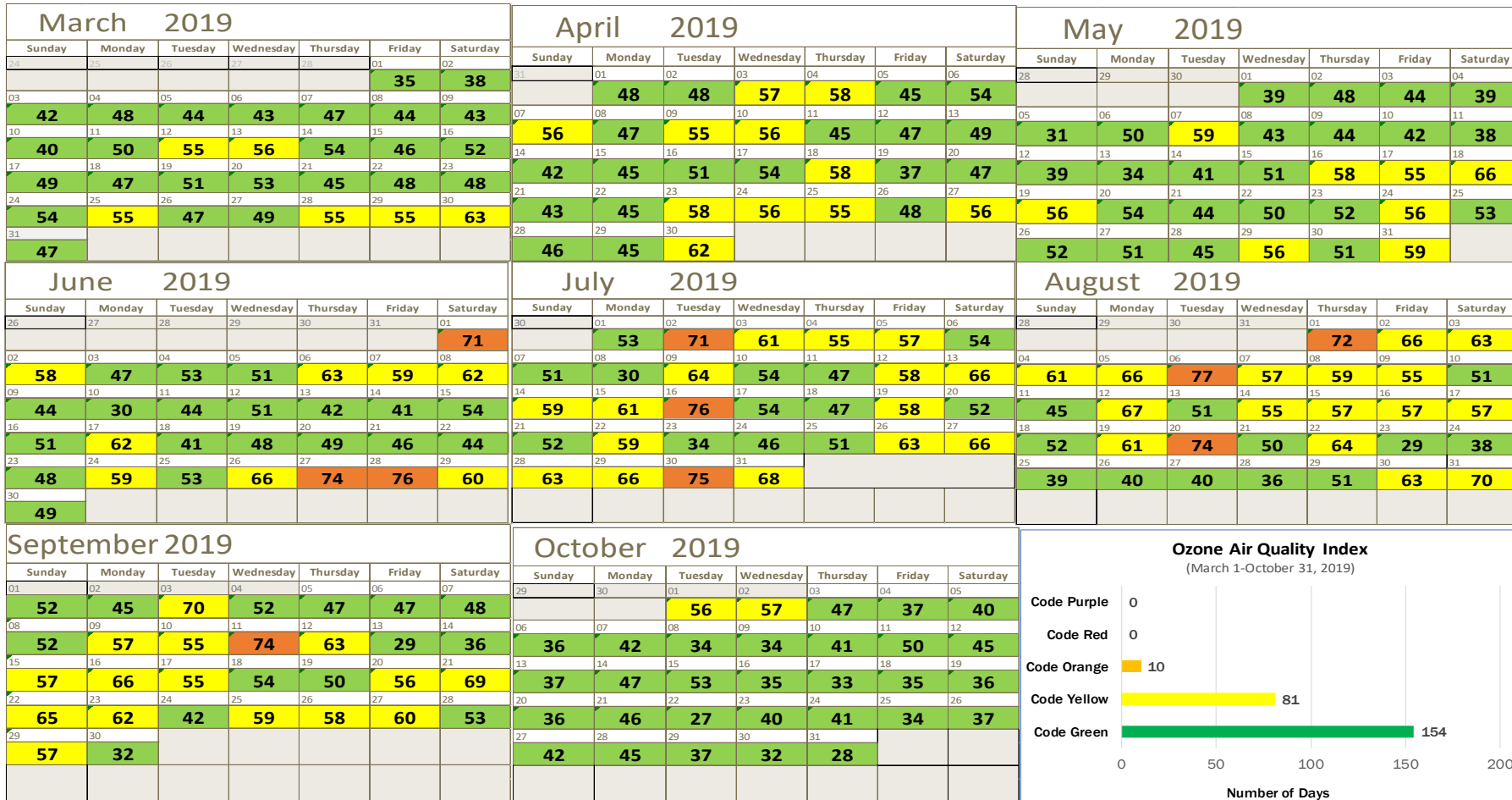


OZONE SEASON SUMMARY 2019

Sunil Kumar
Principal Environmental Engineer

MWAQC-Technical Advisory Committee
November 12, 2019

Peak 8-Hour Average Ozone Levels (ppb)



