

# OZONE SEASON SUMMARY 2020

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Principal Environmental Engineer

ACPAC  
September 21, 2020

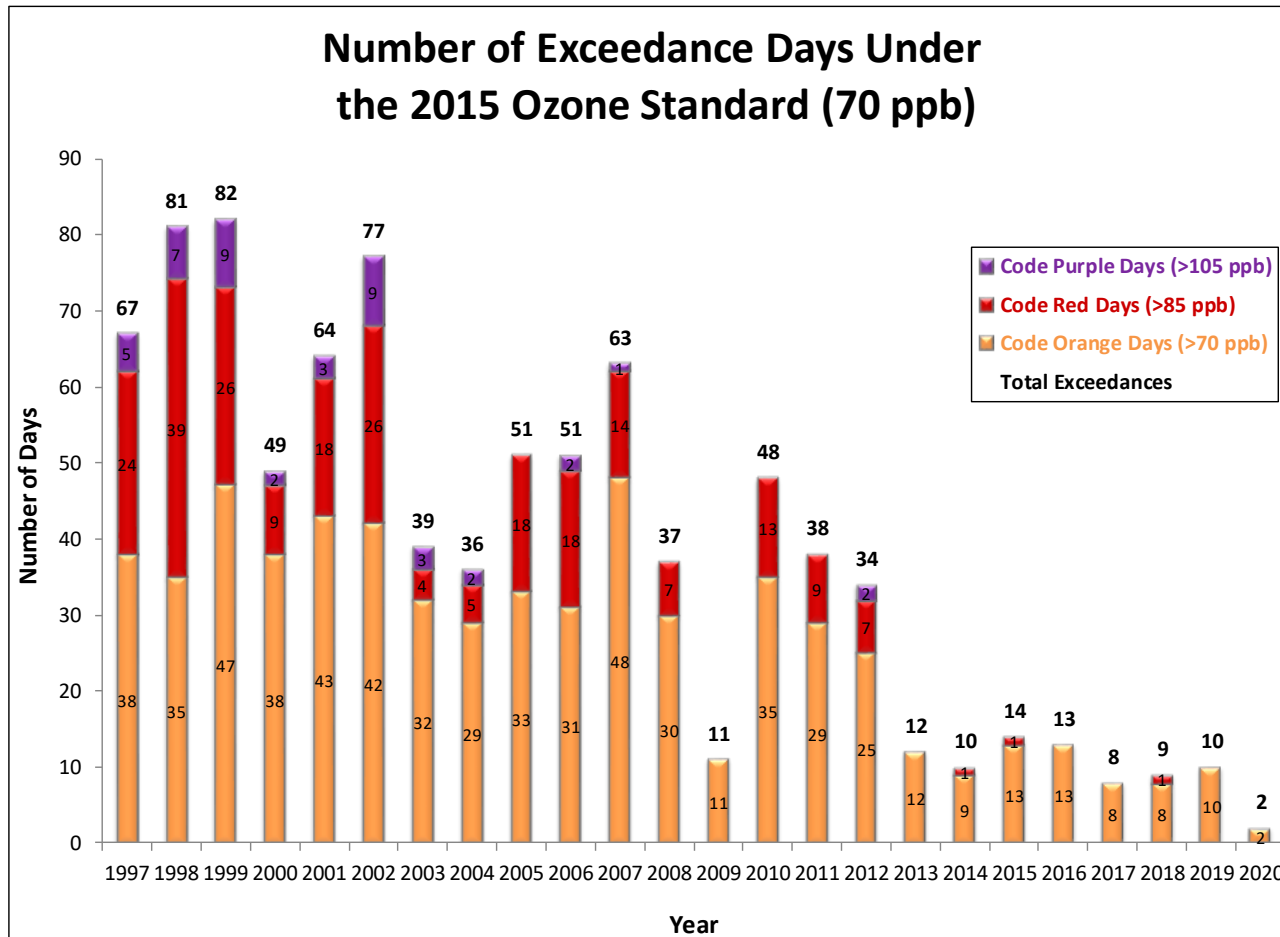
# Peak 8-Hour Average Ozone Levels (ppb)

