



Ozone Season Summary 2014

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MWAQC Meeting, COG
July 31, 2014



Ozone Season Summary [As of July 24, 2014]

Peak 8-Hour Ozone Concentrations (ppb)

Data based on the 8-hour standard set at 75 ppb. Since April 1, 2014, there have/have been:

- 0 Code Red Days
- 2 Code Orange Days
- 31 Code Yellow Days
- 82 Code Green Days

April							May						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5					1	2	3
		54	53	52	51	51					53	55	57
6	7	8	9	10	11	12	4	5	6	7	8	9	10
53	44	54	63	66	71	65	56	49	57	51	63	48	45
13	14	15	16	17	18	19	11	12	13	14	15	16	17
62	52	42	49	51	49	61	66	64	71	32	35	44	52
20	21	22	23	24	25	26	18	19	20	21	22	23	24
56	56	56	46	55	62	56	53	63	68	60	64	59	50
27	28	29	30				25	26	27	28	29	30	31
59	47	43	39				54	60	62	59	27	42	51

June							July						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7			1	2	3	4	5
54	59	56	73	55	56	59			59	62	52	46	51
8	9	10	11	12	13	14	6	7	8	9	10	11	12
58	56	54	50	26	47	50	57	67	69	47	67	76	58
15	16	17	18	19	20	21	13	14	15	16	17	18	19
57	87	74	61	58	65	52	57	60	47	59	58	63	65
22	23	24	25	26	27	28	20	21	22	23	24	25	26
62	57	55	50	58	57	58	50	55	47	64	38		
29	30						27	28	29	30	31		
59	60												

*Analysis is based on draft data until July 24, 2014. Data is subject to change.



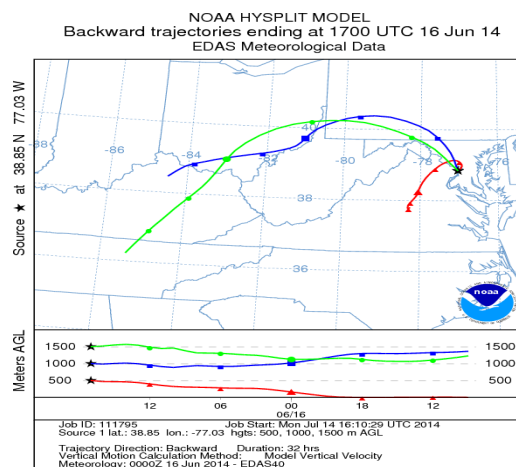
Meteorology for June 16, 2014

- High pressure system over the region
- Clear skies
- Light winds
- Westerly winds brought NO_x and ozone from the Ohio River valley
- High temperature: Above 90°F

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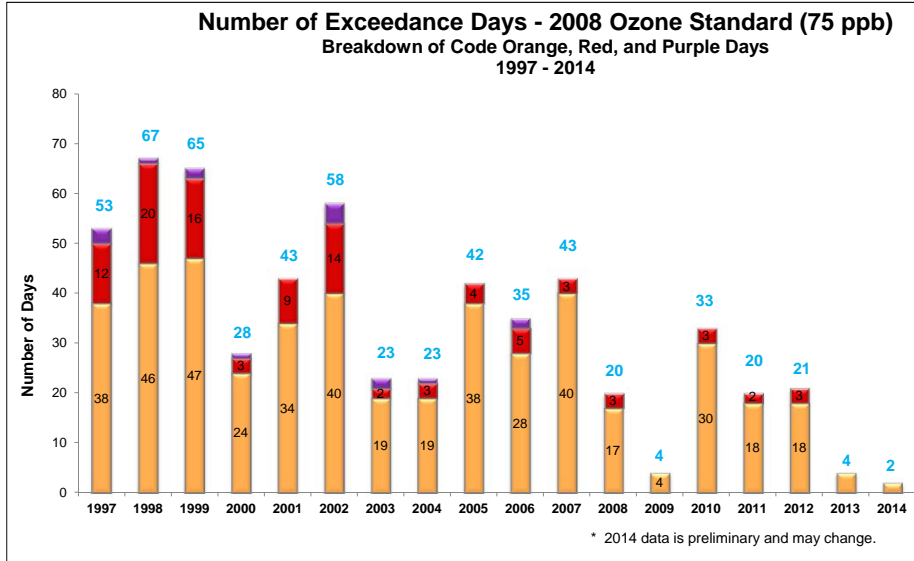
Wind Trajectories for June 16, 2014