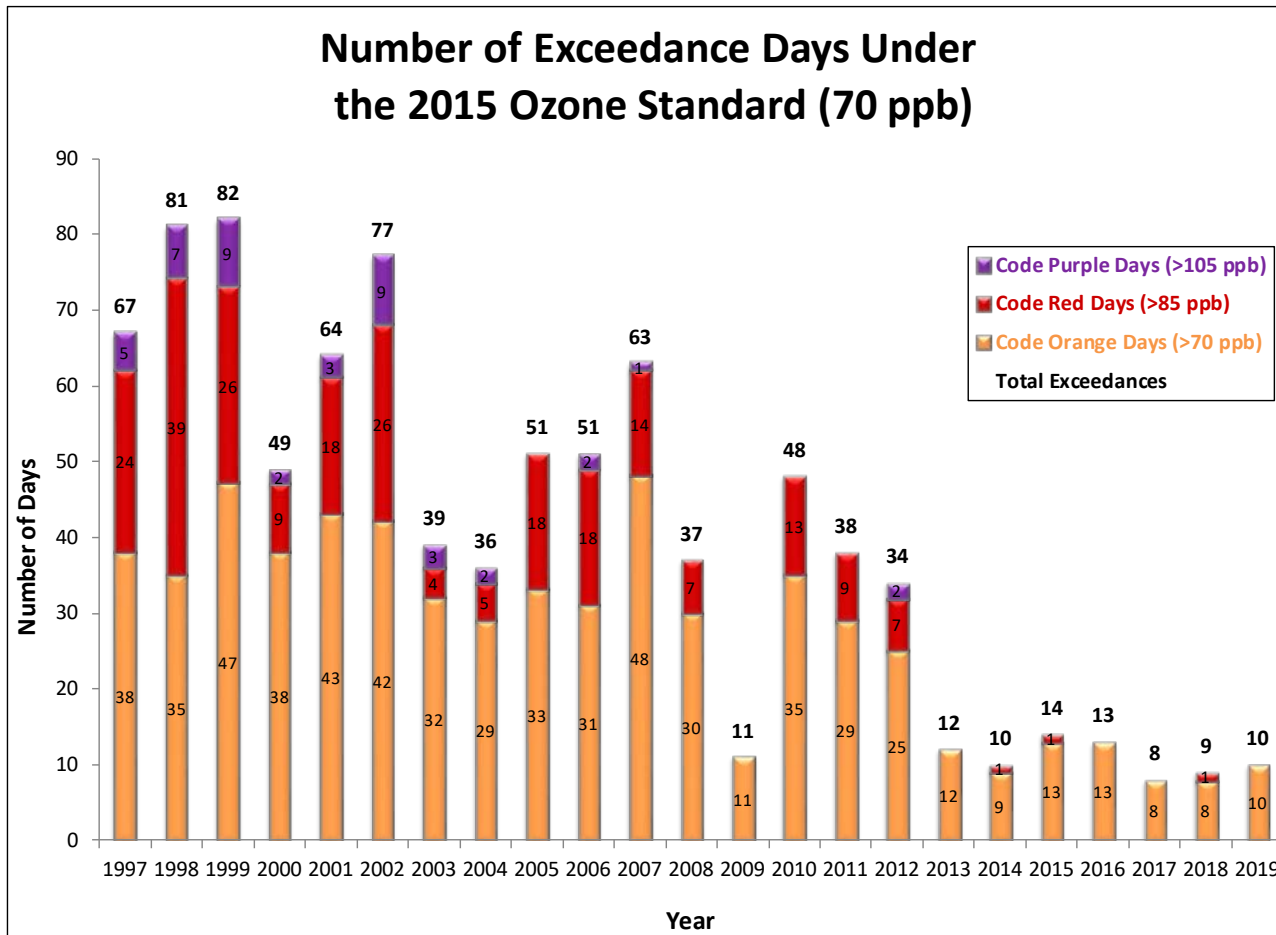
Analysis is based on draft data as of November 1, 2019.

2019 Ozone Exceedances

Date	Monitors Exceeding	Highest Monitor	8-Hr Max Ozone Concentration (ppb)
6/1	1	Franconia	71
6/27	2	Arlington	74
6/28	3	Beltsville	76
7/2/2019	1	Beltsville	71
7/16/2019	4	Beltsville	76
7/30/2019	3	McMillan	72
8/1/2019	1	Franconia	72
8/6/2019	4	HU-Beltsville	77
8/20/2019	2	Fredrick/Loudoun	74
9/11/2019	1	Beltsville	74

Analysis is based on draft data as of November 1, 2019.

