diesel locomotive engines are subject to revised Federal Tier 0, Tier 1, and Tier 2 standards, as well as new Tier 3 and 4 standards. Refer to Appendix A-9 for detailed growth factor calculations, AEO 2019 table data, and control factor calculations. Appendix A-9 also contains a list of specific aircraft and locomotives sources in the Atlanta Area and SCC-specific VOC and NO_x emissions for 2018 and 2033 and the associated growth or control factors.

Annual and summer day emissions from aircrafts at HJAIA in 2018 and 2033 were provided by Crawford, Murphy & Tilly. Appendix A-10 contains HJAIA emissions and the documentation of the methods used to calculate 2018 and 2033 emissions.

---

[23] U.S. EPA, 2020. Technical Support Document: Preparation of Emissions Inventories for 2016v1 North American Emissions Modeling Platform, Office of Air and Radiation, Office of Air Quality Planning and Standards, Air Quality Assessment Division. https://gaftp.epa.gov/Air/emismod/2016/v2/2016emissions/

[24] Downloaded from EPA 2016 modeling Platform ftp site, https://gaftp.epa.gov/Air/emismod/2016/v1/

[25] U.S. EPA, 2008. "Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression Ignition Engines Less than 30 Liters Per Cylinder," Office of Transportation and Air Quality, EPA-420-R-08-001. March 2008.

[26] U.S. EPA, 2009. "Emission Factors for Locomotives," Office of Transportation and Air Quality, EPA-420-F09-025. April 2009.

Other aircraft emissions for 2018 were projected from the 2017 NEI version 2 and then were projected for 2033 using growth factors. Growth factors for all aircraft engine and airport-related SCCs, except for HJAIA, were based on landing and take-off operation (LTO) projections available from the Federal Aviation Administration's Terminal Area Forecasts (TAF)[27]. Growth factors were calculated for itinerant air carrier, itinerant air taxi and commuter, and local Georgia operations as Atlanta Area averages (excluding HJAIA operations). Growth rates for military aircraft were held constant at 2017 levels. No control factors have been applied to aircraft for criteria pollutant forecasts.

There were negligible emissions from commercial marine vessels in the Atlanta Area.

Summer day emissions for aircrafts, except HJAIA, and locomotives were calculated using the SMOKE temporal profiles as described for non-EGU point sources.

The 2018 and 2033 summer day emissions of NO_x and VOC from nonroad mobile sources are shown in Table 3-5.

Table 3-5. Summer Day Nonroad Mobile Source Emissions in 2018 and 2033 (tons/day)

Source	**Summer Day Emissions (TPD)**			
	2018		**2033**	
	NO_x	**VOC**	**NO_x**	**VOC**
NONROAD	26.46	32.16	16.20	35.38
Railroad	4.43	2.17	1.92	0.20
Aircraft	18.33	3.56	28.50	5.50
Marine	0.00	0.00	0.00	0.00
Total	**49.22**	**37.89**	**46.63**	**41.08**

******Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

[27] FAA, 2020. Federal Aviation Administration, "Terminal Area Forecasts, 2017-2040," available from http://aspm.faa.gov/main/taf.asp.

3.1.1.4 Onroad Mobile Sources

2018 and 2033 emissions from onroad mobile sources were developed by Atlanta Regional Commission using MOVES3. MOVES3 was run separately for two groups of nonattainment counties in Atlanta in inventory mode due to differences in I/M control programs and summer fuel blends (volatility levels) due to a federal rule. These two groups are the following six counties – Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry; and one other county – Bartow. The 6-county group has an I/M program and summer fuel blend with Reid Vapor Pressure (RVP, measure of volatility) limit of 8.8 psi for 2018. Bartow county does not have an I/M program and has a summer fuel blend with RVP limit of 10.0 psi. All 7 counties in the Atlanta Area would have the same fuel blend by 2033. Running MOVES3 separately for the two unique groups of counties helps address impacts from different inputs by county and is consistent with modeling for future transportation conformity demonstrations. Further details regarding this approach are provided in the document "Ozone 2015 Maintenance Plan Modeling Assumptions" in Appendix A-11.