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Ozone Exceedance Trend

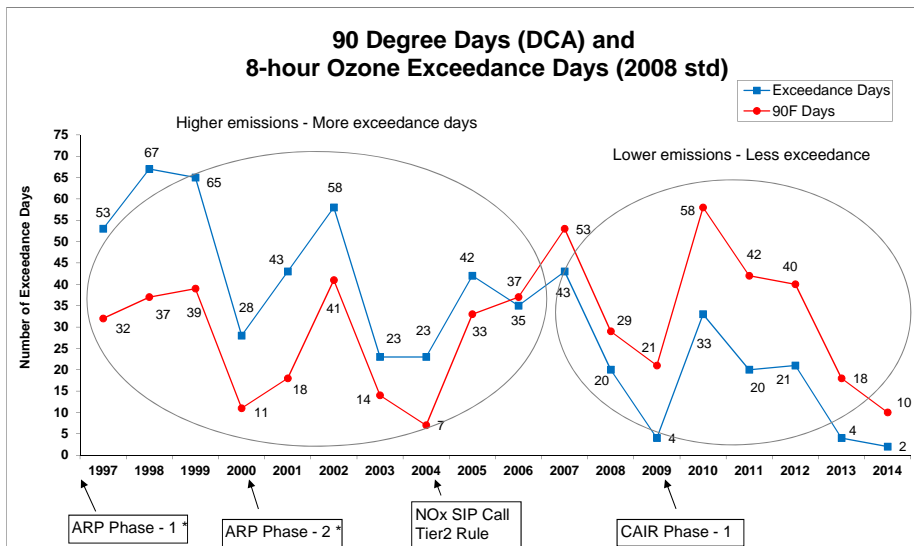


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90 Degree Days and Exceedance Days



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Why fewer exceedance days now ?

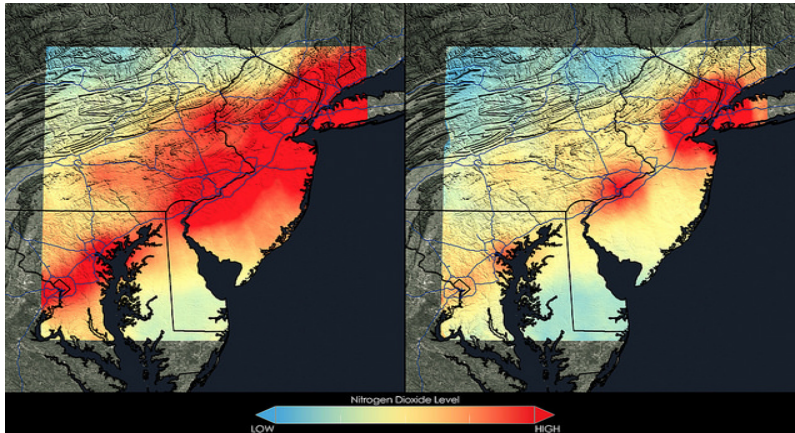
Emission Control Programs

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

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Nitrogen Dioxide Concentration Trend



