OZONE SEASON SUMMARY 2021

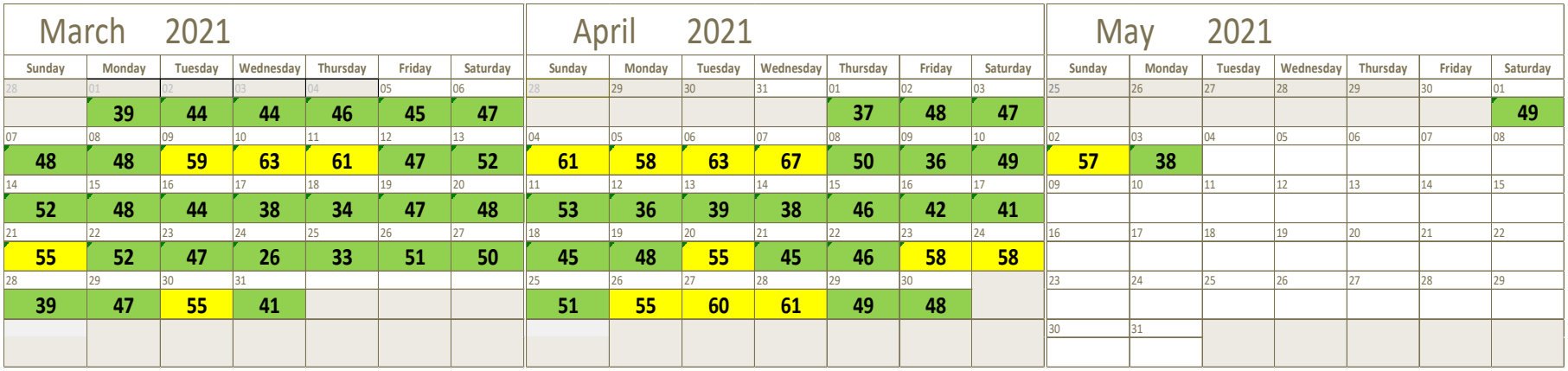
Sunil Kumar
Principal Environmental Engineer

MWAQC-Technical Advisory Committee
May 11, 2021

Agenda Item 3

Metropolitan Washington
Council of Governments

Peak 8-Hour Average Ozone Levels (ppb)



March 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	01	02	03	04	05	06
	39	44	44	46	45	47
07	08	09	10	11	12	13
48	48	59	63	61	47	52
14	15	16	17	18	19	20
52	48	44	38	34	47	48
21	22	23	24	25	26	27
55	52	47	26	33	51	50
28	29	30	31			
39	47	55	41			

April 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	31	01	02	03
				37	48	47
04	05	06	07	08	09	10
61	58	63	67	50	36	49
11	12	13	14	15	16	17
53	36	39	38	46	42	41
18	19	20	21	22	23	24
45	48	55	45	46	58	58
25	26	27	28	29	30	
51	55	60	61	49	48	

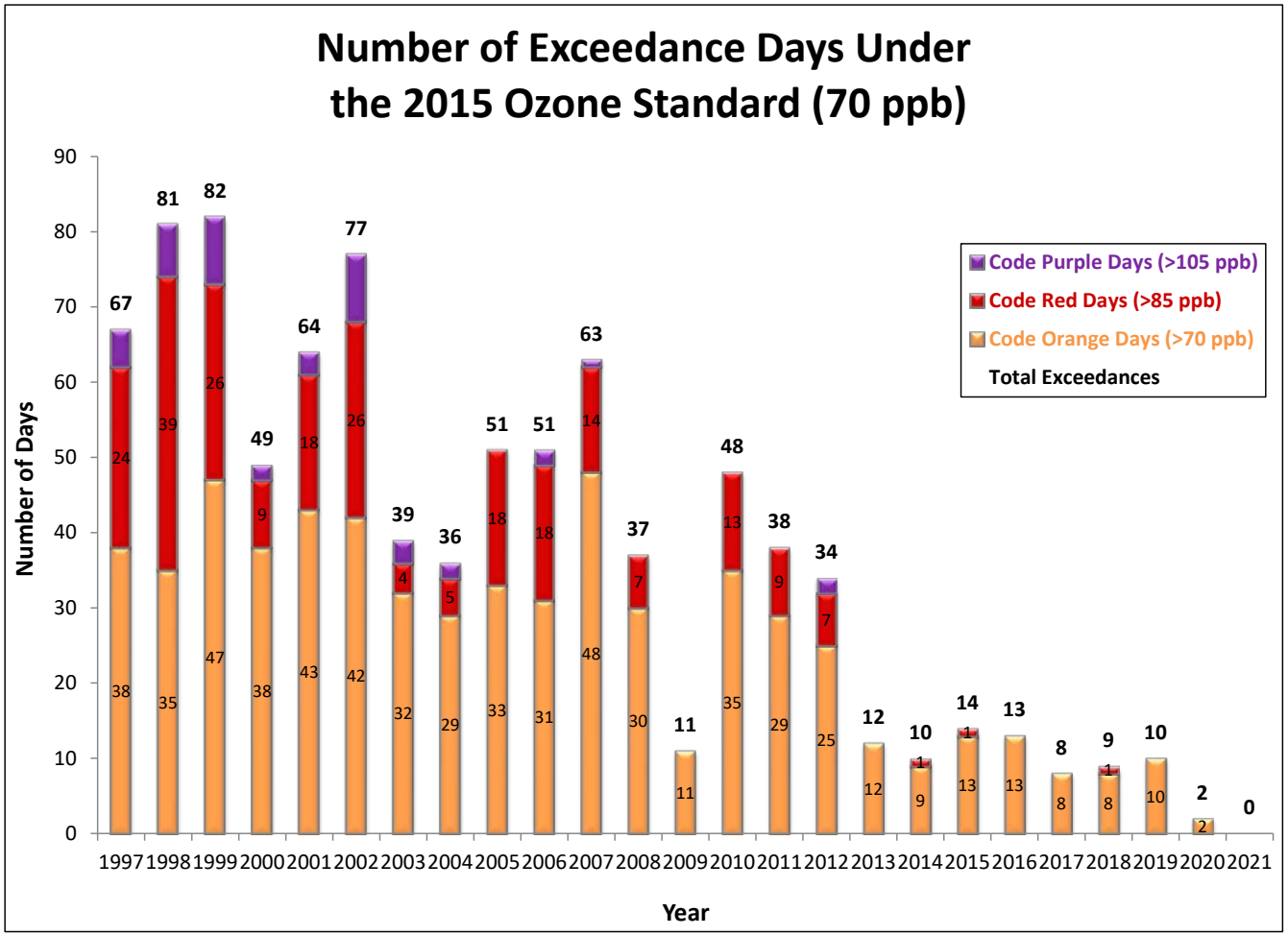
May 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26	27	28	29	30	01
						49
02	03	04	05	06	07	08
57	38					
09	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

