

## Changes to the 2016 Ambient Air Monitoring Plan

This addendum to the Ambient Air Monitoring 2016 Consolidated Network Plan will describe the following updates:

1. Phenix City: the relocation of the Phenix City-Downtown particulate (AQS ID 01-113-0001) and Phenix City-Ladonia ozone sites (AQS ID 01-113-0002);
2. Wetumpka: the relocation of the DBT (AQS ID 01-051-0001) ozone monitoring station; and
3. Response to EPA comments on the Ambient Air Monitoring 2016 Consolidated Network Plan by Jefferson County Department of Public Health regarding the Shuttlesworth site.

### Phenix City

ADEM lost the lease to the property after the Ambient Air Monitoring 2016 Consolidated Network Plan was finalized. Operations ceased at Phenix City-Downtown (AQS ID 01-113-0001) in September 2016. While attempting to relocate this site it was determined that significant benefit would be achieved by consolidating all of ADEM's ambient monitoring activities in Phenix City into one location. Therefore the search was expanded to find an appropriate site for a multi-pollutant monitoring site. ADEM is proposing to move the Phenix City-Ladonia ozone site (AQS ID 01-113-0002) and the Phenix City-Downtown (AQS ID 01-113-0001) Particulate Matter site to a new combined site at South Girard School. A site description with monitor objectives and scale of representativeness for each pollutant can be found below. The proposed site and monitoring activities will meet the requirements of 40 CFR part 58, Appendices A, C, D and E.

#### **Removal of Air Monitoring Site known as Phenix City-Downtown (AQS ID 01-113-0001)**

ADEM has monitored for PM<sub>2.5</sub> with the Monitoring Objective of Highest Concentration in the Columbus, GA-AL Metropolitan Statistical Area on a Neighborhood Scale at the Phenix City-Downtown site (AQS ID 01-113-0001) since January 1, 1999. Due to non-renewal of the lease, this site ceased air monitoring on September 21, 2016. ADEM is proposing to move all air monitoring activities previously conducted at Phenix City (AQS ID 01-113-0001) to the new proposed site, Phenix City-South Girard School (AQS ID 01-113-0003).

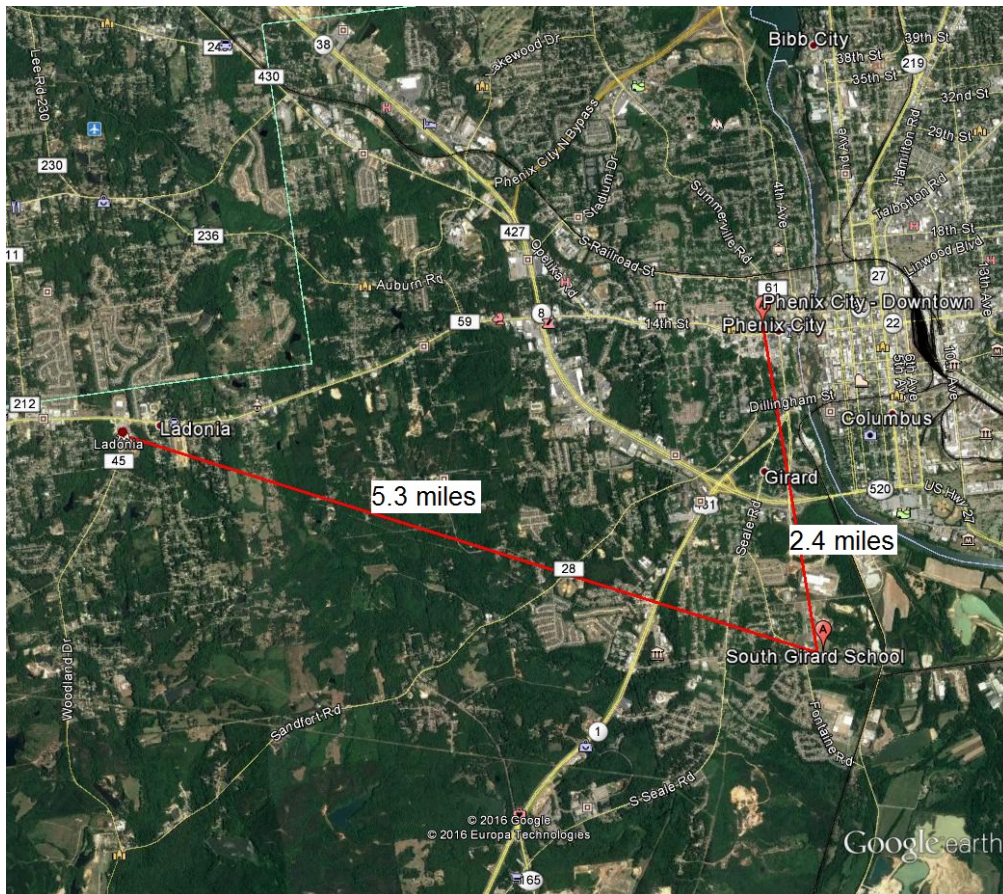
#### **Removal of Air Monitoring Site known as Phenix City-Ladonia (AQS ID 01-113-0002)**

ADEM has monitored for ground level ozone with the Monitoring Objective of Population Exposure in the Columbus, GA-AL Metropolitan Statistical Area on an Urban Scale at the Phenix City-Ladonia site (AQS ID 01-113-0002) since March 1, 2003. ADEM intends to monitor ground level ozone at the proposed new site, Phenix City-South Girard School (AQS ID 01-113-0003) and to cease all monitoring at Phenix City-Ladonia (AQS ID 01-113-0002). Since the Phenix City-South Girard School site will not be ready for monitoring prior to the start of Alabama's 2017 ozone season, monitoring will continue at the Phenix City-Ladonia site as planned. Shutdown of the Phenix City-Ladonia is anticipated at the end of the 2017 Ozone season. The Phenix City-South Girard School site is expected to be completed during the summer of 2017 and will concurrently monitor ozone until the end of the season.

#### **Proposed new site known as Phenix City-South Girard School (AQS ID 01-113-0003)**

The Phenix City-South Girard School site is located near the southeast corner of Russell County parcel 570507263001001, owned by the Phenix City Board of Education. A portion of South Girard School is located in the northwest corner of this parcel. The ADEM site E911 address is 510 6<sup>th</sup> Place South,

Phenix City, Alabama. The monitoring objective will continue to be Highest Concentration of PM 2.5 in the Columbus, GA-AL Metropolitan Statistical Area on a Neighborhood scale. Initially the site will contain a FRM PM<sub>2.5</sub> monitor and a collocated FRM PM<sub>2.5</sub> monitor for QA purposes, a SASS and URG monitors as part of the chemical speciation network (CSN), and a non-FEM continuous PM<sub>2.5</sub> monitor to monitor particulate matter. ADEM intends to add a monitor for ground level ozone at the Phenix City-South Girard School site once resources are allocated with the Monitoring Objective of Population Exposure in the Columbus, GA-AL Metropolitan Statistical Area on an Urban Scale; the same parameters as Phenix City-Ladonia (AQS ID 01-113-0002).

