Mississippi Department of Environmental Quality

2019
Air Quality Data Summary

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Introduction

Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) establishes primary air quality standards to protect public health, including the health of "sensitive populations such as people with asthma, children, and older adults". EPA also sets secondary standards to protect public welfare. This includes protecting ecosystems, including plants and animals, from harm, as well as protecting against decreased visibility and damage to crops, vegetation, and buildings.

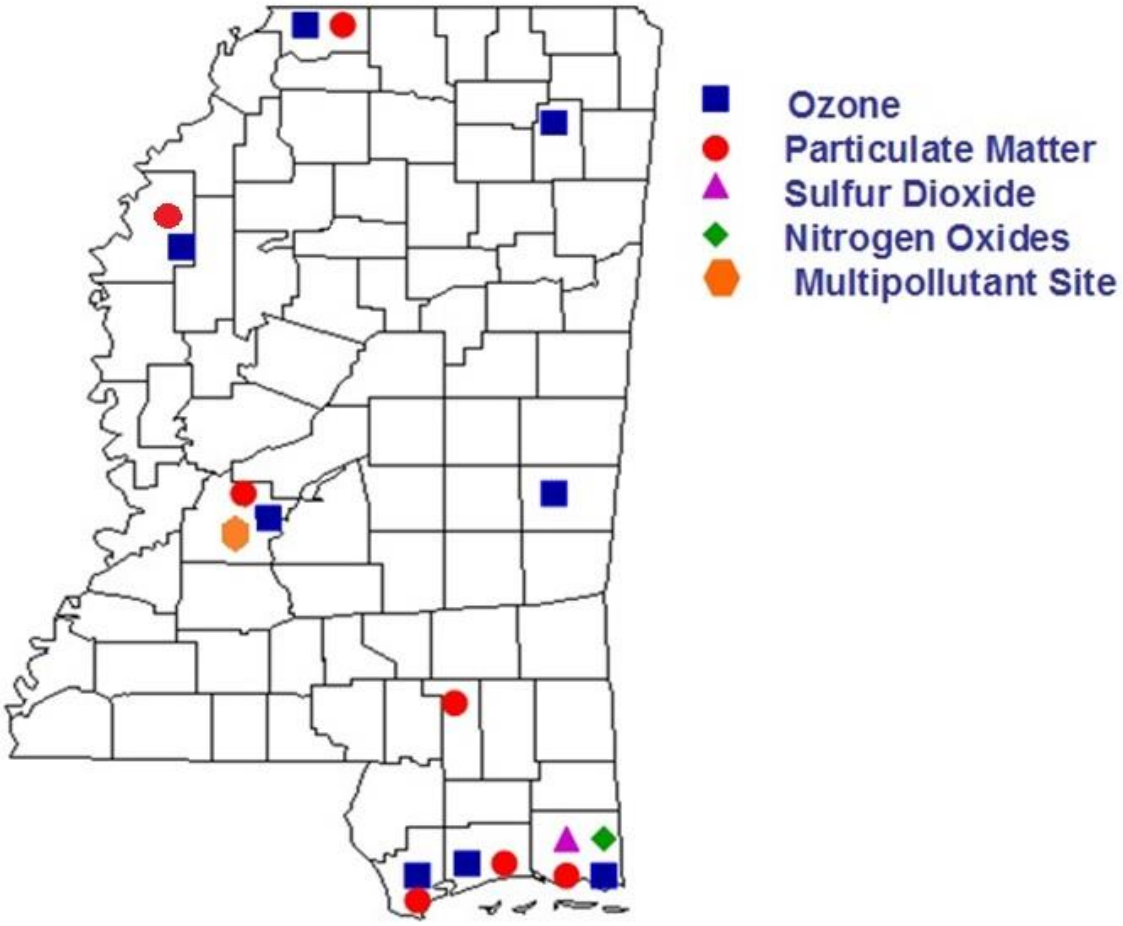
EPA has set national ambient air quality standards (NAAQS) for six principal air pollutants (also called criteria pollutants): Ground-Level Ozone (O3), Particulate Matter (PM), Nitrogen Dioxide (NO2), Sulfur Dioxide (SO2), Carbon Monoxide (CO), and Lead (Pb). The Mississippi Department of Environmental Quality (MDEQ) monitors all of these pollutants with the exception of lead (Pb) as MDEQ ceased lead monitoring, June 30th, 2016.

This report looks at the reported levels of the criteria pollutants in 2019 at various monitoring sites located in Mississippi. It compares these levels to the NAAQS to determine how the state is doing in meeting these standards. As it is stated, Mississippi is meeting all of the NAAQS.

In January of 2018, the Cleveland (28.011.0001) 213 N. Bayou Ave site was shut down and relocated in February 2018 (28.011.0002) highway 8 west with EPA approval to Delta State Campus, located at latitude 33.750833 and longitude -90.734167.

Starting January of 2019 MDEQ incorporated Federally Equivalent Method PM2.5 instruments which will be to determine NAAQS compliance at several sites including Cleveland, Hernando, Hinds CC, NCORE site in Hinds county, Hattiesburg, Waveland, Gulfport, and Pascagoula. These continuous monitors replaced our previous filter based PM2.5 monitors that were located in Grenada, Hernando, Hinds, Hattiesburg, Waveland, Gulfport, and Pascagoula. MDEQ is required to run a filter based PM2.5 at our NCORE site along with a co-located PM2.5 at the Hattiesburg site.

2019 MDEQ Air Monitoring Network



Monitoring Network Information

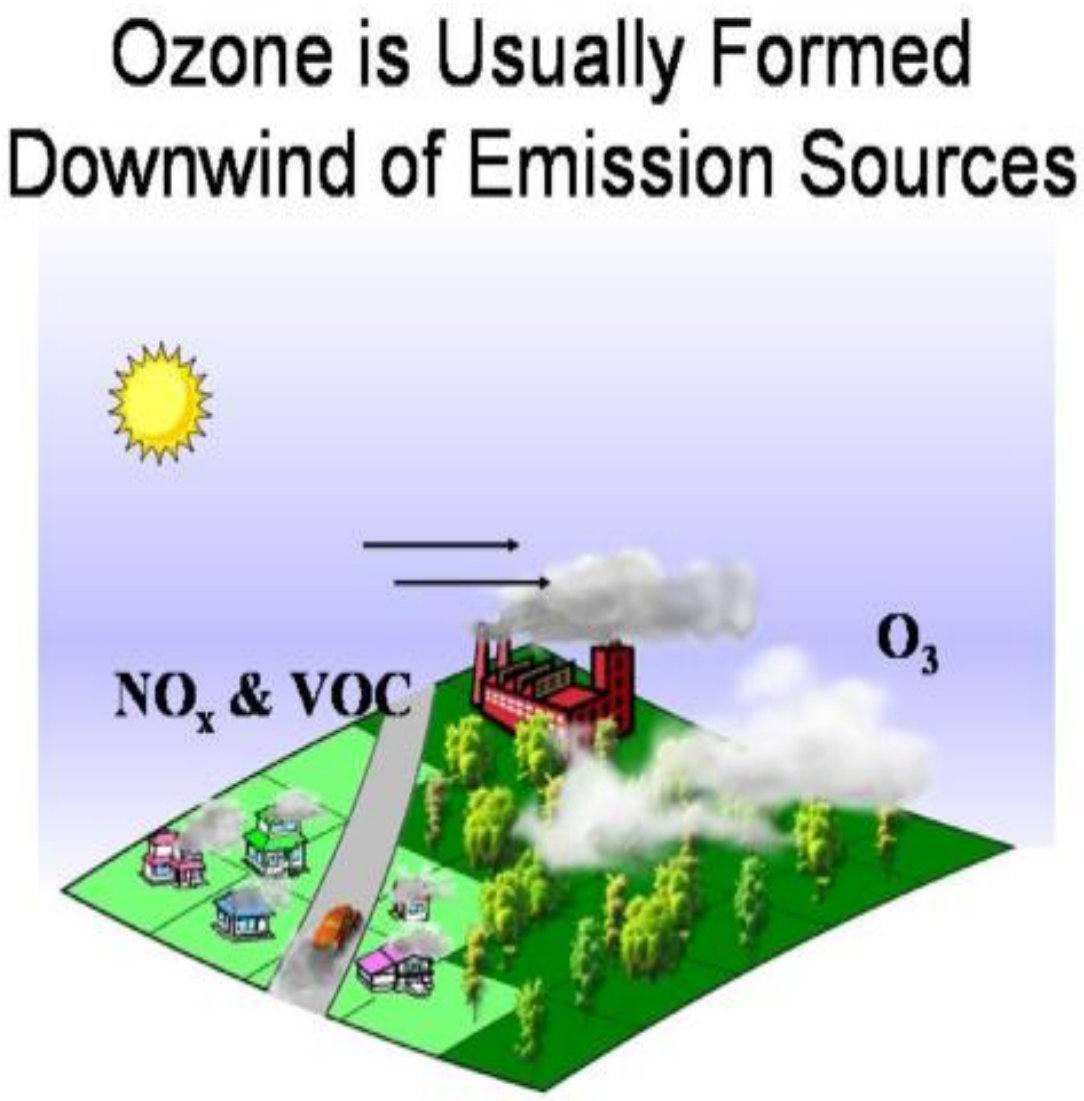
County	City	Monitoring Site ID	Pollutants Monitored	Latitude			Longitude		
				Deg.	Min.	Sec.	Deg.	Min.	Sec.
Bolivar	Cleveland	28-011-0002	Ozone, $PM_{2.5}$ Continuous	33	45	03	-90	44	03
DeSoto	Hernando	28-033-0002	Ozone, $PM_{2.5}$ Continuous	34	49	14	-89	59	16
Forrest	Hattiesburg	28-035-0004	$PM_{2.5}$ 6-Day, $PM_{2.5}$ Continuous	31	19	23	-89	17	15
Hancock	Waveland	28-045-0003	Ozone, $PM_{2.5}$ Continuous	30	18	3	-89	23	45
Harrison	Gulfport	28-047-0008	Ozone, $PM_{2.5}$ Continuous	30	23	24	-89	02	59
Hinds CC	Jackson	28-049-0021	Ozone, $PM_{2.5}$ Continuous	32	20	48	-90	13	32
Hinds	Jackson N-CORE	28-049-0020	Ozone, $PM_{2.5}$ 3-Day, $PM_{2.5}$ Continuous, Speciated $PM_{2.5}$, $PM_{10-2.5}$, CO, NOy, SO_2	32	19	45	-90	10	58
Jackson	Pascagoula	28-059-0006	Ozone, $PM_{2.5}$ Continuous, NO, NO_2, NOx, SO_2	30	22	42	-88	32	03
Lauderdale	Meridian	28-075-0003	Ozone	32	21	52	-88	43	53
Lee	Tupelo	28-081-0005	Ozone	34	15	54	-88	45	58

NAAQS Table

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Ground-Level Ozone (O_3)

Ozone is a gas composed of three atoms of oxygen. Ozone occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found. It occurs naturally in the stratosphere approximately 6 to 30 miles above the Earth's surface where it forms a protective layer that shields us from the sun's harmful ultraviolet rays. In the Earth's lower atmosphere, near ground level, ozone occurs naturally in lower amounts and additional ozone is formed when nitrogen oxides (NO_x) and volatile organic compounds (VOCs) emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of sunlight. Because this reaction takes time to occur, ozone is usually formed downwind of emission sources.



Ozone Standard

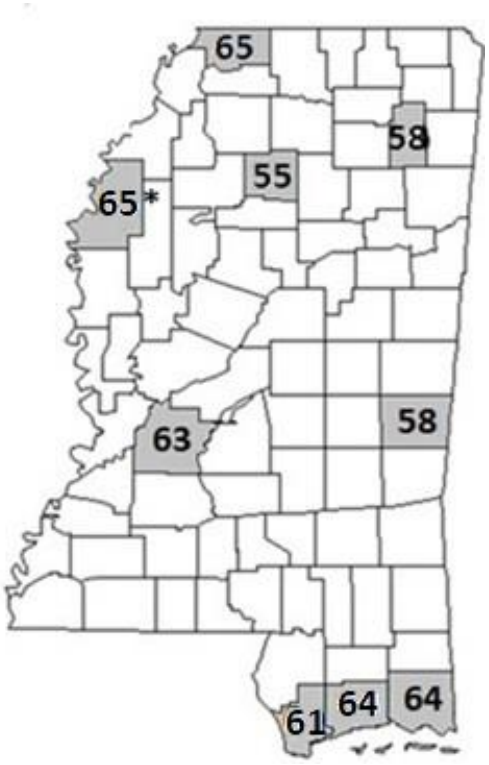
There is one primary and secondary ozone standard – the 8-hour average. MDEQ monitors ozone continuously from March 1 through October 31 each year at the monitoring sites listed below. Ozone is monitored year around at our N-CORE site located in the Jackson MSA.

Primary and Secondary 8-Hour Ozone Standard

The 8-hour standard is met when the 3-year average of the annual fourth highest daily maximum 8-hour average concentration (also known as the design value) is less than or equal to 0.070 parts per million (ppm) or 70 parts per billion (ppb). O_3 NAAQS

8-Hour Ozone Design Values
Standard – 70 ppb

County	City	2019 Design Values (ppb)
Bolivar County	Cleveland	65*
DeSoto County	Hernando	65
Hancock County	Waveland	61
Harrison County	Gulfport	64
Hinds County	Jackson	63
Hinds County	Jackson/N-CORE	60
Jackson County	Pascagoula	64
Lauderdale County	Meridian	58
Lee County	Tupelo	58
Yalobusha County	Coffeeville EPA Site	55



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Particulate Matter

In general, particulate matter consists of a mixture of larger materials, called "coarse particles", and smaller particles, called "fine particles". Coarse particles have diameters ranging from 2.5 micrometers (µm) to more than 40 µm, while fine particles, also known as $PM_{2.5}$, include particles with diameters equal to or smaller than 2.5 µm. MDEQ also monitors PM_{10}, which refers to particles less than or equal to 10 µm in diameter.

These tiny particles come in many shapes and sizes and can be made up of hundreds of different chemicals. Some particles are emitted directly from a source, while others form in complicated chemical reactions in the atmosphere.

Image courtesy of EPA, Office of Research and Development

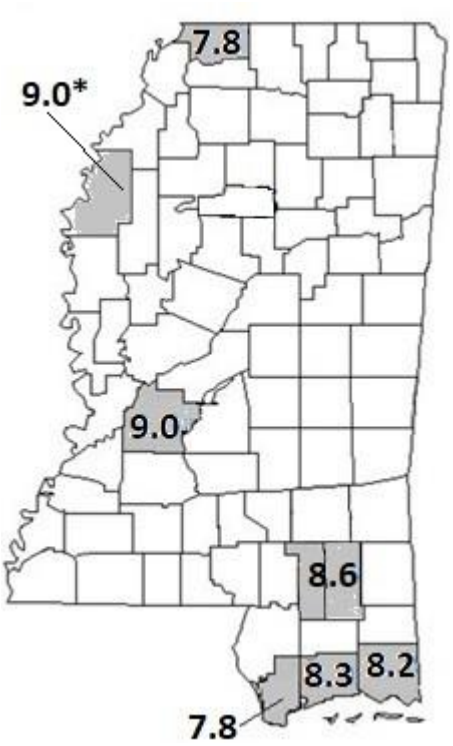
$PM_{2.5}$ Standards

There are two primary and secondary $PM_{2.5}$ standards: (1) Annual Average and (2) 24-Hour Average. MDEQ monitors $PM_{2.5}$ every 3rd day at the monitoring sites listed below.

Primary and Secondary Annual Average Standard – 12.0 µg/m^3 and 15.0 µg/m^3

The annual average primary standard is met when the three-year average of the annual averages does not exceed 12.0 micrograms per cubic meter (µg/m^3). The annual average secondary standard is met when the three-year average of the annual averages does not exceed 15.0 micrograms per cubic meter (µg/m^3). PM NAAQS

County	City	2019 Annual Average Design Value (µg/m^3)
Bolivar County	Cleveland	9.0*
DeSoto County	Hernando	7.8
Forrest County	Hattiesburg	8.6
Hancock County	Waveland	7.8
Harrison County	Gulfport	8.3
Hinds County CC	Jackson	8.9
Hinds County	Jackson/N-CORE	9.0
Jackson County	Pascagoula	8.2



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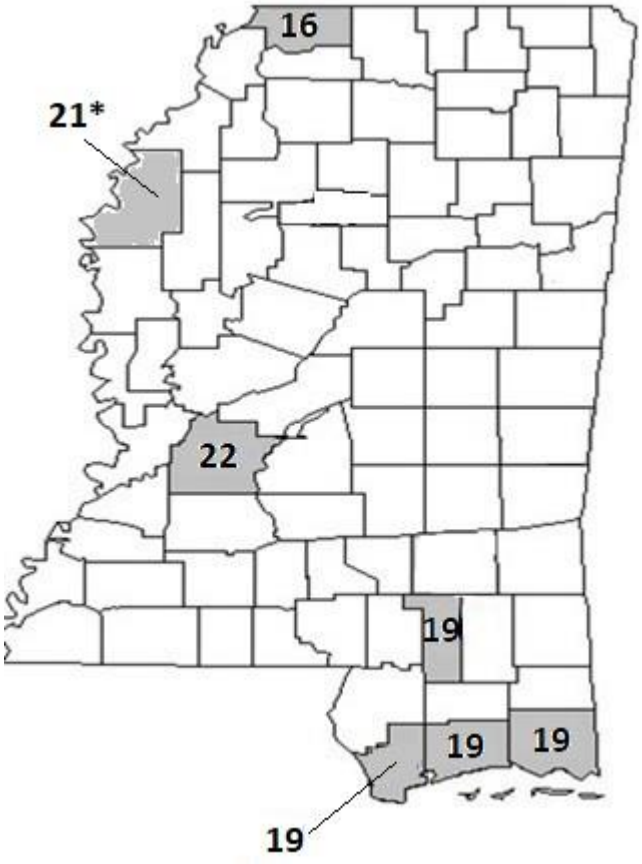
Primary and Secondary 24-Hour Average Standard (98th Percentile) – 35 µg/m^3

The 24-hour average standard is met when the three-year average of the annual 98th percentiles of the 24-hour averages does not exceed 35 micrograms per cubic meter (µg/m^3).

County	City	2019 24-Hour Average Design Value (µg/m^3)
Bolivar County	Cleveland	21*
DeSoto County	Hernando	16
Forrest County	Hattiesburg	19
Hancock County	Waveland	19
Harrison County	Gulfport	19
Hinds County	Jackson	22
Hinds County	Jackson/N-CORE	21
Jackson County	Pascagoula	19



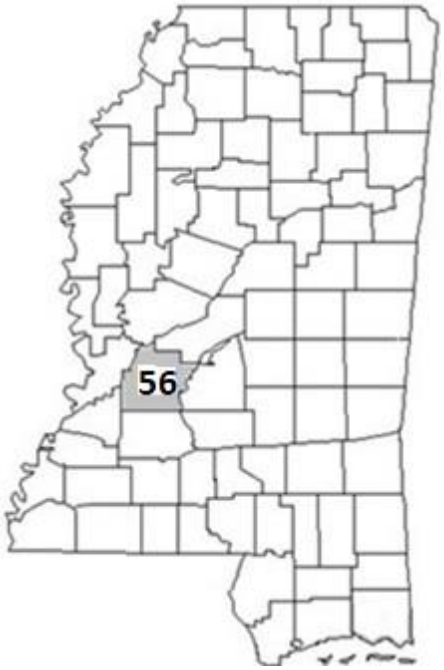
*Incomplete Data

PM_{10} Standards

Primary and Secondary 24-Hour Average Standard – 3 Year Average of the Annual 2nd Max – 150 µg/ m^3

The 24-hour average standard is met when the annual second max does not exceed 150 micrograms per cubic meter (µg/m^3) over the average of three years. MDEQ monitors PM_{10} every 6th day at the monitoring sites listed below.

County	City	2019 24-Hour Average Design Value (µg/m^3)
Hinds County	Jackson/NCORE	56



Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56% of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22% of all CO emissions nationwide. Other sources of CO emissions include industrial processes, residential wood burning, and natural sources such as forest fires.

Carbon Monoxide Standards

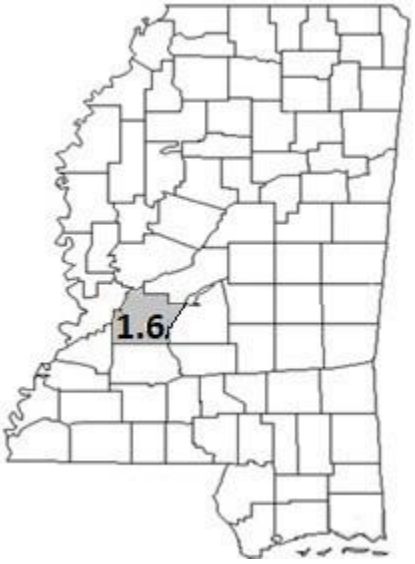
There are two carbon monoxide standards: (1) 8-Hour Average and (2) 1-Hour Standard. MDEQ monitors carbon monoxide continuously year-round at the monitoring site listed below. CO NAAQS

Primary CO Standard – 8-Hour 9 ppm
1-Hour 35 ppm

The 8-hour average standard is met if the 8-hour average of 9 parts per million (ppm) is not exceeded more than once per year. The 1-hour average standard is met if the 1-hour average of 35 parts per million (ppm) is not exceeded more than once per year.

County	City	2019 Annual 2nd Max (ppm)
Hinds County	Jackson	8 - Hour: 1.1
	NCORE	1 - Hour: 1.6

8-Hour Carbon Monoxide



1-Hour Carbon Monoxide

Nitrogen Dioxide

Nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer. Nitrogen dioxide forms when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of nitrogen dioxide are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. It can also be formed naturally.

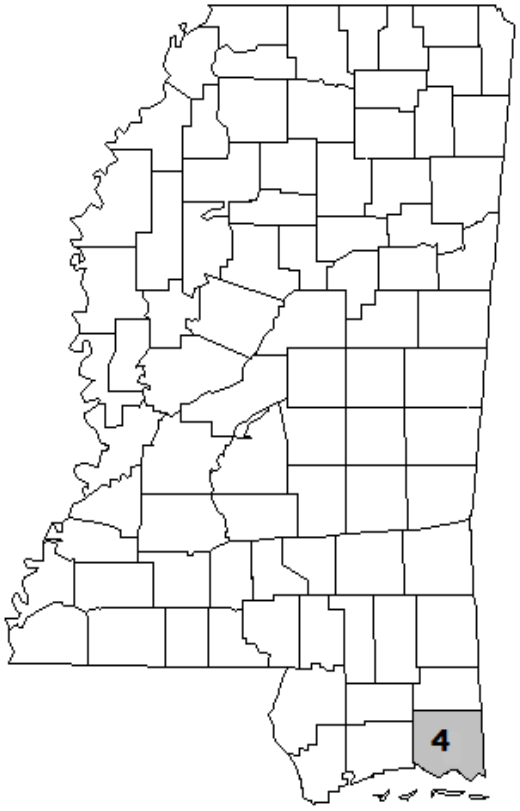
Nitrogen Dioxide Standards

There are two NO_2 standards: (1) Annual Average (Primary and Secondary) and (2) 1-Hour Average (Primary). MDEQ monitors nitrogen dioxide continuously year-round at the monitoring site listed below. NO_2 NAAQS

Primary and Secondary Annual Average Standard – 53 ppb

The annual average NO_2 standard is met when the annual average does not exceed 53 parts per billion (ppb).

County	City	2019 Annual Average (ppb)
Jackson County	Pascagoula	4



Primary 1-Hour Average Standard – 100 ppb

The 1-hour average NO_2 standard is met when the three-year average of the annual 98th percentiles of the 24-hour averages does not exceed 100 parts per billion (ppb).

County	City	2019 1-Hour Average Design Value (ppb)
Jackson County	Pascagoula	28

Sulfur Dioxide

Sulfur dioxide (SO_2) belongs to the family of sulfur oxide gases (SO_x). These gases dissolve easily in water. Sulfur is prevalent in all raw materials, including crude oil, coal, and ore that contains common metals like aluminum, copper, zinc, lead, and iron. SO_x gases are formed when fuel containing sulfur, such as coal and oil is burned, and when gasoline is extracted from oil and metals are extracted from ore. SO_2 dissolves in water vapor to form acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment.

Over 65% of SO_2 released to the air comes from electric utilities, especially those that burn coal. Other sources of SO_2 are industrial facilities that derive their products from raw materials like metallic ore, coal, and crude oil, or that burn coal or oil to produce process heat. Examples are petroleum refineries, cement manufacturing, and metal processing facilities.

Sulfur Dioxide Standards

There are three primary sulfur dioxide standards – the 1-Hour average, the annual, and the 24-hour average. There is one secondary sulfur dioxide standard – the 3-Hour average. MDEQ monitors sulfur dioxide continuously year-round at the monitoring site listed below. SO_2 NAAQS

Primary 1-Hour Average Standard – 75 ppb

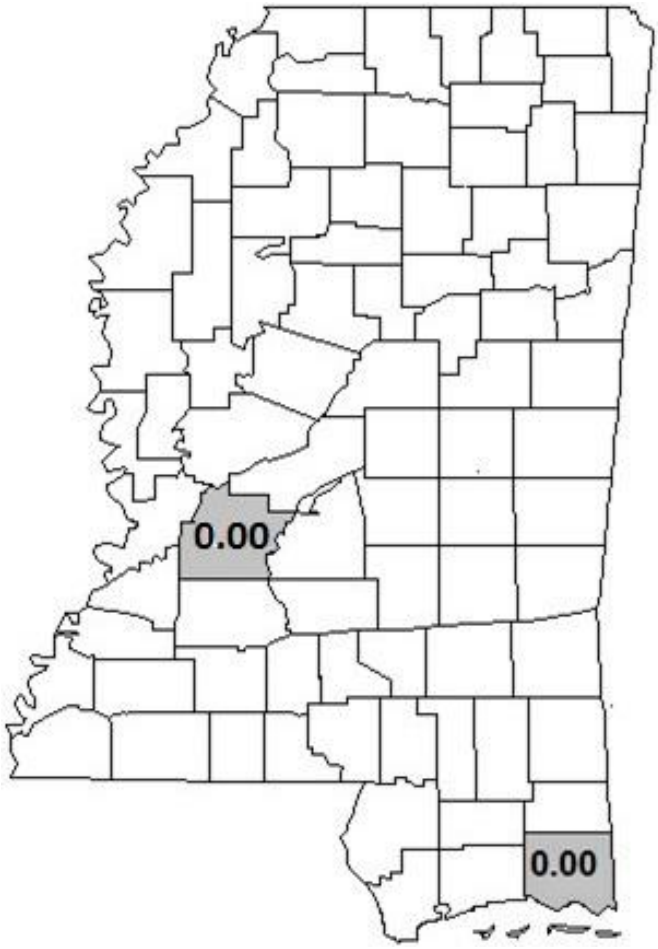
The 1-hour average SO_2 standard is met when the three-year average of the annual 99th percentiles of the 1-hour averages does not exceed 75 parts per billion (ppb).

County	City	2019 1-Hour Average Design Value (ppb)
Hinds County	Jackson/N-CORE	3
Jackson County	Pascagoula	5

Primary Annual Standard – 0.03 ppm

Annual SO_2 standard is met when the maximum annual average does not exceed 0.030 parts per million (ppm).

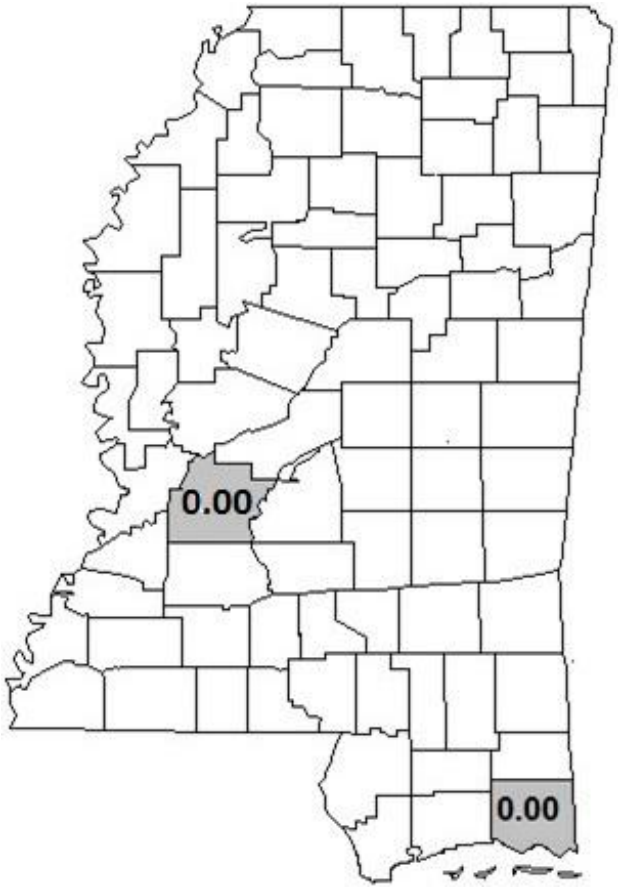
County	City	2019 Annual Average (ppm)	2019 Number of Exceedances
Hinds County	Jackson/NCORE	0.00	0
Jackson County	Pascagoula	0.00	0



Primary 24-Hour Standard – 0.14 ppm

24-Hour SO_2 standard is met when the maximum annual average concentration of 0.14 parts per million (ppm) is not exceeded more than once per calendar year.