16 Code Yellow Days, rest all Code Green Days

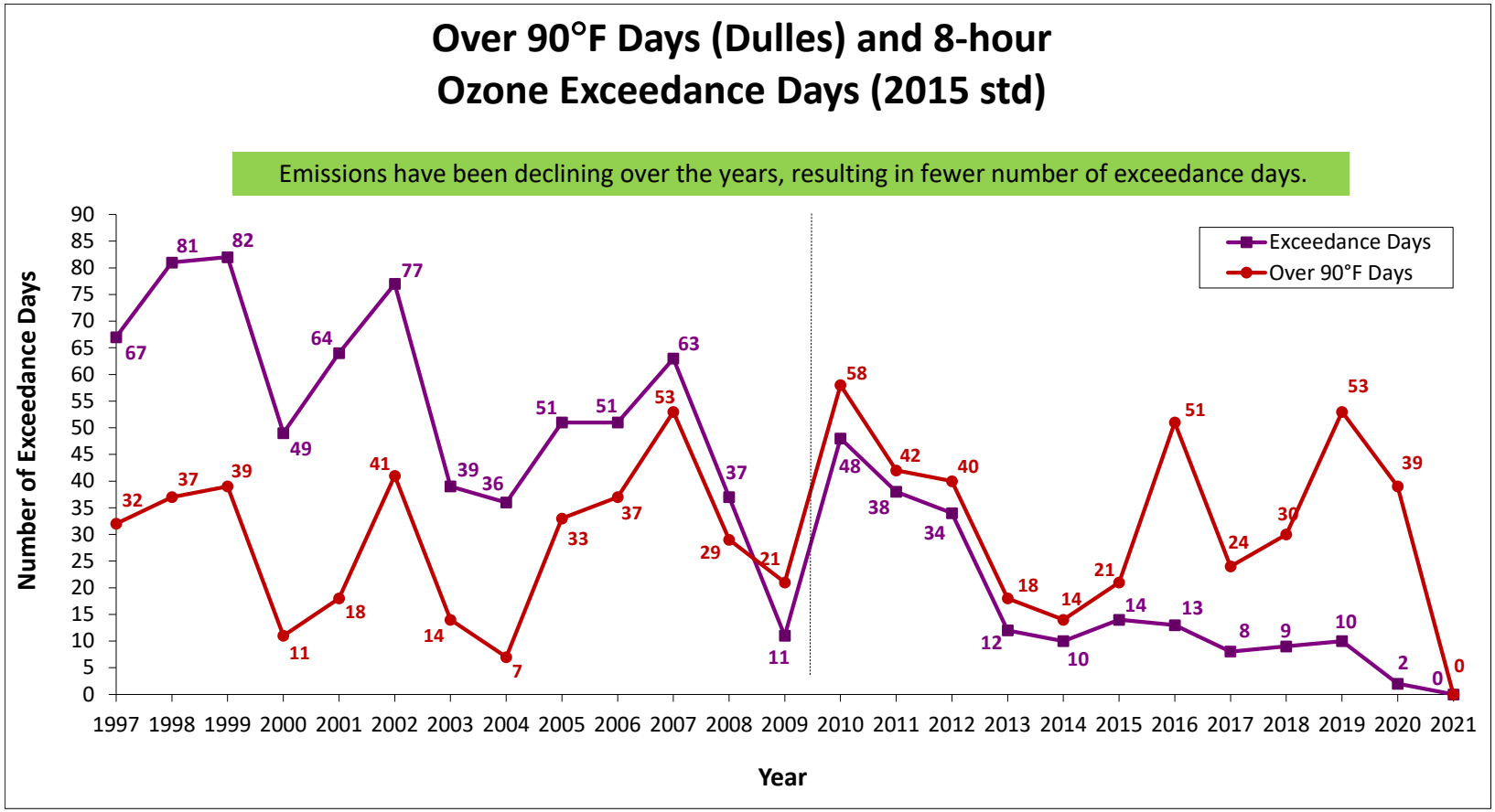
Analysis is based on draft data as of May 4, 2021.

