Ozone Season Summary 2014

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ACPAC Meeting, COG

July 16, 2014

Ozone Season Summary

[As of July 14, 2014]

Peak 8-Hour Ozone Concentrations (ppb)

Data based on the 8-hour standard set at 75 ppb. Since April 15, 2014, there have/has been:

- 0 Code Red Days
- 2 Code Orange Days
- 27 Code Yellow Days
- 75 Code Green Days

April

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5
		54	53	52	51	51
6	7	8	9	10	11	12
53	44	54	63	66	71	65
13	14	15	16	17	18	19
62	52	42	49	51	49	61
20	21	22	23	24	25	26
56	56	56	46	55	62	56
27	28	29	30			
59	47	43	39			

May

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
				1	2	3
				53	55	57
4	5	6	7	8	9	10
56	49	57	51	63	48	45
11	12	13	14	15	16	17
66	64	71	32	35	44	52
18	19	20	21	22	23	24
53	63	68	60	64	59	50
25	26	27	28	29	30	31
54	60	62	59	27	42	51

June

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7
54	59	56	73	55	56	59
8	9	10	11	12	13	14
58	56	54	50	26	47	50
15	16	17	18	19	20	21
57	87	74	61	58	65	52
22	23	24	25	26	27	28
62	57	55	50	58	57	58
29	30					
59	60					

July

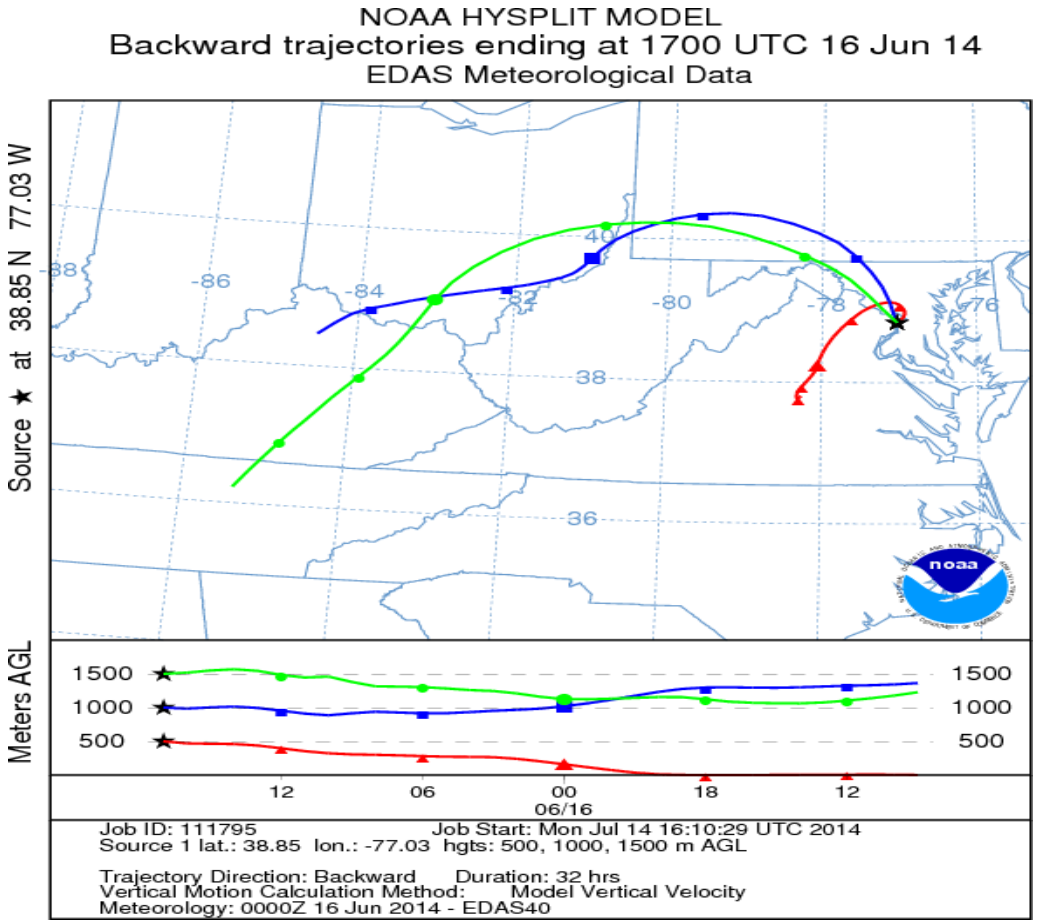
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5
		59	62	52	46	51
6	7	8	9	10	11	12
57	67	69	47	67	76	58
13	14	15	16	17	18	19
57						
20	21	22	23	24	25	26
27	28	29	30	31		