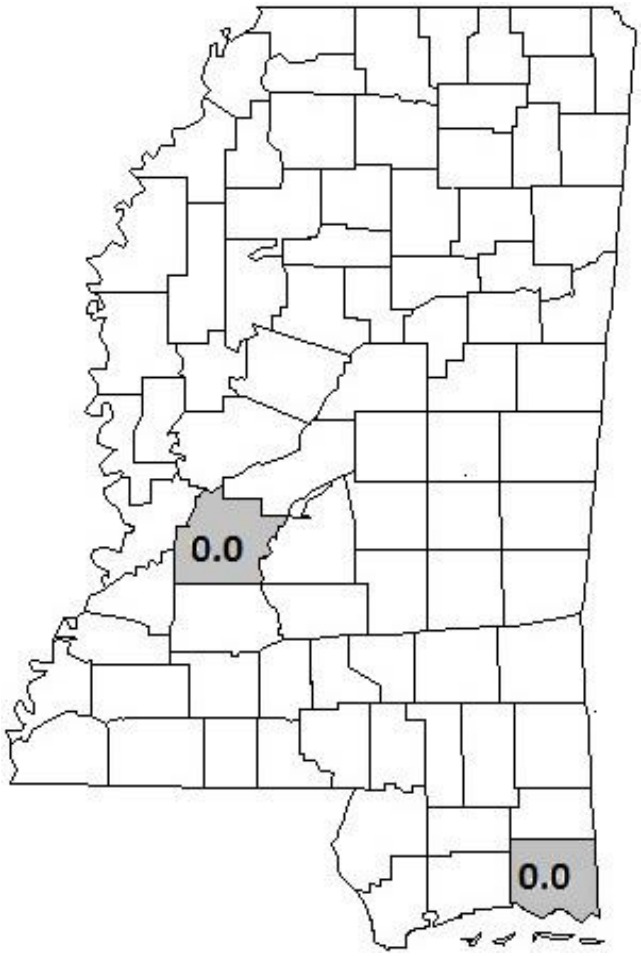
County	City	2019 2nd Maximum 24-Hour (ppm)	2019 Number of Exceedances
Hinds County	Jackson/N-CORE	0.00	0
Jackson County	Pascagoula	0.00	0



Secondary 3-Hour Average Standard – 0.5 ppm

The 3-hour average SO_2 standard is met when the maximum 3-hour average concentration of 0.5 parts per million (ppm) is not exceeded more than once per calendar year.

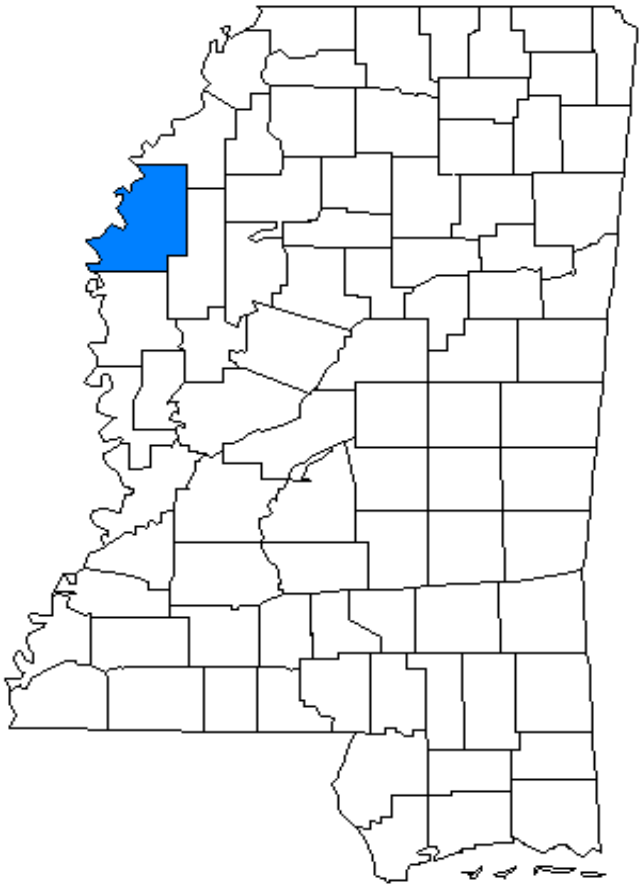
County	City	2019 2nd Maximum 3-Hour Average (ppm)	2018 Number of Exceedances
Hinds County	Jackson/N-CORE	0.0	0
Jackson County	Pascagoula	0.0	0



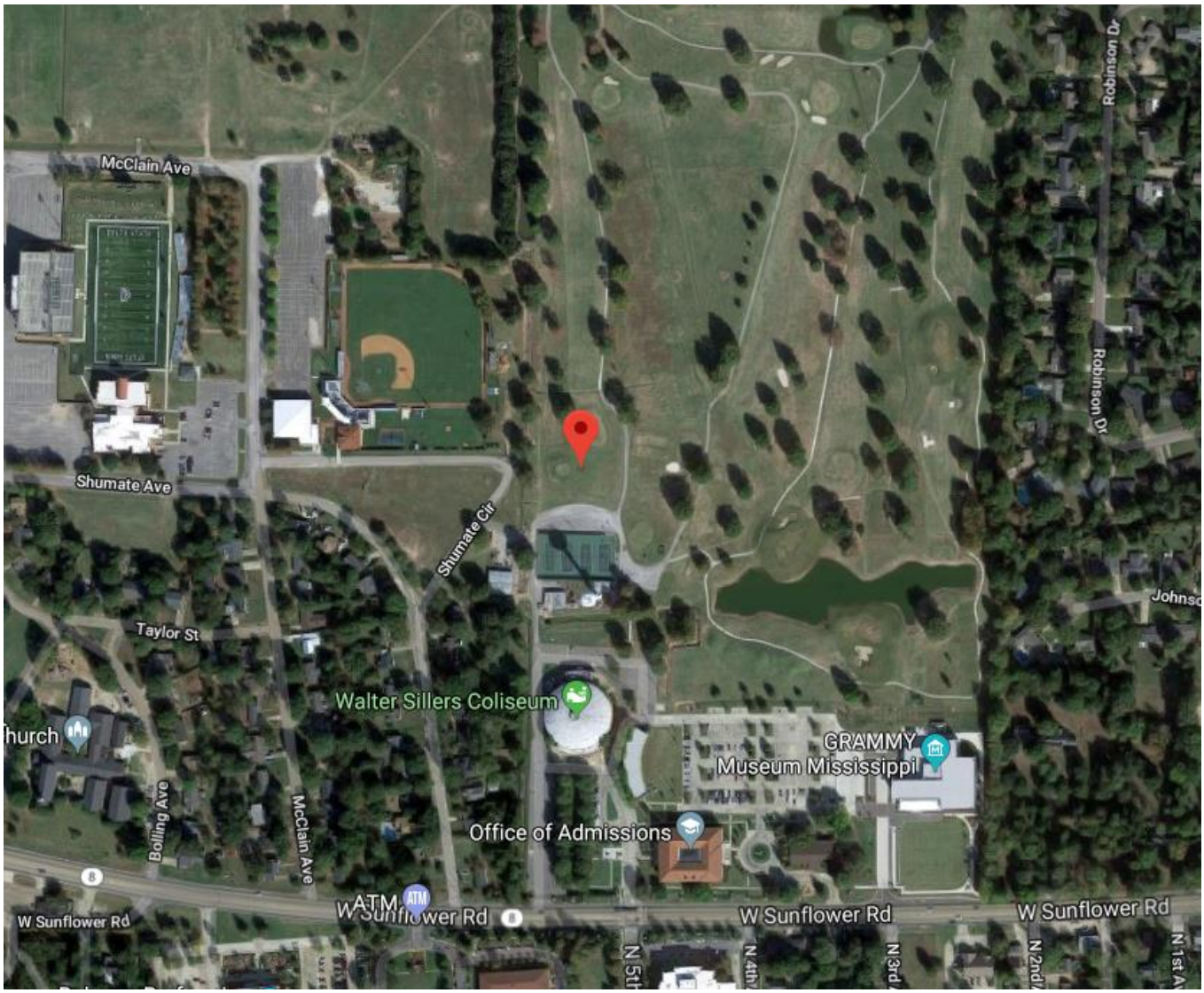
Appendix 1

10-Year Data Trends
By County

Bolivar County



Bolivar County
Monitoring Site No. 28-011-0002
Location

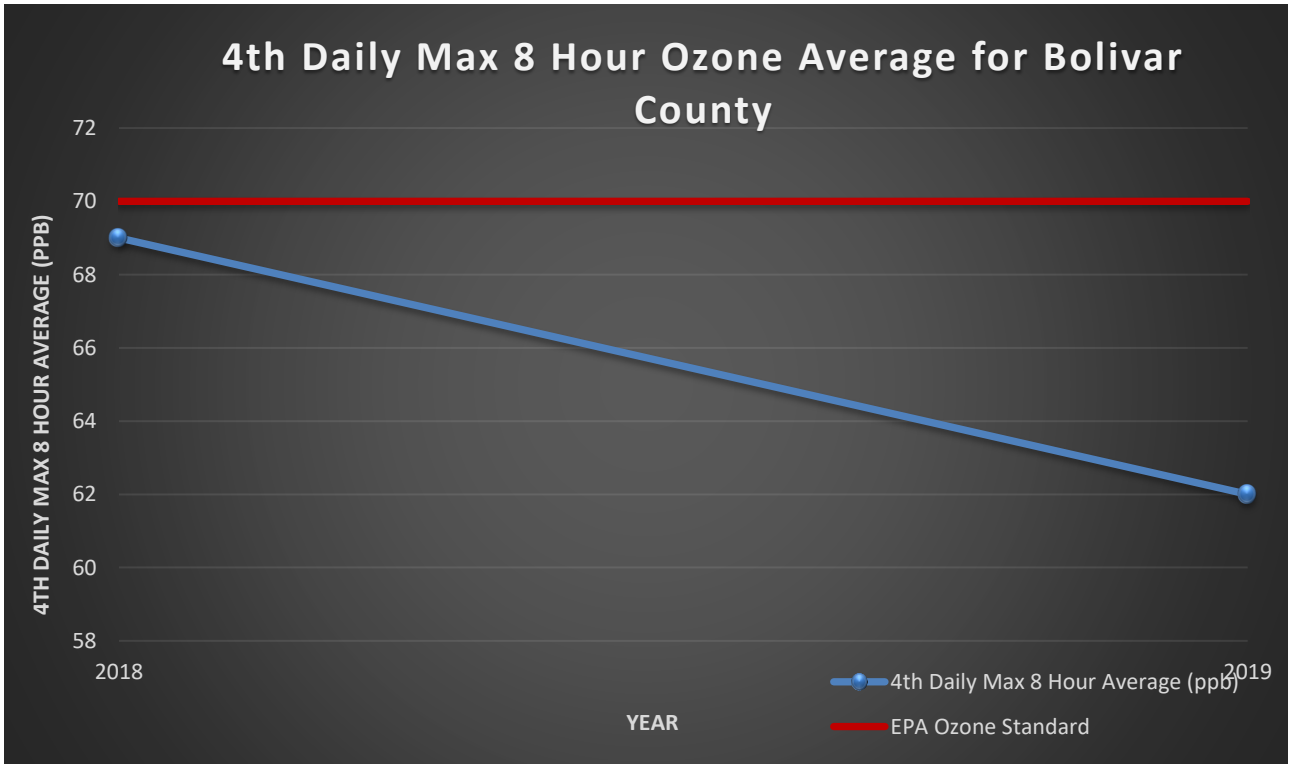


Bolivar County
8-Hour Ozone (ppb)

3–Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	**68**	**70**	**74**	**71**	**67**	**62**	**62**	**62**	*	*

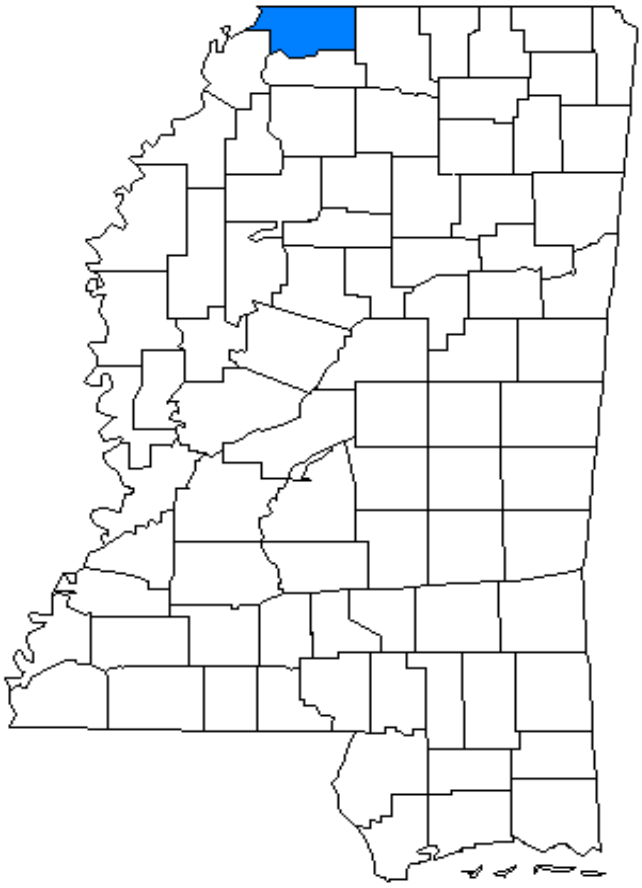
*Site Relocated January 2018. Need 3 Full Year Data Set for Design Value for both Ozone and PM2.5.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	**73**	**73**	**76**	**65**	**60**	**63**	**64**	**59**	**69**	**62**

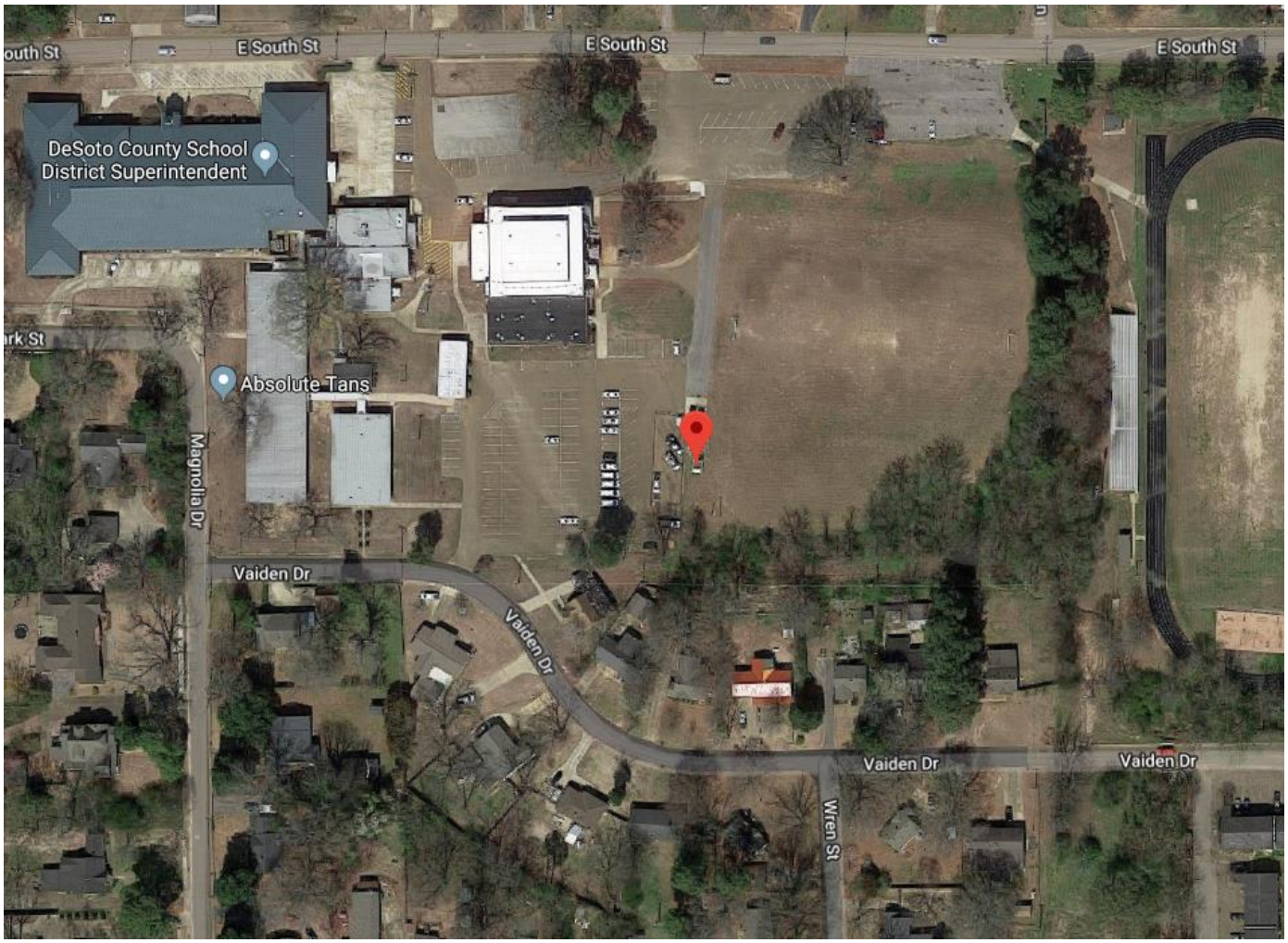


* Incomplete Data

DeSoto County

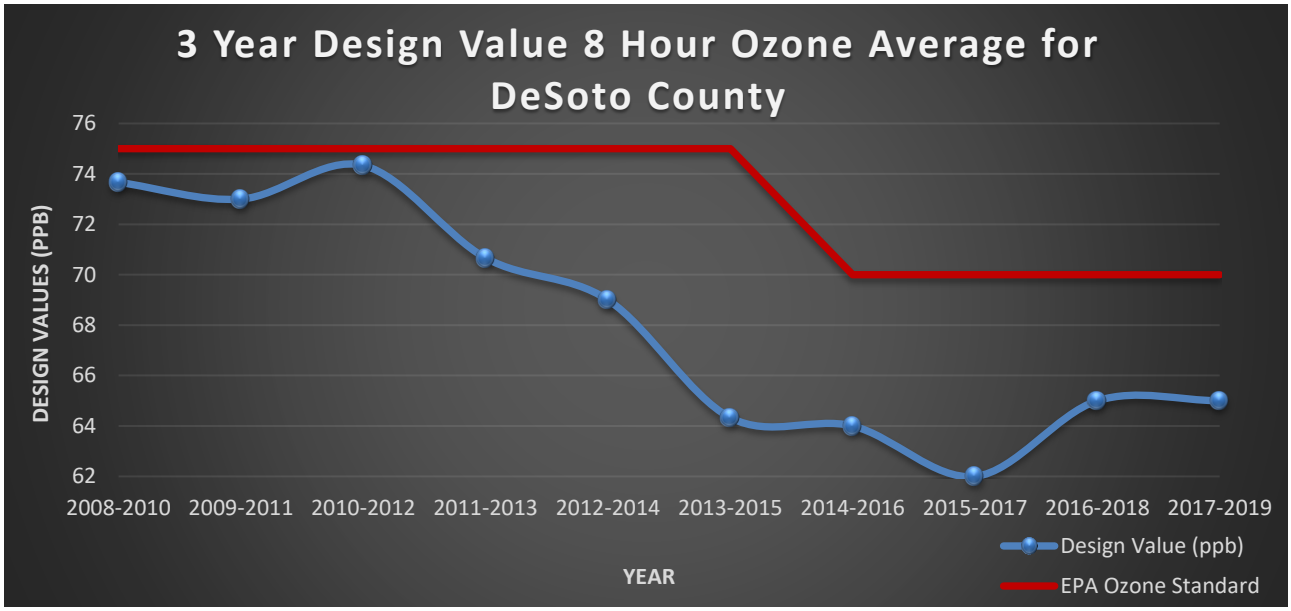


DeSoto County
Monitoring Site No. 28-033-0002
Location

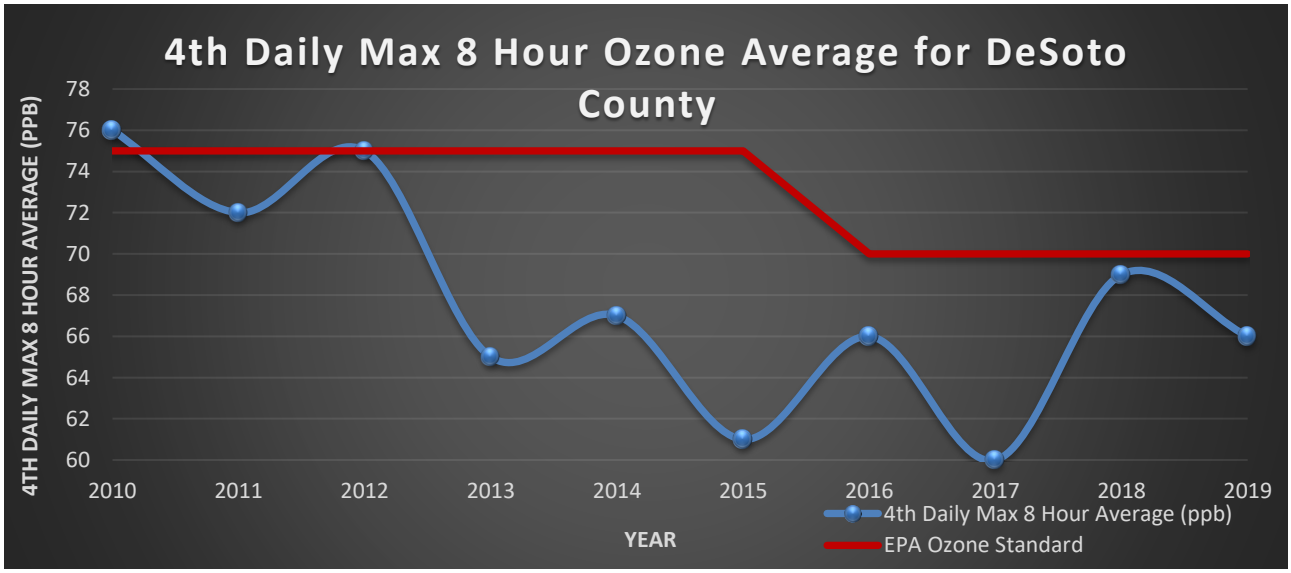


DeSoto County
8-Hour Ozone (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	73	73	74	70	69	64	64	62	65	65

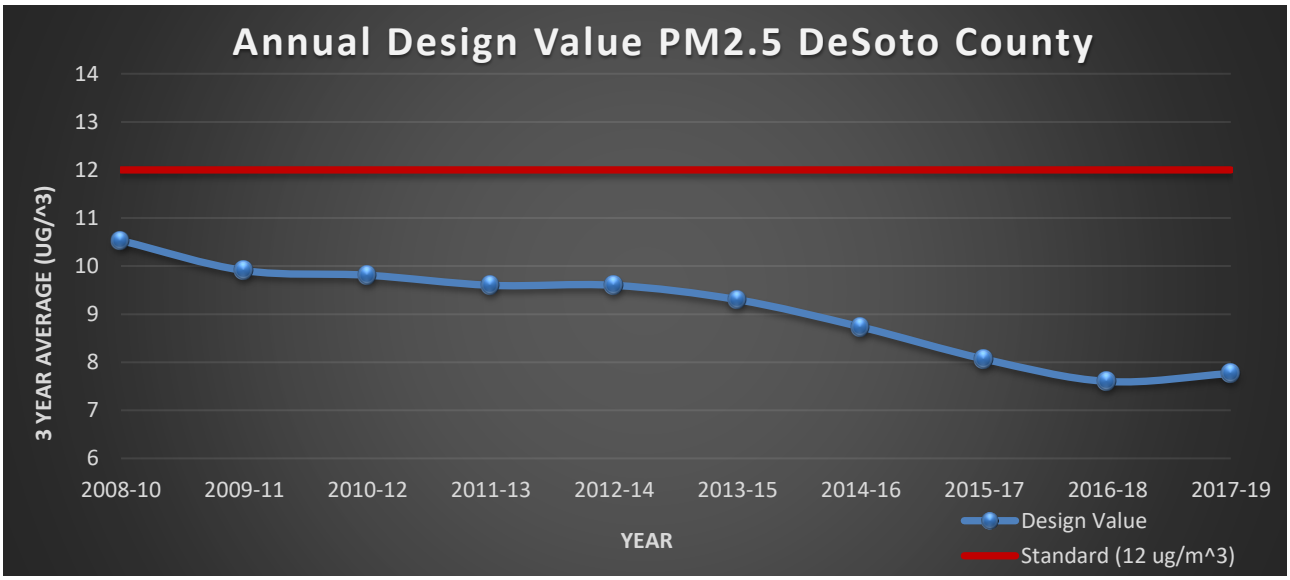


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	76	72	75	65	67	61	66	60	69	66

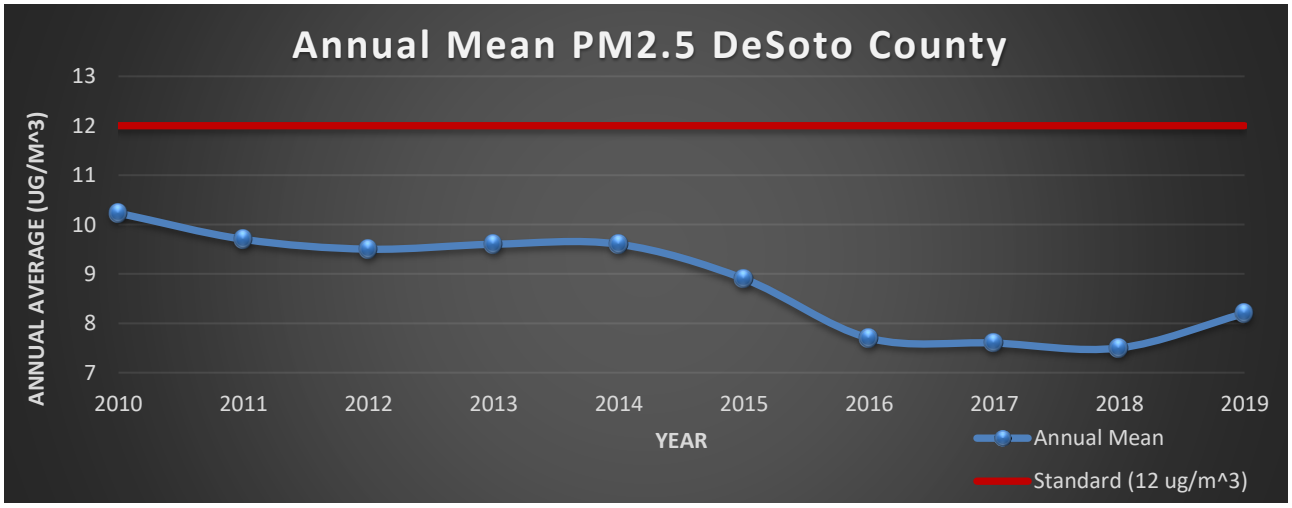


DeSoto County
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	10.5	9.9	9.8	9.6	9.6	9.3	8.7*	8.1*	7.6	7.8



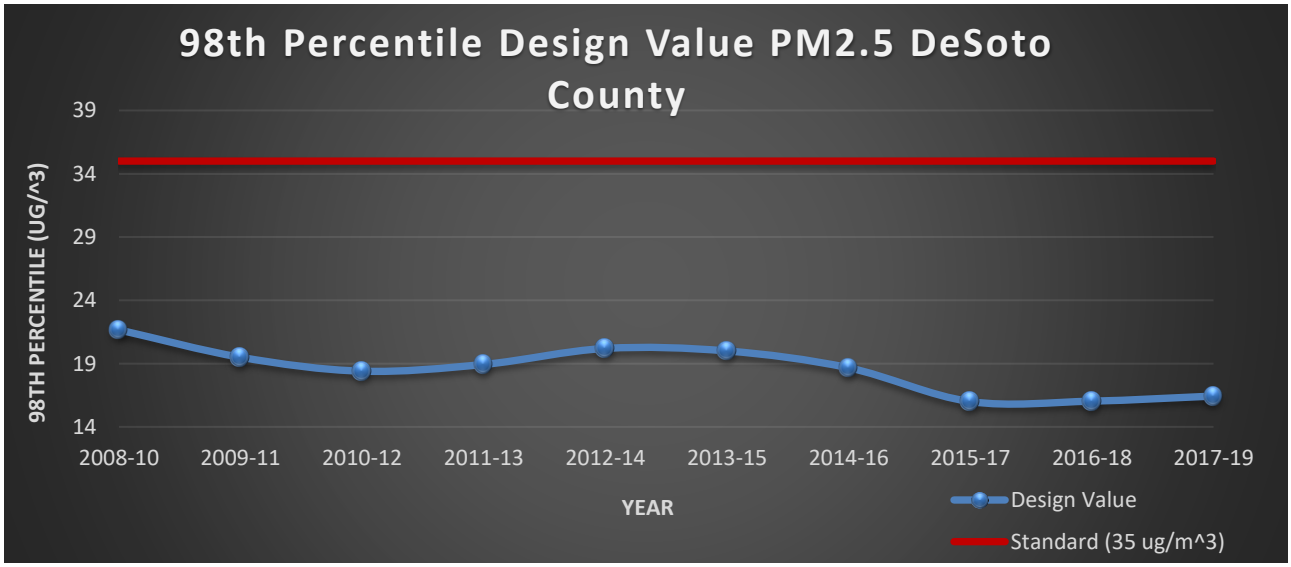
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	10.2	9.7	9.5	9.6	9.6	8.9	7.7*	7.7*	7.5	8.2



