

OZONE SEASON SUMMARY 2021

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MWAQC
October 27, 2021

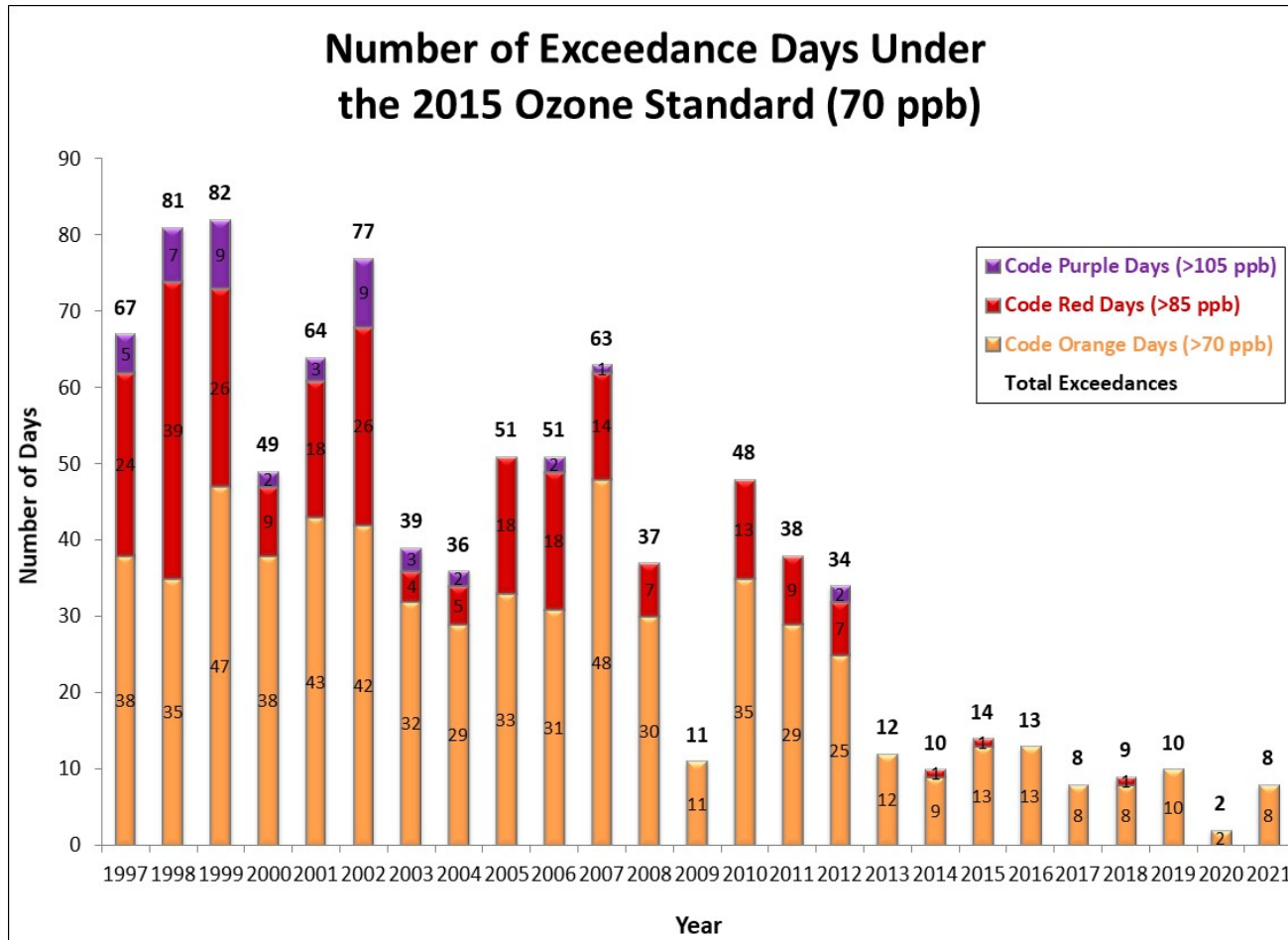
Peak 8-Hour Average Ozone Levels (ppb)