Ozone Exceedance Trend



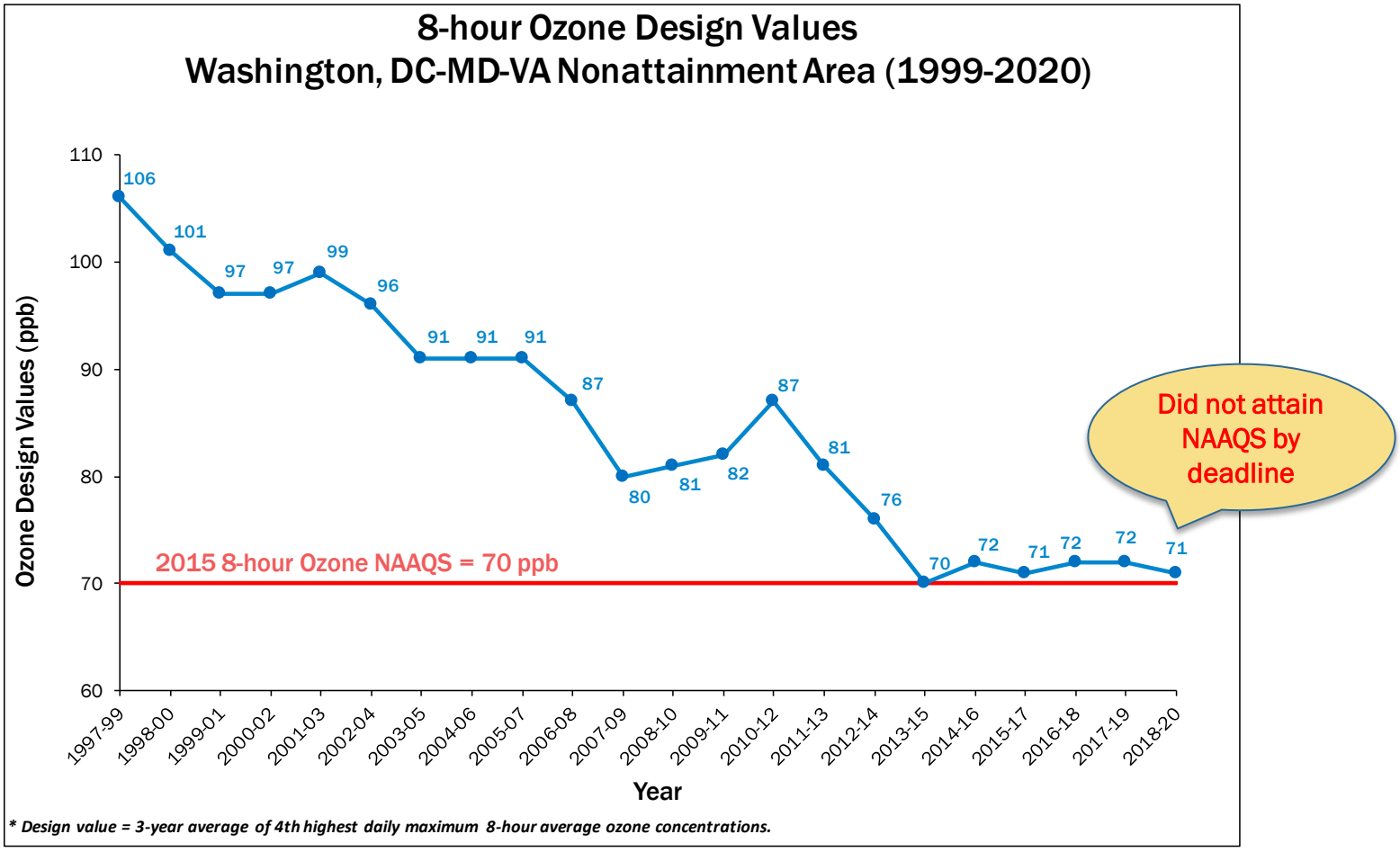
2021 data is draft and incomplete as of May 4, 2021.

Ozone & Temperature Trend



2021 data is draft and incomplete as of May 4, 2021.

Ozone Design Value Trend



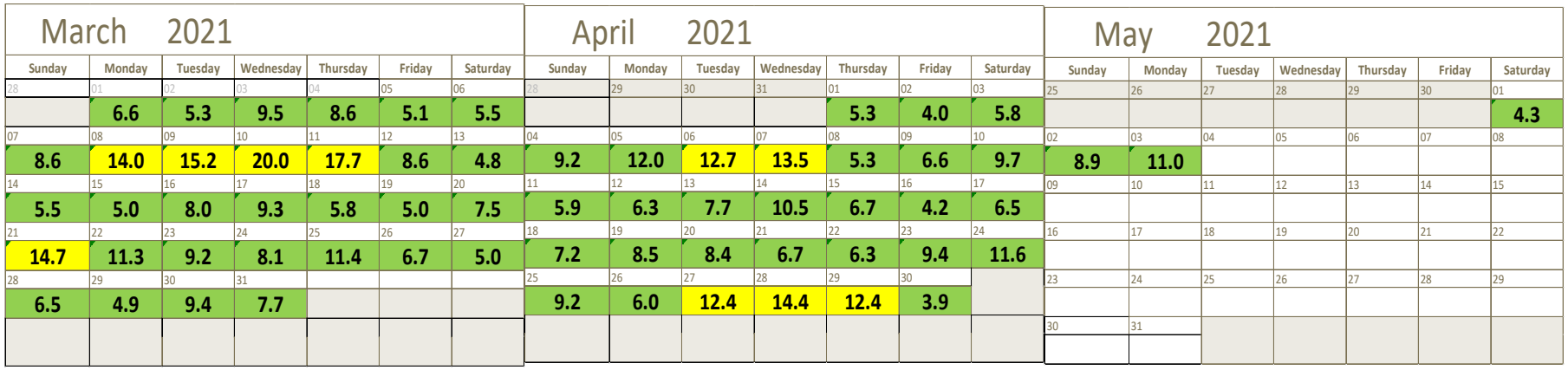
2018-2020 design value data is draft as of May 4, 2021.

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 (LD Vehicle) Rule (2004)	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/Revised CSAPR Update (2009/2015/2017/2021)		Gas Can Replacement

24-Hour Average PM2.5 Levels (µg/m³)



March 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	01	02	03	04	05	06
	6.6	5.3	9.5	8.6	5.1	5.5
07	08	09	10	11	12	13
8.6	14.0	15.2	20.0	17.7	8.6	4.8
14	15	16	17	18	19	20
5.5	5.0	8.0	9.3	5.8	5.0	7.5
21	22	23	24	25	26	27
14.7	11.3	9.2	8.1	11.4	6.7	5.0
28	29	30	31			
6.5	4.9	9.4	7.7			

April 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	30	31	01	02	03
				5.3	4.0	5.8
04	05	06	07	08	09	10
9.2	12.0	12.7	13.5	5.3	6.6	9.7
11	12	13	14	15	16	17
5.9	6.3	7.7	10.5	6.7	4.2	6.5
18	19	20	21	22	23	24
7.2	8.5	8.4	6.7	6.3	9.4	11.6
25	26	27	28	29	30	
9.2	6.0	12.4	14.4	12.4	3.9	