Best available local data were used for MOVES3 inputs such as vehicle population, vehicle miles traveled (VMT) by source type, road type distribution, average speed distributions, starts per day, hourly VMT fractions, age distributions, I/M inputs and fuel properties, as well as average July 2018 daily meteorological inputs. National defaults were applied to populations and age distributions for long haul combination trucks. Please refer to the document "Ozone 2015 Maintenance Plan Modeling Assumptions" provided by the Atlanta Regional Commission in Appendix A-11 for more detailed information.

The 2018 and 2033 summer day emissions of NO_x and VOC from onroad mobile sources are shown in Table 3-6.

Table 3-6. Summer Day Onroad Mobile Source Emissions in 2018 and 2033 (tons/day)

Source	Summer Day Emissions (TPD)			
	2018		2033	
	NO_x	VOC	NO_x	VOC
Onroad Mobile Sources*	99.99	54.00	36.43	21.73

*Includes 0.03 tons/day NOx and 0.05 tons/day VOC emissions in addition to the original summer day emission estimates to account for Senior I/M exemption for on-road sources.

3.1.1.5 Summary of 2018 and 2033 Emissions Inventories

The total 2018 and 2033 NO_x and VOC emissions for the Atlanta Area are presented for each source sector in Table 3-7. In 2018, the majority of NO_x and VOC emissions are from onroad and nonroad mobile sources. In 2033, the majority of NO_x emissions are from nonroad and onroad mobile sources and the majority of VOC emissions are from nonroad mobile sources and nonpoint sources.

Table 3-7. Summary of 2018 and 2033 Summer Day Emissions Inventory (tons/day)

Source	**Summer Day Emissions (TPD)**			
	2018		**2033**	
	NO_x	**VOC**	**NO_x**	**VOC**
Point - EGU	21.20	0.97	20.20	0.96
Point - non-EGU	6.82	7.10	6.82	7.10
Nonpoint	2.70	23.36	2.70	25.95
Onroad	99.99	54.00	36.43	21.73
Nonroad*	49.22	37.89	46.63	41.08
Fires	0.00	0.00	0.00	0.00
Total**	**179.92**	**123.32**	**112.77**	**96.81**

**Including Aircraft and Locomotive.*
***Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.2 Intermediate Year Emissions Projections

As discussed previously, EPD is providing a demonstration of maintenance through the year 2033 (maintenance year). Emissions projections to support maintenance have been prepared through 2033. In addition, emissions have been calculated by interpolation for the years 2021, 2024, 2027, and 2030. Emissions levels for 2027 were calculated by linear interpolation between 2018 and 2033, emissions levels for 2024 were calculated by linear interpolation between 2018 and 2027, emission levels for 2021 were calculated by linear interpolation between 2018 and 2024, and emission levels for 2030 were calculated by linear interpolation of 2027 and 2033. Emissions for these additional years provide additional reference points for periodic assessment of maintenance of the standard. The intermediate year emission inventories are presented in the following subsections.

3.1.2.1 Point Sources

Intermediate year emission projections for EGU and non-EGU point sources are shown in Table 3-8.

Table 3-8. Projected Point Source Emissions (tons/summer day)

Pollutant	*2018 (attainment)*	2021	2024	2027	2030	2033 (*maintenance*)
EGU						
NO_x	21.2	21.0	20.8	20.6	20.4	20.2
VOC	0.97	0.97	0.97	0.96	0.96	0.96
Non-EGU						
NO_x	6.82	6.82	6.82	6.82	6.82	6.82
VOC	7.1	7.1	7.1	7.1	7.1	7.1
Total Point*						
NO_x	**28.02**	**27.82**	**27.62**	**27.42**	**27.22**	**27.02**
VOC	**8.07**	**8.07**	**8.07**	**8.06**	**8.06**	**8.06**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.2.2 Nonpoint Sources

Intermediate year emission projections for nonpoint sources are shown in Table 3-9.