March 2021							April 2021							May 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	39	45	44	46	45	47					37	48	47							49
07	08	09	10	11	12	13	04	05	06	07	08	09	10	02	03	04	05	06	07	08
48	48	59	63	61	47	52	61	58	63	67	50	36	49	57	38	46	44	43	41	44
14	15	16	17	18	19	20	11	12	13	14	15	16	17	09	10	11	12	13	14	15
52	48	44	38	34	47	48	53	36	39	38	46	42	41	44	49	51	41	50	49	60
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
55	52	47	26	33	51	50	45	48	55	45	46	58	58	53	59	66	71	82	74	66
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29
39	47	55	41				51	55	60	61	49	48		59	30	47	63	62	45	33
														30	31					
														27	45					
June 2021							July 2021							August 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	01	02	03	04	05	27	28	29	30	01	02	03	01	02	03	04	05	06	07
		50	52	38	54	73					44	40	37	47	54	55	61	71	67	58
06	07	08	09	10	11	12	04	05	06	07	08	09	10	08	09	10	11	12	13	14
64	48	53	51	52	30	48	50	50	64	63	37	45	44	61	62	55	50	60	58	49
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
38	58	48	55	60	64	53	43	46	50	52	64	64	54	51	37	31	23	42	42	49
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
50	46	31	51	59	53	33	45	54	61	63	46	49	56	43	53	67	80	63	59	61
27	28	29	30				25	26	27	28	29	30	31	29	30	31				
29	39	42	53				52	68	74	74	61	62	49	52	51	50				
September 2021																				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday														
29	30	31	01	02	03	04														
			40	40	50	47														
05	06	07	08	09	10	11														
39	49	60	52	43	39	46														
12	13	14	15	16	17	18														
47	52	59	55	42	32	47														
19	20	21	22	23	24	25														
46	45	34	38	39	43	47														
26	27	28	29	30																
42	45	46	36	45																

8 Code Orange Days, 55 Code Yellow Days, rest all Code Green Days

Analysis is based on draft data as of September 30, 2021.

