Atlanta Nonattainment Area Emissions Inventory for the 2015 8-Hour Ozone NAAQS

On October 1, 2015, the United States Environmental Protection Agency (U.S. EPA) lowered the Ozone National Ambient Air Quality Standard (NAAQS) from 75 ppb to 70 ppb. On April 30, 2018, U.S. EPA designated 7 counties in Georgia (Bartow, Clayton, Cobb, Dekalb, Fulton, Gwinnett, and Henry) as "marginal" nonattainment for the 2015 Ozone NAAQS. Section 182(a)(1) of the Clean Air Act (CAA) requires a State Implementation Plan (SIP) to include a current and comprehensive inventory of actual emissions for all sources of ozone precursors. To address this requirement, the Georgia Environmental Protection Division (GA EPD) prepared a 2014 annual and summer day emissions inventory for nitrogen oxides (NOx), volatile organic compounds (VOCs), and carbon monoxide (CO) for the 7 counties in Atlanta that were designated "marginal" nonattainment for the 2015 Ozone NAAQS.

Since 2014 is the most recent year for which a complete National Emission Inventory (NEI) is available for all emission sources (NEI2014), GA EPD selected 2014 as the base year for the emissions inventory in this SIP revision. Complete national emission inventories are prepared every three years and are primarily based on data and inputs provided by State, Local, and Tribal agencies for sources within their jurisdictions. The NEI includes emissions from large point sources at specific locations, emissions from fire events, and county-level emissions of onroad mobile, nonroad mobile, and other nonpoint (area) sources. GA EPD has worked actively with the U.S. EPA on the NEI2014 to ensure high-quality emission estimates for sources in Georgia (e.g., submitting emission estimates developed with better local data sources and/or estimation methods, sharing local activity data/modeling inputs, and reviewing and providing comments on the U.S. EPA estimates). The emission estimates in NEI2014 for Georgia are considered the best available data sources for developing 2014 annual and summer day emissions for the 7 Atlanta nonattainment counties. This document describes how GA EPD calculated the annual and summer day emissions for each pollutant and data/source category. Annual and summer day NOx, VOC, and CO emissions are summarized by facilities for point sources and by Source Classification Codes (SCCs) for other data/source categories.

Annual Emissions

NOx, VOC, and CO emissions in the 7 Atlanta nonattainment counties for 2014 were prepared using various methods for different data/source categories, including point, nonpoint, Marine/Aircraft/Rail (MAR), onroad and nonroad mobile, fire events, and biogenic sources. The development of these emission inventories is described in the following subsections. Detailed calculations can be found in Appendix A and are organized by each data/source category.

Point sources

Emissions from 54 facilities in the 7 Atlanta nonattainment counties were based on the annual 2014 emissions in NEI2014 (U.S. EPA, 2018), which were reported by facilities and reviewed by both GA EPD and U.S. EPA. In addition, the point sources in NEI2014 include aircraft and railyard sources. Since these sources are usually treated as part of the MAR source category, emissions from these sources were removed from this source category and included as part of the MAR data category. See Appendix B for more detailed information. The point source emissions were downloaded from U.S. EPA's Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data

- Select “Data Summaries”
- Select “Point” (ZIP CSV) file
- Any point SCCs that were also a part of the MAR category were excluded from point emissions to avoid double counting

Nonpoint sources

Emissions from nonpoint sources were obtained from NEI2014 (U.S. EPA, 2018) via the U.S. EPA Emissions Inventory System (EIS). The Georgia nonpoint emissions estimates in NEI2014 are the result of collaborative efforts between GA EPD and U.S. EPA, and represent the best available information for Georgia. GA EPD reviewed the emissions estimates for nonpoint sources developed by U.S. EPA. When the U.S. EPA emissions for specific nonpoint SCCs in NEI2014 were considered better quality than the GA EPD estimates, GA EPD used the EPA emissions. For the remaining nonpoint sources, GA EPD developed emission estimates and submitted them to the EIS to be included as part of NEI2014. Nonpoint emissions were downloaded from U.S. EPA’s Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select “Data Summaries”
- Select “Nonpoint” (ZIP CSV) file
- Any nonpoint SCCs that were also a part of the MAR category were excluded from Nonpoint emissions to avoid double counting (See Appendix B)
- Any nonpoint SCCs that were also a part of Fire Events or Biogenic Sources were excluded from Nonpoint emissions to avoid double counting (See Appendix B)

MAR sources

Emissions from MAR sources were grouped using NEI2014 (U.S. EPA, 2018) via the U.S. EPA EIS. The MAR data category includes Marine, Aircraft, and Rail emissions separated based on SCC from the Point and Nonpoint source categories. The listing for each category based on SCC is provided in Appendix B. Marine emissions are negligible in the Atlanta 7-county nonattainment area. Emissions for the MAR data category were downloaded from U.S. EPA’s Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select “Data Summaries”
- Select “Point” and “Nonpoint” (ZIP CSV) files
- The MAR category is formed by grouping relevant point and nonpoint SCC (See Appendix B)

Note that the NEI2014 data for Hartsfield-Jackson Atlanta International Airport was based on site-specific operational data provided by the City of Atlanta Department of Aviation (DOA). See Appendix C for details.