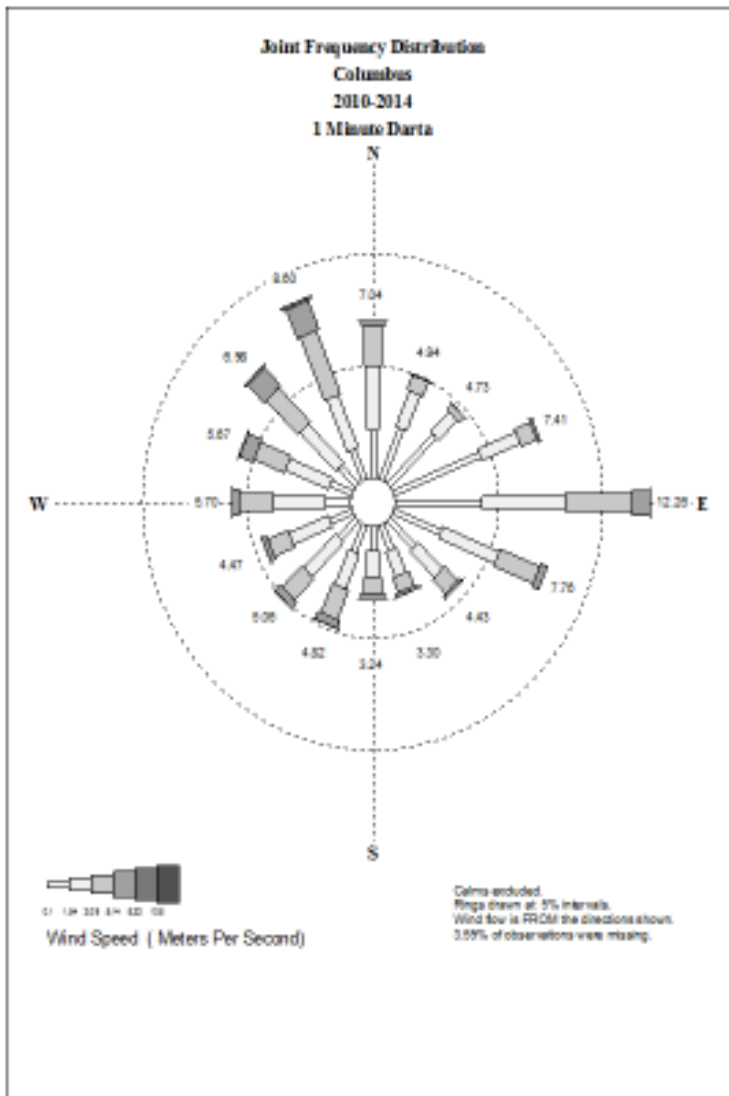


Relative location of the Phenix City – Downtown and Phenix City Ladonia sites to the proposed Phenix City – South Girard School site.

### Analysis of Particulate Matter

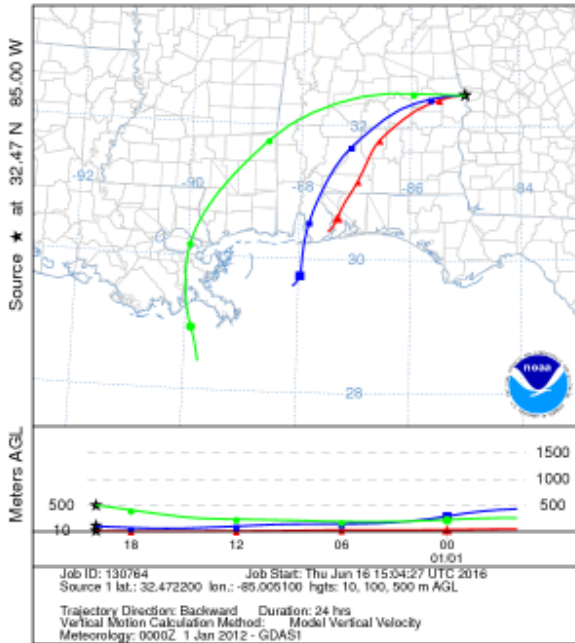
The ADEM Air Division has performed an analysis of wind patterns on days when PM<sub>2.5</sub> values were elevated. A review of this data indicates that the proposed location at South Girard School would probably have recorded similar readings.

## Columbus/Phenix City Wind Rose



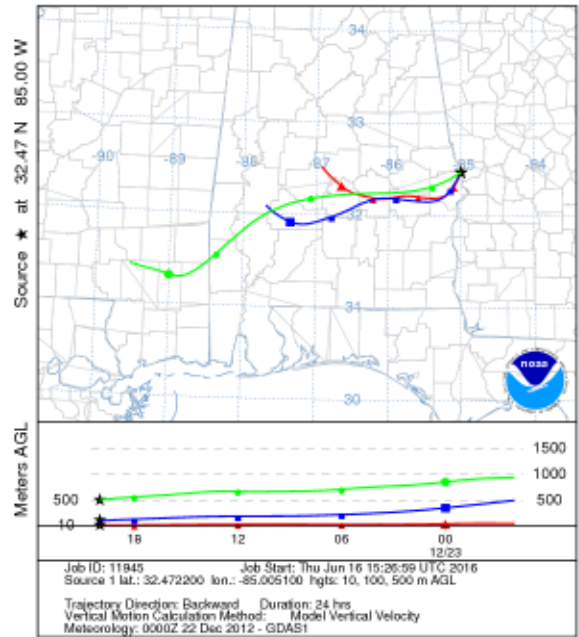
**26.7 ug/m3 \*Fireworks**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 01 Jan 12  
GDAS Meteorological Data



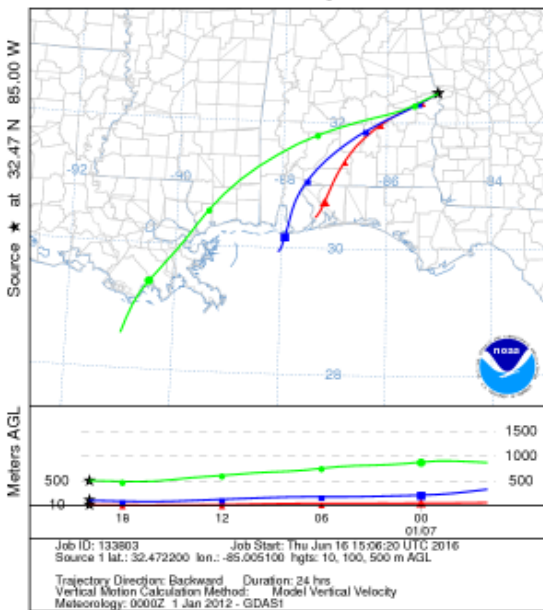
**24.2 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 23 Dec 12  
GDAS Meteorological Data



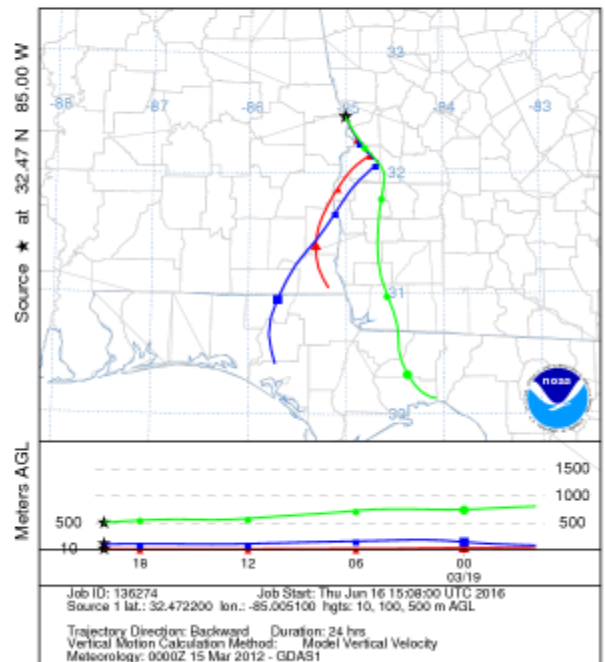
**24.5 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 07 Jan 12  
GDAS Meteorological Data



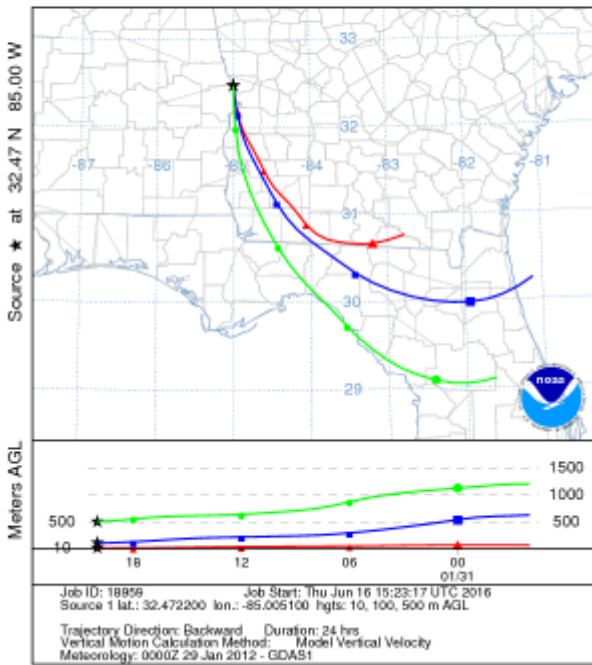
**24.1 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 19 Mar 12  
GDAS Meteorological Data



