



Ozone Season Summary

2015

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MWAQC-TAC Meeting

July 7, 2015



Ozone Season Summary

[As of July 7, 2015]

Peak 8-Hour Ozone Concentrations (ppb)

APRIL 2015						
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1	2	3	4	5
		51	62	46	46	53
6	7	8	9	10	11	12
57	45	39	37	42	58	60
13	14	15	16	17	18	19
60	43	53	58	51	65	58
20	21	22	23	24	25	26
48	52	54	50	55	48	52
27	28	29	30			
47	50	61	60			

MAY 2015						
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1	2	3
				43	52	68
4	5	6	7	8	9	10
67	71	67	70	72	45	41
11	12	13	14	15	16	17
48	59	46	59	60	61	40
18	19	20	21	22	23	24
52	52	47	38	59	60	68
25	26	27	28	29	30	31
60	65	48	69	66	52	43

JUNE 2015						
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4	5	6	7
51	32	28	32	33	54	49
8	9	10	11	12	13	14
56	60	67	88	60	59	57
15	16	17	18	19	20	21
45	42	55	46	47	52	46
22	23	24	25	26	27	28
68	52	63	64	60	43	42
29	30					
53	58					

JULY 2015						
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1	2	3	4	5
		60	46	62	54	52
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

* Data based on the 8-hour standard set of 75 ppb. Since April 1, 2015, there have been

1 Code Orange Day, 29 Code Yellow Days, and 66 Code Green Days



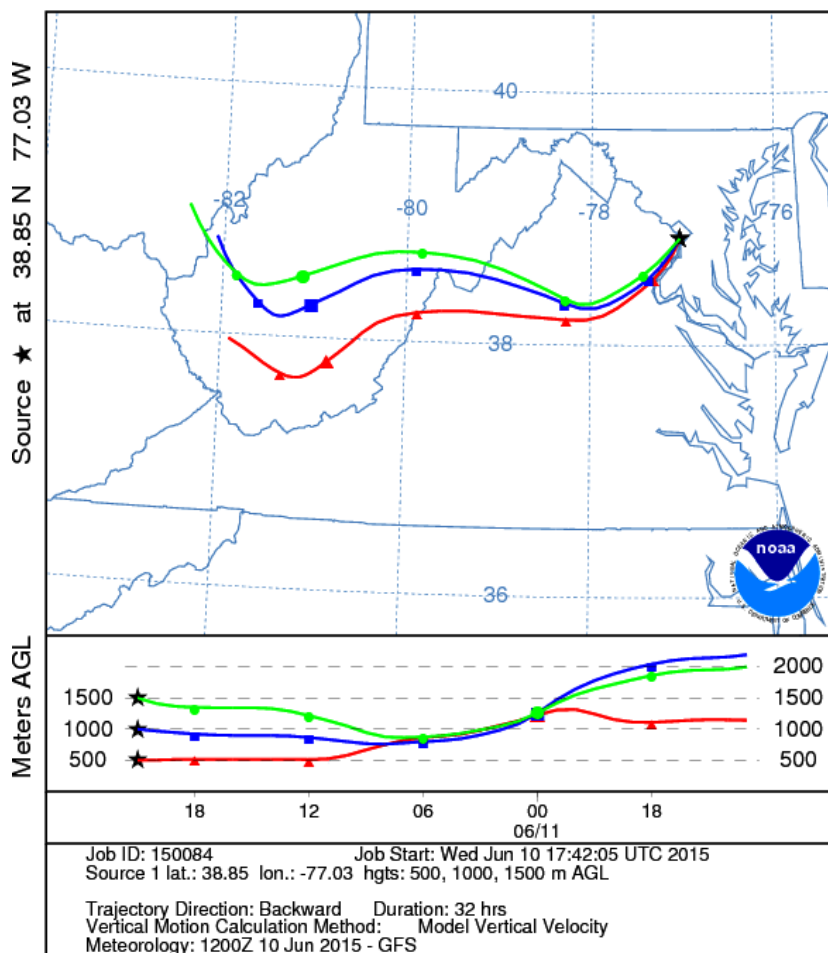
Meteorology Factors on Exceedance Days

- June 10, 2015
 - High Temperature: 84°F
 - Light winds
 - Northwesterly winds brought ozone from the Ohio River Valley
 - Clear skies
- June 11, 2015
 - High Temperature: 93°F
 - Light winds
 - Westerly winds brought ozone from Ohio River Valley
 - Similar conditions during the prior two days caused ozone to build up
 - Clear skies
 - Canadian wildfire smoke