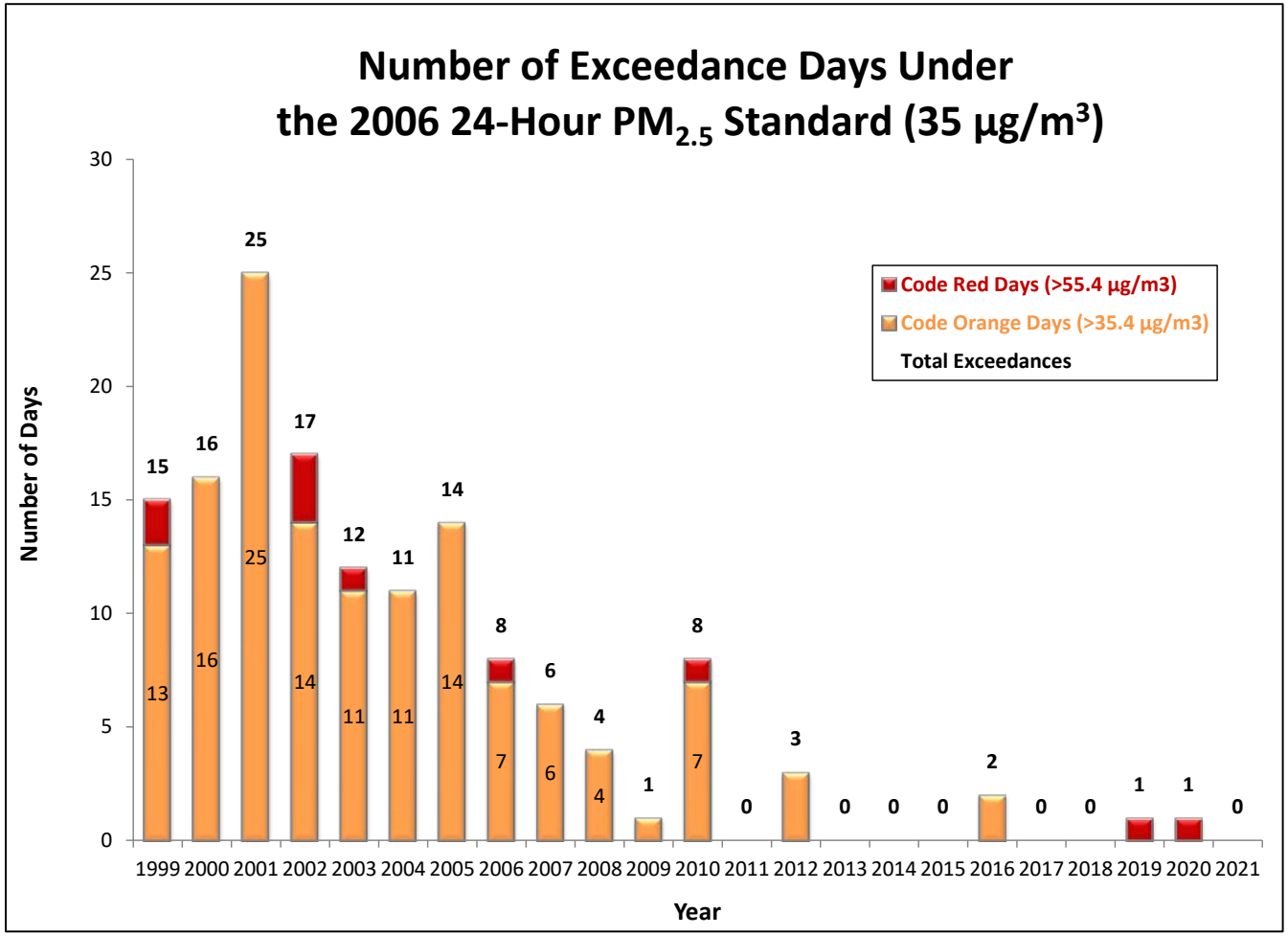
May 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25	26	27	28	29	30	01
						4.3
02	03	04	05	06	07	08
8.9	11.0					
09	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

10 Code Yellow Days, rest all Code Green Days

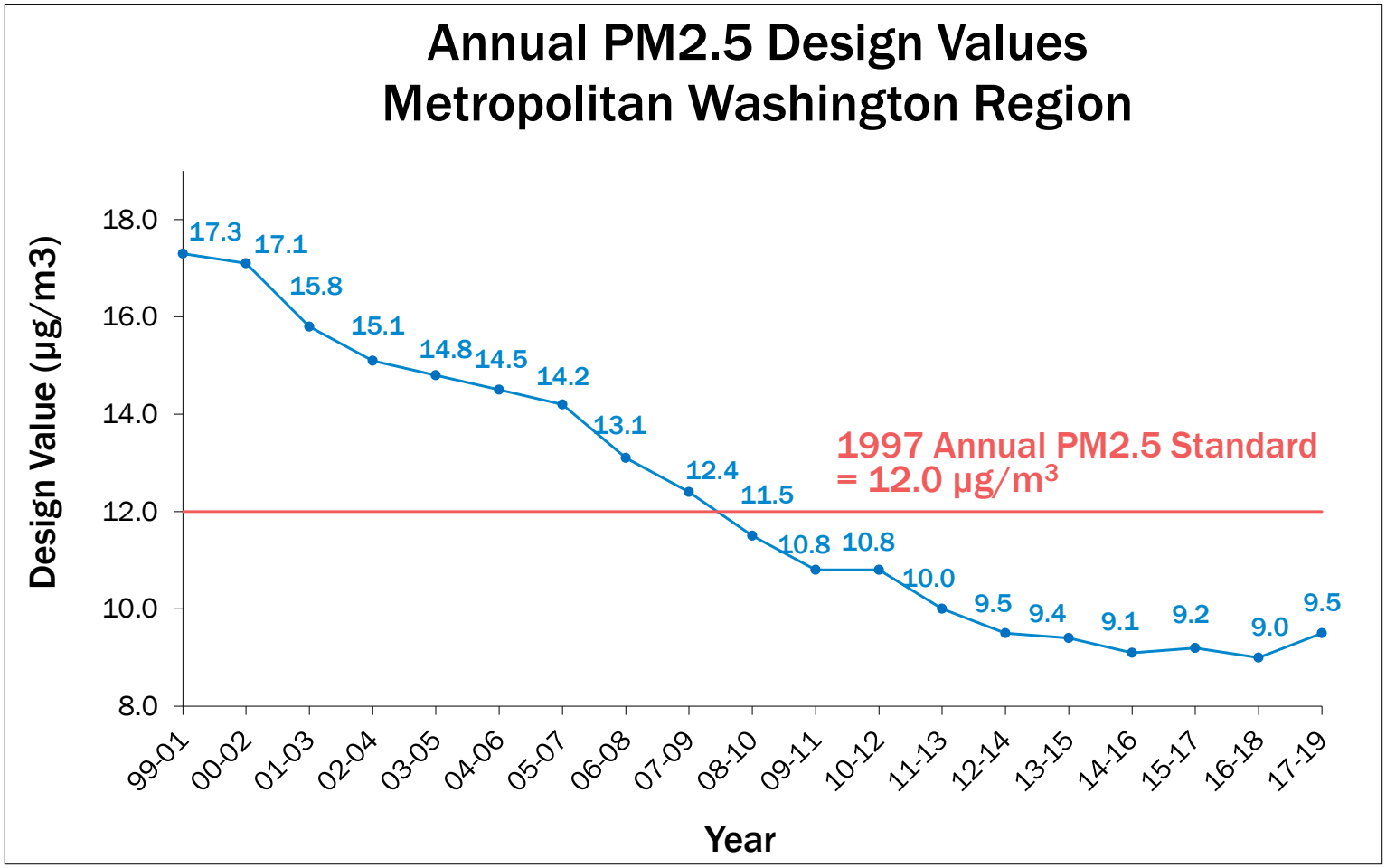
Analysis is based on draft data as of May 4, 2021.

