GEORGIA: Atlanta, Georgia Nonattainment Area

Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (TSD)

1.0 Summary

This technical support document (TSD) describes the EPA's final designations for portions of the metropolitan Atlanta area in Georgia as nonattainment for the 2015 ozone National Ambient Air Quality Standards (NAAQS).

On October 1, 2015, the EPA promulgated revised primary and secondary ozone NAAQS (80 FR 65292; October 26, 2015). The EPA strengthened both standards to a level of 0.070 parts per million (ppm). In accordance with section 107(d) of the Clean Air Act (CAA), whenever the EPA establishes a new or revised NAAQS, the EPA must promulgate designations for all areas of the country for that NAAQS.

Under section 107(d), states were required to submit area designation recommendations to the EPA for the 2015 ozone NAAQS no later than 1 year following promulgation of the standards, i.e., by October 1, 2016. Tribes were also invited to submit area designation recommendations. On September 23, 2016, Georgia recommended that eight counties (Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, Henry and Rockdale Counties) be designated as nonattainment for the 2015 ozone NAAQS based on air quality data from 2013-2015. This was based on five counties having violating monitors, including Rockdale County, and the remaining counties being included for contribution. In December of 2016, Georgia submitted to the EPA certified 2016 Georgia ambient air ozone monitoring data. On December 22, 2017, the EPA sent Georgia a letter (120 Day Letter) and five factor analysis technical support document (TSD) notifying Georgia that the EPA had evaluated Georgia's September 23, 2016, recommendation, conducted the EPA's own five factor analysis and from both, concluded that the EPA agreed with Georgia's recommendation to designate eight counties nonattainment. Then on February 2, 2018, Georgia submitted certified 2017 ambient air ozone monitoring data in the area. Based on that data, four of the counties violating the 2015 ozone NAAQS based on 2014-16 data remained in violation of the 2015 ozone NAAQS based on 2015-2017 data. For the fifth county, Rockdale County, the data showed that the County no longer violated the 2015 ozone NAAQS with a 2015-2017 Design Value (DV). On February 2, 2018, Georgia updated their recommendation[1] to exclude Rockdale County and to designate the seven counties identified in Table 1 as nonattainment for the 2015 ozone NAAQS based on air quality data from 2015-2017 and a five-factor analysis addressing contribution to the violating monitors. On March 30, 2018, Georgia submitted a supplement to their Technical Analysis Document - ADDENDUM (February 2, 2018).

After considering the February 2, 2018 updated recommendation, and March 30, 2018 supplemental technical analysis, and based on the EPA's technical analysis as described in this TSD, the EPA is designating the identified seven counties in Table 1 as nonattainment for the 2015 ozone NAAQS (hereafter referred to as the Atlanta, GA nonattainment area). The EPA is designating the remainder of the Atlanta combined statistical area (CSA) (including Rockdale County) as attainment/unclassifiable. The EPA must designate an area

[1] Technical Analysis Document - ADDENDUM (February 2, 2018) in the docket for this action.

nonattainment if it has an air quality monitor that is violating the standard or if it has sources of emissions that are contributing to a violation of the NAAQS in a nearby area. Detailed descriptions of the nonattainment boundaries for the area are found in the supporting technical analysis for the area in Section 3.0.

Table 1. Georgia's Updated Recommended Nonattainment Area and the EPA's Designated Nonattainment Area for the 2015 Ozone NAAQS

Area	Georgia's Recommended Nonattainment Counties	Georgia's Updated Recommended Nonattainment Counties	The EPA's Designated Nonattainment Counties
Atlanta, GA	Bartow Clayton Cobb DeKalb Fulton Gwinnett Henry Rockdale	Bartow Clayton Cobb DeKalb Fulton Gwinnett Henry	Bartow Clayton Cobb DeKalb Fulton Gwinnett Henry

In its September 23, 2016, recommendation letter and in Georgia's February 2, 2018, updated recommendation letter, Georgia recommended that the EPA designate as unclassifiable/attainment all counties within the Atlanta Combined Statistical Area (Atlanta CSA) not recommended for inclusion as part of the Atlanta, GA nonattainment area. On November 6, 2017, the EPA signed a notice (82 FR 54232; November 16, 2017) designating the remainder of Georgia, not included in the Atlanta CSA, as attainment/unclassifiable with the exception of Camden County which is the Jacksonville-St. Mary's-Palatka FL-GA CSA.[2] The EPA is designating all of the Atlanta CSA counties not listed in Table 1 as attainment/unclassifiable. The EPA explains in Section 2.0 the approach it is taking to designate all areas in the State not designated in the November 2017 final action.

2.0 Nonattainment Area Analyses and Boundary Determination

The EPA evaluated and determined the boundaries for each nonattainment area on a case-by-case basis, considering the specific facts and circumstances of the area. In accordance with the CAA section 107(d), the EPA is designating as nonattainment the areas with the monitors that are violating the 2015 ozone NAAQS and nearby areas with emissions sources (i.e., stationary, mobile, and/or area sources) that contribute to the violations. As described in the EPA's designations guidance for the 2015 NAAQS (hereafter referred to as the "ozone designations guidance"),[3] after identifying each monitor indicating a violation of the ozone NAAQS in an area, the EPA analyzed those nearby areas with emissions potentially contributing to the violating area. In

[2] In previous ozone designations and in the designation guidance for the 2015 ozone NAAQS, the EPA used the designation category label "unclassifiable/attainment" to identify both areas that were monitoring attainment and areas that did not have monitors but for which the EPA had reason to believe were likely attainment and were not contributing to a violation in a nearby area. The EPA is now reversing the order of the label to be "attainment/unclassifiable" so that the category is more clearly distinguished from the separate "unclassifiable" category.

[3] The EPA issued guidance on February 25, 2016 that identified important factors that the EPA intends to evaluate in determining appropriate area designations and nonattainment boundaries for the 2015 ozone NAAQS. Available at *https://www.epa.gov/ozone-designations/epa-guidance-area-designations-2015-ozone-naaqs*

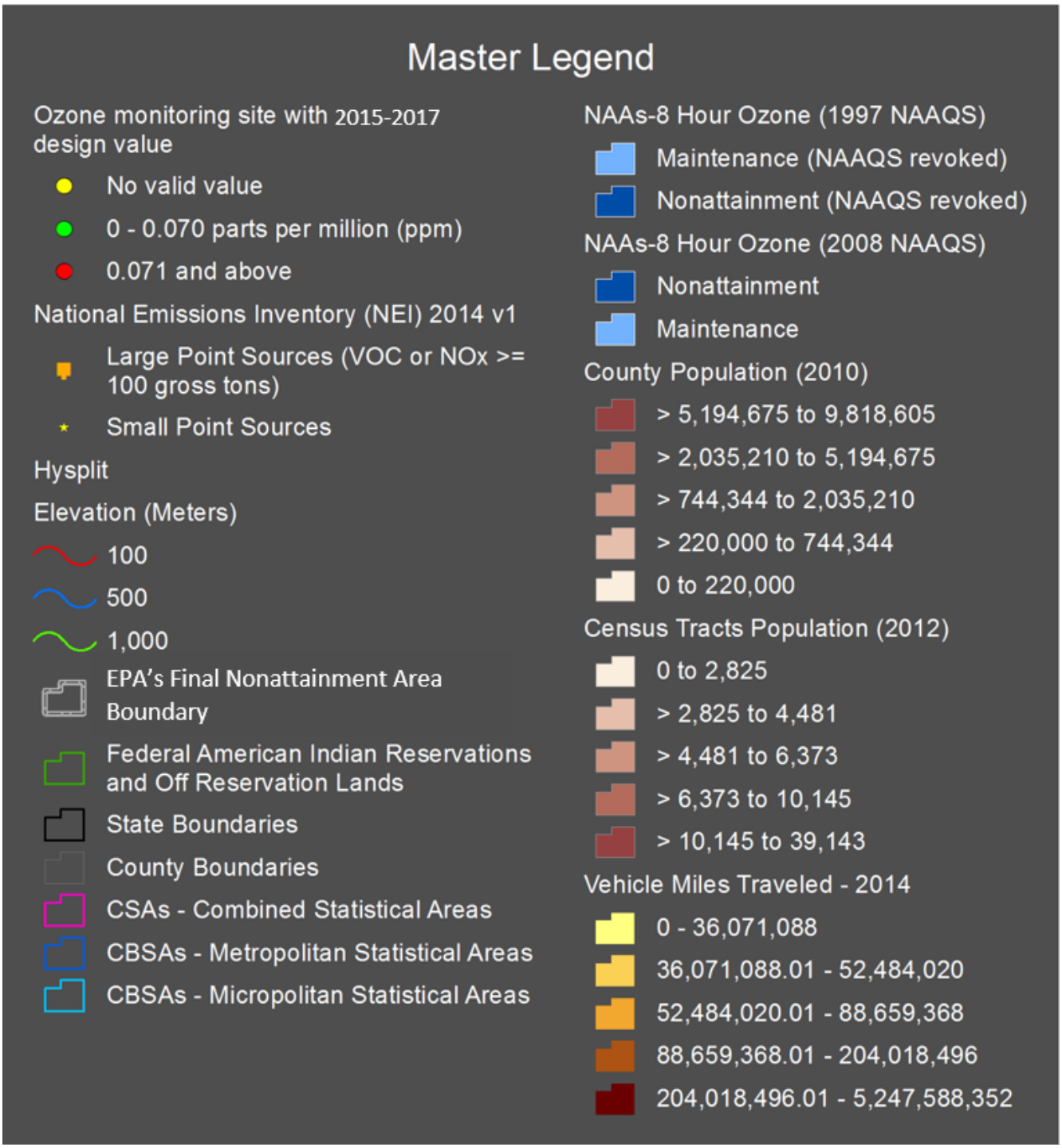
guidance issued in February 2016, the EPA provided that using the Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA)[4] as a starting point for the contribution analysis is a reasonable approach to ensure that the nearby areas most likely to contribute to a violating area are evaluated. The area-specific analyses may support nonattainment boundaries that are smaller or larger than the CBSA or CSA.

On November 6, 2017, the EPA issued attainment/unclassifiable designations for approximately 85 percent of the United States and one unclassifiable area designation.[5] At that time, consistent with statements in the designations guidance regarding the scope of the area the EPA would analyze in determining nonattainment boundaries, the EPA deferred designation for any counties in the larger of a CSA or CBSA where one or more counties in the CSA or CBSA was violating the standard and any counties with a violating monitor not located in a CSA or CBSA. In addition, the EPA deferred designation for any other counties adjacent to a county with a violating monitor. The EPA also deferred designation for any county that had incomplete monitoring data, any county in the larger of the CSA or CBSA where such a county was located, and any county located adjacent to a county with incomplete monitoring data.

The EPA is proceeding to complete the remaining designations consistent with the designations guidance (and the EPA's past practice) regarding the scope of the area the EPA would analyze in determining nonattainment boundaries for the ozone NAAQS as outlined above. For those deferred areas where one or more counties violating the ozone NAAQS or with incomplete data are located in a CSA or CBSA, in most cases the technical analysis for the nonattainment area includes any counties in the larger of the relevant CSA or CBSA. For counties with a violating monitor not located in a CSA or CBSA, the EPA explains in the 3.0 Technical Analysis section, its decision whether to consider in the five-factor analysis for each area any other adjacent counties for which the EPA previously deferred action. We are designating all counties not included in five-factor analyses for a specific nonattainment or unclassifiable area analyses, as attainment/unclassifiable. These deferred areas are identified in a separate document entitled, " Designations for Deferred Counties and County Equivalents Not Addressed in the Technical Analyses." which is available in the docket.