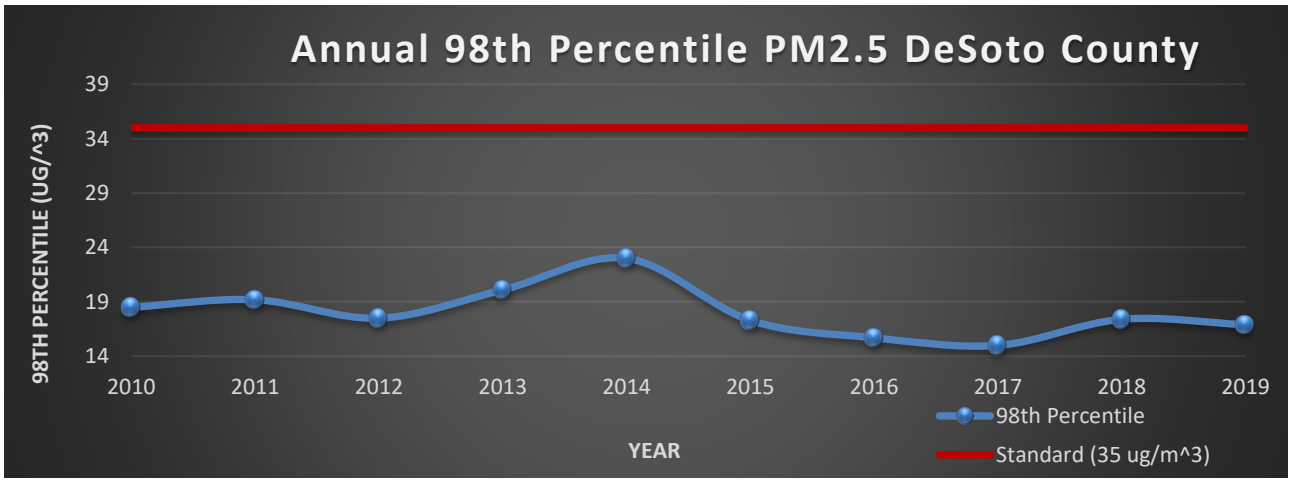
*Incomplete Data

DeSoto County
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	22	20	18	19	20	20	19*	16*	16	16



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	19	19	18	20	23	17	16*	15*	17	17



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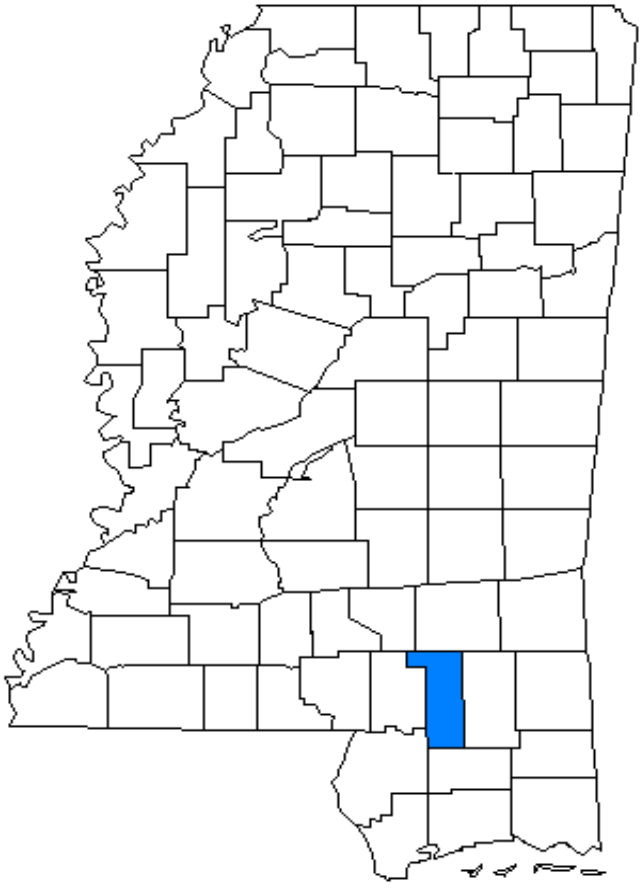
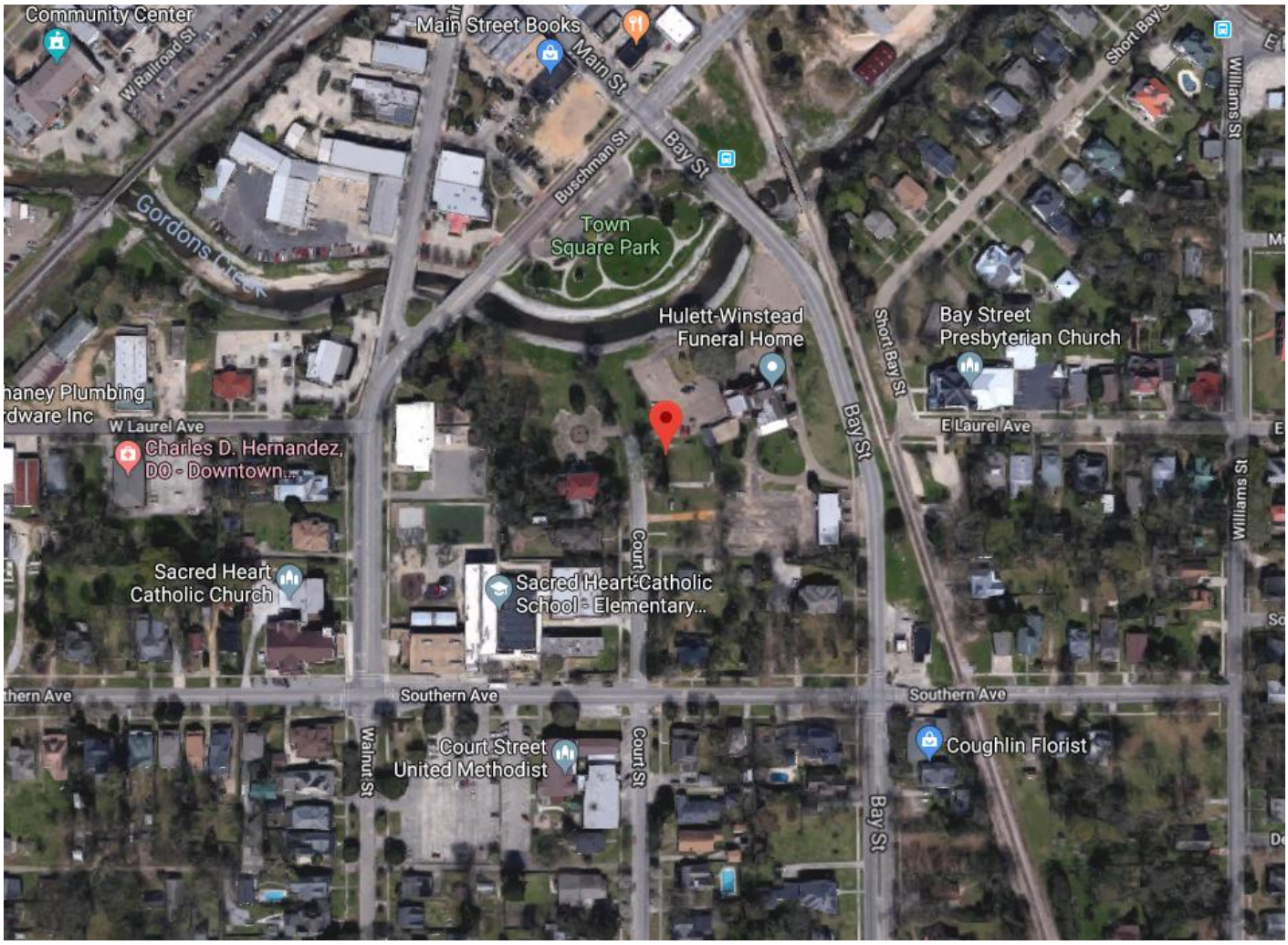
Forrest County

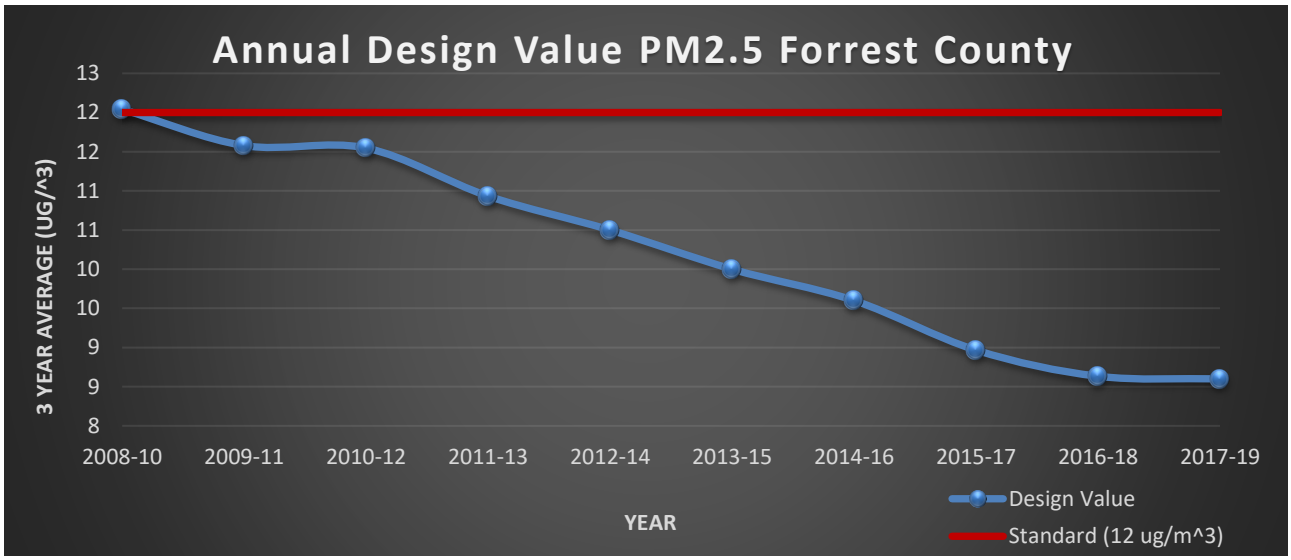


Forrest County
Monitoring Site No. 28-035-0004
Location

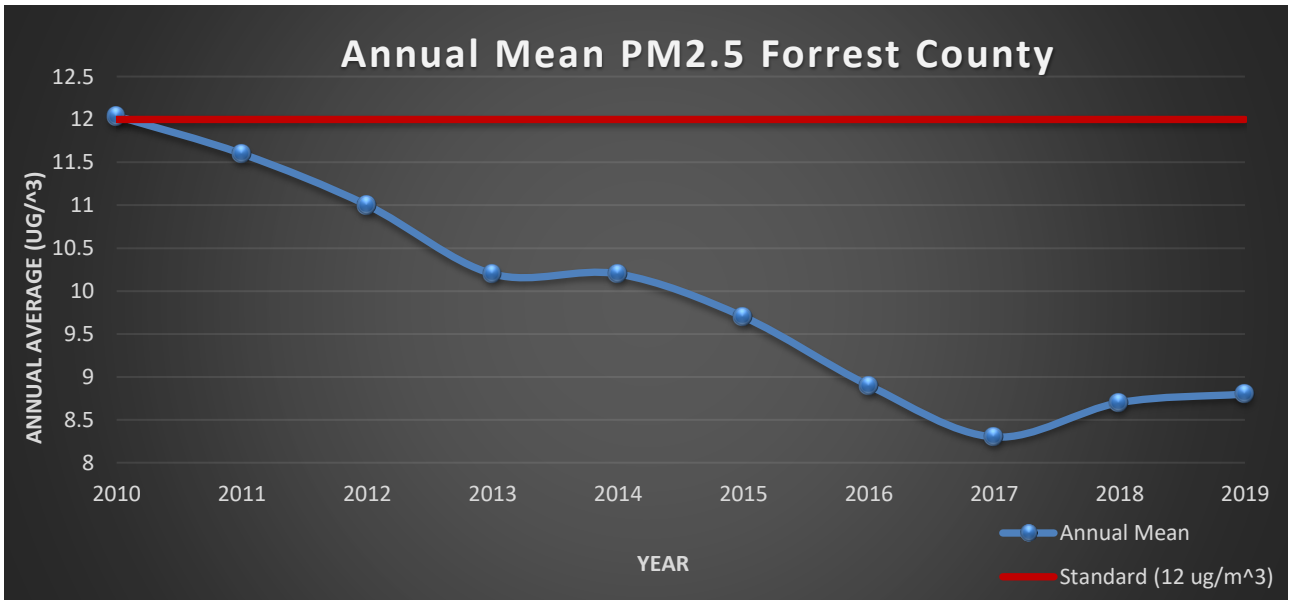


Forrest County
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	12.0	11.6	11.6	11	10.5	10.0	9.6	8.9	8.6	8.6

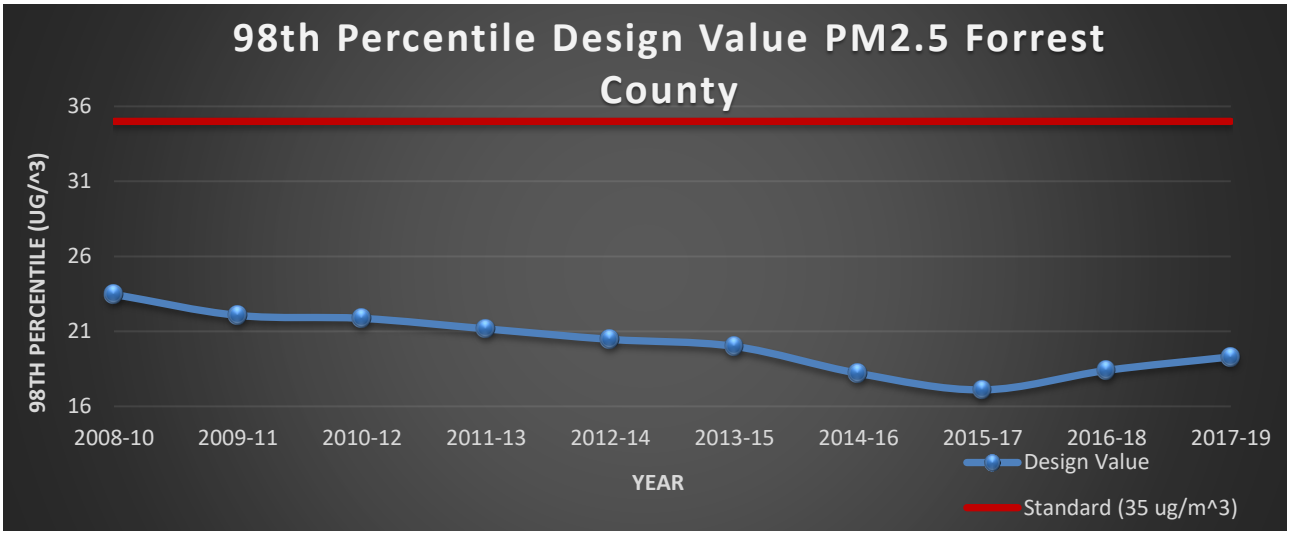


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	12.0	11.6	11.0	10.2	10.2	9.7	8.9	8.3	8.7	8.8

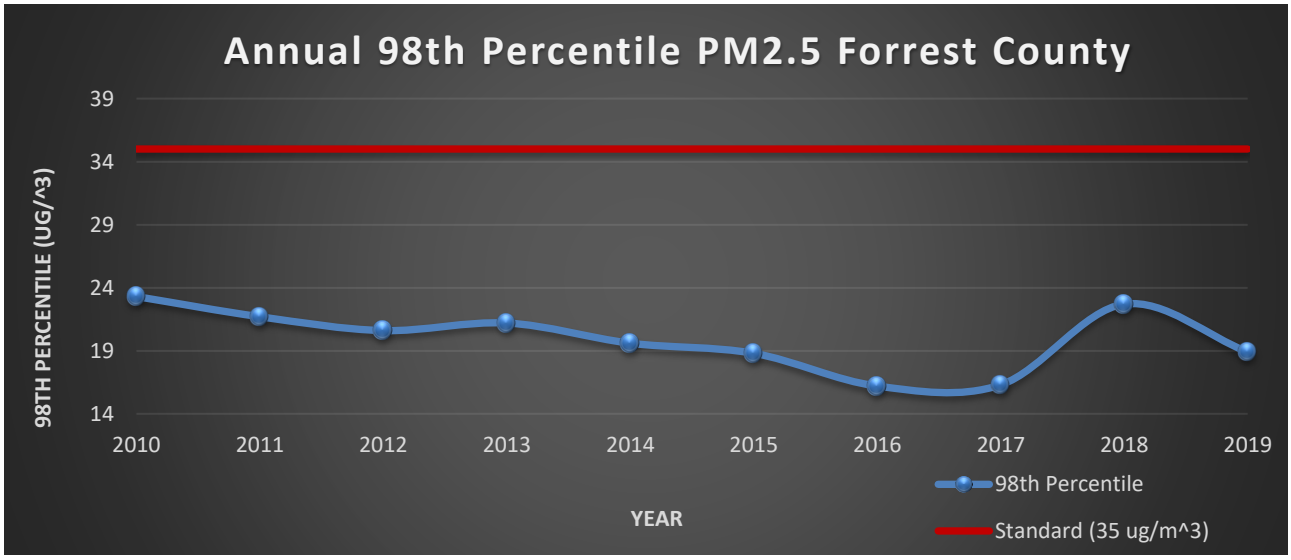


Forrest County
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

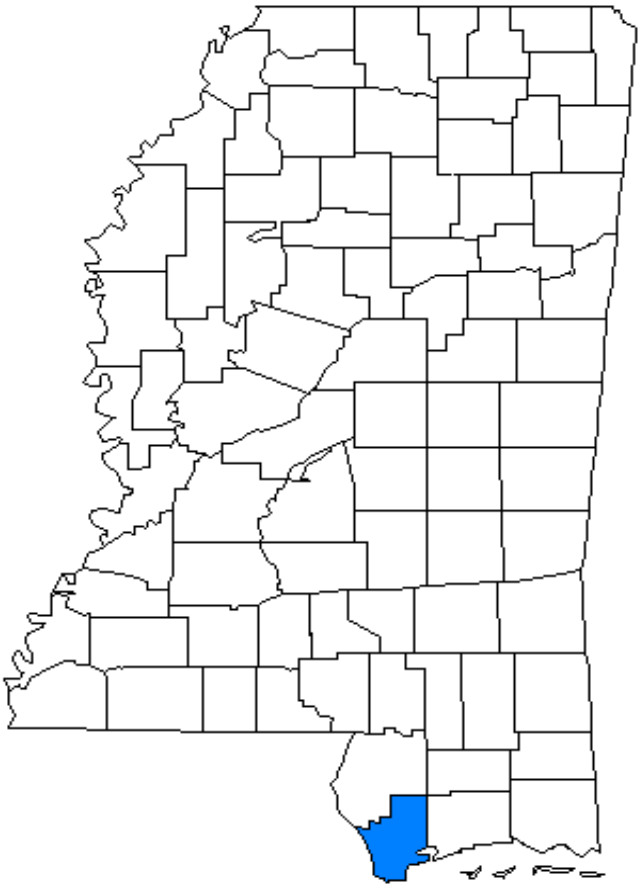
3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	24	22	22	21	20	20	18	17	18	19



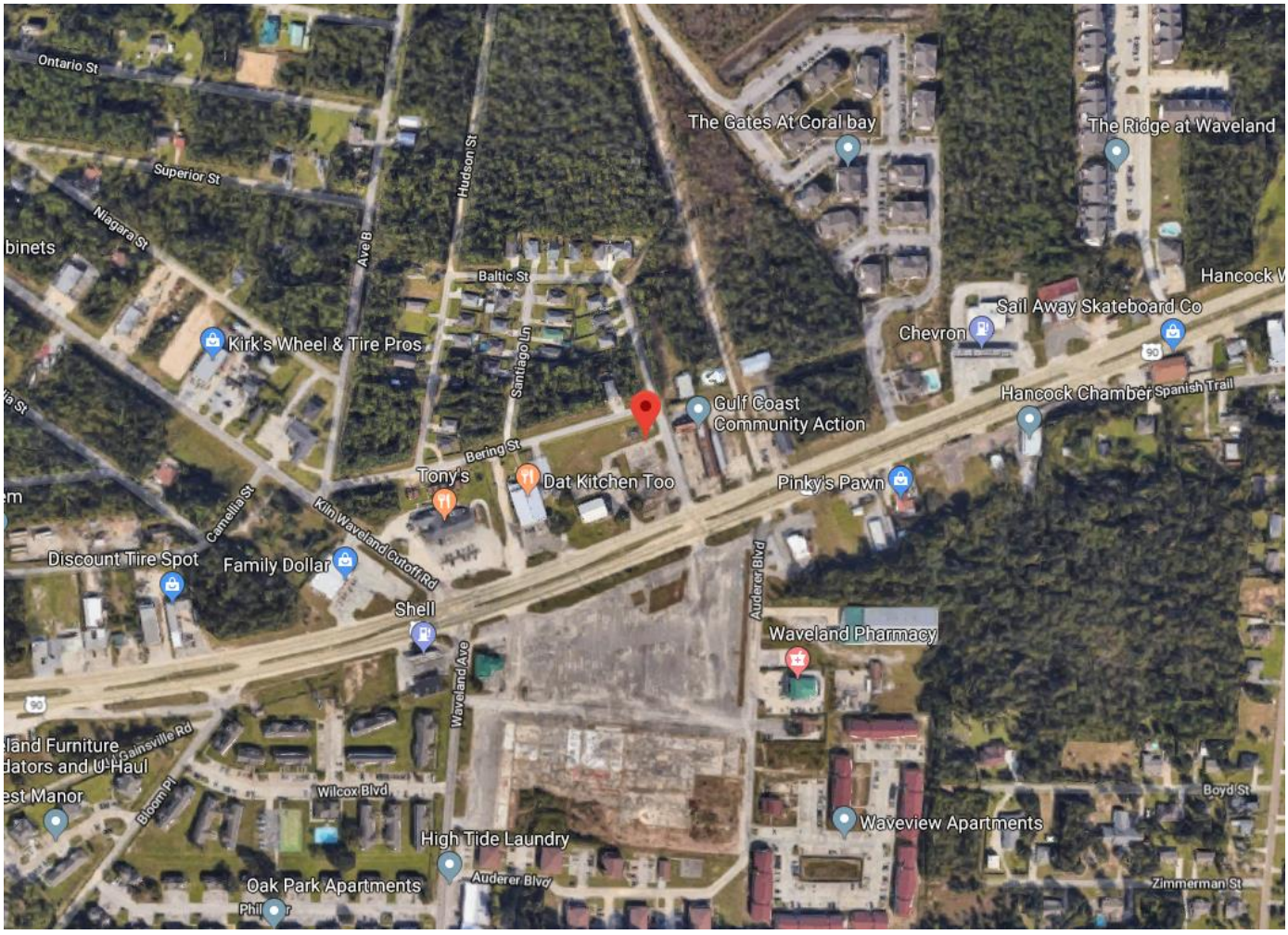
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	23	22	21	21	20	19	16	16	23	19



Hancock County

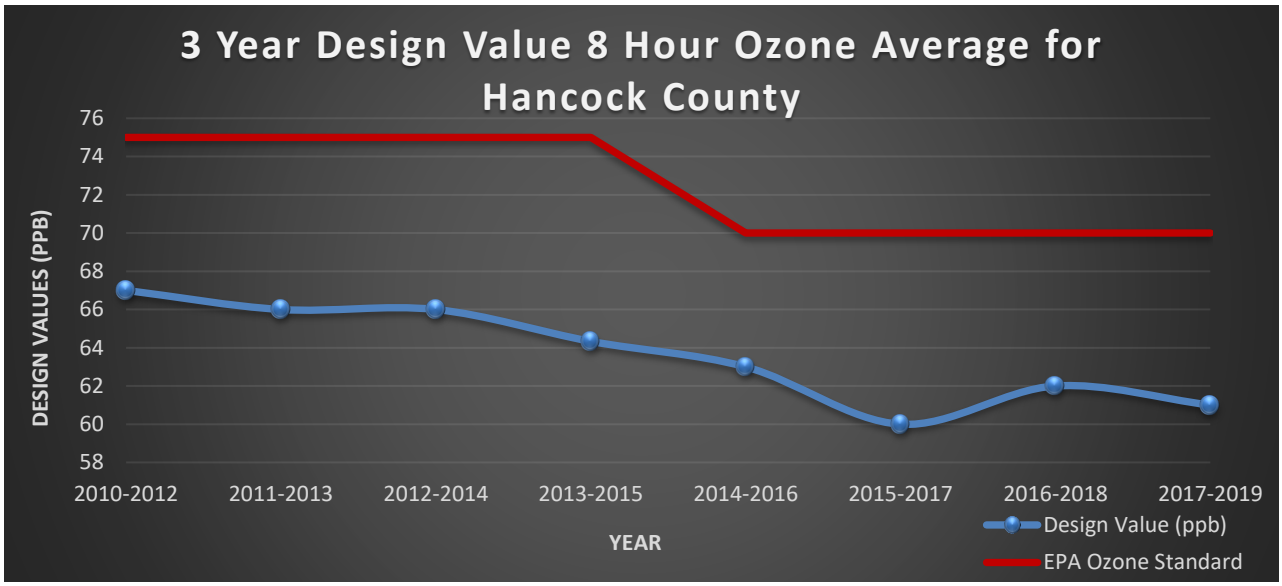


Hancock County
Monitoring Site No. 28-045-0003
Location

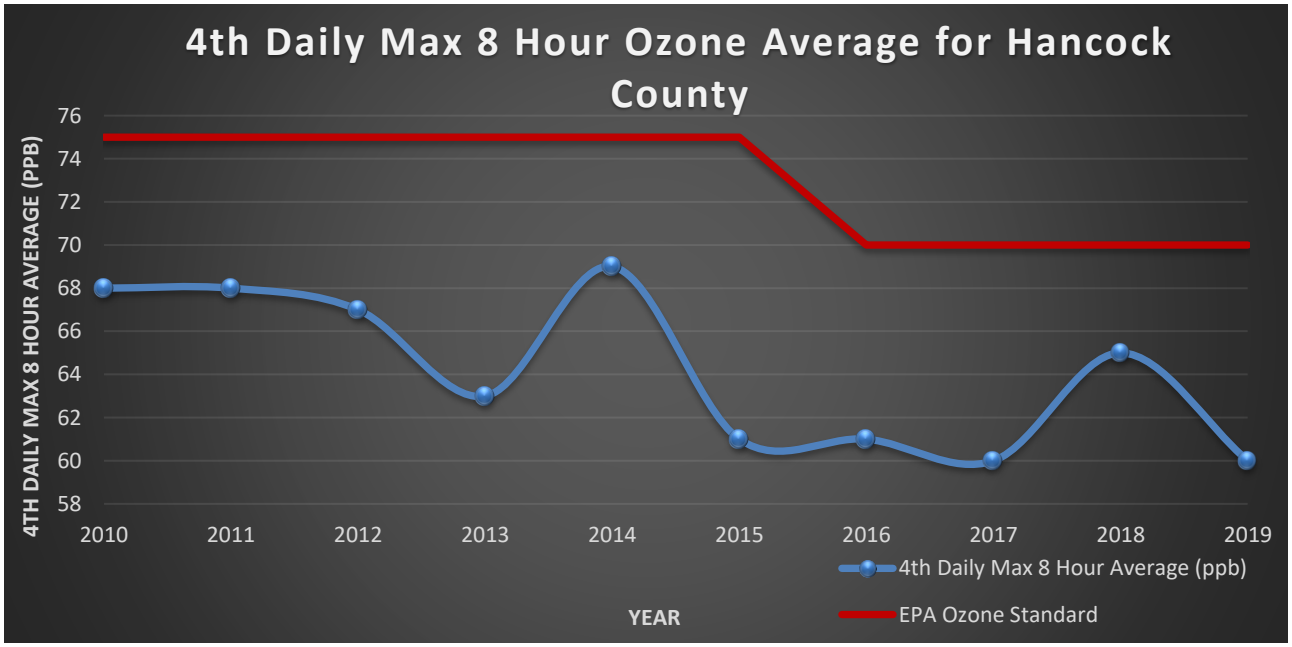


Hancock County
8-Hour Ozone (ppb)

3–Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	*	66	67	66	66	64	63	60	62	61