March 2020							April 2020							May 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01	02	03	04	05	06	07	29	30	31	01	02	03	04	26	27	28	29	30	01	02
44	52	40	44	42	39	43				40	48	50	36						39	49
08	09	10	11	12	13	14	05	06	07	08	09	10	11	03	04	05	06	07	08	09
47	52	43	36	42	46	45	46	52	45	51	51	43	49	49	48	40	37	52	50	39
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
40	48	40	42	39	41	39	50	45	47	48	49	51	47	49	39	46	56	47	57	52
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
44	38	39	38	41	48	43	50	45	48	49	41	34	47	42	43	47	46	43	33	47
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
38	49	40					38	40	40	51	46			35	42	49	36	26	39	52
														31						
														43						
June 2020							July 2020							August 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	01	02	03	04	05	06	28	29	30	01	02	03	04	28	29	30	31	01	02	03
	49	48	65	66	43	57				56	52	52	49					55	38	52
07	08	09	10	11	12	13	05	06	07	08	09	10	11	04	05	06	07	08	09	10
47	57	66	37	46	60	49	52	56	55	52	52	35	48	36	60	54	46	51	58	57
14	15	16	17	18	19	20	12	13	14	15	16	17	18	11	12	13	14	15	16	17
50	53	50	30	39	38	41	50	51	53	66	53	56	70	53	61	47	51	37	32	47
21	22	23	24	25	26	27	19	20	21	22	23	24	25	18	19	20	21	22	23	24
43	48	49	55	55	59	51	58	56	73	59	60	46	60	52	49	59	48	42	46	53
28	29	30					26	27	28	29	30	31		25	26	27	28	29	30	31
44	44	53					55	60	51	72	64	45		54	44	43	42	39	40	29

2 Code Orange, 31 Code Yellow Days, Rest All Code Green Days

Analysis is based on draft data as of August 31, 2020.