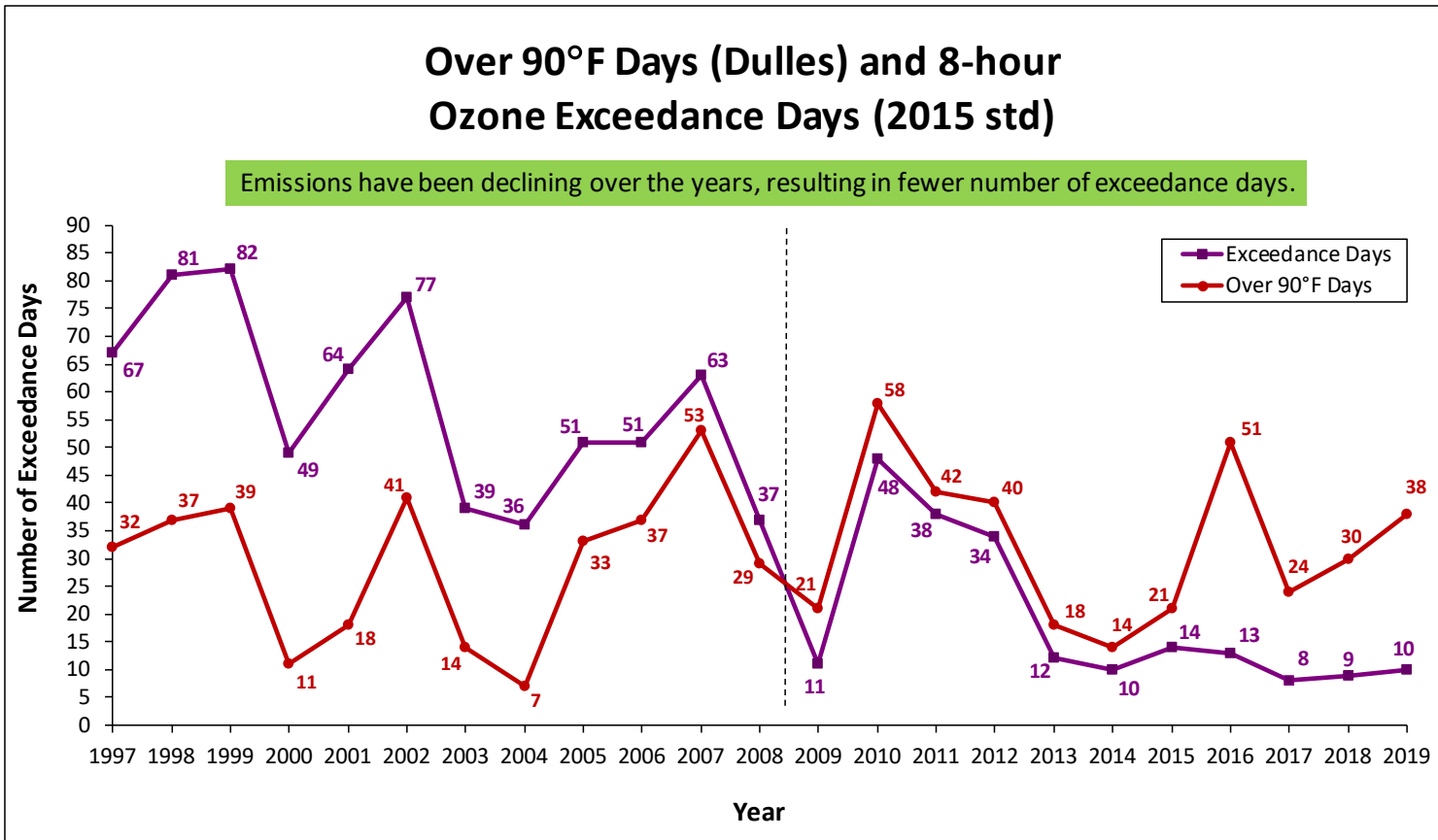
Ozone Exceedance Trend



Analysis is based on draft data as of November 1, 2019.