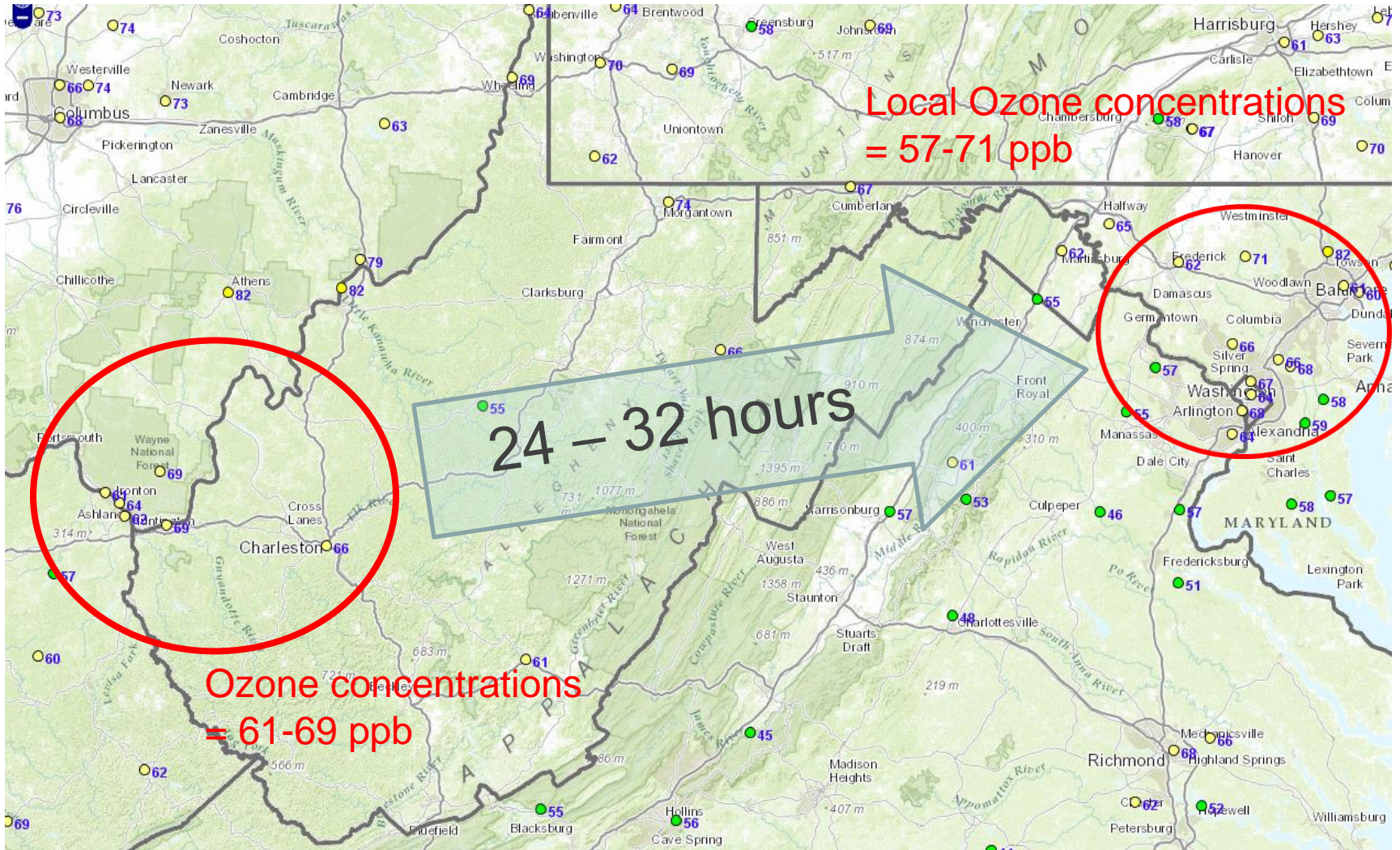
Wind Trajectories for 6/11

NOAA HYSPLIT MODEL
Backward trajectories ending at 2100 UTC 11 Jun 15
12 UTC 10 Jun GFSG Forecast Initialization