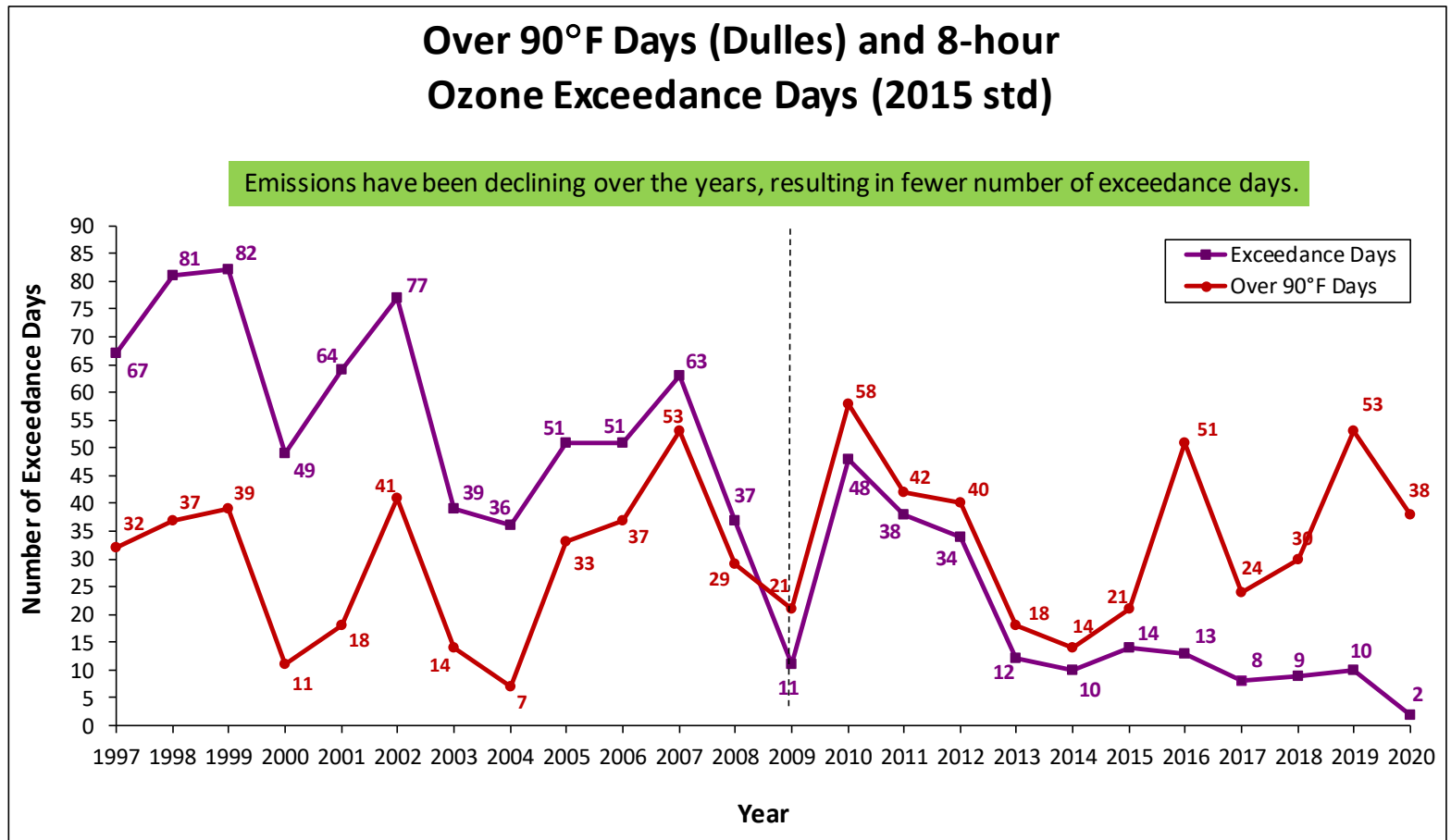
# Ozone Exceedance Trend



Analysis is based on draft and incomplete data as of August 31, 2020.

