

**State of Alabama
Ambient Air Monitoring
2018 Network Plan**



Table of Contents

Definitions and Acronyms	3
Introduction.....	4
Public Review and Comment.....	4
Overview of Alabama’s Air Monitoring Network.....	5
Summary of findings of the network review	6
Summary of changes in 2017/2018.....	6
Network Plan Description.....	8
Monitoring Requirements	9
Population and CBSA	9
Types of Monitoring Stations	12
PAMS.....	12
SLAMS	12
STN.....	12
Supplemental Speciation.....	12
NCore.....	12
CASTNET.....	12
SO2 Data Requirements Rule	12
Alabama’s SLAMS by Pollutant	14
Lead Network.....	14
Carbon Monoxide (CO) Network	14
Nitrogen Dioxide (NO ₂) Network.....	14
Sulfur Dioxide (SO ₂) Network.....	14
PM10 Network.....	17
Ozone Network.....	17
Ozone Monitoring Requirements for Alabama MSAs	19
PM _{2.5} Network	21
PM _{2.5} Monitoring requirements for Alabama MSAs	23
Quality Assurance.....	25
Monitoring Equipment Evaluation	25
NETWORK DESCRIPTIONS	26
ADEM AIR MONITORING NETWORK DESCRIPTION	27
PM 2.5.....	28
PM 2.5 continued.....	29
PM ₁₀	30
Lead.....	30
OZONE.....	31
SO ₂	32
APPENDIX A.....	34
Site Assessments.....	34
APPENDIX B	35
New Site Descriptions.....	35
Wetumpka Technology Park.....	35
Recent History of ozone monitoring in Elmore County.....	35
APPENDIX C	39
Site/Monitor Removal Justifications.....	39

List of Tables

Table 1 All Sites in the 2018 ADEM Monitoring Network..... 7
Table 2 Alabama CBSAs 10
Table 3 CBSA's PWEI and Number of Monitors Required 16
Table 4 SLAMS Minimum Ozone Monitoring Requirements 17
Table 5 Alabama MSAs with Ozone Monitoring Sites and Current Design Value 18
Table 6 PM2.5 Minimum Monitoring Requirements 21
Table 7 MSA's with PM2.5 Monitoring Sites and Current Design Value..... 22
Table 8 Summary of Ozone Data for Montgomery MSA 37

List of Figures

Figure 1 Alabama with MSAs as of 2016..... 11
Figure 2 Location of ADEM Monitoring Sites..... 13
Figure 3 Aerial Map Showing Position of New (WTT) site relative to the WET site. 36
Figure 4 Aerial Map Showing Detail in 1/4 mile Radius of New Site (WTT)..... 36
Figure 5 Distances to Potential Obstructions and Roadway 37
Figure 6 Graph of Montgomery MSA Ozone Data 37

Definitions and Acronyms

AAQM	Ambient Air Quality Monitoring
AAQMP	Ambient Air Quality Monitoring Plan
ADEM	Alabama Department of Environmental Management
ARM	Approved Regional Method
AQS	Air Quality System
avg	average
Bham	Birmingham
CBSA	Core Based Statistical Area
CFR	<i>Code of Federal Regulations</i>
CO	Carbon Monoxide
CSA	Combined Statistical Area
CSN	Chemical Speciation Network
EPA	Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
HDNREM	Huntsville Department of Natural Resources and Environmental Management
hr	hour
hi-vol	high-volume PM10 sampler
JCDH	Jefferson County Department of Health
Low-vol	low-volume particulate sampler
m ³	cubic meter
min	minute
ml	milliliter
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NCore	National Core multipollutant monitoring stations
O ₃	ozone
PAMS	Photochemical Assessment Monitoring Stations
Pb	lead
PM	particulate matter
PM _{2.5}	particulate matter ≤2.5 micrometers diameter
PM ₁₀	particulate matter ≤10 micrometer diameter
PM _{10-2.5}	particulate matter ≤10 microns but > 2.5 microns
PSD	Prevention of Significant Deterioration
PWEI	Population Weighted Emissions Index
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SLAMS	State or Local Air Monitoring Station
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitor
STN (PM _{2.5})	Speciation Trends Network
TEOM	Tapered Element Oscillating Microbalance (Rupprecht and Patashnick Co.)
tpy	tons per year
TSP	Total Suspended Particulate
URG	URG-3000N PM _{2.5} Speciation monitoring carbon-specific sampler
USEPA	United States Environmental Protection Agency
° C	degree Celsius
µg/m ³	micrograms (of pollutant) per cubic meter (of air sampled)
≥	greater than or equal to
>	greater than
≤	less than or equal to
<	less than

Introduction

In October 2006, the United States Environmental Protection Agency (EPA) issued final Federal Regulations (40 CFR Part 58) concerning state and local agency ambient air monitoring networks. These regulations require states to submit an annual monitoring network review to EPA. This document provides the framework for establishment and maintenance of Alabama's air quality surveillance system, lists changes that occurred during 2017, and changes proposed to take place to the current ambient air monitoring network during 2018/2019.

Public Review and Comment

The annual monitoring network review must be made available for public inspection for thirty (30) days prior to submission to EPA. For 2018, this document was placed on ADEM's website on 05/21/2018 to begin a 30-day public review period. This document can be accessed at the following link:

<http://www.adem.state.al.us/newsEvents/publicNotices.cnt>

Or by contacting:

Michael E. Malaier, Chief
Air Assessment Unit
Field Operations Division
Alabama Department of Environmental Management
P.O. Box 301463, Montgomery, AL 36130-1463
(Street address: 1350 Coliseum Boulevard, Montgomery, AL 36110-2059)
Or by e-mail at mml@adem.state.al.us.

Overview of Alabama's Air Monitoring Network

Ambient air monitors in the state of Alabama are operated for a variety of monitoring objectives. These objectives include determining whether areas of the state meet the National Ambient Air Quality Standards (NAAQS), to provide public information such as participation in EPA's AirNow program, Air Quality Index (AQI) reporting for larger Metropolitan Statistical Areas (MSAs), for use in Air Quality models and to provide data to Air Quality Researchers. Alabama monitors the six (6) criteria pollutants which have NAAQS identified for them: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), Ozone (O₃), particulate matter (PM₁₀, PM_{2.5}), and Sulfur Dioxide (SO₂). There are other non-criteria pollutants, such as PM_{2.5} speciated compounds, that are also monitored for special purposes. In addition, meteorological data is also collected to support the monitoring and aid in analysis of the ambient air monitoring data.

In Alabama, the air quality surveillance system is operated by the state environmental agency, the Alabama Department of Environmental Management (ADEM), and two local agencies, the Jefferson County Department of Health (JCDH), and the Huntsville Department of Natural Resources and Environmental Management (HDNREM). Each agency is responsible for performing the required annual review of their portion of the current ambient air quality network and developing a proposed network plan to be implemented during 2019. This document reflects the air quality surveillance system operated only by ADEM. An overview of the 2018 ADEM Monitoring Network can be seen in Table 1.

The Jefferson County Department of Health plan will be available for review on their website by following this link. www.jcdh.org/jcdh-ambient-air-network-plan

The Huntsville Department of Natural Resources and Environmental Management's plan will be available for review on their website by following this link. <https://www.huntsvilleal.gov/government/departments/natural-resources/>.

Currently, the Air Quality Index (AQI) is reported for Huntsville, Birmingham, Mobile, Montgomery and Phenix City on the Internet at the sites listed below.

ADEM	http://www.adem.state.al.us/programs/air/airquality/ozone/historical.cnt
JCDH	http://www.jcdh.org/programs/air-radiation-protection-division/air-quality-forecast/
HDNREM	https://www.huntsvilleal.gov/environment/air-quality/air-pollution-control-program/air-quality-daily-index-reports/

Summary of findings of the network review

Summary of changes in 2017/2018

- Wetumpka (AQS ID 01-051-0003) ozone monitoring site had to be moved due to loss of access to the site. The site was moved to 3148 Elmore Road, Wetumpka, Alabama and assigned AQS ID 01-051-0004. Ozone monitoring began March 21, 2018. See the new site assessment in Appendix C.
- South Girard School (AQS ID 01-113-0003) replaced Phenix City-Downtown particulate matter monitoring site (AQS ID 01-113-0001) and Phenix City-Ladonia ozone monitoring site (AQS ID 01-113-0002). All ambient air monitoring activities in the Phenix City area were consolidated to one location at the South Girard School at 510 6th Place, Phenix City. Particulate matter monitoring began January 18, 2017 and ozone monitoring began March 1, 2018.
- ADEM began monitoring SO₂ at the Ward site (AQS ID 01-119-0003) to determine background levels of SO₂. The SO₂ monitor is designated as a Special Purpose Monitor (SPM).
- Childersburg (AQS ID 01-121-0002) particulate matter monitoring site was closed December 31, 2017 due to its low design value. This site was not in an MSA and was not required by 40 CFR 58, Appendix D.

Summary of proposed changes for 2018/2019

- ADEM proposes to shut down the continuous PM_{2.5} monitors at the Tuscaloosa and Gadsden sites. These monitors were installed due to a requirement of 40 CFR 58, appendix D, 4.7.2. Due to the low concentrations that have been recorded at these locations, these monitors are no longer required. For more details see APPENDIX C.