Table 3-9. Projected Nonpoint Source Emissions (tons/summer day)

Pollutant	*2018 (attainment)*	2021	2024	2027	2030	2033 (*maintenance*)
Nonpoint (excluding fire)						
NO_x	2.69	2.69	2.69	2.69	2.69	2.69
VOC	23.35	23.87	24.39	24.90	25.42	25.94
Fire						
NO_x	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.01	0.01	0.01	0.01	0.01	0.01
Total Nonpoint*						
NO_x	**2.70**	2.70	2.70	2.70	2.70	**2.70**
VOC	**23.36**	23.88	24.40	24.91	25.43	**25.95**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.2.3 Nonroad mobile sources

Intermediate year emission projections for nonroad mobile sources are shown in Table 3-10.

Table 3-10. Projected Nonroad Mobile Source Emissions (tons/summer day)

Pollutant	*2018 (attainment)*	2021	2024	2027	2030	2033 (*maintenance*)
NONROAD						
NO_x	26.46	24.41	22.36	20.31	18.25	16.20
VOC	32.16	32.81	33.45	34.10	34.74	35.38
Aircraft						
NO_x	18.33	20.36	22.40	24.43	26.47	28.50
VOC	3.56	3.95	4.34	4.72	5.11	5.50
Locomotive						
NO_x	4.43	3.93	3.43	2.92	2.42	1.92
VOC	2.17	1.78	1.38	0.99	0.59	0.20
Marine						
NO_x	0.00	0.00	0.00	0.00	0.00	0.00
VOC	0.00	0.00	0.00	0.00	0.00	0.00
Total Nonroad						
NO_x	**49.22**	**48.70**	**48.18**	**47.67**	**47.15**	**46.63**
VOC	**37.89**	**38.53**	**39.17**	**39.80**	**40.44**	**41.08**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.2.4 Onroad mobile sources

Intermediate year emission projections for onroad mobile sources are shown in Table 3-11.

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

Pollutant	***2018 (attainment)***	**2021**	**2024**	**2027**	**2030**	**2033 (*maintenance*)**
NO_x	**99.99**	87.27	74.56	61.85	49.14	**36.43**
VOC	**54.00**	47.55	41.09	34.64	28.18	**21.73**

3.1.2.5 Emissions Projections Summary and Demonstration of Maintenance of Attainment

The consolidated emissions projections and intermediate years for all source categories are presented in Table 3-12. Emissions of NO_x and VOC drop significantly from 2018 to 2033. Overall, emissions of NO_x are projected to decline by 37.3 percent and emissions of VOC are projected to decline by 21.5 percent over the course of the maintenance period.

Table 3-12. Projected Emissions – Total of All Sectors (tons/summer day)

Pollutant	***2018 (attainment)***	**2021**	**2024**	**2027**	**2030**	**2033 (*maintenance*)**
Total Point						
NO_x	28.02	27.82	27.62	27.42	27.22	27.02
VOC	8.07	8.07	8.07	8.06	8.06	8.06
Total Nonpoint						
NO_x	2.70	2.70	2.70	2.70	2.70	2.70
VOC	23.36	23.88	24.40	24.91	25.43	25.95
Onroad						
NO_x	99.99	87.27	74.56	61.85	49.14	36.43
VOC	54.00	47.55	41.09	34.64	28.18	21.73
Total Nonroad						
NO_x	49.22	48.70	48.18	47.67	47.15	46.63
VOC	37.89	38.53	39.17	39.80	40.44	41.08
Total of All*						
NO_x	**179.92**	**166.49**	**153.06**	**139.63**	**126.20**	**112.77**
VOC	**123.32**	**118.03**	**112.73**	**107.41**	**102.11**	**96.82**

**Emissions are generally reported to two decimal places (rounded) and that the summation of the values in the tables may not appear to exactly match the value in the "Total" row due to rounding to the number of significant digits reported in the table.*

3.1.2.6 Emissions Decreases

The degree of improvement (reduction) in 2033 emissions compared to the attainment year (2018) emissions can be used to determine the amount of emissions that can be allocated as safety margin for the area's motor vehicle emissions budget. The decrease in emissions of NO_x and VOC from 2018 to 2033 is shown in Table 3-13. Only a portion of the NO_x (and VOC) margin will be allotted to the Motor Vehicle Emissions Budget (see Section 4).