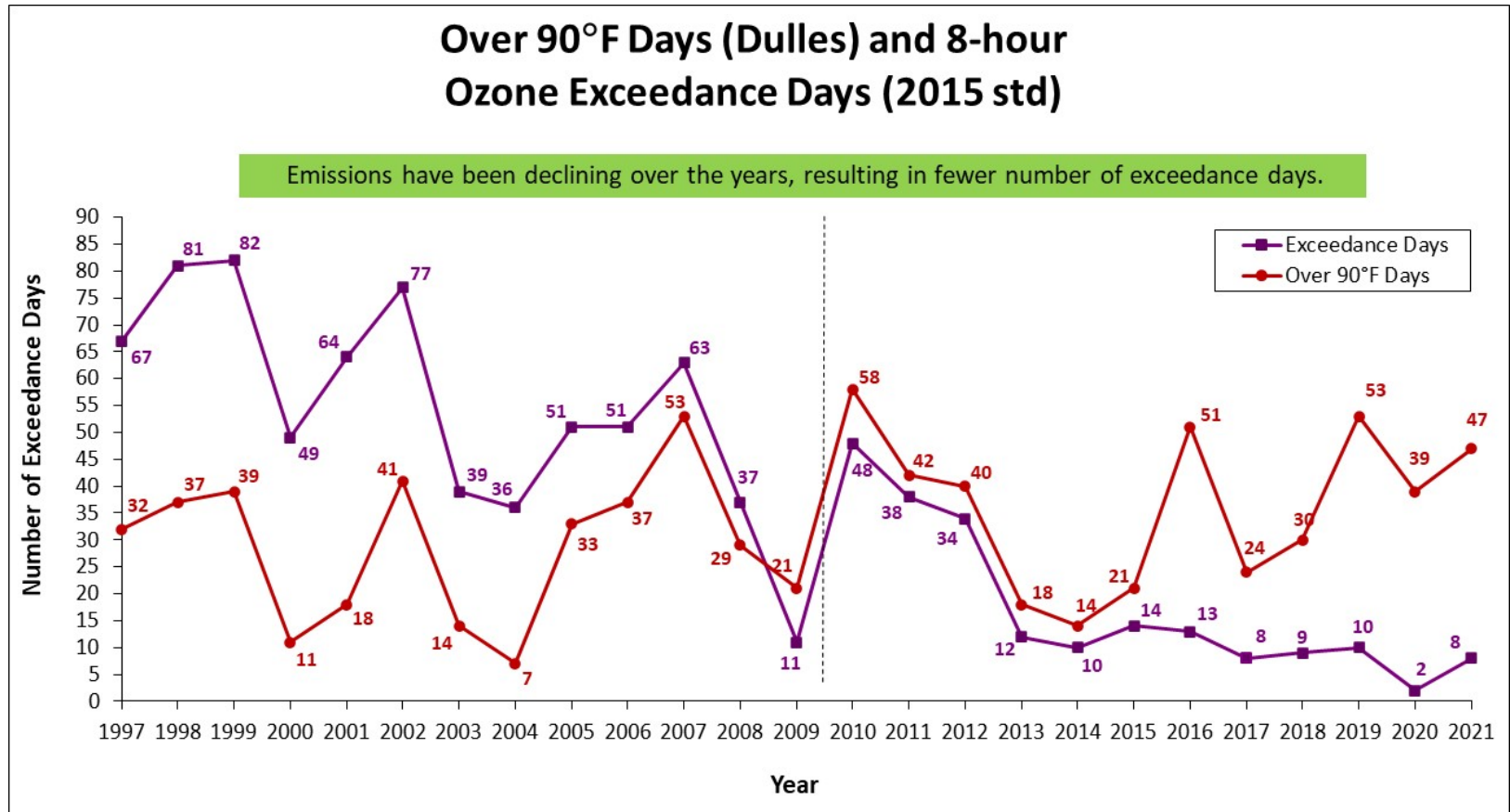
Ozone Exceedance Trend



2021 data is draft and incomplete as of September 30, 2021.

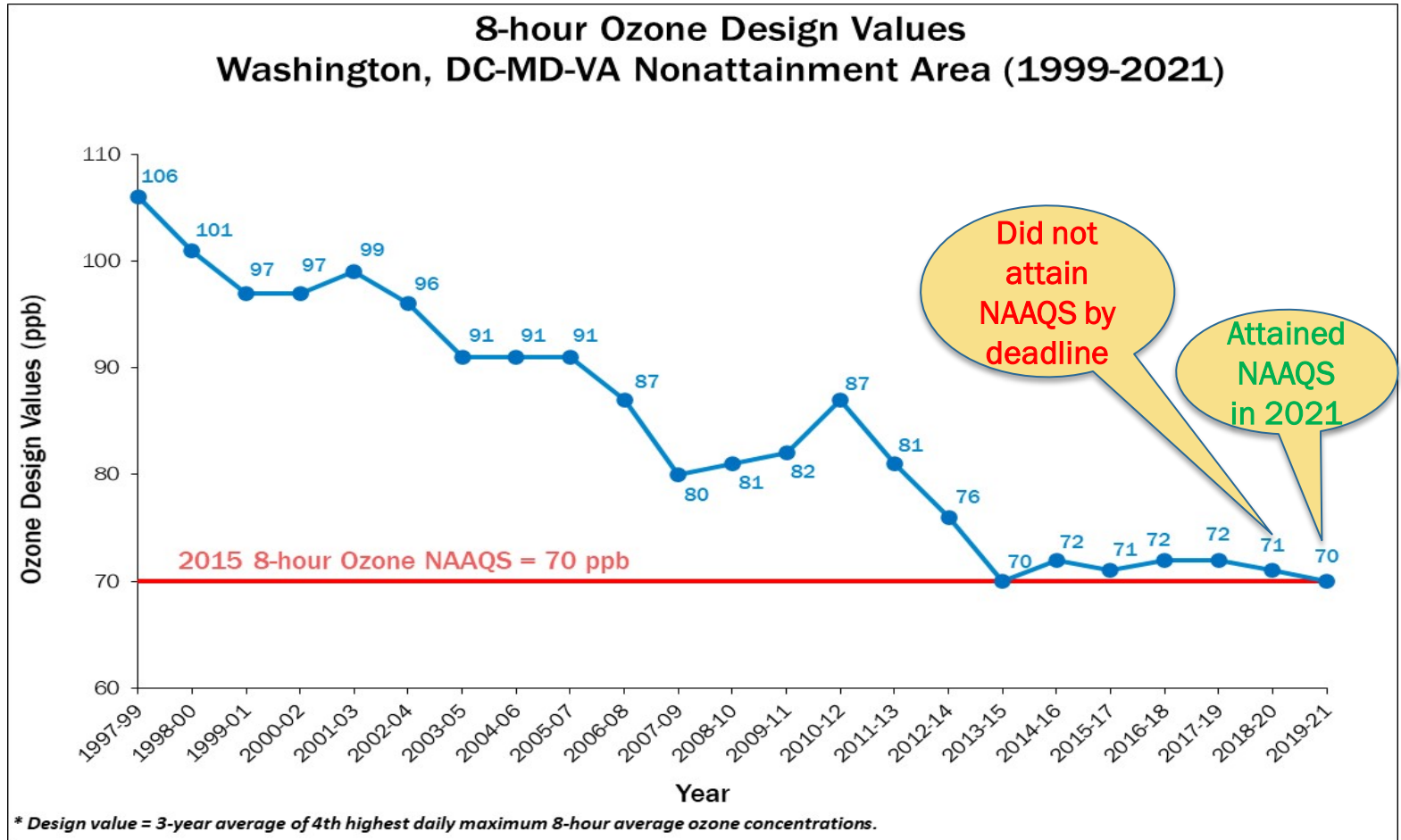


Ozone & Temperature Trend



2021 data is draft and incomplete as of September 30, 2021.

