



Air Quality Annual Update

West Virginia • 2018-2020

Air Monitoring Network

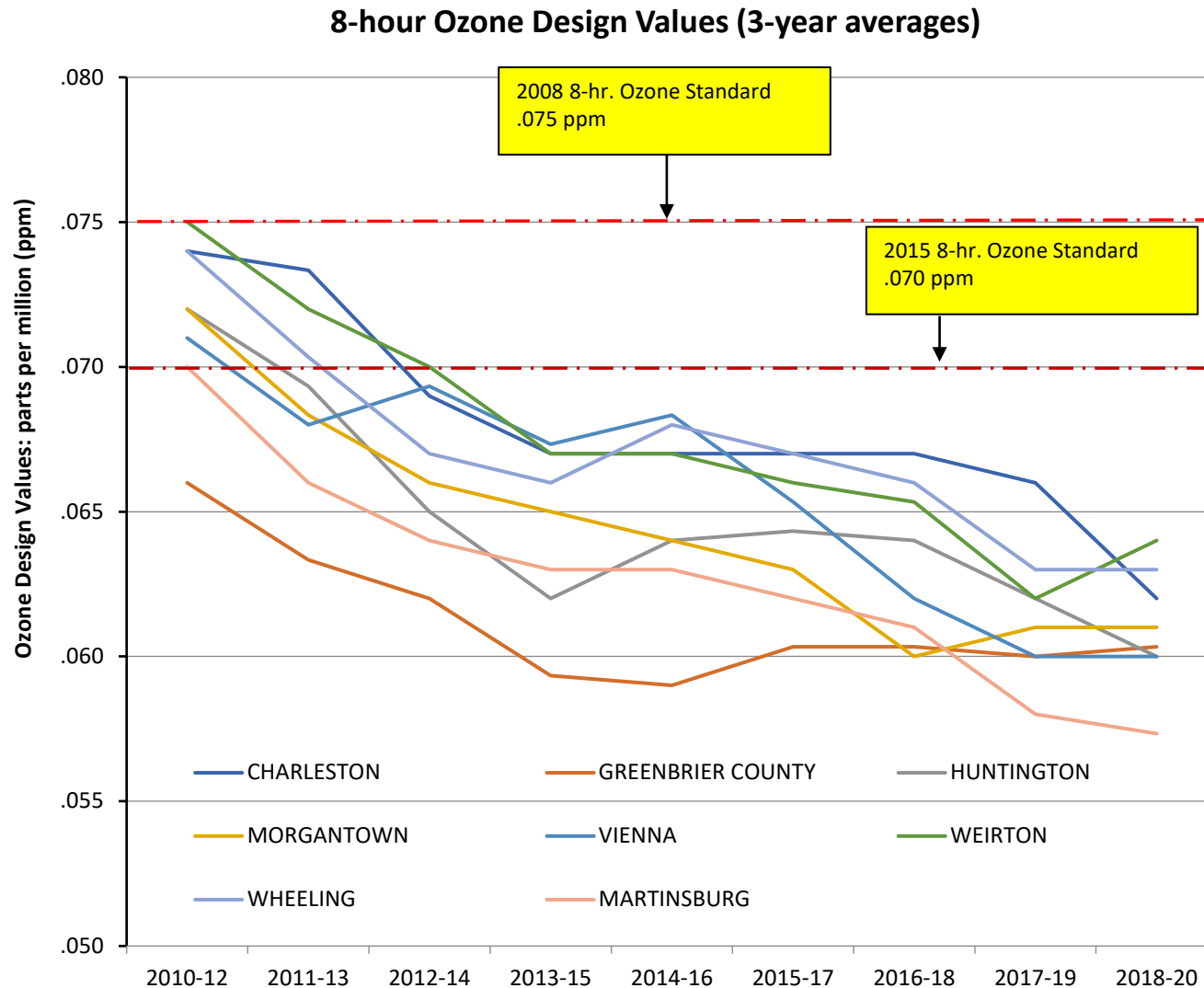


County	PM ₁₀	PM _{2.5}	CO	SO ₂	O ₃	Meteorological	PM _{2.5} Speciation	Air Toxics
Berkeley		1			1			
Brooke	1	2		3				
Cabell		1			1			
Greenbrier					1			
Hancock	1	1		3	1			
Harrison		1						
Kanawha	1	3	1	1	1	1	1	1
Marion		1						
Marshall		2		1			1	
Monongalia		1		1	1			
Ohio		1			1			1
Wood		1		1	1			

Air Quality Index

County	2018 Days in each category					2019 Days in each category					2020 Days in each category				
	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Highest Value AQI	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Highest Value AQI	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Highest Value AQI
Berkeley	249	32	0	0	87	252	24	2	0	127	261	17	0	0	95
Brooke	322	41	2	0	110	317	45	3	0	112	333	33	0	0	94
Cabell	242	40	0	0	100	255	20	0	0	71	270	14	0	0	100
Greenbrier	232	222	10	0	84	222	20	0	0	84	232	2	0	0	54
Hancock	326	38	1	0	105	330	35	0	0	93	335	30	1	0	133
Harrison	104	13	0	0	61	101	10	0	0	59	110	8	0	0	78
Kanawha	303	61	1	0	105	314	51	0	0	93	342	24	0	0	84
Marion	105	12	0	0	63	87	12	0	0	61	69	5	0	0	67
Marshall	294	71	0	0	93	326	28	0	0	77	342	12	0	0	68
Monongalia	311	30	0	0	93	337	27	0	0	74	348	14	0	0	90
Ohio	241	41	1	0	105	249	34	0	0	71	244	29	1	0	101
Wood	341	22	0	0	77	333	31	0	0	87	347	19	0	0	80

Criteria Pollutants – Ozone Summary



Criteria Pollutants – Ozone Summary



Criteria Pollutant Summary Report		
Pollutant:	Ozone O ₃	
Monitoring season:	March 1 – October 31	
Data interval:	Hourly	
Units:	Parts per million (PPM)	
National Ambient Air Quality Standards (NAAQS)		
Primary NAAQS:	8-hour (3-year average of 4 th max)	0.070 PPM
Secondary NAAQS:	Same as primary standard	

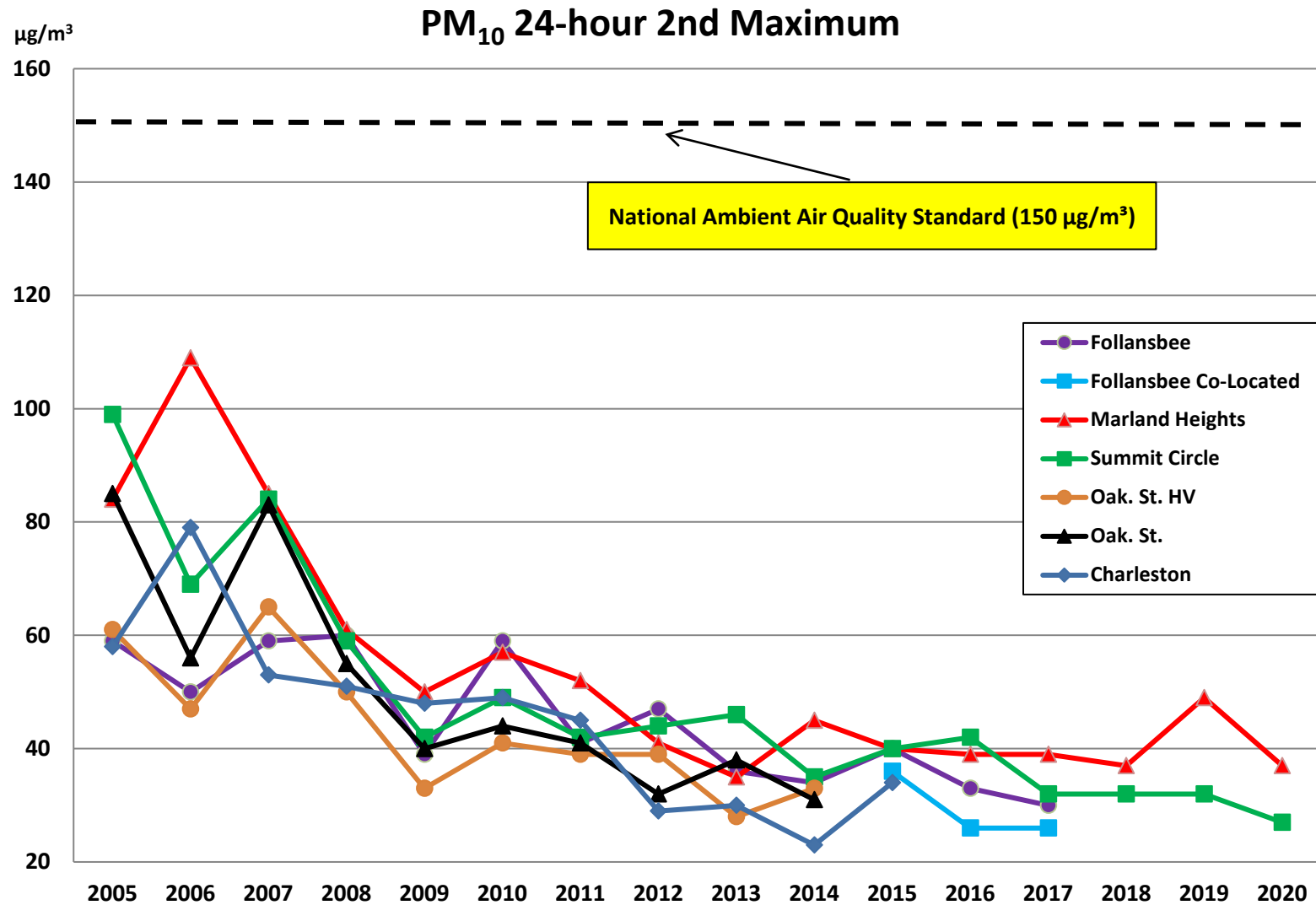
	County	Site	EPA-ID	# Valid Days	8-Hour Averages					
					Obs >0.070	1st Max	2nd Max	3rd Max	4th Max	'16-'18 4th Max Avg
2018	Berkeley	Martinsburg	54-003-0003	242	0	.065	.063	.062	.062	.061
	Cabell	Huntington	54-011-0007	244	0	.070	.069	.066	.066	.064
	Greenbrier	Sam Black Church	54-025-0003	231	0	.065	.062	.060	.058	.060
	Hancock	Weirton - Summit Circle	54-029-0009	224	1	.072	.068	.067	.067	.065
	Kanawha	Charleston	54-039-0020	307	1	.072	.067	.067	.066	.067
	Monongalia	Morgantown	54-061-0003	239	0	.068	.063	.062	.062	.060
	Ohio	Wheeling	54-069-0010	244	1	.072	.068	.066	.066	.066
	Wood	Vienna	54-107-1002	239	0	.063	.062	.061	.061	.062