Table 1 All Sites in the 2018 ADEM Monitoring Network

Site Common Name	AQS ID	Ozone	PM2.5	PM 2.5 collocated	PM2.5 Spec.	BAM (Cont. PM2.5)	PM10 Hi-Vol	PM10 Hi-Vol collocated	Lead	Lead Collocated	SO2
ADEM Sites											
Fairhope	01-003-0010	x	x								
Ashland	01-027-0001		x								
Muscle Shoals	01-033-1002	x	x								
Crossville	01-049-1003		x								
Wetumpka WT	01-051-0004	x									
Gadsden - CC	01-055-0010		x			c					
Southside	01-055-0011	x									
Dothan -CC	01-069-0003		x								
Dothan	01-069-0004	x									
Mobile - Chickasaw	01-097-0003	x	x			x					x
Mobile - Bay Road	01-097-2005	x									
Montgomery - MOMS	01-101-1002	x	x	x		x	x	x			
Decatur	01-103-0011	x	x			x					
Troy	01-109-0003								x	x	
Phenix City - South Girard School	01-113-0003	x	x	x	x	x					
Helena	01-117-0004	x									
Lhoist	01-117-9001										x
Ward, Sumter Co.	01-119-0003	x				x					x
Tuscaloosa - VA Hospital	01-125-0004		x			c					
Duncanville, Tuscaloosa	01-125-0010	x									

C = to be closed in 2018.

Network Plan Description

As per 40 CFR Part 58.10, an annual monitoring network plan which provides for the establishment and maintenance of an air quality surveillance system consisting of the air quality monitors in the state is required to be submitted by all states to EPA.

Specifically §58.10 (a) requires for each existing and proposed monitoring site:

1. A statement of purpose for each monitor.
2. Evidence that siting and operation of each monitor meets the requirements of Appendices A, C, D, and E of 40 CFR Part 58, where applicable.
3. §58.10 (b) requires the plan contain the following information for each existing and proposed site:
 - a. The Air Quality System (AQS) site identification number.
 - b. The location, including street address and geographical coordinates.
 - c. The sampling and analysis method(s) for each measured parameter.
 - d. The operating schedules for each monitor.
 - e. Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
 - f. The monitoring objective and spatial scale of representativeness for each monitor.
 - g. The identification of any sites that are suitable and sites that are not suitable for comparison against the annual PM_{2.5} NAAQS as described in §58.30.
 - h. The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by the monitor.
 - i. The designation of any Pb monitors as either source-oriented or non-source-oriented according to Appendix D to 40 CFR part 58.
 - j. Any source-oriented monitors for which a waiver has been requested or granted by the U.S. EPA Regional Administrator as allowed for under paragraph 4.5(a)(ii) of Appendix D to 40 CFR part 58.
 - k. Any source-oriented or non-source-oriented site for which a waiver has been requested or granted by the U.S.EPA Regional Administrator for the use of Pb-PM₁₀ monitoring in lieu of Pb-TSP monitoring as allowed for under paragraph 2.10 of Appendix C to 40 CFR part 58.
 - l. The identification of required NO₂ monitors as near-road, area-wide, or vulnerable and susceptible population monitors in accordance with Appendix D, section 4.3 of this part.
 - m. The identification of any PM 2.5 FEMs and/or ARMs used in the monitoring agency's network where the data are not of sufficient quality such that data are not to be compared to the NAAQS. For required SLAMS where the agency identifies that the PM 2.5 Class III FEM or ARM does not produce data of sufficient quality for comparison to the NAAQS, the monitoring agency must ensure that an operating FRM or filter-based FEM meeting the sample frequency requirements described in § 58.12 or other Class III PM_{2.5} FEM or ARM with data of sufficient quality is operating and reporting data to meet the network design criteria described in appendix D to this part.

Monitoring Requirements

Appendix A of 40 CFR Part 58 outlines the Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring. It details calibration and auditing procedures used to collect valid air quality data, the minimum number of collocated monitoring sites, calculations used for data quality assessments, and reporting requirements. All sites operated by ADEM follow the requirements set forth in Appendix A.

Appendix C of 40 CFR Part 58 specifies the criteria pollutant monitoring methods which must be used in SLAMS and NCore stations. All criteria pollutant monitoring operated by ADEM follow the methods specified in Appendix C.

Appendix D of 40 CFR Part 58 specifies network design criteria for ambient air quality monitoring. The overall design criteria, the minimum number of sites for each parameter, the type of sites, the spatial scale of the sites, and the monitoring objectives of the sites are detailed. In designing the air monitoring network for ADEM, the requirements of Appendix D were followed. The specifics for each pollutant network are in their individual chapters.

Appendix E of 40 CFR Part 58 specifies the placement of the monitoring probe, its spacing from obstructions and probe material. All monitors operated by ADEM were evaluated against Appendix E criteria.

Population and CBSA

Alabama has a 2017 population estimate of 4,874,747 of which 3,731,531 is located in the 13 MSAs listed in Table 2.

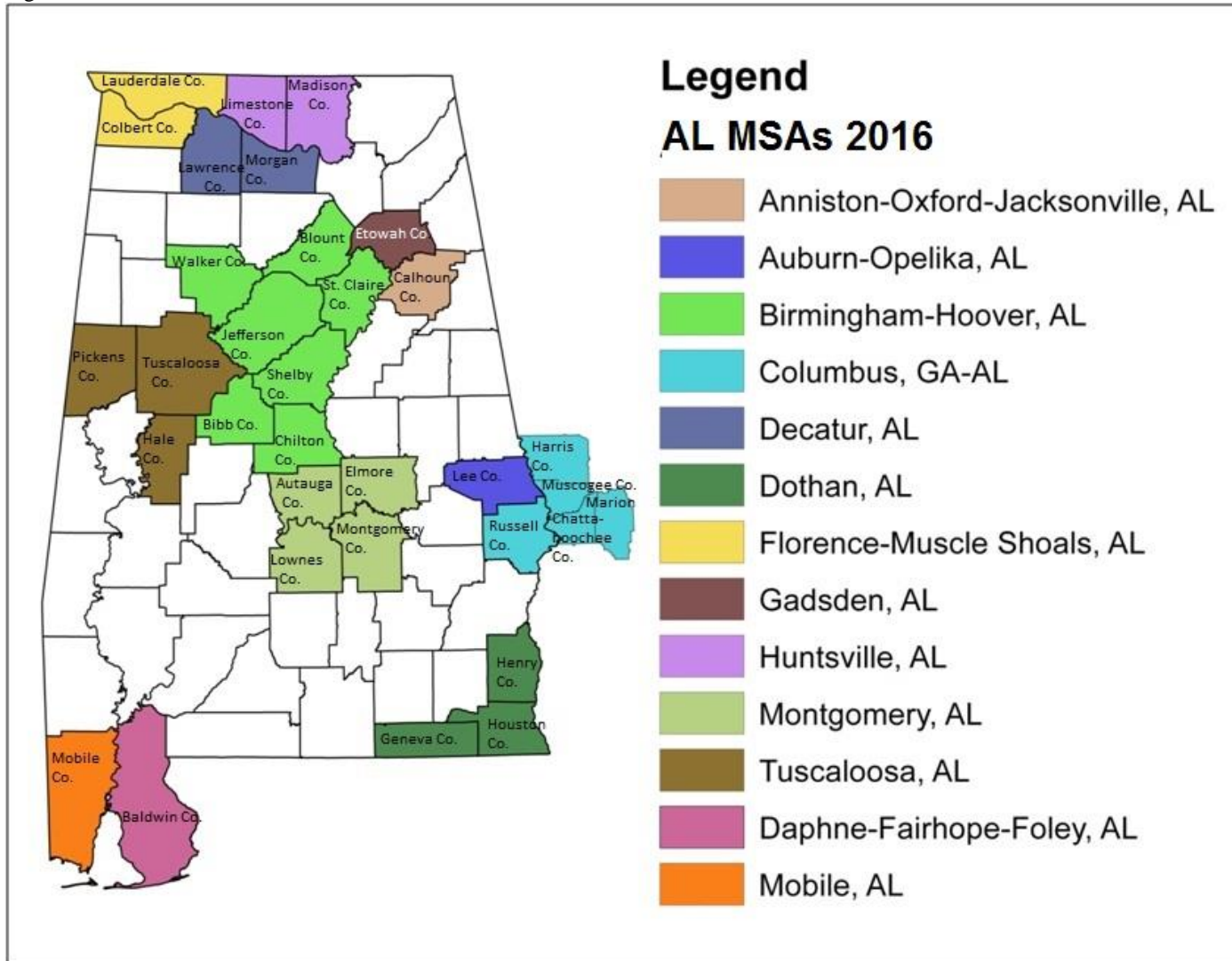
Minimum monitoring requirements vary for each pollutant and can be based on a combination of factors such as population, the level of monitored pollutants, and Core Based Statistical Area boundaries as defined in the latest US Census information. The term "Core Based Statistical Area" (CBSA) is a collective term for both Metropolitan Statistical Areas (MSA) and Micropolitan Statistical Areas (μ SA).

Table 2 lists the CBSAs in Alabama along with county names included in that area, and the 2017 estimated population. The Metropolitan Statistical Areas followed by the Micropolitan Statistical Areas are listed from highest to lowest population.