Ozone Design Value Trend



2019-21 data is draft as of September 30, 2021.



Ozone Design Values (Individual Monitors)

Monitor	County, State	Draft 2019-2021 Design Value (ppb)
Beltsville	Prince George's, MD	70
McMillian	District of Columbia	69
HU- Beltsville	Prince George's, MD	67
Takoma	District of Columbia	66
Arlington	Arlington, VA	66
PG Equestrian	Prince George's, MD	65
Franconia	Fairfax, VA	65
Frederick	Fredrick, MD	65
Rockville	Montgomery, MD	63
Ashburn	Loudoun, VA	62
River Terrace	District of Columbia	60
S. Maryland	Charles, MD	59
Long Park	Prince William, VA	59
Calvert	Calvert, MD	58

2021 data is draft and incomplete as of September 30, 2021.

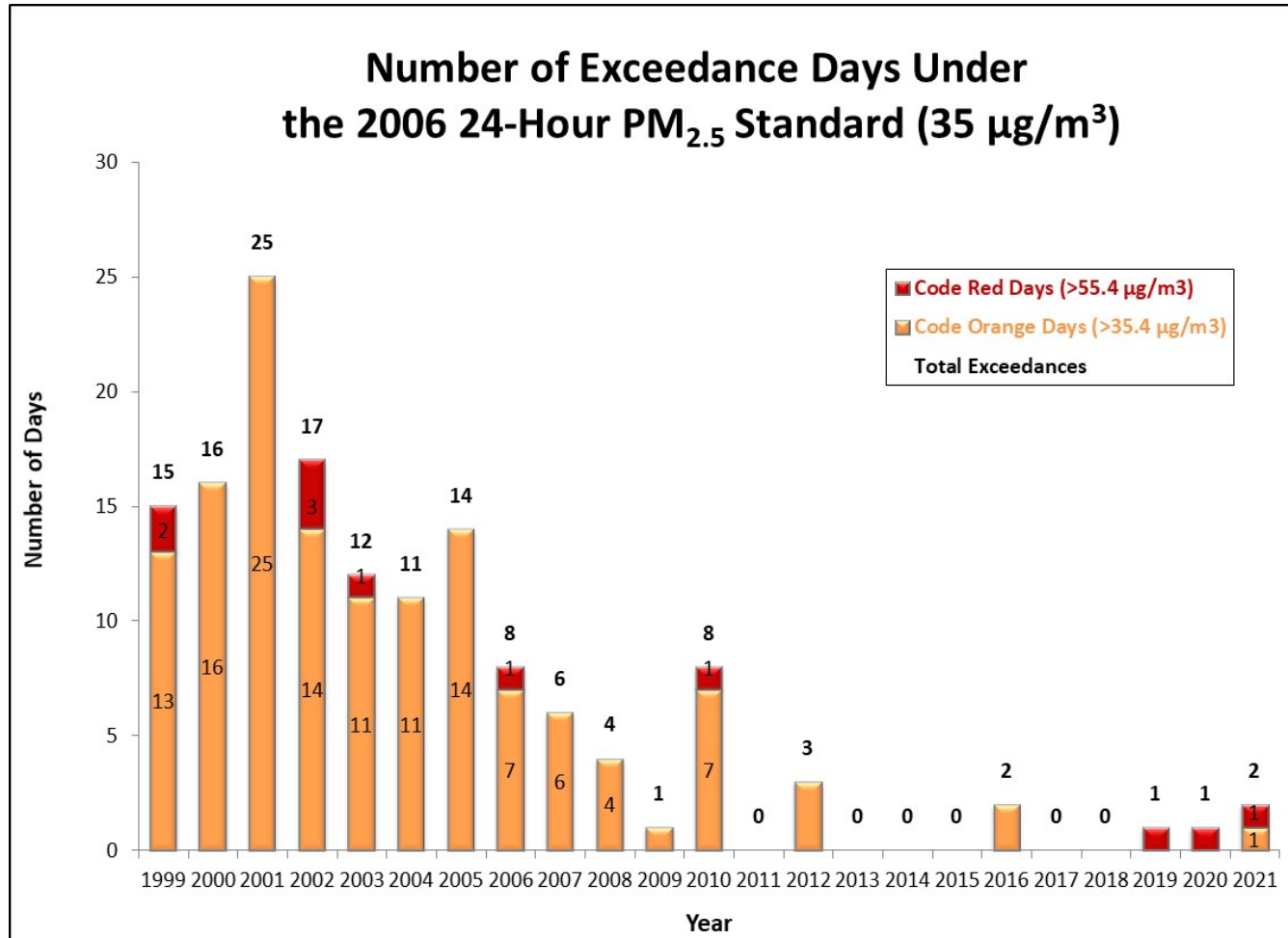
24-Hour Average PM2.5 Levels ($\mu\text{g}/\text{m}^3$)