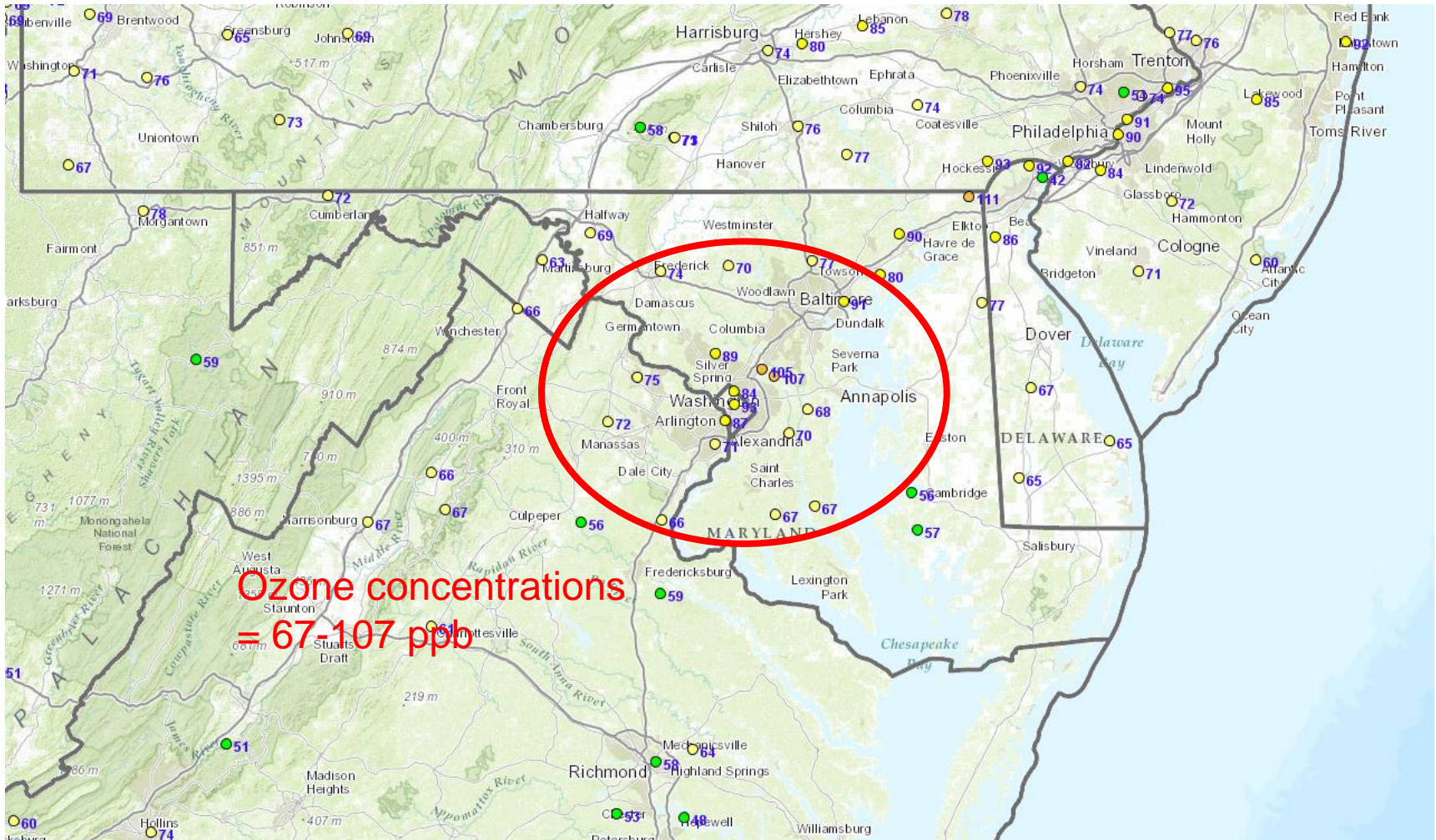


Ozone Concentration at 4 PM on June 10th





Ozone Concentration at 3 PM on June 11th





2014 Ozone Exceedances

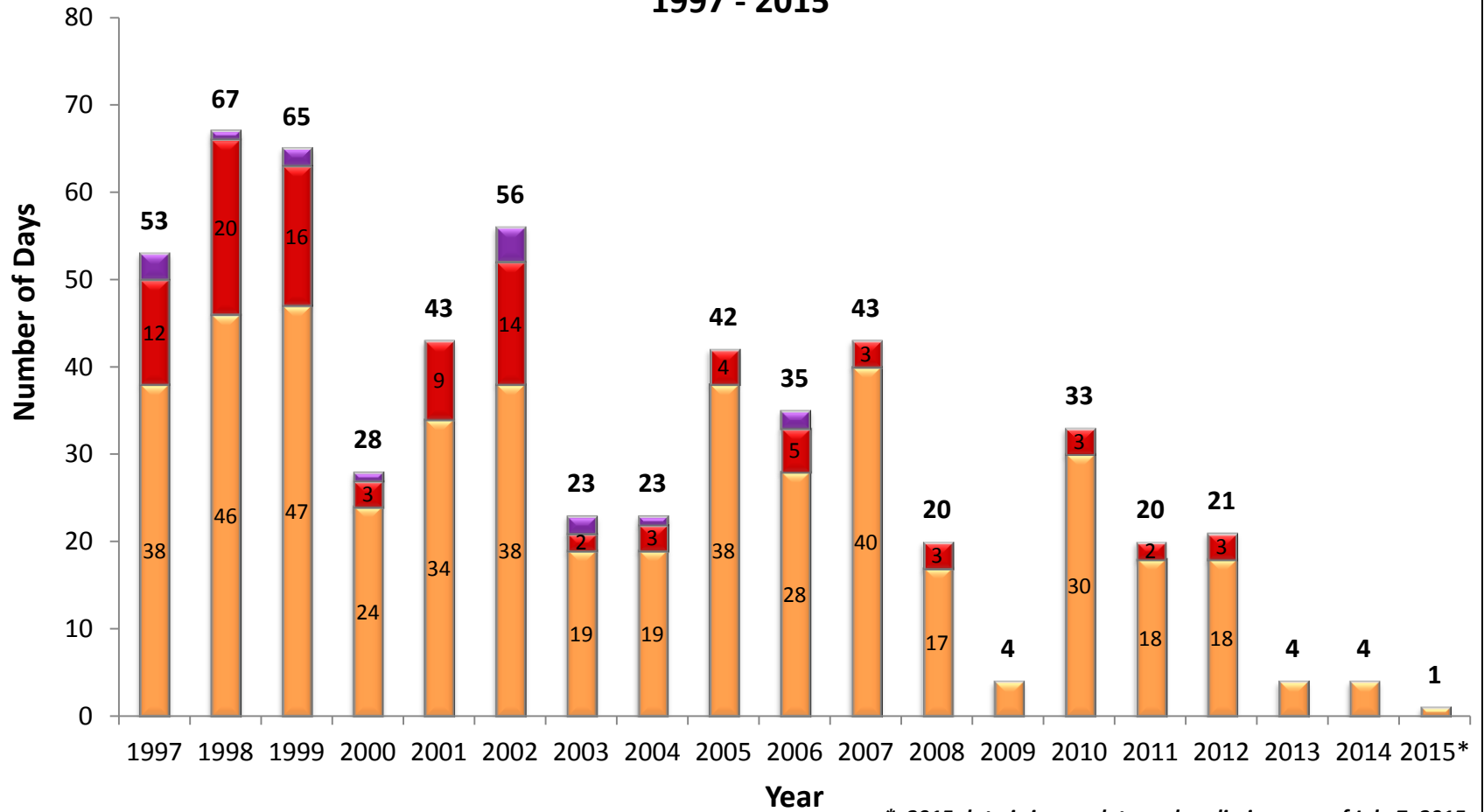
Date	Monitors Exceeding	Highest Monitor	8-Hr Max (ppb)
6/11/15	6	HU-Beltsville	88

*Analysis is based on draft data as of July 7, 2015. Data is subject to change.