Table 2 Alabama CBSAs

Core Based Statistical Areas	Counties	2017 Population Est.	Metropolitan or Micropolitan Statistical Areas
Birmingham-Hoover, AL	Bibb, Blount, Chilton, Jefferson, Shelby, St. Clair, and Walker	1,149,807	Metropolitan Statistical Area
Huntsville, AL	Limestone and Madison	455,448	Metropolitan Statistical Area
Mobile, AL	Mobile County	413,995	Metropolitan Statistical Area
Montgomery, AL	Autauga, Elmore, Lowndes, and Montgomery	373,903	Metropolitan Statistical Area
Columbus, GA-AL	Russell County, AL and Chattahoochee County,GA, Harris County,GA, Marion County,GA, Muscogee County,GA	303,811	Metropolitan Statistical Area
Tuscaloosa, AL	Hale, Pickens and Tuscaloosa	242,799	Metropolitan Statistical Area
Daphne-Fairhope-Foley, AL	Baldwin	212,628	Metropolitan Statistical Area
Auburn-Opelika, AL	Lee	161,604	Metropolitan Statistical Area
Decatur, AL	Lawrence and Morgan	151,867	Metropolitan Statistical Area
Dothan, AL	Geneva, Henry and Houston	147,914	Metropolitan Statistical Area
Florence-Muscle Shoals, AL	Colbert and Lauderdale	147,038	Metropolitan Statistical Area
Anniston-Oxford-Jacksonville, AL	Calhoun	114,728	Metropolitan Statistical Area
Gadsden, AL	Etowah	102,755	Metropolitan Statistical Area
Albertville, AL	Marshall	95,548	Micropolitan Statistical Area
Talladega-Sylacauga, AL	Coosa and Talladega	90,819	Micropolitan Statistical Area
Cullman, AL	Cullman	82,755	Micropolitan Statistical Area
Scottsboro, AL	Jackson	51,909	Micropolitan Statistical Area
Enterprise, AL	Coffee	51,874	Micropolitan Statistical Area
Ozark, AL	Dale	49,226	Micropolitan Statistical Area
Selma, AL	Dallas	39,215	Micropolitan Statistical Area
Valley, AL	Chambers	33,713	Micropolitan Statistical Area
Troy, AL	Pike	33,267	Micropolitan Statistical Area

Figure 1 Alabama with MSAs as of 2016



Types of Monitoring Stations

PAMS – *Photochemical Assessment Monitoring Station*: PAMS are established to obtain more comprehensive data in areas with high levels of ozone pollution by also monitoring oxides of Nitrogen (NO_x) and volatile organic compounds (VOCs). PAMS monitoring requirements were revised in the 2016 ozone NAAQS rule and a PAMS site will be required in Jefferson County. Refer to the JCDH Plan for details.

SLAMS - *State or Local Ambient Monitoring Station*: The SLAMS make up ambient air quality monitoring sites that are primarily needed for NAAQS comparisons. **ADEM SLAMS are described in detail by pollutant in the section labeled Alabama’s SLAMS by Pollutant.**

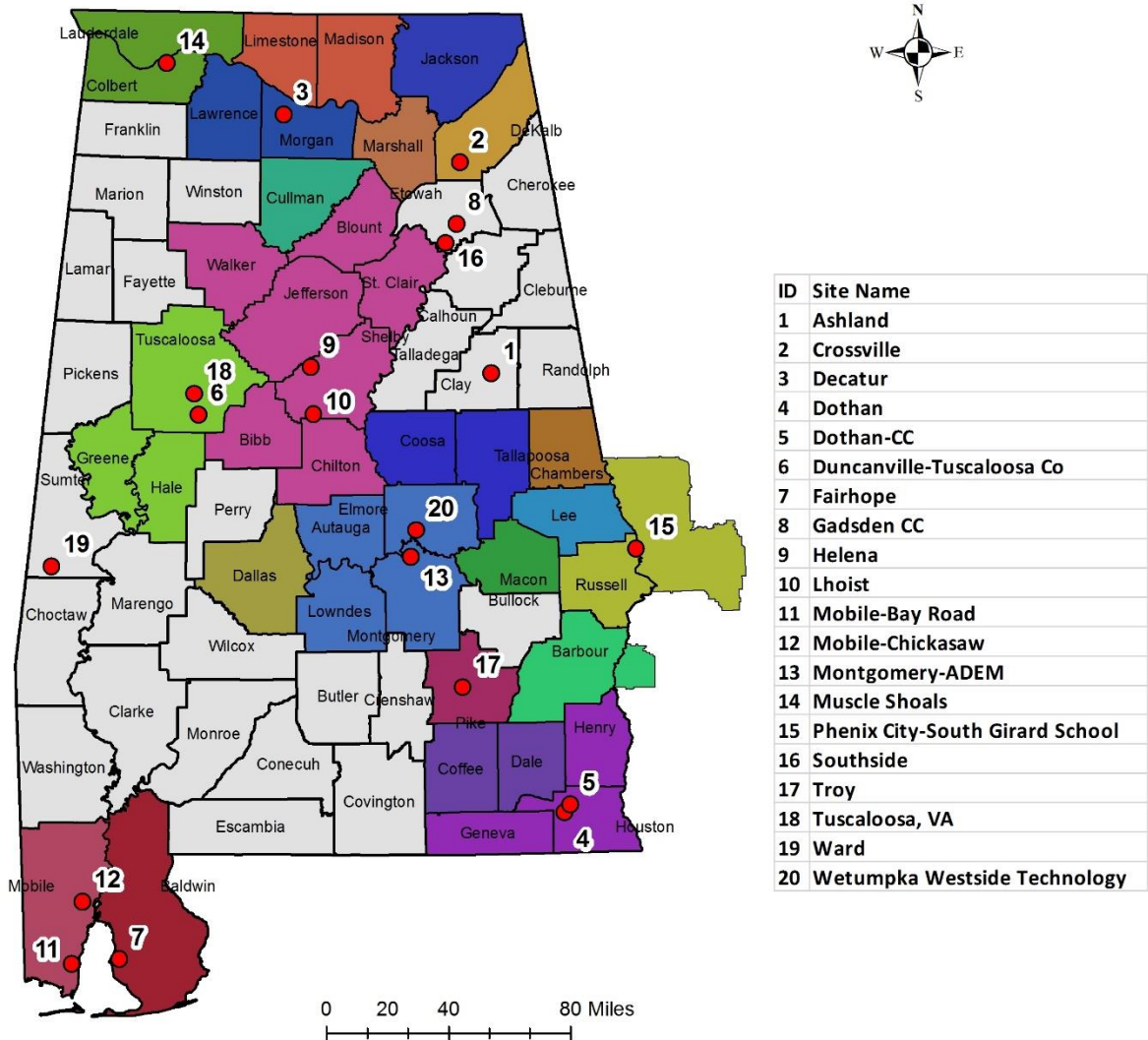
STN – *PM_{2.5} Speciation Trends Network*: A PM_{2.5} speciation station designated to be part of the speciation trends network. This network provides chemical species data of fine particulates. There is one STN site in Alabama, North Birmingham, in Jefferson County (AQS ID 01-073-0023), operated by JCDH. Refer to the JCDH Plan for details.

Supplemental Speciation - Any PM_{2.5} speciation station that is used to gain supplemental data and is not dedicated as part of the speciation trends network. Alabama’s network has 2 supplemental sites: **ADEM operates one at Phenix City-Girard School (AQS ID 01-113-0003)** and a second is operated by JCDH at the Wylam site (AQS ID 01-073-2003). Refer to the JCDH Plan for details on their site.

NCORE – *National Core multi-pollutant monitoring station*: Sites that measure multiple pollutants at trace levels in order to provide support to integrated air quality management data needs. Each state is required to operate one NCore site. There is one NCore site in Alabama, North Birmingham, in Jefferson County (AQS ID 01-073-0023), operated by JCDH. Refer to the JCDH Plan for details.

CASTNET – *Clean Air Status and Trends Network*: is a national air quality monitoring network designed to provide data to assess trends in air quality, atmospheric deposition, and ecological effects due to changes in air pollutant emissions. CASTNET provides long-term monitoring of air quality in rural areas to determine trends in regional atmospheric nitrogen, sulfur, and ozone concentrations and deposition fluxes of sulfur and nitrogen pollutants in order to evaluate the effectiveness of national and regional air pollution control programs. EPA-sponsored CASTNET ozone monitors are Part 58 compliant, therefore the data can be used for regulatory purposes. CASTNET Ozone data is now reported to AQS. There is one CASTNET site in Alabama, Sand Mountain in DeKalb County (AQS ID 01-049-9991), operated by an EPA contractor.

SO₂ Data Requirements Rule (DRR)– Effective September 21, 2015, per 40 CFR Part 51, states are required to report all sources that generate >2,000 tpy SO₂, not dependent upon population density. Each source in this category must characterize air quality through air quality modeling or ambient air monitoring. Each source that chooses monitoring must operate their site equivalent with the SLAMS requirements of 40 CFR Part 58. Source-oriented monitoring for SO₂ is required from January 1, 2017 through December 31, 2019 for adequate data to calculate a valid design value. **Alabama has one DRR SO₂ monitoring site, Lhoist (AQS ID 01-117-9001) operated by a Lhoist contractor.**



Legend

- ADEM Sites
 - Counties
- Micro and Metro Statistical Areas**
- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Albertville, AL μSA Alexander City, AL μSA Anniston-Oxford, AL MSA Auburn-Opelika, AL MSA Birmingham-Hoover, AL MSA Columbus, GA-AL MSA | <ul style="list-style-type: none"> Cullman, AL μSA Daphne-Fairhope-Foley, AL μSA Decatur, AL MSA Dothan, AL MSA Enterprise-Ozark, AL μSA Eufaula, AL-GA μSA Florence-Muscle Shoals, AL MSA Fort Payne, AL μSA Gadsden, AL MSA Huntsville, AL MSA | <ul style="list-style-type: none"> Mobile, AL MSA Montgomery, AL MSA Scottsboro, AL μSA Selma, AL μSA Talladega-Sylacauga, AL μSA Troy, AL μSA Tuscaloosa, AL MSA Tuskegee, AL μSA Valley, AL μSA |
|--|--|---|

Figure 2 Location of ADEM Monitoring Sites

Alabama's SLAMS by Pollutant

Lead Network

In 2008, EPA revised the NAAQS for lead (Pb). The Pb standard was lowered from 1.5 ug/m³ for a quarterly average to 0.15 ug/m³ based on the highest rolling 3-month average over a 3-year period. EPA set minimum monitoring requirements for source and population oriented monitoring. Source oriented monitoring is required near sources that have Pb emissions ≥1 ton per year. Population oriented monitoring is required for CBSAs >500,000. In December 2010, EPA revised the Pb rule to require source-oriented monitors for sources greater than ½ ton per year and stated that population oriented monitors would be located at NCore sites. In March, 2016, EPA removed the requirement for Pb monitoring at NCore sites that were not located near a Pb emissions source.