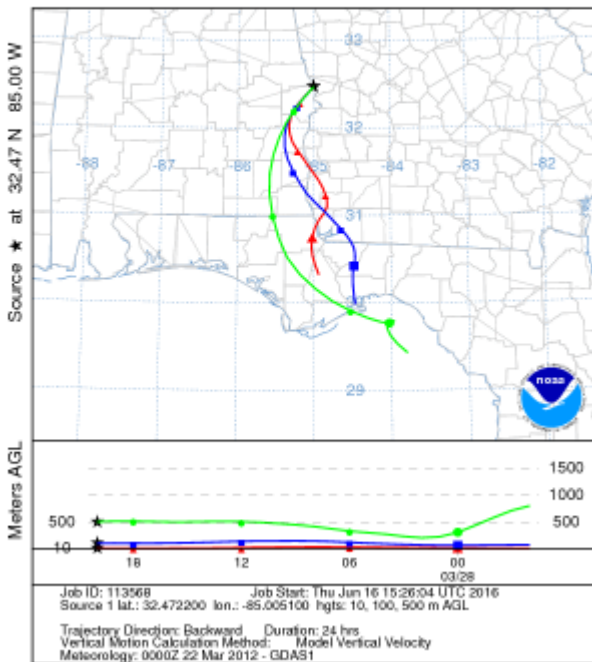
**23 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 31 Jan 12  
GDAS Meteorological Data



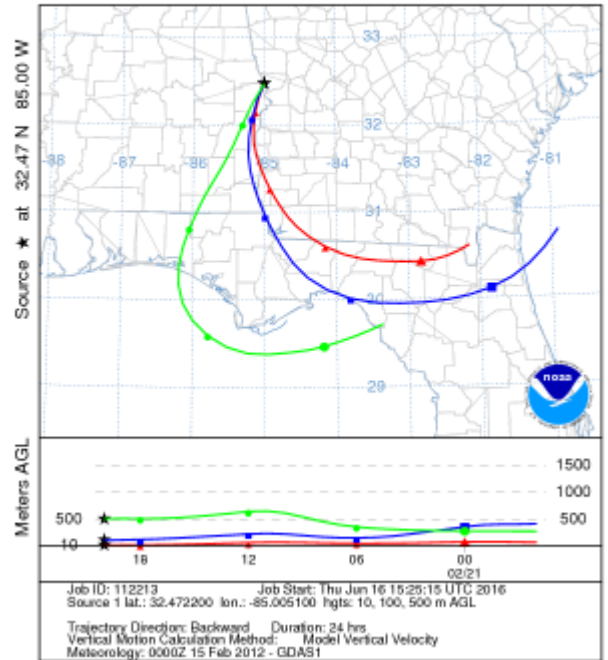
**23 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 28 Mar 12  
GDAS Meteorological Data



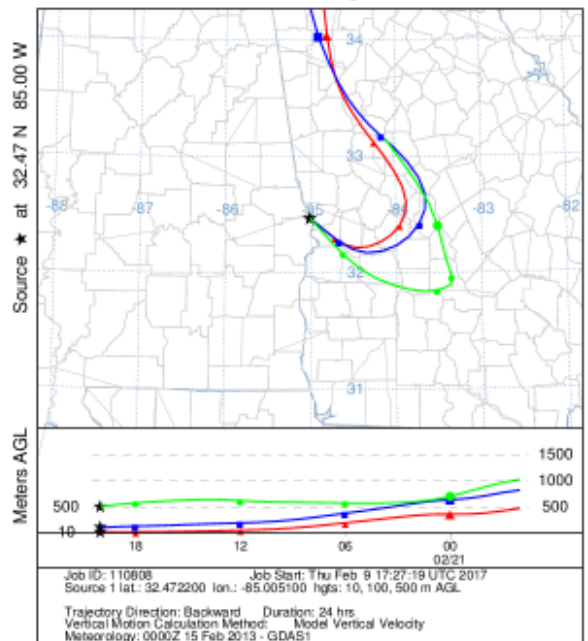
**22.9 ug/m3**

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 21 Feb 12  
GDAS Meteorological Data



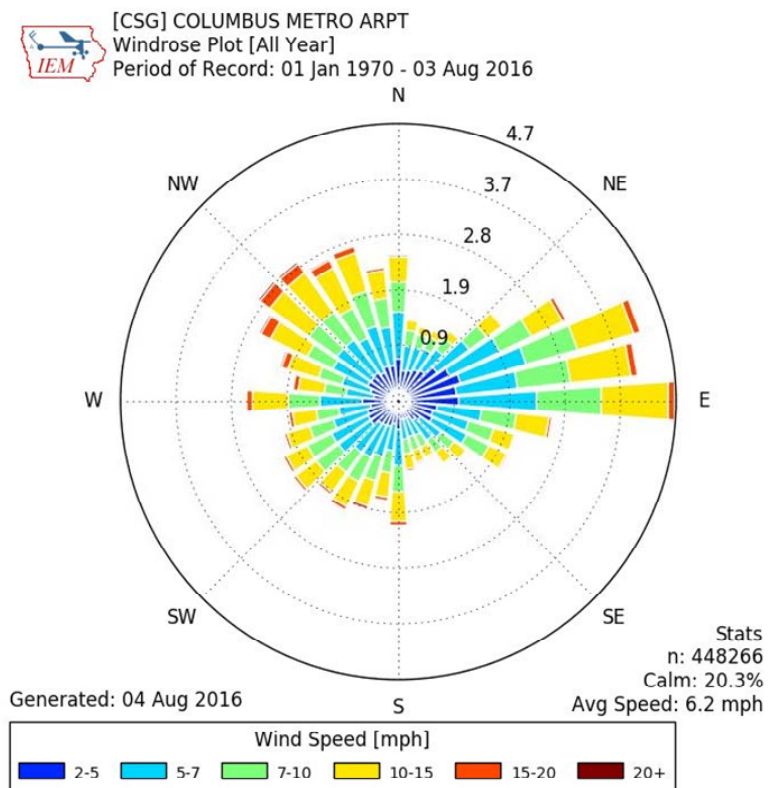
**22.9 ug/m3**

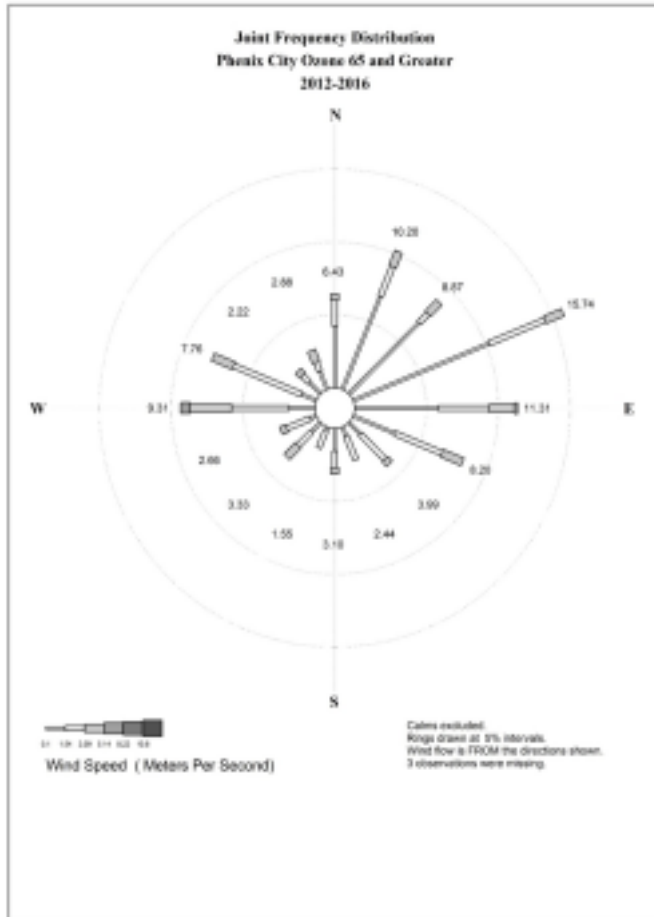
NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 21 Feb 13  
GDAS Meteorological Data



### Analysis of Ozone

Below are supporting documentation for the ozone monitor relocation in Phenix City. The documentation includes wind roses, backward trajectories for days 65 ppb and greater and 4<sup>th</sup> high/DV data at Phenix City and Columbus showing very little difference from one side of the MSA to the other.