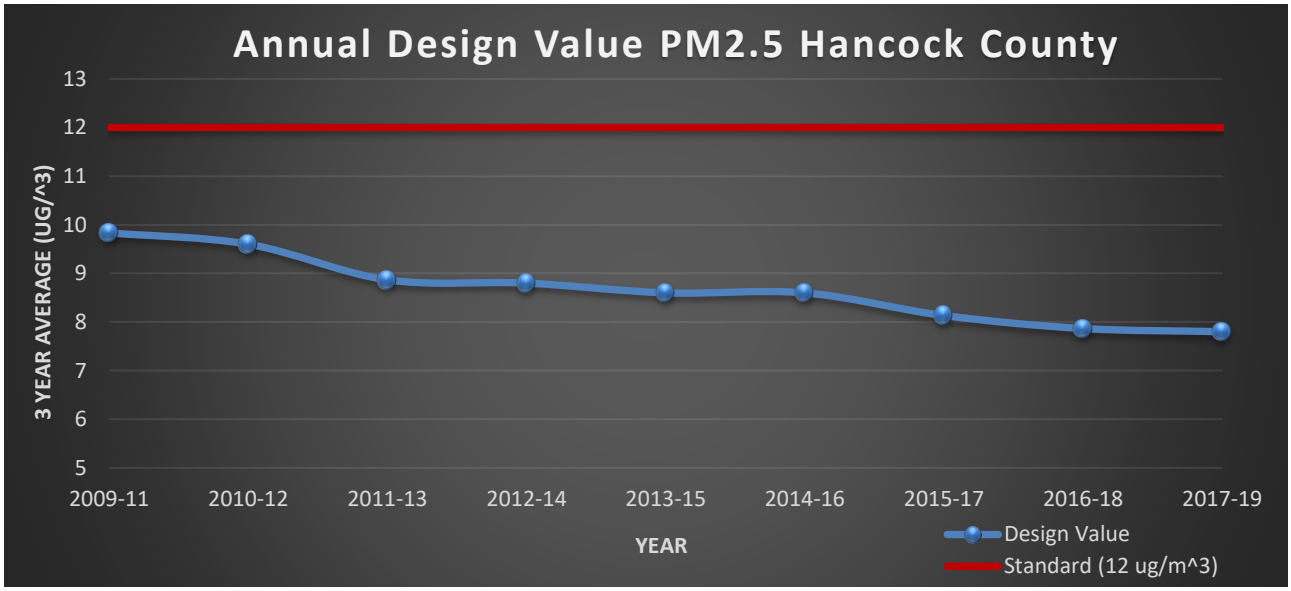


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	68	68	67	63	69	61	61	60	65	60

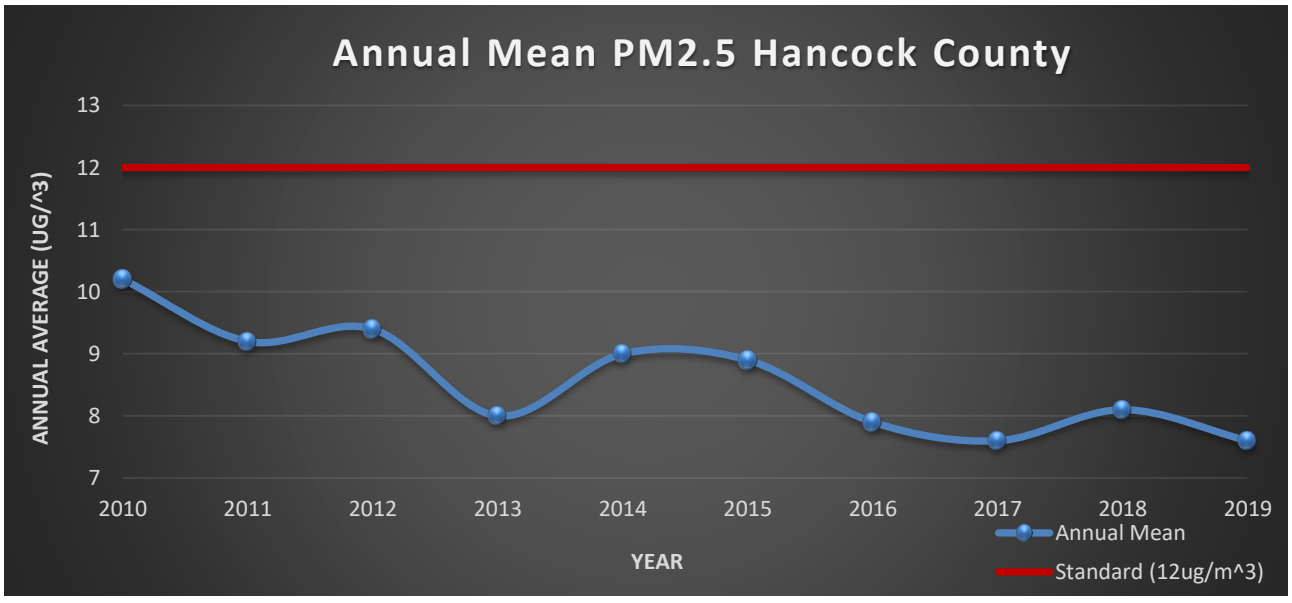


Hancock County
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	*	9.8	9.6	8.9	8.8	8.6	8.6	8.1	7.9	7.8

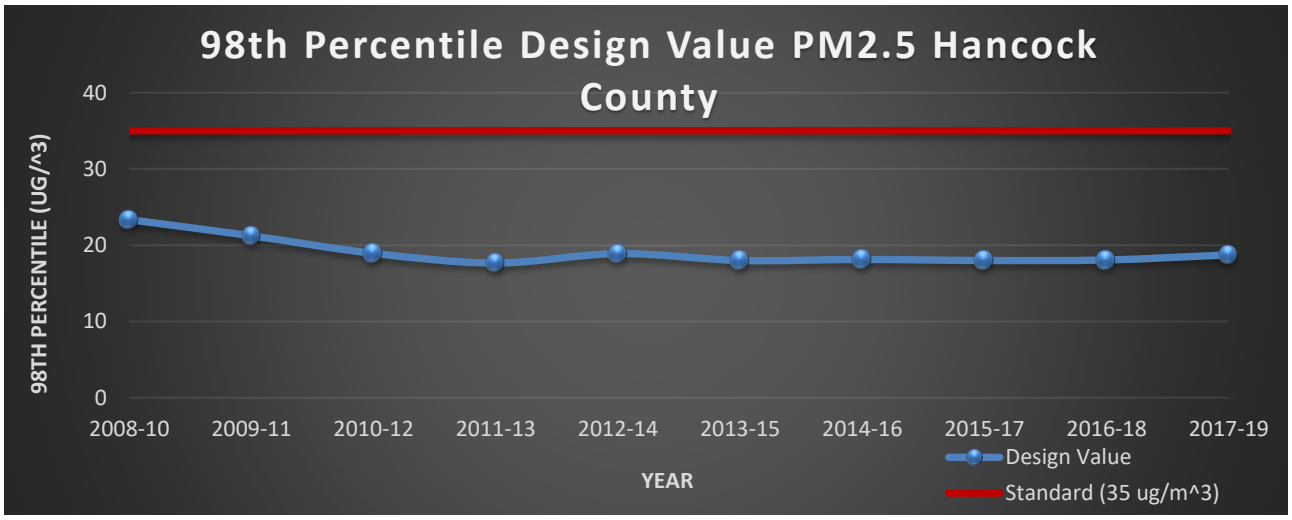


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	10.2	9.2	9.4	8.0	9.0	8.9	7.9	7.6	8.1	7.6

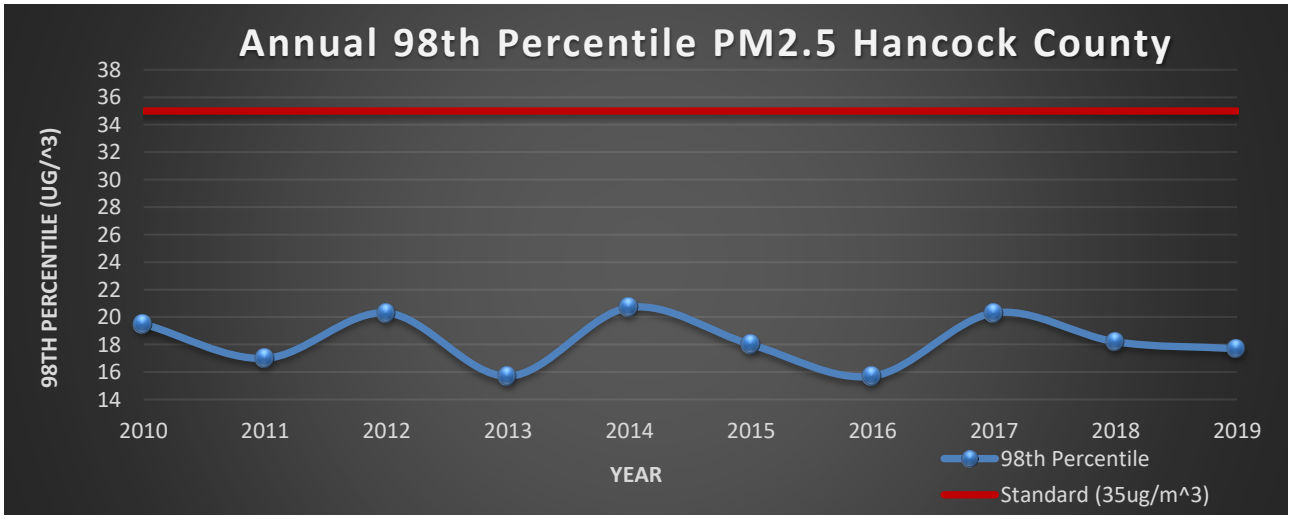


Hancock County
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

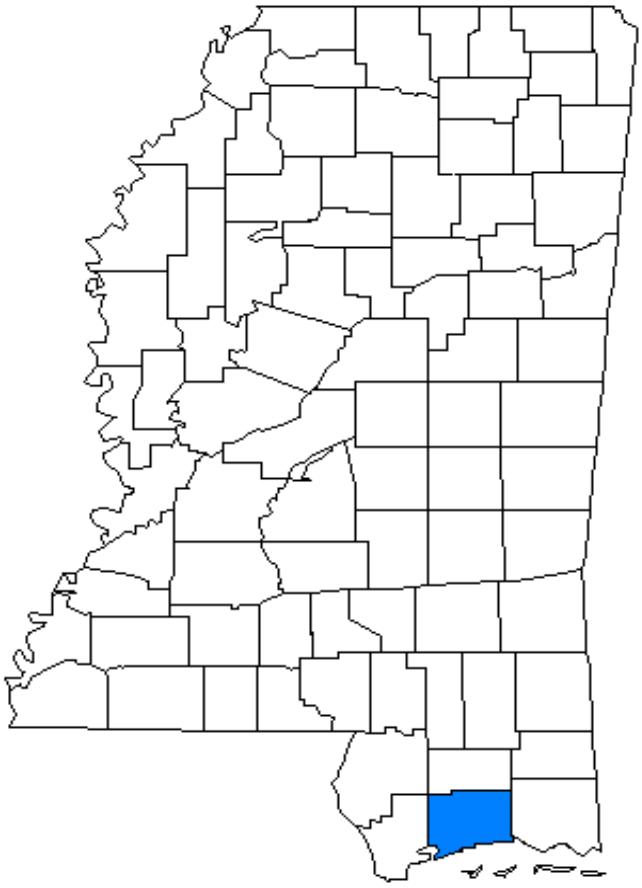
3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	23	21	19	18	19	18	18	18	18	19



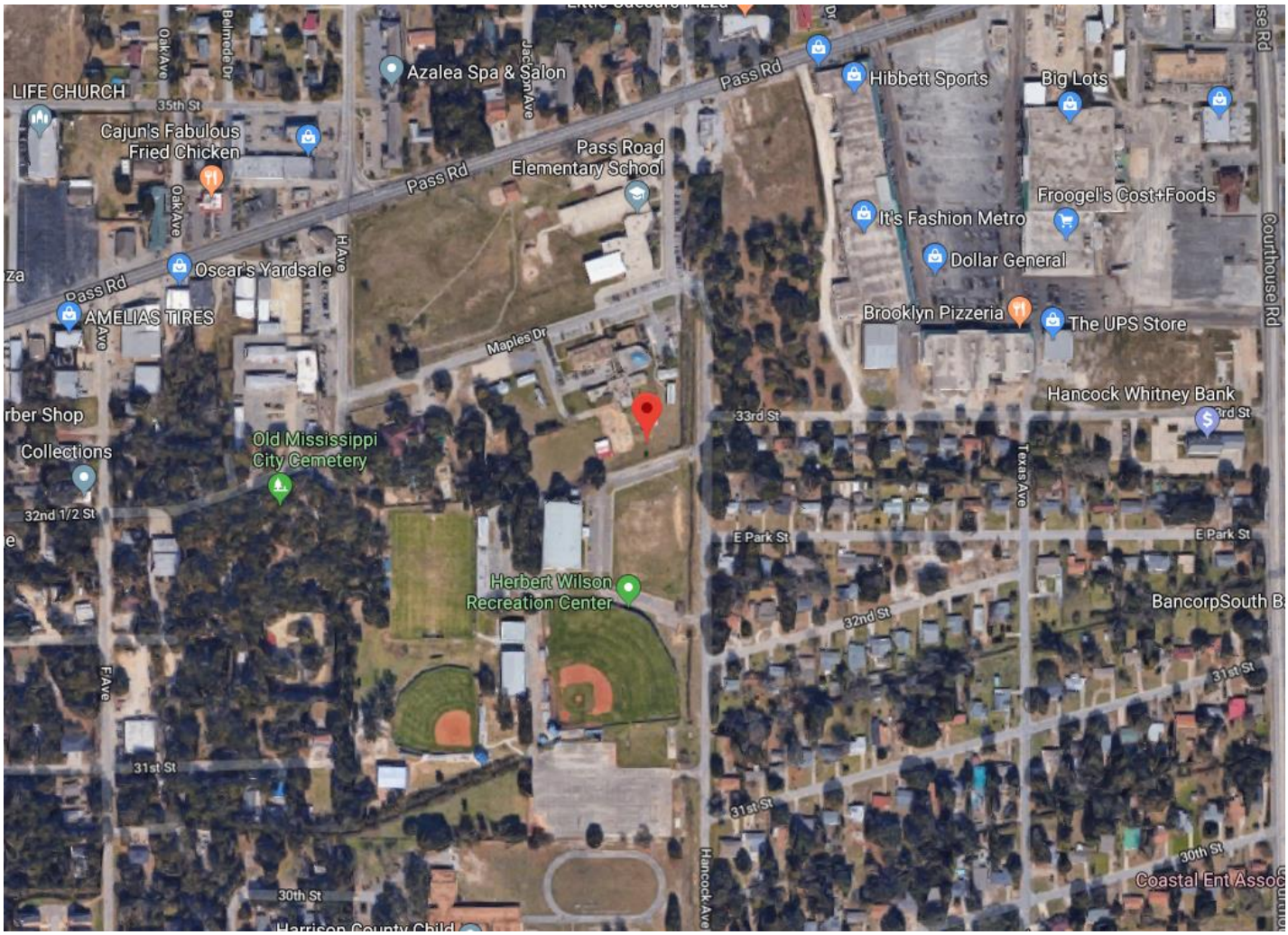
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	20	17	20	16	21	18	16	20	18	18



Harrison County

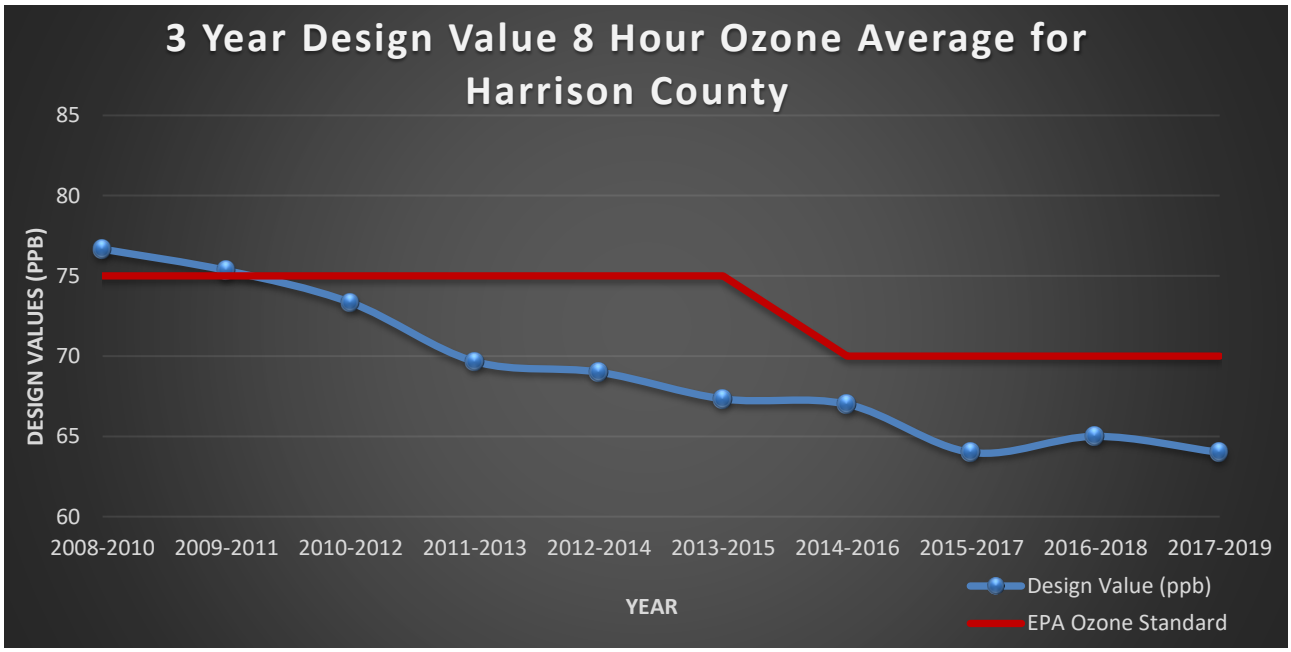


Harrison County
Monitoring Site No. 28-047-0008
Location

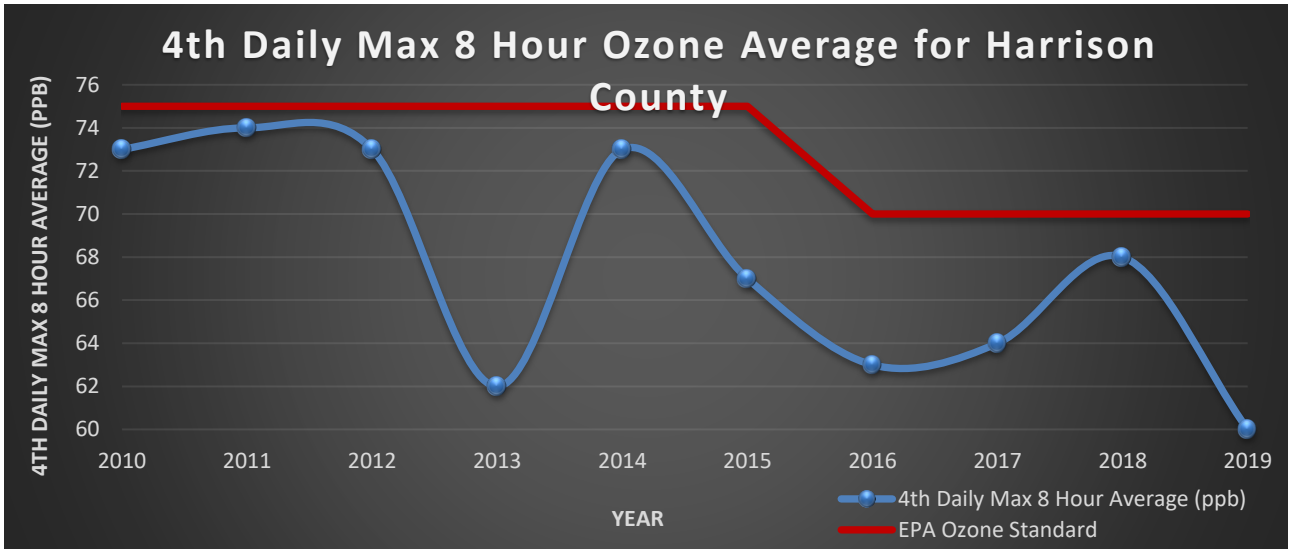


Harrison County
8-Hour Ozone (ppb)

3–Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	**76**	**75**	**73**	**69**	**69**	**67**	**67**	**64**	**65**	**64**

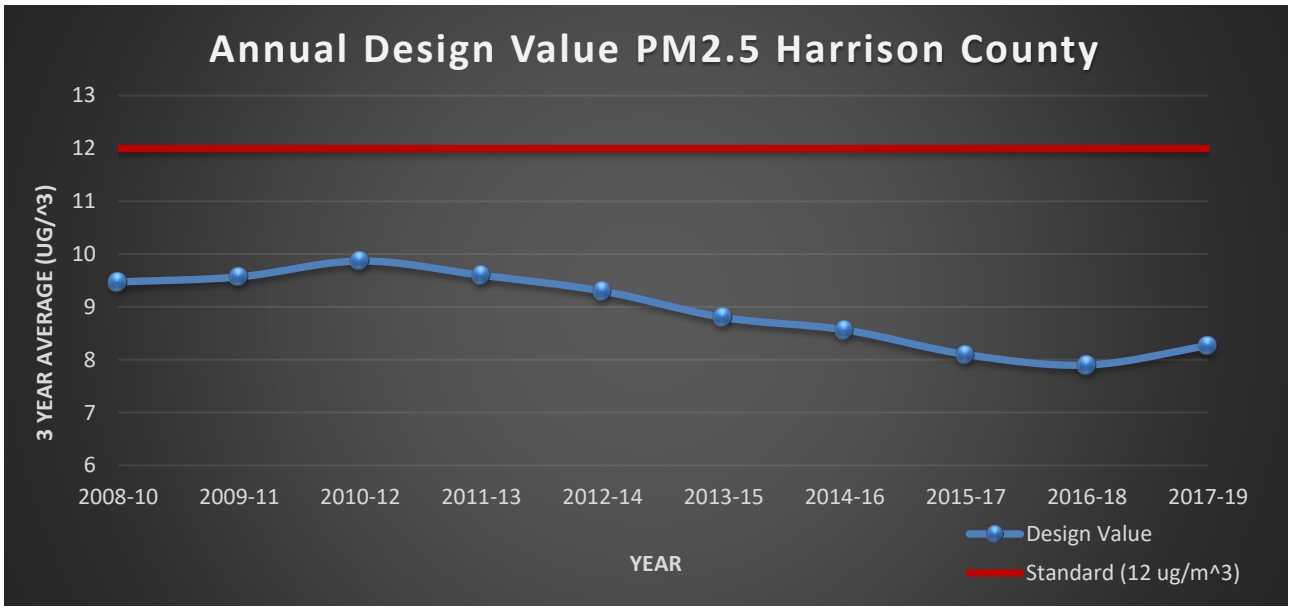


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	**73**	**74**	**73**	**62**	**73**	**67**	**63**	**64**	**68**	**60**

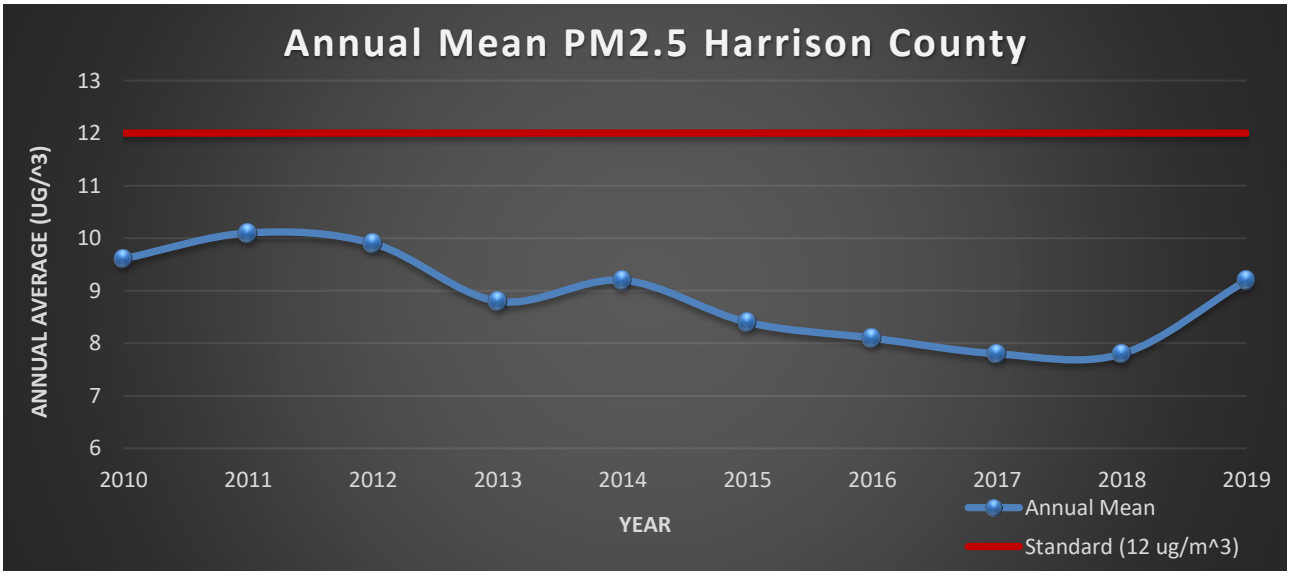


Harrison County
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	9.5	9.6	9.9	9.6	9.3	8.8	8.6	8.1	7.9	8.3

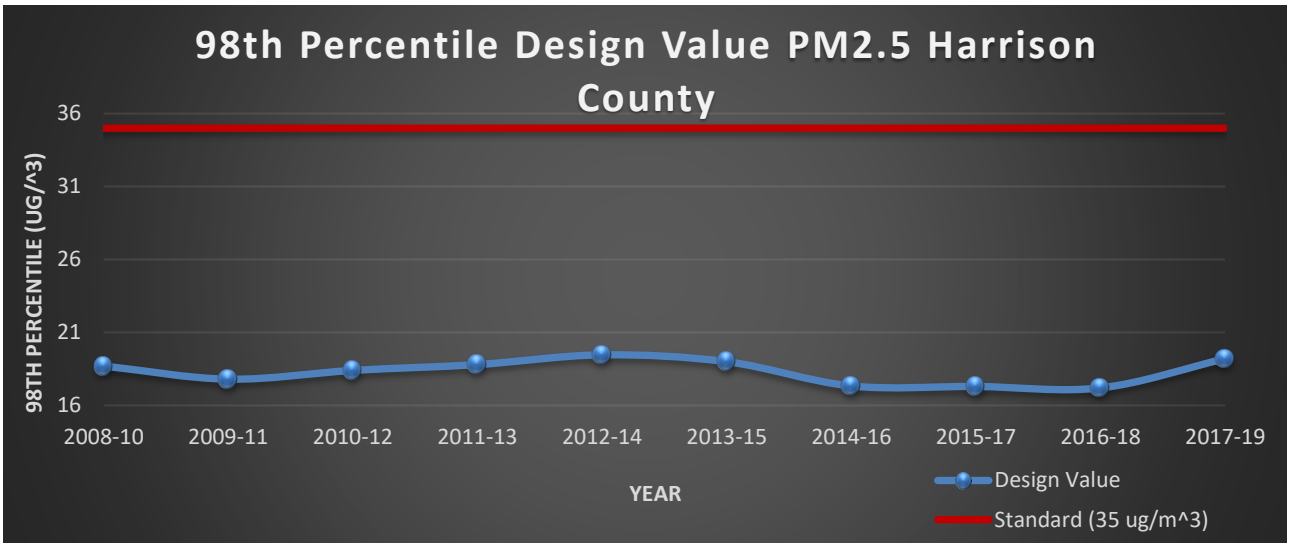


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	9.6	10.1	9.9	8.8	9.2	8.4	8.1	7.8	7.8	9.2