Based on current emissions data or modeling, ADEM has identified one source, Sanders Lead Company, Inc., located in Troy, Pike County, a micropolitan statistical area, which emits greater than 1/2 ton of Pb per year. Troy (AQS ID 01-109-0003), operated by ADEM, has been monitoring for Pb near that source since 1979. To meet QA requirements, collocated lead monitoring is also occurring at this site. No additional changes are proposed for this network.

Carbon Monoxide (CO) Network

On August 12, 2011 EPA issued a final rule that retained the existing NAAQS for Carbon Monoxide (CO) and made changes to the ambient air monitoring requirements. EPA revised the minimum requirements for CO monitoring by requiring CO monitors to be collocated with one required near-road NO₂ monitor in CBSAs having a population of 1,000,000 or more persons. ADEM does not operate a near-road monitoring site. For more information regarding CO monitoring refer to the JCDH Plan for details. ADEM does not operate a CO monitor.

Nitrogen Dioxide (NO₂) Network

On January 22, 2010 the US EPA finalized the monitoring rules for Nitrogen Dioxide (NO₂). The rules require the placement of NO₂ monitors near a major road in each CBSA with a population ≥500,000 people and a second monitor is required near another major road in areas with either a CBSA population ≥2.5 million people, or one or more road segments with an annual average daily traffic (AADT) count ≥250,000 vehicles. For near road NO₂ monitoring, Birmingham-Hoover is the only MSA in Alabama with a population greater than 500,000. However, the population is less than 2.5 million and there are no road segments with AADT greater than 250,000 vehicles. The rules also require an NO₂ monitor to be placed in any urban area with a population greater than or equal to 1 million people to assess community-wide concentrations. Birmingham-Hoover is the only MSA in Alabama with a population greater than 1 million. Refer to the JCDH Plan for details. ADEM does not operate an NO₂ monitor.

Sulfur Dioxide (SO₂) Network

Effective August 23, 2010, EPA strengthened the primary National Ambient Air Quality Standard (NAAQS) for sulfur dioxide (SO₂). EPA established a new 1-hour standard at a level of 75 parts per billion (ppb), based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations.

According to EPA, for a short-term 1-hour SO₂ standard, it is more technically appropriate, efficient, and effective to use modeling as the principal means of assessing compliance for medium to larger sources, and to rely more on monitoring for groups of smaller sources and sources not as conducive to modeling. Such an approach is consistent with EPA's historical approach and longstanding guidance for SO₂. EPA is setting specific minimum requirements that inform states on where they are required to place SO₂ monitors. The final monitoring regulations require monitors to be placed in Core Based Statistical Areas (CBSAs) based on a Population Weighted Emissions Index (PWEI) for the area. The final rule requires:

- 3 monitors in CBSAs with PWEI values of 1,000,000 or more;
- 2 monitors in CBSAs with PWEI values less than 1,000,000 but greater than 100,000;
and
- 1 monitor in CBSAs with PWEI values greater than 5,000.

According to the latest PWEI calculations listed in Table 3 CBSA's PWEI and Number of Monitors Required

, only the Birmingham-Hoover and Mobile MSAs require SO₂ monitoring. ADEM operates one SO₂ monitor at Chickasaw, (AQS ID 01-097-0003), for the Mobile-Daphne-Fairhope CBSA. For more information regarding SO₂ monitoring for the Birmingham-Hoover MSA refer to the JCDH Plan for details.

Effective September 21, 2015, the SO₂ Data Requirements Rule (DRR) per 40 CFR Part 51, requires states to report all sources that generate >2,000 tpy SO₂, not dependent upon population density. Each source in this category must characterize air quality through air quality modeling or ambient air monitoring. Each source that chooses monitoring must operate their site equivalent with the SLAMS requirements of 40 CFR Part 58. Source-oriented monitoring for SO₂ is required from January 1, 2017 through December 31, 2019 for adequate data to calculate a valid design value.

Lhoist North America of Alabama, LLC – Montevallo Plant, (AQS ID 01-117-9001) located in Calera, Birmingham-Hoover MSA will be characterized by monitoring. Monitoring began on January 1, 2017.

ADEM began monitoring SO₂ at Ward, Sumter Co. (AQS ID 01-119-0003) as a background site in January 2018. The monitor will be designated as a Special Purpose Monitor (SPM).

No other changes are planned.

Table 3 CBSA's PWEI and Number of Monitors Required

Population Weighted Emissions Index (PWEI) Calculations				
May 2018 - Using 2017 Census Estimates & 2014 NEI				
CBSA Name	2014 NEIv2 so2 (tpy)	Population (2017)	PWEI in Million persons-tpy	Required Monitors
Birmingham-Hoover, AL	57,436	1,149,807	66,040	2
Mobile, AL	16,849	413,995	6,975	1
Albertville, AL	809	95,548	77	0
Anniston-Oxford, AL	629	114,728	72	0
Auburn-Opelika, AL	646	161,604	104	0
Columbus, GA-AL	4,242	303,811	1,289	0
Cullman, AL	436	82,755	36	0
Daphne-Fairhope-Foley, AL	518	212,628	110	0
Decatur, AL	4,138	151,867	628	0
Dothan, AL	645	147,914	95	0
Enterprise, AL	345	51,874	18	0
Florence-Muscle Shoals, AL	22,490	147,038	3,307	0
Gadsden, AL	4,436	102,755	456	0
Huntsville, AL	1,690	455,448	770	0
Montgomery, AL	6,266	373,903	2,343	0
Ozark	179	49,226	9	0
Scottsboro, AL	7,442	51,909	386	0
Selma, AL	1,029	39,215	40	0
Talladega-Sylacauga, AL	1,394	90,819	127	0
Troy, AL	7,748	33,267	258	0
Tuscaloosa, AL	1,820	242,799	442	0
Valley, AL	273	33,713	9	0

PM10 Network

PM₁₀ has been a criteria pollutant since 1987. Since that time there has been widespread monitoring of the PM₁₀ levels in Alabama. In 2006 the US EPA modified the NAAQS for PM₁₀ to revoke the annual standard. Currently, there is still a daily standard of 150 ug/m³ based on 3 years of data.

The Montgomery MSA has a population between 250,000 and 500,000 and PM₁₀ concentrations less than 80% of the NAAQS. According to Table D-4 of Appendix D to Part 58, 0 to 1 PM₁₀ monitors are required. In the Montgomery MSA, ADEM operates two high volume PM₁₀ monitors on a 1 in 6 day schedule at MOMS, ADEM (AQS ID 01-101-1002), one of them being the collocated quality assurance monitor. No changes are proposed.

Ozone Network

Effective December 28, 2015, the level of the NAAQS for ozone was changed from 0.075 to 0.070 ppm. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.070 ppm.

Minimum monitoring requirements for ozone are based on population and whether the design value is <85% of the NAAQS, or ≥85% of the NAAQS. Since the NAAQS for ozone is 0.070 parts per million of ozone then 85% of the NAAQS truncated is **0.059** ppm

Table 4 SLAMS Minimum Ozone Monitoring Requirements

TABLE D-2 OF APPENDIX D TO PART 58 SLAMS MINIMUM O3 MONITORING REQUIREMENTS		
MSA population ^{1, 2}	Most recent 3-year design value concentrations ≥85% of any O3 NAAQS ³	Most recent 3-year design value concentrations <85% of any O3 NAAQS ^{3,4}
>10 million	4	2
4-10 million	3	1
350,000-4 million	2	1
50,000-350,000 ⁵	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The ozone (O3) National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

Table 5 Alabama MSAs with Ozone Monitoring Sites and Current Design Values lists Alabama's Ozone sites, AQS ID, 2015-2017 Ozone Design Values, MSA name, maximum design value of the MSA, number of Ozone monitors required by the CFR, and the current number of Ozone monitors.

Table 5 Alabama MSAs with Ozone Monitoring Sites and Current Design Value

Site Name	AQS ID	2015-2017 Design Values	MSA	MSA Max DV	# of sites required per CFR	Current # of sites
Helena	01-117-0004	0.066	Birmingham-Hoover	0.068	2	****
Phenix City – Ladonia (closed 10/31/2017)	01-113-0002	0.062	Columbus, GA- Phenix City, AL	0.062	1	2*
Phenix City - Girard Sch.	01-113-0003	***				
Columbus, GA, Airport	13-215-0008	0.061				
Decatur	01-103-0011	0.063	Decatur	0.063	1	1
Dothan	01-069-0004	0.058	Dothan	0.058	0	1
Fairhope	01-003-0010	0.063	Daphne-Fairhope	0.063	1	1
Muscle Shoals	01-033-1002	0.058	Florence-Muscle Shoals	0.058	1	1
Southside	01-055-0011	0.061	Gadsden	0.061	1	1
Mobile - Chickasaw	01-097-0003	0.062	Mobile	0.063	2	2
Mobile - Bay Road	01-097-2005	0.063				
Wetumpka - Head Start Sch. (closed 10/31/17)	01-051-0003†	0.055	Montgomery	0.061	2	2
Wetumpka - Tech. Park (start 03/20/18)	01-051-0003	***				
Montgomery - MOMS	01-101-1002	0.061				
Duncanville, Tuscaloosa	01-125-0010	0.060	Tuscaloosa	0.060	1	1
Ward (Sumter Co.) ozone background site	01-119-0003	0.056	not in MSA	NA	0	1
Sand Mtn. **	01-049-9991	0.062	not in MSA	NA	0	1

DV ≥ 85% of the NAAQS

* 1 in AL and 1 in GA

** CASTNET site operated by EPA contractor.

*** Not enough data for a design value

****ADEM operates 1 site, additional sites operated by JCDH

† Data only available for 2017

Ozone Monitoring Requirements for Alabama MSAs

Birmingham-Hoover MSA

Using the Birmingham-Hoover MSA population estimate in 2017 (Table 2) and the design value, two Ozone monitors are required in this MSA. One site, Helena (AQS ID 01-117-0004), operated by ADEM, is located in Shelby County. Other ozone sites in this MSA are located in Jefferson County and operated by Jefferson County Department of Health. For more information regarding ozone monitoring in Jefferson County refer to the JCDH network plan. No changes are planned for this MSA by ADEM.