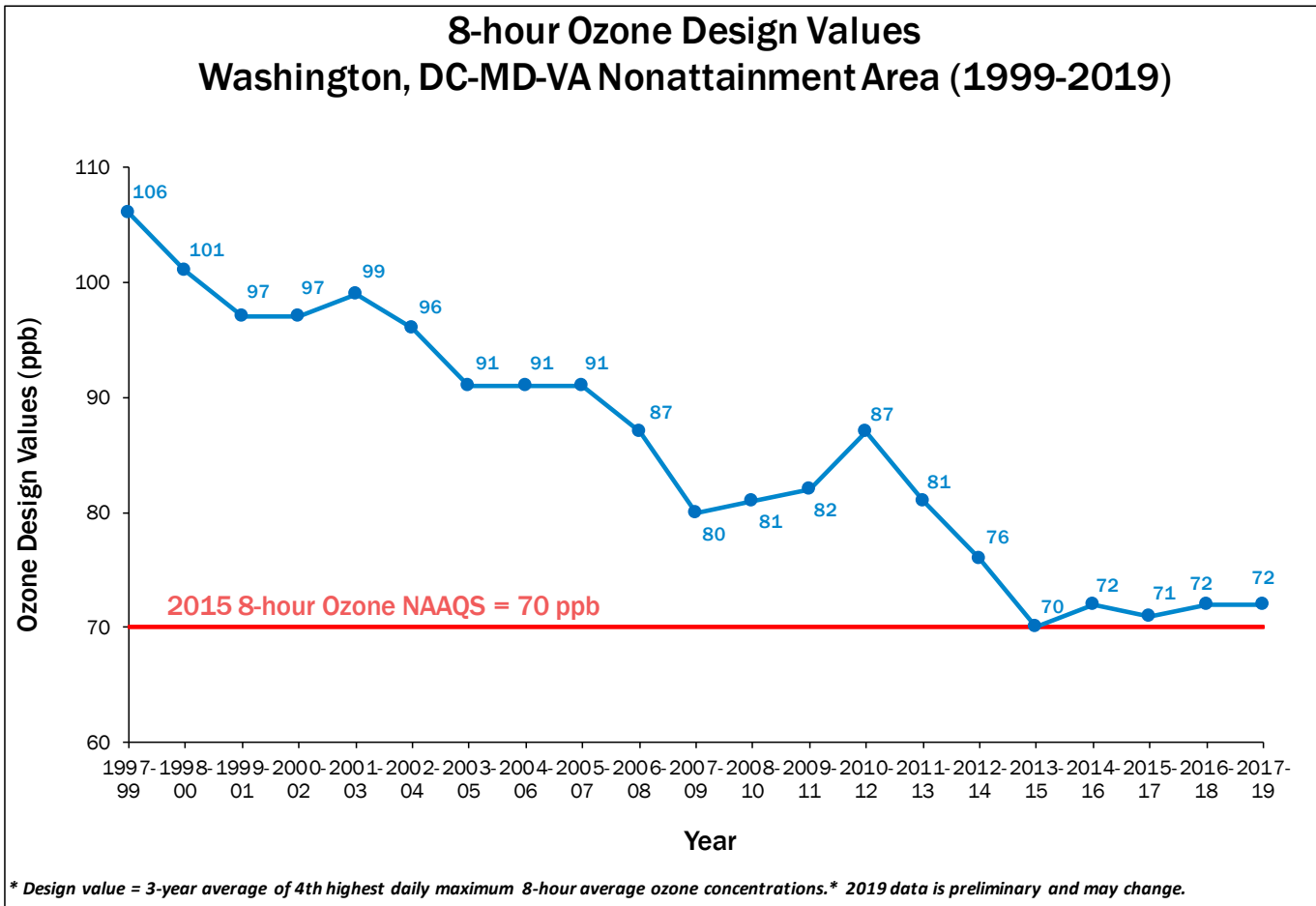


Ozone & Temperature Trend



Analysis is based on draft data as of November 1, 2019.

Ozone Design Value Trend



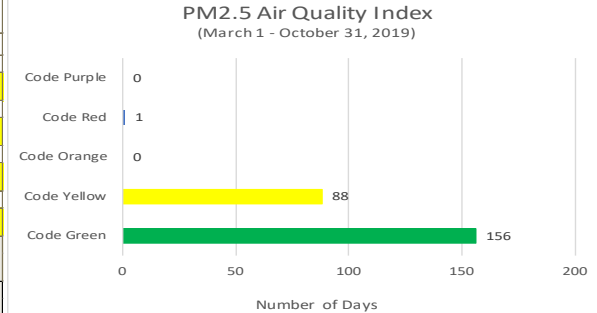
Why Fewer Exceedance Days Now ?