Criteria Pollutants – Ozone Summary

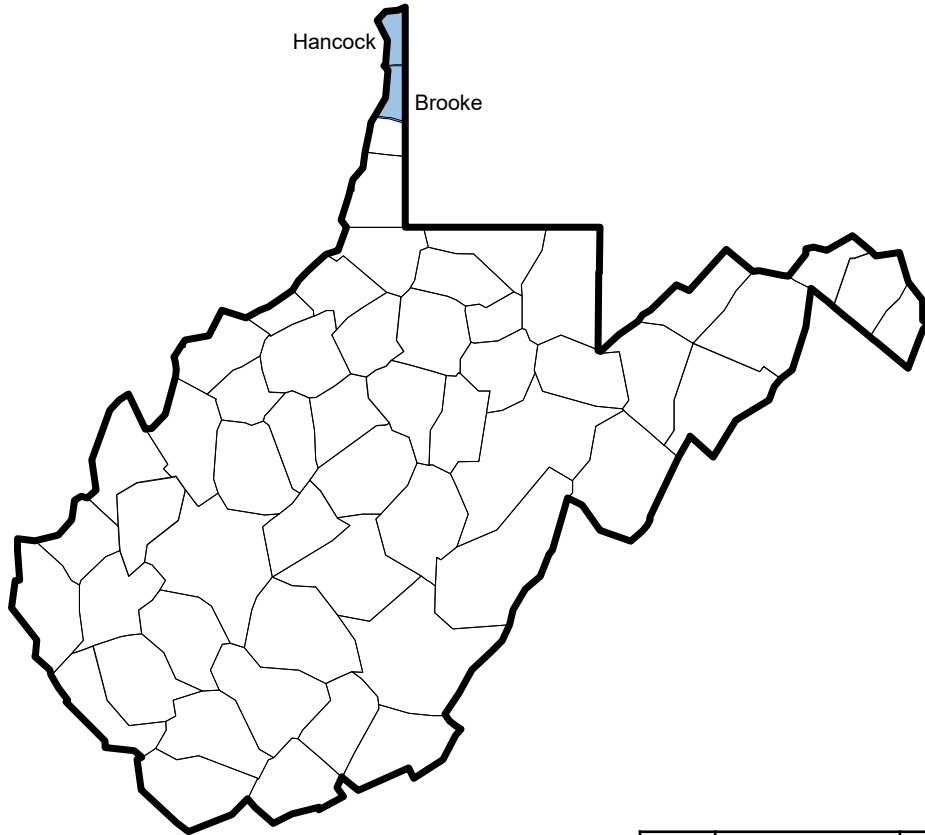
2019	County	Site	EPA-ID	# Valid Days	8-Hour Averages					
					Obs >0.070	1st Max	2nd Max	3rd Max	4th Max	'17-'19 4th Max Avg
					Berkeley	Martinsburg	54-003-0003	241	0	.058
Cabell	Huntington	54-011-0007	222	0	.061	.059	.059	.058	.062	
Greenbrier	Sam Black Church	54-025-0003	241	0	.065	.063	.061	.061	.060	
Hancock	Weirton - Summit Circle	54-029-0009	198	0	.065	.061	.061	.059	.062	
Kanawha	Charleston	54-039-0020	261	0	.067	.066	.066	.065	.066	
Monongalia	Morgantown	54-061-0003	237	0	.062	.061	.061	.060	.061	
Ohio	Wheeling	54-069-0010	243	0	.061	.061	.060	.060	.063	
Wood	Vienna	54-107-1002	237	0	.066	.062	.062	.061	.060	

2020	County	Site	EPA-ID	# Valid Days	8-Hour Averages					
					Obs >0.070	1st Max	2nd Max	3rd Max	4th Max	'18-'20 4th Max Avg
					Berkeley	Martinsburg	54-003-0003	240	0	.059
Cabell	Huntington	54-011-0007	211	0	.070	.063	.058	.058	.060	
Greenbrier	Sam Black Church	54-025-0003	232	0	.056	.055	.052	.052	.057	
Hancock	Weirton - Summit Circle	54-029-0009	222	1	.080	.069	.068	.066	.064	
Kanawha	Charleston	54-039-0020	299	0	.062	.059	.058	.057	.062	
Monongalia	Morgantown	54-061-0003	230	0	.067	.065	.063	.062	.061	
Ohio	Wheeling	54-069-0010	230	1	.071	.067	.063	.063	.063	
Wood	Vienna	54-107-1002	211	0	.064	.060	.060	.058	.060	

Criteria Pollutants – PM₁₀ Summary



Criteria Pollutants – PM₁₀ Summary



Criteria Pollutant Summary Report		
Pollutant:	Particulate Matter PM ₁₀	
Monitoring season:	January 1 – December 31	
Data interval:	24-hour	
Units:	Micro-grams per cubic meter (µg/m ³)	
National Ambient Air Quality Standards (NAAQS)		
Primary NAAQS:	24-hour average Not to be exceeded more than once per year on average over 3 years	150 µg/m ³
Secondary NAAQS:	Same as primary standard	

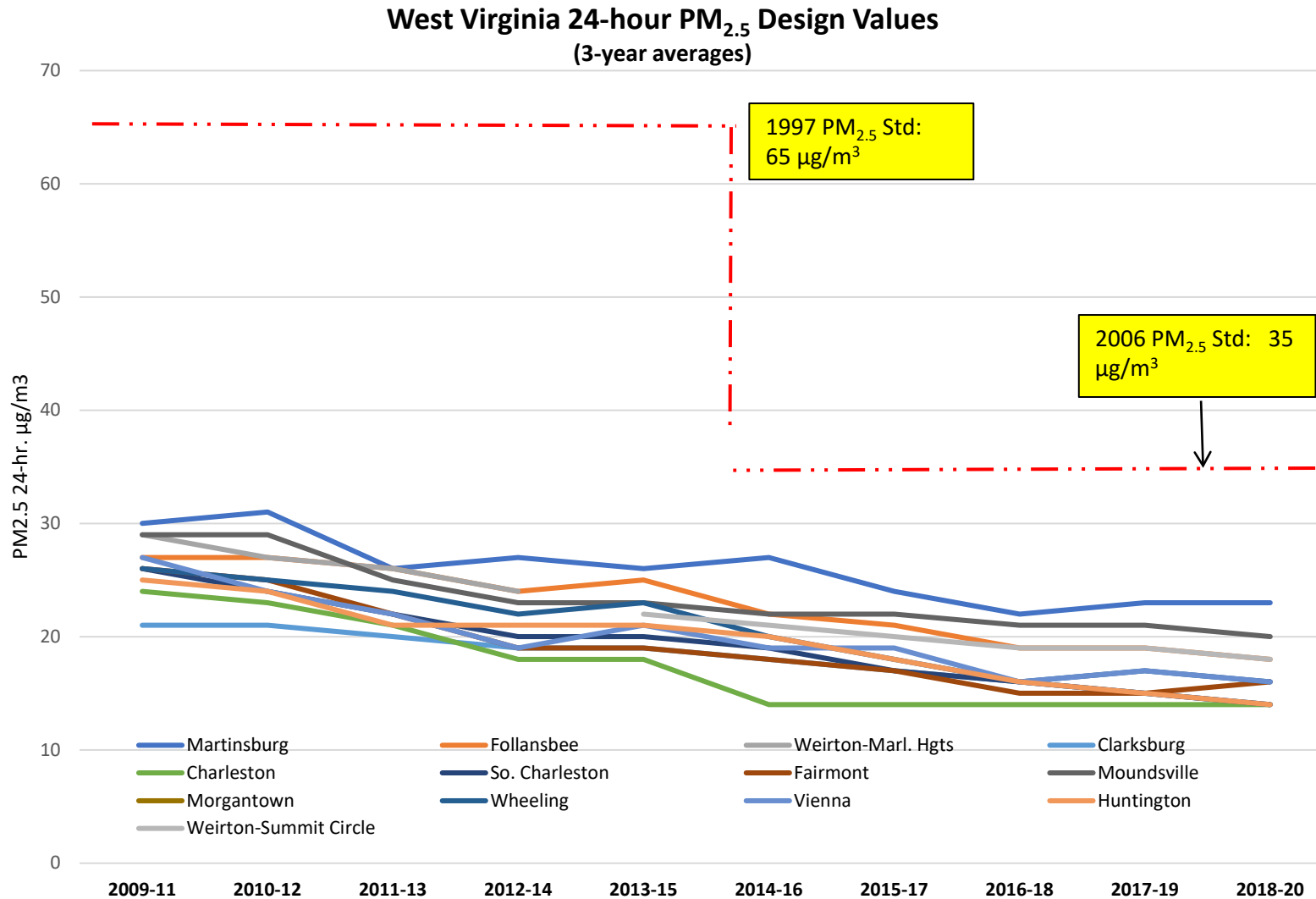
2018	County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
						Obs > 150	1st Max	2nd Max	3rd Max	4th Max
	Brooke	Weirton/Marland Hts	54-009-0011	8668	15.3	0	38	37	37	37
	Hancock	Weirton/Summit Circle	54-029-0009	8636	11.4	0	35	32	31	30

Criteria Pollutants – PM₁₀ Summary

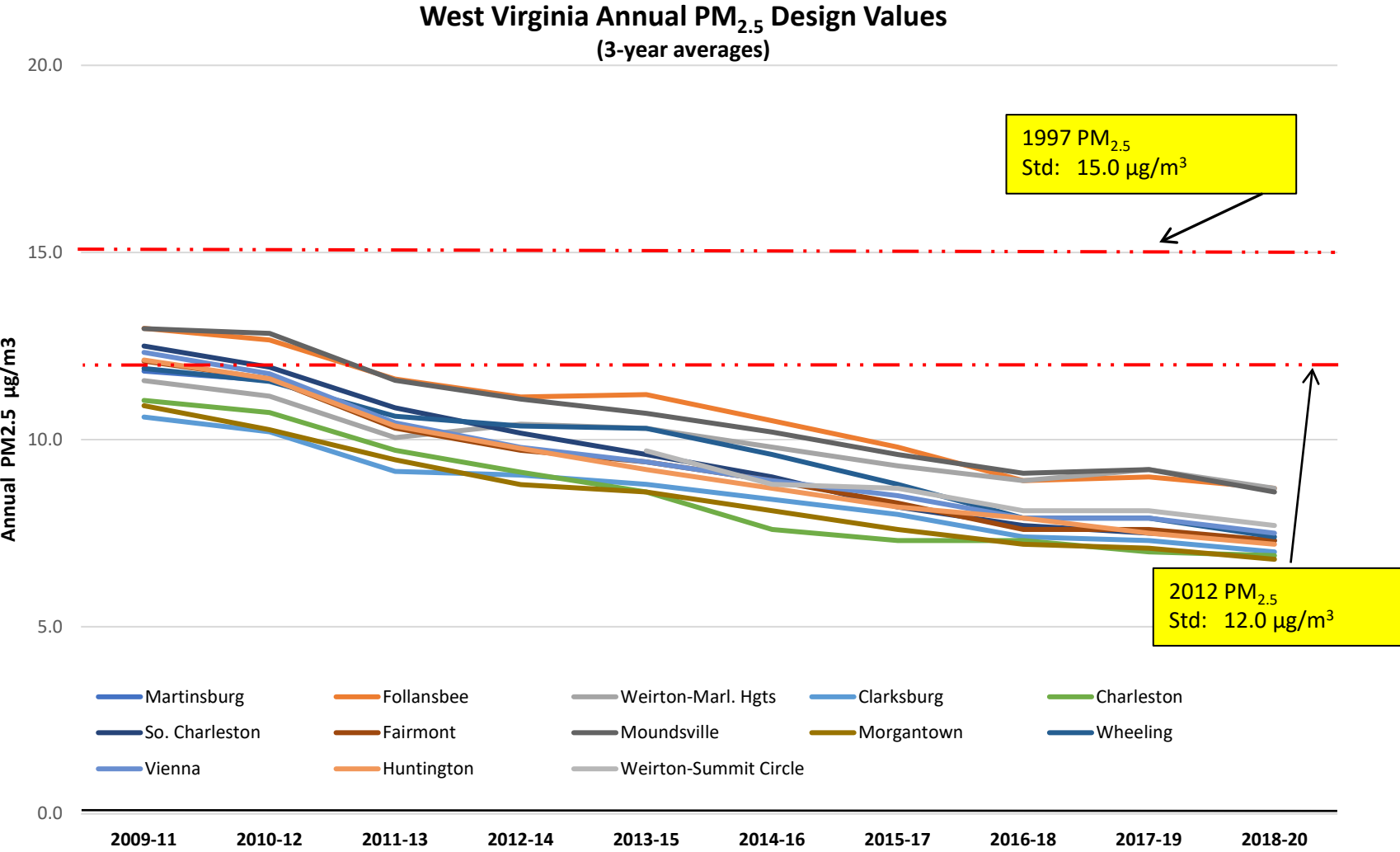
2019	County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
						Obs > 150	1st Max	2nd Max	3rd Max	4th Max
	Brooke	Weirton/Marland Hts	54-009-0011	8615	16.1	0	52	49	44	40
	Hancock	Weirton/Summit Circle	54-029-0009	6131	12.4	0	34	32	31	31