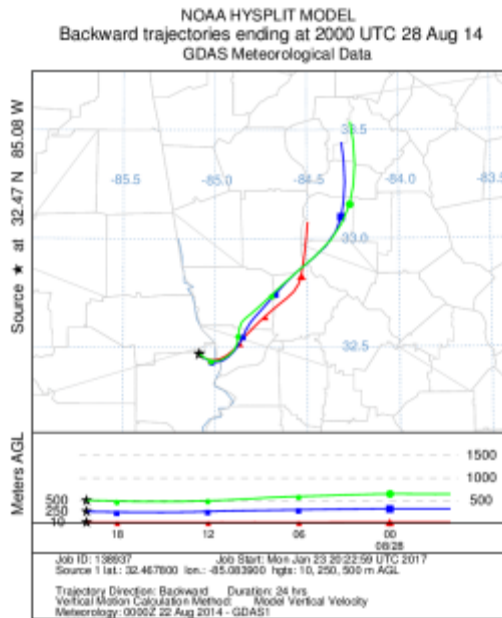




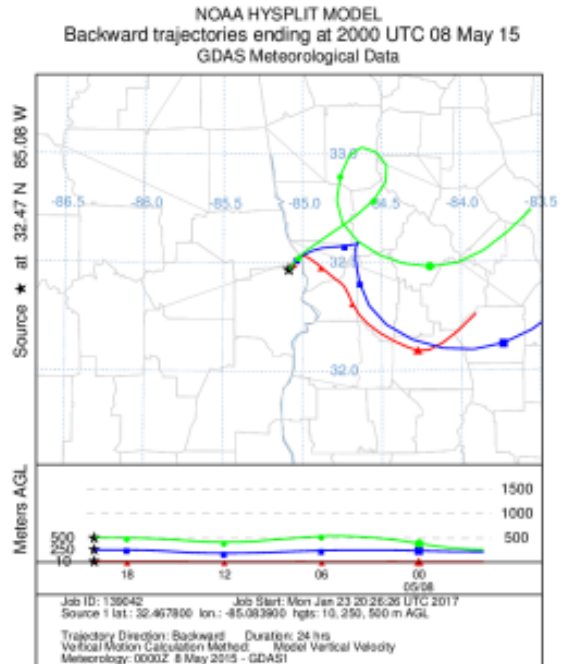
<b>Ozone Data 4th highs and Design Values</b>		
	<b>Phenix City (ppb)</b>	<b>Columbus, GA (ppb)</b>
<b>2014</b>	<b>58</b>	<b>61</b>
<b>2015</b>	<b>62</b>	<b>62</b>
<b>2016</b>	<b>66</b>	<b>65</b>
<b>Design Value</b>	<b>62</b>	<b>62</b>

\*As shown above, ozone concentrations are very similar across the Phenix City/Columbus area. Therefore regardless of location, the monitor should show similar concentrations.

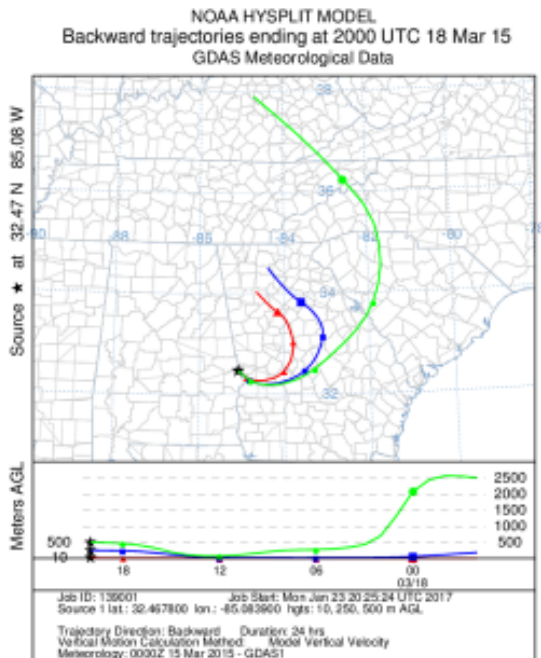
Phenix City 8hr Ozone = 73ppb  
Columbus, GA 8hr Ozone = 64ppb



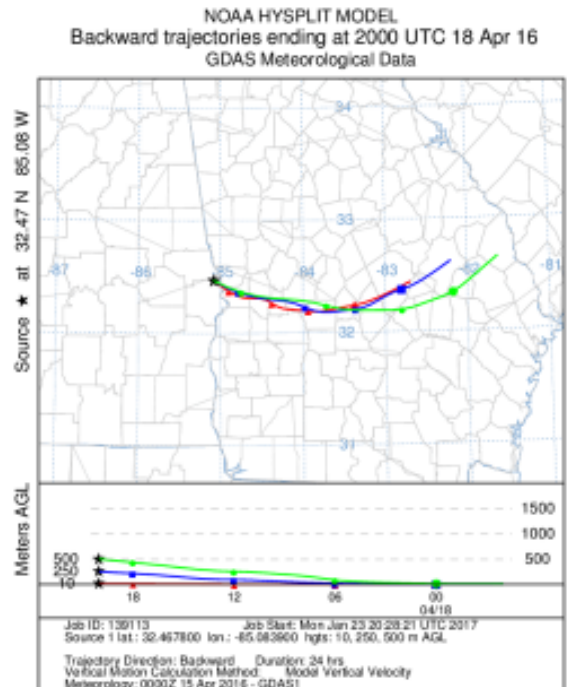
Phenix City 8hr Ozone = 66ppb  
Columbus, GA 8hr Ozone = 62ppb