Table 3-13. Emissions Decreases (tons)

Pollutant	Emissions Decrease* 2018 to 2033 (tons)
NO_x **	67.16
VOC **	26.50

* Decrease in Emissions = (2018 emissions level) – (2033 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 operation of an appropriate air quality monitoring network in accordance with 40 CFR Part 58, Ambient Air Quality Surveillance and associated appendices.

The Consolidated Emissions Reporting Rule (CERR) was promulgated by EPA on June 10, 2002. The CERR was replaced by the Air Emissions Reporting Requirements (AERR) rule on December 17, 2008. The most recent triennial inventory for Georgia was compiled for 2017. The larger point sources of air pollution will continue to submit emissions data 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, future comprehensive emissions inventories will be compiled for 2020, 2023, 2026, 2029, 2032, and 2035.

3.2 Contingency Provisions for Maintenance

Section 175A(d) of the CAA 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 to attainment. 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 Plan

Section 175A(d) of the CAA 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 2015 8-hour ozone nonattainment area. Contingency measures are intended to provide further emission reductions if 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 for attainment of the standard. The contingency measures as described below would be adopted and implemented within 24 months of a contingency trigger.

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 an exceedance of the ozone NAAQS level 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.

3.2.1.1 Tier I

A Tier I trigger will apply where no actual violation of the 2015 8-hour ozone standard has occurred, but where the state finds monitored ozone levels indicating that an actual ozone NAAQS violation may be imminent. A pattern will be deemed to exist when there are two consecutive ozone seasons in which the 4^{th} highest values are 0.071 ppm or greater at a single monitor within the Atlanta Area. The trigger date will be 60 days from the date that the state observes a 4^{th} highest value of 0.071 ppm or greater at a monitor for which the previous season had a 4^{th} highest value of 0.071 ppm or greater.

If a Tier I trigger is activated, EPD will develop a plan identifying additional voluntary measures that can be implemented. Possible voluntary measures could include the following types of measures or any other measure deemed appropriate and effective at the time the selection is made:

- Additional Clean Air Force campaign strategies
- Additional GDOT marketing campaigns
- Implementation of diesel retrofit programs, including incentives for performing retrofits for fleet vehicle operations
- Alternative fuel programs for fleet vehicle operations
- Gas can and lawnmower replacement programs
- Voluntary engine idling reduction programs.

If the 4th highest exceedance occurs early in the season, EPD will work with entities identified in the plan to determine if the measures can be implemented during the current season, otherwise, EPD will implement the plan for the following ozone season.

By May 1 of the year following the ozone season in which the Tier I trigger has been activated, EPD will complete sufficient analyses to begin adoption of necessary rules for ensuring attainment and maintenance of the 2015 8-hour ozone NAAQS. The rules would become state effective by the following year.

3.2.1.2 Tier II

A Tier II trigger is activated when any quality assured ozone design value is equal to or greater than 0.071 ppm at a monitor in the Atlanta Area. The trigger date will be 60 days from the date that the state observes a 4th highest value that, when averaged with the two previous ozone seasons' fourth highest values, would result in a three-year average equal to or greater than 0.071 ppm. Alternately, a Tier II trigger is activated if the periodic emission inventory updates (based on the triennial AERR) reveal excessive or unanticipated growth greater than 10% in NO_x or VOC emissions over the attainment or intermediate emissions inventories for the Atlanta Area.

In the case that a Tier II trigger is activated, EPD will conduct a comprehensive analysis, based on quality-assured ambient data that 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, and
- current and recently identified control technologies.

All monitored ozone data will be verified through EPD's Ambient Monitoring Program quality assurance and certification process. This process will include an analysis of available data regarding the air quality, meteorology, transport, and related activities in the area to determine the possible cause of the violation.

EPD commits to implement within 24 months of a Tier II trigger, or as expeditiously as practicable, whichever is earlier, at least one of the control measures listed in the paragraph below or other contingency measures that may be determined to be more appropriate based on the analyses performed.