Onroad mobile sources

Emissions from onroad mobile sources were estimated using MOtor Vehicle Emission Simulator (MOVES) model version MOVES2014a. To estimate annual emissions for each of the 7 Atlanta nonattainment counties, MOVES was run with the following inputs provided by EPA: 2014 meteorology, fuel formulation, fuel blend, fuel splits, road type (mostly from U.S. EPA, some from GA EPD), daily and hourly vehicle miles traveled (VMT) fractions, and average speed distributions. GA EPD developed the other inputs with local data, such as vehicle population, age distributions, VMT by source types (based on Highway Performance Monitoring System categories), ramp fractions, monthly VMT fractions, the remainder of the road type distributions, speed distributions, and day/hourly VMT fractions. Details of input development are

described in detail in Appendix A. These inputs were submitted to U.S. EPA through the EIS gateway as a part of the NEI2014 development. U.S. EPA ran Sparse Matrix Operator Kernel Emissions-MOtor Vehicle Emission Simulator (SMOKE-MOVES) and produced the onroad emissions, which GA EPD accessed for this inventory.

VOC emissions from refueling were calculated using MOVES2014a. These emissions correspond to evaporative emissions for MOVES2014a processes #18 and #19 (refueling vapor displacement loss and refueling spillage loss) and were included as part of the nonpoint source category, instead of the onroad mobile sources.

Annual emissions for the onroad source category were downloaded from U.S. EPA's Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select "Data Summaries"
- Select "Onroad" (ZIP CSV) file

Nonroad mobile sources

The NONROAD model within MOVES incorporates sector-specific equipment population growth rates that are used to project nonroad mobile source emissions activity. GA EPD provided updated growth rates to U.S. EPA for use in their calculations. U.S. EPA used MOVES2014a to calculate annual emissions for the nonroad source category. These emissions were downloaded from U.S. EPA's Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select "Data Summaries"
- Select "Nonroad" (ZIP CSV) file file

Fire events

Wildland fire events include both wildfires and prescribed fires in Georgia. For NEI2014, GA EPD collected detailed 2014 burn records from the Georgia Forestry Commission (GFC), military bases, the U.S. Forest Service (USFS), and the Fish and Wildlife Service (FWS). The detailed burning records showed burned acres per day. No satellite fire detection data were used in the GA EPD 2014 wildland fire emission inventory development. GA EPD followed the same methods used to create the Southeastern Modeling, Analysis, and Planning (SEMAP) 2007 fire inventory (see Appendix D) to develop the Georgia 2014 fire emissions. The fuel consumption and emission factors used in the SEMAP 2007 fire inventory development were considered to be the most accurate for 2014 based on feedback from fire and forest managers in the Southeast.

These emissions were downloaded from U.S. EPA's Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select "Data Summaries"
- Select "Prescribed/Wildfires by Pollutant" file

Biogenic sources

EPA used Biogenic Emission Inventory System (BEIS) version 3.61 to model biogenic emissions. These emissions were obtained from NEI2014. The data was downloaded from the U.S. EPA's Air Emissions Inventories website:

- https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data
- Select "Data Summaries"
- Select "Biogenic" file

Summer Day Emissions

The summer day emission calculations were performed following the latest EPA emissions inventory guidance (U.S. EPA, 2018). In the guidance, it states that "Summer day emissions means an average day's emissions for a typical summer work weekday. The state will select a particular month(s) in the summer and the day(s) in the work week to be represented. The selection of conditions should be coordinated with the conditions assumed in the development of reasonable further progress (RFP) plans, rate of progress plans and demonstrations, and/or emissions budgets for transportation conformity, to allow comparability of daily emission estimates." July is a typical summer month for the 7-county Atlanta nonattainment area. In addition, the July weekday emissions have been traditionally used to develop the motor vehicle emissions budgets (MVEBs) for transportation conformity.

The summer day emissions were calculated as the average of emissions during weekdays in July 2014. The weekdays (Monday - Friday) during July 2014 are listed in Table 1. Since July 4th is a holiday and is treated the same as Sunday during SMOKE modeling, the calculations here also treat July 4th (Friday) as a Sunday. The emission calculations vary among source and data categories due to the availability of different data sources and is described in detail below. The detailed calculations by source and data categories can be found in Appendix A.