Emission Control Programs

Federal	State	Local
Acid Rain Program (1996/2000)	Vehicle Inspection & Maintenance Programs	Renewable Energy Programs Regional Wind Power Purchase Program Clean Energy Rewards Program Renewable Portfolio Standards
Tier 2/Tier 3 (LD Vehicle) Rule (2004/2017)	Maryland Healthy Air Act (2009/2012)	Energy Efficiency Programs LED Traffic Signal Retrofit program Building Energy Efficiency Programs
HD Diesel vehicle Rule (2004/2007)	Virginia CSAPR Rule	VRE Idling Reduction
NOX SIP Call (2004)	Ozone Transport Commission Rules	LOW VOC Paint
CAIR/CSAPR/CSAPR Update (2009/2015/2017)		Gas Can Replacement
Marine Emission Control Areas (2012/2015/2016)		

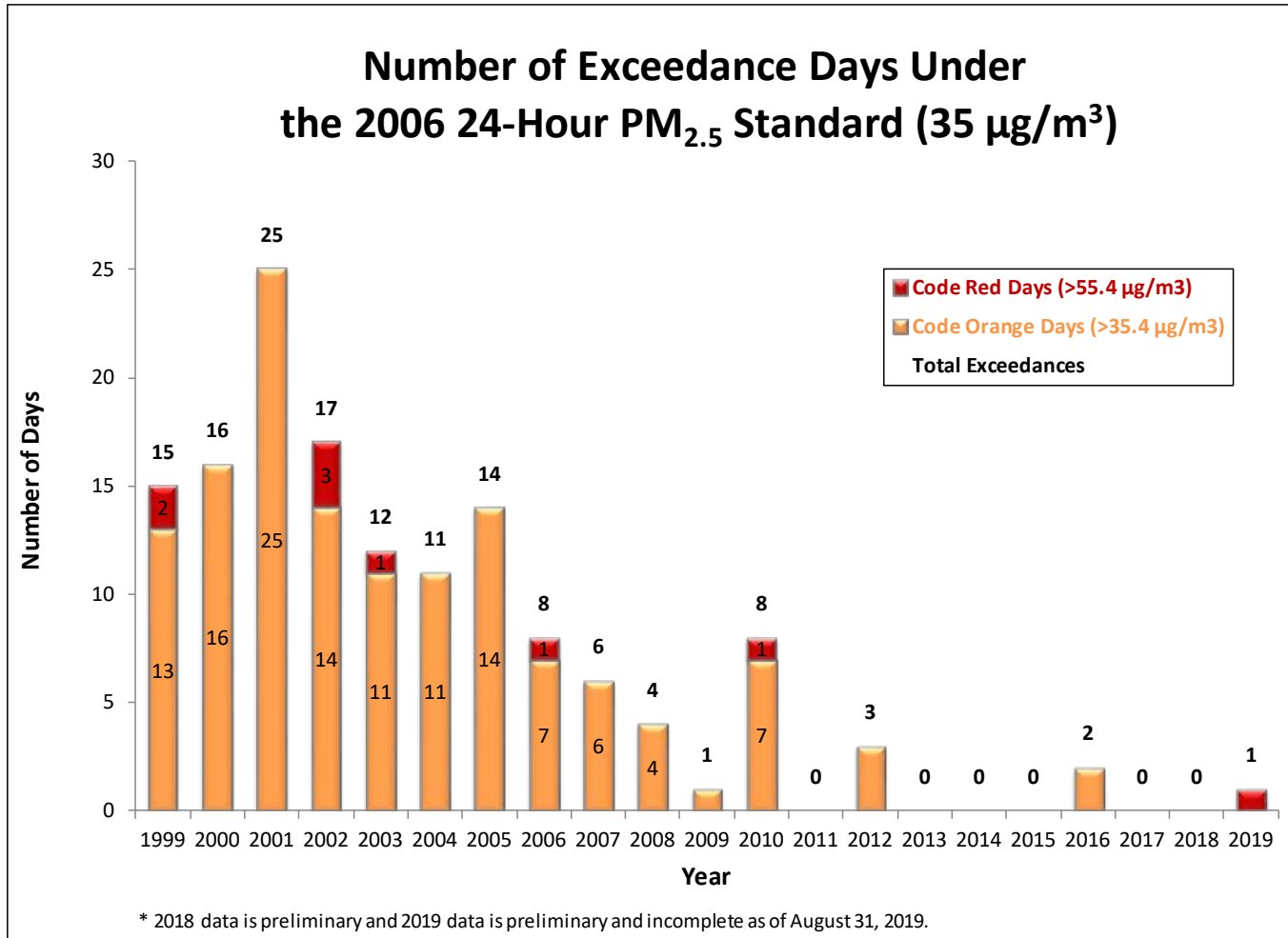
24-Hour Average PM2.5 Levels ($\mu\text{g}/\text{m}^3$)