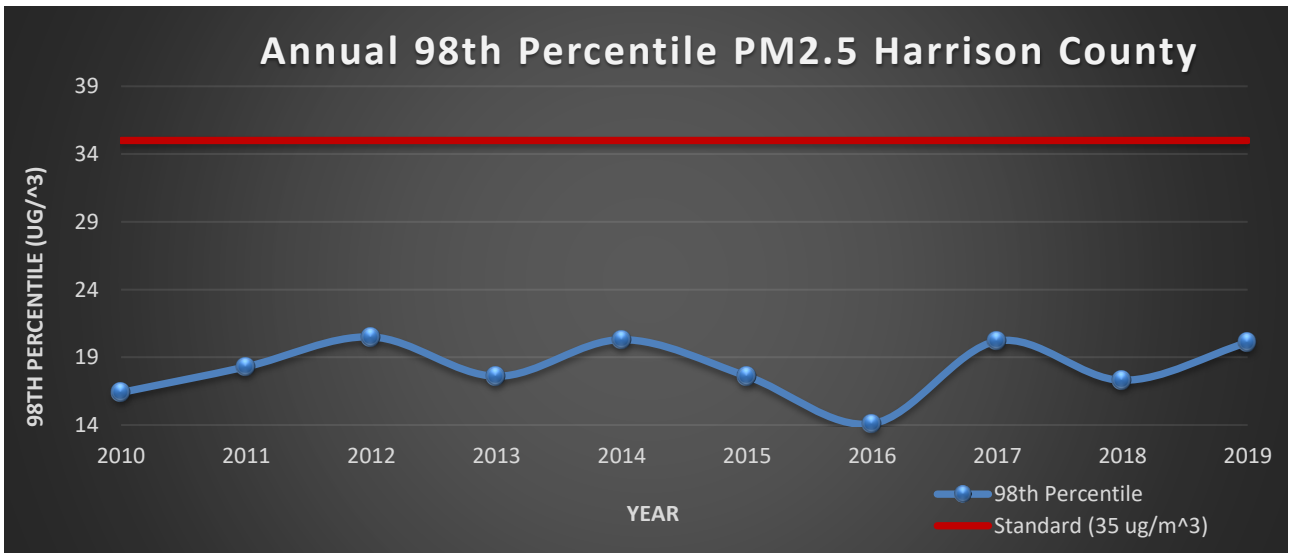


Harrison County
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

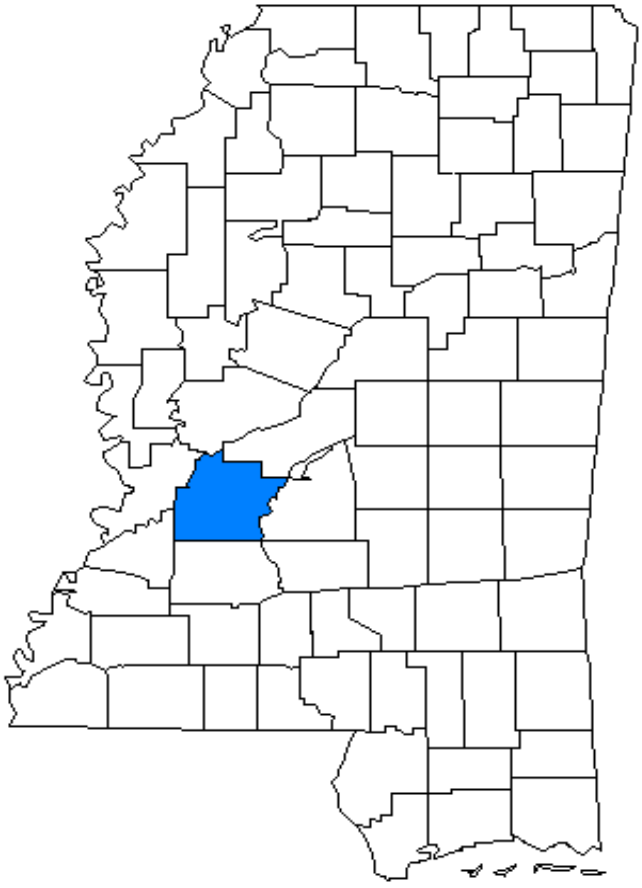
3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	19	18	18	19	19	19	17	17	17	19



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	16	18	21	18	20	18	14	20	17	20



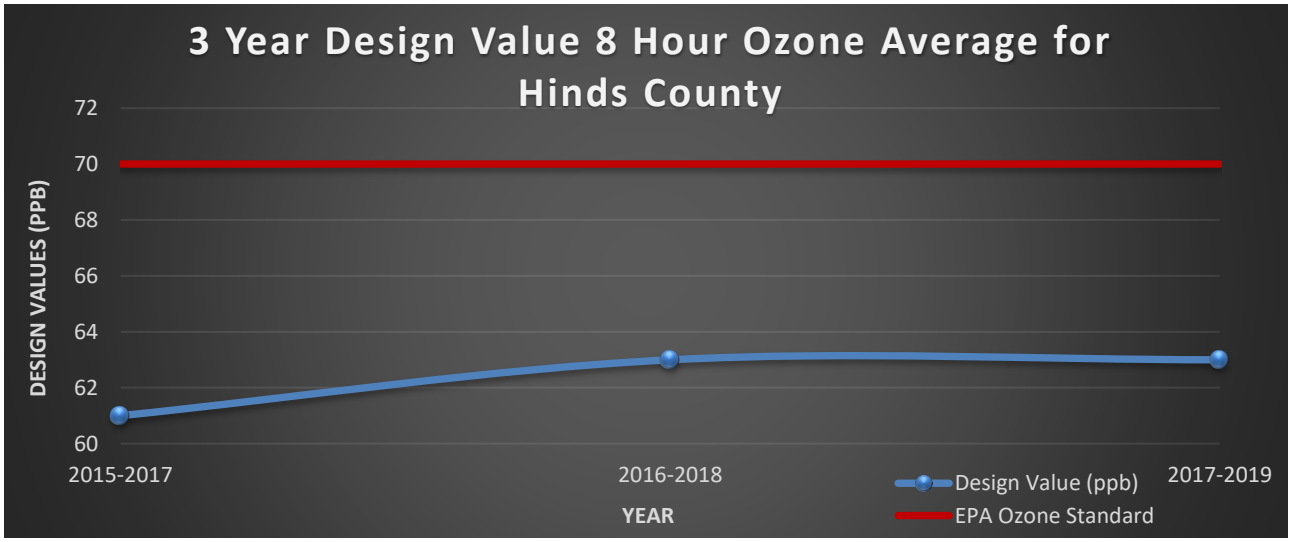
Hinds County



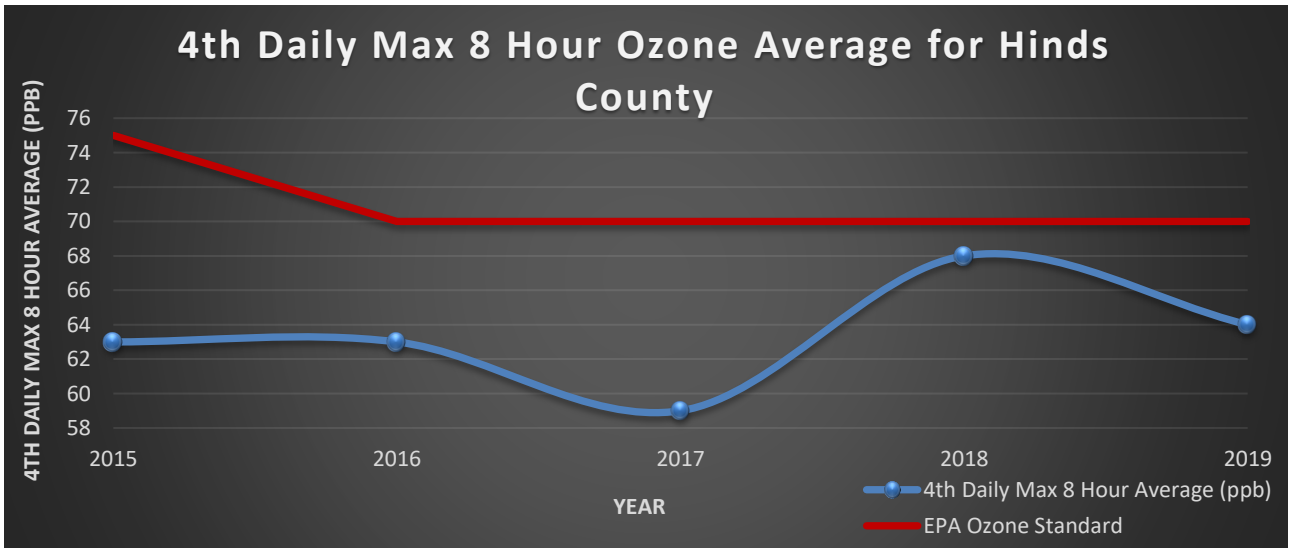
Hinds County (CC)
Monitoring Site No. 28-049-0021

Hinds County (CC)
8-Hour Ozone (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	*	*	*	*	*	*	*	61	63	63



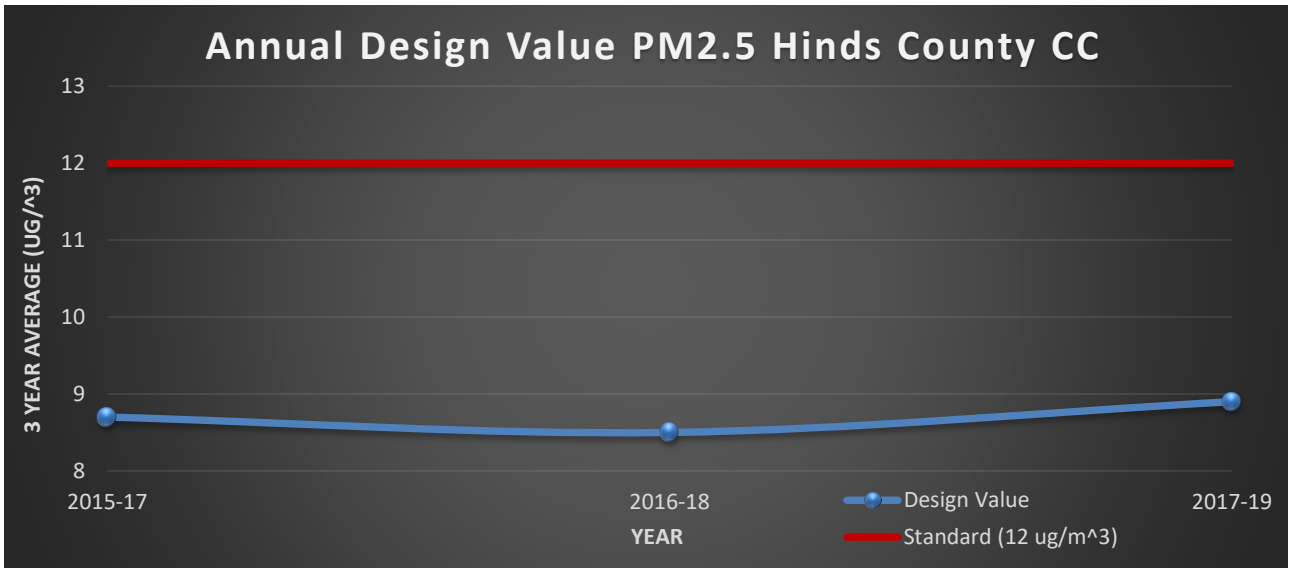
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	*	*	*	*	*	63	63	59	68	64



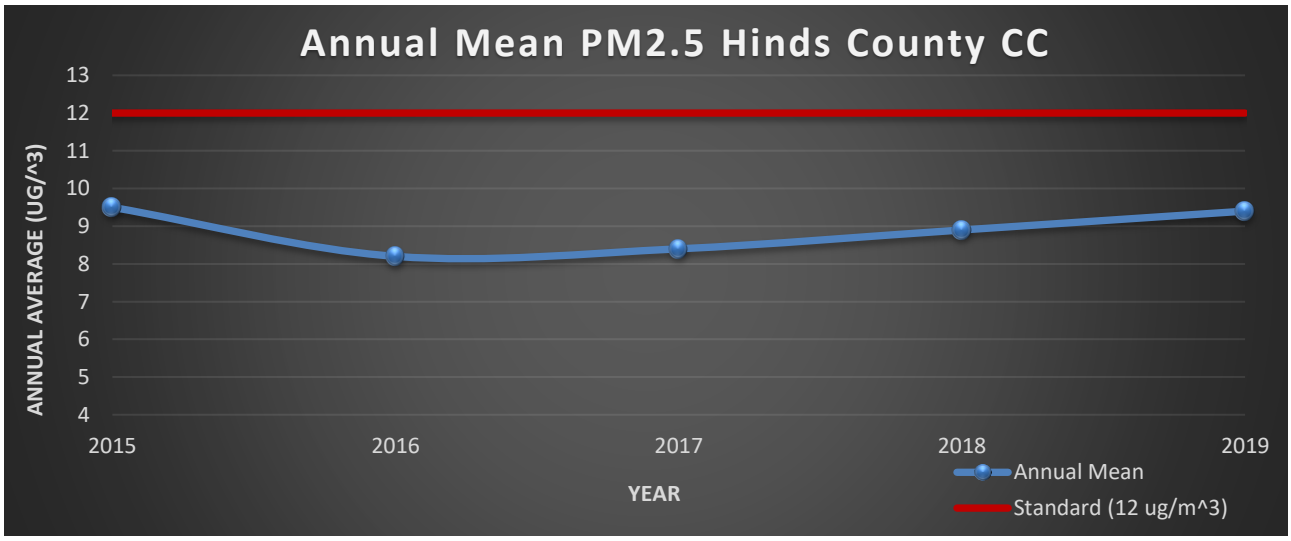
*Incomplete Data

Hinds County (CC)
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	*	*	*	*	*	*	*	8.7*	8.5	8.9



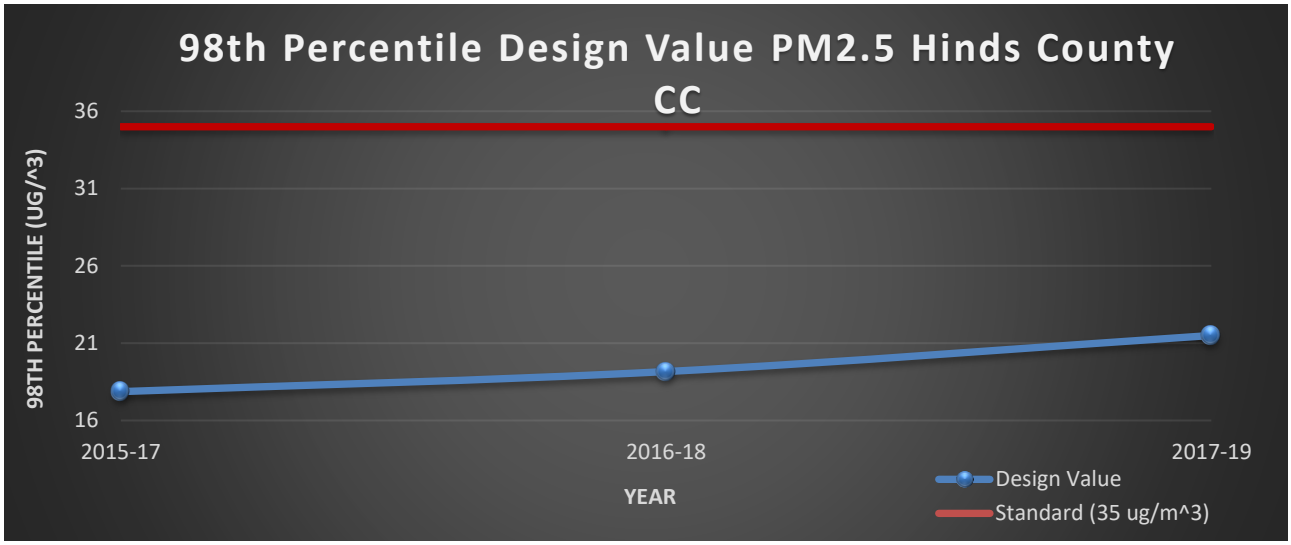
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	*	*	*	*	*	9.5*	8.2	8.4*	8.9	9.4



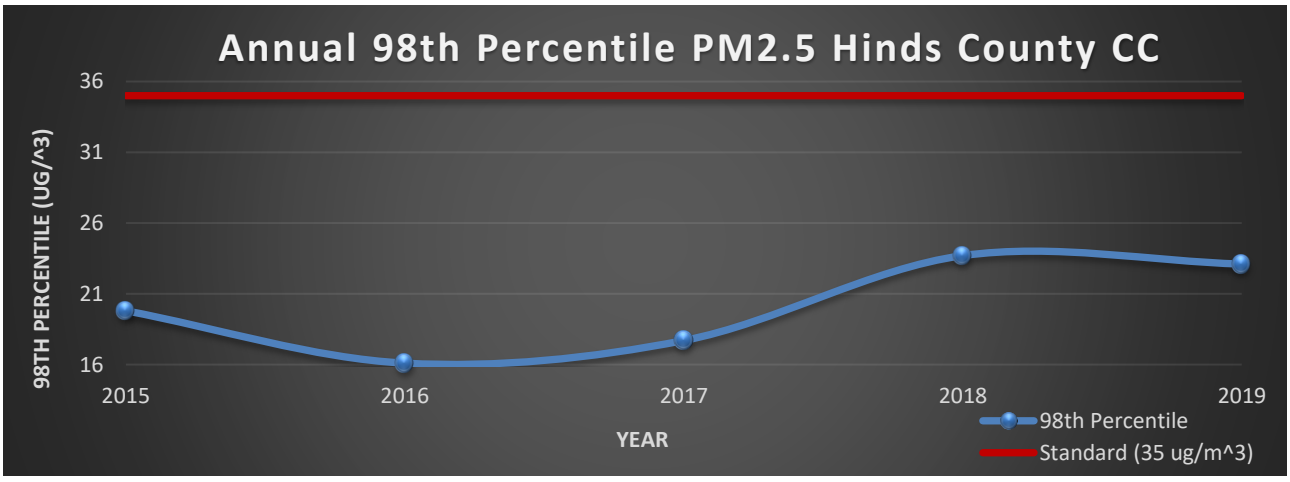
*Incomplete Data

Hinds County (CC)
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	*	*	*	*	*	*	*	18*	19	22



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	*	*	*	*	*	20*	16	18*	24	23

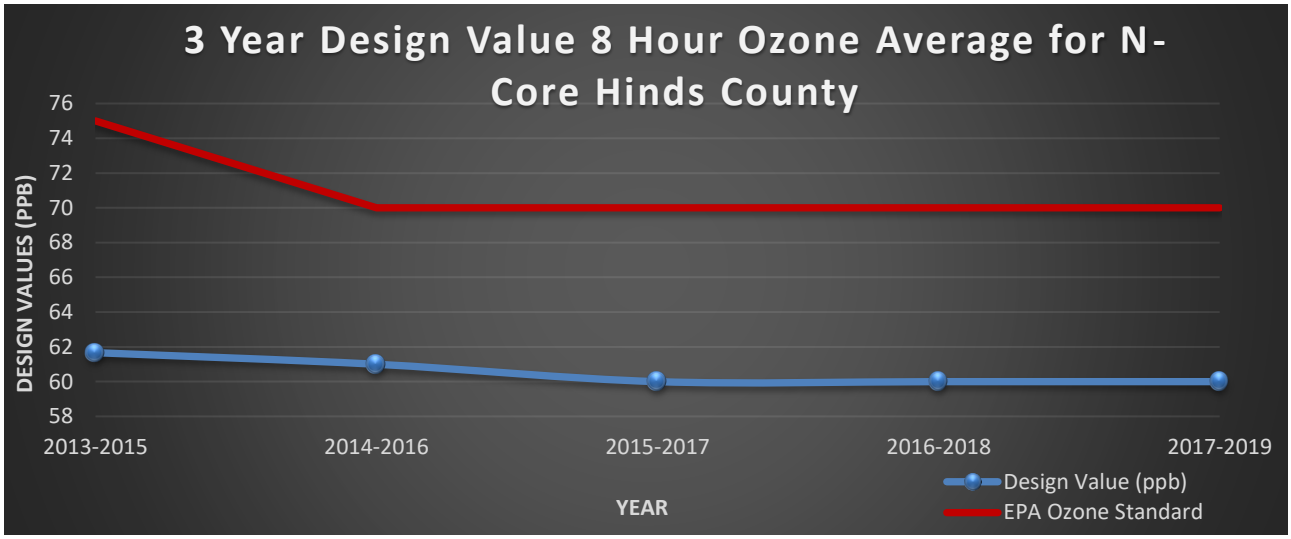


*Incomplete Data

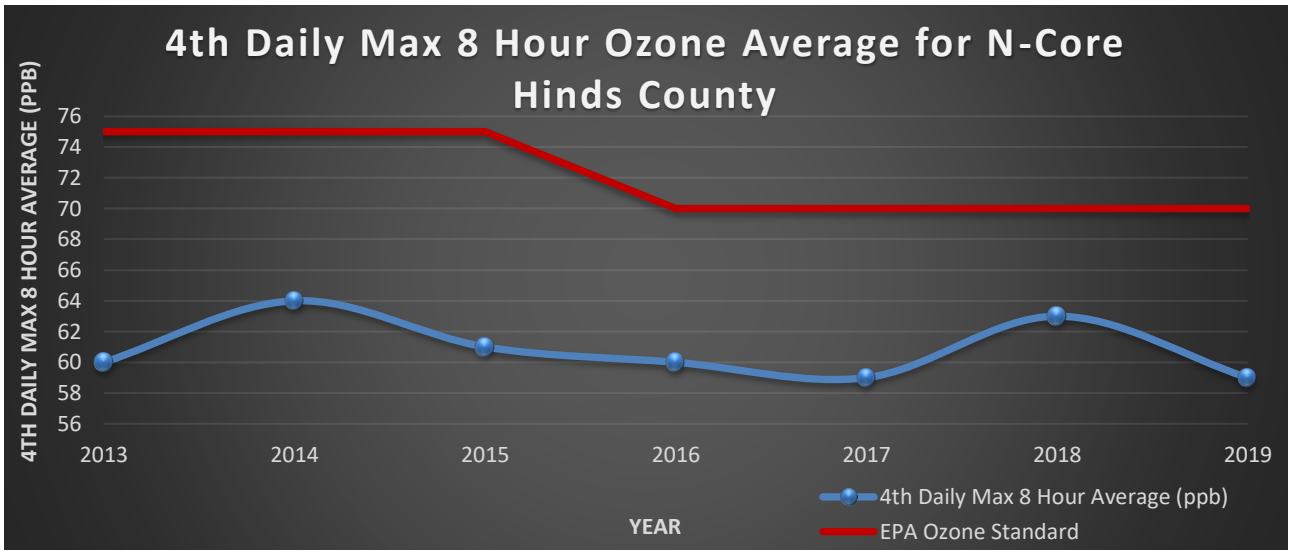
Hinds County (N-CORE)
Monitoring Site No. 28-049-0020

Hinds County (N-CORE)
8-Hour Ozone (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	*	*	*	*	*	61*	61	60	60	60



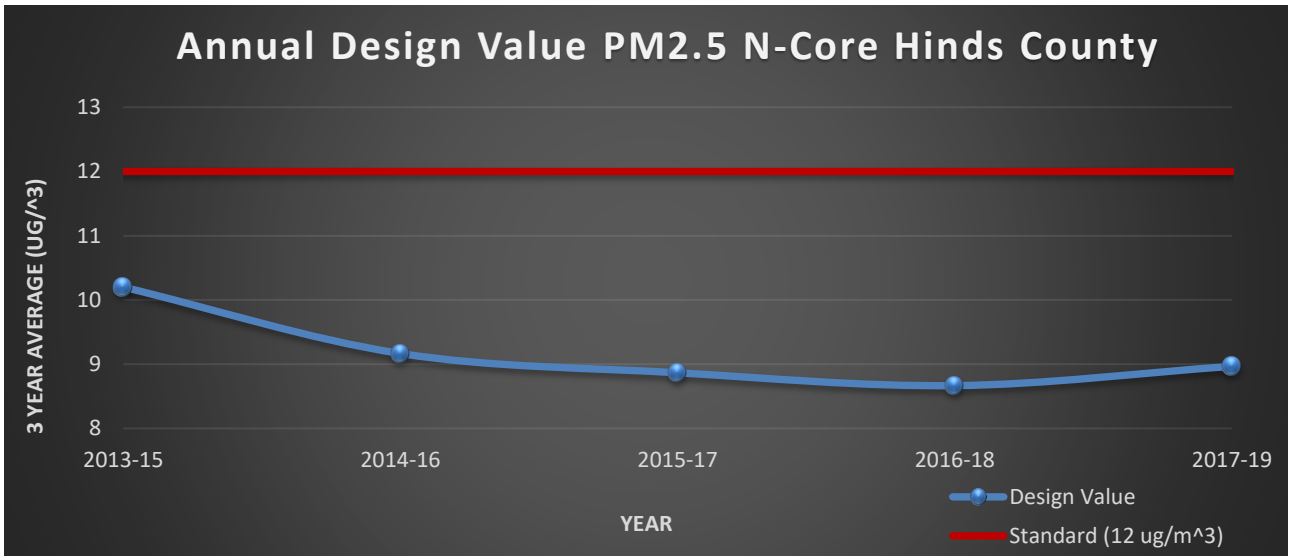
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	*	*	*	60*	64	61	60	59	63	59



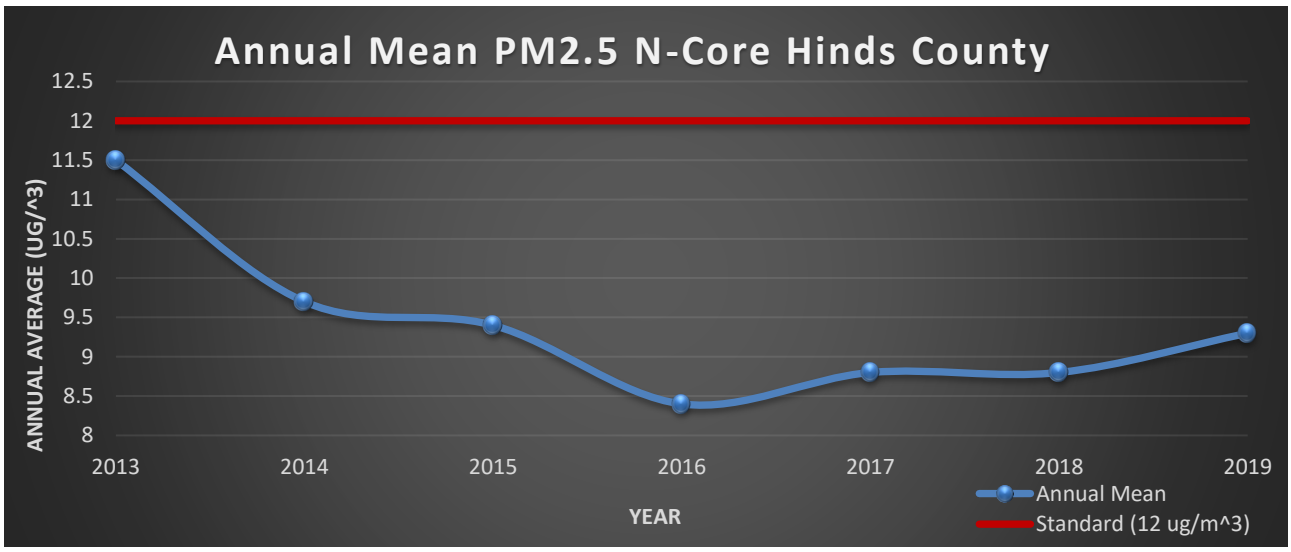
*Incomplete Data

Hinds County (N-CORE)
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	*	*	*	*	*	10.2*	9.2	8.9	8.7	9.0



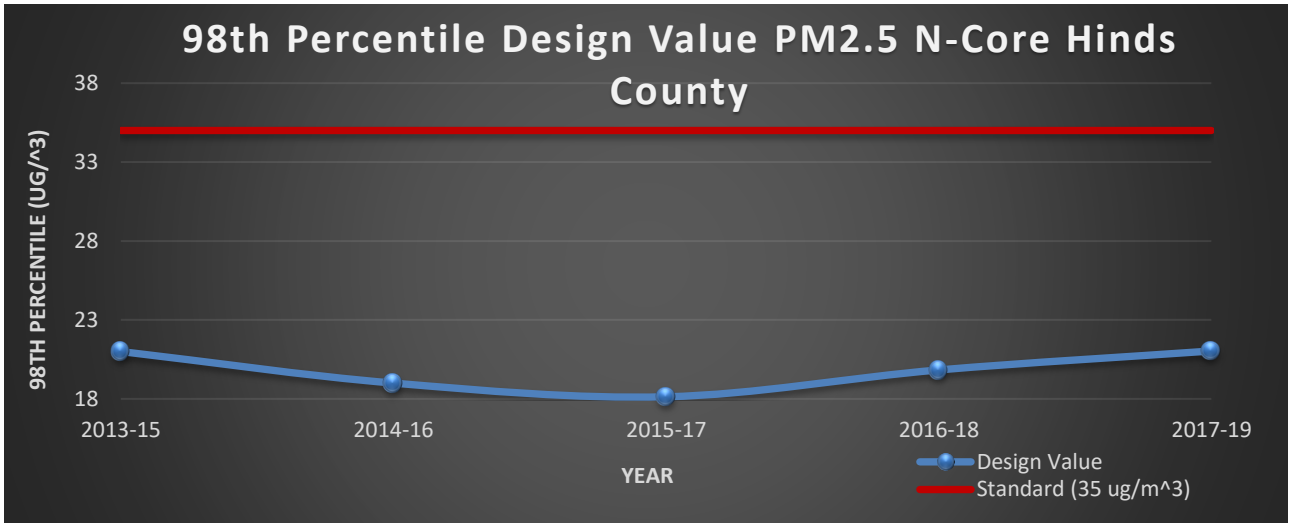
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	*	*	*	11.5*	9.7	9.4	8.4	8.8*	8.8	9.3