[4] Lists of CBSAs and CSAs and their geographic components are provided at www.census.gov/population/www/metroareas/metrodef.html. The Office of Management and Budget (OMB) adopts standards for defining statistical areas. The statistical areas are delineated based on U.S. Census Bureau data. The lists are periodically updated by the OMB. The EPA used the most recent July 2015 update (OMB Bulletin No. 15-01), which is based on application of the 2010 OMB standards to the 2010 Census, 2006-2010 American Community Survey, as well as 2013 Population Estimates Program data.

[5] Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards published on November 16, 2017(82 FR 54232).



Figures in the remainder of this document refer to the master legend above.

3.0 Technical Analysis for the Atlanta, GA CSA

This technical analysis identifies the area with monitors that violate the 2015 ozone NAAQS. The EPA evaluated this area and any nearby areas to determine whether those nearby areas have emissions sources that potentially contribute to ambient ozone concentrations at the violating monitors in the area, based on the weight-of-evidence of the five factors recommended in the EPA's ozone designations guidance and any other relevant information. In developing this technical analysis, the EPA used the latest data and information available to the EPA (and to the states and tribes through the Ozone Designations Mapping Tool and the EPA Ozone Designations Guidance and Data web page).[6] In addition, the EPA considered any additional data or information provided to the EPA by states or tribes.

The area of analysis for the Atlanta, GA area included the Atlanta-Athens – Clarke County - Sandy Springs-, GA CSA (hereafter referred to as the Atlanta, GA CSA). The Atlanta, GA CSA is comprised of the following Georgia counties: Barrow County, Bartow County, Butts County, Carroll County, Cherokee County, Clarke County, Clayton County, Cobb County, Coweta County, Dawson County, DeKalb County, Douglas County, Fayette County, Forsyth County, Fulton County, Gordon County, Gwinnett County, Hall County, Haralson County, Heard County, Henry County, Jackson County, Jasper County, Lamar County, Madison County, Meriwether County, Morgan County, Newton County, Oconee County, Oglethorpe County, Paulding County, Pickens County, Pike County, Polk County, Rockdale County, Spalding County, Troup County, Upson County and Walton County.

The EPA applied the five factors recommended in its guidance to the area of analysis to determine the nonattainment area boundary.

The five factors recommended in the EPA's guidance are:

1. Air Quality Data (including the design value calculated for each Federal Reference Method (FRM) or Federal Equivalent Method (FEM) monitor;
2. Emissions and Emissions-Related Data (including locations of sources, population, amount of emissions, and urban growth patterns);
3. Meteorology (weather/transport patterns);
4. Geography/Topography (including mountain ranges or other physical features that may influence the fate and transport of emissions and ozone concentrations); and
5. Jurisdictional Boundaries (e.g., counties, air districts, existing nonattainment areas, areas of Indian country, Metropolitan Planning Organizations (MPOs)).

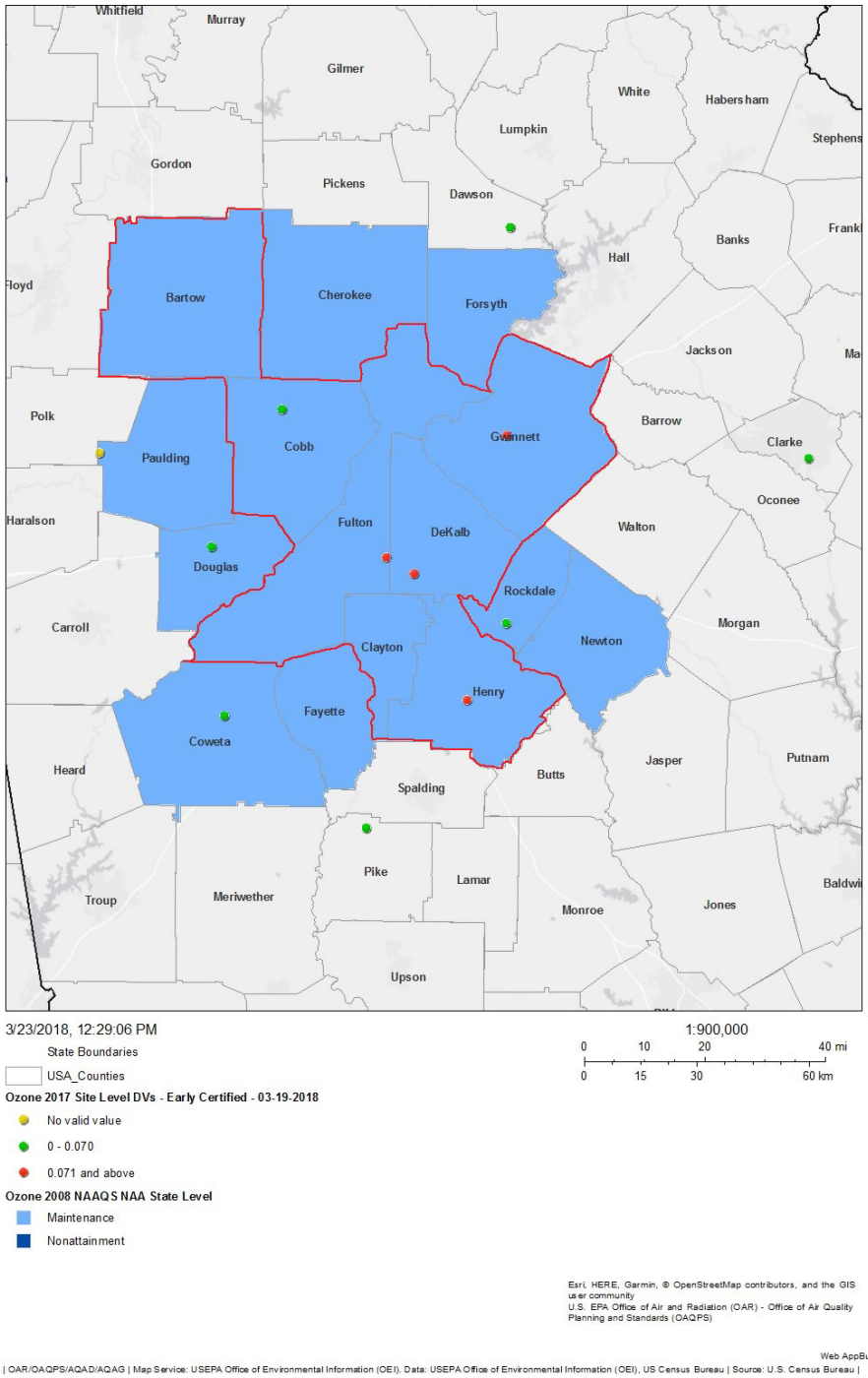
Figure 1 is a map of the EPA's nonattainment boundary for the Atlanta, GA, nonattainment area. The map shows the location of the ambient air quality monitors, county, and other jurisdictional boundaries.

For purposes of the 1997 ozone NAAQS, this area was designated nonattainment with a boundary that included 20 entire counties: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding and Walton. The area was redesignated attainment for the 1997 ozone NAAQS on December 2, 2013 (78 FR 72040). For purposes of the

[6] The EPA's Ozone Designations Guidance and Data web page can be found at *https://www.epa.gov/ozone-designations/ozone-designations-guidance-and-data.*

2008 ozone NAAQS, this area was designated nonattainment with a boundary that included 15 entire counties: Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding and Rockdale. The area attained the 2008 ozone NAAQS and was redesignated to attainment for the 2008 ozone NAAQS on June 2, 2017 (82 FR 25523).

Figure 1. The EPA's Nonattainment Boundaries for the Atlanta Area



The EPA must designate as nonattainment any area that violates the NAAQS and any nearby areas that contribute to the violation in the violating area. DeKalb, Fulton, Gwinnett, and Henry Counties in the Atlanta, GA CSA have monitors in violation of the 2015 ozone NAAQS Based on the most recent three years of certified monitoring data: 2015, 2016 and 2017; therefore these counties are included in the nonattainment area. Based on the five factor analysis below, the EPA is not modifying the State's recommendation that Bartow, Clayton and Cobb counties in the Atlanta, GA CSA contribute to one or more of the violating areas and should be included in the designated nonattainment area. The following sections describe the five factor analysis for all of the counties in the Atlanta CSA. While the factors are presented individually, they are not independent. The five factor analysis process carefully considers the interconnections among the different factors and the dependence of each factor on one or more of the others, such as the interaction between emissions and meteorology for the area being evaluated.

Factor Assessment

Factor 1: Air Quality Data

The EPA considered 8-hour ozone design values in ppm for air quality monitors in the Atlanta, GA CSA based on data for the 2015-2017 period (i.e., the 2017 design value, or DV). This is the most recent three-year period with fully-certified air quality data. The design value is the 3-year average of the annual 4th highest daily maximum 8-hour average ozone concentration.[7] The 2015 NAAQS are met when the design value is 0.070 ppm or less. Only ozone measurement data collected in accordance with the quality assurance (QA) requirements using approved (FRM/FEM) monitors are used for NAAQS compliance determinations.[8] The EPA uses FRM/FEM measurement data residing in the EPA's Air Quality System (AQS) database to calculate the ozone design values. Individual violations of the 2015 ozone NAAQS that the EPA determines have been caused by an exceptional event that meets the administrative and technical criteria in the Exceptional Events Rule[9] are not included in these calculations. Whenever several monitors are located in a county (or designated nonattainment area), the design value for the county or area is determined by the monitor with the highest valid design value. The presence of one or more violating monitors (i.e. monitors with design values greater than 0.070 ppm) in a county or other geographic area forms the basis for designating that county or area as nonattainment. The remaining four factors are then used as the technical basis for determining the spatial extent of the designated nonattainment area surrounding the violating monitor(s) based on a consideration of what nearby areas are contributing to a violation of the NAAQS.

The EPA identified monitors where the most recent design values violate the NAAQS, and examined historical ozone air quality measurement data (including previous design values) to understand the nature of the ozone

[7] The specific methodology for calculating the ozone design values, including computational formulas and data completeness requirements, is described in 40 CFR part 50, appendix U.

[8] The QA requirements for ozone monitoring data are specified in 40 CFR part 58, appendix A. The performance test requirements for candidate FEMs are provided in 40 CFR part 53, subpart B.

[9] The EPA finalized the rule on the Treatment of Data Influenced by Exceptional Events (81 FR 68513) and the guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events in September of 2016. For more information, see *https://www.epa.gov/air-quality-analysis/exceptional-events-rule-and-guidance*.

ambient air quality problem in the area. Eligible monitors for providing design value data generally include State and Local Air Monitoring Stations that are operated in accordance with 40 CFR part 58, appendix A, C, D and E and operating with an FRM or FEM monitor. These requirements must be met in order to be acceptable for comparison to the 2015 ozone NAAQS for designation purposes. All data from Special Purpose Monitors using an FRM or FEM are eligible for comparison to the NAAQS, subject to the requirements given in the March 28, 2016 Revision to Ambient Monitoring Quality Assurance and Other Requirements Rule (81 FR 17248).

The 2015-2017 design values and updated air quality monitoring data for counties in the Atlanta, GA CSA are shown in Table 2.

Table 2. Air Quality Data (all values in ppm)[a].