Ozone Exceedance Trend

Number of Exceedance Days - 2008 Ozone Standard (75 ppb)
Breakdown of Code Orange, Red, and Purple Days
1997 - 2015

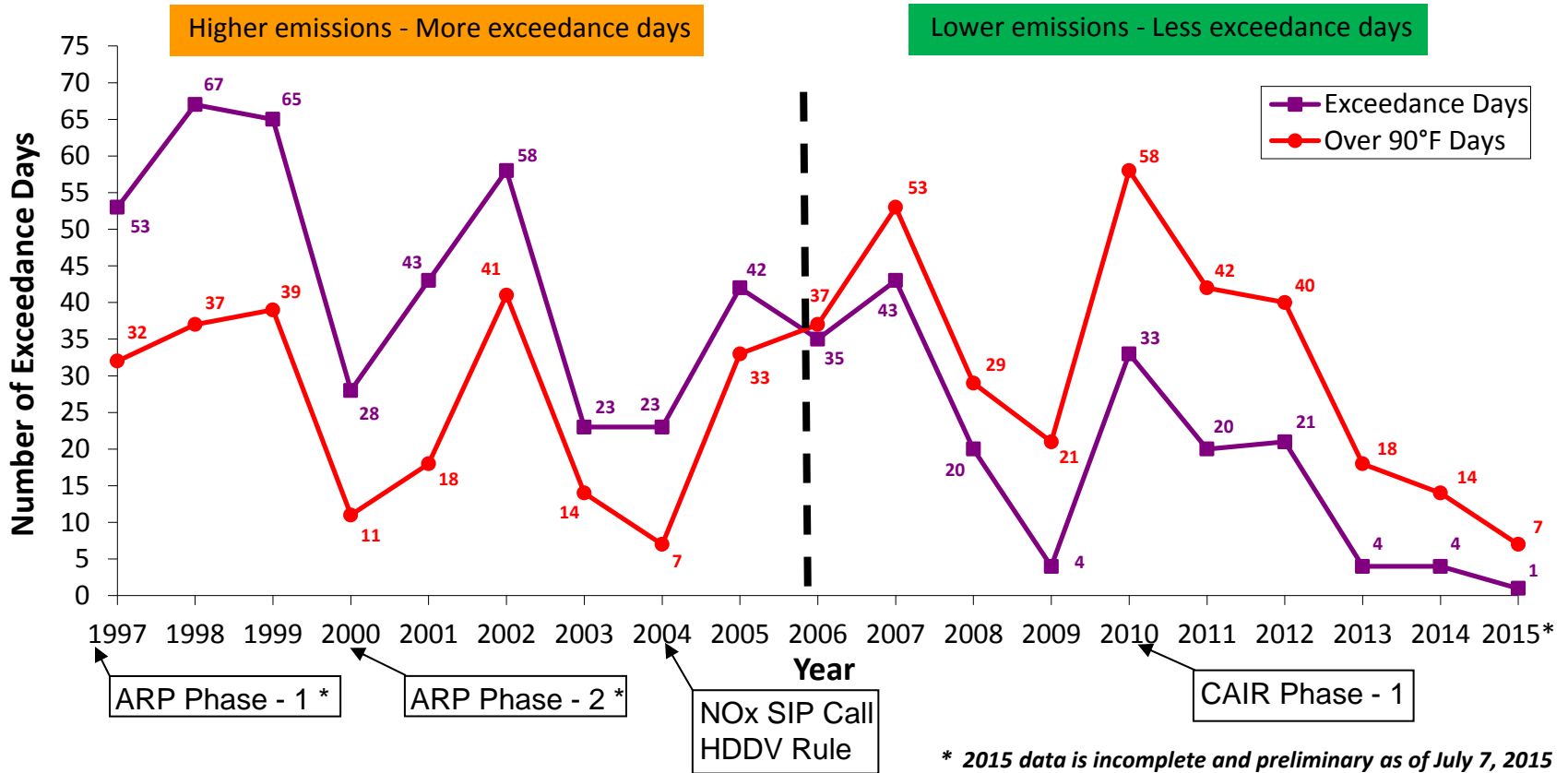


* 2015 data is incomplete and preliminary as of July 7, 2015



Trends of 90°F Days and Exceedance Days

Over 90°F Days (Dulles) and 8-hour Ozone Exceedance Days (2008 std)





Why Fewer Exceedance Days Now ?