Phenix City 8hr Ozone = 71ppb  
Columbus, GA 8hr Ozone = 69ppb

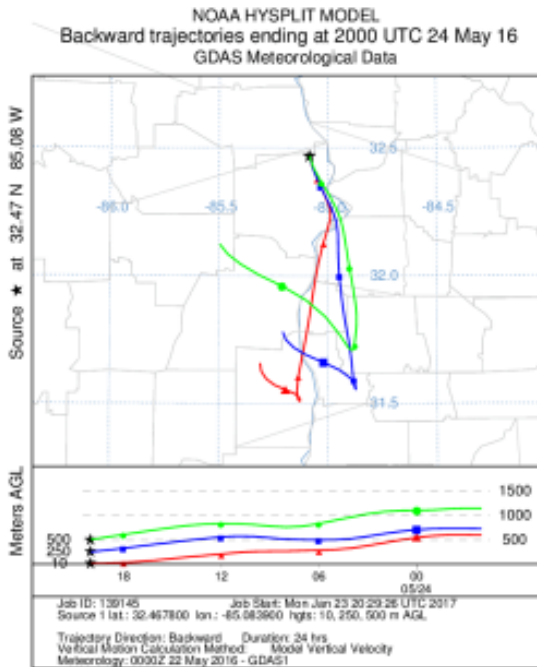


Phenix City 8hr Ozone = 70ppb  
Columbus, GA 8hr Ozone = 62ppb

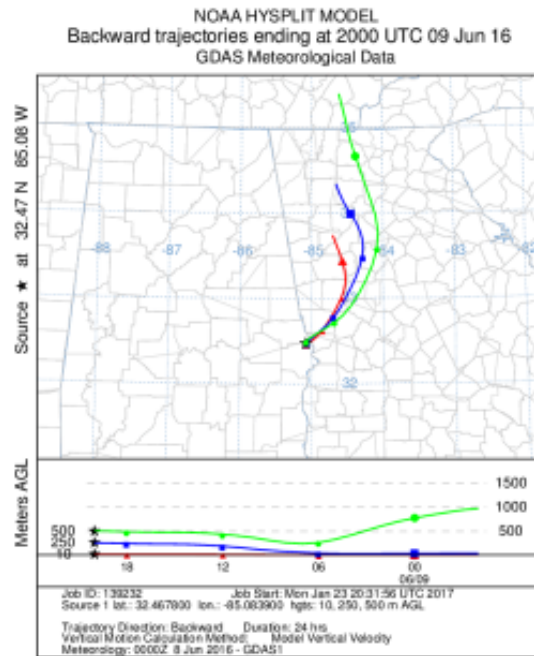




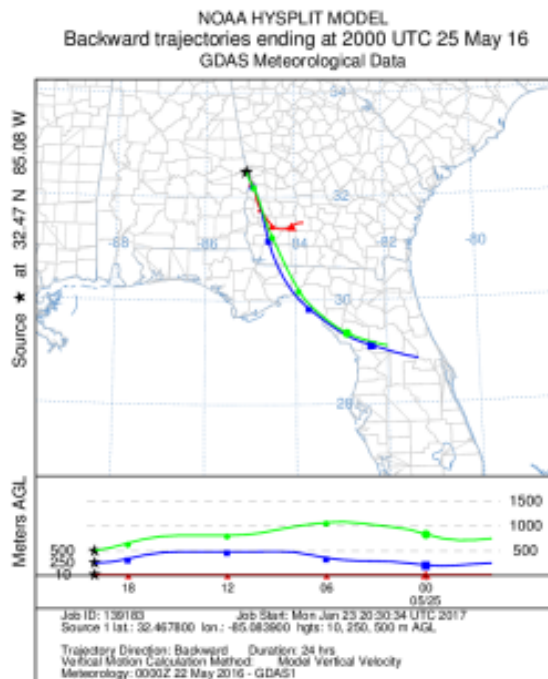
Phenix City 8hr Ozone = 65ppb  
Columbus, GA 8hr Ozone = 75ppb



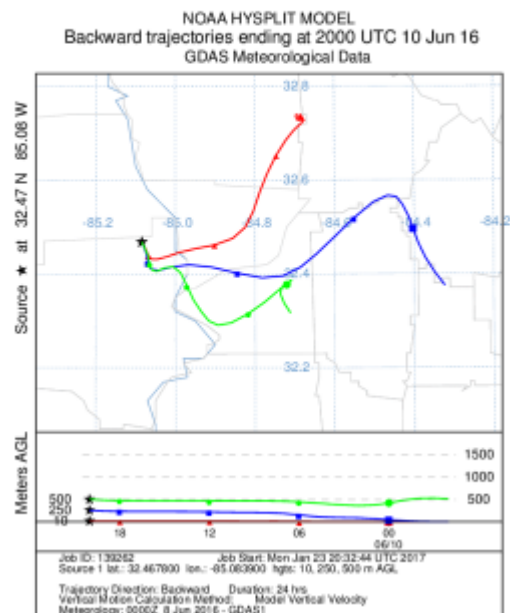
Phenix City 8hr Ozone = 67ppb  
Columbus, GA 8hr Ozone = 64ppb



Phenix City 8hr Ozone = 69ppb  
Columbus, GA 8hr Ozone = 65ppb



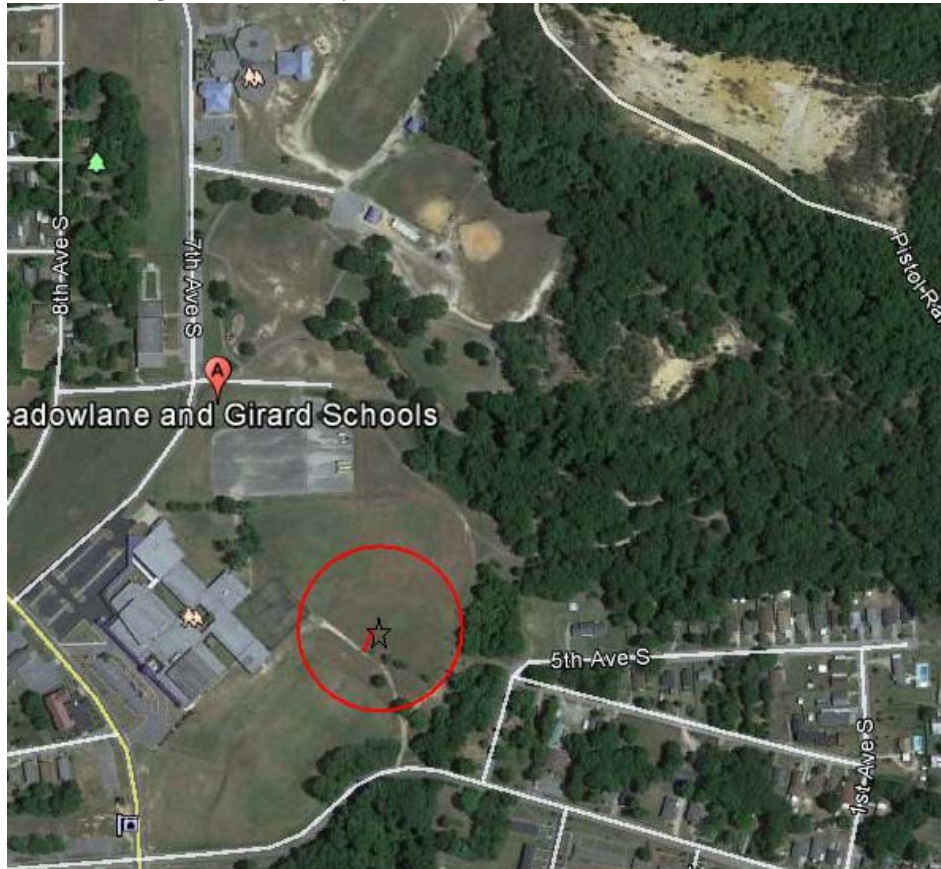
Phenix City 8hr Ozone = 66ppb  
Columbus, GA 8hr Ozone = 64ppb



**Site Description**

**Latitude 32° 26'13.3" N**  
**Longitude 84° 59' 58.75" W**

Satellite image of Phenix City-South Girard School (AQS ID 01-113-0003)



Pollutant	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Proposed Start Date	Comment
PM 2.5	N	S	Highest Concentration / Columbus, GA-AL MSA	L	3	Y	01/19/2017	
PM 2.5	N	QA	Highest Concentration / Columbus, GA-AL MSA	L	3	Y	01/19/2017	Collocated
PM 2.5	N	S	Highest Concentration / Columbus, GA-AL MSA	T	C	N	03/01/2017	Collocated Non-FEM Continuous
CSN Supplemental			Highest Concentration / Columbus, GA-AL MSA	L			03/01/2017	
Ozone	U	SPM	Population Exposure/ Columbus, GA-AL MSA	U	C	Y	07/01/2017	



NORTH



SOUTH



EAST



WEST

Monitor	Distance between collocated inlets	Height of inlet	Distance of inlet above supporting structure	Distance of probe or inlet from dripline of trees	Distance of probe or monitor from roadway	Type of ground cover around site	Probe material
R&P 2.5	1m	~3m	N/A	>40m	>100m	Grass and gravel	N/A
R&P 2.5	1m	~3m	N/A	>40m	>100m	Grass and gravel	N/A
SASS	N/A	~3m	N/A	>40m	>100m	Grass and gravel	N/A
URG	N/A	~3m	N/A	>40m	>100m	Grass and gravel	N/A
UV Ozone	N/A	~3m	>1m	>40m	>100m	Grass and gravel	Teflon with stainless steel bell housing

## Wetumpka

As mentioned in the Ambient Air Monitoring 2016 Consolidated Network Plan, ADEM was given notice by the landlord that the ozone site referred to as DBT (AQS ID 01-051-0001) in the Montgomery MSA must be moved.

Requirement for monitoring in the Montgomery MSA

Using the Montgomery MSA population estimate in 2015 (373,792) and the design value shown in the table below, two ozone monitors are required for this MSA. This requirement was met with the operation of Montgomery-MOMS (AQS ID 01-101-1002) and DBT (AQS ID 01-051-0001) ozone sites. The DBT site was intended to be a downwind, high concentration site.

Site	AQS ID	2013 – 2015 Design Value (ppb)
DBT	01-051-0001	0.060
Montgomery – MOMS	01-101-1002	0.062

The 3-year design value for the Montgomery MSA is 0.062 ppb. As shown in the table the two sites measured very similar values with the Montgomery site consistently reading higher.