PM2.5 Exceedance Trend

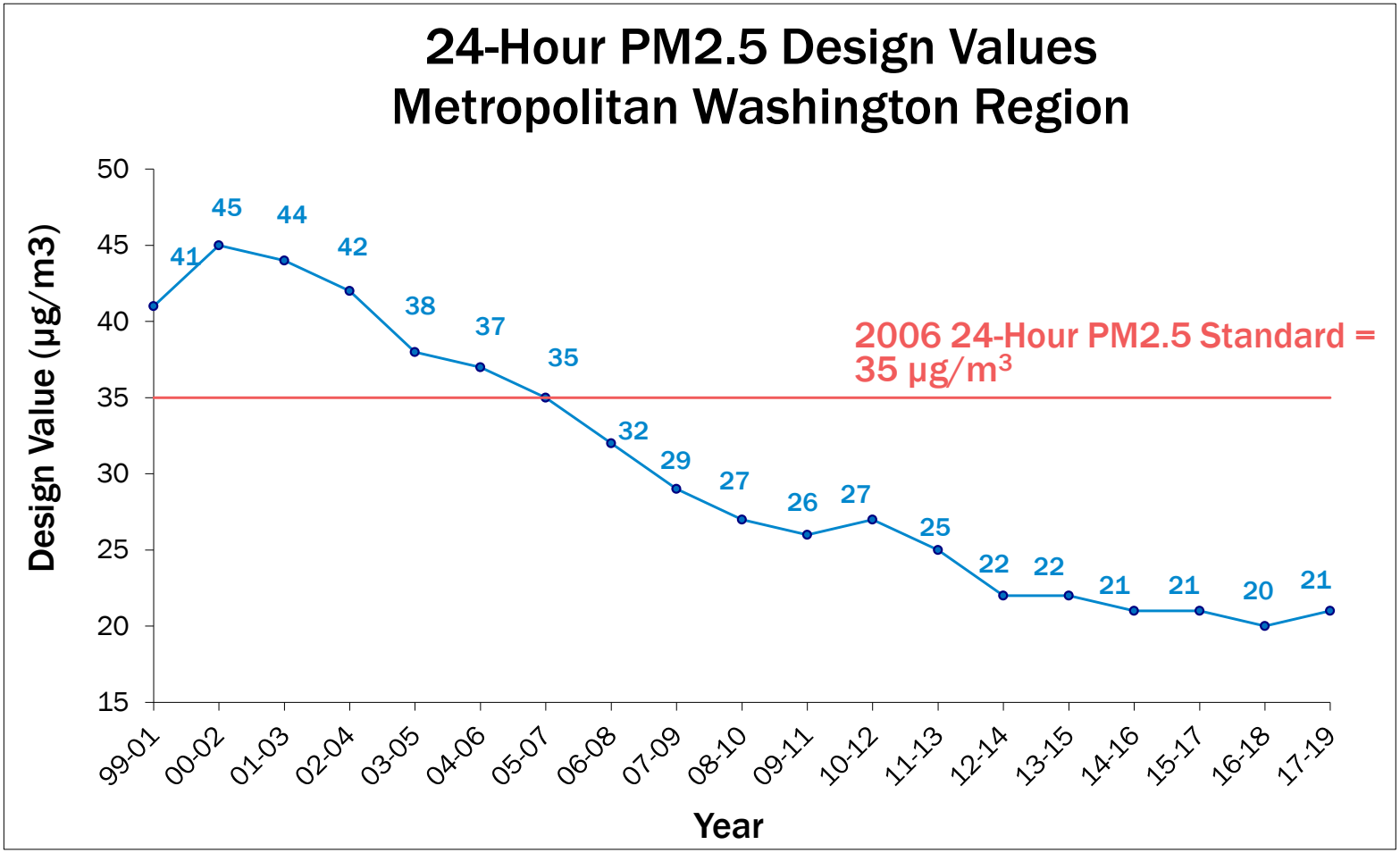


2021 data is draft and incomplete as of May 4, 2021.