•**Analysis is based on draft data until July 14, 2014. Data is subject to change.**

Meteorology Factors on Exceedance Days

- June 16, 2014
  - High pressure system over the region
  - Clear skies
  - Light winds
  - Westerly winds brought NOx and ozone from the Ohio River valley
  - High temperature: Above 90°F
- July 11, 2014
  - High pressure system over the region
  - Clear skies
  - Light winds
  - Recirculation occurred the day prior (July 10)
  - High regional ozone levels - Transport from Northeast (Baltimore, Philadelphia, etc)

Wind Trajectories for June 16, 2014



2014 Ozone Exceedances

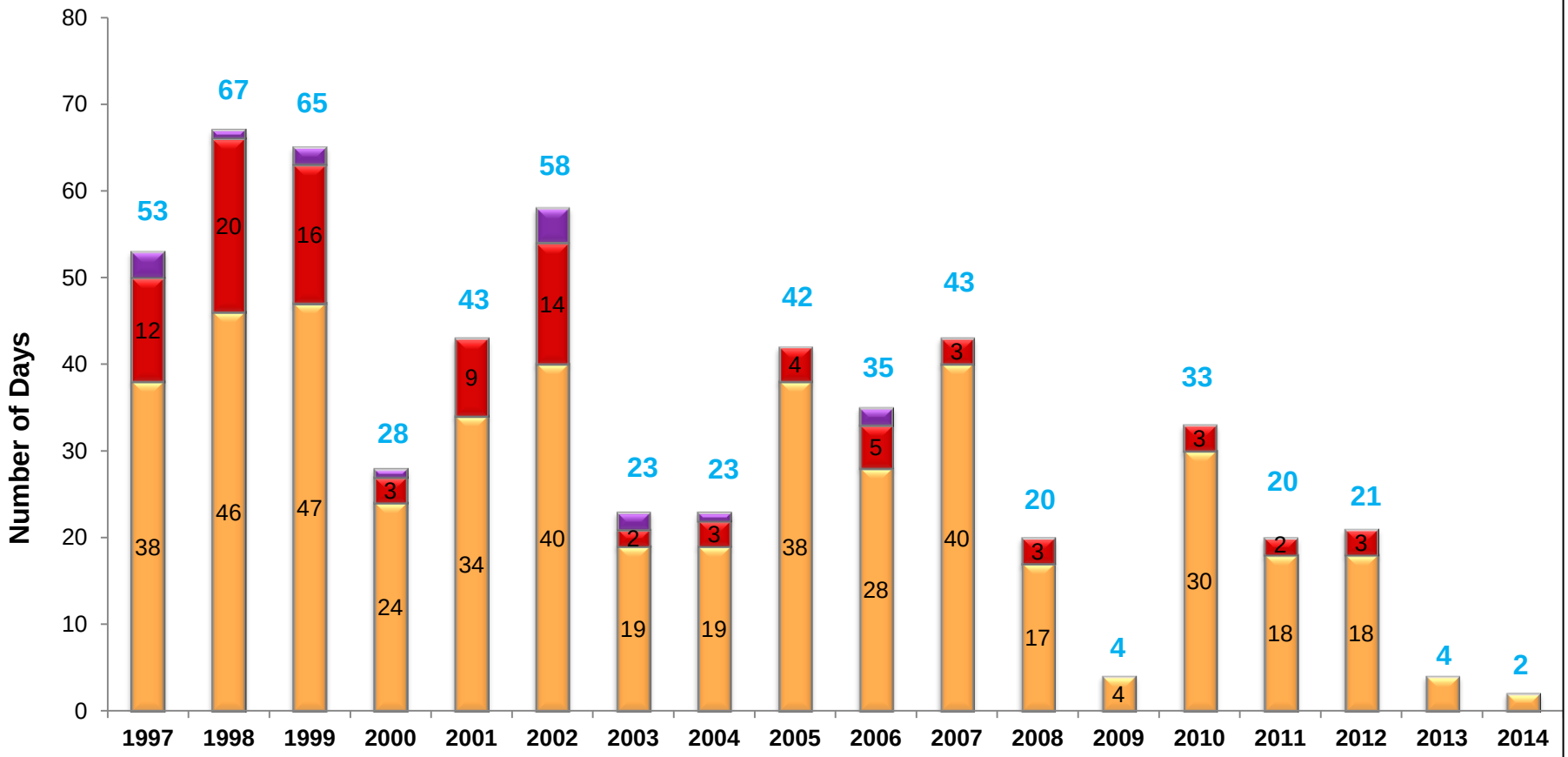
Date	# of Monitors Exceeding	Highest Monitor	8-Hr Max (ppb)
6/16/2014	4	Arlington	87
7/11/2014	1	Prince William	76