County, State	State Recommended Nonattainment?	AQS Site ID	2015-2017 DV	2015 4th highest daily max value	2016 4th highest daily max value	2017 4th highest daily max value
Barrow, GA	No	No Monitor	N/A			
Bartow, GA	Yes	No Monitor	N/A			
Butts, GA	No	No Monitor	N/A			
Carroll, GA	No	No Monitor	N/A			
Cherokee, GA	No	No Monitor	N/A			
Clarke, GA	No	13-059-0002	0.064	0.061	0.069	0.062
Clayton, GA	Yes	No Monitor	N/A			
Cobb, GA	Yes	13-067-0003	0.067	0.066	0.070	0.065
Coweta, GA	No	13-077-0002	0.063	0.066	0.066	0.057
Dawson, GA	No	13-085-0001	0.065	0.063	0.067	0.065
DeKalb, GA	Yes	13-089-0002	**0.071**	0.071	0.074	0.068
Douglas, GA	No	13-097-0004	0.069	0.070	0.071	0.066
Fayette, GA	No	No Monitor	N/A			
Forsyth, GA	No	No Monitor	N/A			
Fulton, GA	Yes	13-121-0055	**0.075**	0.077	0.075	0.073
Gordon, GA	No	No Monitor	N/A			
Gwinnett, GA	Yes	13-135-0002	**0.071**	0.071	0.078	0.064
Hall, GA	No	No Monitor	N/A			
Haralson, GA	No	No Monitor	N/A			
Heard, GA	No	No Monitor	N/A			
Henry, GA	Yes	13-151-0002	**0.071**	0.070	0.078	0.065
Jackson, GA	No	No Monitor	N/A			
Jasper, GA	No	No Monitor	N/A			
Lamar, GA	No	No Monitor	N/A			
Madison, GA	No	No Monitor	N/A			
Meriwether, GA	No	No Monitor	N/A			
Morgan, GA	No	No Monitor	N/A			
Newton, GA	No	No Monitor	N/A			
Oconee, GA	No	No Monitor	N/A			
Oglethorpe, GA	No	No Monitor	N/A			

County, State	State Recommended Nonattainment?	AQS Site ID	2015-2017 DV	2015 4th highest daily max value	2016 4th highest daily max value	2017 4th highest daily max value
Paulding, GA	No	13-223-0003	N/A[b]	0.065	0.067	N/A[b]
Pickens, GA	No	No Monitor	N/A			
Pike, GA	No	13-231-9991	0.067	0.068	0.071	0.062
Polk	No	No Monitor	N/A			
Rockdale, GA	No[10]	13-247-0001	0.069	0.068	0.076	0.063
Spalding, GA	No	No Monitor	N/A			
Troup, GA	No	No Monitor	N/A			
Upson, GA	No	No Monitor	N/A			
Walton, GA	No	No Monitor	N/A			

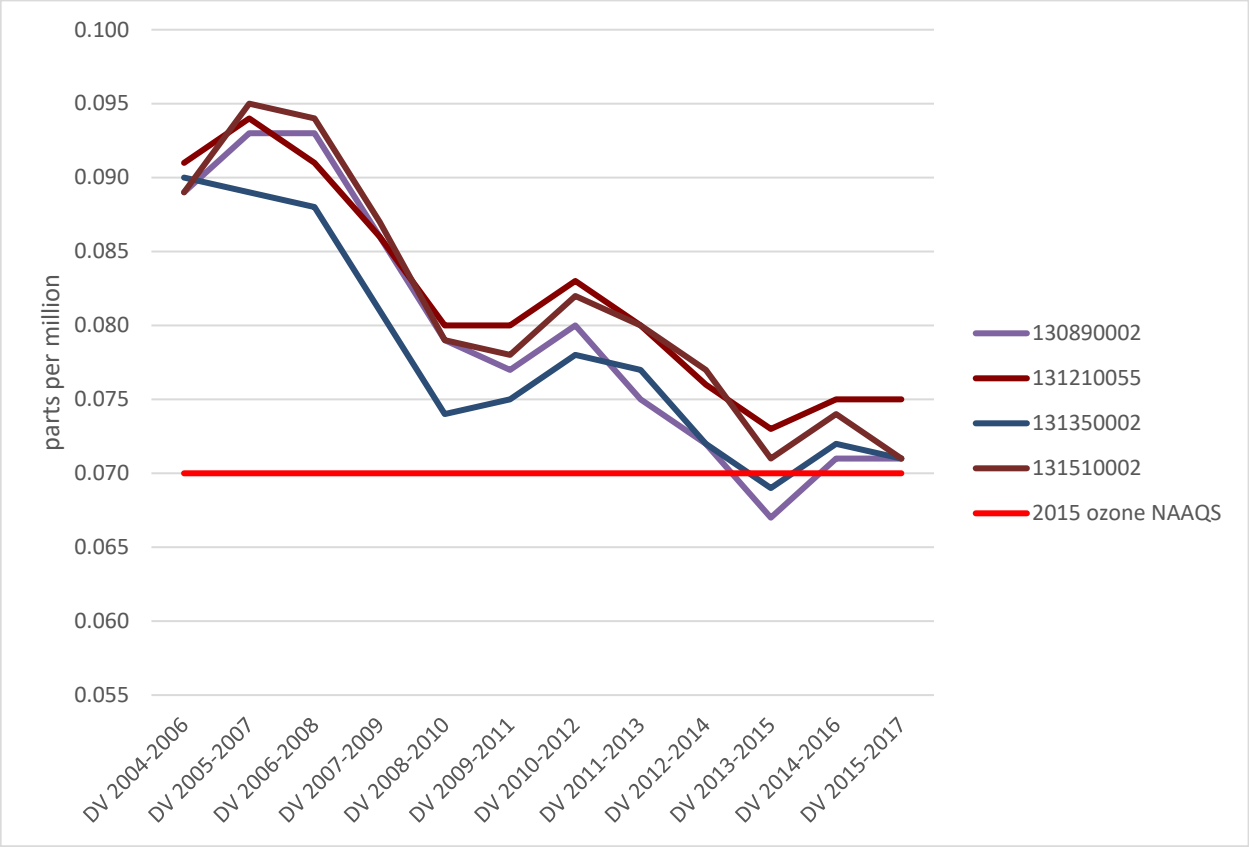
[a] The monitors that exceed the 2015 NAAQS of 0.070 ppm are in bold type.
N/A means that the monitor did not meet the completeness criteria described in 40 CFR, part 50, Appendix U, or no data exists for the county.
[b]The Yorkville monitor in Paulding County was approved by the EPA to discontinue operation at the end of 2016 in Georgia's ambient air monitoring network plan. Therefore, the monitor was not required to operate in 2017, and did not produce a valid design value for 2015-2017. The Yorkville monitor had a valid, attaining design value of 0.063 ppm for the 2014-2016 period.

DeKalb, Fulton, Gwinnett and Henry counties show a violation of the 2015 ozone NAAQS, therefore these counties are included in the nonattainment area. A county (or partial county) must also be designated nonattainment if it contributes to a violation in a nearby area.

Figure 1, shown previously, identifies the Atlanta, GA nonattainment area, the Atlanta, GA, CSA boundary and the violating monitors. Table 2 identifies the design values for all monitors in the area of analysis and Figure 2 shows the historical trend of design values for the violating monitors. As indicated on the map, there are four violating monitors, with two monitors in the city of Atlanta, one in Fulton and one in DeKalb Counties and the two remaining violating monitors are to the southeast and northeast of the city. There are four attaining monitors to the west of the city, two to the east, one to the northeast and one to the south. As shown in Figure 2, air quality has generally improved in the Atlanta, GA Area since 2006.

[10] Georgia originally recommended nonattainment for Rockdale County due to a violating monitor. Georgia requested a revision to their recommendation, during the 120-day process, due to the fact that the Rockdale County monitor is now attaining.

Figure 2. Three-Year Design Values for Violating Monitors (2006-2017).



While ozone design values have decreased in the Atlanta Area over time, there are four monitors that violated the 2015 Ozone NAAQS with 2015-2017 monitoring data.

Factor 2: Emissions and Emissions-Related Data

The EPA evaluated ozone precursor emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC) and other emissions-related data that provide information on areas contributing to violating monitors.

Emissions Data

The EPA reviewed data from the 2014 National Emissions Inventory (NEI). For each county in the area of analysis, the EPA examined the magnitude of large sources (NOx or VOC emissions greater than 100 tons per year (tpy)) and small point sources and the magnitude of county-level emissions reported in the NEI. These county-level emissions represent the sum of emissions from the following general source categories: point sources, non-point (i.e., area) sources, non-road mobile, on-road mobile, and fires. Emissions levels from sources in a nearby area indicate the potential for the area to contribute to monitored violations.

Table 3 provides a county-level emissions summary of NOx and VOC (given in tpy) emissions for the area of analysis considered for inclusion in the Atlanta, GA Area nonattainment area.

Table 3. Total County-Level NO_x and VOC Emissions.

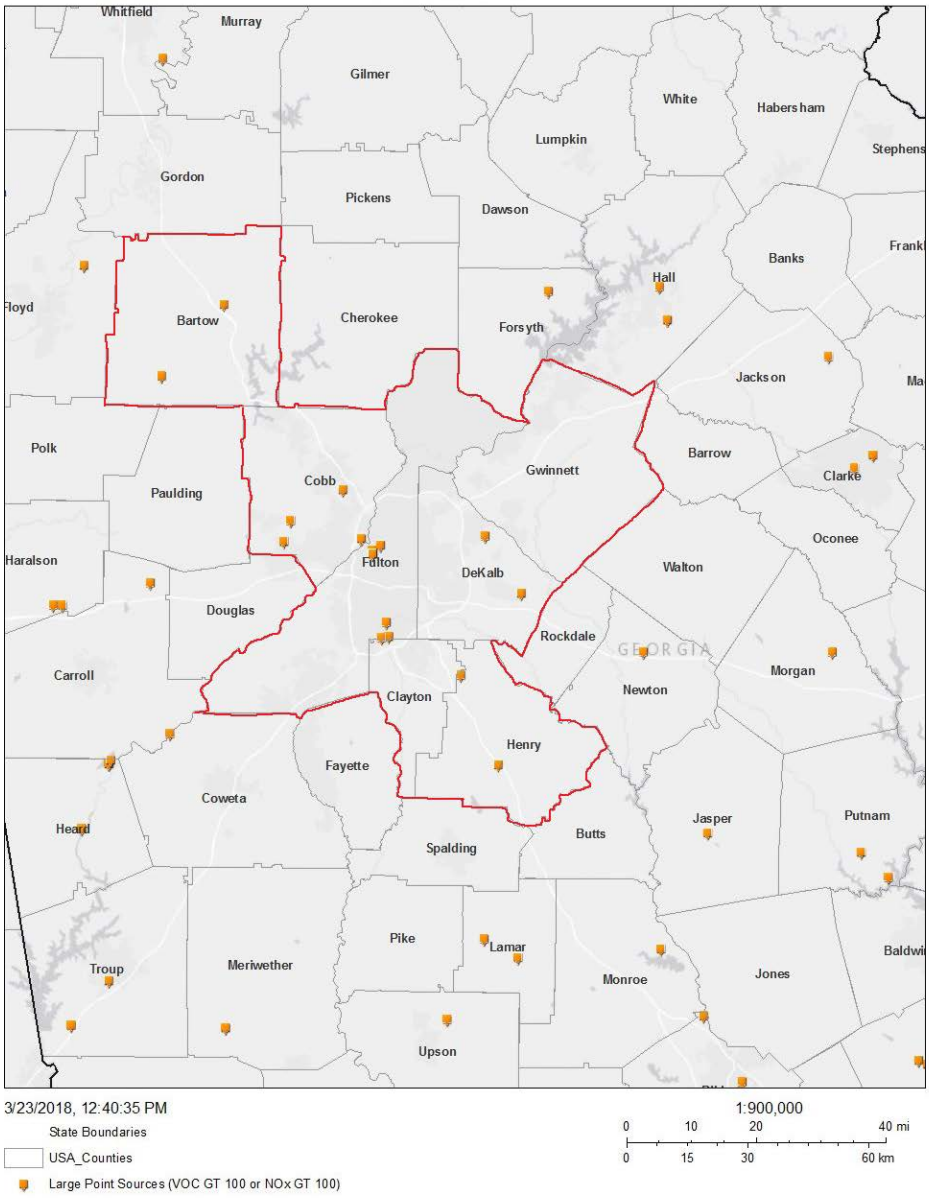
County	State Recommended Nonattainment?	Total NO_x (tpy)	Total VOC (tpy)
Barrow, GA	No	2,060	1,525
Bartow, GA	Yes	12,848	3,445
Butts, GA	No	1,417	828
Carroll, GA	No	4,126	3,095
Cherokee, GA	No	3,809	3,583
Clarke, GA	No	2,835	2,893
Clayton, GA	Yes	10,860	5,326
Cobb, GA	Yes	13,625	13,776
Coweta, GA	No	4,412	2,486
Dawson, GA	No	647	672
DeKalb, GA	Yes	11,273	12,088
Douglas, GA	No	2,561	2,627
Fayette, GA	No	1,677	2,010
Forsyth, GA	No	3,457	3,977
Fulton, GA	Yes	19,117	17,435
Gordon, GA	No	2,861	2,093
Gwinnett, GA	Yes	13,636	14,805
Hall, GA	No	5,142	5,377
Haralson, GA	No	1,208	1,350
Heard, GA	No	2,862	743
Henry, GA	Yes	5,949	3,672
Jackson, GA	No	3,126	2,198
Jasper, GA	No	553	883
Lamar, GA	No	955	782
Madison, GA	No	2,281	1,054
Meriwether, GA	No	1,592	1,144
Morgan, GA	No	1,956	1,294
Newton, GA	No	2,843	2,647
Oconee, GA	No	1,004	1,006
Oglethorpe, GA	No	493	712
Paulding, GA	No	2,066	1,937
Pickens, GA	No	876	1,031
Pike, GA	No	498	755
Polk, GA	No	1,285	1,726
Rockdale, GA	No[11]	1,715	1,638
Spalding, GA	No	1,592	1,585
Troup, GA	No	3,479	3,223
Upson, GA	No	1,120	1,195
Walton, GA	No	2,154	2,061