### **Removal of Air Monitoring Site DBT, Wetumpka, Alabama (AQS ID 01-051-0001)**

ADEM has 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 site (AQS ID 01-051-0001) since March 1, 1990. Due to change of property ownership, ADEM lost the lease. ADEM commenced a site search with the intention of maintaining the monitoring objective of the high ozone concentration in the MSA. The selected proposed location is in the same general direction from the Montgomery city center and slightly further away. Air monitoring activities previously conducted at DBT (AQS ID 01-051-0001) will be conducted at the new proposed site, Wetumpka (AQS ID 01-051-0002).

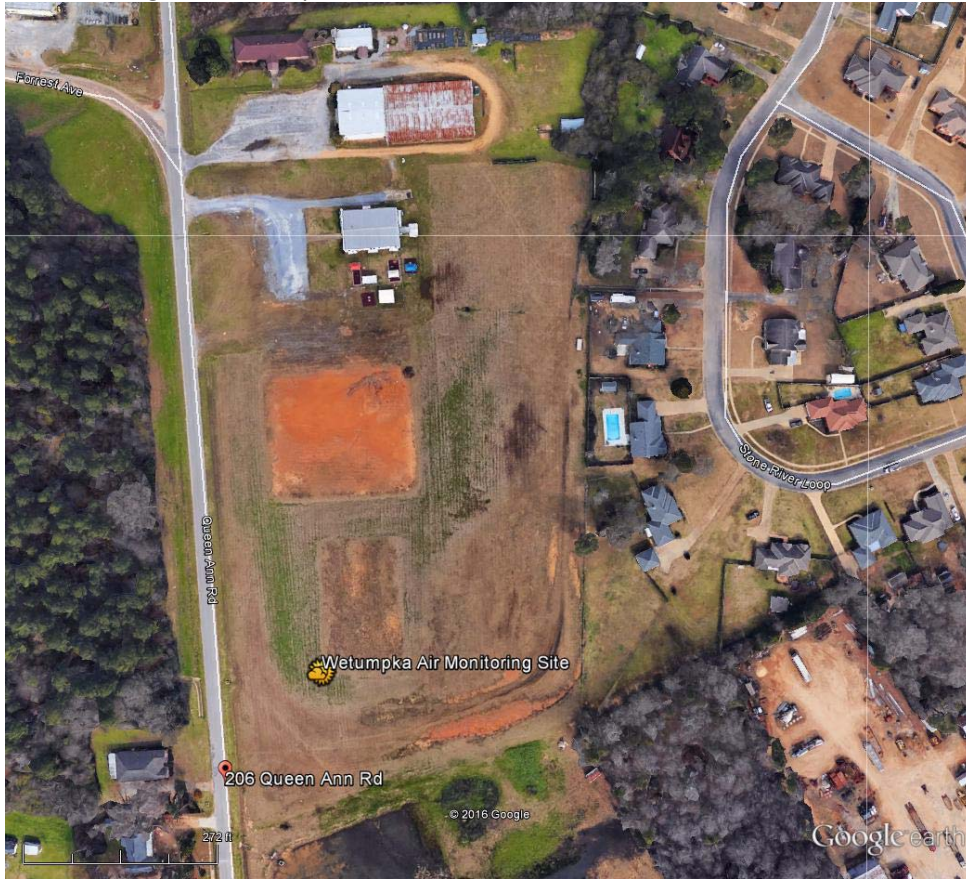
### **Addition of Air Monitoring Site known as Wetumpka (AQS ID 01-051-0002)**

The Wetumpka site is located near the southwest corner of Elmore County parcel 1606140001019.011, owned by the Elmore Autauga Community Action Committee. The site E911 address is 206 Queen Ann Road, Wetumpka, Alabama. The site will be located next to the Early Childhood Head Start School (EHS). The monitoring objective will continue to be Highest Concentration of Ozone in the Montgomery Metropolitan Statistical Area on an urban scale. A site description with monitor objectives and scale of representativeness for the new proposed Wetumpka ozone site can be found below. The proposed site and monitoring activities will meet the requirements of 40 CFR part 58, Appendices A, C, D and E.

**Site Description**

**Latitude 32° 32' 18.11" N**  
**Longitude 86° 13' 56.45" W**

Satellite image of Wetumpka (AQS ID 01-051-0002)



Pollutant	Scale	Type	Monitoring Objective/CBSA	Method	Schedule	NAAQS	Proposed Start Date	Comment
Ozone	U	S	Highest Concentration / Montgomery MSA	U	C	Y	3/1/2017	



NORTH



SOUTH



EAST



WEST

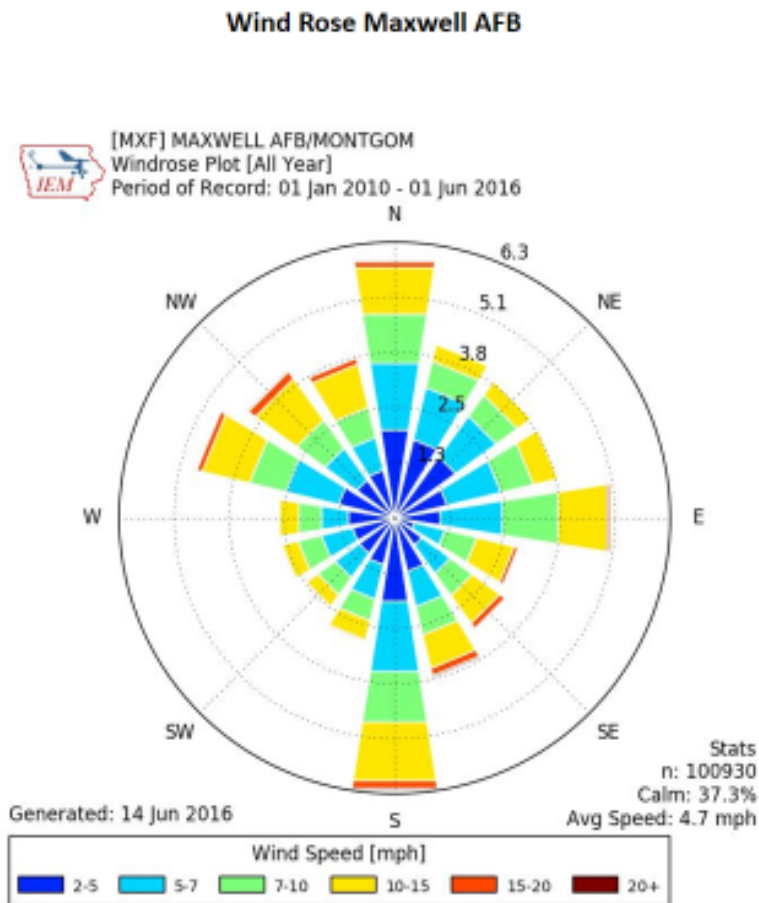
Monitor	Height of inlet	Distance of inlet above supporting structure	Distance of probe or inlet from dripline of trees	Distance of probe or monitor from roadway	Type of ground cover around site	Probe material	Bell Housing Material
UV Ozone	~3m	>1m	>50m	>30m	Grass and gravel	Teflon	Stainless Steel