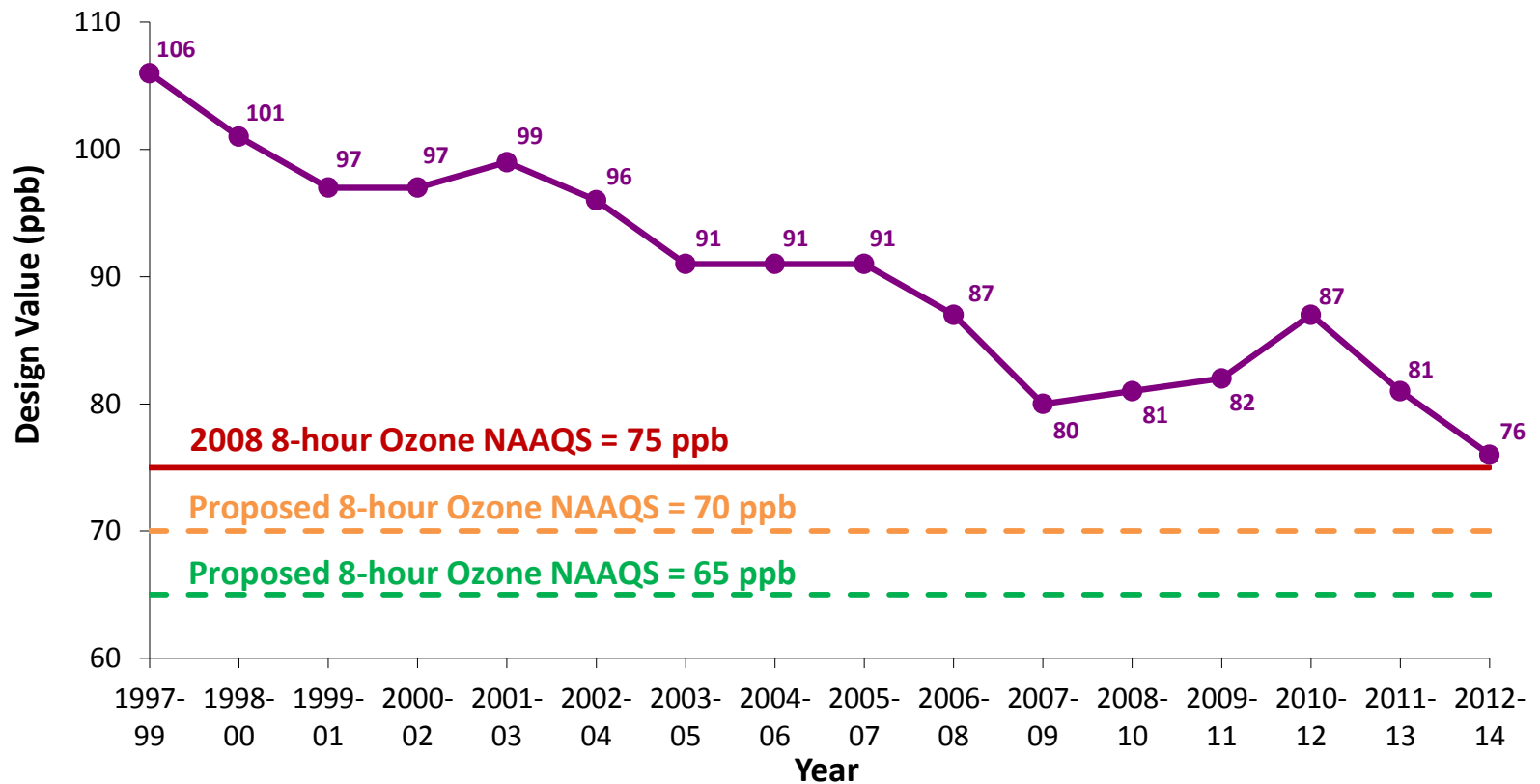
Emission Control Programs

Federal	State	Local
Acid Rain Program (1996/2000)	Vehicle Inspection and Maintenance Programs	Renewable Energy Programs Regional Wind Power Purchase Program Clean Energy Rewards Program Renewable Portfolio Standards
Tier 2 (LD Vehicle) Rule (2004)	MD Healthy Air Act (2009/2012)	Energy Efficiency Programs LED Traffic Signal Retrofit Program Building Energy Efficiency Programs
HD Diesel Vehicle Rule (2004/2007)	VA CAIR Rule	VRE Idling Reduction
NOx SIP Call (2004)	DC CAIR Rule	Low VOC Paint
Clean Air Interstate Rule (2009)	Ozone Transport Commission Rules	Gas Can Replacement



Ozone Design Value Trend

8-hour Ozone Design Value for the DC-MD-VA Ozone Nonattainment Area (1999-2014)