[11] Georgia originally recommended nonattainment for Rockdale County due to a violating monitor. Georgia requested a revision to their recommendation, during the 120-day process, due to the fact that the Rockdale County monitor is now attaining.

Area wide:	155,970	130,678

In addition to reviewing county-wide emissions of NOx and VOC in the area of analysis, the EPA also reviewed emissions from large point sources. The location of these sources, together with the other factors, can help inform nonattainment boundaries. The locations of the large point sources are shown in Figure 3 below. The nonattainment boundary is also shown.

Figure 3. Large Point Sources in the Area of Analysis.



In summary, the EPA's analysis of relevant county-level emissions and the geographic locations of the relevant emissions showed varying levels of NOx and VOC emitted throughout the Atlanta, GA CSA.

Within the Atlanta, GA CSA, Fulton County has the highest NOx emissions of just over 19,000 tpy. Bartow, Clayton, Cobb, DeKalb, and Gwinnett Counties have the next highest total NOx emissions, ranging between

slightly less than 11,000 tpy to approximately 13,600 tpy. The largest major point source in the area, Georgia Power Company-Plant Bowen, which emits 7,062 tons NOx emissions, is located in Bartow County and the emissions from that facility account for 55 percent of Bartow County's total NOx emissions. Another large major point source in the area is The Hartsfield-Jackson Atlanta International Airport, which emits just under 6,500 tpy of NOx and is located in Clayton County. The remaining counties have relatively lower total NOx emissions. Henry has just under 6,000 tpy total NOx emissions and Hall (5,100 tpy), Coweta (4,400 tpy) and Carroll (4,126 tpy) are the next highest for total NOx emissions. The majority of counties have emissions between 1,000 tpy and approximately 3,000 tpy. Six counties – Dawson, Jasper, Lamar, Oglethorpe, Pickens and Pike have less than 1,000 tpy.

Within the Atlanta, GA CSA, Fulton, Gwinnett, Cobb, and DeKalb Counties have the highest VOC emissions, ranging from approximately 12,000 tpy to 17,400 tpy. Most of the counties have VOC emissions of less than 2,000 tpy. However, a few, including Bartow and Clayton, which had relatively high NOx emissions, have VOC emissions within the range of 2,000 tpy to approximately 5,300 tpy.

Population density and degree of urbanization

In this part of the factor analysis, the EPA evaluated the population and vehicle use characteristics and trends of the area as indicators of the probable location and magnitude of non-point source emissions. These include emissions of NOx and VOC from on-road and non-road vehicles and engines, consumer products, residential fuel combustion, and consumer services. Areas of dense population or commercial development are an indicator of area source and mobile source NOx and VOC emissions that may contribute to violations of the NAAQS. Table 4 shows the population, population density, and population growth information for each county in the area of analysis.

Table 4. Population and Growth.

County	State Recommended Nonattainment?	2010 Population	2015 Population	2015 Population Density (per sq. mi.)	Absolute change in population (2010-2015)	Population % change (2010-2015)
Fulton, GA	Yes	920,581	1,010,562	1919	89,981	10%
Gwinnett County	Yes	805,321	895,823	2081	90,502	11%
Cobb County	Yes	688,078	741,334	2183	53,256	8%
DeKalb County	Yes	691,893	734,871	2746	42,978	6%
Clayton County	Yes	259,424	273,955	1935	14,531	6%
Cherokee County	No	214,346	235,900	559	21,554	10%
Henry County	Yes	203,922	217,739	676	13,817	7%
Forsyth County	No	175,511	212,438	948	36,927	21%
Hall County	No	179,684	193,535	493	13,851	8%
Paulding County	No	142,324	152,238	488	9,914	7%
Douglas County	No	132,403	140,733	703	8,330	6%
Coweta County	No	127,317	138,427	314	11,110	9%
Clarke County	No	116,714	123,912	1040	7,198	6%
Carroll County	No	110,527	114,545	230	4,018	4%
Fayette County	No	106,567	110,714	570	4,147	4%
Newton County	No	99,958	105,473	388	5,515	6%

Bartow County	Yes	100,157	102,747	224	2,590	3%
Rockdale County	No[12]	85,215	88,856	685	3,641	4%
Walton County	No	83,768	88,399	271	4,631	6%
Barrow County	No	69,367	75,370	470	6,003	9%
Troup County	No	67,044	69,763	169	2,719	4%
Spalding County	No	64,073	64,051	326	-22	0%
Jackson County	No	60,485	63,360	187	2,875	5
Gordon County	No	55,186	56,574	159	1,388	3
Polk County	No	41,475	41,524	134	49	0
Oconee County	No	32,808	35,965	195	3,157	10
Pickens County	No	29,431	30,309	131	878	3%
Haralson County	No	28,780	28,854	102	74	0%
Madison County	No	28,120	28,441	101	321	1
Upson County	No	27,153	26,368	82	785	-3%
Butts County	No	23,655	23,593	128	-62	0%
Dawson County	No	22,330	23,312	111	982	4%
Meriwether, County	No	21,992	21,190	42	-802	-4%
Lamar County	No	18,317	18,201	99	-116	-1%
Morgan County	No	17,868	18,046	52	178	1%
Pike County	No	17,869	17,941	83	72	0%
Oglethorpe County	No	14,899	14,871	34	28	0%
Jasper County	No	13,900	13,635	37	-265	-2%
Heard County	No	11,834	11,539	39	-295	-2%
	Area wide:	5,910,296	6,365,108	537	454,812	8%

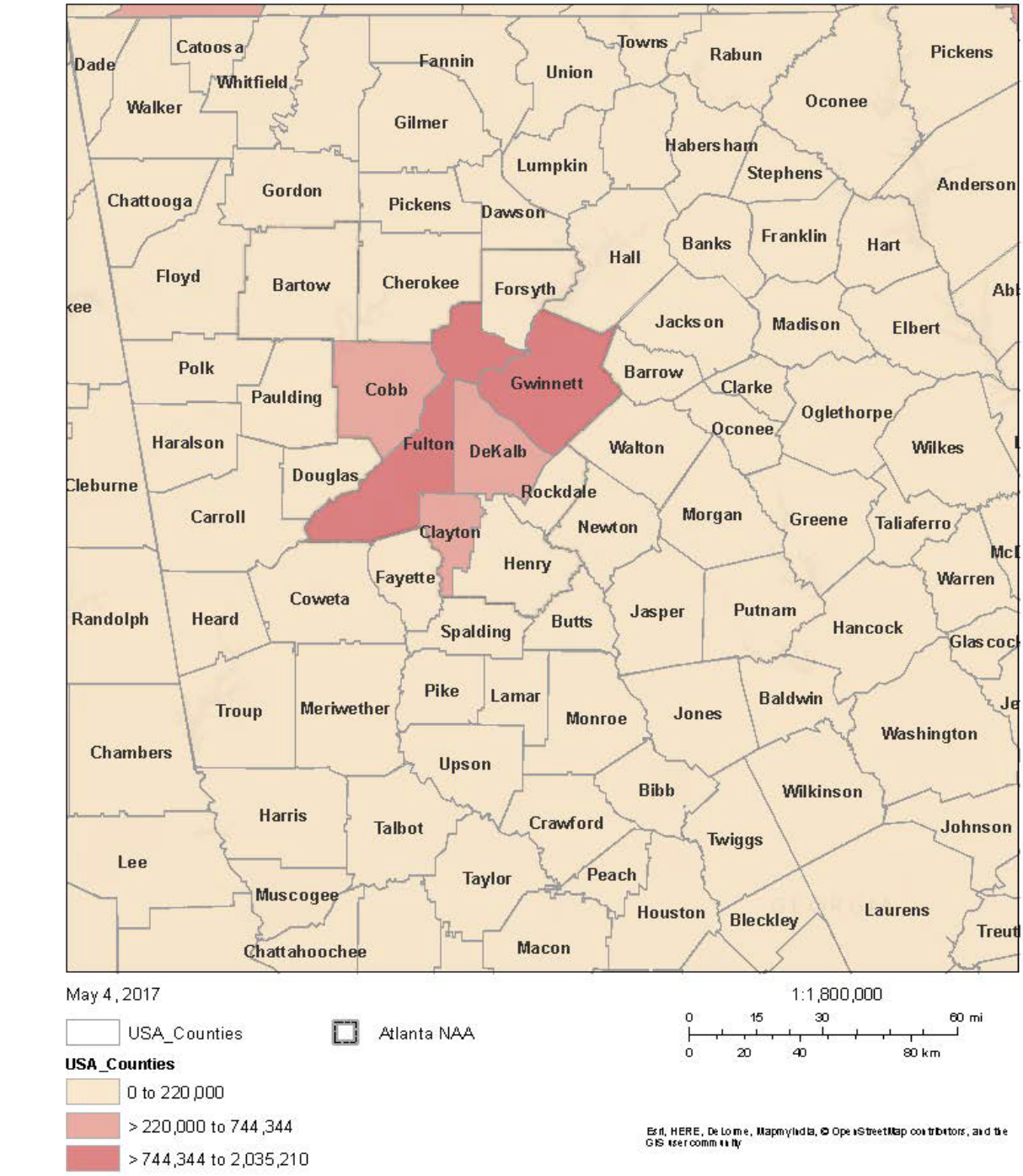
Source: U.S. Census Bureau population estimates for 2010 and 2015. https://www.census.gov/popest/data/

Fulton, Gwinnett, Cobb and DeKalb Counties all have the highest population and all are densely populated. While Clayton County has a population that is less than half of that of those four counties, it has a similar population density of almost 2,000 people per square mile. For the area, a number of counties have both moderate population levels – roughly between 100,000 and 250,000 and are fairly densely populated with population densities ranging from about 230 to 1,040. While Rockdale County has a population of less than 90,000, it has a population density of 685. The remaining counties all have populations of less than 90,000 and population densities less than 500 with most having a density less than 200. Growth in the area varies significantly. Forsyth had almost double the percent increase of any other county at 21 percent. This was an increase of 36,927 people from 2010 to 2015. Barrow, Cherokee, Coweta, Fulton, Gwinnett and Oconee, Counties also had above CSA average percent growth of 9 to 11 percent. Because Fulton and Gwinnett are the most populated counties, this relatively high percent growth corresponded to the highest total population increase of approximately 90,000 for each county. Butts, Haralson, Heard, Jasper, Lamar, Meriwether, Oglethorpe, Pike, Polk, Spalding and Upson Counties had 0 percent increase or a decrease in population

[12] Georgia originally recommended nonattainment for Rockdale County due to a violating monitor. Georgia requested a revision to their recommendation, during the 120-day process, due to the fact that the Rockdale County monitor is now attaining.

between 2010 and 2015. The remaining counties had at or below average percent growth in population for the area.