Table 1. List of weekdays and weekend days during July 2014.

Day	Dates	# of Days	# of Days with Holiday Correction
Monday	7/7/2014, 7/14/2014, 7/21/2014, 7/28/2014	4	4
Tuesday	7/1/2014, 7/8/2014, 7/15/2014, 7/22/2014, 7/29/2014	5	5
Wednesday	7/2/2014, 7/9/2014, 7/16/2014, 7/23/2014, 7/30/2014	5	5
Thursday	7/3/2014, 7/10/2014, 7/17/2014, 7/24/2014, 7/31/2014	5	5
Friday	7/4/2014*, 7/11/2014, 7/18/2014, 7/25/2014	4	3
Saturday	7/5/2014, 7/12/2014, 7/19/2014, 7/26/2014	4	4
Sunday	7/6/2014, 7/13/2014, 7/20/2014, 7/27/2014	4	5

*7/4/2014 is a Friday, but is treated as Sunday in SMOKE modeling.

Point sources

The summer day NOx emissions from Electric Generating Unit (EGU) point sources are calculated by summing the hourly Continuous Emission Monitoring System (CEMS) NOx emission measurements during the 22 weekdays in July and then dividing by 22 days. The summer day VOC and CO emissions are calculated by multiplying the annual VOC or CO emissions by the ratio of average heat input during July weekdays to annual total heat input:

$$emis_{summer-day} = emis_{annual} \times \frac{\sum_j HeatInput_j/22}{\sum_i HeatInput_i}$$

where i refers to every hour during 2014 and j refers to every hours during July weekdays listed in Table 1. The above data were downloaded from the EPA Clean Air Markets Divsion (CAMD) website:

- https://ampd.epa.gov/ampd/
- Start customized data query for EGU facilities
- Criteria include EGU facilities, hourly NOx emissions, hourly heat inputs, and annual heat inputs

Detailed calculations can be found in Appendix A.

The summer day emissions from non-EGU point sources were calculated by applying emissions fractions from the SMOKE monthly and weekly temporal profiles to annual point source emissions. The SMOKE monthly temporal profiles include monthly weighting factors, and the weekly temporal profiles include weighting factors for each day of the week. These profiles vary with SCC. More detailed information can be found in the SMOKE manual (https://www.cmascenter.org/smoke/). Specifically, emissions during July are first calculated with the following equation:

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

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

$$emis_{summer-day} = emis_{July} \times \frac{\sum_{j=1}^{5} n_j wf_j}{\sum_{i=1}^{7} n_i wf_i} \div 22$$

where i refers to every day 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 and weekday, respectively, during July. The temporal reference and profiles were downloaded from the EPA 2011 modeling Platform FTP site.

Detailed calculations can be found in Appendix A.

Nonpoint sources

The summer day emissions from nonpoint sources were calculated by applying the emission fractions from the SMOKE monthly and weekly temporal profiles to the annual nonpoint source emissions (refer to the non-EGU "Point sources" section to see the approach).

MAR sources

The summer day emissions for the MAR category were calculated by applying the emission fractions from the SMOKE monthly and weekly temporal profiles to the annual point and nonpoint source emissions (refer to the non-EGU "Point sources" section to see the approach). For the Hartsfield-Jackson Atlanta International Airport, summer day emissions were determined by converting the annual aircraft emissions to typical July weekday emissions by multiplying by a factor of 0.26%. This factor of 0.26% was based on the average number of aircraft operations conducted on a typical weekday in July compared to the annual

total. This data was obtained from The City of Atlanta/DOA's Noise and Operations Monitoring System (NOMS). Further information is contained in Appendix C.

Onroad mobile sources

The summer day emissions from onroad mobile sources were calculated using MOVES2014a in custom domain mode (to get the 7 individual county emissions out of the 13 grouped together for transportation conformity and the SIP) for a July weekday using the same inputs as used in the most updated 2008 ozone NAAQS maintenance plan which is the basis for the currently used MVEBs for transportation conformity analyses. The MOVES input/output databases and run specification setup files can be found in Appendix A.

Nonroad mobile sources

Emissions from nonroad mobile sources for 2014 were obtained through running the NONROAD model portion of the MOVES model MOVES2014a, the most updated model at the time of the 2008 ozone NAAQS maintenance plan submission. The model was run using national defaults except for using 2014 local meteorology inputs from the Hartsfield-Jackson Atlanta International Airport National Weather Service (NWS) station. The summer day emissions for the 7-county Atlanta nonattainment area were extracted from a 15-county model run. See Appendix A for more detailed information.

Fire events

The summer day emissions from event fires were calculated by summing the daily emissions from fires that occurred during the weekdays in July 2014 and then dividing the sum for each county by the total number of weekdays (22 days).