•**Analysis is based on draft data until July 14, 2014. 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 - 2014



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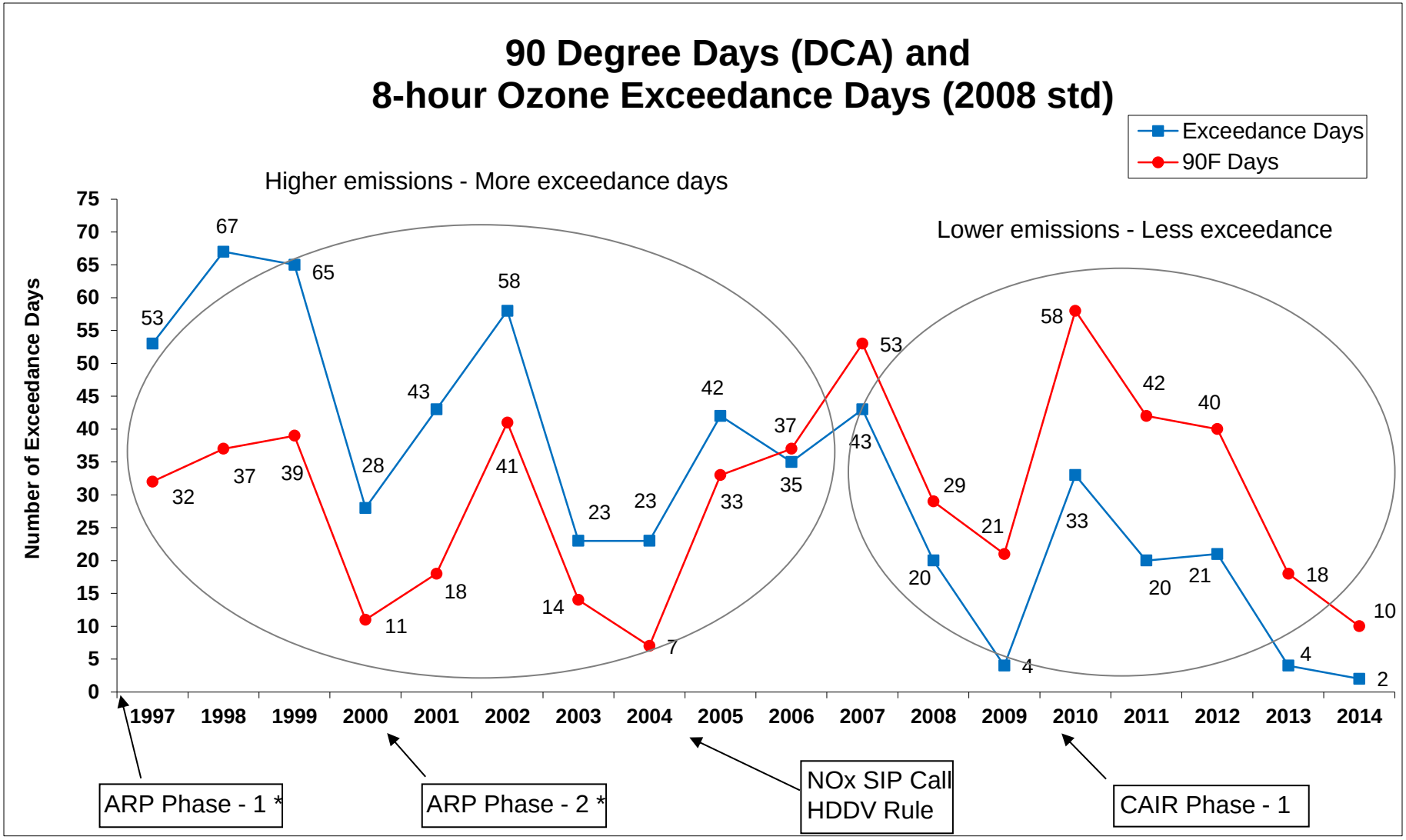
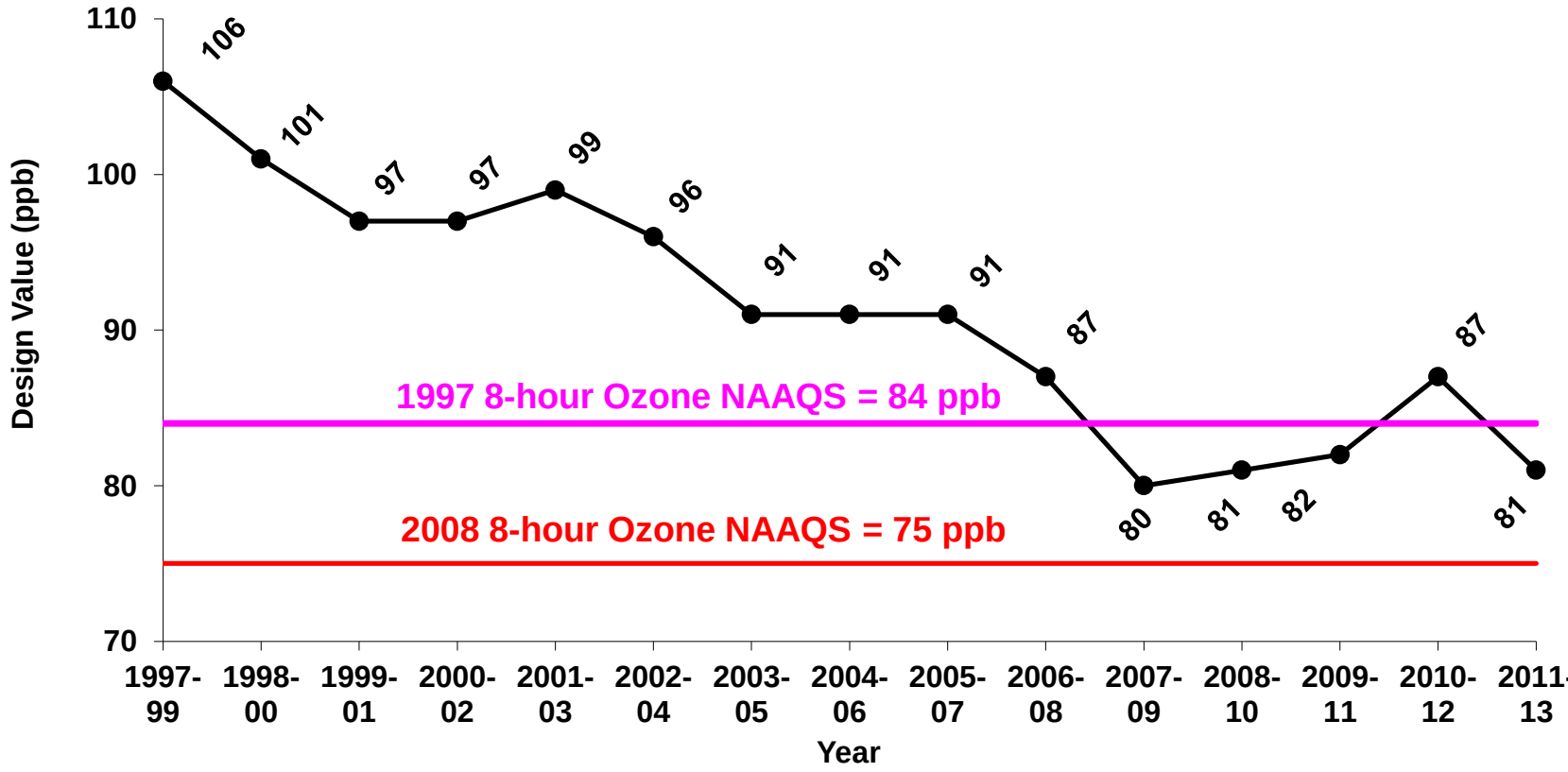
90 Degree Days and Exceedance Days