Figure 4. County-Level Population.



Traffic and Vehicle Miles Travelled (VMT)

The EPA evaluated the commuting patterns of residents, as well as the total VMT for each county in the area of analysis. In combination with the population/population density data and the location of main transportation arteries, this information helps identify the probable location of non-point source emissions. A county with high VMT and/or a high number of commuters is generally an integral part of an urban area and high VMT and/or high number of commuters indicates the presence of motor vehicle emissions that may contribute to violations of the NAAQS. Rapid population or VMT growth in a county on the urban perimeter may signify increasing integration with the core urban area, and thus could indicate that the associated area source and mobile source emissions may be appropriate to include in the nonattainment area. In addition to VMT, the EPA evaluated worker data collected by the U.S. Census Bureau[13] for the counties in the area of analysis. Table 5 shows the traffic and commuting pattern data, including for each county: total VMT, number of residents who work, number of residents that work in counties with violating monitors, and the percent of residents working in counties with violating monitors. The data in Table 5 are 2014 data.

Table 5. Traffic and Commuting Patterns.

County	State Recommended Nonattainment?	2014 Total VMT (Million Miles)	Number of County Residents Who Work	Number Commuting to or Within Counties with Violating Monitor(s)	Percentage Commuting to or Within Counties with Violating Monitor(s)
Fulton, GA	**Yes**	**13,389**	**402,753**	**295,262**	**73.31%**
Gwinnett, GA	**Yes**	**8,655**	**353,246**	**268,527**	**76.02%**
Cobb, GA	Yes	8,029	328,553	143,187	43.58%
DeKalb, GA	**Yes**	**7,956**	**303,151**	**234,981**	**77.51%**
Clayton, GA	Yes	2,834	103,530	55,755	53.85%
Henry, GA	**Yes**	**2,441**	**91,429**	**55,275**	**60.46%**
Forsyth, GA	No	2,124	92,338	47,385	51.32%
Cherokee, GA	No	2,119	100,824	37,158	36.85%
Hall, GA	No	2,067	74,686	19,247	25.77%
Bartow, GA	Yes	1,908	41,968	8,110	19.32%
Douglas, GA	No	1,758	56,462	21,156	37.47%
Coweta, GA	No	1,699	59,278	20,093	33.90%
Carroll, GA	No	1,602	44,339	9,741	21.97%
Paulding, GA	No	1,179	65,602	17,563	26.77%
Newton, GA	No	1,108	42,066	16,773	39.87%
Rockdale, GA	No[14]	1,089	35,127	17,891	50.93%
Fayette, GA	No	1,040	49,500	21,316	43.06%
Clarke, GA	No	1,038	41,668	5,417	13.00%
Jackson, GA	No	1,026	24,398	4,682	19.19%

[13] The worker data can be accessed at: http://onthemap.ces.census.gov/.

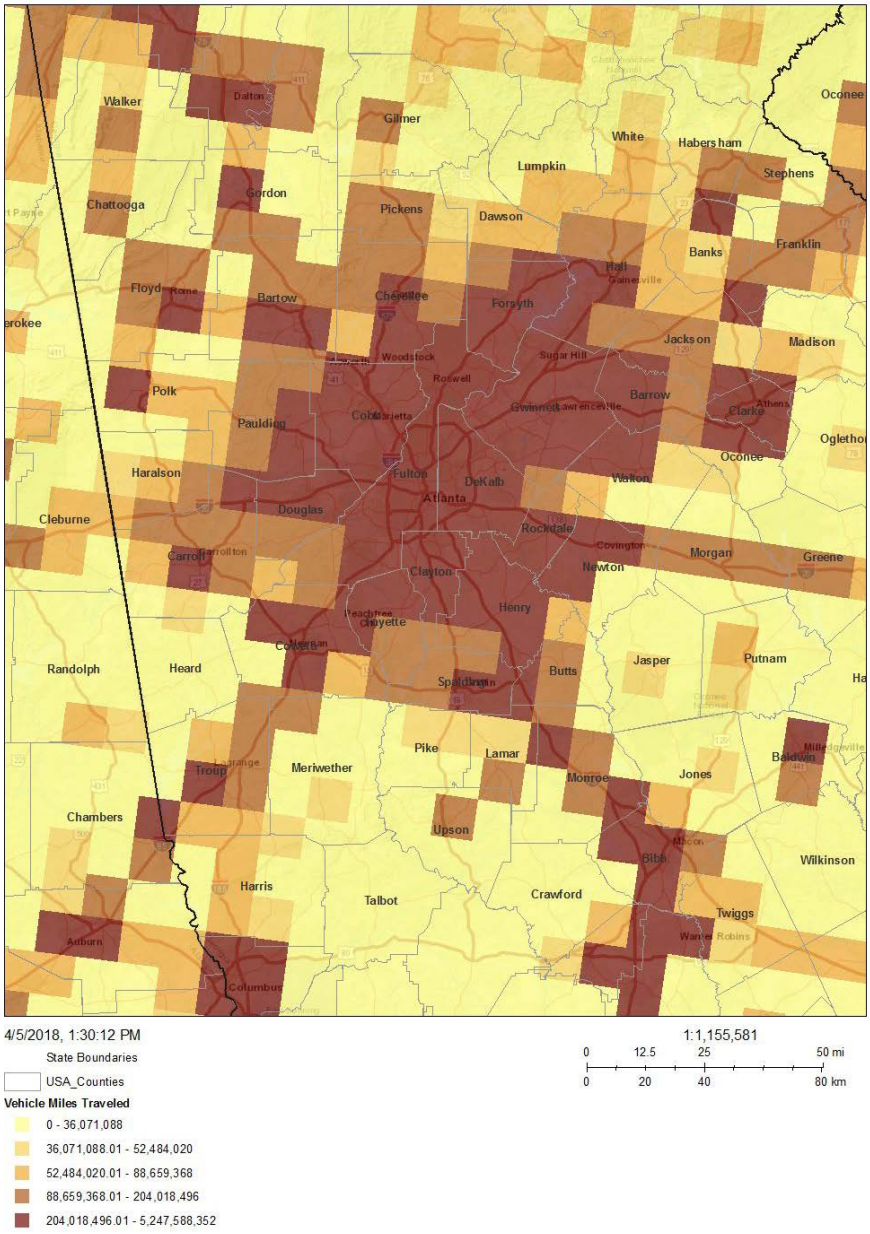
[14] Georgia originally recommended nonattainment for Rockdale County due to a violating monitor. Georgia requested a revision to their recommendation, during the 120-day process, due to the fact that the Rockdale County monitor is now attaining.

County	State Recommended Nonattainment?	2014 Total VMT (Million Miles)	Number of County Residents Who Work	Number Commuting to or Within Counties with Violating Monitor(s)	Percentage Commuting to or Within Counties with Violating Monitor(s)
Troup, GA	No	976	29,017	2,674	9.22%
Walton, GA	No	906	36,573	15,241	41.67%
Barrow, GA	No	858	32,313	14,484	44.82%
Gordon, GA	No	773	21,279	1,358	6.38%
Spalding, GA	No	677	25,732	8,385	32.59%
Oconee, GA	No	477	14,744	1,502	10.19%
Morgan, GA	No	457	7,738	948	12.25%
Polk, GA	No	366	16,094	1,539	9.56%
Haralson, GA	No	338	10,535	1,374	13.04%
Butts, GA	No	334	8,806	2,802	31.82%
Pickens, GA	No	315	12,649	2,868	22.67%
Meriwether, GA	No	278	8,252	1,063	12.88%
Madison, GA	No	265	11,409	1,346	11.80%
Dawson, GA	No	232	9,380	2,906	30.98%
Lamar, GA	No	226	6,904	1,418	20.54%
Upson	No	219	10,524	1,642	15.60%
Pike, GA	No	158	7,417	1,597	21.53%
Oglethorpe	No	125	6,914	665	9.62%
Jasper, GA	No	121	4,297	591	13.75%
Heard, GA	No	107	4,449	513	11.53%
	Area wide:	71,268	2,595,944	1,364,435	53%

Counties with a monitor(s) violating the NAAQS are indicated in bold.

To show traffic and commuting patterns, Figure 5 overlays twelve-kilometer gridded VMT from the 2014 NEI with a map of the transportation arteries.

Figure 5. Twelve Kilometer Gridded VMT (Miles) Overlaid with Transportation Arteries.



The EPA compared on-road mobile emissions to emissions from all source categories for the Atlanta, GA CSA. On-road mobile NOx emissions comprise 92,609 tpy, or 59 percent of the total 155,968 tpy NOx emissions from all source categories in the Atlanta, GA CSA. On-road mobile VOC emissions comprise 42,592 tpy, or 33 percent of the total 130,678 tpy VOC emissions from all source categories in the Atlanta, GA CSA. Fulton, Gwinnett, Cobb and DeKalb Counties have the highest on-road mobile NOx and VOC emissions.

Fulton County has the largest VMT and commuters to or within a county with a violating monitor, followed by Gwinnett, Cobb and DeKalb Counties. Each of those 4 counties has 2.5 to 8 times as many VMT and/or commuters commuting into a county with a violating monitor as Clayton, Henry, Forsyth or Cherokee Counties, which are the counties with the next highest levels of both VMT and number of commuters commuting into a county with a violating monitor.

Hall, Bartow, Douglas, Coweta, Carroll, Paulding, Newton, Rockdale, Fayette, Clarke and Jackson Counties have the next highest VMT, ranging from approximately 1,000 to 2,000 VMT. Each of these counties' VMT range from 1 percent to 3 percent of the CSA total VMT. The remaining counties in the CSA, Troup, Walton, Barrow, Gordon, Spalding, Oconee, Morgan, Polk, Haralson, Butts, Pickens, Meriwether, Madison, Dawson, Lamar, Upson, Pike, Oglethorpe, Jasper and Heard, each have less than 1,000 VMT, which are each 1 percent or less of the CSA total VMT.

Similarly, Hall, Douglas, Coweta, Paulding, Newton, Rockdale, Fayette, Walton, and Barrow County have the next highest number of commuters commuting into a county with a violating monitor when compared to Clayton, Henry, Forsyth or Cherokee Counties. These counties each have between approximately 14,000 to 22,000 commuters, or 1 percent each for the total CSA, commuting to a county with a violating monitor. The remaining counties, Bartow, Carroll, Clarke, Jackson, Troup, Gordon, Spalding, Oconee, Morgan, Polk, Haralson, Butts, Pickens, Meriwether, Madison, Dawson, Lamar, Upson, Pike, Oglethorpe, Jasper, and Heard are each less than 1 percent of the total CSA commuters commuting to a county with a violating monitor.