Biogenic sources

The summer day emissions from biogenic sources were calculated by dividing the total July emissions for each county by 31 days since the SMOKE weekly temporal profiles show no difference between weekdays and weekend days.

Emission Summaries

Annual and summer day 2014 point source emissions of NOx, VOC, and CO for the 7-county Atlanta nonattainment area are summarized by facility in Table 2. Detailed emissions summaries by SCC and county for nonpoint, onroad mobile, and nonroad mobile sources can be found in Appendix B. Emissions summaries by county and data/source category can be found in Table 3-Table 8, Figure 1, and Figure 2.

Table 2. Annual and typical summer day 2014 NOx, VOC, and CO emissions for point sources in the 7-county Atlanta nonattainment area (tons/year and tons/day). Facilities are listed from highest NOx to lowest NOx emissions.

FIPS	County	Facility ID	AIRS	Facility Name	Annual (tons/year)			Summer Day (tons/day)		
					NOx	VOC	CO	NOx	VOC	CO
13015	Bartow	2813011	1500011	Ga Power Company - Plant Bowen	7062.06	194.52	1623.86	16.75	0.69	5.74
13151	Henry	2653511	15100025	Transcontinental Gas Pipe Line Company LLC-Compressor Station 120	1613.32	291.04	488.50	4.34	0.78	1.31
13067	Cobb	3699211	6700003	Ga Power Company - Plant McDonough/Atkinson	506.46	124.76	110.54	1.40	0.36	0.32
13121	Fulton	536111	12100020	Owens Brockway Glass Container Inc.	381.11	2.59	35.88	1.01	0.01	0.10
13067	Cobb	554511	6700022	Caraustar Industries Inc	214.55	139.33	44.57	0.58	0.37	0.12
13063	Clayton	536511	6300105	Delta Air Lines Inc - Technical Operations Center	83.93	146.78	38.44	0.23	0.39	0.10
13015	Bartow	2813111	1500061	Anheuser-Busch Inc	82.70	135.00	21.59	0.21	0.37	0.05
13089	DeKalb	10678611	8900299	Seminole Road MSW Landfill	35.28	18.92	191.39	0.09	0.05	0.51
13089	DeKalb	536011	8900233	Emory University	32.43			0.09		
13067	Cobb	3699411	6700027	Lockheed Martin Aeronautics Company	28.90	48.72	26.31	0.08	0.13	0.07
13121	Fulton	8499911	12100268	RM Clayton Water Reclamation Center	28.03	26.73	132.60	0.08	0.07	0.36
13015	Bartow	552911	1500008	Chemical Products Corporation	20.62	1.07	16.85	0.05	0.00	0.04
13121	Fulton	4303711	12100021	Owens Corning Insulating Systems LLC	18.84	50.45	120.98	0.05	0.13	0.32
13089	DeKalb	532811	8900224	Dart Container Corporation of Georgia	16.72	456.21	13.81	0.04	1.23	0.04
13063	Clayton	9749111	6300026	Griffin Industries Inc. of Georgia	9.92	38.80	8.13	0.03	0.12	0.02
13089	DeKalb	532711	8900131	Motiva Enterprises LLC	9.11	64.15		0.02	0.17	
13089	DeKalb	4240311	8900226	Woodbridge Foam Corp	7.76	42.72	6.52	0.02	0.11	0.02
13151	Henry	554611	15100022	Toppan Interamerica Inc	7.40	135.07	6.10	0.02	0.36	0.02
13089	DeKalb	4239911	8900097	New WinCup Stone Mountain	6.96	254.09	12.27	0.02	0.69	0.03
13151	Henry	2654011	15100021	Briggs & Stratton Power Products Group LLC	6.87	12.82	10.71	0.02	0.03	0.03
13089	DeKalb	4239711	8900085	Magellan Terminal Holdings L.P. - Doraville I Terminal	6.60	67.27	16.48	0.02	0.18	0.04
13121	Fulton	4304011	12100334	Owens Corning Roofing And Asphalt Llc	6.43	11.14	10.96	0.02	0.03	0.03
13063	Clayton	536411	6300059	Delta Air Lines Inc - Atlanta Station	5.00	8.44	3.31	0.01	0.02	0.01