2020	County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
						Obs > 150	1st Max	2nd Max	3rd Max	4th Max
	Brooke	Weirton/Marland Hts	54-009-0011	8770	14.6	0	37	37	36	36
	Hancock	Weirton/Summit Circle	54-029-0009	4929	11.4	0	27	27	26	26

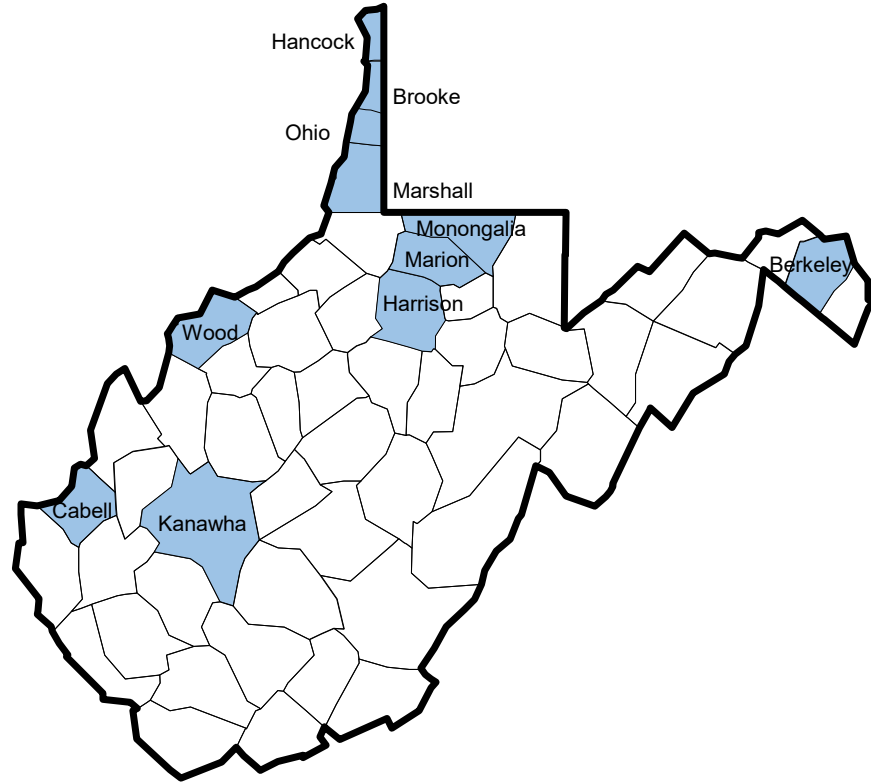
Criteria Pollutants – PM_{2.5} Summary



Criteria Pollutants – PM_{2.5} Summary



Criteria Pollutants – PM_{2.5} Summary



Criteria Pollutant Summary Report		
Pollutant:	Particulate Matter PM _{2.5}	
Monitoring season:	January 1 – December 31	
Data interval:	24-hour	
Units:	Micro-grams per cubic meter (µg/m ³)	
National Ambient Air Quality Standards (NAAQS)		
Primary NAAQS:	Annual arithmetic mean (3-year average)	15.0 µg/m ³
	24-hour average (3-year average 98 th percentile)	35 µg/m ³
Secondary NAAQS:	Same as primary standard	

Criteria Pollutants – PM_{2.5} Summary

	County	Site	EPA-ID	# Obs	Annual Mean	24-Hour Average				3 Year Average	
						Obs > 35	98%	1st Max	2nd Max	Annual	24-Hr 98%
2018	Berkeley	Martinsburg	54-003-0003	115	8.1	0	21.8	29.1	25.5	8.4	22
	Brooke	Follansbee	54-009-0005	120	8.6	0	19.4	22.2	20.1	8.9	19
	Brooke	Weirton - Marland Heights	54-009-0011	118	8.8	0	20.0	21.0	20.2	8.9	21
	Cabell	Huntington	54-011-0007	116	7.7	0	16.0	17.0	16.8	7.9	16
	Hancock	Weirton - Summit Circle	54-029-0009	120	7.8	0	19.4	20.4	19.4	8.1	19
	Harrison	Clarksburg	54-033-0003	117	7.1	0	15.3	16.8	16.6	7.4	16
	Kanawha	Charleston	54-039-0020	120	7.2	0	15.9	18.2	16.2	7.3	14
	Kanawha	South Charleston	54-039-1005	118	7.6	0	16.1	19.3	17.7	7.7	16
	Marion	Fairmont	54-049-0006	117	7.4	0	14.8	17.7	15.1	7.6	15
	Marshall	Moundsville	54-051-1002	117	9.0	0	20.0	23.5	22.1	9.1	21
	Monongalia	Morgantown	54-061-0003	94	6.9	0	18.7	18.9	18.7	7.2	17
	Ohio	Wheeling	54-069-0010	119	7.6	0	16.7	20.1	18.2	7.9	16
	Wood	Vienna	54-107-1002	121	7.7	0	16.5	19.0	17.1	7.9	16

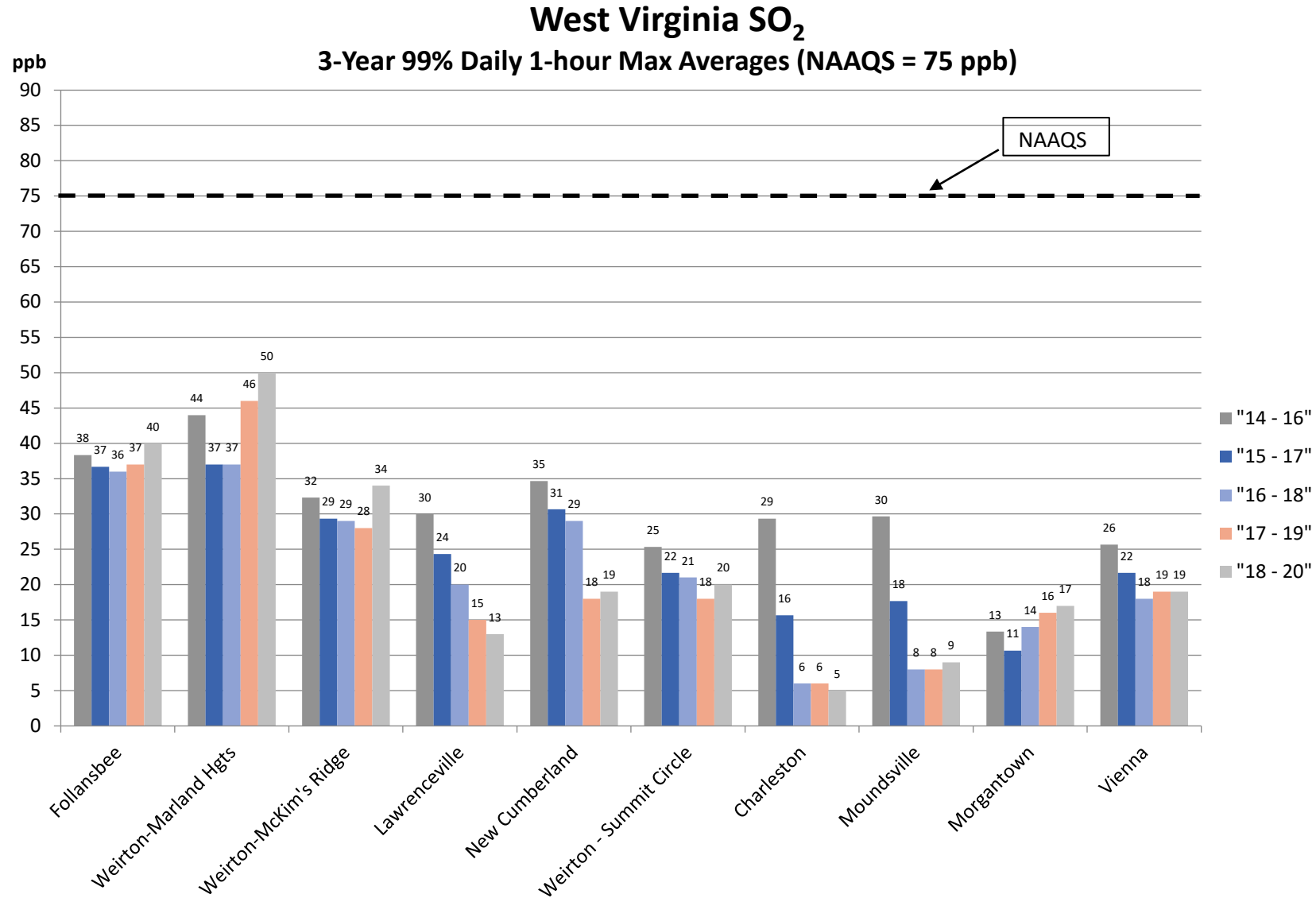
Criteria Pollutants – PM_{2.5} Summary

	County	Site	EPA-ID	# Obs	Annual Mean	24-Hour Average				3 Year Average	
						Obs > 35	98%	1st Max	2nd Max	Annual	24-Hr 98%
2019	Berkeley	Martinsburg	54-003-0003	115	8.9	2	25.1	46.0	41.7	8.5	23
	Brooke	Follansbee	54-009-0005	118	9.5	0	17.9	24.3	22.8	9.0	19
	Brooke	Weirton - Marland Heights	54-009-0011	117	9.6	1	20.6	39.9	31.5	9.2	20
	Cabell	Huntington	54-011-0007	114	7.0	0	13.0	14.9	14.6	7.5	15
	Hancock	Weirton - Summit Circle	54-029-0009	84	8.1	0	19.2	31.9	19.2	8.1	19
	Harrison	Clarksburg	54-033-0003	111	7.3	0	13.9	16.0	15.2	7.3	15
	Kanawha	Charleston	54-039-0020	119	7.0	0	13.3	15.5	13.5	7.0	14
	Kanawha	South Charleston	54-039-1005	119	7.3	0	13.1	15.8	13.2	7.5	15
	Marion	Fairmont	54-049-0006	99	7.6	0	15.6	16.9	15.6	7.6	15
	Marshall	Moundsville	54-051-1002	118	9.2	0	22.2	24.4	22.9	9.2	21
	Monongalia	Morgantown	54-061-0003	114	7.2	0	15.0	16.8	15.3	7.1	17
	Ohio	Wheeling	54-069-0010	118	8.1	0	17.7	18.3	17.9	7.9	17
	Wood	Vienna	54-107-1002	106	7.7	0	16.3	16.8	16.2	7.9	17