Columbus, GA/AL MSA

Using the Columbus GA/AL MSA population estimate in 2017 (Table 2) and the design value from Table 5 Alabama MSAs with Ozone Monitoring Sites and Current Design Value, one Ozone monitor is required for this MSA. There are currently two Ozone sites in this MSA: Phenix City-South Girard School (AQS ID 01-113-0003), which replaced Ladonia (AQS ID 01-113-0002), and Columbus, GA, Airport (AQS ID 13-215-0008), operated by Georgia Environmental Protection Division. No changes are planned for this MSA by ADEM.

Decatur MSA

Using the Decatur MSA population estimate in 2017 (Table 2) and the design value from Table 5, one Ozone monitor is required for this MSA. There is currently one Ozone site, Decatur (AQS ID 01-103-0011). No changes are planned for this MSA.

Dothan MSA

Using the Dothan MSA population estimate in 2017 (Table 2) and the design value from Table 5, an Ozone monitor is not required for this MSA. There is currently one Ozone site, Dothan (AQS ID 01-069-0004). No changes are planned for this MSA.

Daphne-Fairhope-Foley MSA

Using the Daphne-Fairhope-Foley MSA population estimate in 2017 (Table 2) and the design value from Table 5, one Ozone monitor is required for this MSA. There is currently one Ozone site, Fairhope (AQS ID 01-003-0010). No changes are planned for this MSA.

Florence-Muscle Shoals MSA

Using the Florence-Muscle Shoals MSA population estimate in 2017 (Table 2) and the design value from Table 5, an Ozone monitor is not required for this MSA. There is currently one Ozone site, Muscle Shoals (AQS ID 01-033-1002). No changes are planned for this MSA.

Gadsden MSA

Using the Gadsden MSA population estimate in 2017 (Table 2) and the design value from Table 5, one Ozone monitor is required for this MSA. There is currently one Ozone site, Southside (AQS ID 01-055-0011). No changes are planned for this MSA.

Huntsville MSA

ADEM does not operate any ozone monitors in this MSA. For information regarding ozone monitoring in Huntsville refer to the HDNREM network plan.

Mobile MSA

Using the Mobile MSA population estimate in 2017 (Table 2) and the design value from Table 5, two Ozone monitors are required for this MSA. There are currently two Ozone sites, Chickasaw (AQS ID 01-097-0003) and Bay Road (01-097-2005). No changes are planned for this MSA.

Montgomery MSA

Using the Montgomery MSA population estimate in 2017 (Table 2) and the design value from Table 5, two Ozone monitors are required for this MSA. There are currently two Ozone sites, MOMS (AQS ID 01-101-1002) and Wetumpka Westside Technology Park (AQS ID 01-051-0004). The Wetumpka Head Start School site (AQS ID 01-051-0003) closed after operating for just the 2017 ozone season. Refer to APPENDIX B.

Tuscaloosa MSA

Using the Tuscaloosa MSA population estimate in 2017 (Table 2) and the design value from Table 5, one Ozone monitor is required for this MSA. There is currently one Ozone site, Duncanville (AQS ID 01-125-0010). No changes are planned for this MSA.

Auburn-Opelika and Anniston-Oxford MSAs

The MSAs of Auburn-Opelika and Anniston-Oxford were evaluated by ADEM. It was determined that due to the close proximity of ozone monitors in the neighboring MSAs, additional ozone monitors would not be needed. Since these areas do not have design values, no ozone monitors are required by Appendix D of 40 CFR Part 58.

Sites Not Located in an MSA

ADEM operates one site, Ward (AQS ID 01-119-0003), in Sumter Co. that represents rural, background ozone values for the state. The historical design values for this monitor have been less than 85% of the NAAQS. No changes are planned for this monitor.

PM_{2.5} Network

Minimum monitoring requirements for PM_{2.5} are based on population and whether the design value is less than 85% of the NAAQS, or greater than or equal to 85% of the NAAQS (See Table 6). In addition to the FRM monitors required by Table 6 PM_{2.5} Minimum Monitoring Requirements, the state is required to operate a regional background and a regional transport site. Section 4.7.2 of Appendix D of 40 CFR Part 58 also requires a collocated continuous PM_{2.5} monitor in each MSA that is required to have a FRM monitor. The number of collocated continuous monitors required for an MSA will be equal to at least half of the required FRM monitors for that MSA. This requirement goes away if the continuous monitor is a FEM that is labeled as the primary and comparable to the NAAQS. The state is also required to operate PM_{2.5} speciation monitors to characterize the constituents of PM_{2.5}. The number of speciation monitors is determined by EPA Region IV. PM_{2.5} design values in Table 7 are based on 2015-2017 data. A design value of **29.75** ug/m³ is the lowest value which is ≥85% of the 24-hour standard of 35 ug/m³. A design value of **10.2** ug/m³ is the lowest value that is ≥85% of the annual standard of 12 ug/m³(effective March 18, 2013).

Table 6 PM_{2.5} Minimum Monitoring Requirements

TABLE D-5 OF APPENDIX D TO PART 58 PM _{2.5} MINIMUM MONITORING REQUIREMENTS		
MSA population ^{1,2}	Most recent 3-year design value ≥85% of any PM _{2.5} NAAQS ³	Most recent 3-year design value <85% of any PM _{2.5} NAAQS ^{3,4}
>1,000,000	3	2
500,000–1,000,000	2	1
50,000–<500,000 ⁵	1	0

1 Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

2 Population based on latest available census figures.

3 The PM_{2.5} National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

4 These minimum monitoring requirements apply in the absence of a design value.

5 Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

The current PM_{2.5} Rule requires CBSAs with populations greater than a million but less than 4 million operate a PM_{2.5} monitor at its NO₂ near road site by January 1, 2017. ADEM does not operate an NO₂ monitor near road site. More information regarding this requirement in Alabama can be found in the JCDH network plan.

In order to meet the continuous monitoring requirements of Appendix D, ADEM currently operates seven MetOne BAM monitors (AQS method code 731) which do not have FEM designation. These monitors are also used for AQI reporting and for submittal to the AirNow system. Comparison with the NAAQS will be based on the FRMs at each site which are designated as the primary monitor and operate on the required frequency.

Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value lists Alabama's PM_{2.5} sites, AQS ID, the 2015-2017 PM_{2.5} 24-hour and Annual and Design Values for each site, MSA name, the 2017 estimated population of the MSAs, the Annual and 24-hour Design Value for each MSA, number of monitors required by the CFR and the current number of PM_{2.5} monitors.

Table 7 MSA's with PM2.5 Monitoring Sites and Current Design Value

Site Name	AQS Site ID	PM2.5 24 hr DV 2015- 2017	PM2.5 Annual DV 2015- 2017	MSA	Annual MSA DV	24hr MSA DV	# of sites required per CFR	Current # of sites
Phenix City - Girard Sch. (started 01/19/18)	01-113-0003	22.2	9.4	Columbus, GA/AL	9.5	29.8	0	***
Decatur	01-103-0011	15	7.9	Decatur	7.9	15.0	0	1
Dothan CC	01-069-0003	15	7.7	Dothan	7.7	15.0	0	1
Fairhope	01-003-0010	17	7.7	Daphne-Fairhope- Foley	7.7	17.0	0	1
Muscle Shoals	01-033-1002	16	7.9	Florence-Muscle Shoals	7.9	16.0	0	1
Gadsden - CC	01-055-0010	17	8.7	Gadsden	8.7	17.0	0	1
Mobile - Chickasaw	01-097-0003	17	8.1	Mobile	8.1	17.0	0	1
Montgomery – MOMS	01-101-1002	20	8.8	Montgomery	8.8	20.0	0	1
Tuscaloosa - VA Hospital	01-125-0004	16	8.1	Tuscaloosa	8.1	16.0	0	1
Ashland (Bkg/Transport)*	01-027-0001	18	7.8	Not in MSA	7.8	18.0	1	1
Crossville (Bkg/Transport)*	01-049-1003	16	8.3	Not in MSA	8.3	16.0	1	1
Childersburg (closed 12/27/17)	01-121-0002	18	9.1	Not in MSA	9.1	18.0	0	1
Ward, Sumter Co. (Bkg/Transport) (continuous)*	01-119-0003			Not in MSA			1	1

DV ≥ 85% of the NAAQS

* 1 background and 1 transport site are required for Alabama

***ADEM operates 1 site, additional sites operated by the State of Georgia

PM_{2.5} Monitoring requirements for Alabama MSAs

Birmingham-Hoover MSA

ADEM does not operate any PM_{2.5} monitors in the Birmingham-Hoover MSA. For more information regarding PM_{2.5} monitoring in this MSA refer to the JCDH network plan.

Columbus, GA/AL MSA

Using the Columbus, GA/AL MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There are currently four FRM monitors, one collocated FRM monitor, two non-FRM/FEM/ARM continuous monitors, and two speciation monitors in this MSA. ADEM operates one FRM monitor, one collocated FRM monitor, one speciation monitor, and one FEM continuous monitor at Phenix City – South Girard School (AQS ID 01-113-0003). The FEM continuous monitor is not currently comparable to the NAAQS while it is in the 2-year evaluation period. ADEM has no changes planned for this MSA.

Daphne-Fairhope-Foley MSA

Using the Daphne-Fairhope-Foley MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor located at Fairhope (AQS ID 01-003-0010). No changes are planned for this MSA.

Decatur MSA

Using the Decatur MSA population estimate in 2017 (Table 2) and the design value from Table 7, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at Decatur (AQS ID 01-103-0011). No changes are planned for this MSA.

Dothan MSA

Using the Dothan MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor located at Dothan Civic Center (AQS ID 01-069-0003). No changes are planned for this MSA.