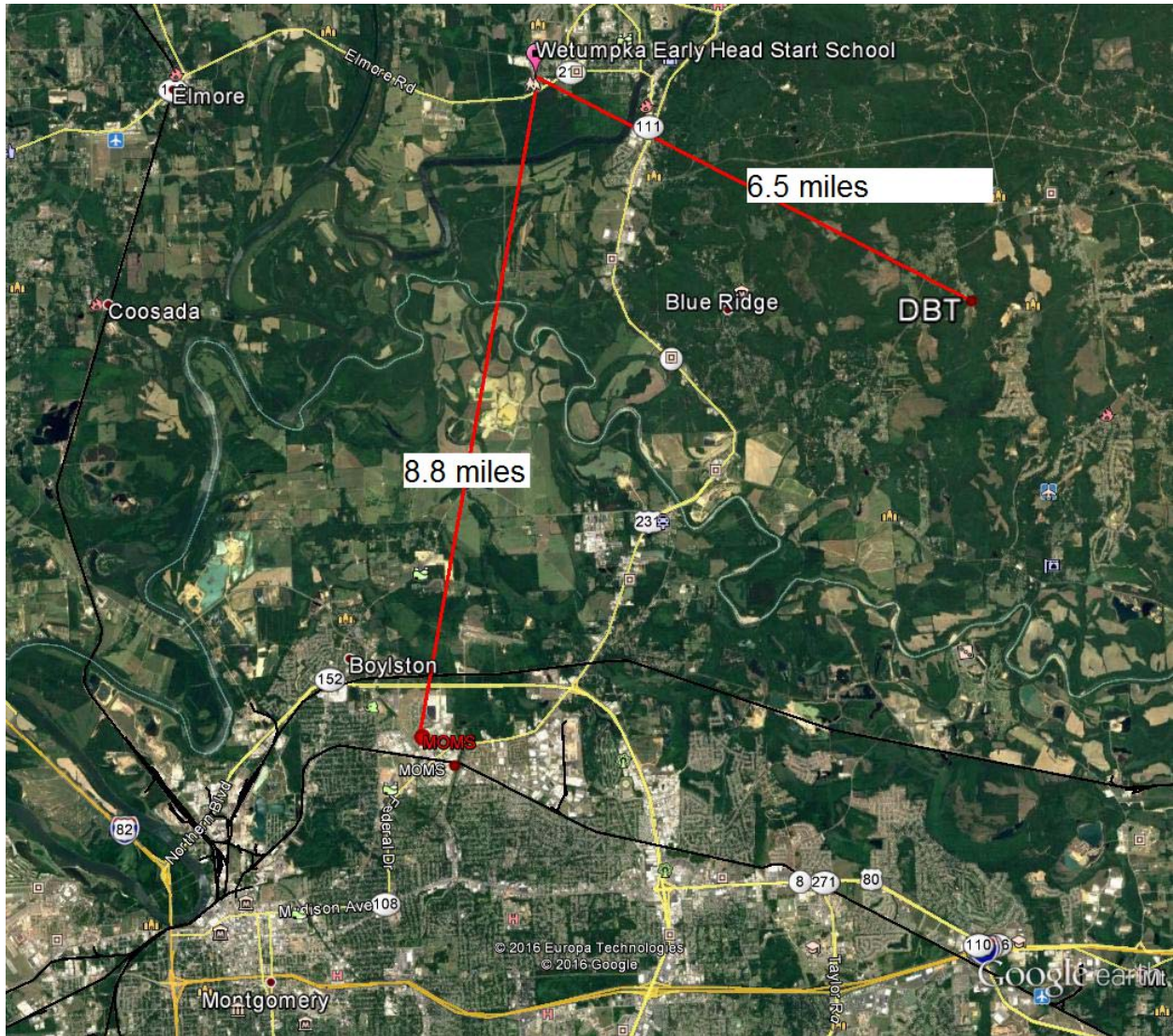
### Analysis of Wind data for Wetumpka site

The ADEM Air Division prepared a comparison of wind data for the DBT and Wetumpka sites. The analysis contains the following:

- A wind rose from Maxwell AFB which would be the most representative of Wetumpka
- Topographical map of Wetumpka
- Back trajectories of the three highest days with respect to the current site of DBT and the proposed location of Wetumpka Early Headstart School

There is not much change in how the winds would affect the proposed site.



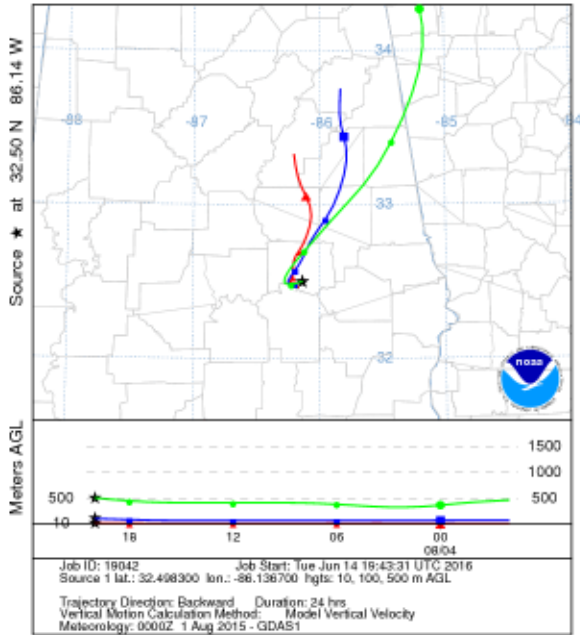


Relative position of proposed Wetumpka – EHS School site to DBT and the Montgomery Ozone Monitoring Site



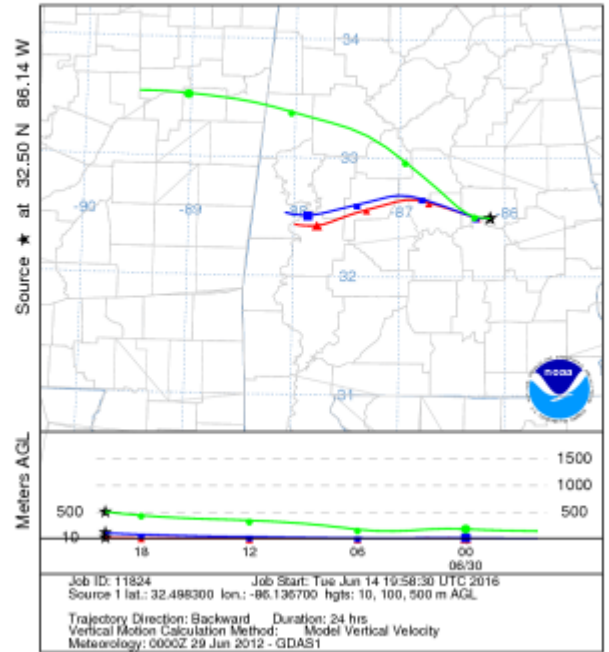
**Dewberry Trail  
 (75 PPB)**

NOAA HYSPLIT MODEL  
 Backward trajectories ending at 2000 UTC 04 Aug 15  
 GDAS Meteorological Data



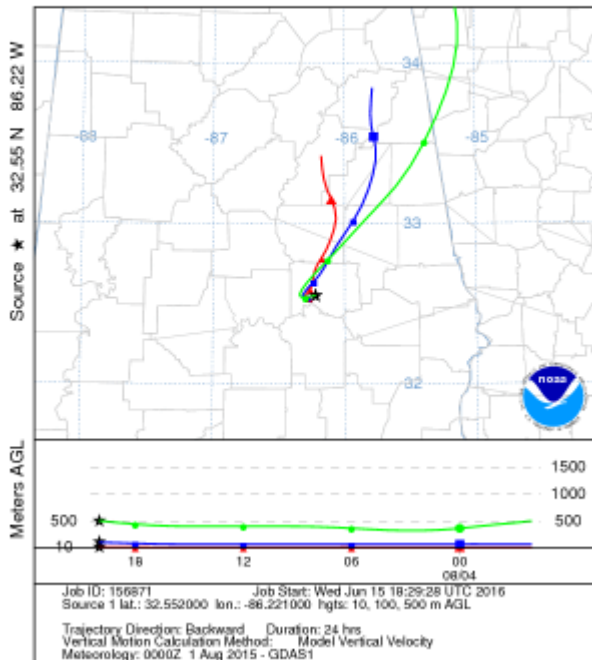
**Dewberry Trail  
 (69 PPB)**

NOAA HYSPLIT MODEL  
 Backward trajectories ending at 2000 UTC 30 Jun 12  
 GDAS Meteorological Data



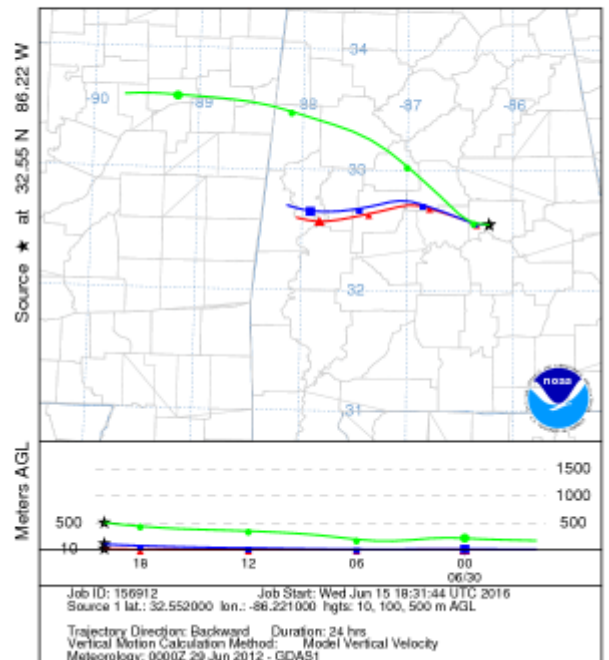
**EHS School**

NOAA HYSPLIT MODEL  
 Backward trajectories ending at 2000 UTC 04 Aug 15  
 GDAS Meteorological Data