13089	DeKalb	4240011	8900121	MagellanTerminal Holdings L.P. - Doraville II Terminal	4.82	58.50	12.05	0.01	0.16	0.03
13063	Clayton	17010111	6300030	Hartsfield-Jackson Atlanta International Airport	4.22	0.27	4.43	0.01	0.00	0.01
13121	Fulton	8353611	12100807	Delta Airlines - General Office Facilities	4.05	0.16	1.68	0.01	0.00	0.00
13089	DeKalb	4240111	8900127	Citgo Petroleum Corp	3.11	51.37	7.64	0.01	0.14	0.02
13089	DeKalb	4240511	8900239	Bimbo Bakeries USA Inc.	1.49	44.19	1.27	0.00	0.12	0.00
13121	Fulton	931211	12100254	PPG Industries Inc.	1.16	32.46		0.00	0.09	
13089	DeKalb	4240411	8900227	International Paper Company	0.87	21.56		0.00	0.06	
13063	Clayton	534911	6300008	Sherwin-Williams Co	0.75	18.57	0.63	0.00	0.05	0.00
13135	Gwinnett	8499711	13500139	Dolco Packaging	0.31	45.26	0.26	0.00	0.12	0.00
13089	DeKalb	4240611	8900263	Waste Management Inc/Live Oak Landfill	0.12	0.00	0.40	0.00	0.00	0.00
13067	Cobb	3699511	6700032	MPLX TERMINALS LLC- POWDER SPRING TERMINAL	0.03	32.18	0.19	0.00	0.09	0.00
13089	DeKalb	9742511	8900120	MPLX TERMINALS	0.01	18.52	0.03	0.00	0.05	0.00
13015	Bartow	12684011	1500056	TrinityRail Inc. Plant No. 493		5.10			0.01	
13015	Bartow	2813211		Bartow County Ph1 Slf			0.31			0.00
13063	Clayton	3698311		Clayton County SR 3 Lovejoy Landfill			1.15			0.00
13067	Cobb	3699611	6700074	Colonial Pipeline Company - Atlanta Junction		146.31			0.39	
13089	DeKalb	15534911	8900313	Carlyle Compressor Remanufacturing		11.17			0.03	
13089	DeKalb	3713311	8900047	Graphic Packaging International Inc.		34.71			0.09	
13089	DeKalb	3979511	8900130	KM Phoenix Holdings-Doraville Terminal		41.95			0.11	
13089	DeKalb	4240211	8900128	Transmontaigne Operating Co LP		51.50	6.83		0.14	0.02
13089	DeKalb	4241211	8900317	Atlanta Marble Manufacturing		10.40			0.03	
13089	DeKalb	4316611		Atlanta / Key Road Landfill			0.54			0.00
13089	DeKalb	8353011	8900100	Chevron Products Co.-Doraville Term.		29.51			0.08	
13121	Fulton	4303911	12100221	KM Phoenix Holdings - Chattahoochee Terminal		38.26			0.10	
13121	Fulton	4304211	12100558	Geiger International Inc.		8.58			0.02	
13121	Fulton	4304411	12100705	Spurlin Industries		38.83			0.10	
13121	Fulton	4316211		Fulton County / Merk / Miles Landfill			0.44			0.00
13121	Fulton	7322111	12100070	Mead Packaging		47.17			0.13	
13135	Gwinnett	12686111	13500170	MTI Whirlpools Inc.		34.34			0.09	
13135	Gwinnett	2607511	13500219	UWL/Richland Creek Road Sanitary Landfill			130.30			0.35
13135	Gwinnett	539111	13500185	Bj Sanitary Landfill & Recyclihg Center			0.33			0.00

Table 3. Annual 2014 NOx emissions by county and data/source category (tons/year).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	314	7,165	119	4,043	330	29	112	12,114
Clayton	13063	5,102	104	270	2,787	621	1	37	8,922
Cobb	13067	1,014	750	1,128	7,527	1,860	0	56	12,335
DeKalb	13089	278	125	973	7,317	1,615	3	42	10,353
Fulton	13121	926	440	1,596	11,726	2,738	5	69	17,499
Gwinnett	13135	239	0	1,062	7,947	2,688	0	83	12,020
Henry	13151	305	1,628	235	2,584	595	4	79	5,429
	Total	**8,178**	**10,212**	**5,383**	**43,930**	**10,447**	**43**	**478**	**78,671**

Table 4. Annual 2014 VOC emissions by county and data/source category (tons/year).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	22	336	1,408	1,109	416	60	11,553	14,905
Clayton	13063	713	213	2,522	1,167	376	2	4,671	9,665
Cobb	13067	272	491	6,835	4,005	2,720	0	8,039	22,362
DeKalb	13089	30	1,277	6,920	2,969	2,355	7	7,684	21,242
Fulton	13121	61	256	9,709	5,571	2,780	10	11,106	29,493
Gwinnett	13135	19	80	8,175	3,570	3,108	1	8,695	23,647
Henry	13151	17	439	1,801	999	445	8	7,528	11,236
	Total	**1,132**	**3,091**	**37,370**	**19,391**	**12,200**	**87**	**59,277**	**132,550**