March 2021							April 2021							May 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	6.6	5.3	9.5	8.6	5.1	5.5					5.9	4.3	5.8							4.3
8.7	14.0	15.2	20.0	18.9	8.6	5.1	9.9	12.0	13.0	14.8	6.1	7.4	9.7	8.9	16.4	8.6	8.0	5.9	8.0	4.7
5.5	5.0	8.5	10.6	6.1	5.0	8.3	5.9	7.1	7.7	10.8	6.7	4.3	6.8	8.8	4.2	7.3	5.0	7.3	13.8	11.1
14.7	11.3	10.2	8.1	11.4	6.7	5.0	8.1	10.0	9.5	6.7	6.3	10.0	11.6	10.3	10.9	11.3	12.7	12.3	9.9	12.5
5.9	4.9	9.4	9.1				9.2	6.0	12.4	14.4	12.4	3.9		12.3	8.9	10.4	15.4	9.6	10.1	2.9
														5.1	7.8					
June 2021							July 2021							August 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		10.5	10.3	8.0	8.3	12.7					7.9	7.6	5.4	17.3	15.2	12.3	11.5	13.6	13.4	10.7
15.5	13.6	12.3	10.6	10.0	6.6	8.8	58.9	42.7	21.0	23.3	15.1	8.5	8.3	9.2	14.0	17.0	11.6	11.3	12.0	10.5
7.7	10.1	8.1	6.0	6.7	10.6	15.9	12.4	12.1	12.3	9.6	11.0	13.5	15.1	8.5	10.5	8.3	7.7	6.8	6.4	8.7
15.2	10.9	7.0	6.2	9.5	6.5	8.5	7.1	24.0	32.4	33.4	15.1	11.5	13.2	10.0	14.7	15.1	18.5	16.0	14.2	13.3
11.3	10.4	10.2	9.5				17.9	15.3	16.7	17.8	20.7	17.3	8.8	13.1	11.1	11.4				
September 2021																				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday														
			9.7	6.1	6.2	8.2														
11.0	8.6	9.3	12.2	8.0	6.5	9.0														
10.0	15.7	20.7	13.7	10.3	8.9	13.6														
10.4	7.9	6.3	6.6	5.3	6.7	10.3														
6.3	6.4	12.4	5.9	5.9																

1 Code Red, 1 Code Orange, 63 Code Yellow Days, rest all Code Green Days

Analysis is based on draft data as of September 30, 2021.