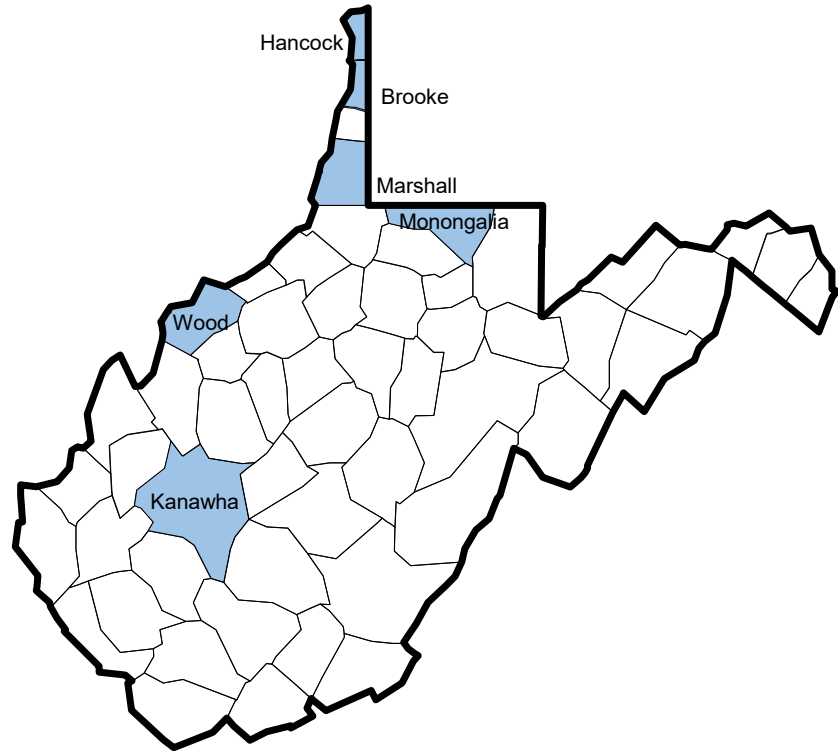
Criteria Pollutants – PM_{2.5} Summary

	County	Site	EPA-ID	# Obs	Annual Mean	24-Hour Average				3 Year Average	
						Obs > 35	98%	1st Max	2nd Max	Annual	24-Hr 98%
2020	Berkeley	Martinsburg	54-003-0003	118	7.5	0	23.1	32.9	24.0	8.2	23
	Brooke	Follansbee	54-009-0005	120	8.1	0	16.7	22.5	17.5	8.7	18
	Brooke	Weirton - Marland Heights	54-009-0011	116	7.8	0	17.7	23.4	18.5	8.7	19
	Cabell	Huntington	54-011-0007	122	6.7	0	14.1	24.5	18.3	7.2	14
	Hancock	Weirton - Summit Circle	54-029-0009	111	7.1	0	16.7	22.0	17.4	7.7	18
	Harrison	Clarksburg	54-033-0003	118	6.6	0	13.4	24.8	15.2	7.0	14
	Kanawha	Charleston	54-039-0020	122	6.6	0	12.5	14.6	13.6	6.9	14
	Kanawha	South Charleston	54-039-1005	117	7.0	0	13.5	16.5	14.3	7.3	14
	Marion	Fairmont	54-049-0006	74	6.9	0	17.5	19.5	17.5	7.3	16
	Marshall	Moundsville	54-051-1002	118	7.6	0	16.4	20.4	16.8	8.6	20
	Monongalia	Morgantown	54-061-0003	118	6.2	0	16.1	21.2	17.3	6.8	17
	Ohio	Wheeling	54-069-0010	120	6.7	0	15.0	15.3	15.2	7.4	16
	Wood	Vienna	54-107-1002	119	7.0	0	15.3	17.5	15.8	7.5	16

Criteria Pollutants – SO₂ Summary



Criteria Pollutants – SO₂ Summary



Criteria Pollutant Summary Report		
Pollutant:	Sulfur Dioxide SO ₂	
Monitoring season:	January 1 – December 31	
Data interval:	Hourly	
Units:	Parts per billion (PPB)	
National Ambient Air Quality Standards (NAAQS)		
Primary NAAQS:	1-hour daily max 3 year 99% average	75 PPB
Secondary NAAQS:	3-hour average	500 PPB

Criteria Pollutants – SO₂ Summary

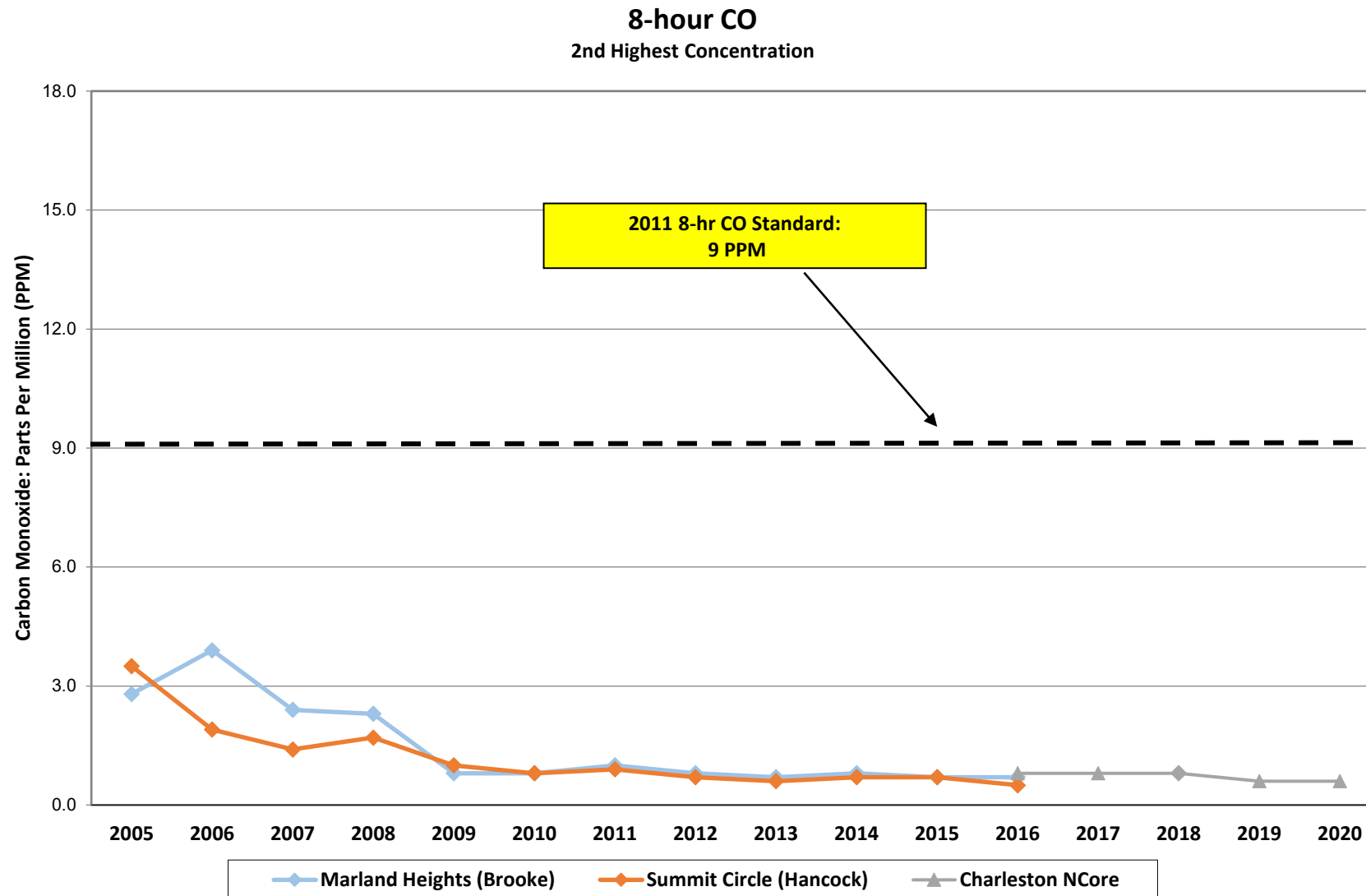
2018	County	Site	EPA-ID	# Obs	Annual Mean	1-Hr Average			
						1st Max	2nd Max	99%	16-18 99%
	Brooke	Follansbee	54-009-0005	8681	3.04	69	50	48	36
	Brooke	Weirton - Mckims Ridge	54-009-0007	8707	2.39	88	45	24	29
	Brooke	Weirton - Marland Heights	54-009-0011	8633	2.63	97	38	35	37
	Hancock	New Cumberland	54-029-0007	8681	1.91	31	27	22	29
	Hancock	Weirton - Summit Circle	54-029-0009	8615	2.12	22	21	18	21
	Hancock	Lawrenceville	54-029-0015	8648	1.98	20	18	16	20
	Kanawha	Charleston	54-039-0020	8260	0.49	8	6	5	6
	Marshall	Moundsville	54-051-1002	8696	1.58	11	10	9	8
Monongalia	Morgantown	54-061-0003	6685	1.16	35	31	27	14	
Wood	Vienna	54-107-1002	8377	1.74	41	20	16	18	

2019	County	Site	EPA-ID	# Obs	Annual Mean	1-Hr Average			
						1st Max	2nd Max	99%	17-19 99%
	Brooke	Follansbee	54-009-0005	8703	3.35	72	44	34	37
	Brooke	Weirton - Mckims Ridge	54-009-0007	8695	2.41	43	37	36	28
	Brooke	Weirton - Marland Heights	54-009-0011	8698	3.15	79	79	75	46
	Hancock	New Cumberland	54-029-0007	8634	2.07	49	32	16	18
	Hancock	Weirton - Summit Circle	54-029-0009	6167	2.11	45	34	21	18
	Hancock	Lawrenceville	54-029-0015	8615	1.85	51	30	13	15
	Kanawha	Charleston	54-039-0020	8311	0.71	7	7	6	6
	Marshall	Moundsville	54-051-1002	8245	1.85	21	12	9	8
Monongalia	Morgantown	54-061-0003	8372	1.17	25	21	14	16	
Wood	Vienna	54-107-1002	8258	1.78	37	34	22	19	