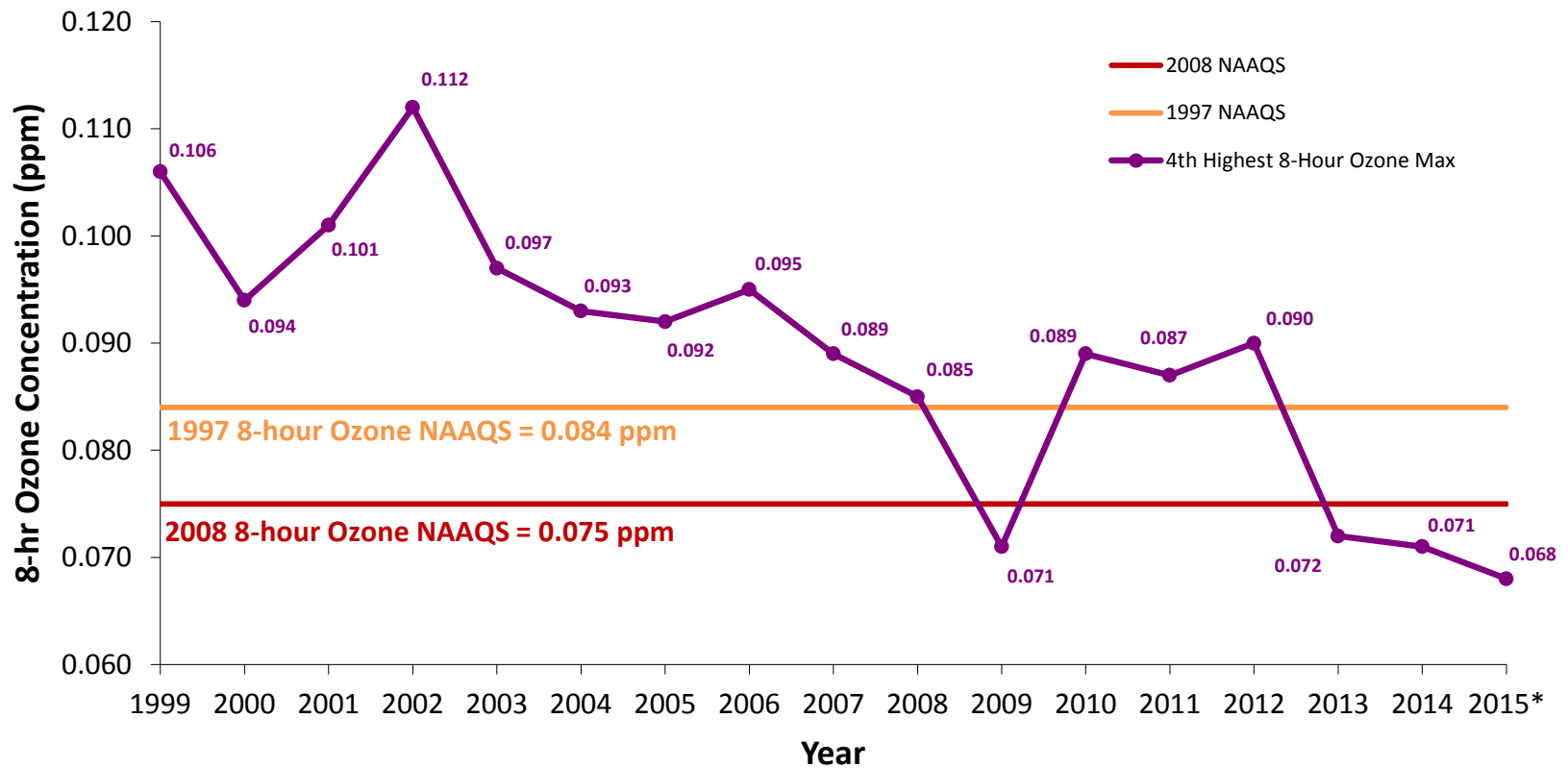


* Design value for the Ozone NAAQS is the 3-year average of the 4th highest daily maximum 8-hour ozone concentrations



4th Highest Ozone Value Trend

4th Highest 8-hour Ozone Maximum Concentration for the DC-MD-VA Ozone Non-Attainment Area (1999-2014)



* 2015 data is incomplete and preliminary as of July 7, 2015



These 4th highest 8-hour ozone values in 2015 would lead to non-attainment in 2015

Site	4 th Highest 8-Hour Max Ozone Concentration (ppm)
Beltsville	0.087
PG Equestrian	0.090
Arlington	0.090
Calvert	0.091
Franconia	0.092
Southern Maryland	0.094
Rockville	0.095
HU- Beltsville	0.095
McMillian NCore	0.096
Frederick	0.096
Ashburn	0.099
Long Park	0.100



Fine Particle Summary

[As of July 7, 2015]

24-hour PM_{2.5} Concentrations (µg/m³)

APRIL 2015

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1	2	3	4	5
		10.5	11.4	16.6	7.5	6.8
6	7	8	9	10	11	12
10.1	16.7	8.8	12.1	12.7	8.2	9.1
13	14	15	16	17	18	19
11.6	13.4	8.9	10.0	13.5	17.2	13.9
20	21	22	23	24	25	26
12.7	11.3	12.5	9.0	7.6	11.0	10.9
27	28	29	30			
10.9	11.0	13.2	16.3			

MAY 2015

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
				1	2	3
				13.1	14.3	19.2
4	5	6	7	8	9	10
21.2	24.4	21.5	16.7	18.7	12.7	17.4
11	12	13	14	15	16	17
20.5	16.1	6.5	5.6	9.3	15.8	11.0
18	19	20	21	22	23	24
12.7	10.6	8.4	8.5	8.4	6.0	11.5
25	26	27	28	29	30	31
14.1	13.5	11.2	12.7	14.2	8.7	12.2

JUNE 2015

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1	2	3	4	5	6	7
9.7	4.7	6.8	7.7	6.5	9.9	9.6
8	9	10	11	12	13	14
10.0	11.5	24.6	32.5	17.2	14.2	13.9
15	16	17	18	19	20	21
10.5	8.8	10.5	9.1	14.0	11.7	8.1
22	23	24	25	26	27	28
10.3	15.0	6.0	11.2	12.6	5.7	5.1
29	30					
8.2	10.9					

JULY 2015

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		1	2	3	4	5
		20.5	22.1	21.9	29.2	20.1
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