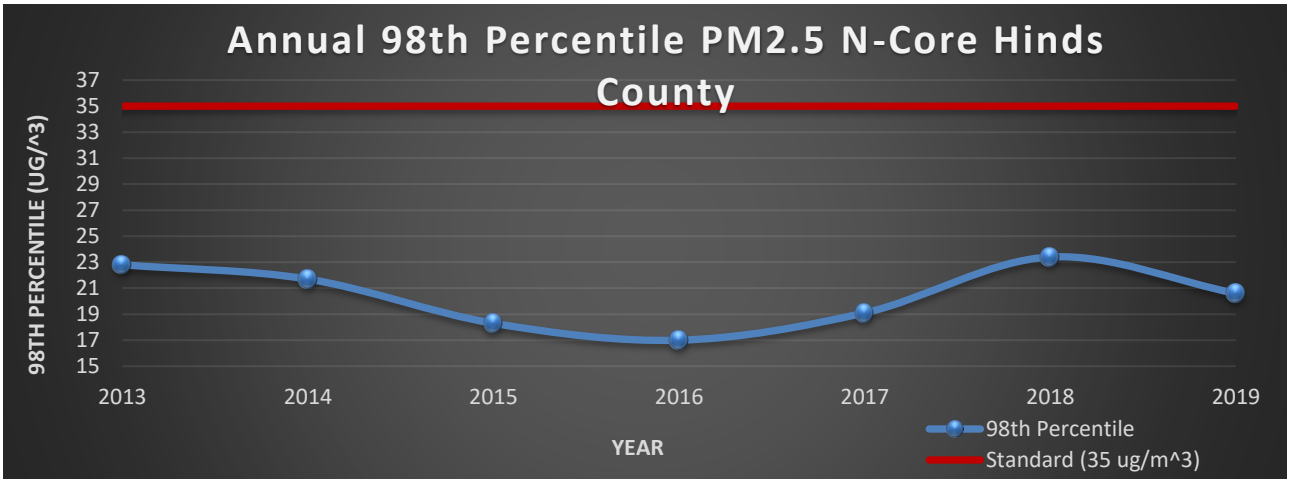
*Incomplete Data

Hinds County (N-CORE)
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentiles	*	*	*	*	*	21*	19	18	20	21



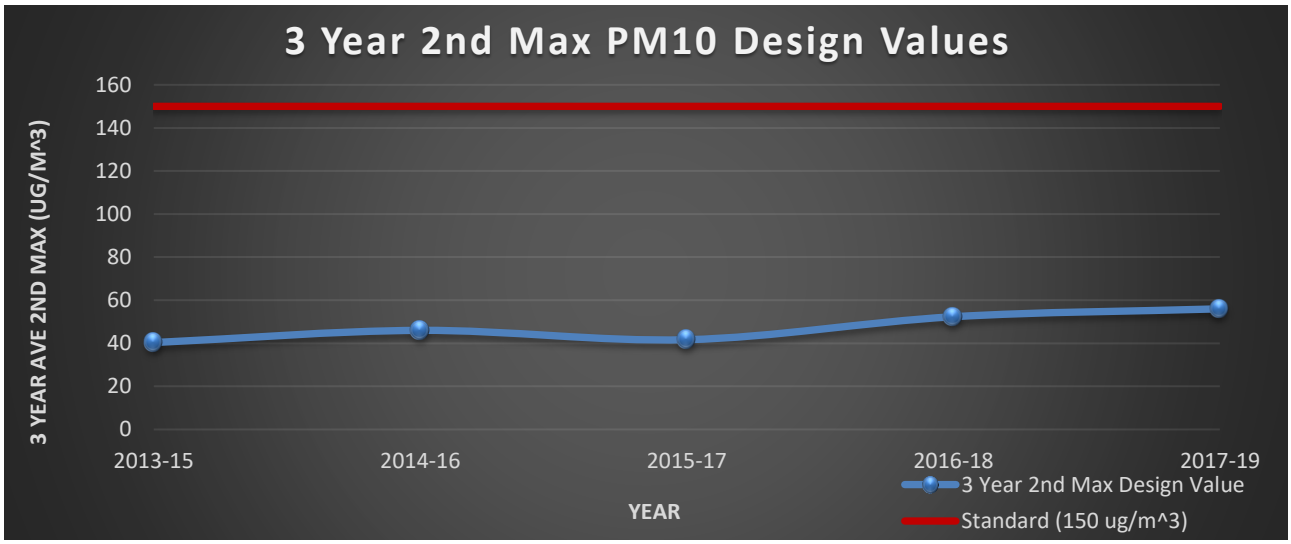
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	*	*	*	23*	22	18	17	19	23	21



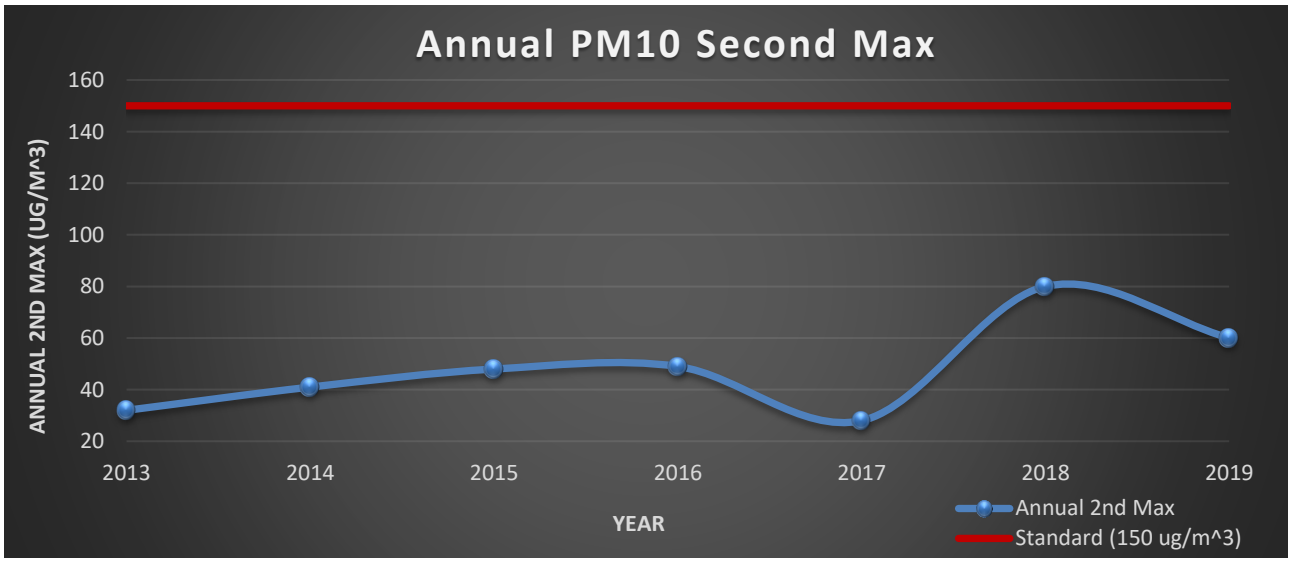
*Incomplete Data

Hinds County (N-CORE)
PM_{10}
3-Year Average of the Annual 2nd Max ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Ave of the Annual 2nd Max	*	*	*	*	*	40*	46*	42*	52*	56*



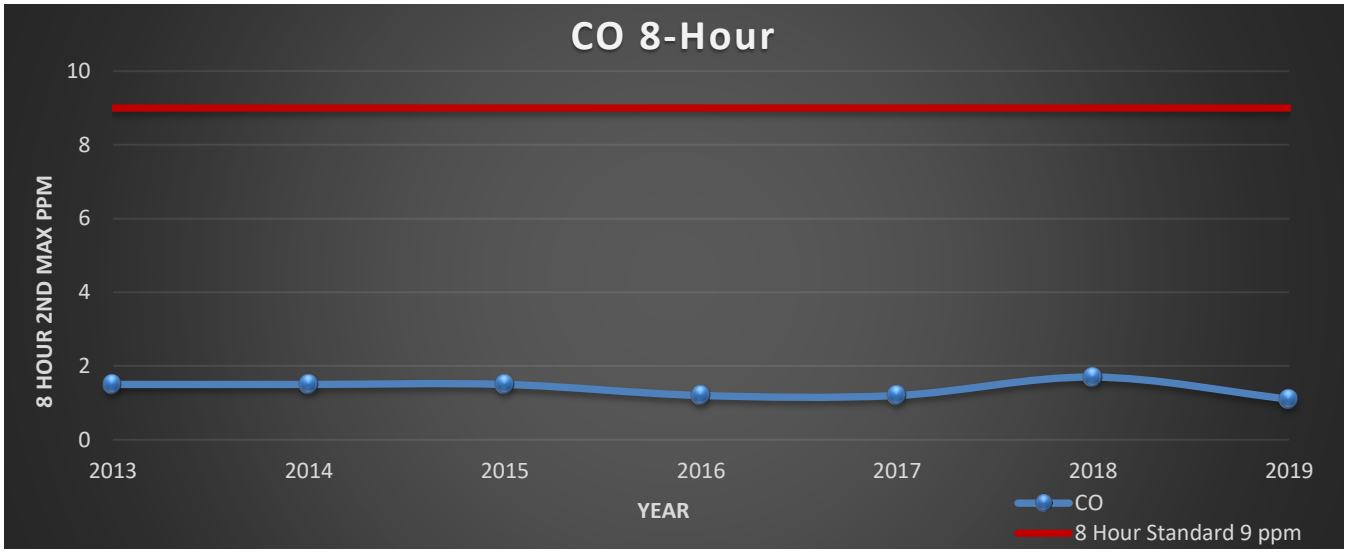
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 2nd Max	*	*	*	32*	41	48*	49*	28*	80	60



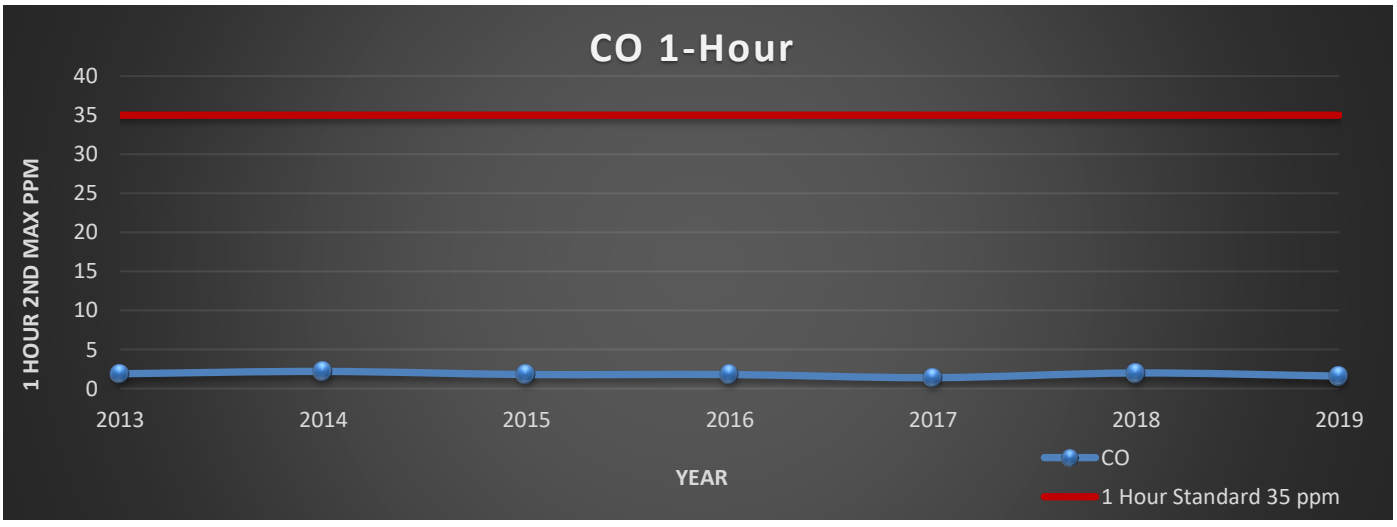
*Incomplete Data

Hinds County (N-CORE)
CO
8-Hour and 1- Hour Average (ppm)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
8 HR Annual 2nd Max	*	*	*	1.5*	1.5	1.5	1.2	1.2	1.7*	1.1



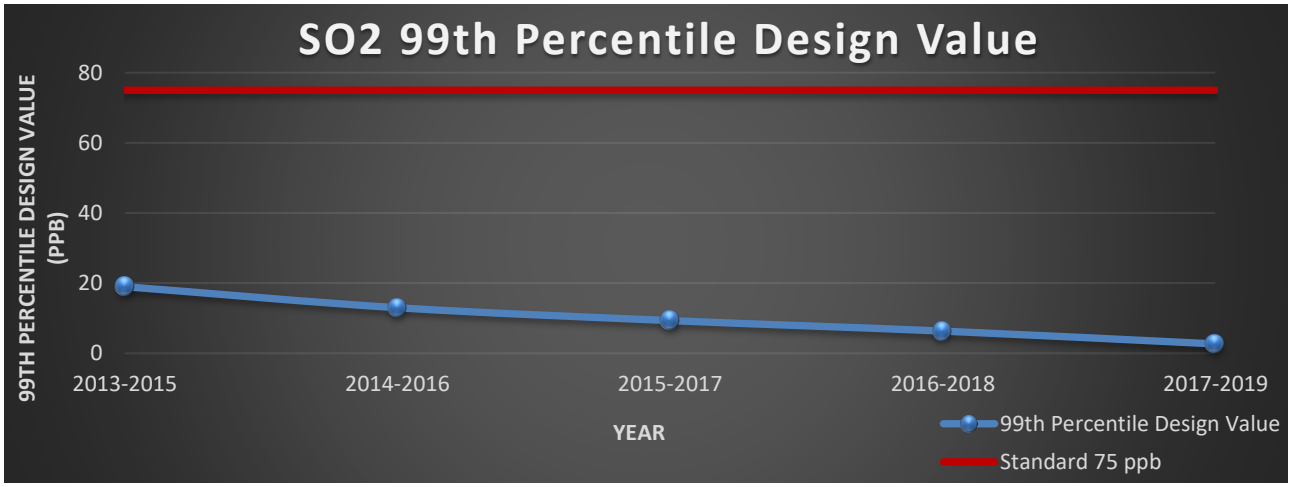
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1 HR Annual 2nd Max	*	*	*	1.9*	2.2	1.8	1.8	1.4	2*	1.6



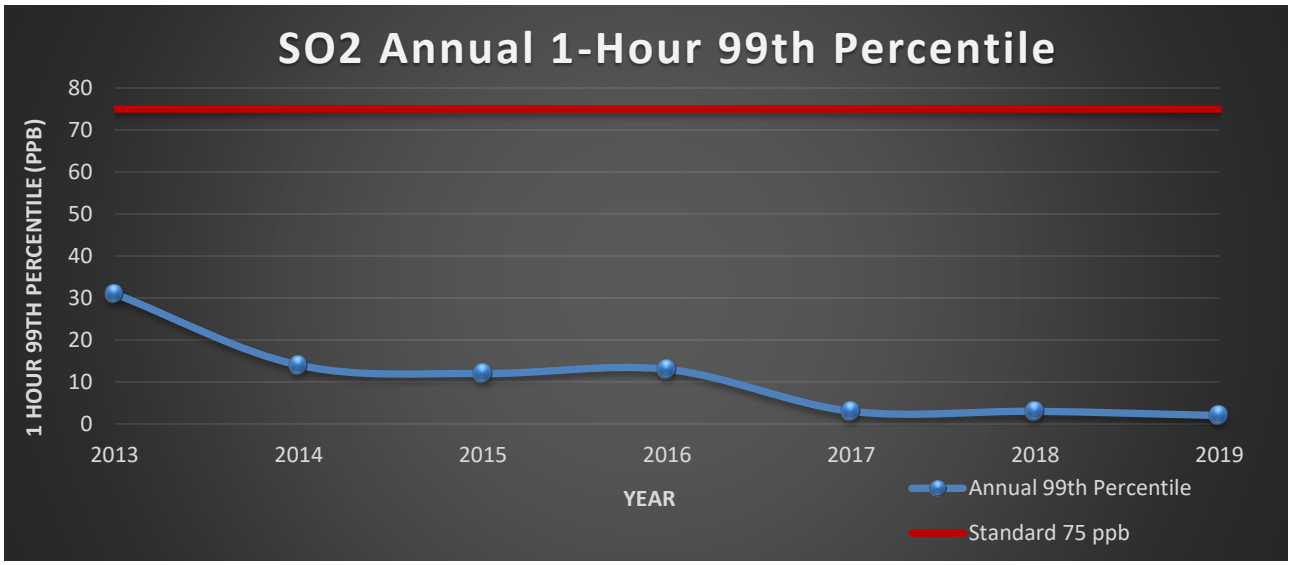
*Incomplete Data

Hinds County (N-CORE)
Sulfur Dioxide
1-Hour Average (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 99th Percentile	*	*	*	*	*	19*	13	9	6	3



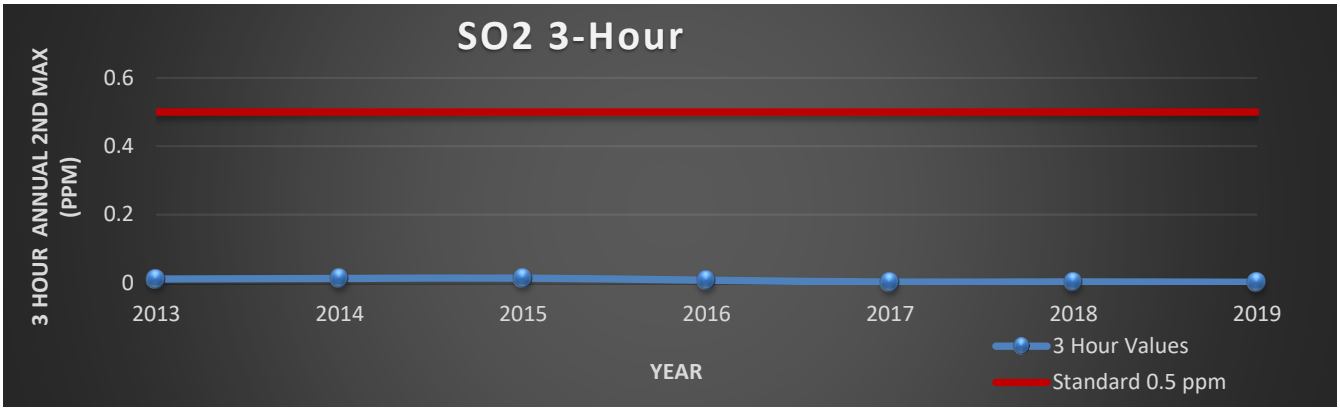
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 99th Percentile	*	*	*	31*	14	12	13	3	3	2



*Incomplete Data

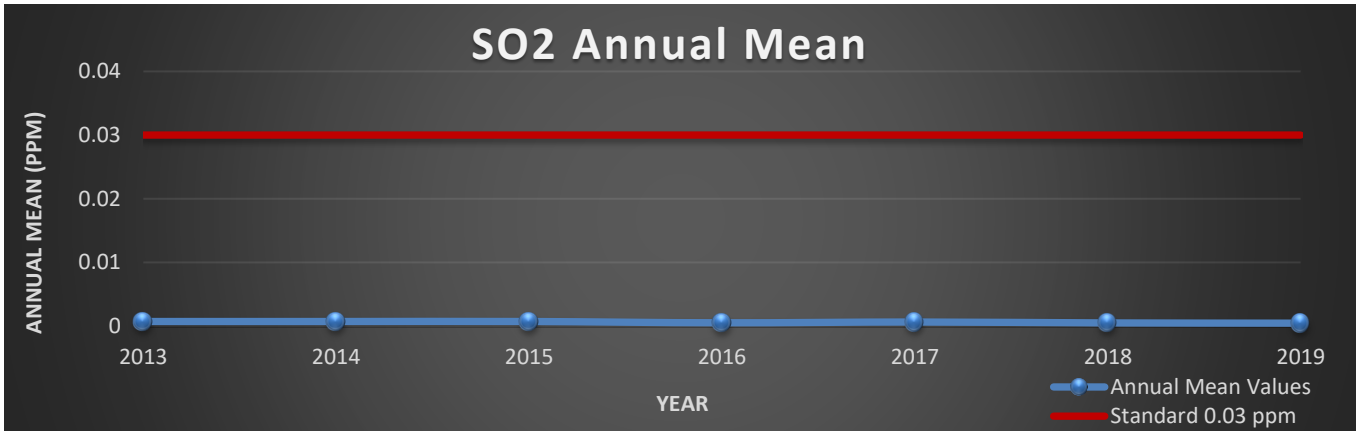
Hinds County (N-CORE)
Sulfur Dioxide
3-Hour Annual 2nd Max (ppm)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 2nd Max	*	*	*	0.0*	0.0	0.0	0.0	0.0	0.0	0.0



Hinds County (N-CORE)
Sulfur Dioxide
Annual Mean (ppm)

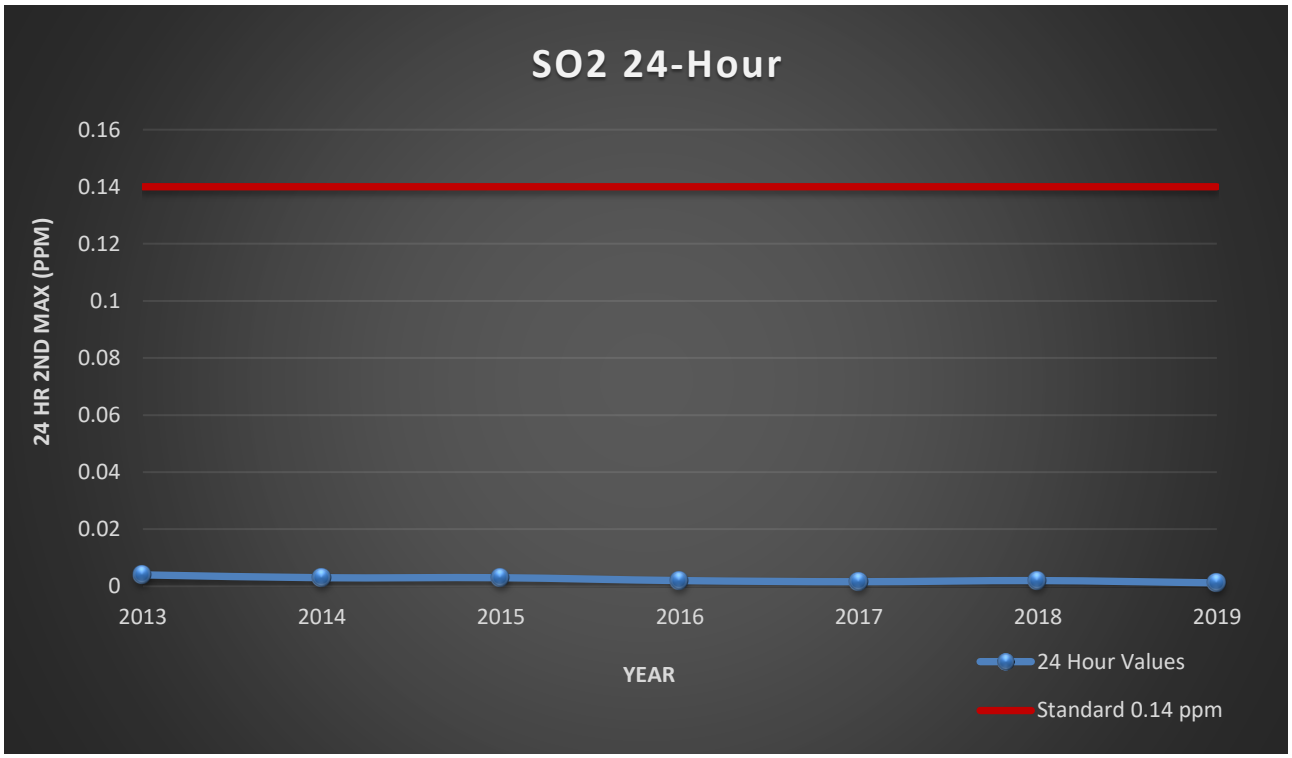
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	*	*	*	0.00*	0.00	0.00	0.00	0.00	0.00	0.00



*Incomplete Data

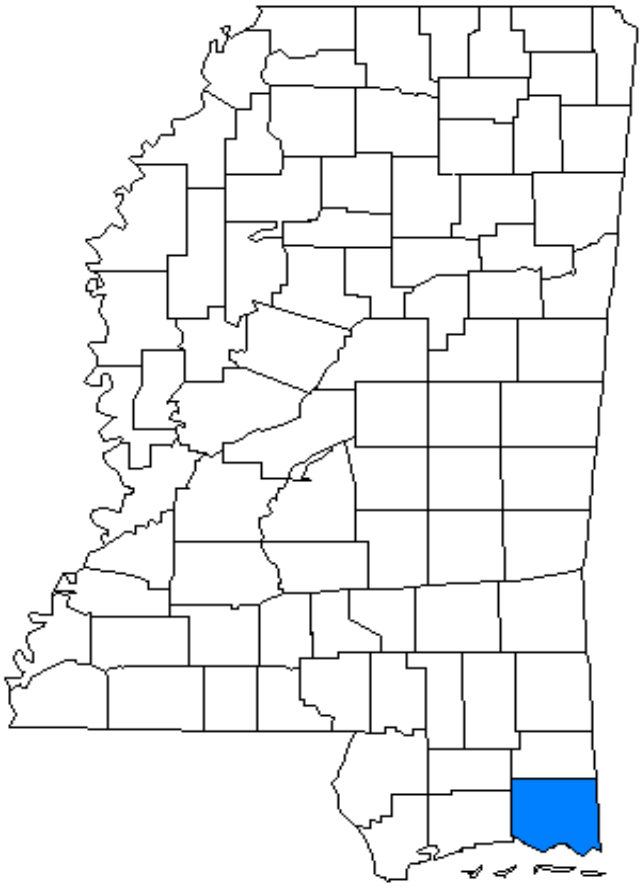
Hinds County (N-CORE)
Sulfur Dioxide
24-Hour 2nd Max (ppm)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 2nd Max	*	*	*	0.00*	0.00	0.00	0.00	0.00	0.00	0.00



*Incomplete Data

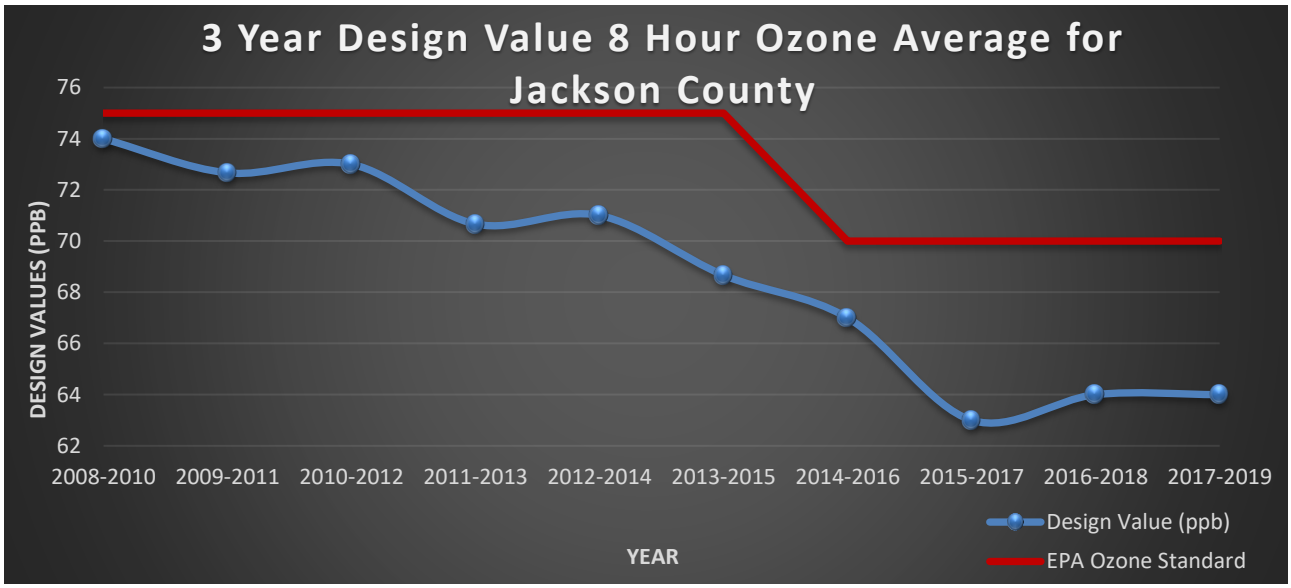
Jackson County



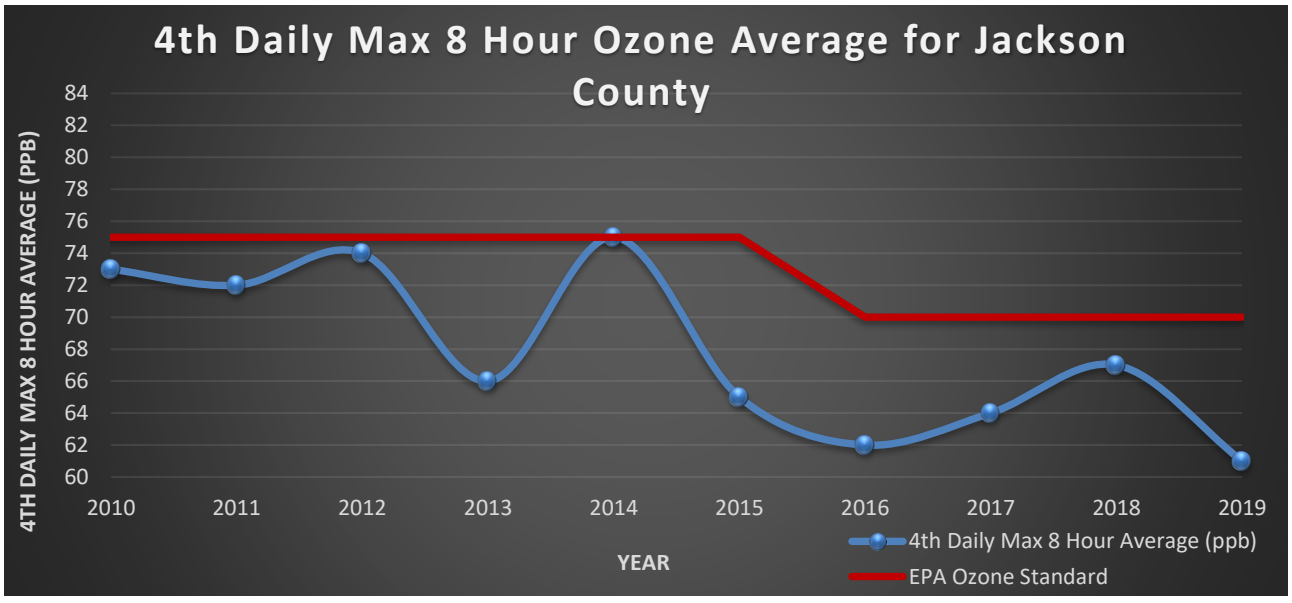
Jackson County
Monitoring Site No. 28-059-0006
Location