Florence-Muscle Shoals MSA

Using the Florence-Muscle Shoals MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor located at Muscle Shoals (AQS ID 01-003-1002). No changes are planned for this MSA.

Gadsden MSA

Using the Gadsden MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor at Gadsden Community College (AQS ID 01-055-0010). ADEM plans to shut down the continuous monitor at this site in 2018. ADEM will continue to operate the FRM monitor.

Huntsville MSA

ADEM does not operate any PM_{2.5} monitors in the Huntsville MSA. For information regarding PM_{2.5} monitoring in this MSA refer to the HDNREM network plan.

Mobile MSA

Using the Mobile MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at Chickasaw (AQS ID 01-097-0003). No changes are planned for this MSA.

Montgomery MSA

Using the Montgomery MSA population estimate in 2017 (Table 2) and the design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value, no FRM monitor is required. There is currently one FRM monitor, one collocated FRM monitor, and one non-FEM continuous monitor located at the MOM (AQS ID 01-101-1002) site. No changes are planned for this MSA.

Tuscaloosa MSA

Using the Tuscaloosa MSA population estimate in 2017 (Table 2) and the design value from Table 7, no FRM monitor is required. There is currently one FRM monitor and one non-FEM continuous monitor located at VA, Tuscaloosa (AQS ID 01-125-0004). ADEM plans to shut down the continuous monitor at this site in 2018. ADEM will continue to operate the FRM monitor.

Auburn-Opelika and Anniston-Oxford MSAs

The MSAs of Auburn-Opelika and Anniston-Oxford were evaluated to determine the need for monitors. It was determined that due to the close proximity of PM_{2.5} monitors in neighboring MSAs, additional monitors would not be needed. PM_{2.5} monitoring in the adjacent MSAs continue to provide adequate coverage. Since these areas do not have design values, no FRM monitors are required by Appendix D of 40 CFR Part 58.

PM_{2.5} Monitors not located in MSAs

Sumter County represents rural, background PM_{2.5} values for the west part of the state. A non-FEM continuous monitor is currently being operated in Ward (AQS ID 01-119-0003). ADEM intends to maintain this site.

Ashland (AQS ID 01-027-0001) serves as a regional transport site in between the large MSAs of Birmingham-Hoover and Atlanta using an FRM monitor. The PM_{2.5} design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value is less than 85% of the NAAQS. ADEM intends to maintain this site.

Crossville (AQS ID 01-049-1003) represents rural, background PM_{2.5} values for the northeast part of the state using an FRM monitor. The PM_{2.5} design value from Table 7 MSA's with PM_{2.5} Monitoring Sites and Current Design Value is less than 85% of the NAAQS. ADEM intends to maintain this site.

Quality Assurance

ADEM has an US EPA approved Quality Assurance Program Plan that details the activities used to control and document the quality of the data collected. ADEM is an independent Primary Quality Assurance Organization (PQAO) as defined by 40 CFR Part 58. Part of the EPA required quality control program for particulate monitoring is the use of collocated particulate monitors. 40 CFR Part 58, Appendix A requires a percentage of manual particulate monitors to be collocated with FRM monitors so that quality statistics can be calculated. ADEM includes monitors for this purpose.

Monitoring Equipment Evaluation

An evaluation of the condition of ambient monitors and auxiliary equipment is performed by ADEM. The equipment is categorized as “good” or “poor”. As resources allow, equipment in “poor” condition will be replaced. A report of ADEM’s equipment evaluation will be submitted to the US EPA by July 1 each year.

NETWORK DESCRIPTIONS

A description of ADEM's ambient air monitoring network, followed by detailed site evaluations, will be presented in this section.

Included will be:

- AQS ID
- Address
- Latitude and Longitude
- Scale
- Type
- Monitoring Objective
- Beginning Sampling Date and Ending Sampling Date
- Method
- Operating Schedule
- Is it comparable to the NAAQS?

ADEM AIR MONITORING NETWORK DESCRIPTION

Abbreviations	
Scale	
N	Neighborhood (0.5 – 4 Kilometers)
U	Urban (overall citywide conditions, 4 -50 kilometers)
R	Regional (usually rural, with homogenous geography, tens to hundreds of kilometers)
M	Middle Scale
Type	
CAS	CASNET operated by EPA
S	SLAMS
QA	QA Collocated Monitor
SPM	Special Purpose Monitor
Operating Schedule	
C	Continuous monitor
D	Daily 24-hour samples
3	1 24-hour sample every 3 days (on national schedule)
6	1 24-hour sample every 6 days (on national schedule)
Methods	
H	Hi-volume SSI sampler
L	Low Volume SSI
B	BAM continuous monitor
U	UV photometric ozone analyzer
P	Pulsed Fluorescent
S	Hi-Volume Total Suspended Particulate monitor
G	Lead Analysis by Graphite furnace
NAAQS¹	
Y,N	Data suitable for comparison to NAAQS

¹ Collocated monitors must be operated in the same manner as the federal reference method but one monitor at the site is designated as the main monitor for comparison to the NAAQS.

PM 2.5

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Mth #	Comments
Fairhope	Baldwin	01-003-0010	Fairhope High School	30.497478	-87.880258	N	S	Population Exposure/ Mobile-Daphne- Fairhope	1/1/2000	active	L	3	Y	145	
Ashland	Clay	01-027-0001	Ashland Airport	33.284928	-85.803608	R	S	Regional Transport/ not in CBSA	1/1/1999	active	L	3	Y	145	
Muscle Shoals	Colbert	01-033-1002	Wilson Dam Road and 2nd Street	34.762619	-87.638097	N	S	Highest Concentration/ Florence-Muscle Shoals MSA	1/1/1999	active	L	3	Y	145	
Crossville	DeKalb	01-049-1003	13112 Hwy 68	34.288567	-85.969858	N	S	General/background/ not in CBSA	1/1/1999	active	L	3	Y	145	
Gadsden C College	Etowah	01-055-0010	1001 Wallace Drive	33.991494	-85.992647	U	S	Population Exposure/ Gadsden MSA	1/1/2000	active	L	3	Y	145	
Gadsden C College	Etowah	01-055-0010	1001 Wallace Drive	33.991494	-85.992647	U	S	Population Exposure/ Gadsden MSA	1/1/2014	active	B	C	N	731	Non FEM cont. to close in 2018
Dothan Civic Center	Houston	01-069-0003	126 North St Andrews St. Civic Center	31.224783	-85.390789	N	S	Population Exposure/ Dothan-Enterprise- Ozark	1/7/2005	active	L	3	Y	145	
Chickasaw	Mobile	01-097-0003	Iroquois and Azalea	30.770181	-88.087761	R	S	Population Exposure/ Mobile-Daphne- Fairhope	7/19/2002	active	L	3	Y	145	
Chickasaw	Mobile	01-097-0003	Iroquois and Azalea	30.770181	-88.087761	R	S	Population Exposure/ Mobile-Daphne- Fairhope	1/1/2011	active	B	C	N	731	Non FEM cont.

PM 2.5 continued

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Met hod Cod e	Comments
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery	32.412811	-86.263394	N	S	Population Exposure/ Montgomery MSA	1/16/2009	active	L	3	Y	145	
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery	32.412811	-86.263394	N	S	Population Exposure/ Montgomery MSA	1/16/2009	active	L	6	Y	145	Collocated FRM
MOMS, ADEM	Montgomery	01-101-0002	1350 Coliseum Blvd, Montgomery	32.412811	-86.263394	N	S	Other/ Montgomery MSA	4/1/2009	active	B	C	N	731	Non FEM cont.
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.530717	-86.967536	M	S	Population Exposure/ Decatur MSA	8/7/2001	active	L	3	Y	145	
Decatur	Morgan	01-103-0011	Wallace Ctr.Hwy 31, Decatur	34.530717	-86.967536	M	S	Population Exposure/ Decatur MSA	1/1/2011	active	B	C	N	731	Non FEM cont.
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	U	S	Highest Concentration/ Columbus, GA-AL MSA	1/18/2017	active	L	3	Y	145	
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	U	S	Highest Concentration/ Columbus, GA-AL MSA	1/18/2017	active	L	3	Y	145	Collocated FRM
Phenix City - S. Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	U	S	Highest Concentration/ Columbus, GA-AL MSA	9/18/2017	active	B	C	N		2-year test period
Ward, Sumter County	Sumter	01-119-0003	NNE of Ward Post Office	32.362606	-88.277992	R	S	Other/not in MSA	7/1/2013	active	B	C	N	731	Non FEM cont.
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.189931	-87.484189	N	S	Population Exposure/ Tuscaloosa MSA	10/1/2002	active	L	3	Y	145	
VA, Tuscaloosa	Tuscaloosa	01-125-0004	3701 Loop Road East	33.189931	-87.484189	N	O	Population Exposure/ Tuscaloosa MSA	1/1/2011	active	B	C	N	731	Non FEM cont. to close in 2018

PM₁₀

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Mth #	Comments
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	S	Population Exposure/ Montgomery	6/1/1993	active	S	6	Y	63	
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery, AL	32.412811	-86.263394	N	S	Quality Assurance/ Montgomery	1/1/2013	active	S	6	Y	63	

Lead

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Mth #	Comments
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790479	-85.978974	N	S	Highest Concentration /Troy uSA	1/1/2009	active	S, G	6	Y	44	
Troy	Pike	01-109-0003	Henderson Road, Troy, AL	31.790479	-85.978974	N	S	Highest Concentration /Troy uSA	1/1/2009	active	S, G	6	Y	44	