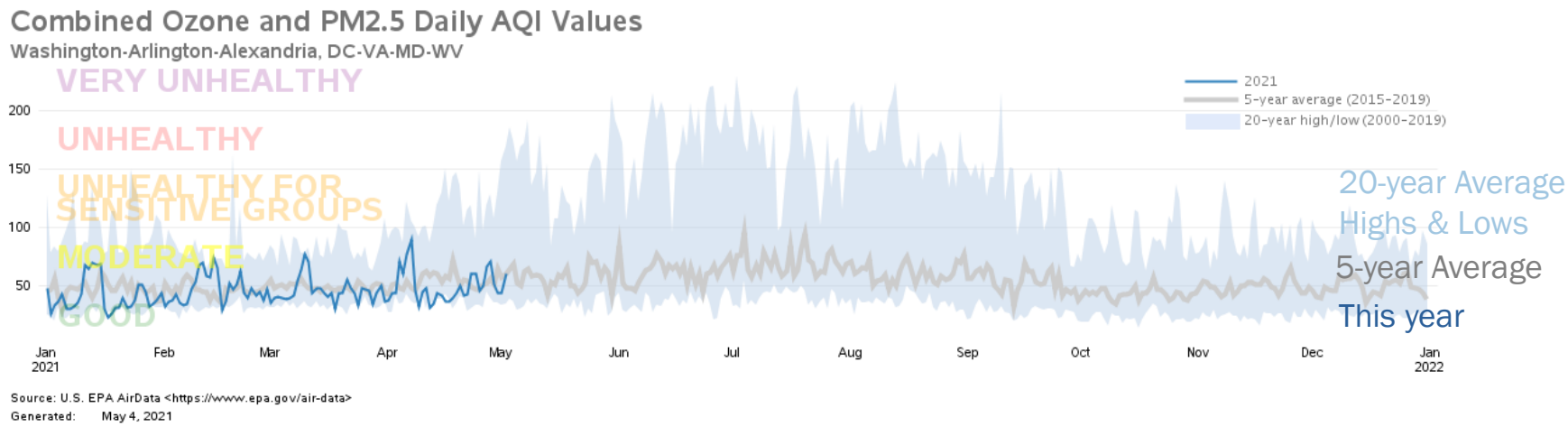
Annual PM2.5 Design Value Trend



24-Hour PM2.5 Design Value Trend

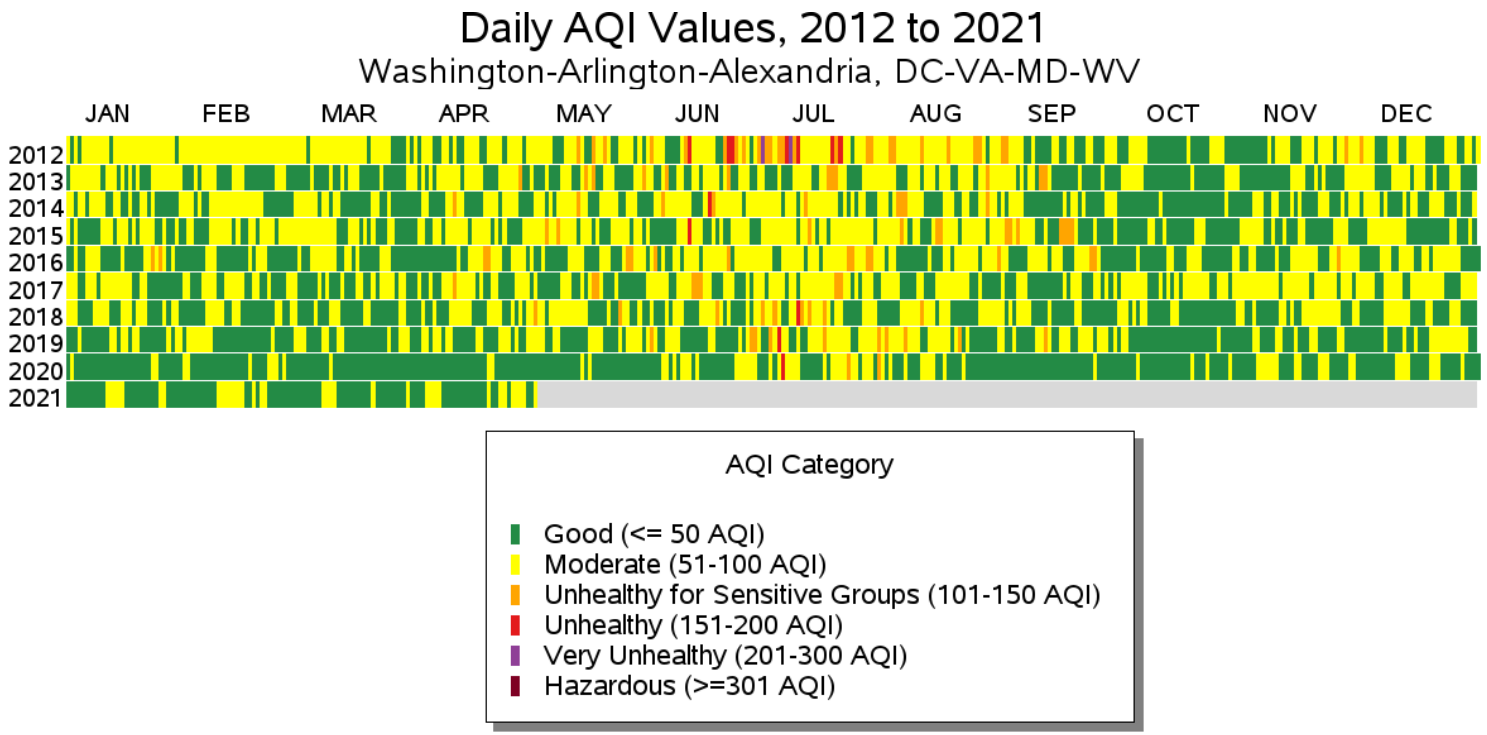


AQI Value Trends



Note: Data shown above is for the Washington-Arlington-Alexandria CBSA.