Factor 3: Meteorology

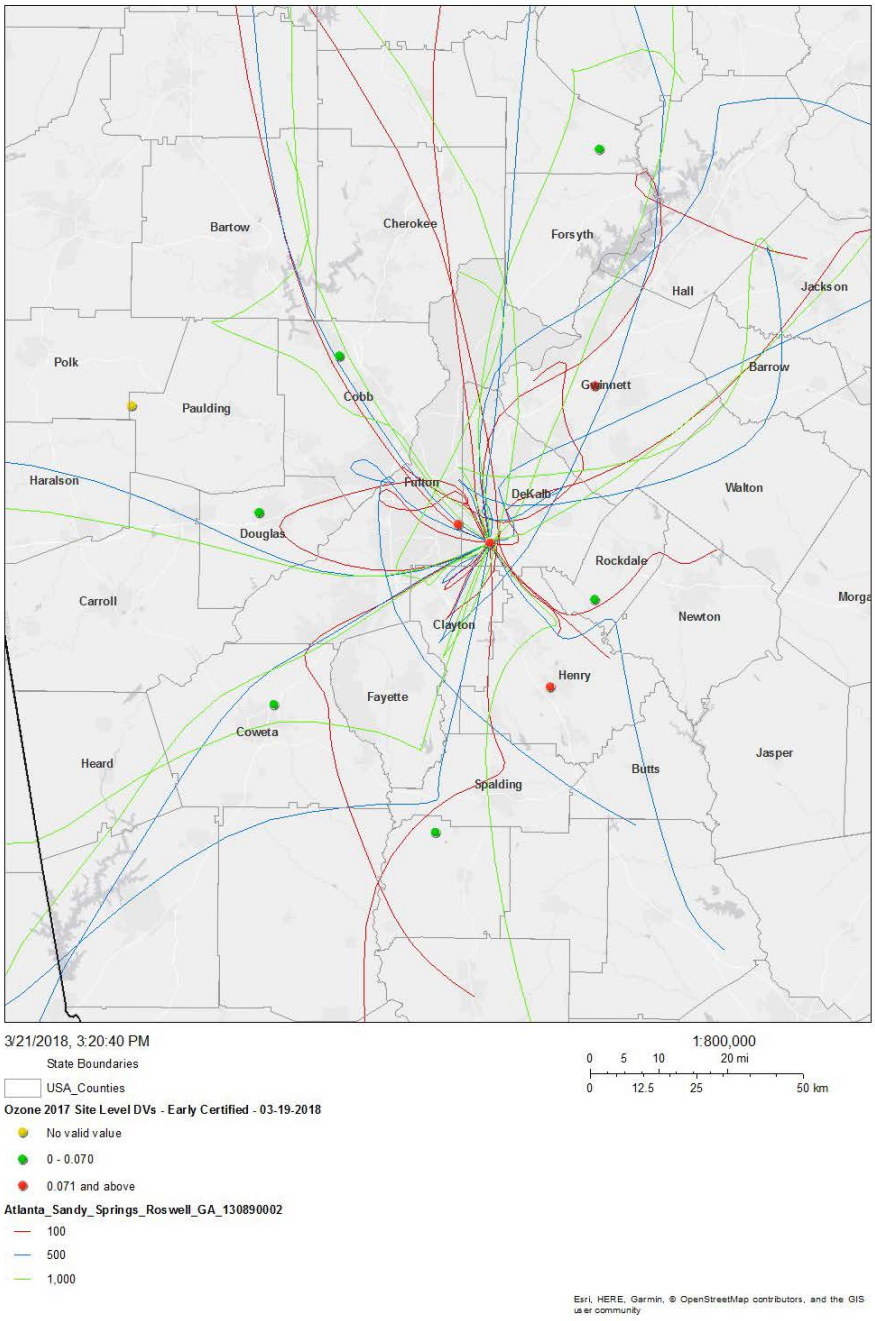
Evaluation of meteorological data helps to assess the fate and transport of emissions contributing to ozone concentrations and to identify areas potentially contributing to the monitored violations. Results of meteorological data analysis may inform the determination of nonattainment area boundaries.

In order to determine how meteorological conditions, including, but not limited to, weather, transport patterns, and stagnation conditions, could affect the fate and transport of ozone and precursor emissions from sources in the area, the EPA evaluated 2015-2017 HYSPLIT (i.e., HYbrid Single-Particle Lagrangian Integrated Trajectory) back trajectories at 100, 500, and 1000 meters above ground level (AGL) that illustrate the three-dimensional paths traveled by air parcels to a violating monitor.[15]

The 2015-2017 HYSPLIT back trajectories in Figures 6 through 9 show that transport winds blew predominantly from the northwest during times when the violating monitors in the Atlanta Area measured exceedances of the 2015 Ozone NAAQS. A significant number of back trajectories also pass over counties to the west, north and south directions. The counties in the area of analysis located to the northwest of the violating monitors are: Bartow, Cherokee, Cobb, Douglas, Gordon, Haralson, Paulding, Pickens and Polk. Additional counties to the west, north and south of the violating monitors include Butts, Barrow, Carroll, Coweta, Dawson, Fayette, Forsyth, Hall, Heard, Lamar, Meriwether, Monroe, Newton, Pickens, Pike, Rockdale, Spalding, Troup, Upson and Walton.

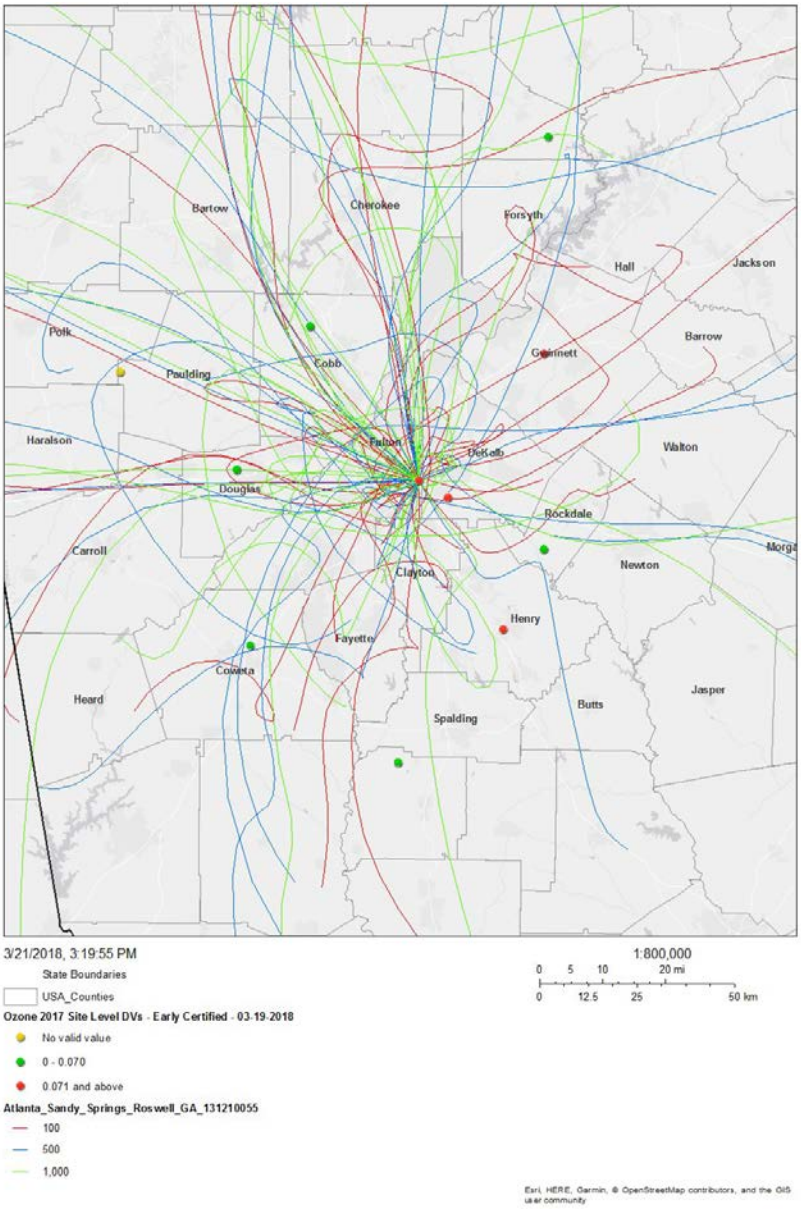
[15] On March 30, 2018, Georgia submitted an additional technical analysis containing HYSPLIT back-trajectory modeling for hours that exceed the 2015 ozone NAAQS at the Gwinnett monitor in 2015 and 2016. Georgia's additional HYSPLIT back-trajectories were created using a different meteorology dataset (NAMS Hybrid Sigma-Pressure Archive) than the trajectories prepared by EPA (EDAS 40-km Archive). The NAMS Archive has a finer temporal resolution (1-hr vs. 3-hr) and finer grid resolution (12 km vs 40 km). Also, Georgia started their trajectories on the hours with the peak ozone concentration on each exceedance day versus EPA's standard procedure which started the trajectories at 23:00 UTC, which is 6:00 pm Eastern Daylight Time. This additional analysis is found in the docket for this action.

Figure 6: 2015 – 2017 HYSPLIT for DeKalb County Monitor



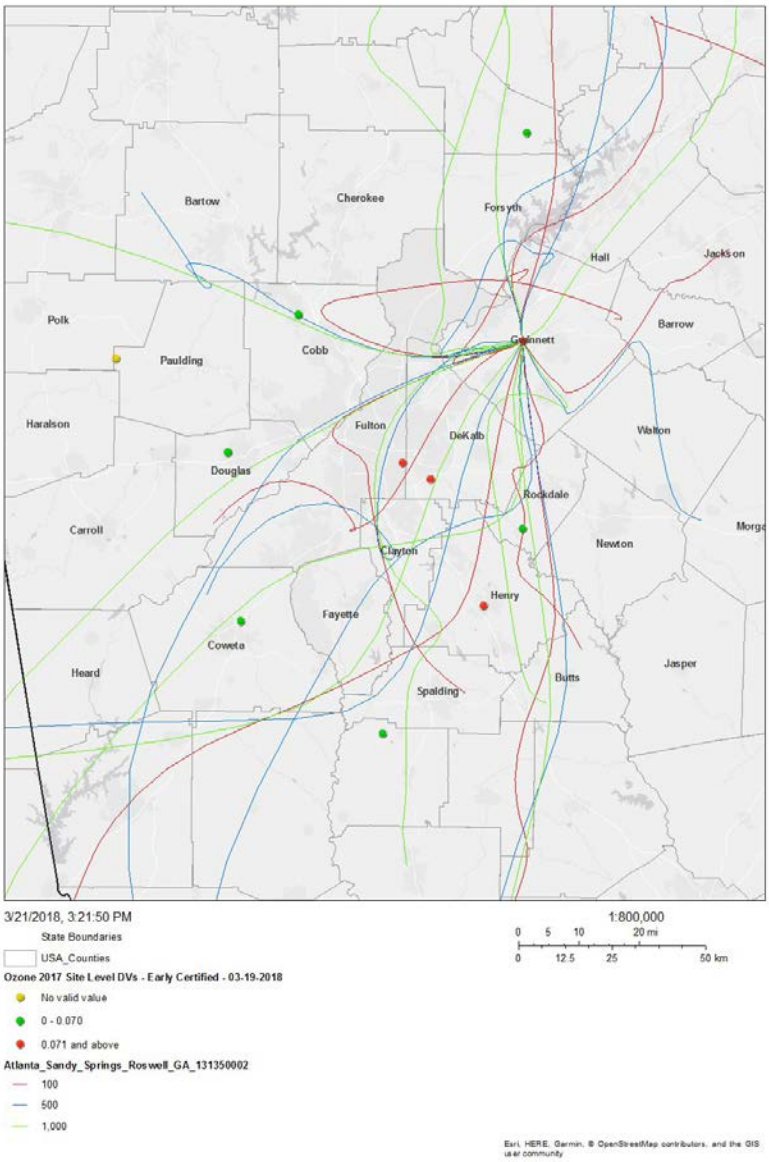
The 2015-2017 HYSPLIT back trajectories displayed in Figure 6 show that transport winds blew predominantly from the north and northwest during times when the violating monitor in DeKalb County measured exceedances of the 2015 Ozone NAAQS. A more limited number of back trajectories pass over counties to the south, west and northeast. Based on these back trajectories, emissions from the following counties were most likely to flow toward the DeKalb monitor during times when the monitor was violating the 2015 NAAQS: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Gordon, Hall, Haralson, Heard, Henry, Jackson, Monroe, Newton, Paulding Pickens, Pikeand Spalding.