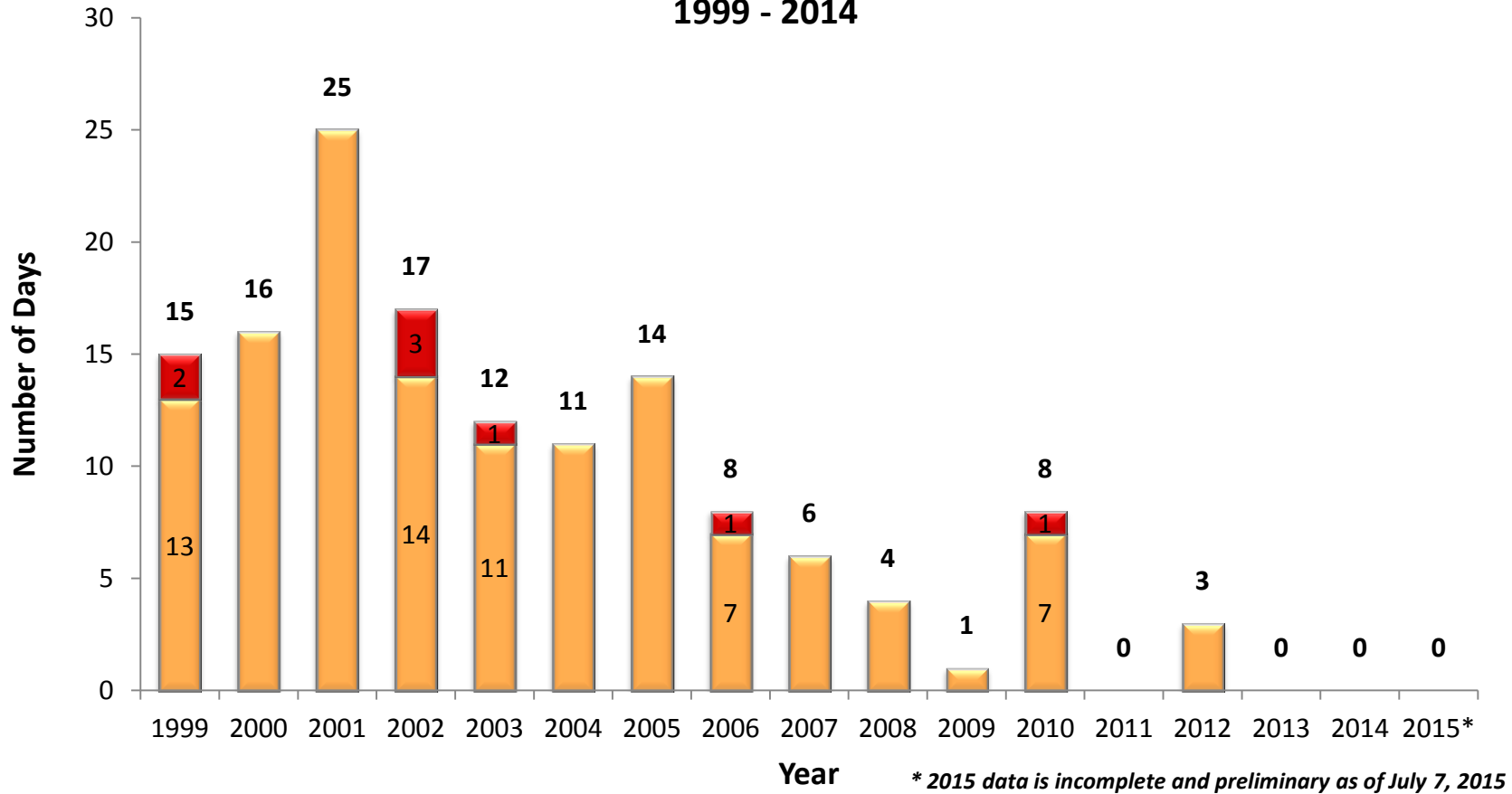
* Data based on the 24-hour standard set at 35 µg/m³. Since April 1, 2015, there have been