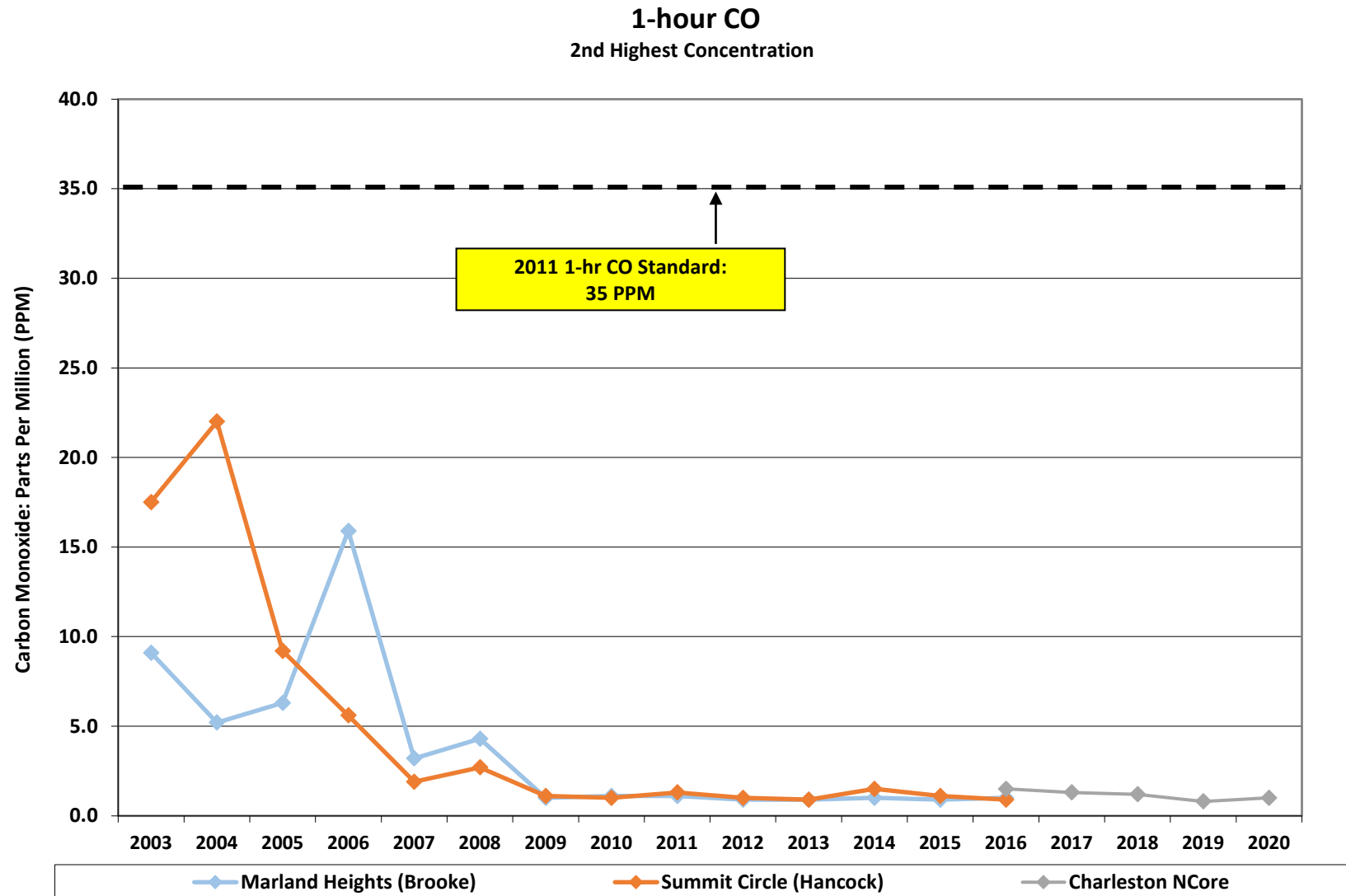
Criteria Pollutants – SO₂ Summary

2020	County	Site	EPA-ID	# Obs	Annual Mean	1-Hr Average			
						1st Max	2nd Max	99%	18-20 99%
	Brooke	Follansbee	54-009-0005	8635	2.90	59	39	38	40
	Brooke	Weirton - Mckims Ridge	54-009-0007	8644	2.99	61	60	41	34
	Brooke	Weirton - Marland Heights	54-009-0011	8407	2.72	70	51	39	50
	Hancock	New Cumberland	54-029-0007	8516	2.13	27	21	20	19
	Hancock	Weirton - Summit Circle	54-029-0009	8182	2.43	33	24	21	20
	Hancock	Lawrenceville	54-029-0015	8707	2.07	16	14	10	13
	Kanawha	Charleston	54-039-0020	8080	0.65	7	6	4	5
	Marshall	Moundsville	54-051-1002	8285	2.59	12	11	9	9
	Monongalia	Morgantown	54-061-0003	7997	0.59	15	10	10	17
	Wood	Vienna	54-107-1002	8557	1.68	20	20	19	19

Criteria Pollutants – CO Summary



Criteria Pollutants – CO Summary



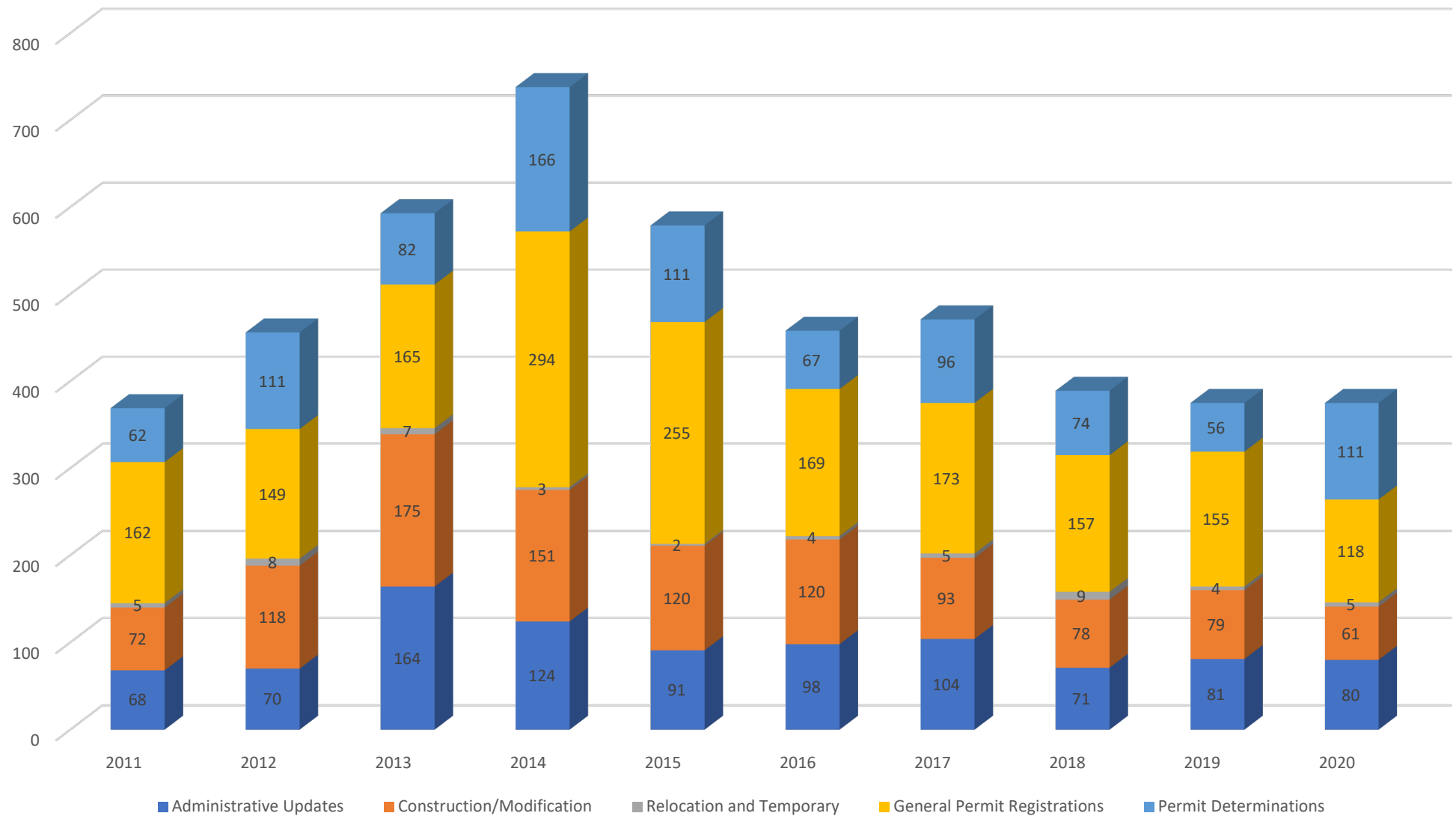
Criteria Pollutants – CO Summary



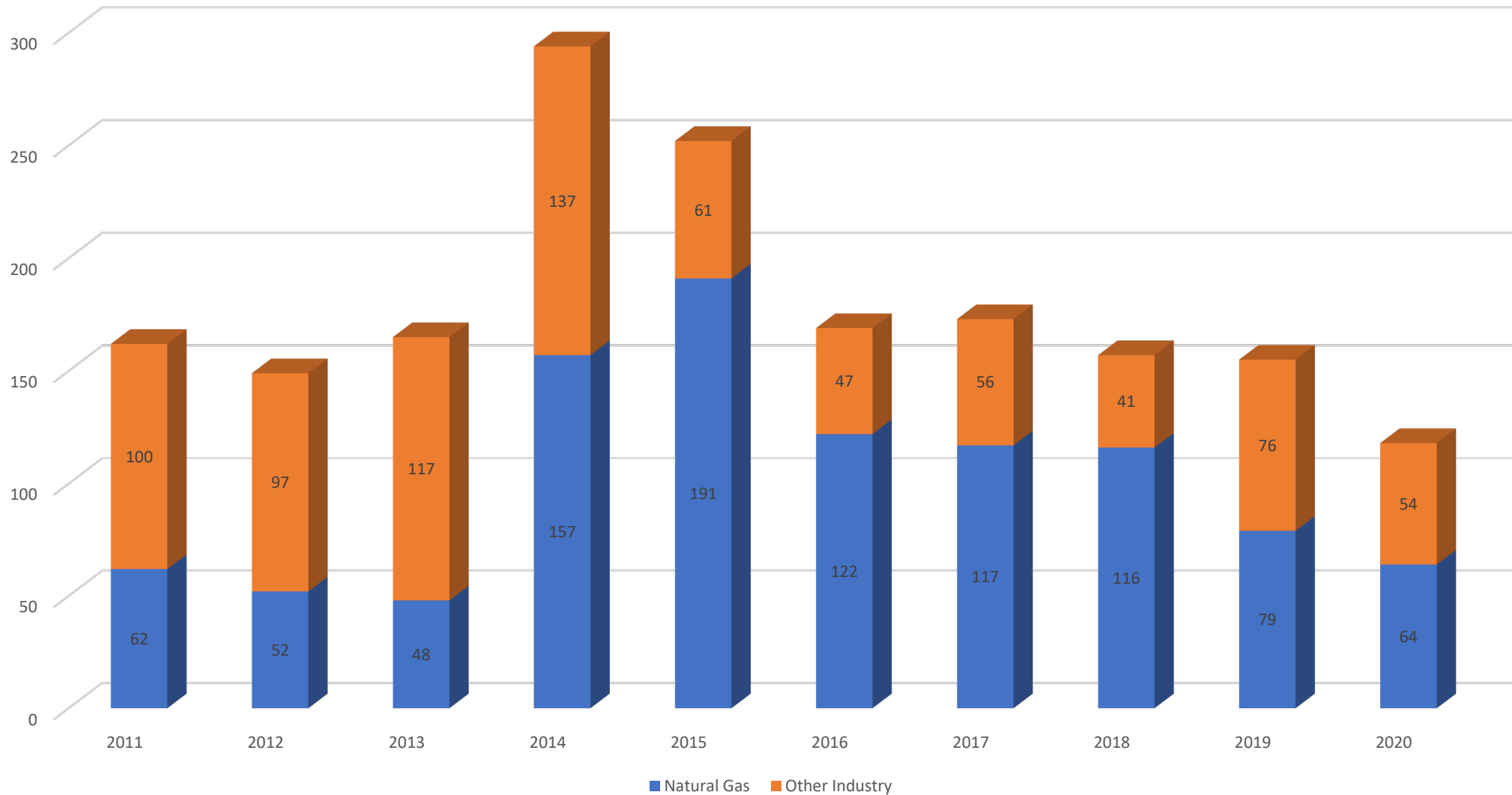
Criteria Pollutant Summary Report		
Pollutant:	Carbon Monoxide CO	
Monitoring season:	January 1 – December 31	
Data interval:	Hourly	
Units:	Parts per million (PPM)	
National Ambient Air Quality Standards (NAAQS)		
Primary NAAQS:	1-hour average 8-hour average Not to be exceeded more than once per year	35 PPM 9 PPM
Secondary NAAQS:	None	

County	Site	EPA-ID	Year	# Obs	1-Hr Average			8-Hr Average		
					Obs >35.0	1st Max	2nd Max	Obs >9.0	1st Max	2nd Max
Kanawha	Charleston NCore	54-039-0020	2018	7531	0	1.5	1.2	0	.8	.8
			2019	8287	0	1.3	.8	0	.6	.6
			2020	8551	0	1.1	1.0	0	.7	.6