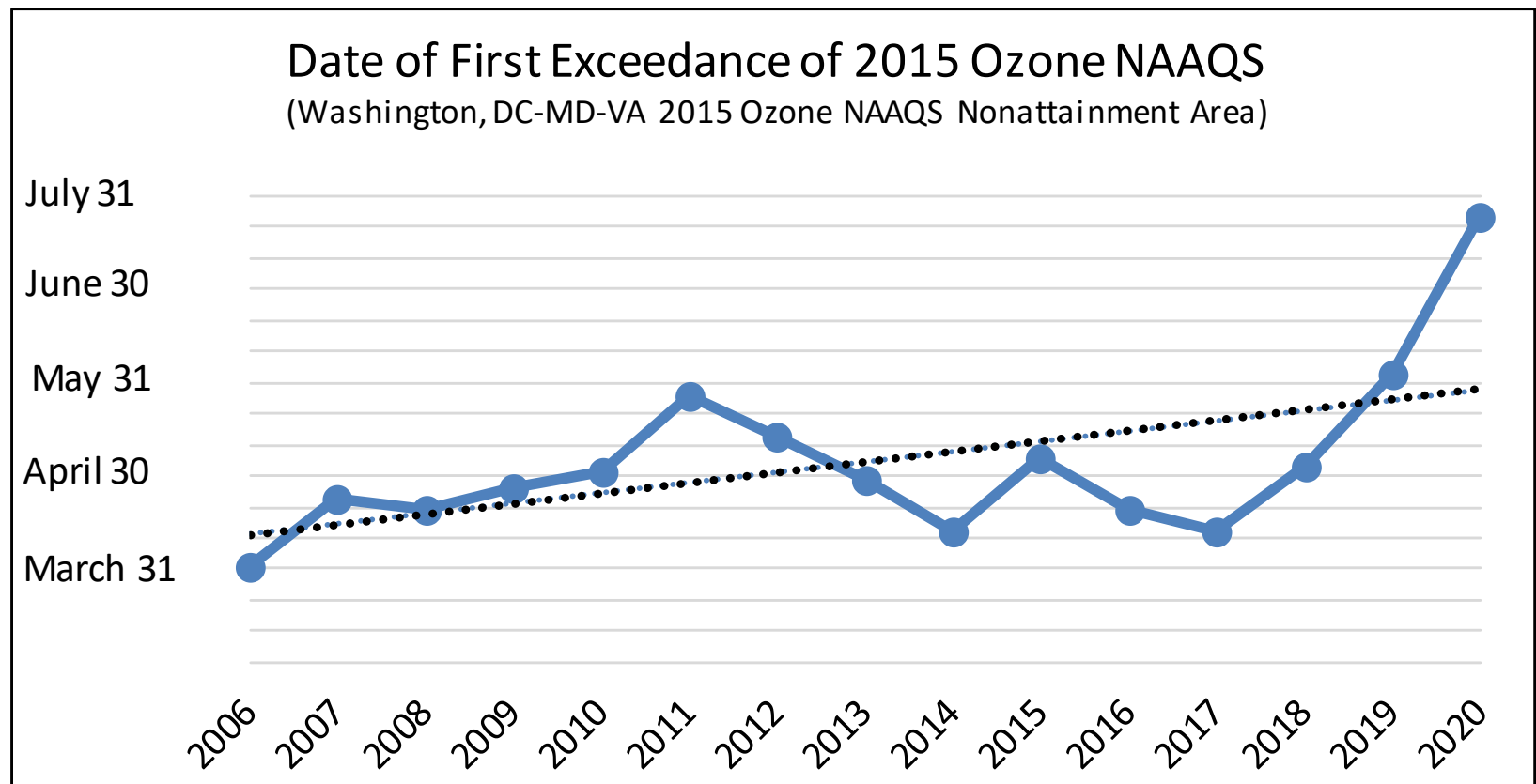


# Ozone & Temperature Trend



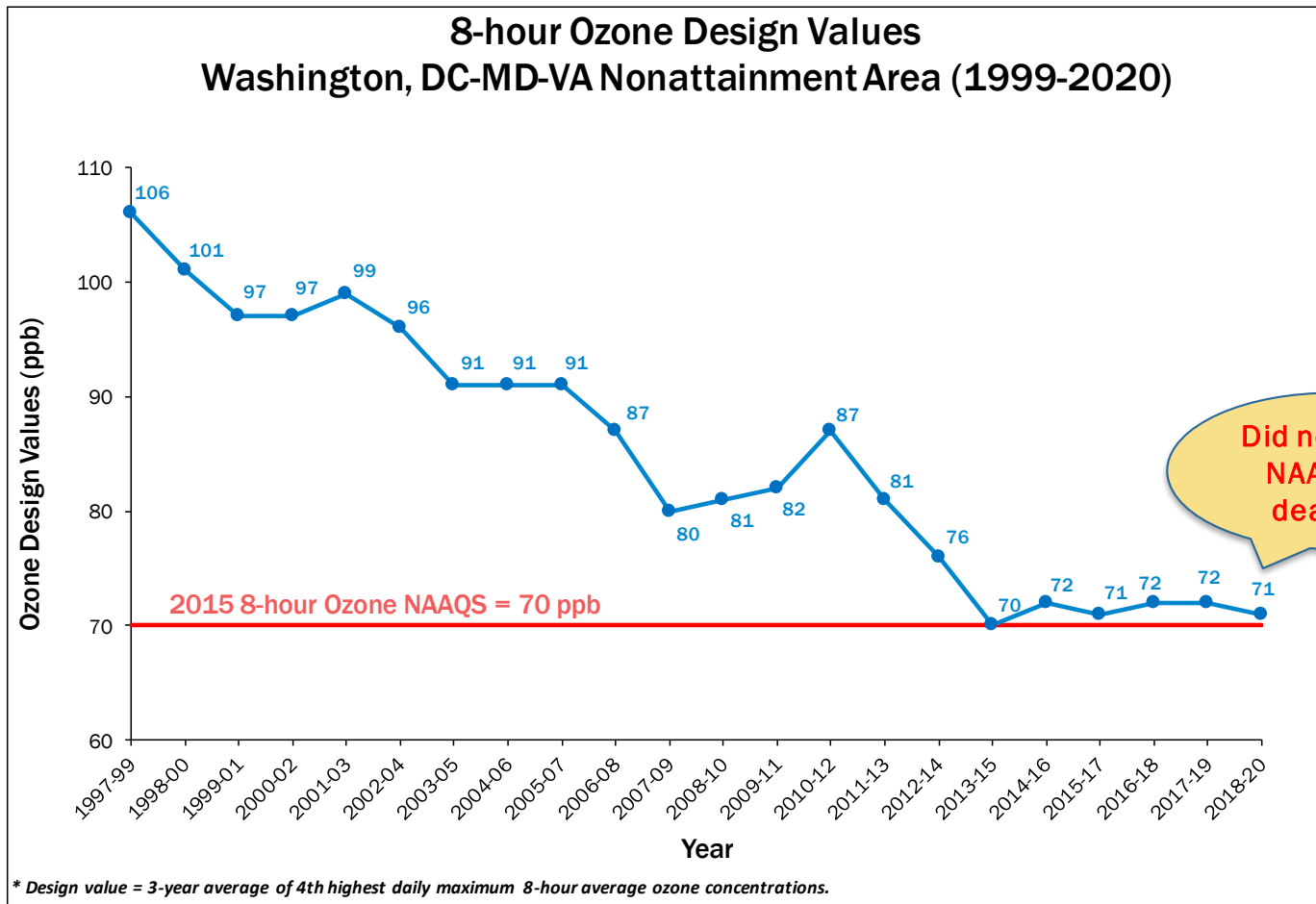
Analysis is based on draft and incomplete data as of August 31, 2020.

# Trend – Day of First Code Orange



Analysis is based on draft and incomplete data as of August 31, 2020.

# Ozone Design Value Trend



Analysis is based on draft and incomplete data as of August 31, 2020.