44 Code Yellow Days and 52 Code Green Days



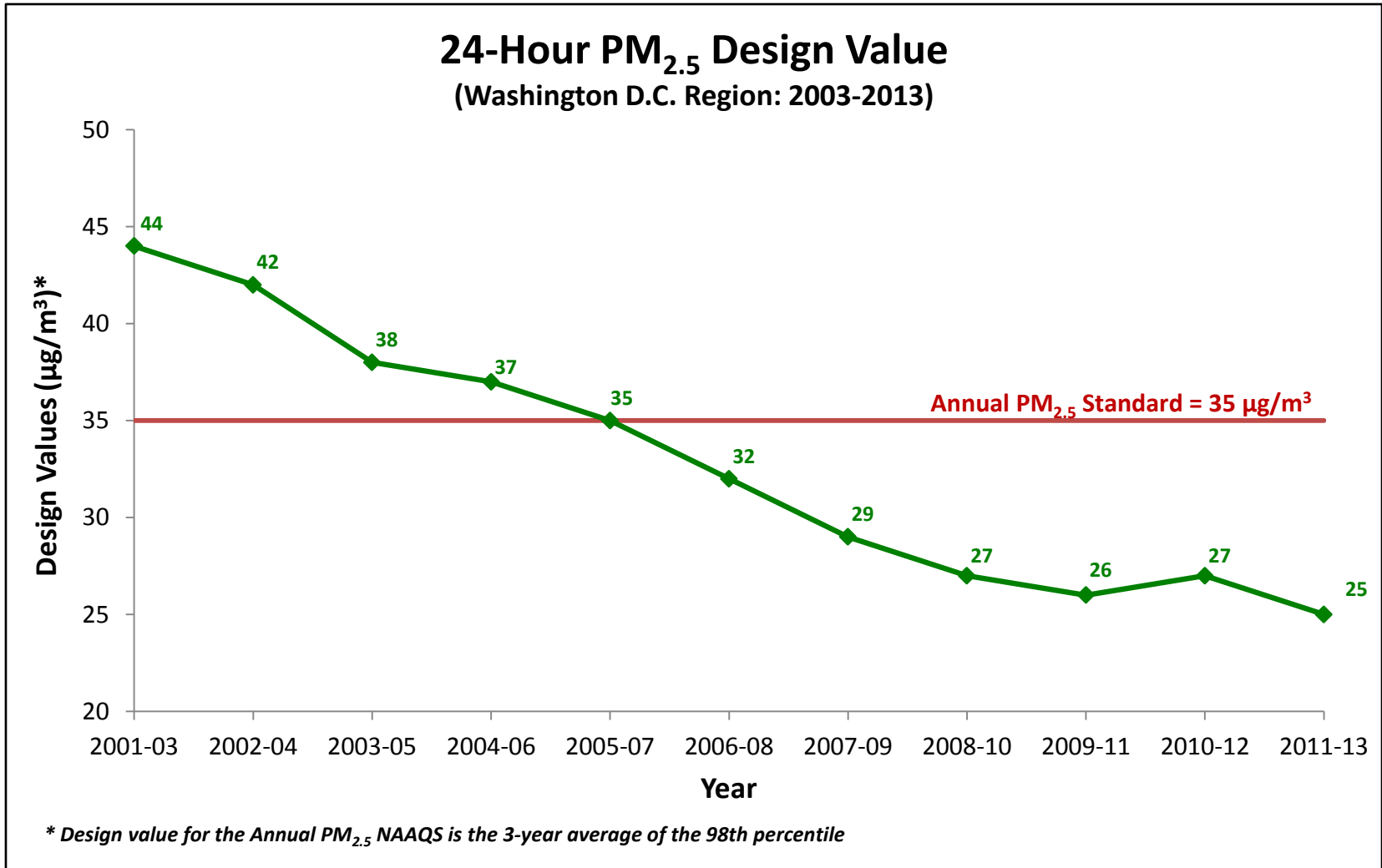
PM_{2.5} Exceedance Trend

**Number of Exceedance Days - 2006 24-Hour PM_{2.5} Standard (35 µg/m³)
Breakdown of Code Orange, Red, and Purple Days
1999 - 2014**





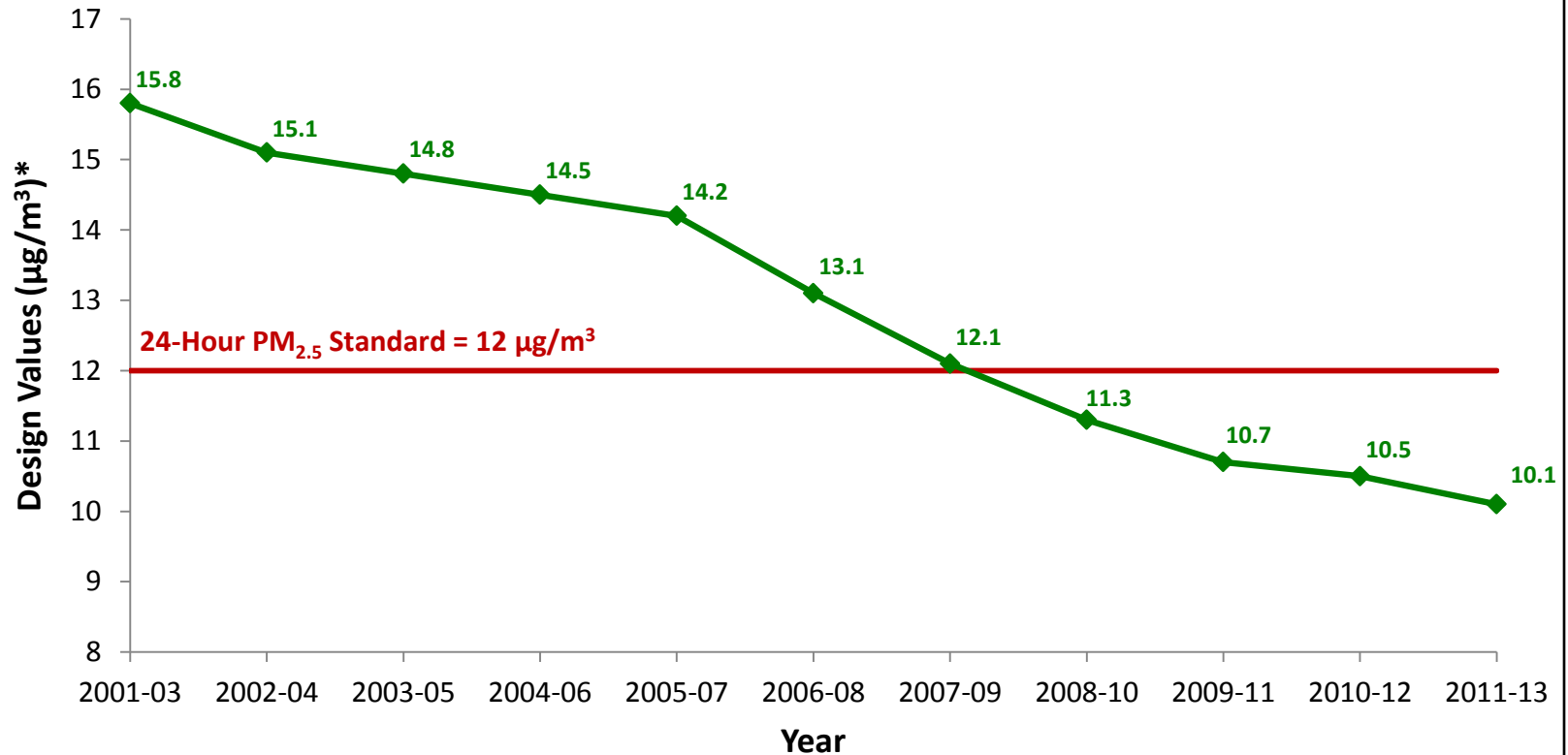
24-Hour PM_{2.5} Design Value Trend





Annual PM_{2.5} Design Value Trend

Annual PM_{2.5} Design Values
(Washington, D.C. Region: 2003-2013)



* Design value for the Annual PM_{2.5} NAAQS is the 3-year average of the annual mean PM_{2.5} concentrations