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 Area; however, an evaluation of those measures, such as RACT, can be performed to determine if those measures are adequate or up-to-date. In addition to those identified above, 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 NO_x.
- Reasonably Available Control Technology (RACT) for point sources of VOC and NO_x, specifically the adoption of new and revised RACT rules based on Groups II, III, and IV CTGs.
- Other measures deemed appropriate at the time as a result of advances in control technologies.
- Additional NO_x 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.

3.2.2 Tracking Program for Ongoing Maintenance

EPD will continue operation of an appropriate air quality monitoring network in accordance with 40 CFR Part 58, Ambient Air Quality Surveillance and associated appendices. EPD will continue to update its emissions inventory at least once every three years. In addition to the emissions inventory for 2018, the emissions inventory base year, and the last year of the maintenance plan, 2033, the interim years of 2021, 2024, 2027, and 2030 were selected to show a trend analysis for maintenance of the 2015 8-hour ozone NAAQS. Tracking the progress of the maintenance plan also includes performing reviews of the updated emissions inventories for the area using the latest emissions factors, models, and methodologies. For these periodic inventories, EPD will review the assumptions made for projected growth of activity levels.

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 federally-funded highway and transit projects that are classified as nonexempt before they are funded and approved for transportation plans and transportation improvement programs.

4.1 Pollutants

For this maintenance plan, MVEBs will be set for NO_x and VOC emissions. 40 CFR Parts 93.119(f)(1) through (10) identify the ozone precursor 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) - NO_x in ozone areas, unless the EPA Administrator determines that additional reductions in NO_x 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 Area. ARC is the metropolitan planning organization (MPO) for Metro Atlanta Area. Mobile source inventories for 2018 and 2033 were developed using the latest available planning assumptions, the most recent travel demand model, EPA's latest MOtor Vehicle Emission Simulator (MOVES3) model, and vehicle population and age distributions developed from registration data obtained from R.L. Polk, a division of IHS. The methodology used to calculate the highway mobile source emissions on which the 2018 and 2033 MVEBs are based is discussed below.

MOVES3 was run in "inventory mode" producing raw emissions in g/hr but aggregated to "per day" time frame with mass units converted to "tons" for this maintenance plan ("tons/day"). In this mode, emissions are estimated by multiplying activity (e.g., VMT, vehicles, and starts) by emission factors (mass pollutant per mile for VMT, per vehicle for vehicle population, and per start for starts which involve parked vehicles being turned on and driven). See Appendix A-11 for more details on the development of the travel demand model and the determination of emissions.

The MOVES3 motor vehicle emissions model was used to calculate 2018 and 2033 emission factors with all currently known 2018 and 2033 onroad mobile source control rules in place. The emission rates reflect all federal controls, such as the Federal Motor Vehicle Control Program including Tier 1, Tier 2 tailpipe standards, the National Low Emission Vehicle program, and Tier 3 emission standards. These Tier 3 standards phase in beginning in 2017 for cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty trucks. Tier 3 fuel standards require lower sulfur gasoline phase in beginning in 2017. The model also incorporates heavy-duty engine and vehicle greenhouse gas (GHG) regulations that phase in during model years 2014-2018, as well as the second phase of light-duty vehicle GHG regulations that phase in for model years 2017-2025.

The ARC travel demand model is developed and maintained by the Atlanta Regional Commission in cooperation with 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 as the use of such procedures has been the previous practice of the 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 March 23, 2021. 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 MVEBs.

4.3 Motor Vehicle Emissions Budgets and Safety Margins

The projected 2033 on-road motor vehicle emissions for NO_x and VOC are 36.43 and 21.73 tons per day, respectively. As presented in Section 3.1.2.2, the overall surplus or overall emissions reduction from 2018 for all sectors is 67.16 tons per day for NO_x and 26.50 tons per day for VOCs. A portion of these emission reductions will be used as a safety margin for the 2033 MVEBs. The safety margin allotted for the MVEB is based on determining a worst-case daily emissions projection. The worst-case scenario increased VMT by ~35%, increased vehicle population by ~30%, and increased vehicle starts by ~25%. Also, the average age of vehicles was increased by 2 years. Safety margins do not apply to the 2018 MVEBs (only applies to 2033 MVEBs).