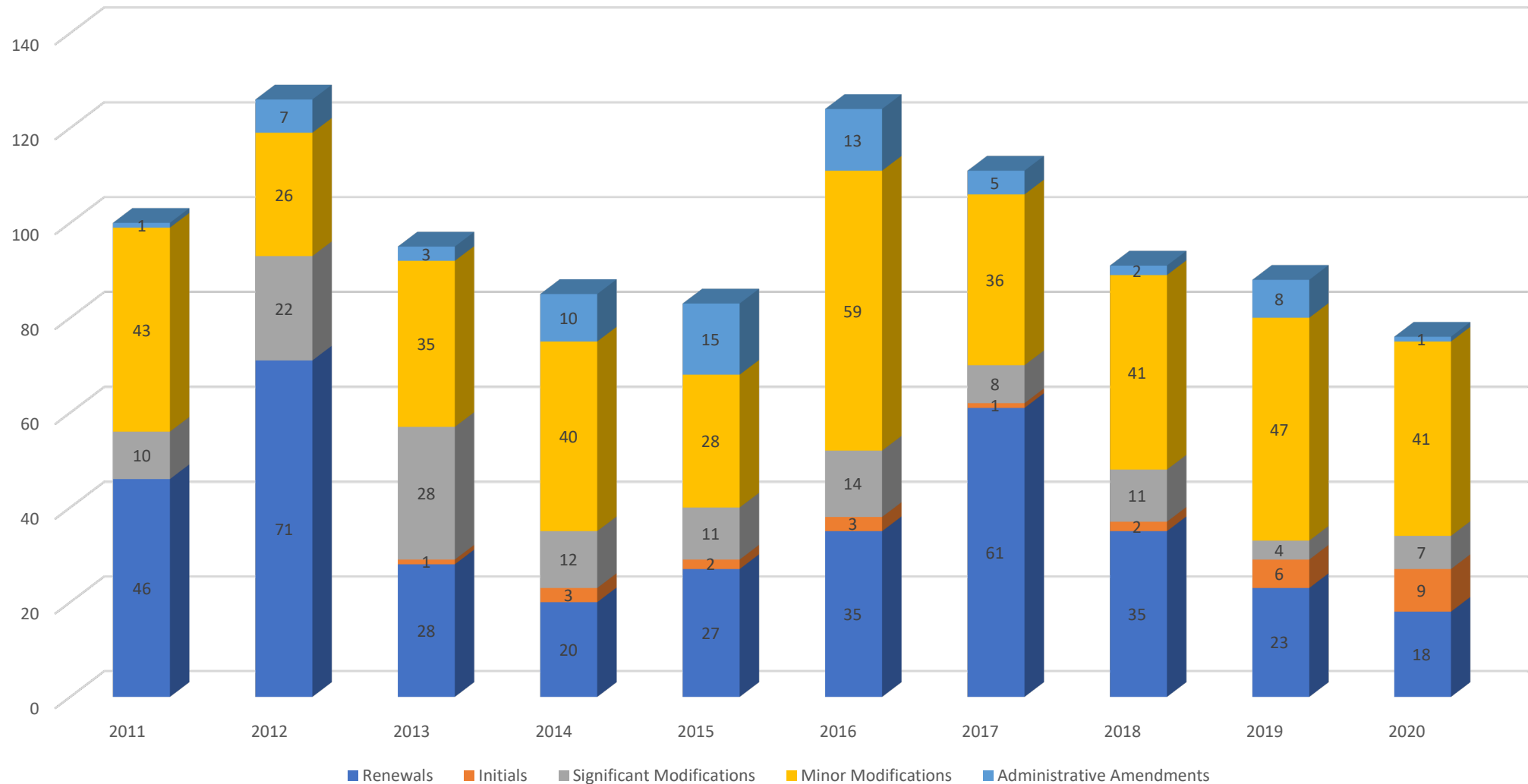
NSR Permitting



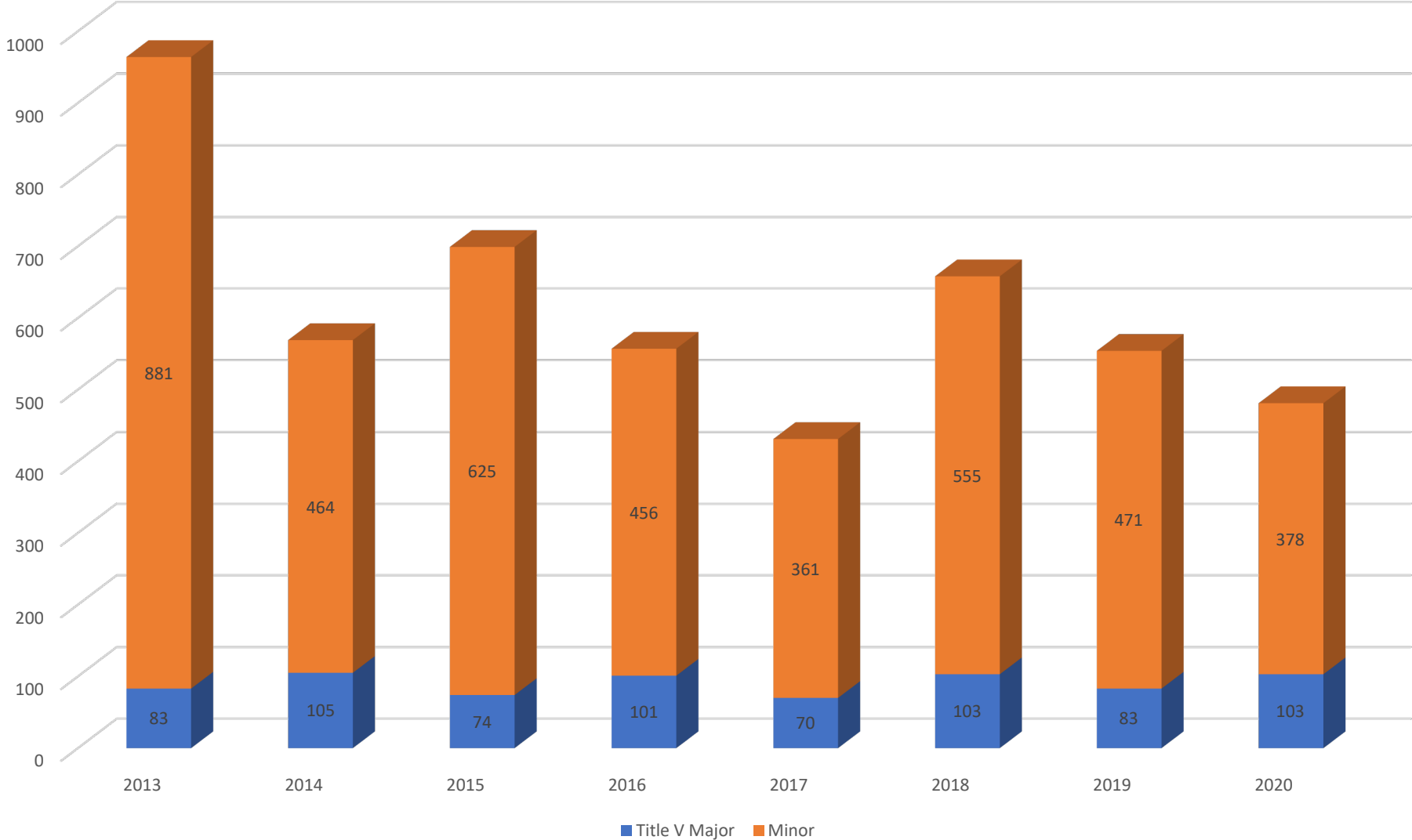
General Permit Registrations



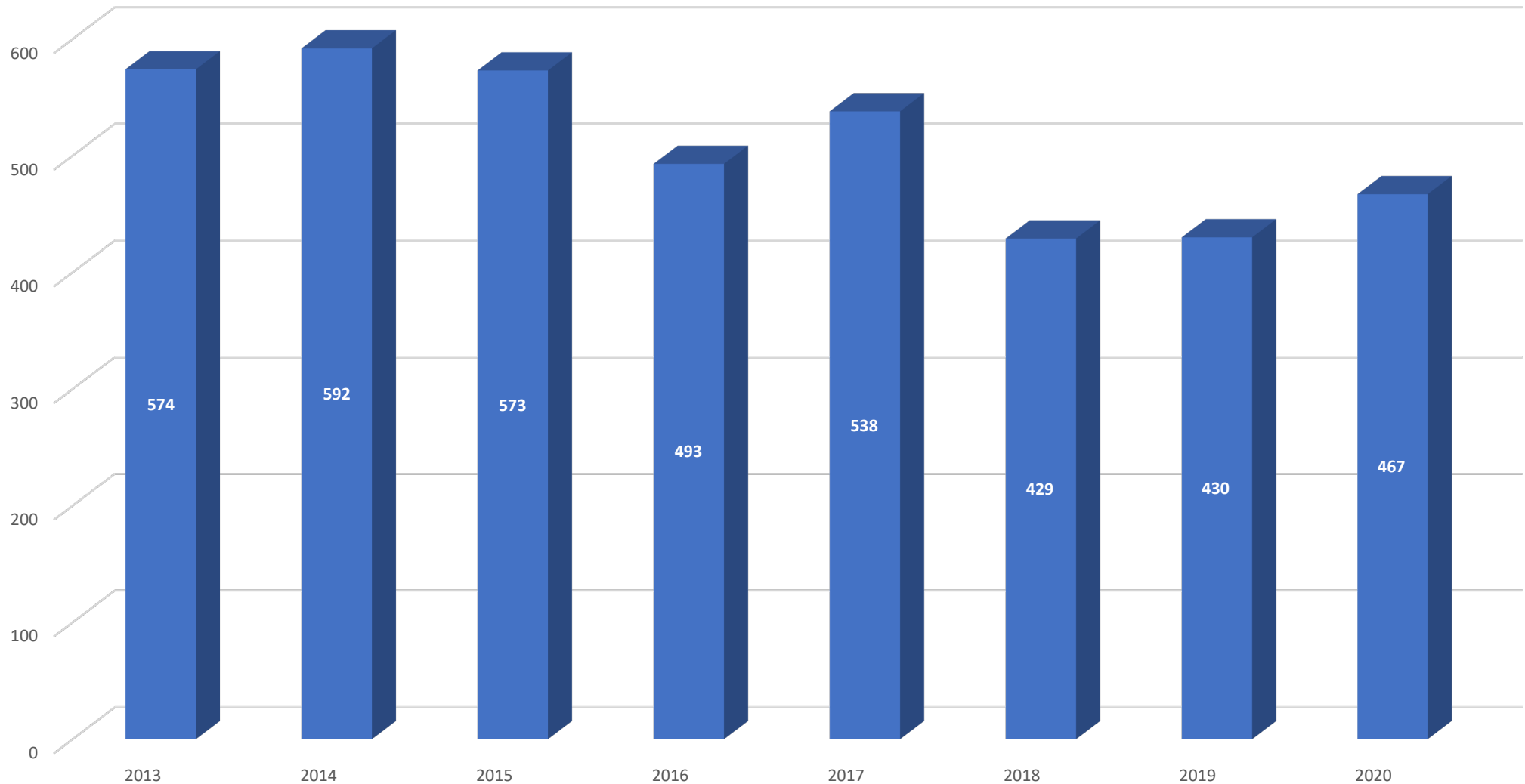
Title V Permitting



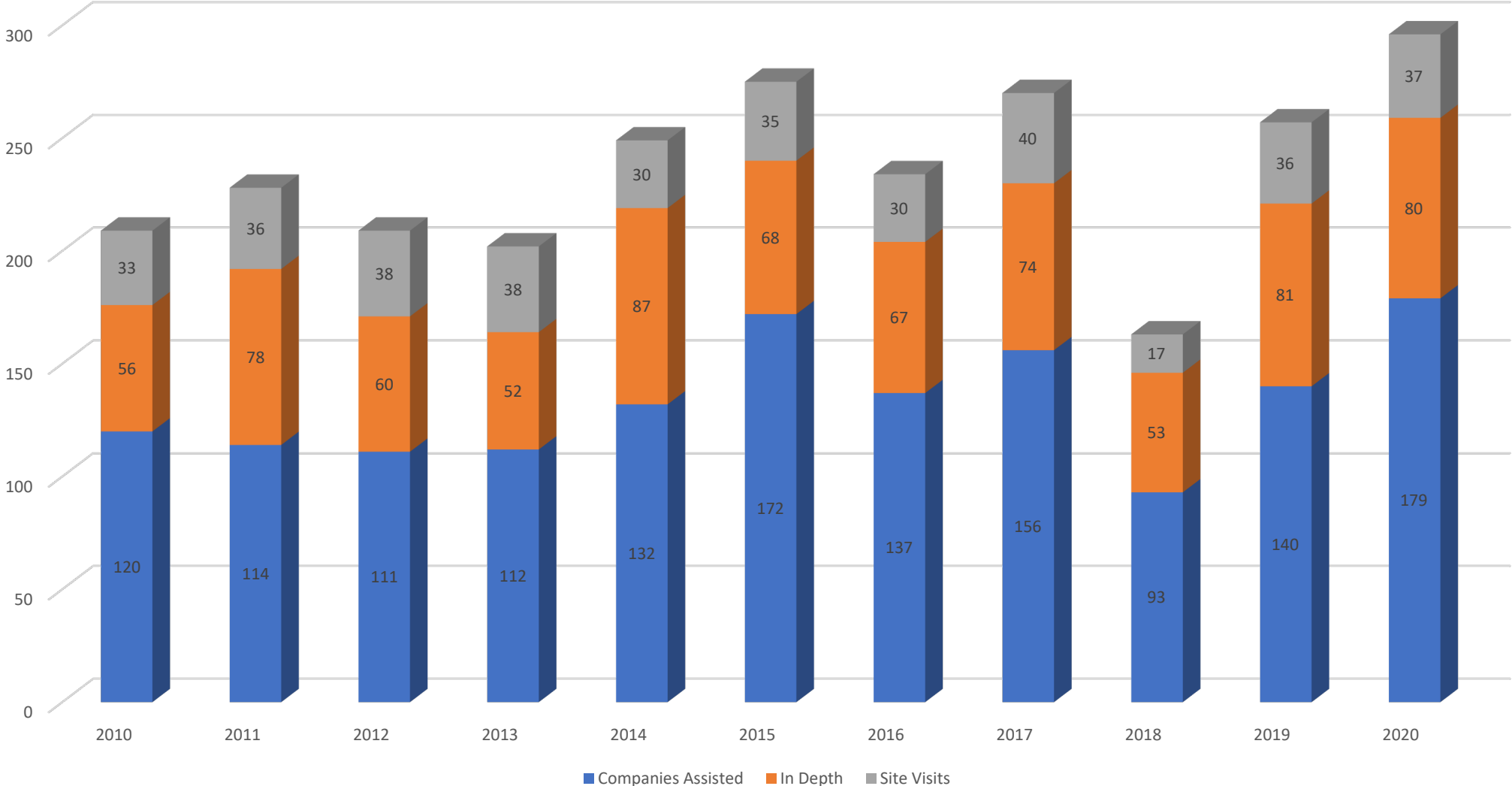
Full Compliance Evaluations



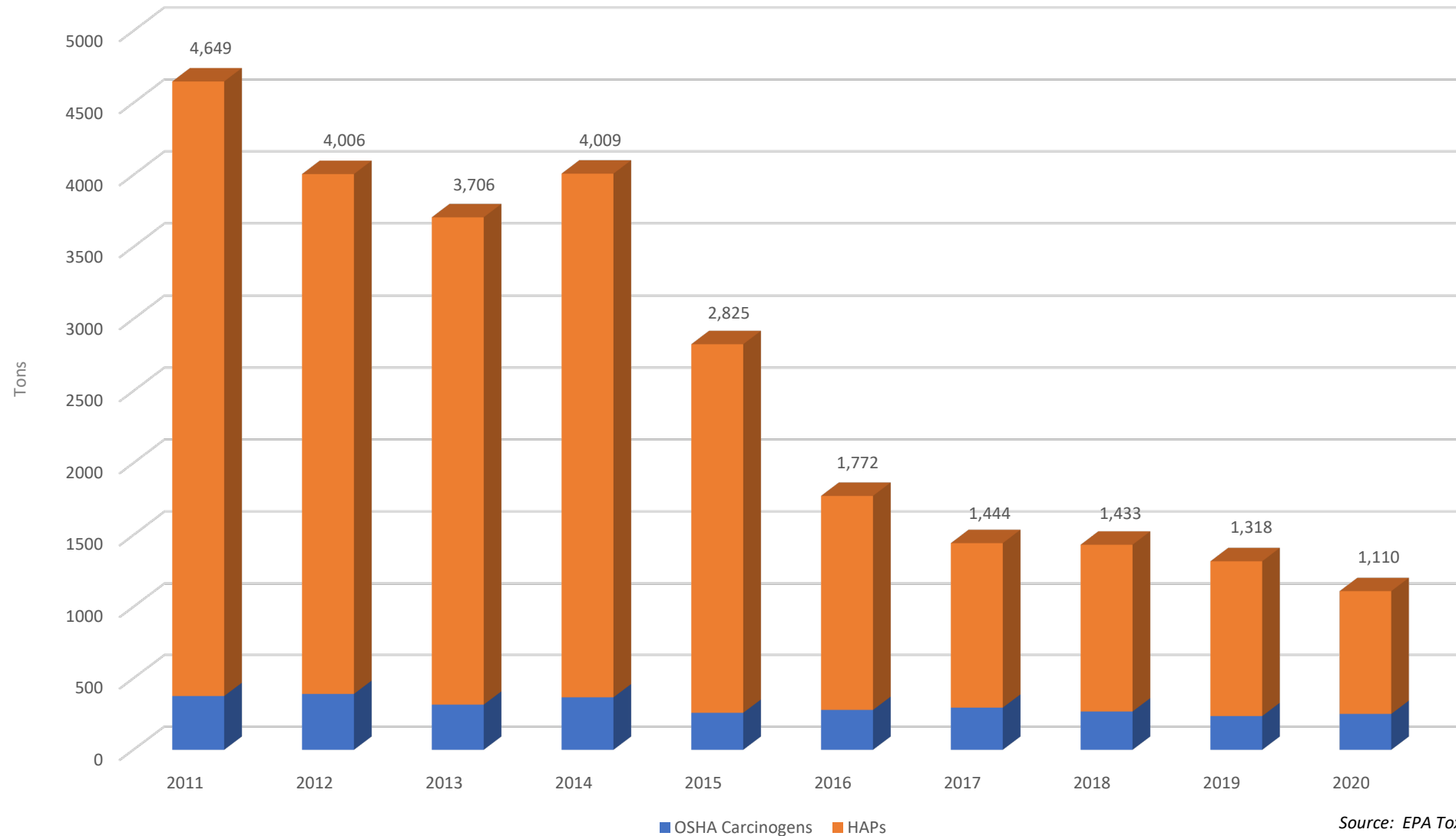
Complaints Received



Small Business Assistance Program

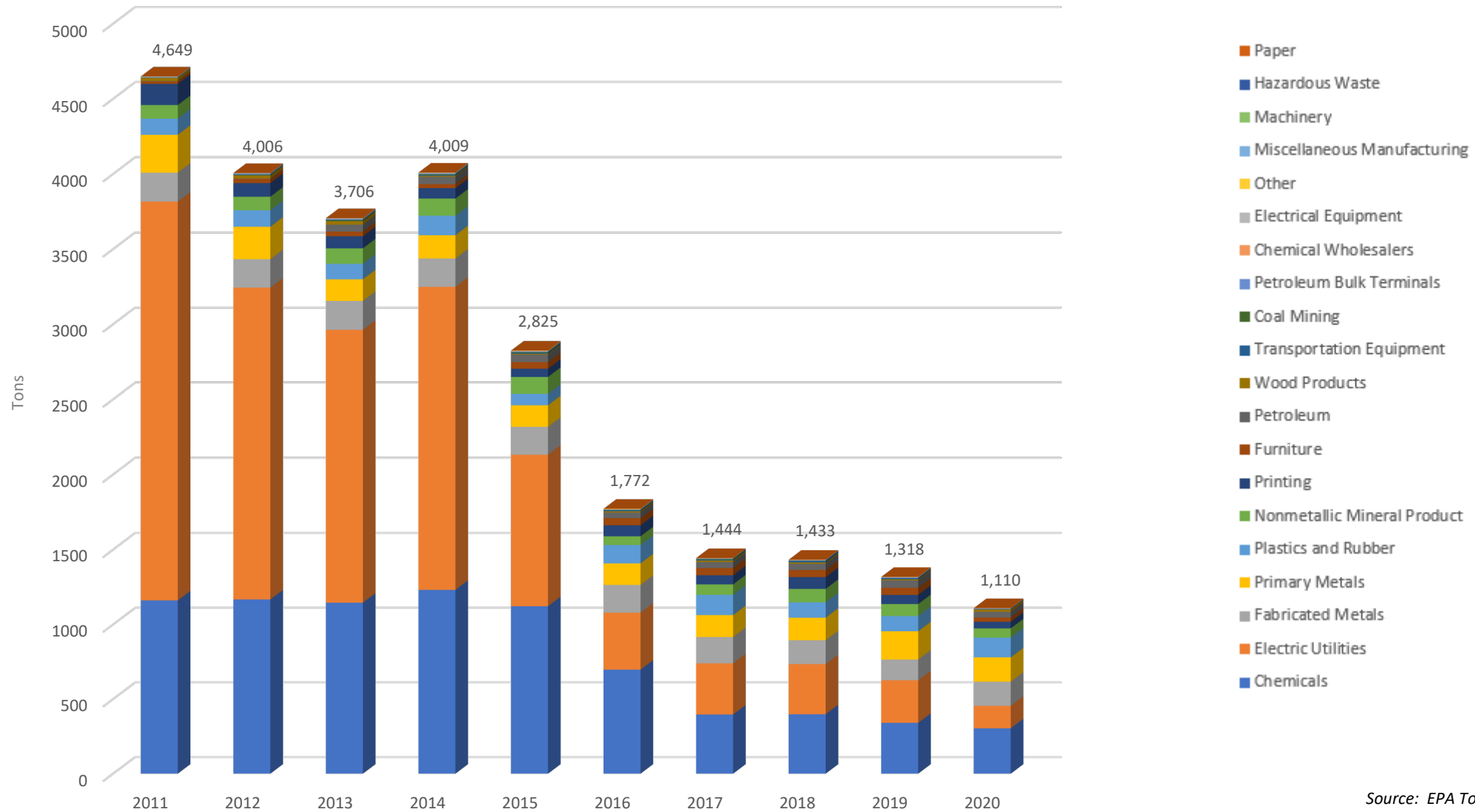


Hazardous Air Pollutant Trends in West Virginia



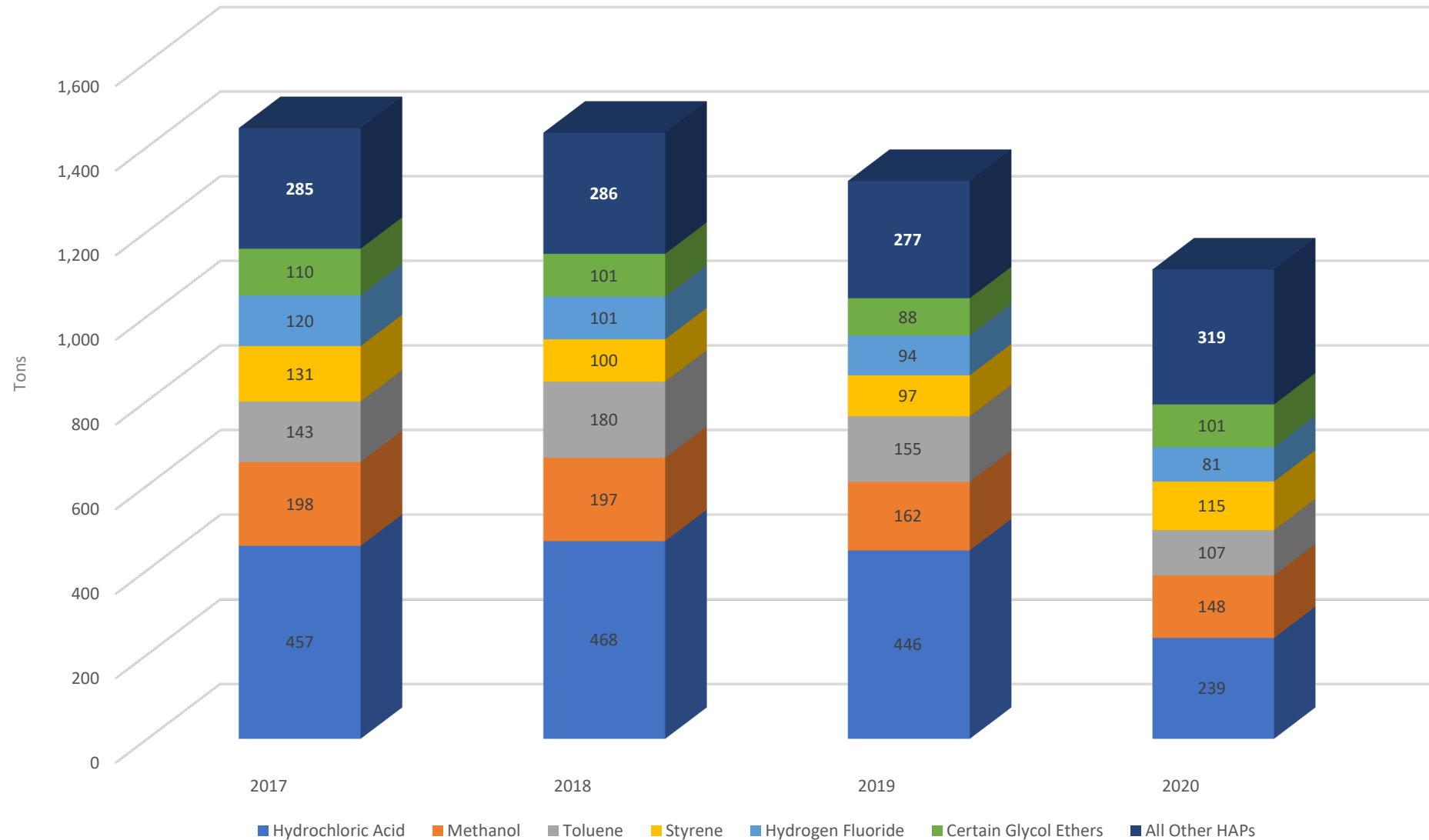
Source: EPA Toxic Release Inventory

Hazardous Air Pollutant Emissions by Industry Sector in West Virginia



Source: EPA Toxic Release Inventory

Top Six Hazardous Air Pollutants Emitted in West Virginia



Definitions

Acid precipitation or acid rain: Water falling in drops condensed from vapor in the atmosphere with acidic qualities. Principal components typically include nitric and sulfuric acid with water vapor.

Air pollutants: Solids, liquids, or gases which, if discharged into the air, may result in statutory air pollution.

Air pollution: Statutory air pollution has the meaning ascribed to it in West Virginia Code §22-5-2.

Air toxics: Term generally referring to hazardous air pollutants and used in the context of implementation of a program to address such emissions and their impacts.

Ambient air: Generally, the atmosphere; outdoors.

Annual arithmetic mean: The numerical average of the data for the year.

AQI: Air Quality Index.

Attainment: EPA designation that an area meets the National Ambient Air Quality Standards.

24-hour average: The average concentration for a 24-hour period.

CAA: Clean Air Act.

CO: Carbon monoxide.

CO₂: Carbon dioxide.

Criteria pollutant: An air pollutant for which certain levels of exposure have been determined to injure health, harm the environment and cause property damage. EPA-developed National Ambient Air Quality Standards, using science-based guidelines as the basis for setting acceptable levels.

DAQ: Division of Air Quality. Department of Environmental Protection office that administers West Virginia's air quality management program for the protection of public health, welfare, and the environment.