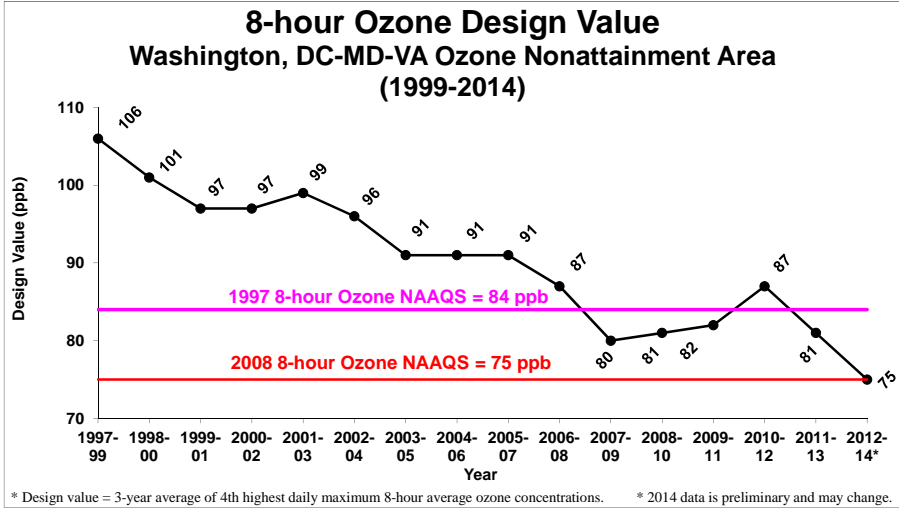
Nitrogen Dioxide Concentrations Averaged Over 2005-2007 (left) vs. 2009-2011 (right)

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

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Ozone Design Value Trend



•Analysis is based on draft data until July 24, 2014.

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Fine Particle Summary

[As of July 24, 2014]

Peak 24-hour PM_{2.5} (in µg/m³)

Data based on the 24-hour standard set at 35 µg/m³. Since April 1, 2014, there have been:

35 Code Yellow Days

80 Code Green Days

April							May							
Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	
		5.2	9.4	13.3	15.8	8.3						10.8	9.1	10.2
6	7	8	9	10	11	12	4	5	6	7	8	9	10	
4.9	6.9	10.0	10.3	8.9	9.5	10.9	10.7	5.7	9.4	9.6	20.4	17.2	12.1	
13	14	15	16	17	18	19	11	12	13	14	15	16	17	
15.6	7.9	5.8	5.8	6.3	7.1	9.1	9.1	14.7	12.9	11.6	12.5	7.5	10.2	
20	21	22	23	24	25	26	18	19	20	21	22	23	24	
9.3	5.4	11.2	7.1	5.2	9.8	10.7	6.6	10.0	11.0	15.5	16.9	6.0	7.1	
27	28	29	30				25	26	27	28	29	30	31	
4.6	7.1	6.7	8.6				7.6	12.0	16.3	14.8	4.3	6.8	6.4	

June							July						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7			1	2	3	4	5
8.8	8.2	16.2	14.7	11.9	7.4	10.8			14.5	20.0	15.1	19.8	7.4
8	9	10	11	12	13	14	6	7	8	9	10	11	12
15.5	17.5	15.6	13.8	7.9	11.3	11.3	12.8	17.2	17.0	9.0	11.3	11.8	13.6
15	16	17	18	19	20	21	13	14	15	16	17	18	19
9.0	15.7	19.6	26.1	14.8	9.7	12.5	14.6	11.9	11.5	9.4	9.9	9.8	9.4
22	23	24	25	26	27	28	20	21	22	23	24	25	26
13.0	10.9	8.7	10.8	9.4	10.4	7.0	9.7	7.4	8.9	13.5	8.8		
29	30						27	28	29	30	31		
8.4	10.0												