Jackson County
8-Hour Ozone (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	74	72	73	70	71	68	67	63	64	64

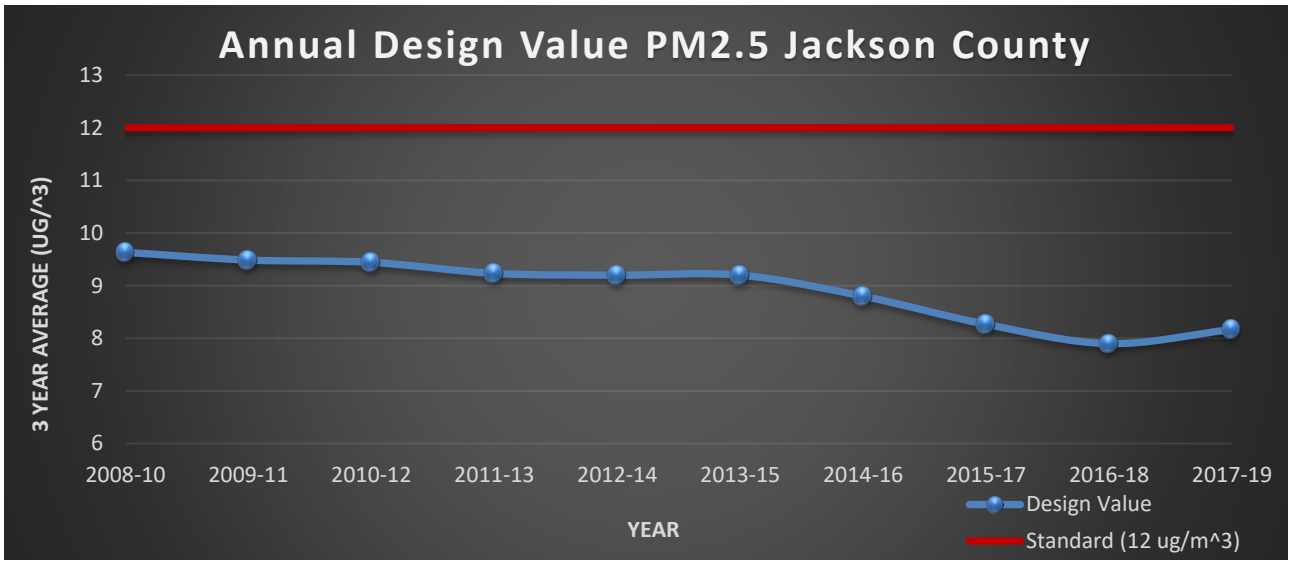


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	73	72	74	66	75	65	62	64	67	61

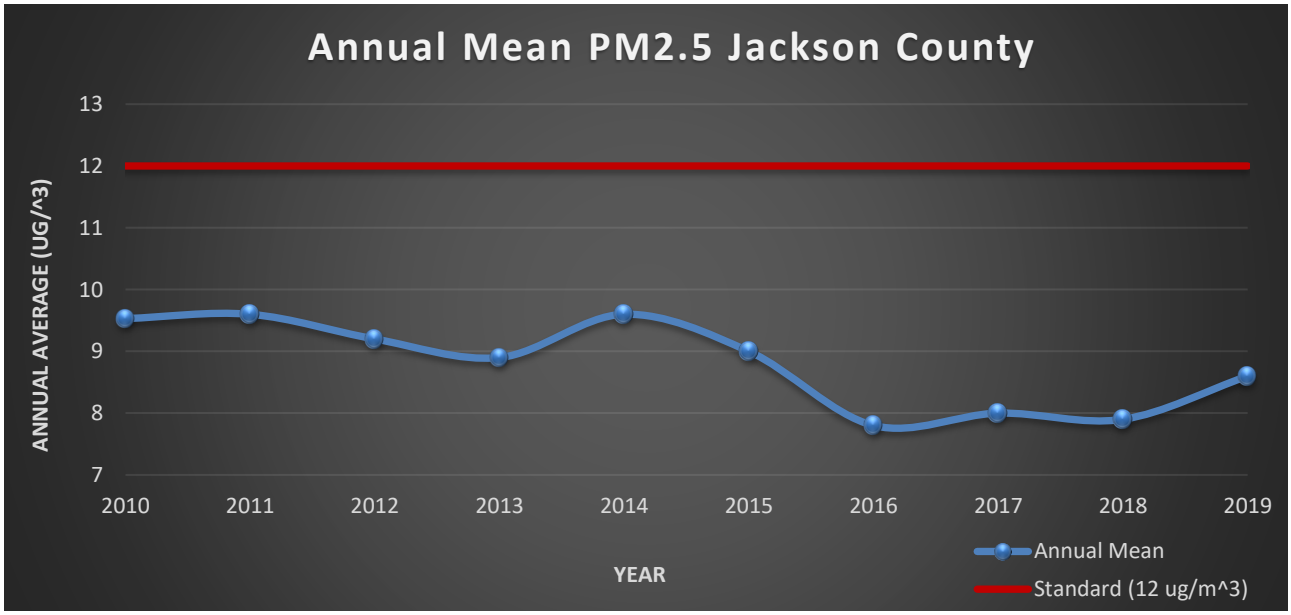


Jackson County
$PM_{2.5}$
Annual Mean ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual Mean	9.6	9.5	9.4	9.2	9.2	9.2	8.8	8.3	7.9	8.2

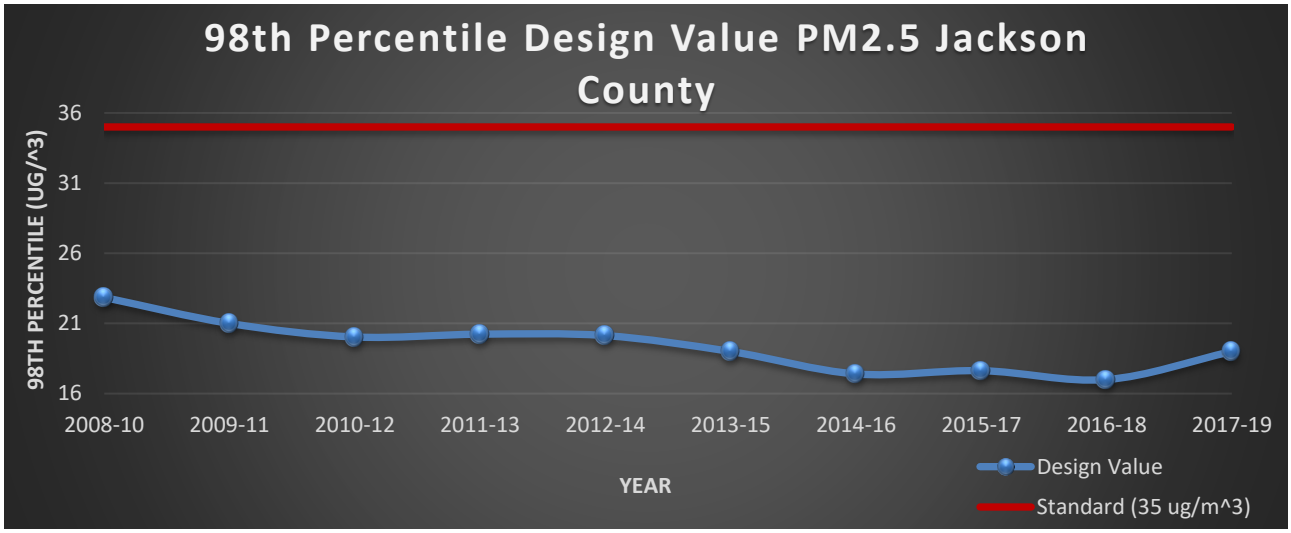


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	9.5	9.6	9.2	8.9	9.6	9.0	7.8	8.0	7.9	8.6

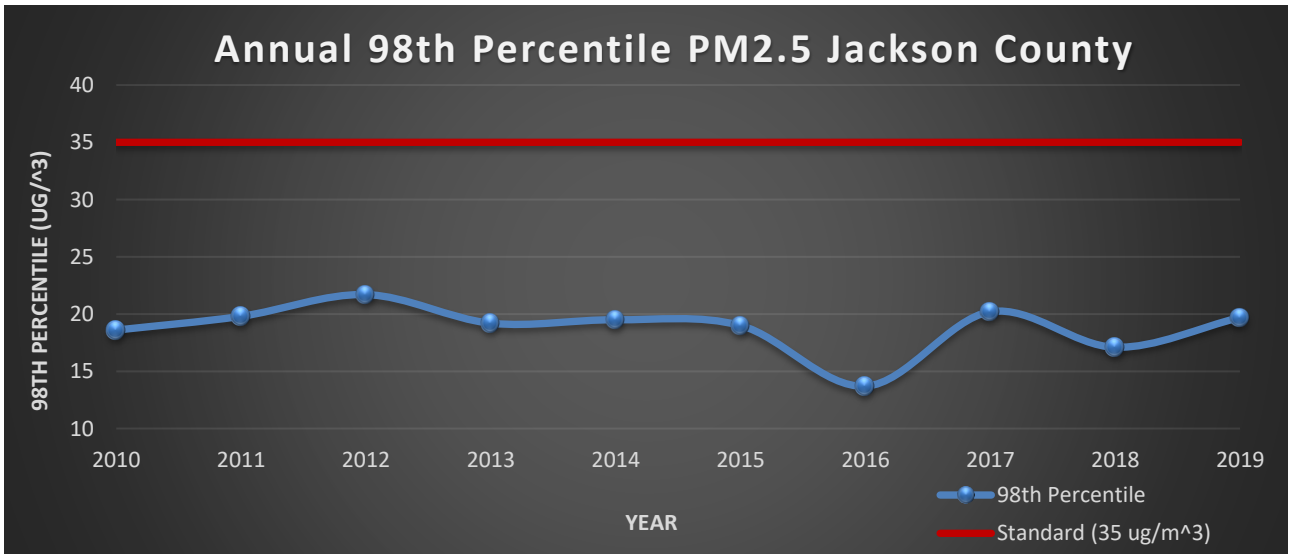


Jackson County
$PM_{2.5}$
24-Hour Average ($\mu g/m^3$)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentile	23	21	20	20	20	19	17	18	17	19

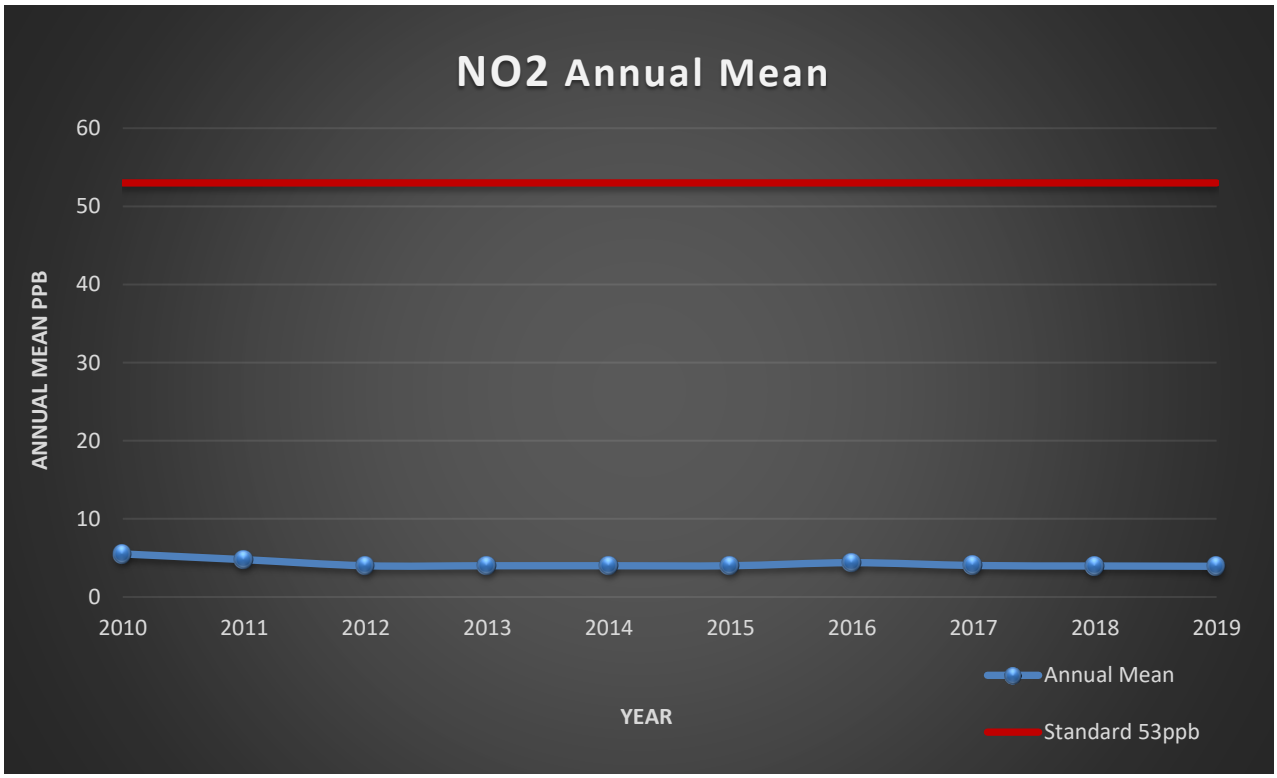


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	19	20	22	19	20	19	14	20	17	20



Jackson County
Nitrogen Dioxide
Annual Average (ppb)

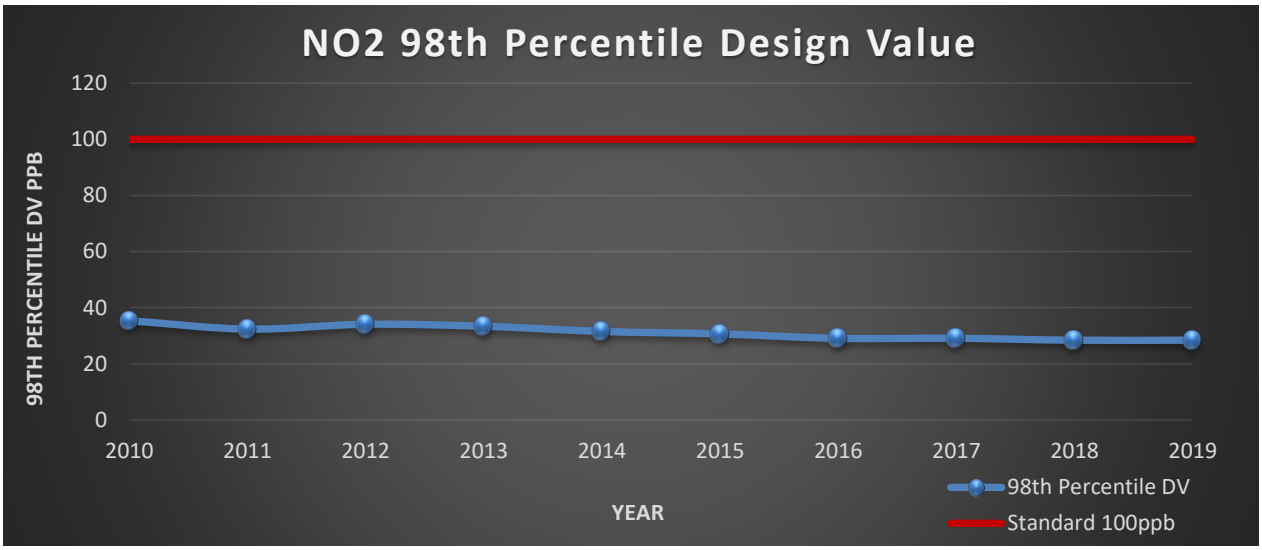
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Average	5	5	4	4	4	4	4*	4	4	4



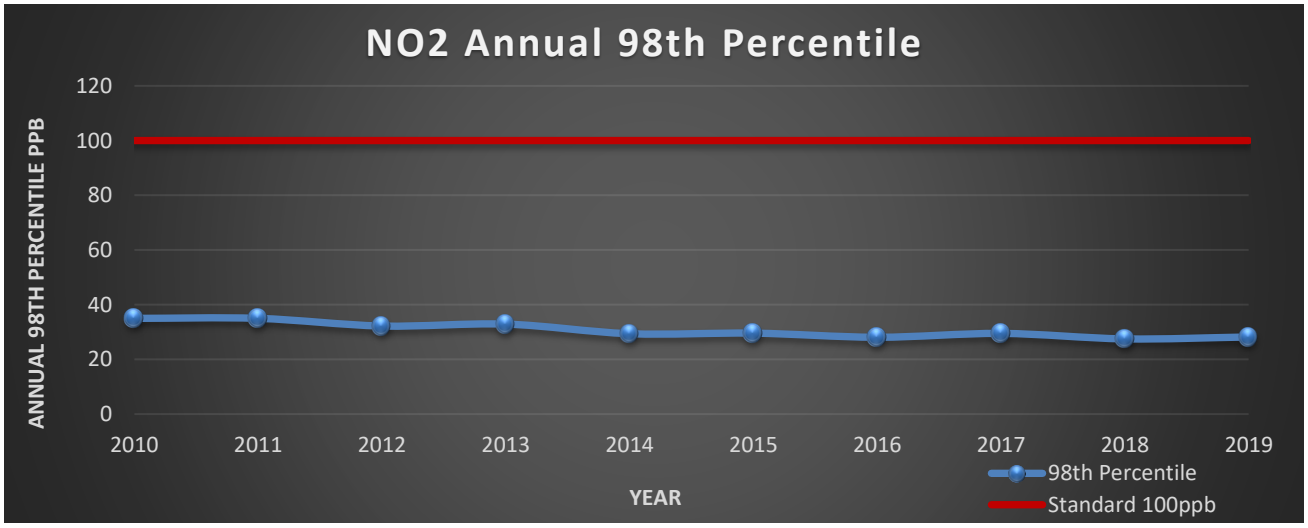
*Incomplete Data

Jackson County
Nitrogen Dioxide
1-Hour Average (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 98th Percentile	35	32	34	33	32	31	29*	29*	28*	28



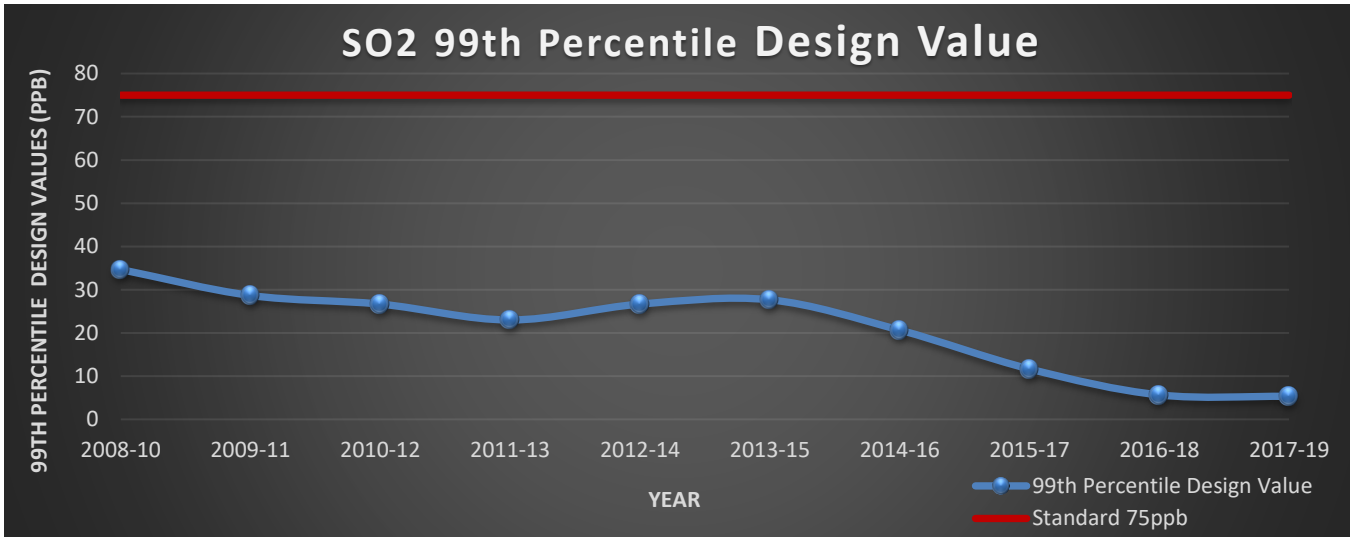
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 98th Percentile	35	35	32.2	32.9	29.4	29.6	28.1*	29.5	27.5	28.2



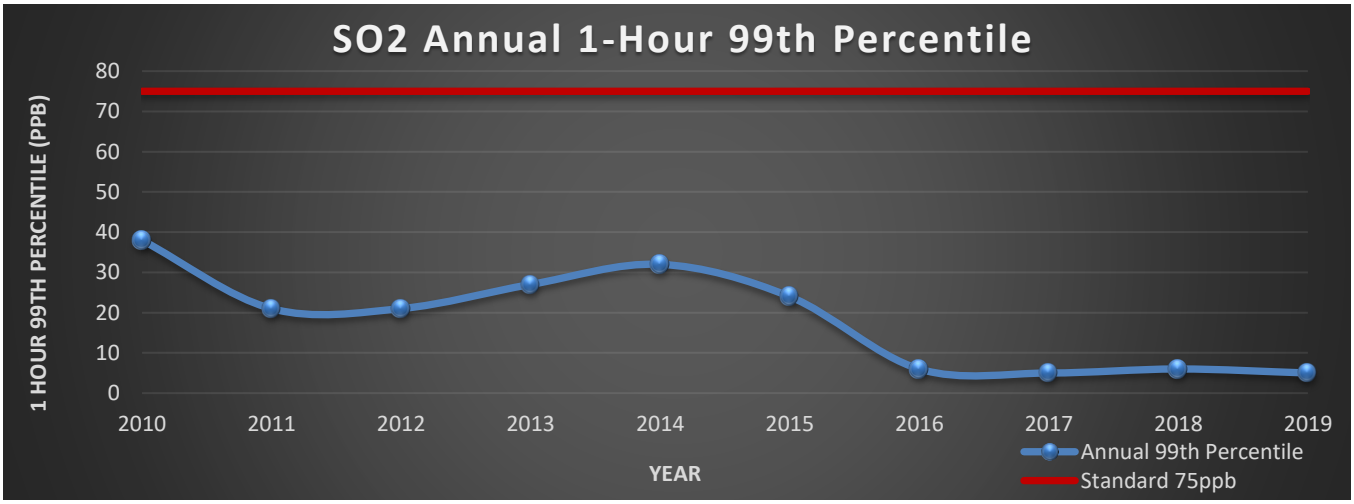
*Incomplete Data

Jackson County
Sulfur Dioxide
1-Hour Average (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
3-Year Average of the Annual 99th Percentile	35	29	27	23	27	28	21	12	6	5

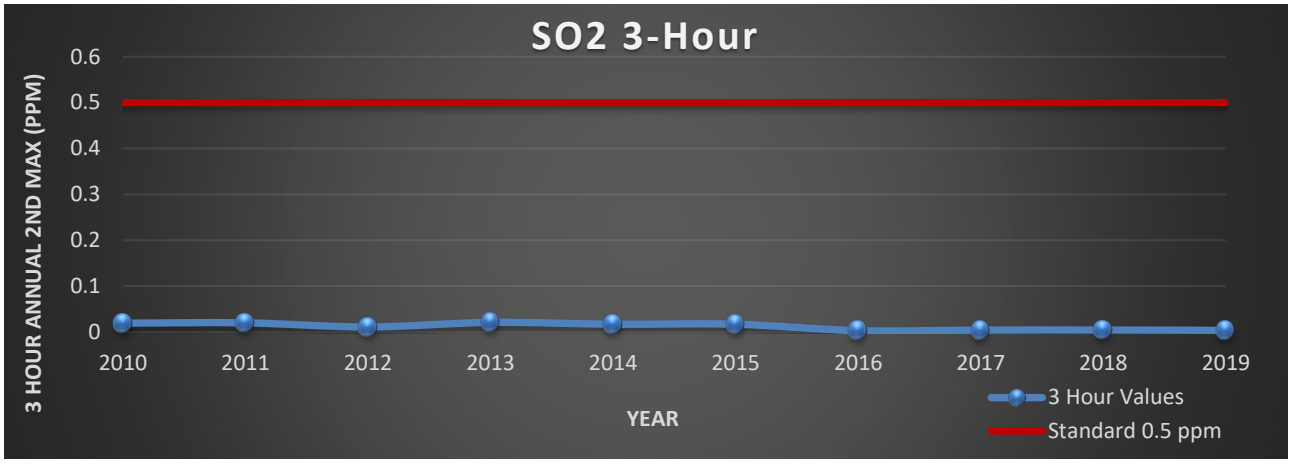


Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 99th Percentile	38	21	21	27	32	24	6	5	6	5



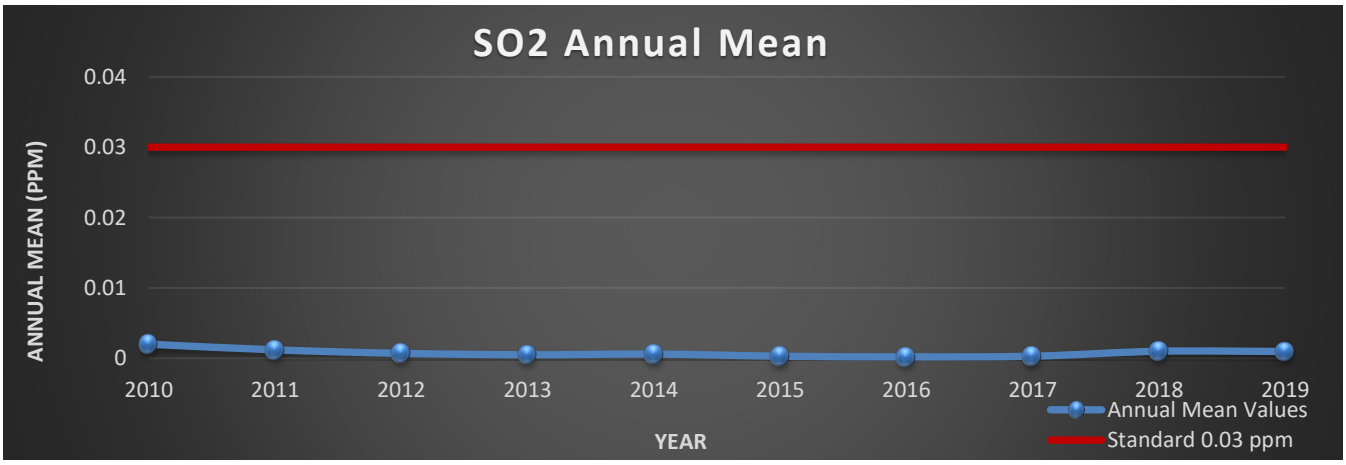
Jackson County
Sulfur Dioxide
3-Hour Annual 2nd Max (ppm)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 2nd Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