DEP: Department of Environmental Protection. West Virginia's regulatory agency charged with protecting and promoting a healthy environment.

De minimis: Refers to a level which is considered to be insignificant.

DRR: Data Requirements Rule.

ESS: Electronic Submittal System.

Elements: Chemicals, such as hydrogen, iron, sodium, carbon, nitrogen, or oxygen, whose distinctly different atoms serve as the basic building blocks of all matter. There are 92 naturally-occurring elements. Another 15 have been made in laboratories.

Emissions: Air pollutants exhausted from a unit or source into the atmosphere.

Exceedance: An incident occurring when the concentration of a pollutant in the ambient air is higher than the National Ambient Air Quality Standards.

EPA or United States EPA: Environmental Protection Agency. Federal agency that oversees the protection of the environment.

Fossil fuels: Natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived from such material.

Greenhouse gas: The gaseous compounds: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF₆). These gases absorb infrared radiation and trap heat in the atmosphere.

HAP: Hazardous Air Pollutant. Defined at Section 112(b) of the 1990 CAA.

MET: Meteorological.

MSA: Metropolitan Statistical Area.

NAAQS: National Ambient Air Quality Standards. Set by EPA to protect human health and welfare.

µg/m³: Micrograms per cubic meter.

Ncore: National Core Network. A multi-pollutant network that integrates several advanced measurement systems for particles, pollutant gases and meteorology.

Nonattainment: EPA designation that an area does not meet the National Ambient Air Quality Standards.

NO_x: Nitrogen oxides.

NSR: New Source Review.

Definitions

O₃: Ozone.

OSHA Carcinogen: A chemical that is a known or suspected carcinogen by the Occupational Safety and Health Administration by virtue of appearing in one of three sources: 1. National Toxicology Program (NTP), "Annual Report on Carcinogens" (Latest Editions); 2. International Agency for Research on Cancer (IARC) "Monographs" (Latest Editions); or 3. 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