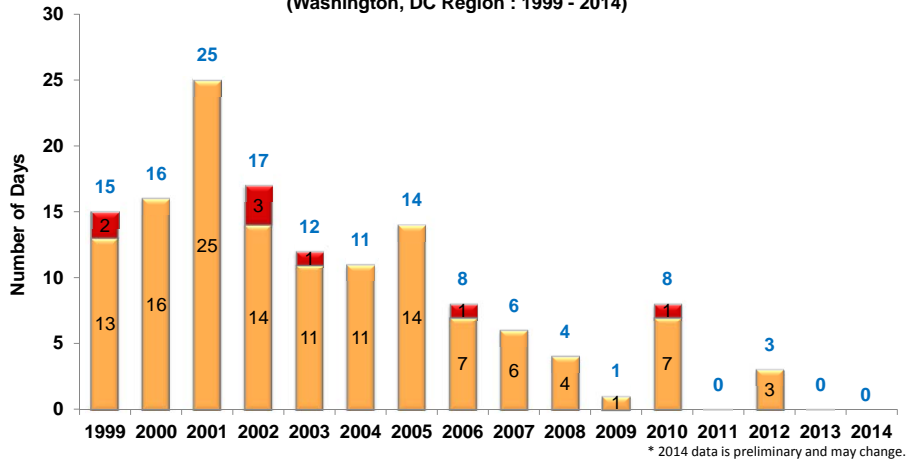
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PM_{2.5} Exceedance Trend

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

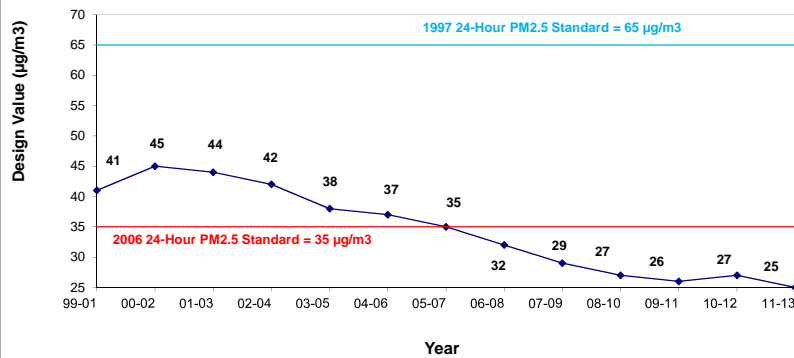


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Daily PM_{2.5} Design Value Trend

24-Hour PM_{2.5} Design Value
Washington, DC-MD-VA Nonattainment Area (1999-2013)

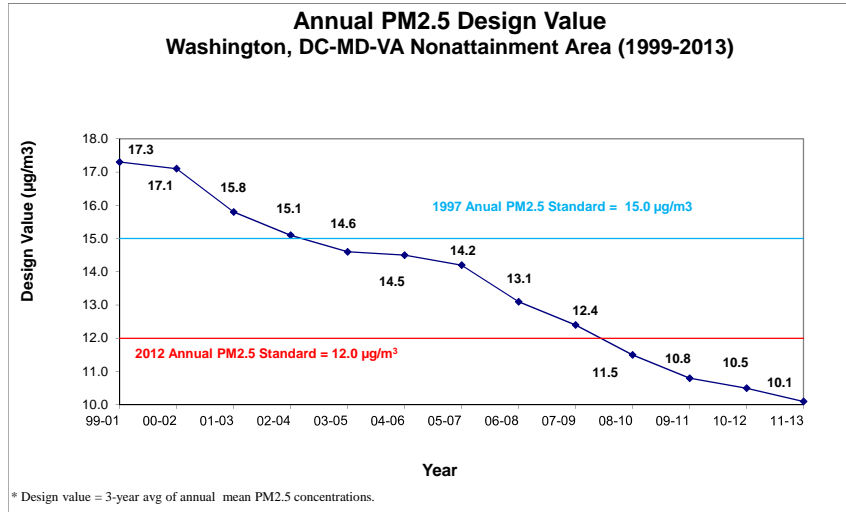


* Design value = 3-year average of 98th percentile of PM_{2.5} concentrations.

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Annual PM_{2.5} Design Value Trend



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Air Quality Information

Current Air Quality Data & Forecasts

<http://www.mwcog.org/environment/air/forecast/>
<http://www.cleanairpartners.net/>

Historical Air Quality Data

<http://www.mwcog.org/environment/air/data/>
<http://www.cleanairpartners.net/>

Sign Up for Air Alerts (Air quality forecasts & current data)

<http://www.cleanairpartners.net/airalert.cfm>

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