OZONE

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Mth #	Comments
Fairhope	Baldwin	01-003-0010	Fairhope High School, Fairhope	30.497478	-87.880258	N	S P M	Population Exposure/ Mobile MSA	3/1/2000	active	U	C	Y	087	
Muscle Shoals	Colbert	01-033-1002	Wilson Dam Rd And 2nd St.	34.762619	-87.638097	N	S	Population Exposure/ Decatur MSA	3/1/2003	active	U	C	Y	047	
Wetumpka	Elmore	01-051-0004	3148 Elmore Road, Wetumpka	32.535681	-86.255193	U	S	Highest Concentration/ Montgomery MSA	3/1/2018	active	U	C	Y	087	
Southside	Etowah	01-055-0011	1450 Parker Anderson Lane, Southside	33.9039	-86.0539	N	S P M	Max Concentration/ Gadsden MSA	4/26/2002	active	U	C	Y	047	
Dothan	Houston	01-069-0004	161 Buford Lane	31.188933	-85.423094	N	S	Population Exposure/ Dothan MSA	3/14/2005	active	U	C	Y	087	
Mobile - Chickasaw	Mobile	01-097-0003	Iroquois And Azalea Chickasaw	30.770181	-88.087761	N	S	Population Exposure/ Mobile MSA	3/2/1982	active	U	C	Y	087	
Mobile - Bay Road	Mobile	01-097-2005	Bay Road, Mobile	30.4747	-88.14111	U	S	Population Exposure and Highest Concentration/ Mobile MSA	3/1/1999	active	U	C	Y	087	
Montgomery - MOMS	Montgomery	01-101-1002	1350 Coliseum Blvd, Montgomery	32.412811	-86.263394	N	S	Population Exposure/ Montgomery MSA	6/2/1993	active	U	C	Y	087	
Decatur	Morgan	01-103-0011	Wallace Development Center	34.530717	-86.967536	U	S	Population Exposure/ Decatur MSA	4/1/2000	active	U	C	Y	047	
Phenix City - South Girard School	Russell	01-113-0003	510 6th Place South, Phenix City	32.437028	-84.999653	U	S P M	Highest Concentration/ Columbus, GA-AL	3/1/2018	active	U	C	Y	087	
Helena	Shelby	01-117-0004	Helena, Bearden Farm	33.3169	-86.825	U	S	Population Exposure/ Birmingham MSA	1/1/1983	active	U	C	Y	087	
Ward, Sumter Co.	Sumter	01-119-0003	NNE of Ward Post Office	32.362606	-88.277992	R	S	General/Background/not in MSA	3/1/2013	active	U	C	Y	087	
Duncanville, Tuscaloosa	Tuscaloosa	01-125-0010	11690 Southfork Drive, Duncanville	33.089772	-87.459733	U	S	Population Exposure/ Tuscaloosa MSA	2/1/2001	active	U	C	Y	087	

SO₂

Site common name	County	AQS Site ID	Address	Latitude	Longitude	S C A L E	T Y P E	Monitoring objective / CBSA	Date Began	Date Ended	M E T H O D	S C H E D U L E	N A A Q S	Mth #	Comments
Chickasaw	Mobile	01-097-0003	Iroquois and Azalea Chickasaw	30.76972	-88.0875	N	S	Population Exposure/ Mobile MSA	1/1/2013	active	P	C	Y	600	
Lhoist	Shelby	01-117-9001	7444 St. Hwy 25, Calera, AL.	30.0928	-86.8072	M	S	High Concentration – SO2 DRR	01/01/2017	active	P	C	Y	600	
Ward	Sumter	01-119-0003	NNE of Ward Post Office	32.362606	-88.277992	R	S	General/Background	01/01/2018	active		C	Y	600	

Page Left Intentionally Blank

APPENDIX A

Site Assessments

An assessment of ADEM's sites is performed each year to ensure that they meet the requirements of 40 CFR 58, Appendices A, C, D and E for their intended purpose. A monitor's suitability for comparison with the NAAQS is documented in the Network Description and Site Assessment tables. Known exceptions to these siting criteria are documented below. The complete assessment will be sent to the US EPA, Region 4 with this network plan. The site assessment will then be placed on ADEM's website as an addendum to the 2018 Plan.

Issues that have been identified in the 2018 Site Assessments:

- Chickasaw (AQS ID 01-097-0003) in 2017 a small tree was identified that was encroaching on the 10 meter requirement. ADEM performed some pruning to alleviate the problem but the tree continues to grow into the restricted zone. ADEM has contacted the City of Chickasaw to schedule removal of the tree.

APPENDIX B

New Site Descriptions

Wetumpka Technology Park

At the beginning of the 2018 ozone season, ADEM had to relocate the Wetumpka ozone monitoring site due to loss of access to the site that was operated in 2017. This site is located in the Montgomery MSA (which consists of Montgomery, Elmore, Autauga and Lowndes Counties) and is intended to be the downwind high concentration ozone site for the MSA.

Recent History of ozone monitoring in Elmore County.

DBT, Wetumpka (AQS ID 01-051-0001)

ADEM monitored for ground level ozone with the Monitoring Objective of Highest Concentration in the Montgomery Metropolitan Statistical Area on an Urban Scale at the DBT, Wetumpka site (AQS ID 01-051-0001) from March 1, 1990 to June 27, 2016. Due to construction of a swimming pool and changes in landscaping by the property owner, this site no longer met the siting criteria in 40 CFR Part 58, Appendix E. Air monitoring activities previously conducted at DBT, Wetumpka (AQS ID 01-051-0001) were conducted at a new site, Wetumpka (AQS ID 01-051-0003) from March 17, 2017 through October 31, 2017.

Wetumpka (AQS ID 01-051-0003)

The Wetumpka site property was owned by Elmore Autauga Community Action Committee, a non-profit agency. The agency lost federal funding thereby losing control of the site property. The new grant recipient is an interim non-profit agency that plans to sell the property where the air monitoring shelter is located.

Wetumpka (AQS ID 01-051-0004)

The new Wetumpka site property, located 1.4 miles west of the previous site property, is owned by the Industrial Development Board, City of Wetumpka. It is currently used as a hay field and will remain so in the foreseeable future. E911 assigned the address as 3148 Elmore Road, Wetumpka, Alabama. The most current average annual daily traffic value for the nearest portion of Elmore Road is 11,980 and the shelter will be more than 30 meters from the nearest traffic lane. The air inlet is located more than 10 meters from the drip line from any tree and more than 2 times the height of a line of trees east (approximately 20 meters tall) of the shelter. The monitoring objective will continue to be Highest Concentration of Ozone in the Montgomery Metropolitan Statistical Area on an Urban scale. Refer to Figure 3, Figure 4, and Figure 5 for distance measurements.

Because this location meets all siting criteria and is only 1.4 miles from the closed WET site it will continue to represent the high concentration site for the MSA. ADEM requests EPA link the data from this site to the WET site (AQS ID 01-051-0003) so that the 3-year design value will be derived using data from both sites. A summary of ozone data from all sites in the MSA for the last 10 years can be found in Table 8 and Figure 6.

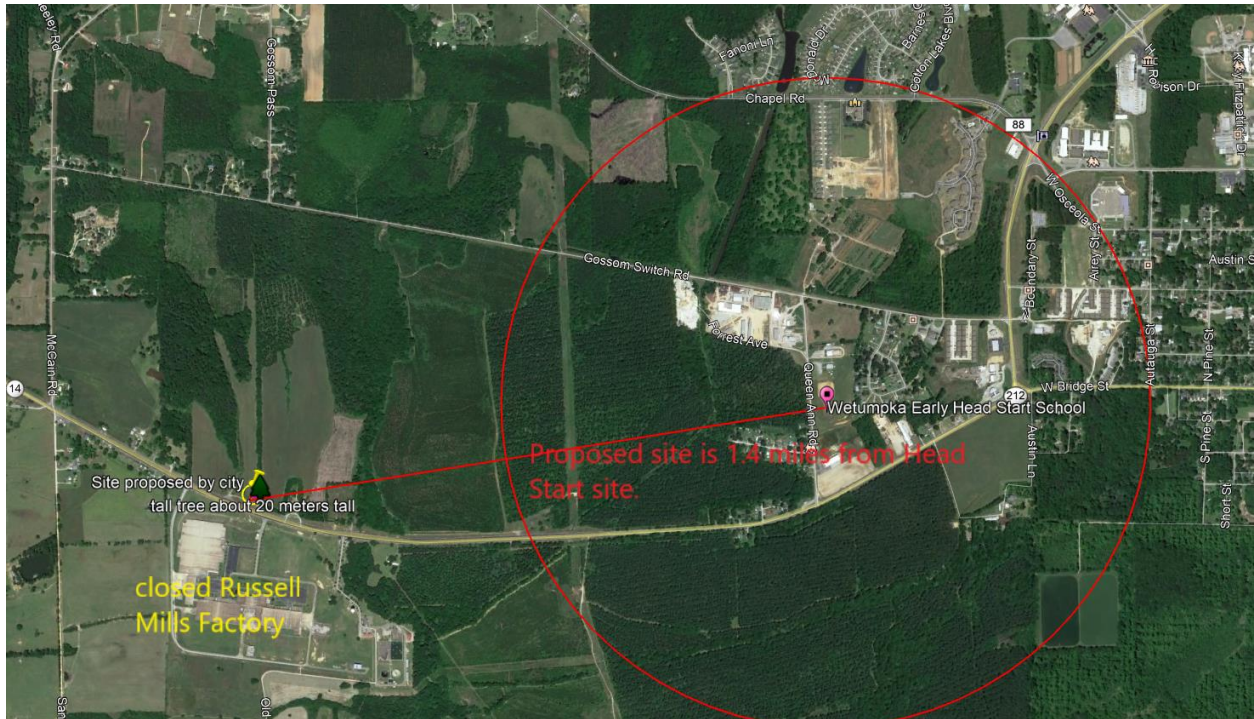


Figure 3 Aerial Map Showing Position of New (WTT) site relative to the WET site.