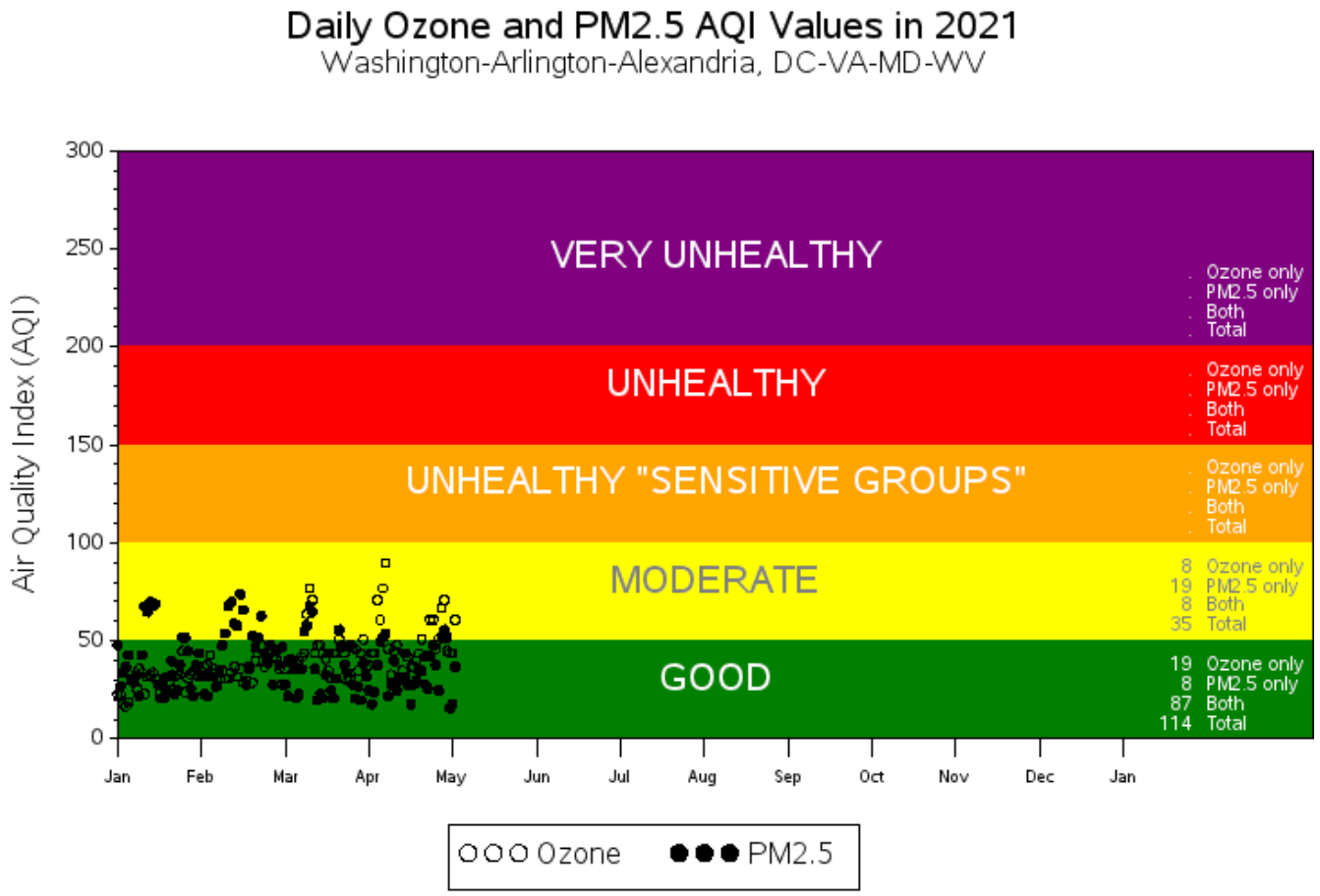
AQI Value Trends



Source: U.S. EPA AirData <https://www.epa.gov/air-data>
Generated: May 4, 2021

Note: Data shown above is for combined AQI values for ozone, PM2.5, PM10, CO, NO2, and SO2 for the Washington-Arlington-Alexandria CBSA.

AQI Values - 2021



Source: U.S. EPA AirData <https://www.epa.gov/air-data>
Generated: May 4, 2021

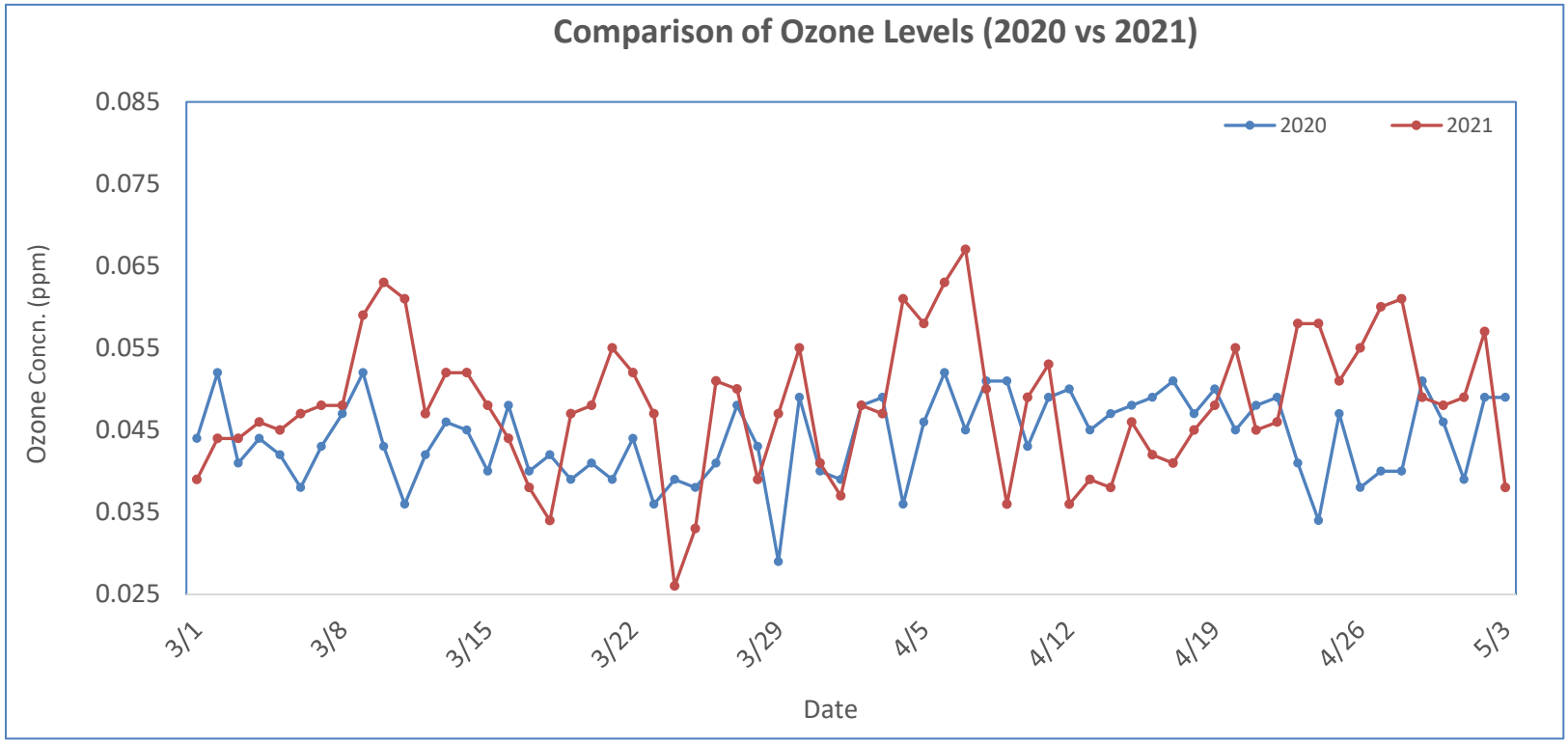
WEATHER & AIR QUALITY

- Weather plays an important role in determining air quality besides emission.