Figure 7: 2015 – 2017 HYSPLIT for Fulton County Monitor



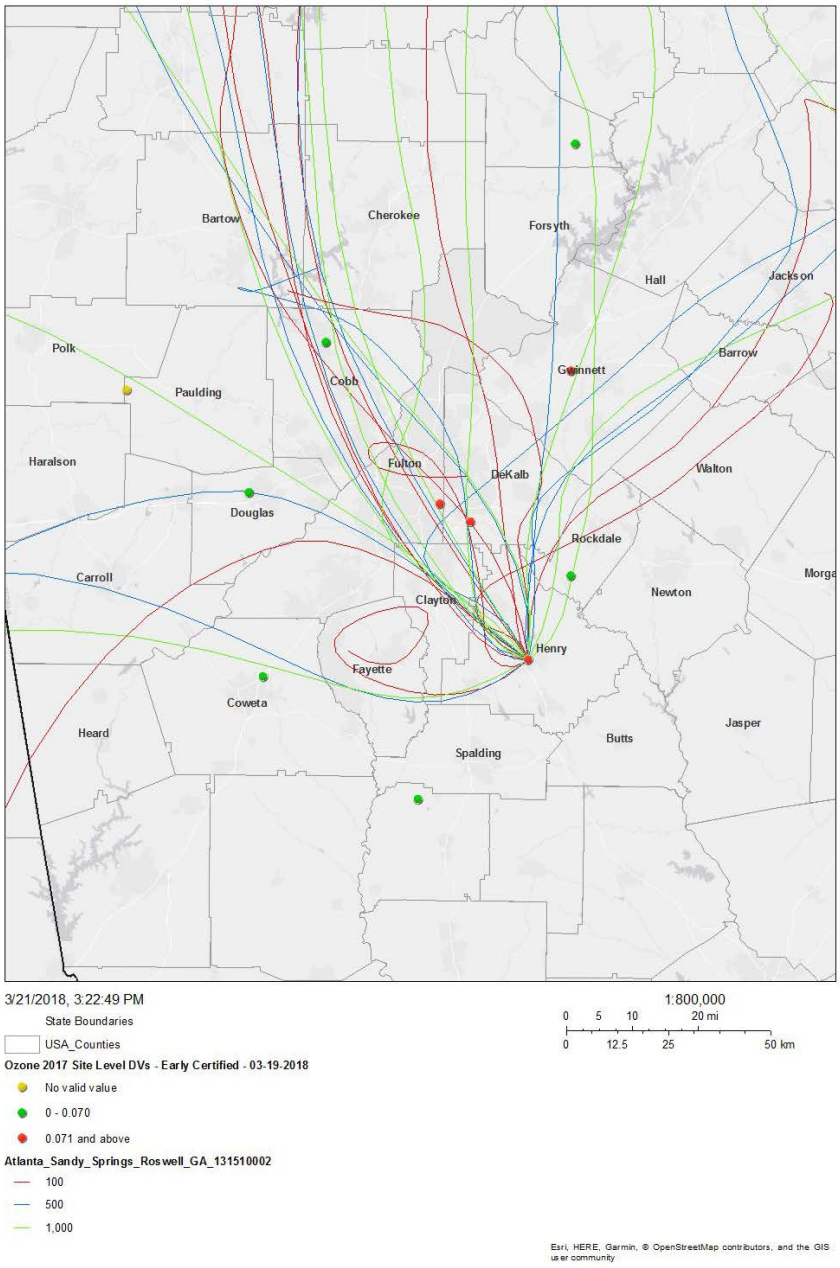
The 2015-2017 HYSPLIT back trajectories displayed in Figure 7 show that transport winds blew predominantly from the north-northwest and west during times when the violating monitor in Fulton County measured exceedances of the 2015 Ozone NAAQS. A more limited number of back trajectories pass over counties to the south and east. Based on these back trajectories, emissions from the following counties were most likely to flow toward the Fulton monitor during times when the monitor was violating the 2015 NAAQS: Barrow, Bartow, Carroll, Cherokee, Clarke, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Gordon, Hall, Haralson, Heard, Henry, Jackson, Meriwether, Morgan, Newton, Oconee, Paulding Pickens, Pike, Rockdale, Spalding, and Walton.

Figure 8: 2015 – 2017 HYSPLIT for Gwinnett County Monitor



The 2015-2017 HYSPLIT back trajectories displayed in Figure 8 show that transport winds blew predominantly from the south and southwest during times when the violating monitor in Gwinnett County measured exceedances of the 2015 Ozone NAAQS. A more limited number of back trajectories pass over counties to the north and west directions. Based on these back trajectories, emissions from the following counties were most likely to flow toward the Gwinnett monitor during times when the monitor was violating the 2015 NAAQS: Bartow, Butts, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Heard, Henry, Jackson, Lamar, Meriwether, Monroe, Newton, Rockdale, Spalding, and Troup.

Figure 9: 2015 – 2017 HYSPLIT for Henry County Monitor



The 2015-2017 HYSPLIT back trajectories displayed in Figure 9 show that transport winds blew predominantly from the northwest during times when the violating monitor in Henry County measured exceedances of the 2015 Ozone NAAQS. A more limited number of back trajectories pass over counties to the west, north, northeast and west directions. Based on these back trajectories, emissions from the following counties were most likely to flow toward the Henry monitor during times when the monitor was violating the 2015 NAAQS: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Gordon, Hall, Henry, Jackson, Paulding Pickens, Pike, Polk, Rockdale, and Walton.

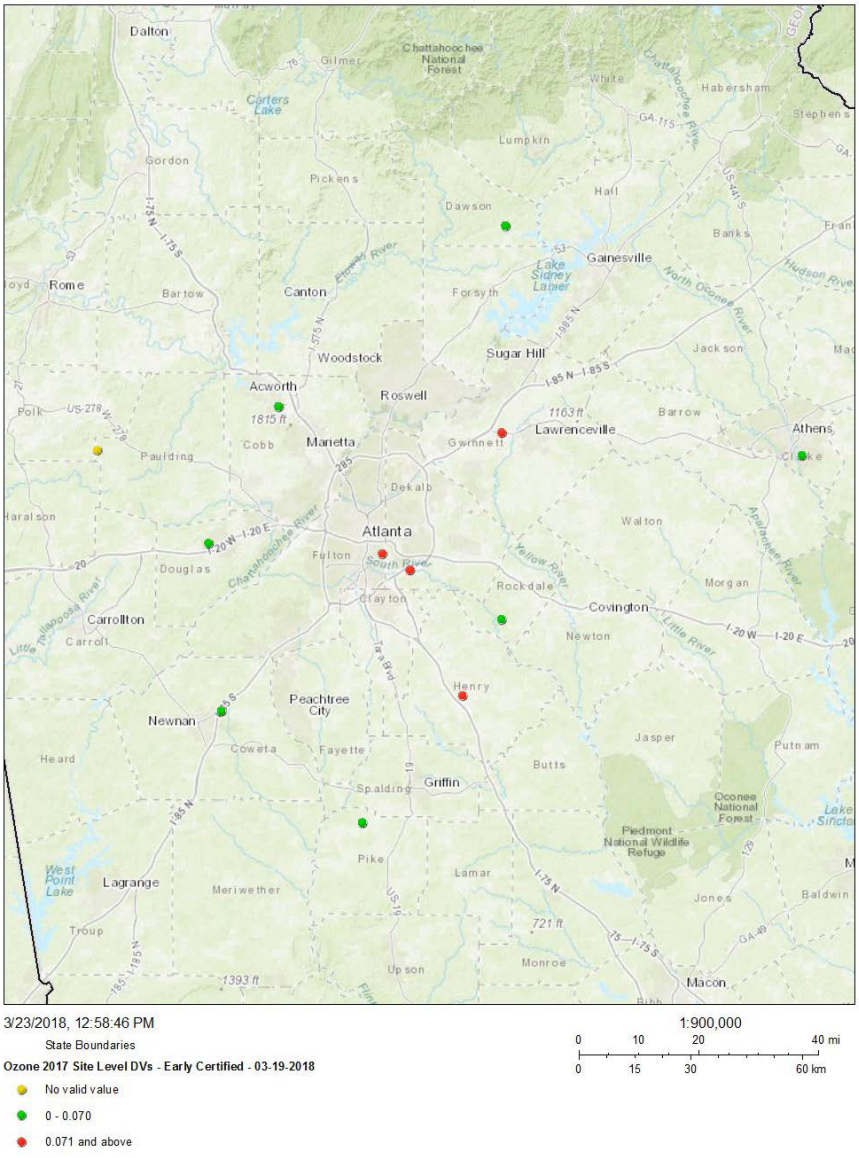
Factor 4: Geography/topography

Consideration of geography or topography can provide additional information relevant to defining nonattainment area boundaries. Analyses should examine the physical features of the land that might define the airshed. Mountains or other physical features may influence the fate and transport of emissions as well as the formation and distribution of ozone concentrations. The absence of any such geographic or topographic features may also be a relevant consideration in selecting boundaries for a given area.

The EPA used geography/topography analysis to evaluate the physical features of the land that might affect the airshed and, therefore, the distribution of ozone over the area. Figure 10 illustrates the topographic features in the area of analysis.

The Atlanta, GA CSA does not have any geographical or topographical features significantly limiting air pollution transport within its air shed. Therefore, this factor did not play a significant role in this evaluation.

Figure 10. Topographic Illustration of the Physical Barriers.



Factor 5: Jurisdictional boundaries

Once the geographic extent of the violating area and the nearby area contributing to violations is determined, the EPA considered existing jurisdictional boundaries for the purposes of providing a clearly defined legal boundary to carry out the air quality planning and enforcement functions for nonattainment areas. In defining the boundaries of the Atlanta, GA nonattainment area for the 2015 ozone NAAQS, the EPA considered existing jurisdictional boundaries, which can provide easily identifiable and recognized boundaries for purposes of implementing the NAAQS. Examples of jurisdictional boundaries include, but are not limited to: counties, air districts, areas of Indian country, MPOs, and existing nonattainment areas. If an existing jurisdictional boundary is used to help define the nonattainment area, it must encompass all of the area that has been identified as meeting the nonattainment definition. Where existing jurisdictional boundaries are not adequate or appropriate to describe the nonattainment area, the EPA considered other clearly defined and permanent landmarks or geographic coordinates for purposes of identifying the boundaries of the designated area.