# 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 (2009/2015/2017)		Gas Can Replacement

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

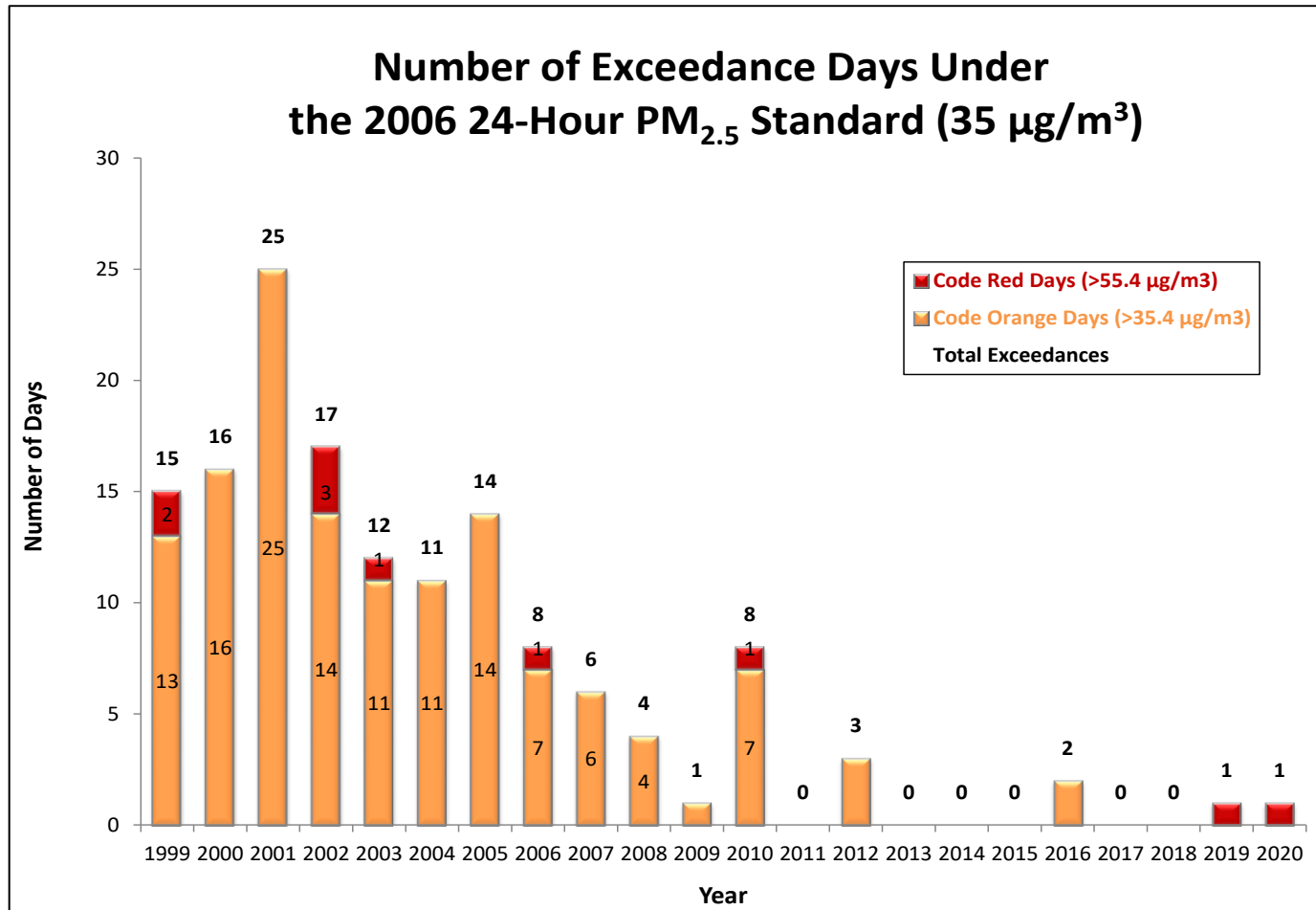
March 2020							April 2020							May 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01	02	03	04	05	06	07	29	30	31	01	02	03	04	26	27	28	29	30	01	02
6.2	10.9	9.4	3.4	7.7	9.3	4.0				6.6	4.2	3.1	3.1						3.5	5.6
08	09	10	11	12	13	14	05	06	07	08	09	10	11	03	04	05	06	07	08	09
7.6	8.0	7.9	7.7	10.3	6.9	4.7	6.2	6.9	10.9	6.5	7.4	4.2	7.8	8.9	4.4	5.2	4.6	5.3	6.6	4.3
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
8.1	6.7	7.7	8.4	13.1	10.6	5.2	10.0	3.9	5.3	6.8	7.9	9.5	8.5	5.1	11.7	9.3	11.1	10.3	10.4	8.5
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
6.8	5.0	6.7	6.0	10.9	6.9	8.8	8.6	10.2	6.9	5.1	7.1	3.9	7.0	9.8	6.6	7.0	6.7	9.1	6.5	10.1
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
9.4	6.5	4.3					4.0	3.1	6.0	8.3	5.1			8.0	7.4	8.6	6.7	6.8	10.7	5.1
														31						
														8.1						
June 2020							July 2020							August 2020						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	01	02	03	04	05	06	28	29	30	01	02	03	04	26	27	28	29	30	31	01
	7.2	8.6	17.3	14.7	10.7	15.5				14.8	16.8	24.6	83.7							9.7
07	08	09	10	11	12	13	05	06	07	08	09	10	11	02	03	04	05	06	07	08
7.3	8.2	15.8	17.0	9.9	7.1	5.6	32.3	26.2	23.4	20.1	15.1	11.0	12.5	12.8	5.7	5.0	9.2	12.0	6.0	7.7
14	15	16	17	18	19	20	12	13	14	15	16	17	18	09	10	11	12	13	14	15
6.4	10.0	7.2	6.3	7.1	9.7	9.2	13.2	14.5	6.8	10.2	9.9	11.8	11.1	12.2	14.4	18.4	12.6	9.0	11.8	14.5
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
8.3	12.7	15.1	8.9	10.9	9.3	14.3	13.6	11.1	9.7	11.1	8.6	7.1	9.3	8.7	10.3	10.3	10.9	10.8	12.7	8.9
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29
14.2	14.9	14.8					12.1	15.5	8.0	8.9	10.6	6.9	8.4	10.7	15.8	10.6	14.2	12.2	7.1	
														30	31					
														7.2	7.8					