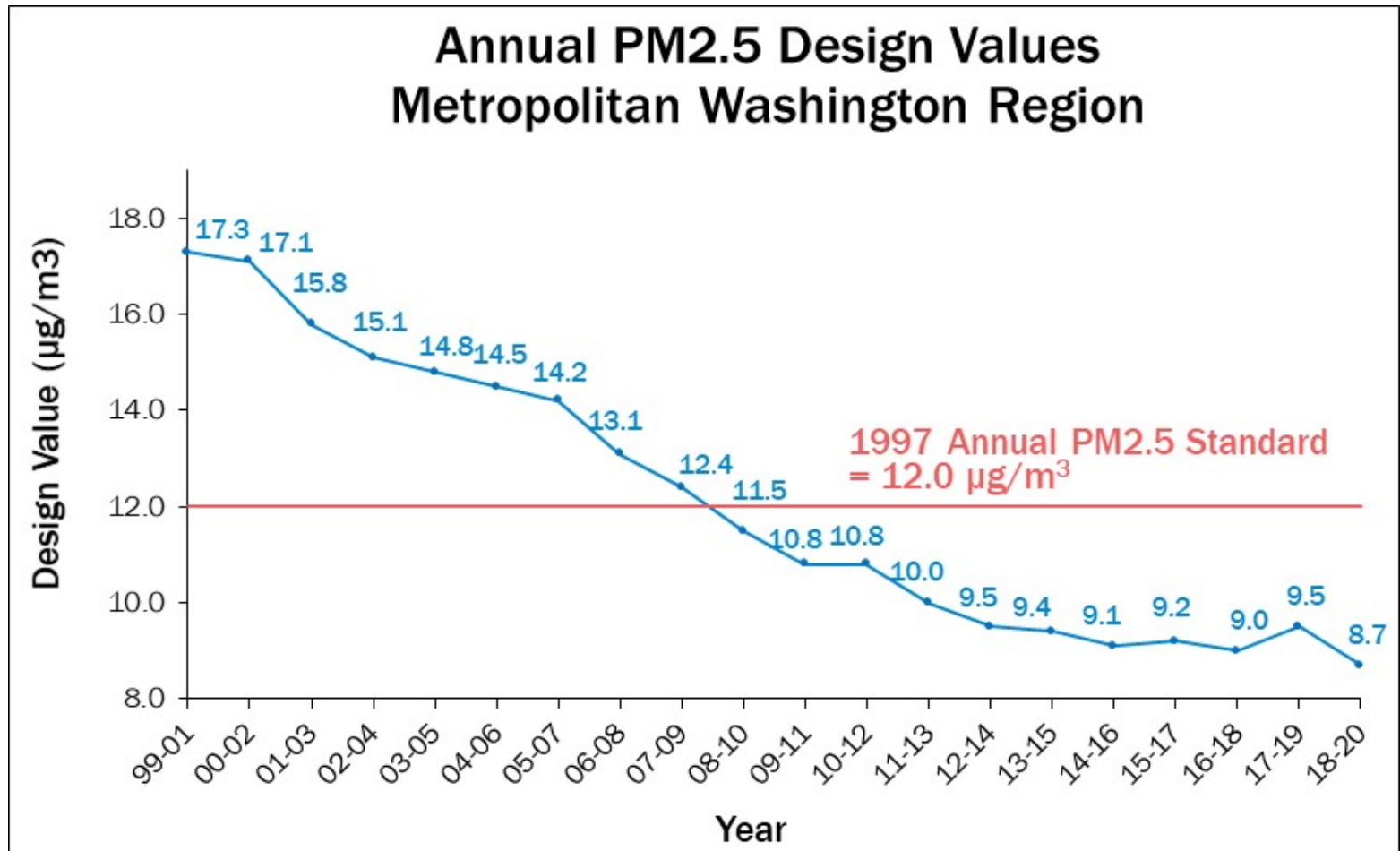
PM2.5 Exceedance Trend



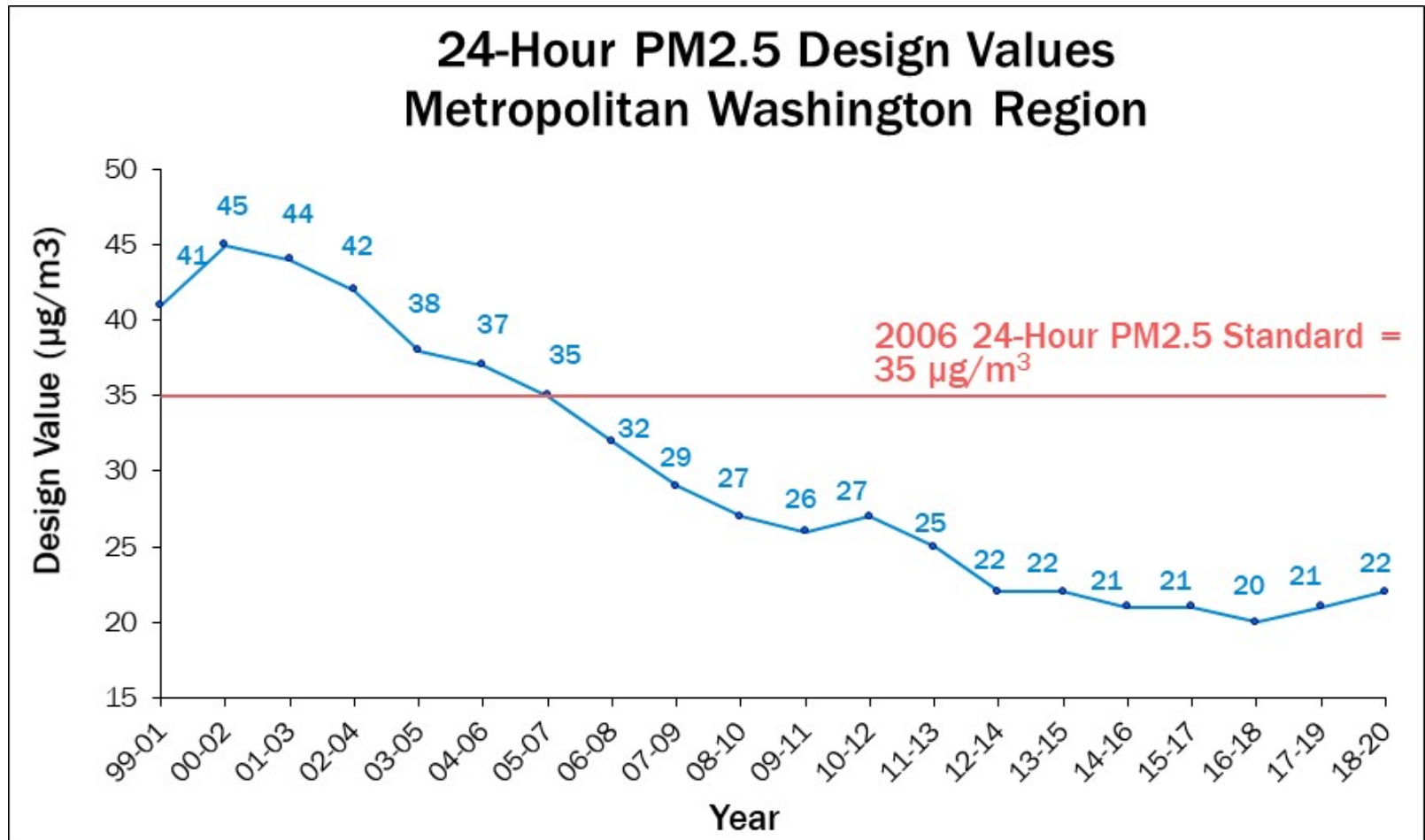
2021 data is draft and incomplete as of September 30, 2021.