The Atlanta, GA area has previously established nonattainment boundaries associated with the 1-hour ozone, the 1997 and the 2008 8-hour ozone NAAQS, respectively. The Atlanta, GA nonattainment boundary for the 1-hour ozone NAAQS included 13 counties in Georgia in their entireties: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale. The Atlanta, GA nonattainment boundary for the 1997 8-hour ozone NAAQS included 20 counties in Georgia in their entireties: Barrow, Bartow, Carroll, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Hall, Henry, Newton, Paulding, Rockdale, Spalding, and Walton. The nonattainment boundary for the 2008 8-hour ozone NAAQS included 15 counties in Georgia in their entireties: Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Newton, Paulding, and Rockdale.

Georgia's Source Apportionment Modeling (SAM)

In addition to the 5 Factor analysis, the EPA also considered Georgia's source apportionment modeling (SAM) using the Comprehensive Air Quality Model with eXtensions (CAMx) with its Anthropogenic Precursor Culpability Assessment (APCA) tool. Attachment III to the EPA's February 25, 2016, "Area Designations for the 2015 Ozone National Ambient Air Quality Standards," guidance states that SAM is not required for the designations but that it may be used to "help identify possible areas for inclusion in the nonattainment area because of their contribution to violations in nearby areas with violating monitors." When available, the EPA considers SAM as one part of the total weight of evidence that makes up the overall assessment of the potential nonattainment area boundaries. The guidance further states that SAM "can be a useful technique for comparing the relative contribution of individual county emissions of ozone precursor emissions."

Georgia performed SAM to evaluate the contribution of each of the 39 counties in the Atlanta, GA CSA to the 5 monitors with measured NAAQS violations in the 2014-2016 timeframe. Georgia included the SAM results along with a Modeling Technical Support Document describing the details of the modeling with their designation recommendations submittal dated September 23, 2016. Georgia's Five-Factor Technical Analysis Document states that the SAM combines the first four factors of the five-factor analysis into a single contribution value for each county. The SAM results show that the following counties have the largest modeled contributions to any of the 5 violating monitors in the 2014-2016 timeframe: Fulton, Gwinnett, DeKalb, Cobb, Bartow, Clayton, and Henry. Rockdale County had the next highest contribution and also contained a violating monitor.

After early certifying 2017 ambient air monitoring data and determining that the Rockdale monitor attained the 2015 ozone NAAQS with a 2015-2017 DV, Georgia reassessed their SAM results based on the four monitors that continued violating with 2015-2017 DVs, DeKalb, Fulton, Gwinnett and Henry Counties. Since the Conyers monitor located in Rockdale County is now attaining the NAAQS with the 2015-2017 DV, the maximum SAM modeled contribution from Rockdale county to a monitor with a violating DV is reduced considerably from 0.95 ppb to 0.41 ppb (at the McDonough monitor in Henry County). The complete SAM results are provided in Table 9 of Georgia's Modeling Technical Support Document found in the docket and the SAM results reanalyzed after 2017 monitoring data was certified are provided below in Table 6 for ease of reference (Table A-7 of Georgia's Revised Nonattainment Area Designation Recommendations for the 2015 Ozone NAAQS – Technical Analysis Document – ADDENDUM (February 2, 2018) and also found in the docket.

The EPA has reviewed the SAM documentation provided by Georgia and has determined that the procedures used for the modeling are consistent with the EPA's guidance for photochemical modeling demonstrations. The EPA believes that use of 2011 meteorology and the modeled-projected ozone season from April 1 to October 31, 2017, provide sufficient analysis of meteorological and emissions conditions that could lead to elevated ozone levels in the Atlanta area. Overall, the modeling represents a high-quality analysis of the potential contribution sources in the area and provides useful information to consider for establishing the nonattainment area boundary.

Figure 11. Georgia's Source Apportionment Modeling (SAM) Reanalyzed Results Reflecting Contributions to Violating Monitors based on 2015-2017 Data (Table A-7 Copied from Georgia's February 2, 2018, Updated State Recommendations)

Table A-7. Contributions of 39 counties in the Atlanta CSA to violating ozone monitors. Red values indicate more than 1.0 ppb contribution to a violating ozone monitor.

Monitor	Confederate Ave. (13-121-0055)	McDonough (13-151-0002)	Gwinnett Tech (13-135-0002)	South DeKalb (13-089-0002)
Barrow	0.12	0.10	0.23	0.10
Bartow	1.17	0.97	1.45	0.96
Butts	0.04	0.14	0.02	0.04
Carroll	0.24	0.15	0.09	0.26
Cherokee	0.40	0.36	0.64	0.33
Clarke	0.08	0.10	0.09	0.08
Clayton	3.54	3.85	0.68	3.26
Cobb	2.69	1.72	2.49	2.05
Coweta	0.24	0.29	0.14	0.23
Dawson	0.03	0.03	0.04	0.03
DeKalb	3.04	3.17	2.33	5.56
Douglas	0.68	0.33	0.16	0.55
Fayette	0.21	0.40	0.07	0.18
Forsyth	0.29	0.24	0.78	0.24
Fulton	8.74	4.07	3.92	5.98
Gordon	0.15	0.14	0.07	0.13
Gwinnett	1.71	1.60	8.25	1.58
Hall	0.26	0.16	0.61	0.19
Haralson	0.07	0.03	0.04	0.09
Heard	0.14	0.16	0.09	0.15
Henry	0.55	4.08	0.26	0.88
Jackson	0.16	0.12	0.29	0.13
Jasper	0.01	0.03	0.01	0.01
Lamar	0.01	0.03	0.01	0.01
Madison	0.07	0.07	0.11	0.07
Meriwether	0.02	0.03	0.02	0.03
Morgan	0.06	0.08	0.03	0.06
Newton	0.17	0.34	0.06	0.21
Oconee	0.04	0.05	0.04	0.04
Oglethorpe	0.01	0.01	0.01	0.01
Paulding	0.35	0.22	0.20	0.29
Pickens	0.05	0.05	0.03	0.05
Pike	0.01	0.02	0.01	0.01
Polk	0.09	0.05	0.07	0.08
Rockdale	0.23	0.41	0.09	0.31
Spalding	0.04	0.15	0.03	0.05
Troup	0.03	0.04	0.03	0.04
Upson	0.01	0.01	0.01	0.01
Walton	0.16	0.20	0.14	0.17

Conclusion for Atlanta, GA Area

Based on the assessment of factors described above, the EPA has determined that it is not modifying the State's recommendation, as modified by letter dated February 2, 2018, that the following counties should be included in the Atlanta, GA nonattainment area for the 2015 ozone NAAQS: Bartow, Clayton, Cobb, DeKalb, Fulton, Gwinnett, and Henry Counties.

The air quality monitors in DeKalb, Fulton, Gwinnett, and Henry Counties indicate violations of the 2015 ozone NAAQS based on the 2015-2017 design values, therefore these counties are included in the nonattainment area. Bartow County and Clayton County are counties in the Atlanta, GA CSA that do not have any monitors and Cobb County has a monitor that is not violating the 2015 NAAQS. Georgia recommended that Bartow, Clayton, and Cobb be included in the nonattainment area as contributors to the violations at monitors in DeKalb, Fulton, Gwinnett and Henry Counties. A summary of how these counties contributes is provided below.

As shown on Table 3 under Factor 2 in this document, Bartow County has one of the highest county NOx emission in the Atlanta, GA CSA. The largest major point source in the Atlanta, GA CSA area, Georgia Power Company-Plant Bowen, which emits 7,062 tpy NOx emissions, is located in Bartow County and the emissions from that facility account for 55 percent of Bartow County's total NOx emissions. The EPA's HYSPLIT analysis shows many trajectories passing through Bartow County. Georgia s HYSPLIT analysis shows many trajectories2018, provides additional information to support the EPA's final nonattainment area boundary. Furthermore, the SAM submitted by the State further supports inclusion of Bartow County in the designated nonattainment area.

As shown on Table 3 under Factor 2 in this document, Clayton County along has one of the highest county NOx emissions in the Atlanta, GA CSA. A large major point source, the Hartsfield-Jackson Atlanta International Airport, which emits just under 6,500 tpy of NOx and is located in Clayton County. Emissions from this source account for 60 percent of Clayton County's total NOx emissions. Clayton County ranked among the highest of the CSA counties for population density. The EPA's HYSPLIT analysis shows many trajectories passing through Clayton Counties. Georgiaes. YSPLIT analysis shows many trajectories2018 (also in the docket for this action), provides additional information to support the EPA's final nonattainment area boundary. Furthermore, the SAM submitted by the State further supports inclusion of Clayton County in the designated nonattainment area.

As shown on Table 3 under Factor 2 in this document Cobb County has one of the highest county NOx emissions in the Atlanta, GA CSA. Cobb County has one of the highest county VOC emissions in the Atlanta, GA CSA area. As shown on Table 4 of Factor 2, Cobb County ranked among the highest for total population and ranked among the highest for population density. Table 5 of Factor 2 shows that Cobb County also ranked relatively high for VMT and residents commuting to or within counties with violating monitor. Furthermore, the SAM submitted by the State further supports inclusion of Cobb County in the designated nonattainment area.

Based on Georgia's September 23, 2016, recommendation, the EPA intended to designate Rockdale County nonattainment due to a violating monitor using 2013-2015 ozone monitoring data. With Georgia's February 2, 2018, updated recommendation, Georgia relied on 2014-2016 ozone monitoring data for which Rockdale is no longer violating. Through the 5 Factor analysis, the EPA determined that Rockdale County is not contributing to the violating monitors currently in the Atlanta CSA. As outlined below, Rockdale County has low emissions; 1 percent to 4 percent of the total CSA NOx emissions. It has less than 3 percent of the CSA total VMT and, for number of commuters commuting into a county with a violating monitor, it has 1 percent of the total for the

CSA. Furthermore, the SAM submitted by the State indicates relatively low contribution of emissions from Rockdale County to each of the four violating monitors in the Atlanta area.

Barrow, Carroll, Cherokee, Clarke, Coweta, Douglas, Fayette, Forsyth, Gordon, Hall, Heard, Jackson, Madison, Meriwether, Morgan, Newton, Paulding, Spalding, Troup, and Walton counties, each have 1 percent to 4 percent of the total CSA NOx emissions. The remaining counties, Butts, Dawson, Haralson, Jasper, Lamar, Oconee, Oglethorpe, Pickens, Pike, Polk, and Upson, each have less than 1 percent of the total CSA NOx emissions. Forsyth and Cherokee Counties each have approximately 3 percent of the total CSA VMT. Hall, Douglas, Coweta, Carroll, Paulding, Newton, Fayette, Clarke and Jackson Counties each have between 1 and 3 percent of the CSA total VMT, and the remaining counties in the CSA, Troup, Walton, Barrow, Gordon, Spalding, Oconee, Morgan, Polk, Haralson, Butts, Pickens, Meriwether, Madison, Dawson, Lamar, Upson, Pike, Oglethorpe, Jasper and Heard, each have 1 percent or less of the CSA total VMT. All of these counties also have a relatively low percentage of the total commuters commuting to or with a county with a violating monitor. Hall, Douglas, Coweta, Paulding, Newton, Fayette, Walton, and Barrow County each have approximately 1 percent of the total for the CSA, and Carroll, Clarke, Jackson, Troup, Gordon, Spalding, Oconee, Morgan, Polk, Haralson, Butts, Pickens, Meriwether, Madison, Dawson, Lamar, Upson, Pike, Oglethorpe, Jasper, and Heard are each less than 1 percent of the total CSA commuters commuting to a county with a violating monitor. The SAM results show a contribution of 0.78 ppb or less for each remaining county in the CSA that is not included in the nonattainment boundary. Based on consideration of all of this information, EPA is not modifying the State's recommendation that these counties should not be included in the Atlanta nonattainment area and EPA is designating these counties attainment for the 2015 ozone NAAQS.