The worst-case 2033 daily motor vehicle emissions projection for NO_x is 48 percent above the projected 2033 on-road emissions. In a worst-case scenario, the needed safety margin allotment for the 2033 MVEB would be 17.57 tons per day resulting in an overall MVEB of 54 tons per day. This leaves a remaining overall safety margin of 49.59 tons per day for NOx. The worst-case 2033 daily motor vehicle emissions projection for VOC is 61 percent above the projected 2033 on-road emissions. In a worst-case scenario, the needed safety margin allotment for the 2033 MVEB would be 13.27 tons per day resulting in an overall MVEB of 35 tons per day. This leaves a remaining overall safety margin of 13.23 tons per day for VOCs.

The 2018 and projected 2033 on-road emissions, MVEBs, and safety margins (listed as "N/A" for 2018) are presented in Tables 4-1 and 4-2. The additional emission allotted for the safety margin is also added to the overall inventory as presented in Tables 4-3 and 4-4.

Table 4-1. 2018 Motor Vehicle Emissions, Safety Margins, and Emissions Budgets

Pollutant	2018 On-Road Emissions (tons per day)	Safety Margin Allotted to MVEB (tons per day)	MVEB (tons per day)
NO_x	99.99	N/A	99.99
VOC	54.00	N/A	54.00

Table 4-2. 2033 Motor Vehicle Emissions, Safety Margins, and Emissions Budgets

Pollutant	2033 Projected On-Road Emissions (tons per day)	Amount Above 2033 Projection Allotted to MVEB	Safety Margin (tons per day)	Portion of Safety Margin Allotted to MVEB (tons per day)	Remaining Safety Margin (tons per day)	MVEB with Safety Margin Portion included (tons per day)
NO_x	36.43	48%	67.16	17.57	49.59	54
VOC	21.73	61%	26.50	13.27	13.23	35

Table 4-3. Summary of Projected NO_x Emissions – Total of All Sectors (tons/summer day)

Source	**2018 (*attainment*)**	**2021**	**2024**	**2027**	**2030**	**2033 (*maintenance*)**
Point - total	28.02	27.82	27.62	27.42	27.22	27.02
Area - total	2.70	2.70	2.70	2.70	2.70	2.70
Non-road - total	49.22	48.70	48.18	47.67	47.15	46.63
Onroad	99.99	87.27	74.56	61.85	49.14	36.43
Onroad Safety Margin						17.57
Total	**179.92**	166.49	153.06	139.63	126.20	**130.34**

Table 4-4. Summary of Projected VOC Emissions – Total of All Sectors (tons/summer day)

Source	**2018 (*attainment*)**	**2021**	**2024**	**2027**	**2030**	**2033 (*maintenance*)**
Point - total	8.06	8.06	8.06	8.06	8.06	8.06
Area - total	23.36	23.88	24.40	24.91	25.43	25.95
Non-road - total	37.89	38.53	39.17	39.80	40.44	41.08
Onroad	54.00	47.55	41.09	34.64	28.18	21.73
Onroad Safety Margin						13.27
Total	**123.32**	118.02	112.72	107.42	102.12	**110.08**

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) of the CAA.
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 Title 1 (Part A, Section 110 and Part D) of the CAA.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area as required under Section 175A of the CAA.

The supporting documentation to show that the above conditions have been met for the Atlanta Area is contained in this document. EPD's ozone data for 2018 through 2020 was certified and quality assured by EPD's Ambient Monitoring Program. The 2020 data was certified on February 11, 2021 showing that the Atlanta Area attained the 2015 ozone standard before the August 3, 2021 attainment deadline. The maintenance demonstration in this document shows that, based on the comparison of projected emissions to attainment year emissions, emissions are expected to stay at or below 2018 levels through the year 2033. 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 1 through 5 above. Therefore, EPD requests that the Atlanta Area be redesignated to attainment with respect to the 2015 8-hour ozone NAAQS as expeditiously as possible.