1 Code Red Day, 36 Code Yellow Day, Rest All Code Green Days

Analysis is based on draft data as of August 31, 2020.

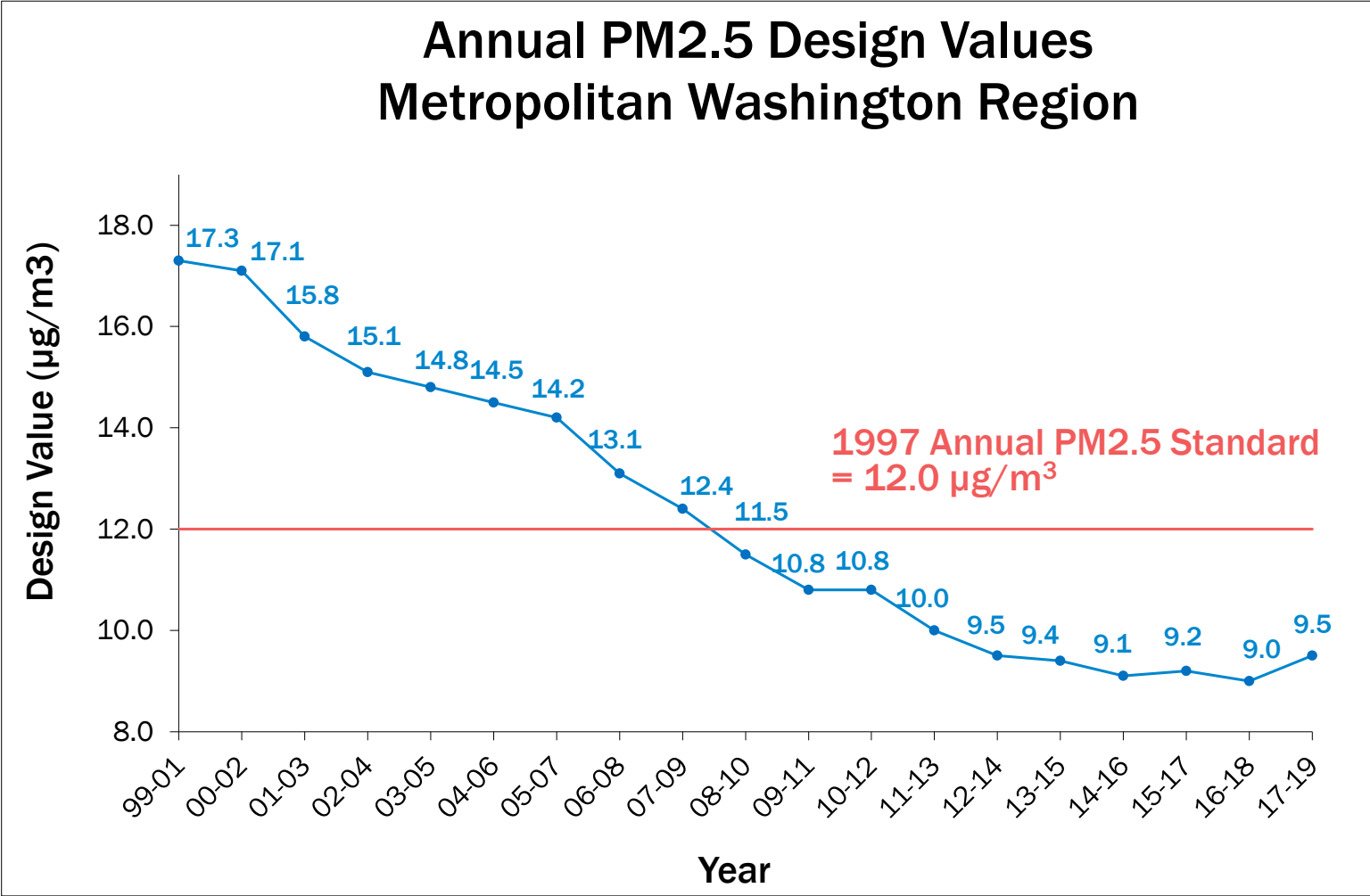


# PM2.5 Exceedance Trend

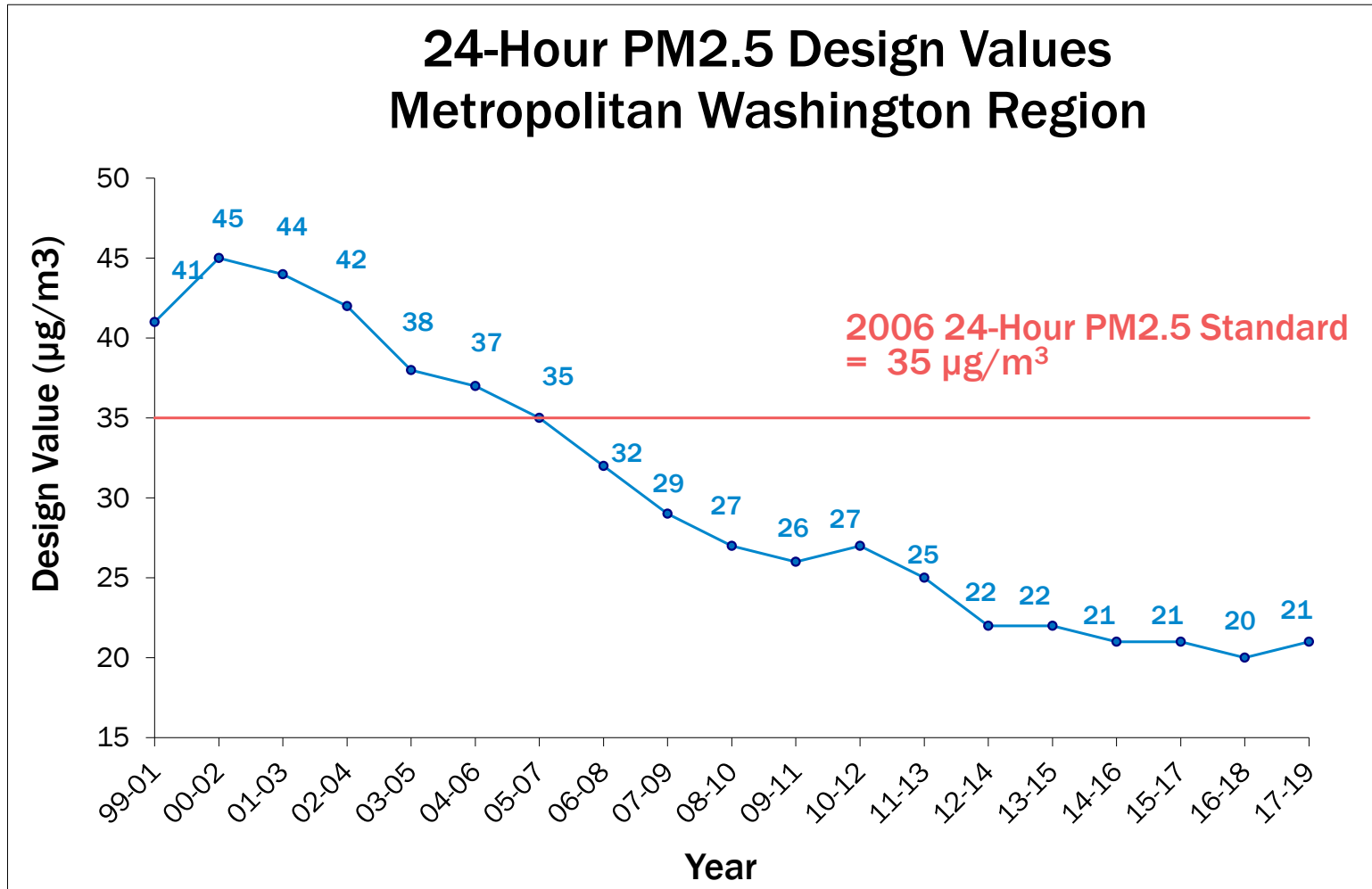


Analysis is based on draft and incomplete data as of August 31, 2020.  
 2019 & 2020 code red days recorded on July 4<sup>th</sup>.

# Annual PM2.5 Design Value Trend

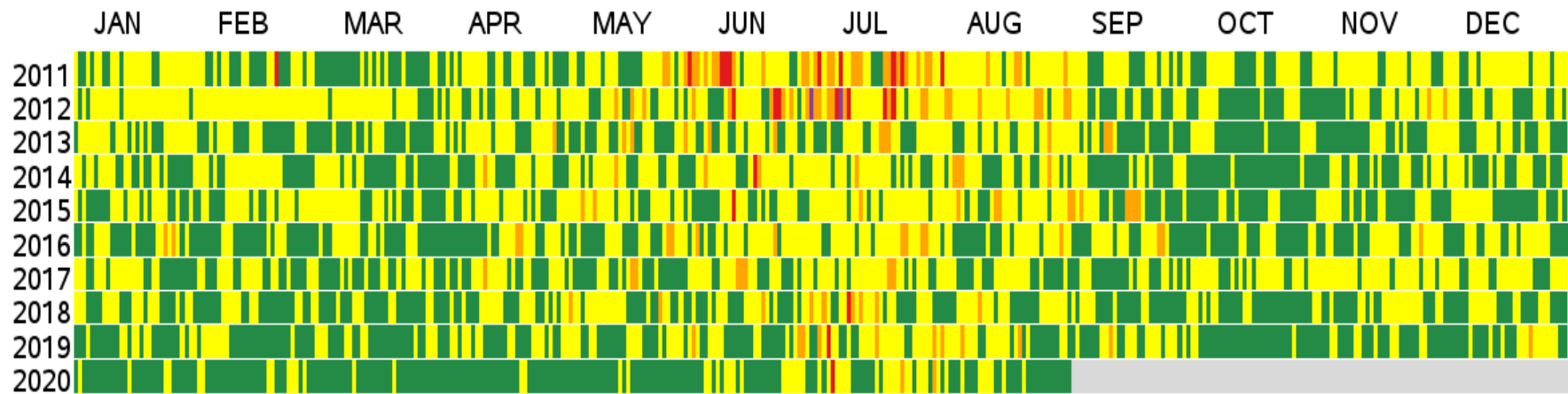


# 24-Hour PM2.5 Design Value Trend



# Historical AQI Value Trends

## Daily AQI Values, 2011 to 2020 Washington-Arlington-Alexandria, DC-VA-MD-WV



Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>  
Generated: September 1, 2020

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

# WEATHER & AIR QUALITY

- Weather plays an important role in determining air quality besides emission. Except for June, weather was not very favorable for ozone and PM2.5 in the current ozone season.
- **May 2020** – Much Colder, cloudier, and drier than normal.
- **June 2020** – Warmer and drier than normal.
- **July/August 2020** – Warmer, but wetter than normal.

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

# CONCLUSIONS

- Ozone and PM2.5 levels were overall lower in 2020 compared to previous years as COVID-19 related restrictions were implemented in the Washington region.
- Reduction in emissions due to lower traffic and fuel/ electricity consumption coupled with weather contributed towards lower pollutant levels.
- The Washington region did not attain the 2015 ozone NAAQS based on draft 2018-2020 data (71 ppb).

(The attainment deadline is August 3, 2021 based on 2018-2020 data.)

# Ozone Planning - Probable Next Steps

- The Washington region is eligible to apply for an extension of the attainment date by one year to August 3, 2022.
  - Would give the region another year to show attainment and avoid getting bumped up to Moderate nonattainment area.
  - Would not extend the deadline for a State Implementation Plan if the region fails to reach attainment in the additional year
- The region could request for the extension and then start working on Reasonable Further Progress and attainment demonstration plans.
- This will ensure the region's plans will be ready for submittal if and when they will be needed.