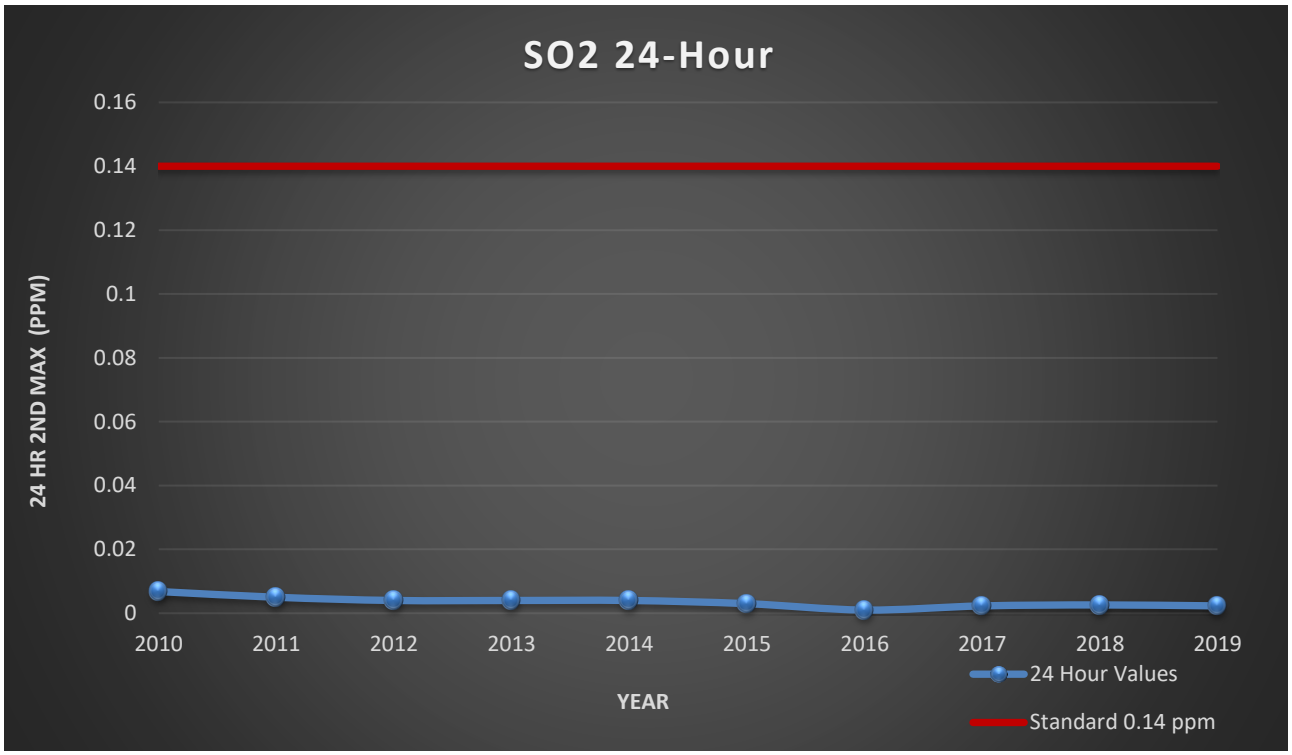
Jackson County
Sulfur Dioxide
Annual Mean (ppm)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

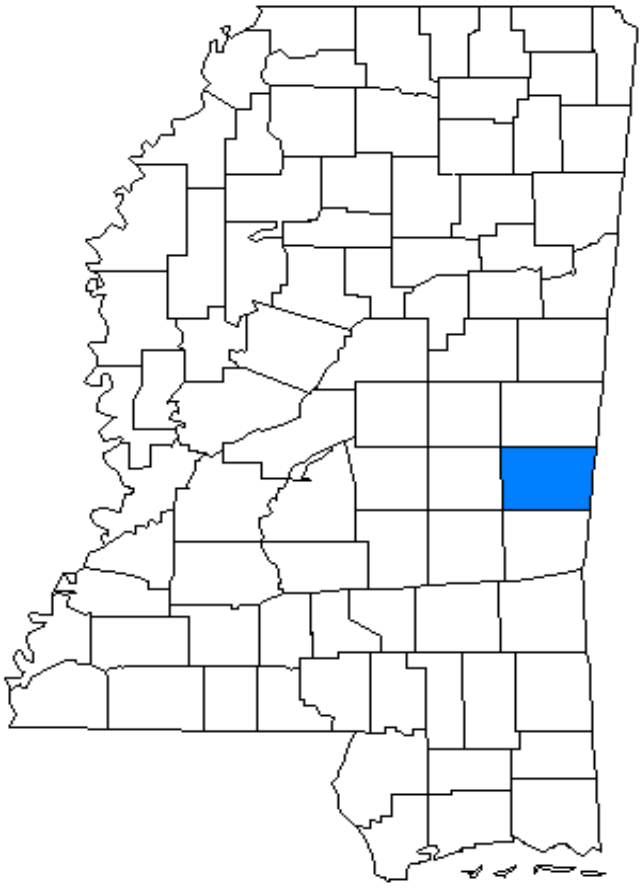


Jackson County
Sulfur Dioxide
24-Hour 2nd Max (ppm)

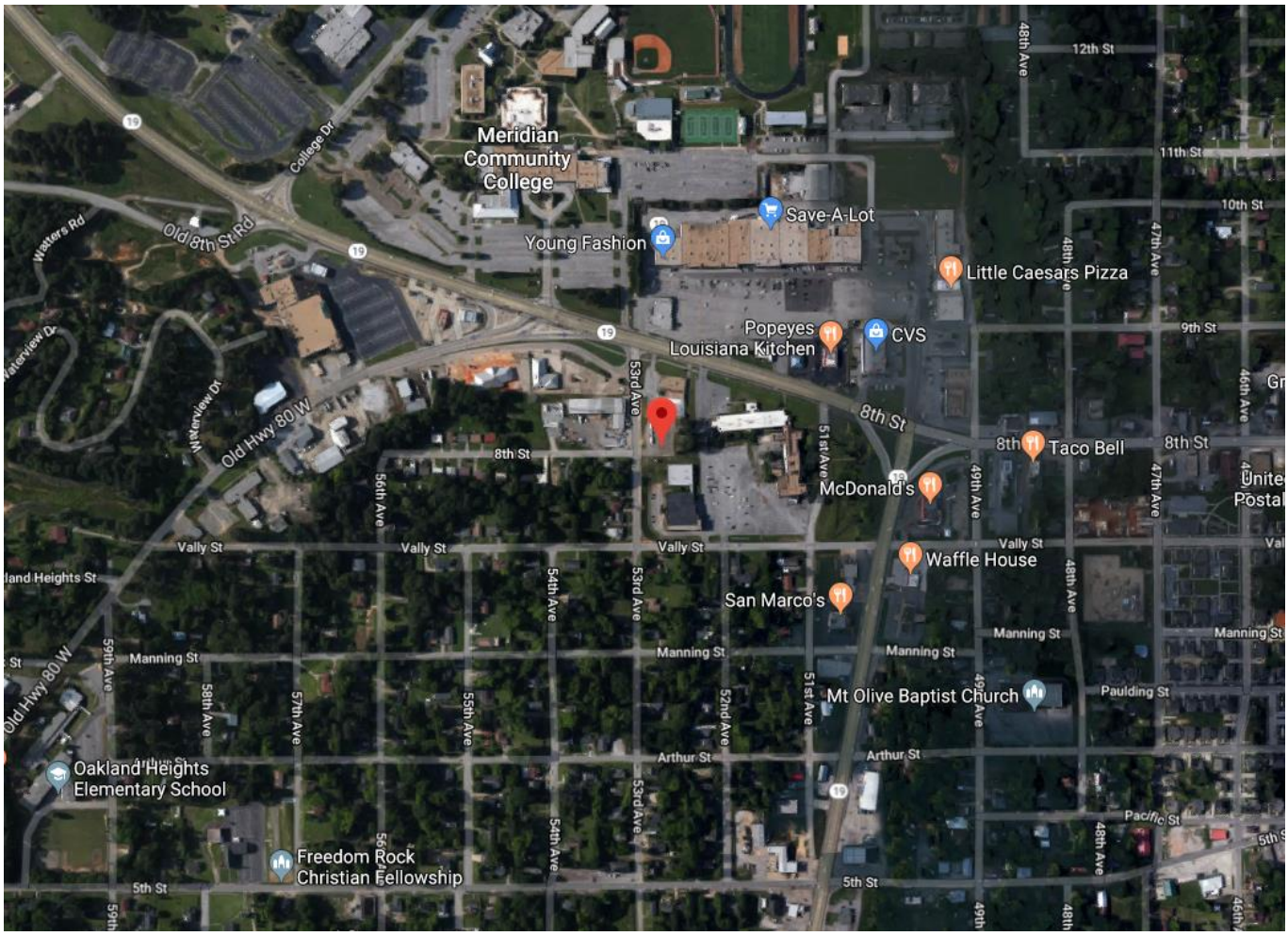
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 2nd Max	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Lauderdale County

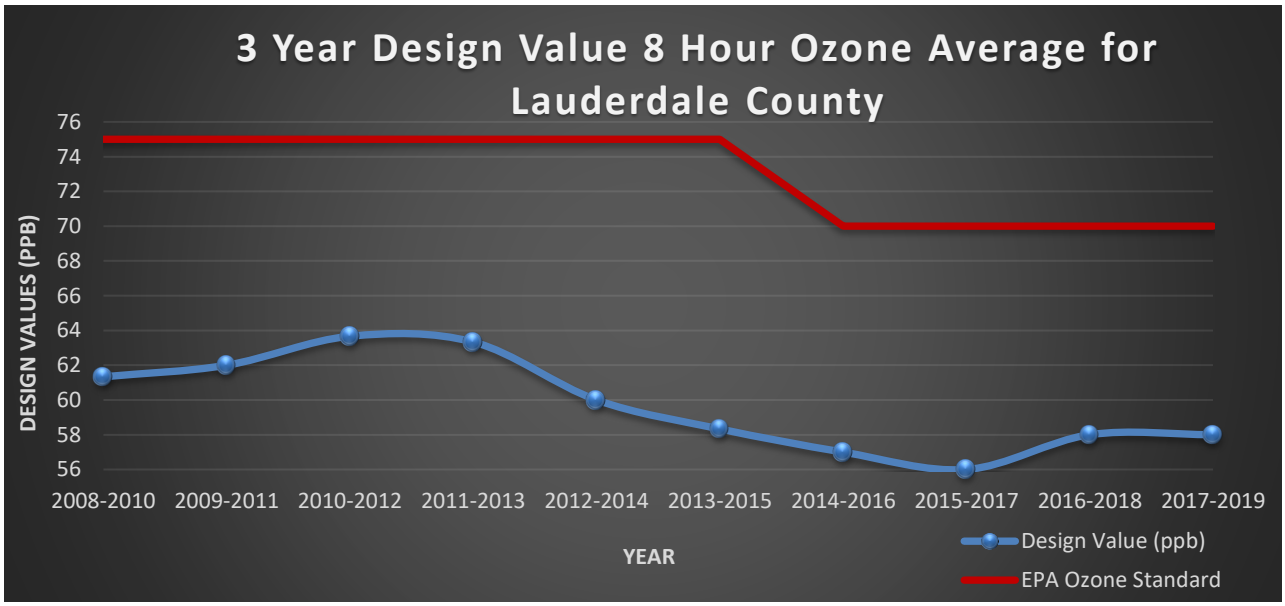


Lauderdale County
Monitoring Site No. 28-075-0003
Location

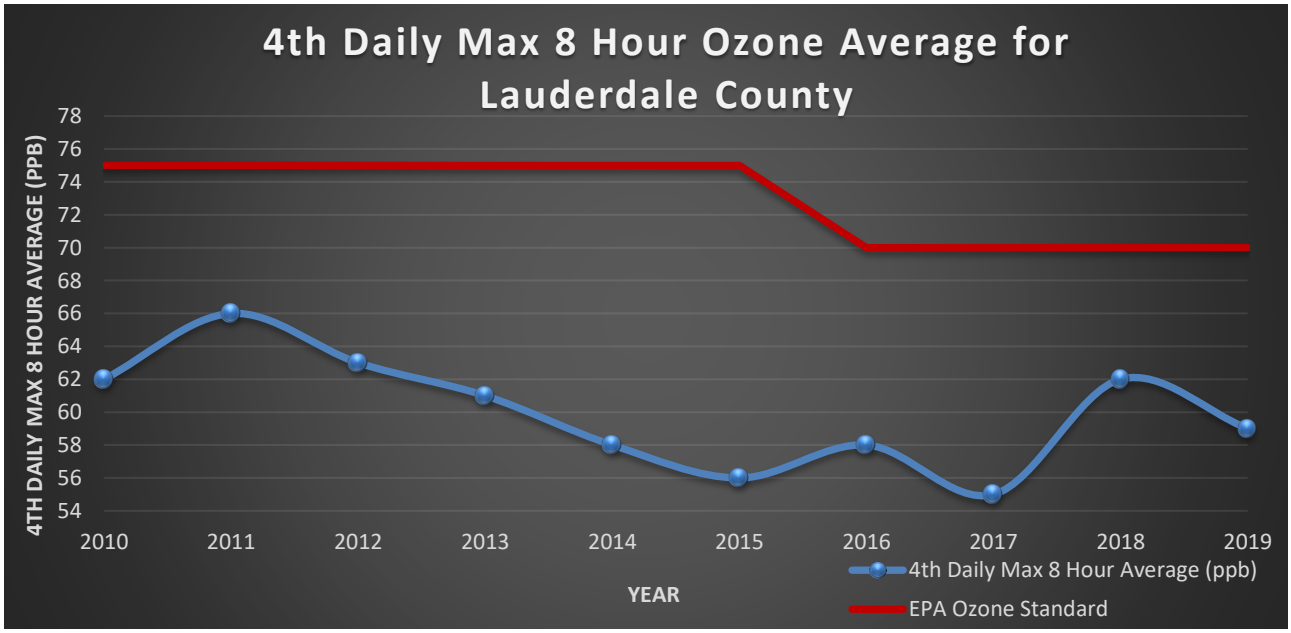


Lauderdale County
8-Hour Ozone (ppb)

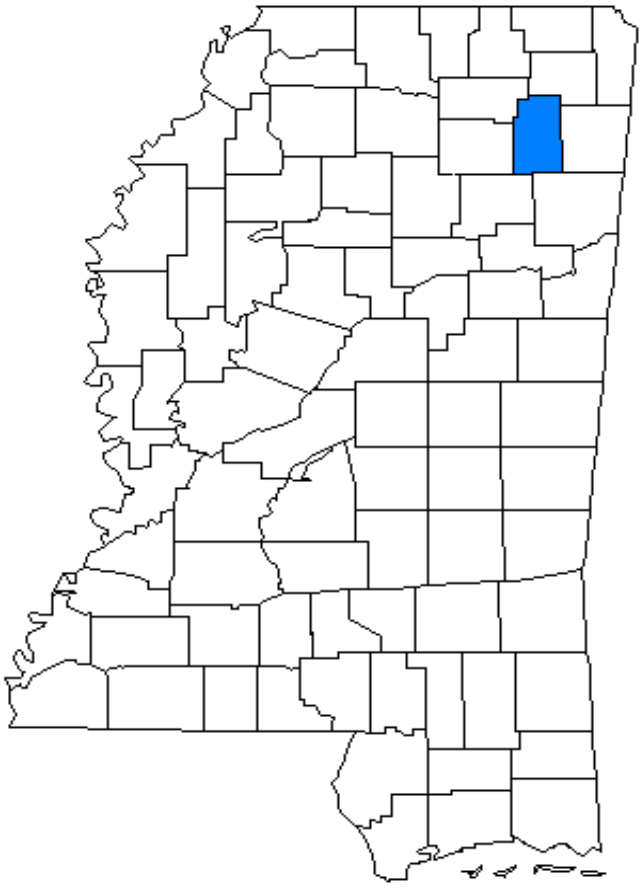
3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	61	62	63	63	60	58	57	56	58	58



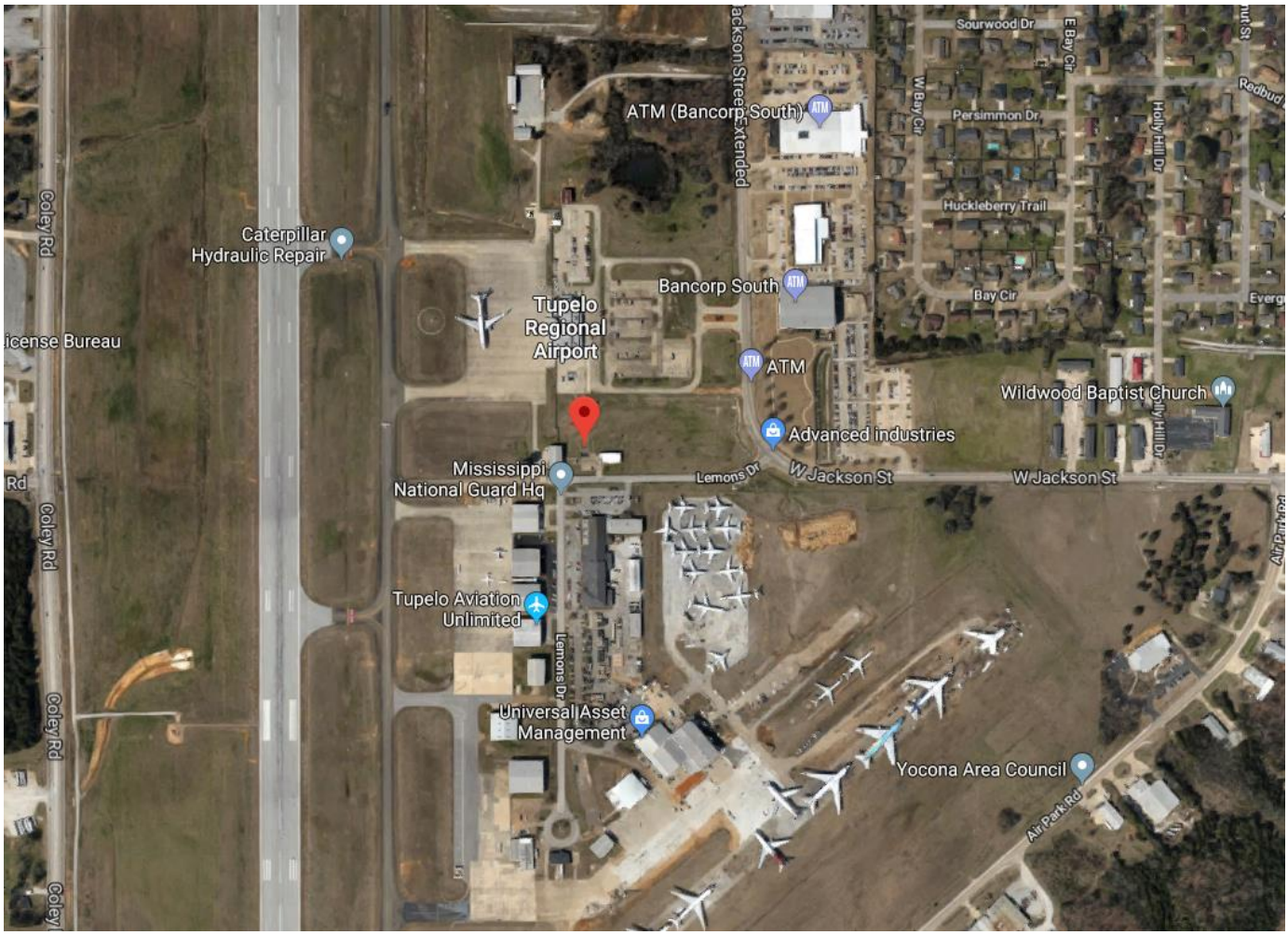
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	62	66	63	61	58	56	58	55	62	59



Lee County

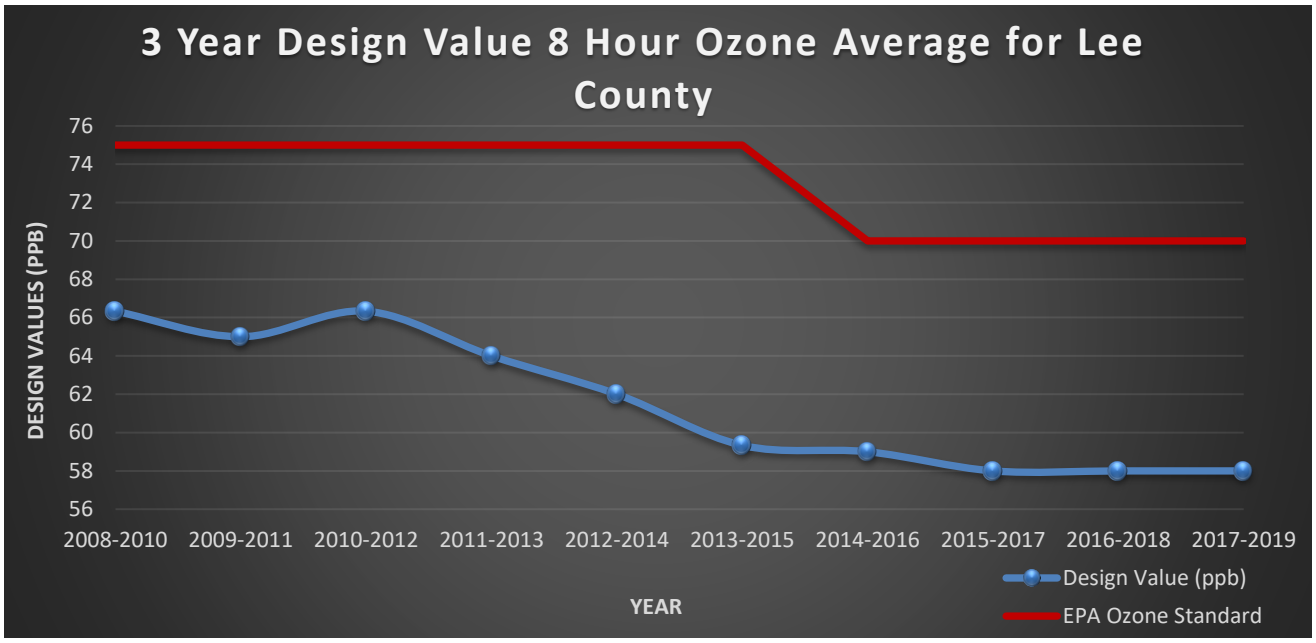


Lee County
Monitoring Site No. 28-081-0005
Location

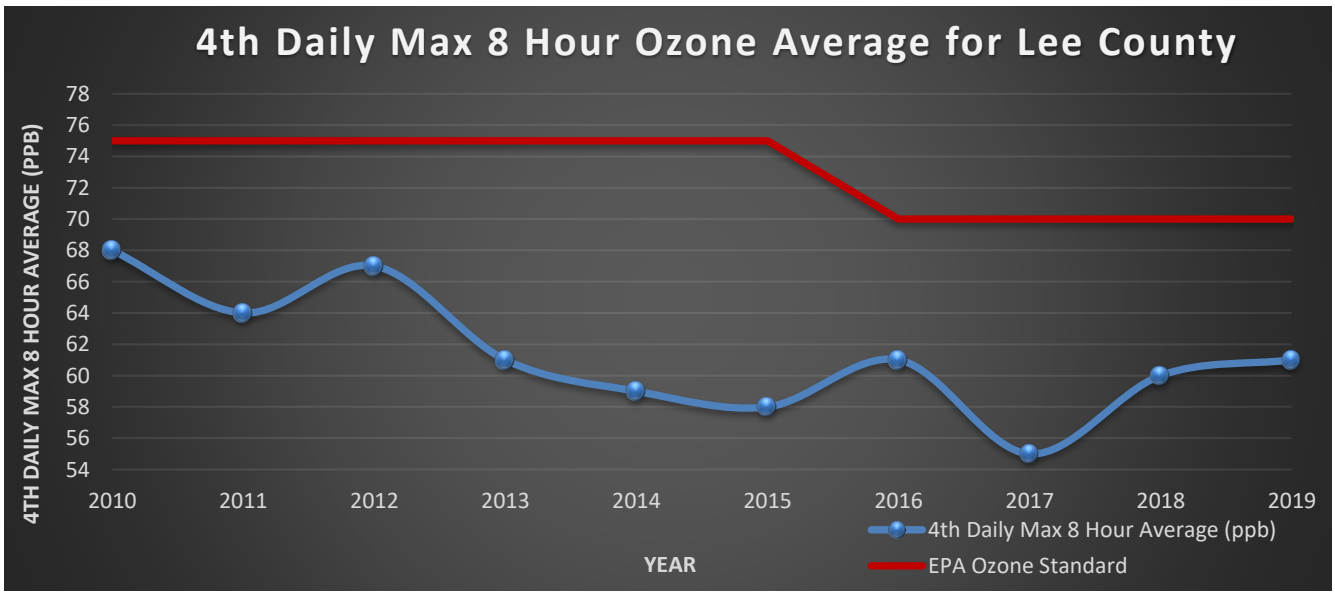


Lee County
8-Hour Ozone (ppb)

3-Year Period	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019
Design Value	66	65	66	64	62	59	59	58	58	58



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Annual 4th Max. 8-Hour Avg.	68	64	67	61	59	58	61	55	60	61



Appendix 2

Data Completeness By Pollutant

8-Hour Ozone
Data Completeness

Standards

The standards for 8-hour ozone data completeness are:

- The daily maximum 8-hour average concentrations are available for at least 75%, on average, of the designated sampling days for any one year.

- The daily maximum 8-hour average concentrations are available for at least 90%, on average, of the designated sampling days for a three-year period.

Annual Data Completeness

3-Year Data Completeness

County	Standard	2017	2018	2019	Standard	2017-2019
Bolivar	**75%**	*	98%	98%	**90%**	**65%**
DeSoto	**75%**	96%	96%	96%	**90%**	96%
Hancock	**75%**	97%	98%	98%	**90%**	98%
Harrison	**75%**	91%	95%	95%	**90%**	94%
Hinds CC	**75%**	98%	91%	96%	**90%**	95%
Hinds NC	**75%**	89%	92%	94%	**90%**	92%
Jackson	**75%**	94%	92%	96%	**90%**	94%
Lauderdale	**75%**	99%	96%	99%	**90%**	98%
Lee	**75%**	88%	99%	98%	**90%**	95%

*Incomplete Data

$PM_{2.5}$
Data Completeness

Standard

The standard for $PM_{2.5}$ data completeness is:

- A year meets the requirements when at least 75% of the scheduled sampling days for each quarter have valid data.

2017 Quarterly $PM_{2.5}$ Data Completeness

County	Standard	January - March	April - June	July - September	October - December
DeSoto	**75%**	93%	**67%**	90%	94%
Forrest	**75%**	93%	90%	97%	90%
Grenada	**75%**	90%	**71%**	97%	81%
Hancock	**75%**	97%	90%	100%	87%
Harrison	**75%**	93%	90%	93%	77%
Hinds CC*	**75%**	97%	**74%**	97%	81%
Hinds NC	**75%**	**73%**	**74%**	97%	81%
Jackson	**75%**	90%	90%	97%	87%

2018 Quarterly $PM_{2.5}$ Data Completeness

County	Standard	January - March	April - June	July - September	October - December
DeSoto	75%	97%	93%	84%	100%
Forrest	75%	97%	100%	90%	100%
Grenada	75%	87%	87%	77%	90%
Hancock	75%	94%	87%	94%	97%
Harrison	75%	100%	100%	94%	100%
Hinds CC*	75%	97%	100%	87%	90%
Hinds NC	75%	97%	100%	94%	94%
Jackson	75%	97%	100%	90%	87%

2019 Quarterly $PM_{2.5}$ Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Bolivar	75%	98%	100%	100%	100%
DeSoto	75%	99%	100%	100%	100%
Forrest	75%	100%	100%	100%	92%
Hancock	75%	100%	100%	100%	100%
Harrison	75%	100%	100%	100%	98%
Hinds CC	75%	100%	100%	100%	100%
Hinds NC	75%	98%	100%	100%	100%
Jackson	75%	100%	99%	100%	98%

PM_{10}
Data Completeness

Standards

The standard for PM_{10} data completeness is:

- A year meets the requirements when at least 75% of the scheduled sampling days for each quarter have valid data.

2017 Quarterly PM_{10} Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	93%	**69%**	100%	**67%**

2018 Quarterly PM_{10} Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	97%	99%	96%	90%

2019 Quarterly PM_{10} Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	98%	100%	100%	100%

Carbon Monoxide
Data Completeness

Standard

The standard for CO data completeness is:

- An 8-hour average shall be considered valid if at least 75% of the hourly averages for the 8-hour period are available.

2019 Quarterly CO Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	97%	97%	89%	93%

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Nitrogen Dioxide
Data Completeness

Standards

The standards for nitrogen dioxide data completeness are:

- An annual mean must be based upon hourly data that are at least 75% complete for the scheduled sampling days in each year.

- A 1-hour design value is valid if it encompasses three consecutive calendar years of complete data. A year meets data completeness requirements when all 4 quarters are complete. A quarter is complete when at least 75% of the sampling days for each quarter have complete data. A sampling day has complete data if 75% of the hourly concentration values are reported.

2019 Annual Mean Nitrogen Dioxide Data Completeness

County	Standard	2019
Jackson	**75%**	90%

2017 Quarterly 1-Hour Nitrogen Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Jackson	**75%**	92%	94%	89%	87%

2018 Quarterly 1-Hour Nitrogen Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Jackson	**75%**	90%	92%	92%	89%

2019 Quarterly 1-Hour Nitrogen Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Jackson	**75%**	89%	90%	91%	91%

Sulfur Dioxide
Data Completeness

Standards

The standards for sulfur dioxide data completeness are:

- A 1-hour design value is valid if it encompasses three consecutive calendar years of complete data.

- A year meets data completeness requirements when all 4 quarters are complete. A quarter is complete when at least 75% of the sampling days for each quarter have complete data. A sampling day has complete data if 75% of the hourly concentration values are reported.

2017 Quarterly 1-Hour Sulfur Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	81%	89%	**72%**	94%
Jackson	**75%**	92%	94%	**71%**	90%

2018 Quarterly 1-Hour Sulfur Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	93%	80%	97%	95%
Jackson	**75%**	92%	94%	91%	96%

2019 Quarterly 1-Hour Sulfur Dioxide Data Completeness

County	Standard	January - March	April - June	July - September	October - December
Hinds NC	**75%**	85%	97%	94%	95%
Jackson	**75%**	95%	89%	89%	95%