Table 5. Annual 2014 CO emissions by county and data/source category (tons/year).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	196	1,663	780	15,231	3,463	1,016	1,291	23,640
Clayton	13063	7,992	56	489	17,880	5,669	43	525	32,655
Cobb	13067	861	182	1,675	51,927	37,615	0	921	93,180
DeKalb	13089	436	269	1,496	43,443	32,971	144	748	79,506
Fulton	13121	318	303	2,473	67,803	35,087	148	1,235	107,366
Gwinnett	13135	256	131	1,833	47,731	49,630	8	939	100,527
Henry	13151	88	505	764	12,718	4,510	116	826	19,528
	Total	**10,147**	**3,108**	**9,509**	**256,732**	**168,944**	**1,475**	**6,485**	**456,402**

Table 6. 2014 summer day NOx emissions by county and data/source category (tons/day).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	1	17.01	0.14	11.03	1.30	0.00	0.43	30.77
Clayton	13063	13	0.28	0.15	8.39	2.45	0.00	0.14	24.68
Cobb	13067	3	2.05	0.59	26.23	7.24	0.00	0.22	39.06
DeKalb	13089	1	0.33	0.53	25.84	6.27	0.00	0.16	33.89
Fulton	13121	2	1.17	1.23	42.83	10.74	0.00	0.27	58.73
Gwinnett	13135	1	0.00	0.58	24.18	10.58	0.00	0.33	36.31
Henry	13151	1	4.37	0.13	4.35	2.38	0.00	0.30	12.36
	Total	**21.54**	**25.21**	**3.36**	**142.86**	**40.96**	**0.00**	**1.85**	**235.79**

Table 7. 2014 summer day VOC emissions by county and data/source category (tons/day).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	0	1.07	3.61	3.51	1.29	0.00	67.00	76.55
Clayton	13063	2	0.59	6.69	3.63	1.26	0.00	26.68	40.70
Cobb	13067	1	1.35	18.14	11.87	9.30	0.00	46.82	88.20
DeKalb	13089	0	3.43	18.41	10.46	8.06	0.00	45.75	86.19
Fulton	13121	0	0.69	25.76	19.54	9.04	0.00	64.04	119.22
Gwinnett	13135	0	0.21	21.77	11.54	11.04	0.00	52.45	97.07
Henry	13151	0	1.18	4.66	2.40	1.46	0.00	42.98	52.73
	Total	**2.98**	**8.52**	**99.03**	**62.97**	**41.44**	**0.00**	**345.72**	**560.66**

Table 8. 2014 summer day CO emissions by county and data/source category (tons/day).

County	FIPS	MAR	Point	Nonpoint	Onroad	Nonroad	Fires	Biogenics	Total
Bartow	13015	0.53	5.84	0.82	44.89	11.63	0.02	6.66	70.38
Clayton	13063	20.78	0.15	0.30	52.50	19.37	0.00	2.67	95.78
Cobb	13067	2.31	0.51	1.01	162.12	138.07	0.00	4.80	308.83
DeKalb	13089	1.18	0.72	0.96	164.36	120.96	0.00	3.90	292.08
Fulton	13121	0.86	0.81	2.26	273.42	119.51	0.00	6.35	403.20
Gwinnett	13135	0.69	0.35	1.08	148.57	186.50	0.00	4.99	342.19
Henry	13151	0.24	1.36	0.62	27.11	15.87	0.00	4.18	49.38
	Total	**26.58**	**9.73**	**7.07**	**872.97**	**611.92**	**0.02**	**33.55**	**1561.83**