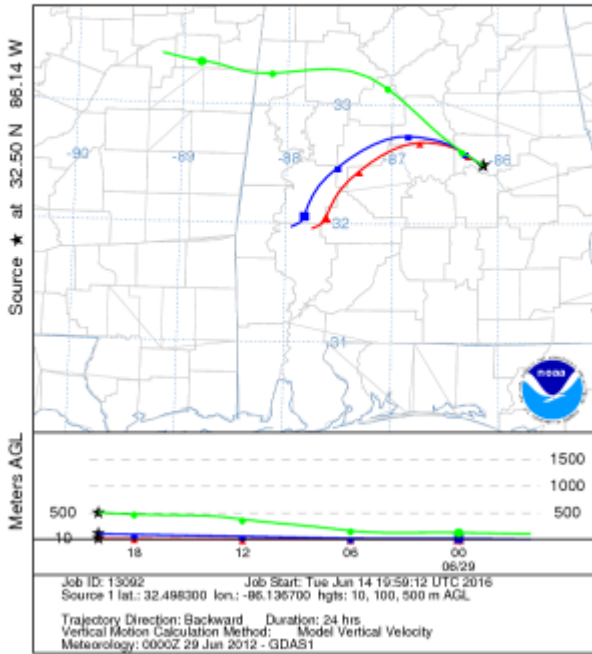
**EHS School**

NOAA HYSPLIT MODEL  
 Backward trajectories ending at 2000 UTC 30 Jun 12  
 GDAS Meteorological Data



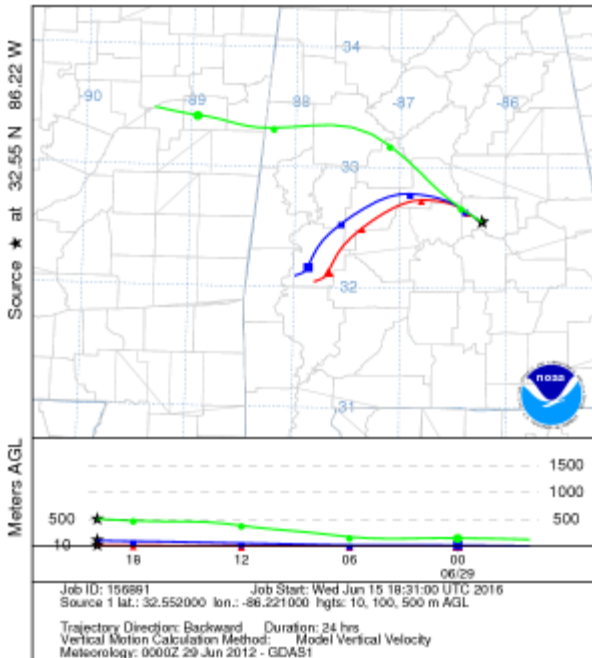
### Dewberry Trail (70 PPB)

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 29 Jun 12  
GDAS Meteorological Data



### EHS School

NOAA HYSPLIT MODEL  
Backward trajectories ending at 2000 UTC 29 Jun 12  
GDAS Meteorological Data



## **Letter from the Jefferson County Department of Health**

In response to EPA comments on the Ambient Air Monitoring 2016 Consolidated Network Plan regarding the monitoring activities at the Shuttlesworth site, Jefferson County Department of Health provided the attached letter.



## JEFFERSON COUNTY DEPARTMENT OF HEALTH

1400 SIXTH AVENUE, SOUTH • P.O. BOX 2648 • BIRMINGHAM, AL 35202-2648 • 205.933.9110 • WWW.JCDH.ORG

**Environmental Health Services**  
Jonathan Stanton, P.E., Director

January 19, 2017

Michael E. Malaier  
Chief, Air Assessment Unit  
Field operations Division  
Al. Department of Environmental Management  
PO Box 301463  
Montgomery, Al. 36130-1463

Re: Redesignation/Reclassification of Pollutant-Specific Monitoring at the Shuttlesworth Monitoring Site

As previously discussed, please find below the Department's proposed and intended rationales for redesignating and reclassifying the status of the Shuttlesworth monitoring site with respect to PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> (from SLAMS to SPMS).

### PM<sub>10</sub>

Historically, the PM<sub>10</sub> monitor at the Shuttlesworth site was established as a fence-line site designed to monitor values from contributions from the now-closed Sloss Mineral Wool plant and was designated as a source-oriented SPM site with a "Neighborhood" spatial scale. For reasons that are unclear and unknown at this time, at some point in time, this monitoring site was incorrectly designated as a SLAM Site and was listed as "High Population Exposure" in previous plans, although it retained a spatial scale of "Neighborhood."

This 2016 network plan addendum is submitted as an attempt to correct these previous designation/classification errors regarding PM<sub>10</sub> monitoring at the Shuttlesworth monitoring site. Accordingly, the Department proposes and intends to list and designate this monitoring site as a source-oriented SPM with a microscale source oriented monitor with respect to PM<sub>10</sub>. As further evidence of the needed for reclassification, the PM<sub>10</sub> concentration average for 2013-2015 at the monitoring site is approximately 14.7 % of the standard and no violation(s) have occurred since November 6, 2007, even before the most proximate and culpable source, the Sloss Mineral Wool plant ceased operations.

As part of this redesignation/reclassification request, the Department expressly relies on the following applicable regulatory SLAMS exemption language of 40 CFR 58.14 (c):

*(1) Any PM 2.5, O3, CO, PM 10, SO2, Pb, or NO2 SLAMS monitor which has shown attainment during the previous five years, that has a probability of less than 10 percent of exceeding 80 percent of the applicable NAAQS during the next three years based on the levels, trends, and variability observed in the past, and which is not specifically required by an attainment plan or maintenance plan.*

The PM10 concentrations at the Shuttlesworth monitoring site qualify for exemption based on the above regulatory language.

### **PM2.5**

Although not required by regulations and even in lieu of the non-existence of PM2.5 concentration problems in the area, the Department agreed to conduct PM2.5 continuous monitor at Shuttlesworth site from July 1, 2013 to September 30, 2014 with the understanding that this monitor would be operated and classified as a special purpose (SPM), non-SLAMS monitor, due to the temporal nature of the agreed upon monitoring. However, similar to the classification and designation issues surrounding PM10 monitoring at this site, again, for reasons that are unclear at this time, the PM2.5 monitor was incorrectly listed and classified as a SLAMS monitor in the final 2016 network plan. Based on the monitor type (non-FEM) and the intention of its use, the Department similarly intends modify the current incorrect designation back to an SPM with a microscale source oriented-monitor.

### **SO2**

The Department agreed to conduct SO<sub>2</sub> monitoring at the Shuttlesworth site, at the express request of EPA, for one year beginning in calendar year 2016 for one year to better evaluate SO<sub>2</sub> concentrations in the North Birmingham area. Again, for reasons that are unclear at this time, this monitor was similarly and incorrectly listed as a SLAMS monitor in the final 2016 network plan. Since the Department already operates the minimum two (2) requisite SO<sub>2</sub> monitors (N.Bham and Fairfield monitoring sites), the Shuttlesworth monitor is a special purpose monitor (SPM) and the Department intends to similarly redesignate and reclassify this monitoring site accordingly, with respect to SO<sub>2</sub> monitoring. The Department will, however, will enter the concentration values into AQS. If at the end of the year the Shuttlesworth monitoring for SO<sub>2</sub> results in values that exceed the current SO<sub>2</sub> NAAQS, the Department may continue to conduct further monitoring to determine a valid design value and NAAQS compliance status.

The Department has included the enclosed/attached table to summarize the addendum changes.

Please advise should you have any concerns and/or questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Corey Masuca', with a long horizontal flourish extending to the right.

Corey Masuca, PE, PhD  
Principal Air Pollution Control Engineer  
Air and Radiation Protection Division