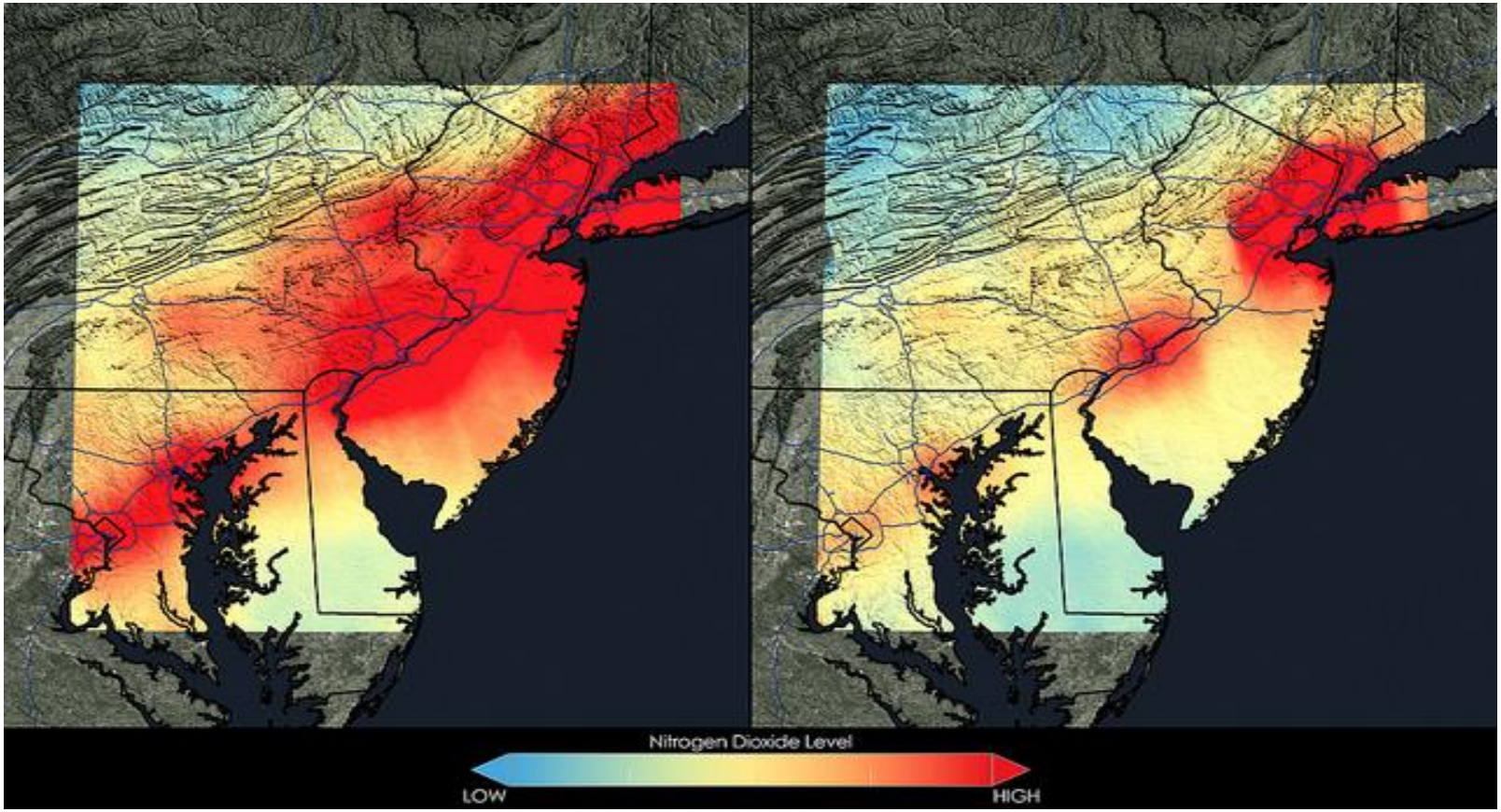
Ozone Design Value Trend

8-hour Ozone Design Value
Washington, DC-MD-VA Ozone Nonattainment Area (1999-2013)



* Design value = 3-year avg of 4th highest daily maximum 8-hour average ozone concentrations. * 2013 data is preliminary and may change.

Nitrogen Dioxide Concentration Trend



Nitrogen Dioxide Concentrations Averaged Over 2005-2007 (left) vs. 2009-2011 (right)

Source: Washington Post “NASA Showcases Big Drop in Air Pollution Over D.C., I-95 Corridor Since 2005”

Fine Particle Summary

[As of July 14, 2014]

Peak 24-hour $PM_{2.5}$ (in µg/m³)

Data based on the 24-hour standard set at 35 µg/m³. Since April 15, 2014, there have been:

34 Code Yellow Days

70 Code Green Days

April

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5
		5.2	9.4	13.3	15.8	8.3
6	7	8	9	10	11	12
4.9	6.9	10.0	10.3	8.9	9.5	10.9
13	14	15	16	17	18	19
15.6	7.9	5.8	5.8	6.3	7.1	9.1
20	21	22	23	24	25	26
9.3	5.4	11.2	7.1	5.2	9.8	10.7
27	28	29	30			
4.6	7.1	6.7	8.6			