March 2019							April 2019							May 2019						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					11.3	12.2		5.7	8.9	8.8	12.1	9.4	12.8				10.6	14.2	13.7	23.0
12.9	9.5	7.4	9.4	10.2	15.6	16.1														
9.9	4.3	8.0	12.4	9.0	8.9	4.4	11.5	9.4	7.0	7.9	5.0	8.1	7.3	8.7	3.8	7.6	10.5	6.7	6.6	7.0
5.2	9.0	9.0	12.6	4.7	5.0	4.6	7.1	3.5	4.8	6.2	10.0	9.5	4.6	2.4	3.0	3.8	6.9	16.1	13.0	15.8
6.0	11.0	4.2	6.3	9.0	10.9	15.0	3.7	5.4	9.2	7.0	10.3	8.4	4.8	15.1	10.8	4.9	6.5	12.0	19.1	9.5
10.2							5.7	5.2	13.0					15.8	13.0	13.3	13.5	8.1	7.6	
June 2019							July 2019							August 2019						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						12.0		6.7	16.0	10.8	67.5	27.0	20.2					9.7	8.0	9.7
15.1	5.8	6.6	28.9	30.6	14.9	9.5														
7.7	6.2	4.6	7.1	4.9	4.9	7.7	11.1	14.2	17.4	17.2	11.0	10.6	14.0	9.6	16.9	15.3	13.2	11.0	8.5	7.1
13.1	10.9	9.2	8.6	9.5	5.7	5.5	15.2	13.6	18.3	17.7	13.0	18.1	20.1	6.0	12.2	17.7	13.5	17.8	11.6	12.6
7.4	10.8	9.0	8.7	11.2	13.6	13.0	14.1	10.0	6.9	7.9	11.1	18.2	18.1	11.3	10.2	9.0	7.9	9.8	8.1	6.7
8.2							19.7	22.1	18.3	8.9				6.3	6.8	9.1	7.7	7.3	9.8	10.9
September 2019							October 2019													
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday							
8.5	8.8	8.2	13.6	7.8	8.1	9.9			12.6	20.0	14.4	13.5	12.2							
10.7	12.1	10.5	14.4	12.1	8.3	10.3	15.5	12.8	11.4	12.7	12.5	12.6	15.8							
8.7	11.1	11.6	8.1	7.7	10.2	14.1	13.5	15.7	15.9	17.4	11.6	13.4	16.8							
17.6	13.2	7.4	9.7	13.4	10.4	16.9	16.2	21.7	6.5	4.9	8.7	12.4	12.6							
13.4	8.8						7.0	5.5	5.4	9.0	7.2									



Analysis is based on draft data as of November 1, 2019.