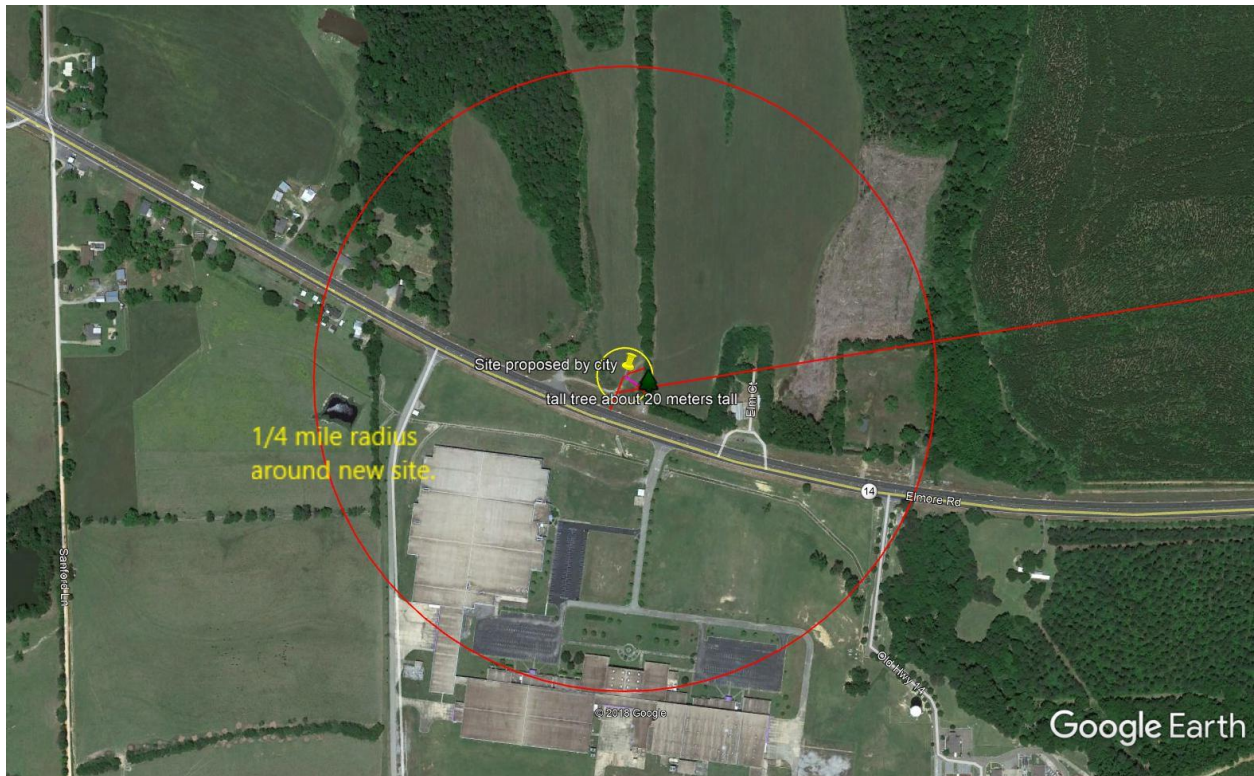


Figure 4 Aerial Map Showing Detail in 1/4 mile Radius of New Site (WTT)



Figure 5 Distances to Potential Obstructions and Roadway

Montgomery MSA, Ozone Summary Data										
Annual 4th Maximum										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
MOM	0.069	0.064	0.072	0.070	0.066	0.061	0.062	0.063	0.063	0.057
DBT	0.068	0.061	0.073	0.068	0.065	0.061	0.060	0.061	0.057	0.055
WET Headstart School										0.055

Table 8 Summary of Ozone Data for Montgomery MSA

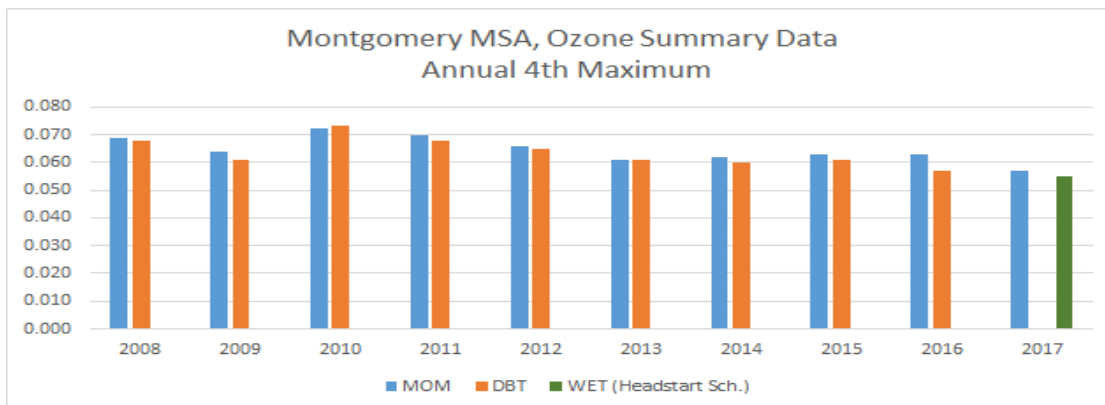
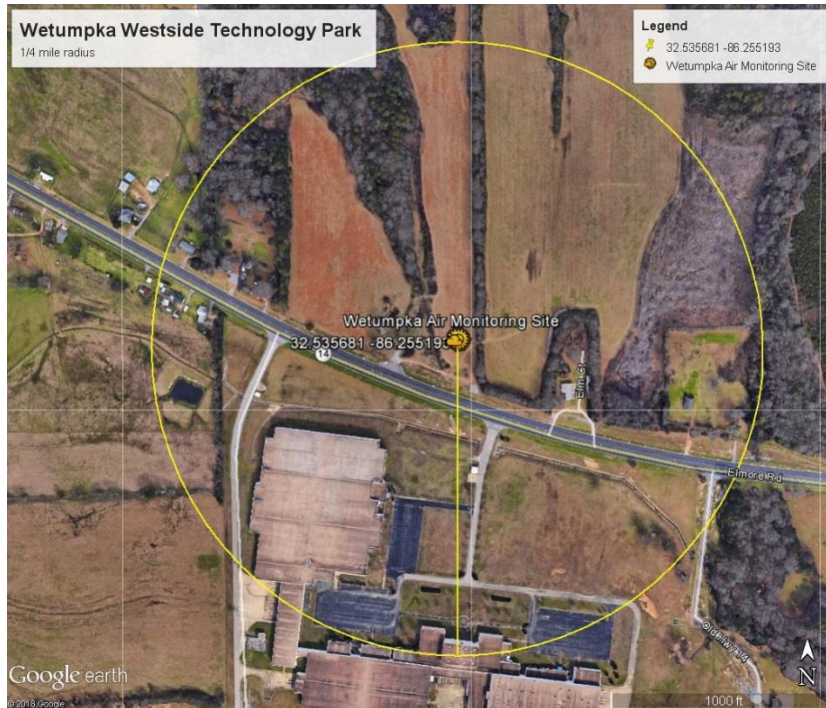


Figure 6 Graph of Montgomery MSA Ozone Data

WETUMPKA WESTSIDE TECHNOLOGY PARK



AQS ID: 01-051-0004

Area Represented:
 CBSA: Montgomery, AL
 Air Quality Control Region:
 Columbus-Phenix City
 Urban Area: Montgomery, AL

Address: 3148 Elmore Road,
 Wetumpka, AL

Latitude/Longitude:
 32.535681/-86.255193

Project Type: Population-
 Oriented Surveillance

Site Established: 03/20/2018

Site Evaluation: 04/03/2018

Site History: Montgomery MSA Highest Concentration for Ozone has been monitored in the Wetumpka area since 01/01/1983. This new site will continue to monitor for ozone. It is located on property that has indefinite plans to become an industrial park. The industrial property located across the street is no longer in operation.

North



South



East



West



Parameter	Monitoring Objective	Sampling Schedule	Probe Inlet Height	Spatial Scale	Begin Date
Ozone	Highest Concentration	Continuous	4.14m	Urban	03/20/2018

A wind break located between hay fields is located more than 20 meters east of the shelter. The tallest tree in that wind break is 17.2 meters tall and located 25.5 meters southeast of the probe inlet. The nearest tree is approximately 12 meters tall and the dripline is 23 meters east of the probe inlet. The most recent average annual daily traffic value is 11,980 on Elmore Road. The air inlet is 55 meters from Elmore Road. This site meets all requirements of 40 CFR Part 58.

APPENDIX C

Site/Monitor Removal Justifications

- Wetumpka (AQS ID 01-051-0003) See appendix B.
- Tuscaloosa VA (TSV) AQS ID 01-125-0004 POC 3 , continuous PM2.5 monitor.

This non-FEM monitor has been operating since 2011 for the purpose of meeting 40 CFR 58, Appendix D, section 4.7.2 “Requirement for Continuous PM 2.5 Monitoring.” This section states that for the number of FRM monitors that are required to be operated in an MSA, at least ½ half of that number of continuous monitors will be operated. Due to the consistently low design value in the Tuscaloosa MSA (see Table 6) this continuous monitor has not been required for 3 years. The monitor is in disrepair and ADEM believes that the resources needed to update this equipment can be better used in other parts of ADEM’s continuous PM2.5 network. The collocated FRM monitor will continue to be operated at that location.

- Gadsden Community College (GAD) AQS ID 01-055-0010 POC 3 , continuous PM2.5 monitor.

This non-FEM monitor has been operating since 2000 for the purpose of meeting 40 CFR 58, Appendix D, section 4.7.2 “Requirement for Continuous PM 2.5 Monitoring.” This section states that for the number of FRM monitors that are required to be operated in an MSA, at least ½ half of that number of continuous monitors will be operated. Due to the consistently low design value in the Tuscaloosa MSA (see Table 6) this continuous monitor has not been required for 3 years. The monitor is in disrepair and ADEM believes that the resources needed to update this equipment can be better used in other parts of ADEM’s continuous PM2.5 network. The collocated FRM monitor will continue to be operated at that location.