May

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
				1	2	3
				10.8	9.1	10.2
4	5	6	7	8	9	10
10.7	5.7	9.4	9.6	20.4	17.2	12.1
11	12	13	14	15	16	17
9.1	14.7	12.9	11.6	12.5	7.5	10.2
18	19	20	21	22	23	24
6.6	10.0	11.0	15.5	16.9	6.0	7.1
25	26	27	28	29	30	31
7.6	12.0	16.3	14.8	4.3	6.8	6.4

June

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7
8.8	8.2	16.2	14.7	11.9	7.4	10.8
8	9	10	11	12	13	14
15.5	17.5	15.6	13.8	7.9	11.3	11.3
15	16	17	18	19	20	21
9.0	15.7	19.6	26.1	14.8	9.7	12.5
22	23	24	25	26	27	28
13.0	10.9	8.7	10.8	9.4	10.4	7.0
29	30					
8.4	10.0					

July

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5
		14.5	20.0	15.1	19.8	7.4
6	7	8	9	10	11	12
12.8	17.2	17.0	9.0	11.3	11.8	13.6
13	14	15	16	17	18	19
14.6						
20	21	22	23	24	25	26
27	28	29	30	31		

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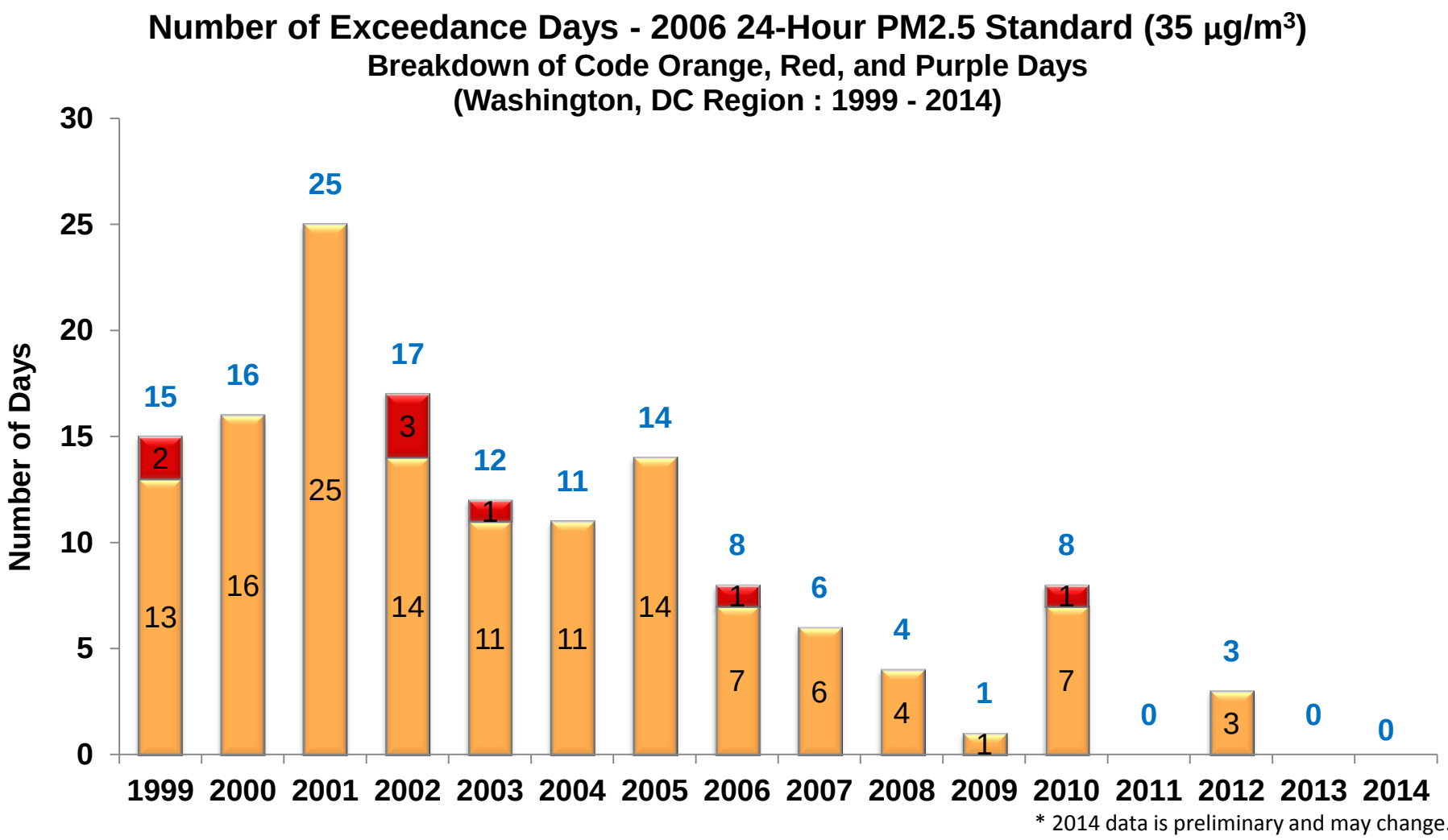
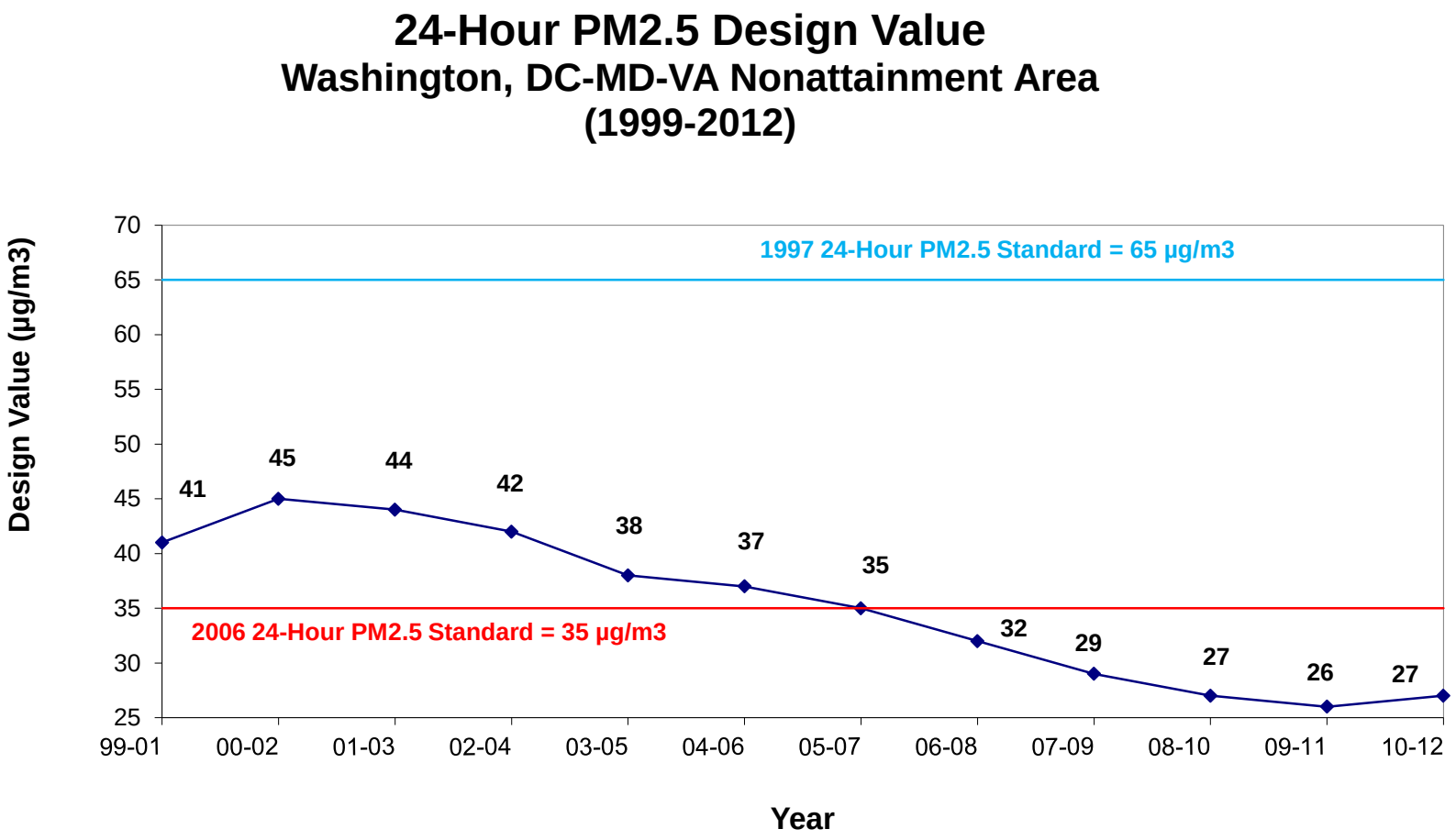
$PM_{2.5}$ Exceedance Trend