Ozone season: Varies geographically but for West Virginia it is the period beginning March 1 and ending on October 31 of the same year.

Pb: Lead.

PM: Particulate Matter.

PM_{2.5}: Particles that are 2.5 micrometers or less in size. These fine particles can be easily inhaled deep into the lungs where they can accumulate, react, be cleared or absorbed. These particles are about 30 times smaller than the diameter of a human hair.

PM₁₀: Particles that are 10 micrometers in size or less. This includes both fine particles (2.5 micrometers or less) and inhalable coarse particles having diameters larger than 2.5 micrometers and smaller than 10 micrometers.

Particulate Matter: Any material, except uncombined water, that exists in a finely divided form as a liquid or solid.

PPB: Parts per billion by volume.

PPM: Parts per million by volume.

Precursor: A substance that is the source of, or aids in the formation of, another substance.

Regulated air pollutant: Generally, any air pollutant subject to a standard or other requirement promulgated under sections 111 or 112 of the Clean Air Act, or any air pollutant for which a National Ambient Air Quality Standard has been promulgated including particulate matter, sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone and lead or lead compounds.

SIP: State Implementation Plan. Plan to attain and maintain the National Ambient Air Quality Standards for criteria pollutants.

SLEIS: State and Local Emissions Inventory System.

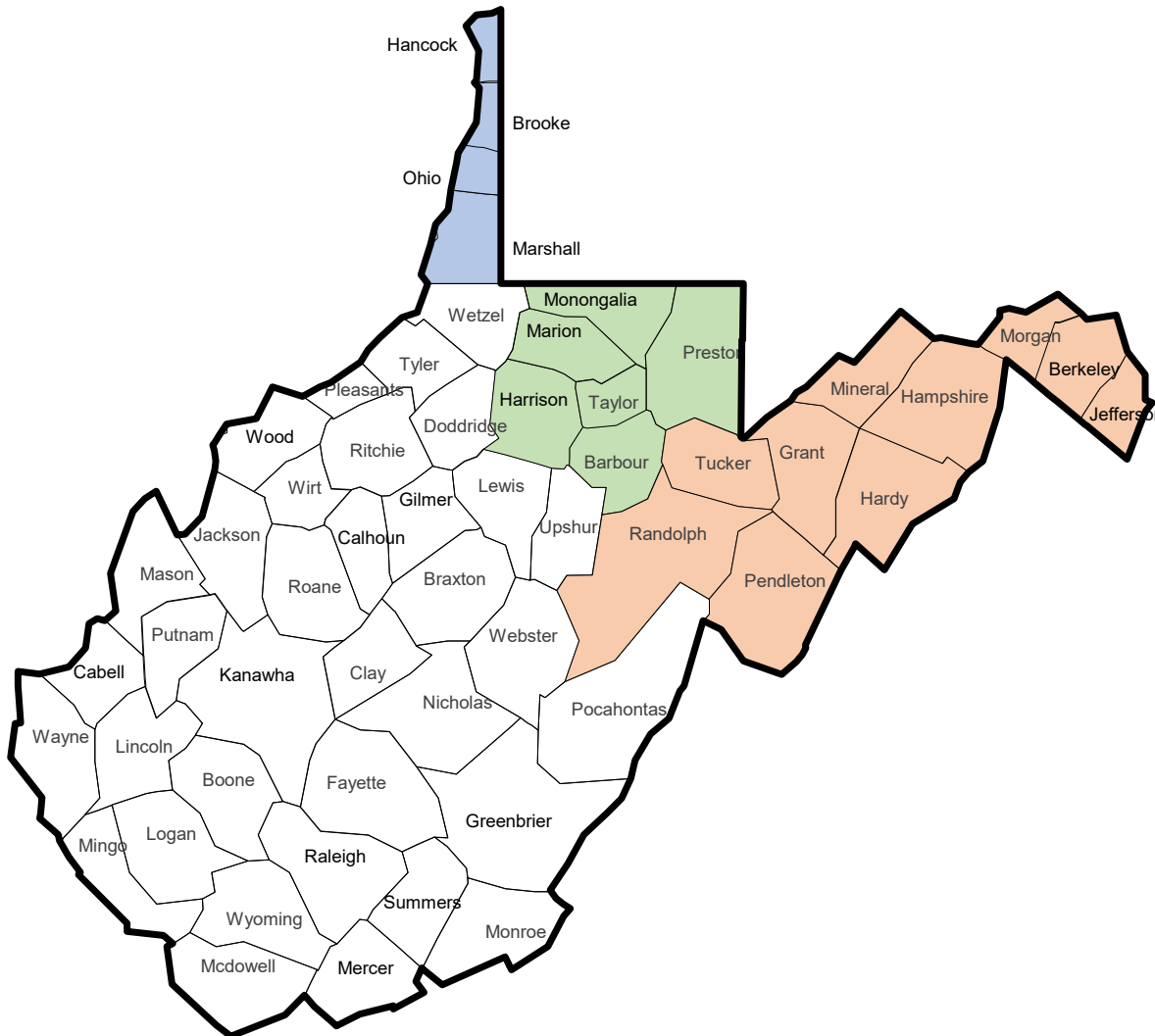
SO₂: Sulfur dioxide.

Source or stationary source: Any governmental, institutional, commercial or industrial structure, installation, plant, building or facility that emits or has the potential to emit any regulated air pollutant under the Clean Air Act.

Statutory air pollution: The discharge into the air by the act of man, of substances (liquid, solid, gaseous, organic or inorganic) in a locality, manner and amount as to be injurious to human health or welfare, animal or plant life, or property, or which would interfere with the enjoyment of life or property.

VOC: Volatile organic compound.

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