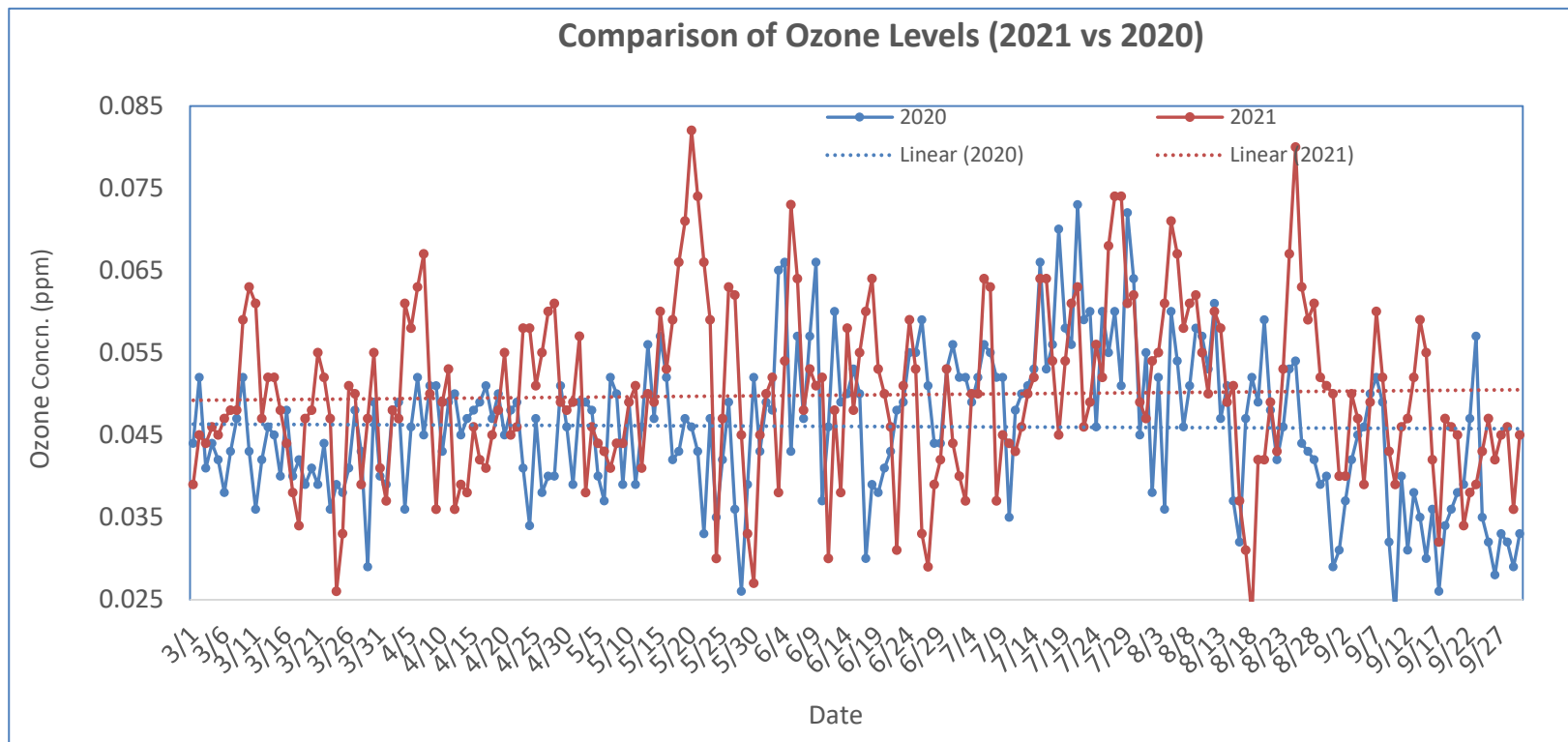
Annual PM2.5 Design Value Trend



24-Hour PM2.5 Design Value Trend

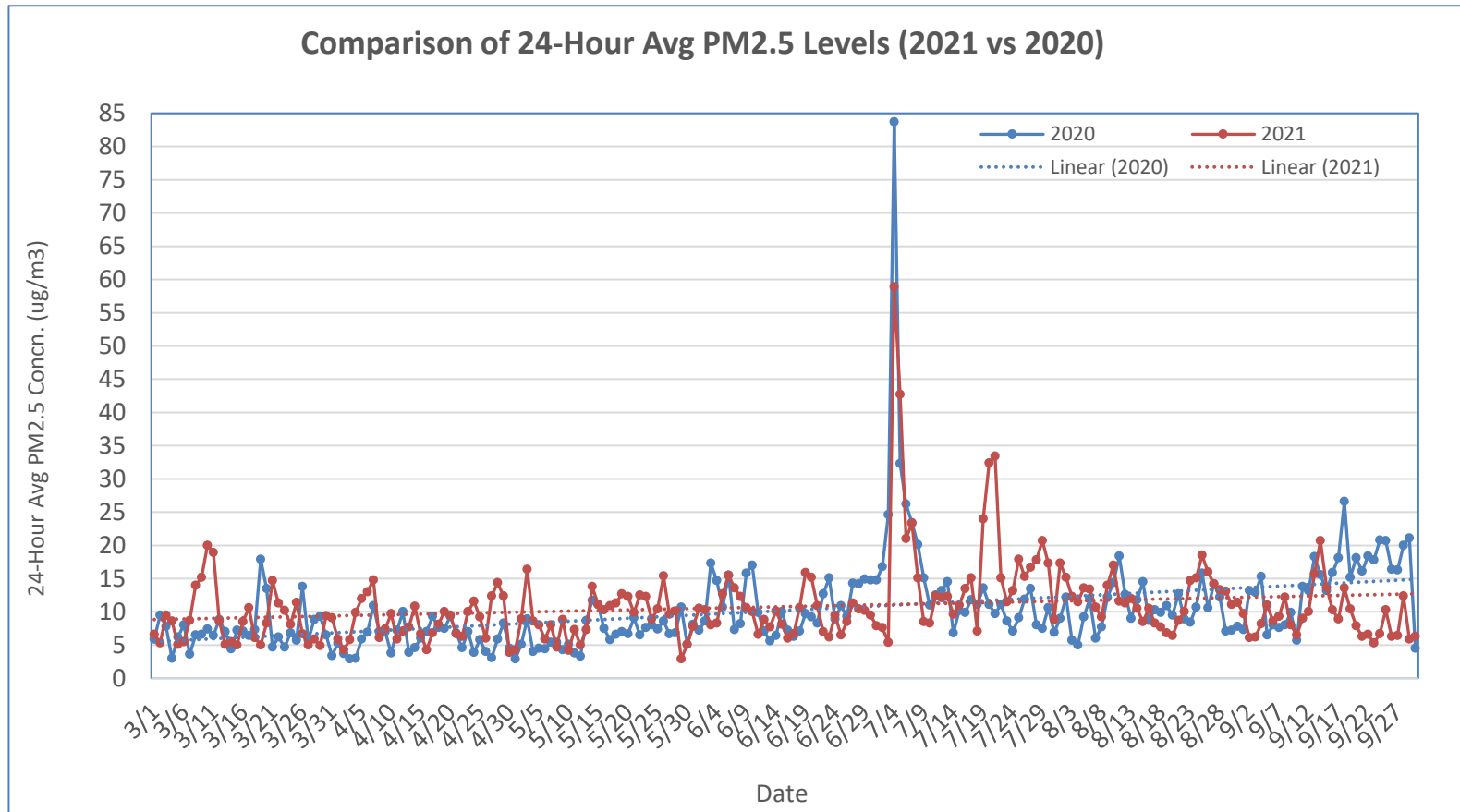


OZONE LEVELS – 2020 Vs 2021



- 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.



CONCLUSIONS

- Ozone and PM2.5 levels are overall higher in 2021 compared to 2020, but still a bit lower compared to 2019 suggesting air quality is getting back closer to "normal" levels.
- Relatively warmer Weather and higher emissions this year contributed towards higher pollutant levels this year compared to 2020.
- Though the Washington region attained the 2015 ozone standard this year, a lot can be attributed to abnormally low ozone data observed in 2020.
- There is a chance the region can go back to nonattainment in future as post-pandemic recovery continues next year and beyond leading to increased emissions.
- Therefore, there is a need to continue efforts to lower ozone levels.