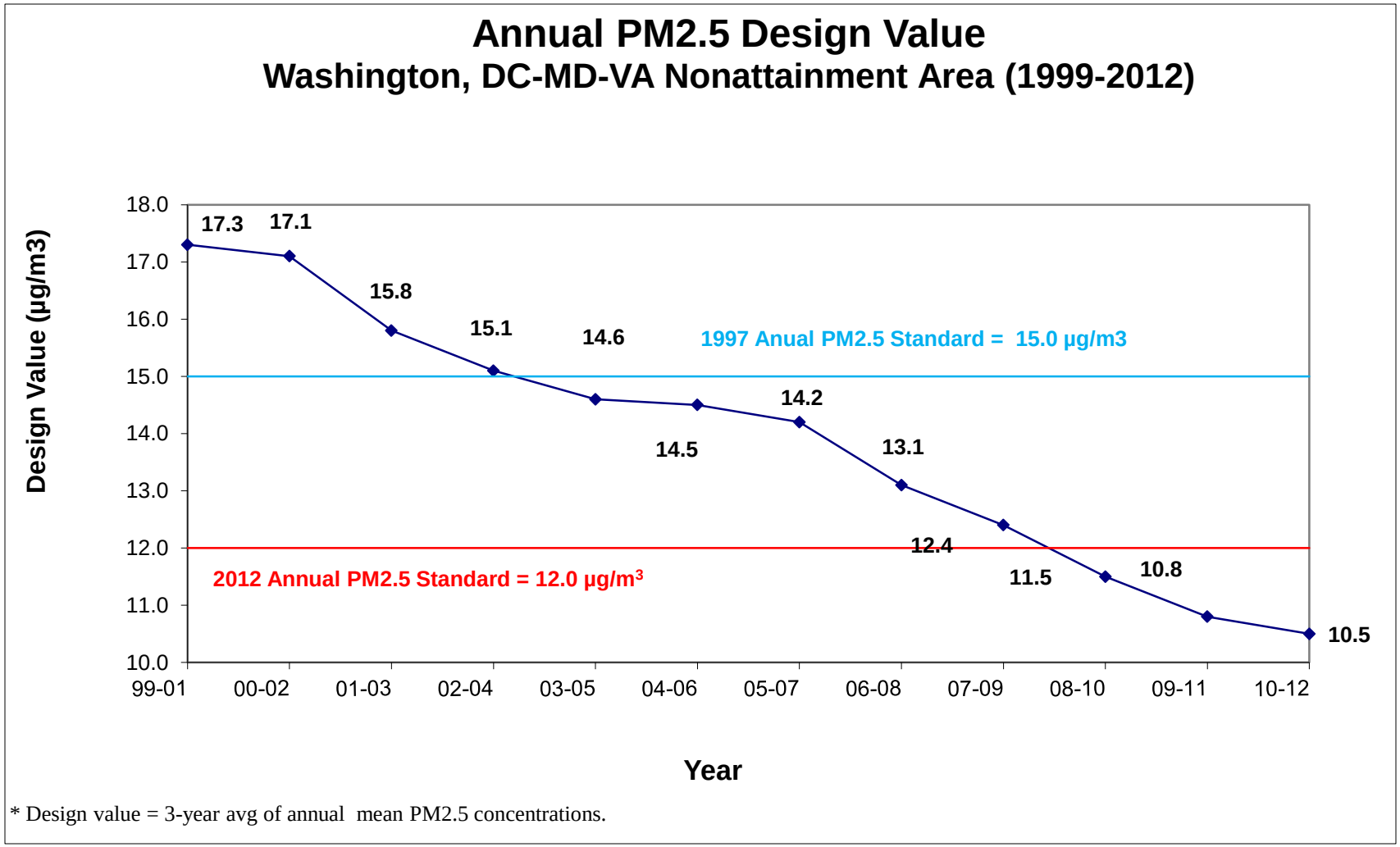
* 2014 data is preliminary and may change.

24-Hour $PM_{2.5}$ Design Value Trend



* Design value = 3-year average of 98th percentile of PM2.5 concentrations.

Annual $PM_{2.5}$ Design Value Trend



* Design value = 3-year avg of annual mean PM2.5 concentrations.