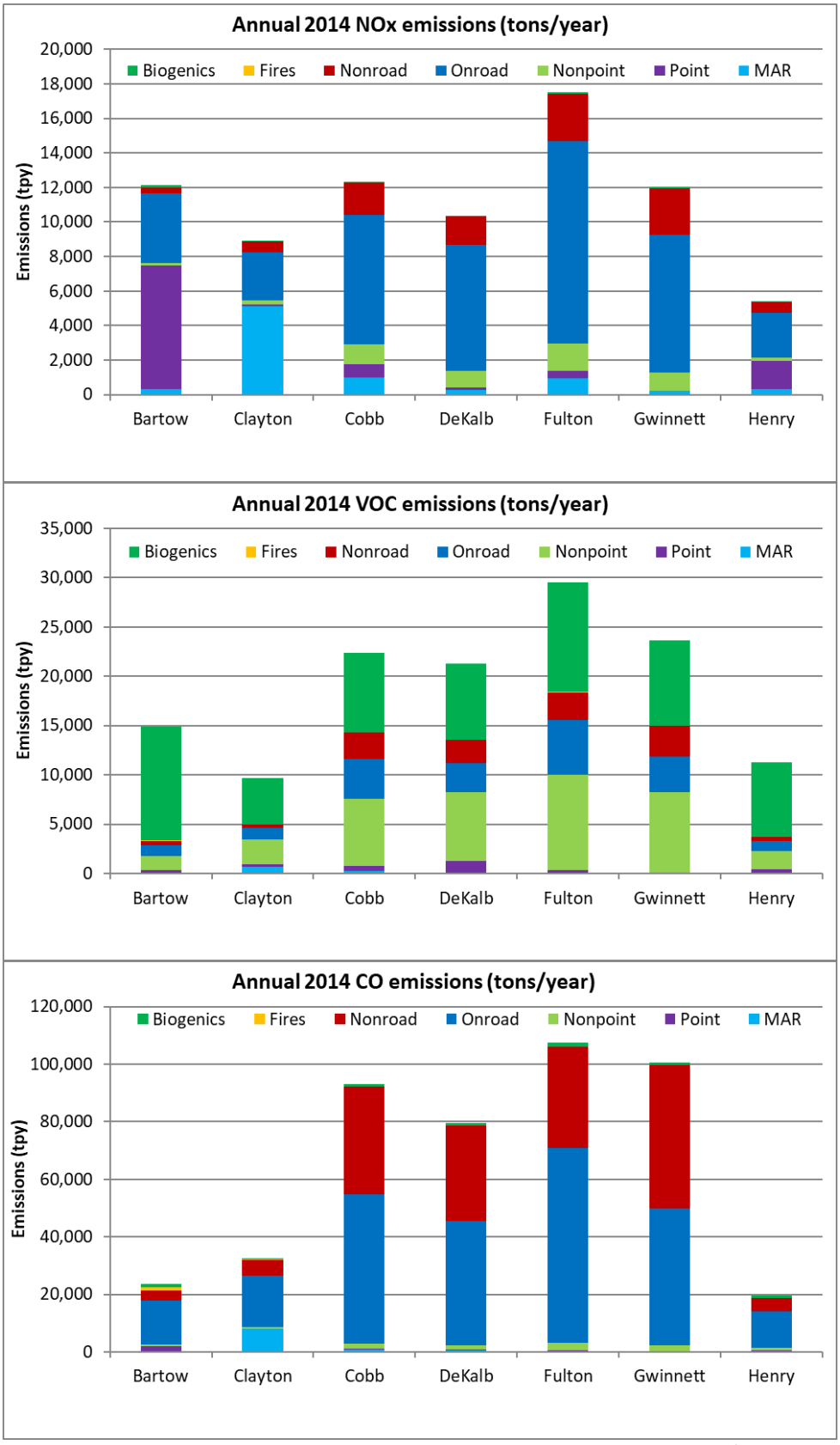

Figure 1. Annual 2014 NOx, VOC, and CO emissions by county and data/source category.