- March 2020 – Warmer and drier than normal.
- April 2020 – Warmer and drier than normal.

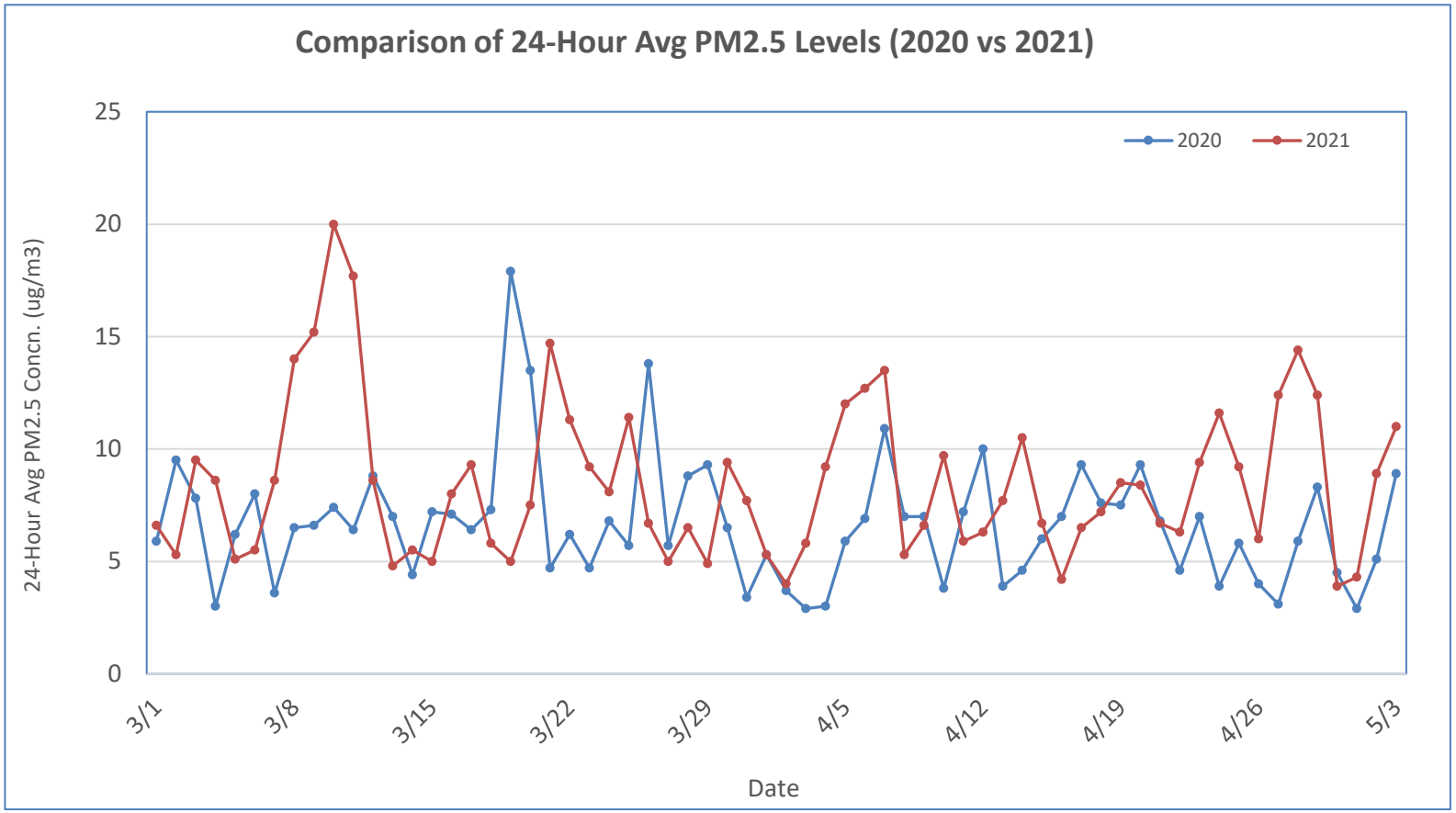
Source: https://w2.weather.gov/climate/index.php?wfo=lwx

OZONE LEVELS – 2020 Vs 2021



- Draft 2021 ozone levels mostly higher. Warmer and drier than normal weather might be partly responsible.

PM2.5 LEVELS – 2020 Vs 2021



- Draft 2021 PM2.5 levels mostly higher. Warmer and drier than normal weather might be partly responsible.

Ozone Data & Attainment Status

Monitor	County, State	Ozone Concentration (ppb)				
		Draft 2018-20 Design Value	4th Highest Daily Max 8-Hr Avg Ozone (2019)	4th Highest Daily Max 8-Hr Avg Ozone (2020)	4th Highest Daily Max 8-Hr Avg Ozone (2021)	Max 4th Highest Daily Max 8-Hr Avg Ozone allowed in order to attain (71 ppb) in 2021
Beltsville	Prince George's, MD	71	75	65	59	72
McMillian Ncore	District of Columbia	69	71	63	58	78
HU- Beltsville	Prince George's, MD	68	71	64	57	77
Takoma	District of Columbia	67	67	63	56	82
Arlington	Arlington, VA	66	68	62	56	82
PG Equestrian	Prince George's, MD	65	65	60	59	87
Franconia	Fairfax, VA	64	70	57	57	85
Frederick	Fredrick, MD	65	65	63	58	84
Rockville	Montgomery, MD	63	62	59	60	91
S. Maryland	Charles, MD	60	61	52	57	99
Ashburn	Loudoun, VA	61	60	60	56	92
Long Park	Prince William, VA	60	60	57	57	95
Calvert	Calvert, MD	59	58	54	56	100
River Terrace	District of Columbia	55	62	54	50	96

2021 data is draft and incomplete as of May 4, 2021.

CONCLUSIONS

- Ozone and PM2.5 levels were overall higher in March and April of 2021 compared to same months in 2020.
- Warmer and drier than normal weather might have contributed towards higher pollutant levels this year.
- Role of emission from different sources is planned for investigation.