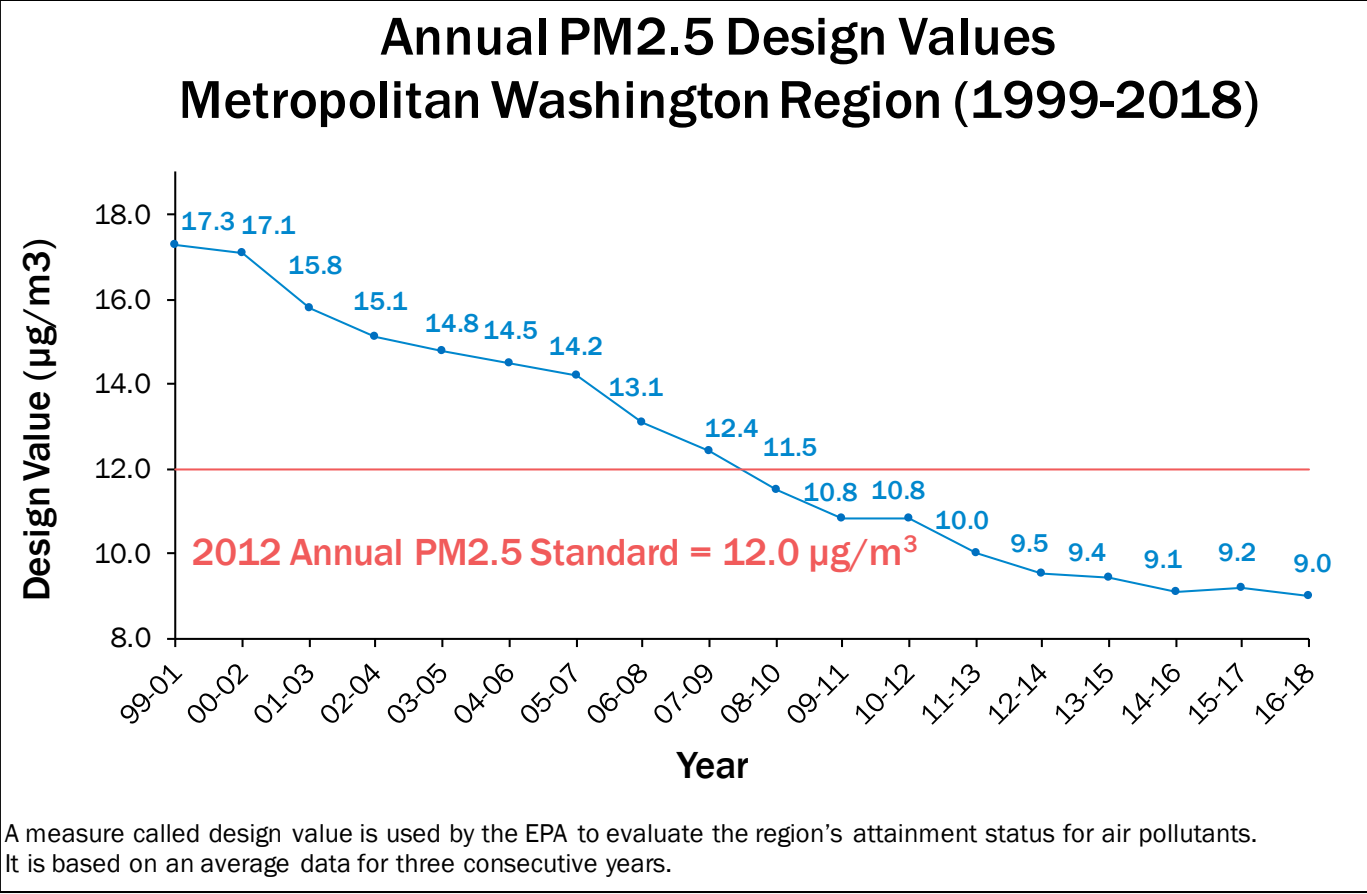
PM2.5 Exceedance Trend



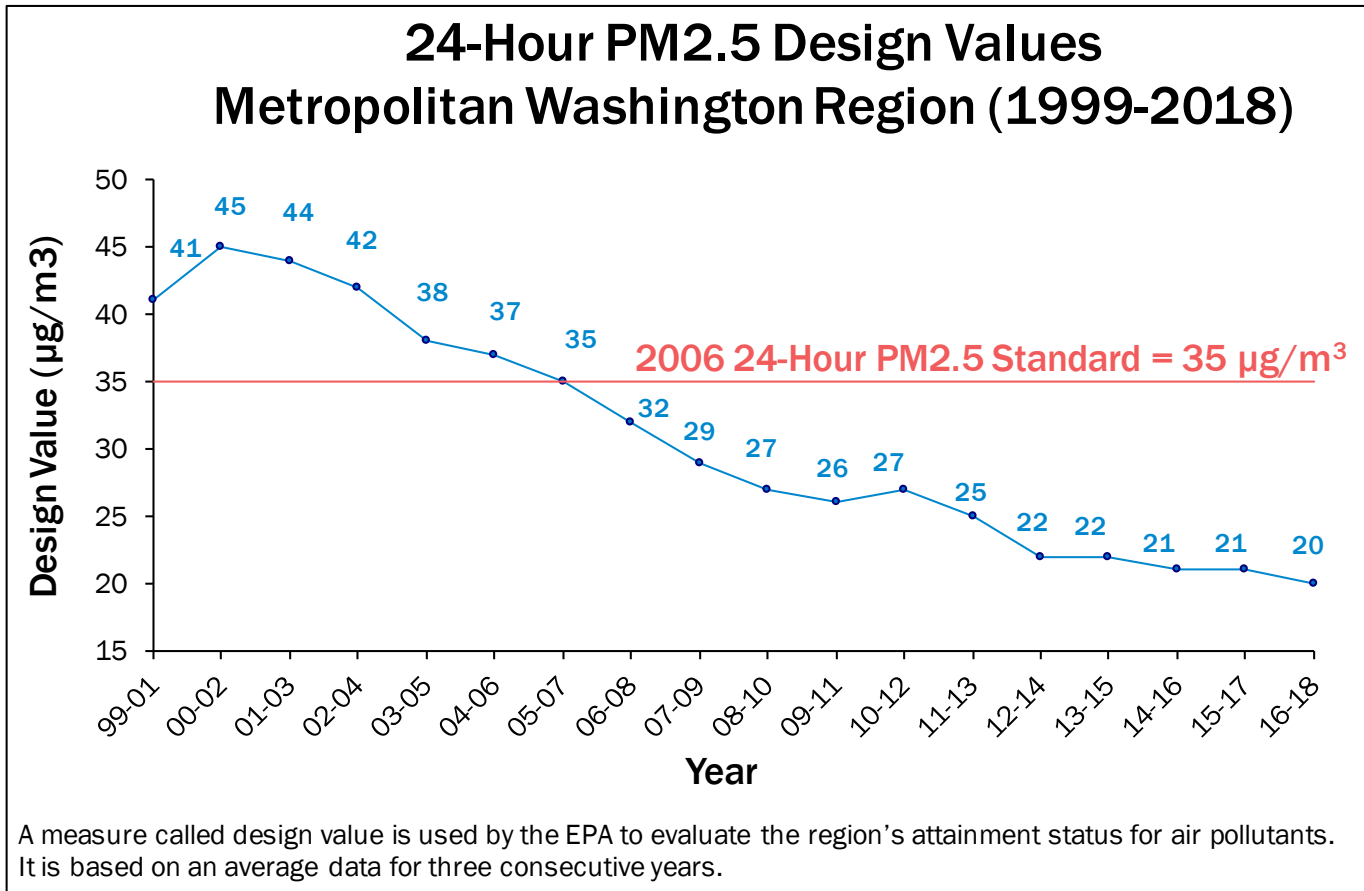
* Code Red occurred on July 4th in 2019.



Annual PM2.5 Design Value Trend



24-Hour PM2.5 Design Value Trend



Planning for 2015 Ozone NAAQS – Initial Thoughts on Next Steps

- Minimum 4th highest daily 8-hour max ozone (by monitor) in 2020 that can lead to nonattainment based on 2018-2020 Design Value

Monitor	County, State	4 th Highest Daily Maximum 8-Hour Ozone Concentration (ppb)			Design Value (ppb)
		2018	2019	2020 (Minimum needed for nonattainment)	2018-2020
Beltsville	Prince George's, MD	73	75	65	71
McMillian NCore	District of Columbia	73	71	69	71
HU- Beltsville	Prince George's, MD	70	71	72	71
Takoma	District of Columbia	73	67	73	71
Arlington	Arlington, VA	70	68	75	71
Franconia	Fairfax, VA	66	70	77	71
PG Equestrian	Prince George's, MD	70	65	78	71
Frederick	Fredrick, MD	67	65	81	71
Rockville	Montgomery, MD	69	62	82	71
S. Maryland	Charles, MD	68	61	84	71
Ashburn	Loudoun, VA	65	60	88	71
Long Park	Prince William, VA	65	60	88	71
Calvert	Calvert, MD	67	58	88	71
River Terrace	District of Columbia	50	62	101	71