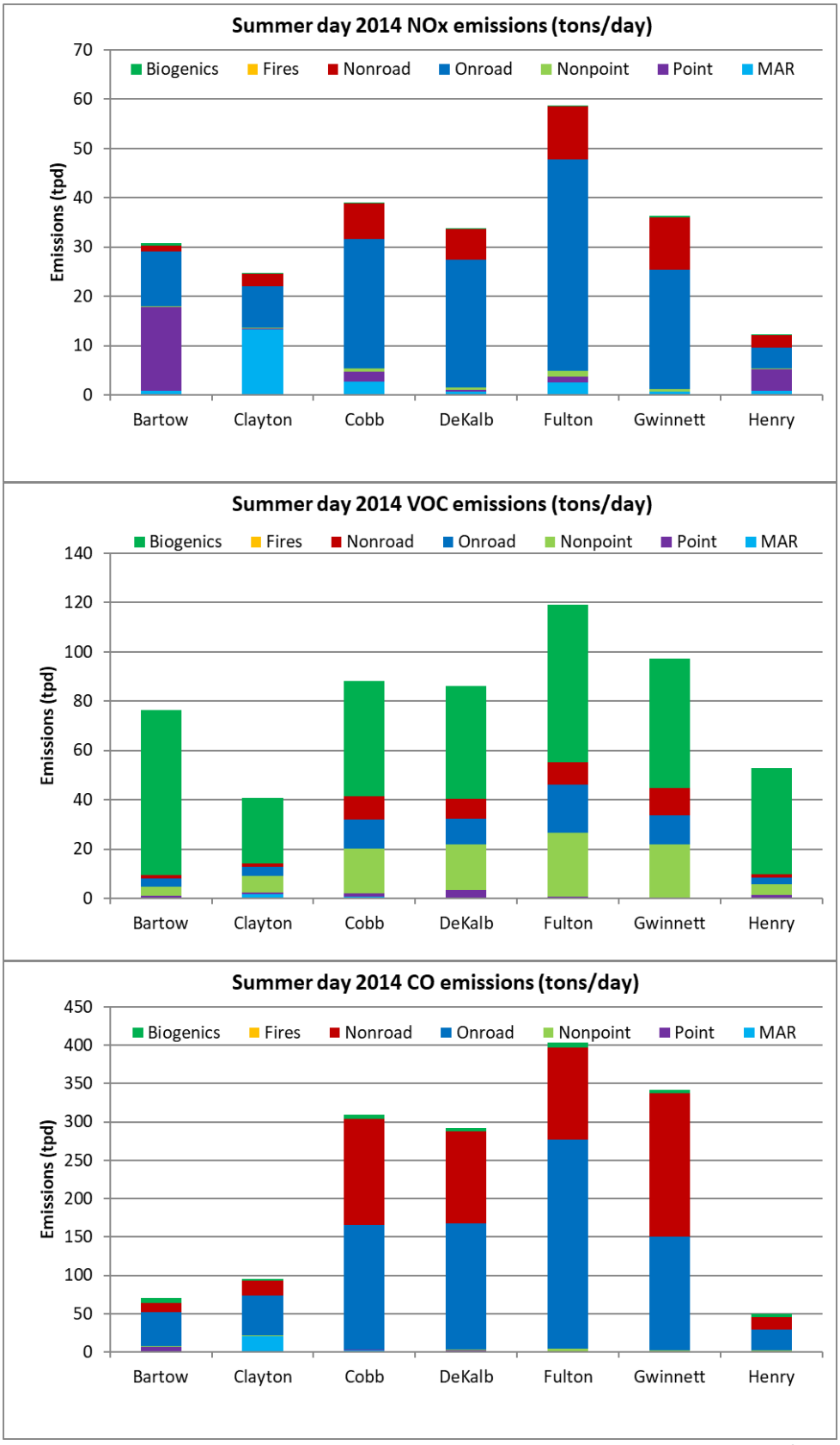

Figure 2. Summer day 2014 NOx, VOC, and CO emissions by county and data/source category.

QA/QC

Detailed Quality Assurance and Quality Control (QA/QC) efforts for all emission source categories have been documented in the GA EPD inventory Emission Quality Assurance Project Plan (QAPP). The QAPP "Quality Assurance Project Plan for Georgia's Emission Inventories" (dated November 28, 2017) covers emission inventories for stationary point sources, nonpoint (area), onroad mobile, nonroad mobile, fires, and MAR. In addition, point source emissions, nonpoint source emissions, and MOVES model input data have gone through additional QA checks in the EPA EIS system. Finally, the 2014 emissions were checked by comparing them against emission estimates from previous years.

References

U.S. EPA, 2018. 2014 National Emissions Inventory, version 2, Technical Support Document.

U.S. EPA, 2017. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations.

Appendix A
Annual and Summer Day 2014 Emission Calculations for the 7-county Atlanta Nonattainment Area

All emission calculation files are provided in this appendix. They are organized by data/source category:

- **Biogenics**: calculations for biogenic sources.
- **Fires**: calculation for wildland fires, and for agriculture burning and land clearing in the nonpoint source category.
- **MAR**: calculations for Marine, Aircraft, and Rail Sources (except Appendix C which covers Hartsfield-Jackson Atlanta International Airport)
- **MOVES_ONROAD**: input and output databases, run specification files, outputs analysis files, and accompanying documentation
- **MOVES_NONROAD**: input and output databases, run specification files, outputs analysis files, and accompanying documentation
- **Point-nonpoint**: temporal allocation for point and nonpoint categories.

Appendix Provided in Electronic Copy Only.

Appendix B
Emission Summaries

This appendix contains Excel emission summaries for:

- Point sources by county and facility,
- Nonpoint sources by county and SCC,
- Onroad and nonroad mobile sources by county and SCC,
- Fires by county and SCC,
- Biogenic sources, and
- MAR sources by county and SCC.

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Appendix C
Hartsfield-Jackson Atlanta International Airport

This appendix contains:

- Hartsfield-Jackson Atlanta International Airport Documentation for the CY 2014 Criteria Air Pollutant Emission Inventory prepared by KB Environmental Sciences, Inc., 2020.
- KB Environmental Sciences Summary Memo to Georgia EPD
- Excel file “Most_Updated_2014_HartsfieldEmissions_by_SCC_01.29.16” with emission calculations

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Appendix D
Emission Inventory Technical Support Documents

This appendix contains technical support documents for:

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

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Appendix E
Georgia Quality Assurance Project Plan Document

This appendix contains:

- Quality Assurance Project Plan For Georgia's Emission Inventories

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