Air Monitoring Data and the National Ambient Air Quality Standards (NAAQS)/ Air Quality Index (AQI)

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NAAQS vs. AQI

- NAAQS are EPA's national standards, often with long and shorter term averaging
- AQI is EPA's short term (daily) warning system based on same monitoring data
- AQI uses Ozone & 24-hour PM standards as basis for six pollution concentration levels
- PM & Ozone are the significant ambient air pollutants of concern in US

Air Quality Index (AQI)

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
When the AQI is in this range:	*...air quality conditions are:*	*...as symbolized by this color:*
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

$PM_{2.5}$ 24-hr Avg. Concentration (ug/m^3)	Ozone 8-hr Avg. Concentration (ppb)	AQI Values	Level of Health Concern	Cautionary Statements
0.0 - 15.4	0 - 59	0 - 50	Good	Little or no health risk.
15.5 - 35.4	60 - 75	51 - 100	Moderate	People unusually sensitive may be mildly affected.
35.5 - 65.4	76 - 95	101 - 150	Unhealthy for Sensitive Groups	People with respiratory or heart disease, the elderly, and children should limit prolonged exertion.
65.5 - 150.4	96 - 115	151 - 200	Unhealthy	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion, everyone else should limit prolonged exertion.
150.5 - 250.4	116 - 374	201 - 300	Very Unhealthy	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity, everyone else should avoid prolonged exertion.
250.5 +	375 +	301 - 500	Hazardous	Everyone should avoid any outdoor exertion; people with respiratory or heart disease, the elderly and children should remain indoors.

$PM_{2.5}$ Grading

- 24-hr $PM_{2.5}$ NAAQS allows 2% of days/3 year average to be over the standard (~21 days), AQI uses 35 µg/m^3 as threshold
- ALA report uses ~1% of days/3 year average (9-10 days), correlated to a letter grade
- NAAQS and ALA use EPA criteria for annual $PM_{2.5}$ ranking as pass/fail (no AQI)

Ozone Grading

- Ozone NAAQS uses 4th highest site value/3 year (average of 3 values) to determine compliance with the standard (up to 9 days), AQI uses 75 ppb as threshold
- ALA report uses all days over 75 ppb standard, correlated to a letter grade

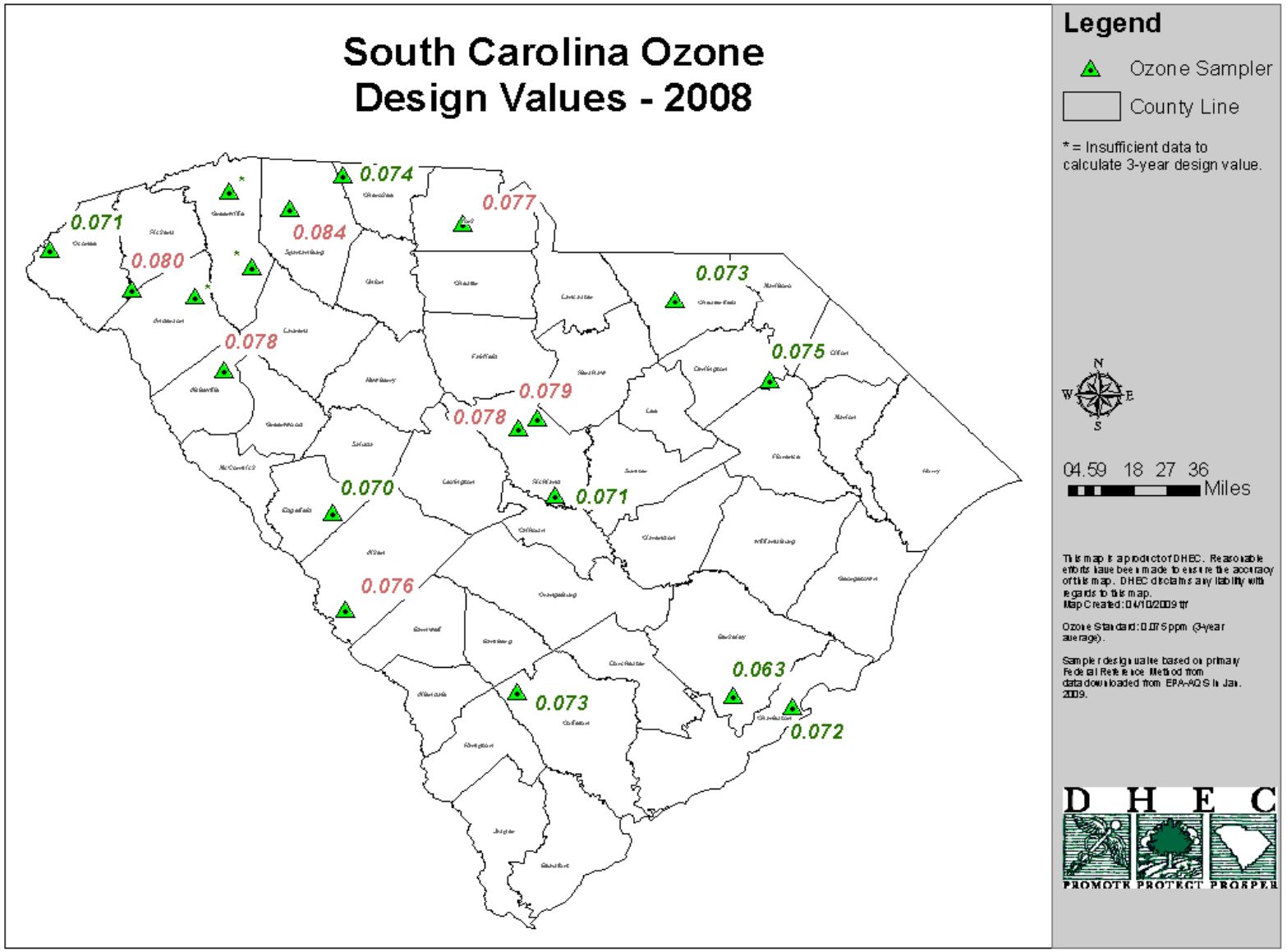
Daily Ozone and PM2.5 AQI Values from 01/01/05 to 12/31/07

Charleston—North Charleston,SC

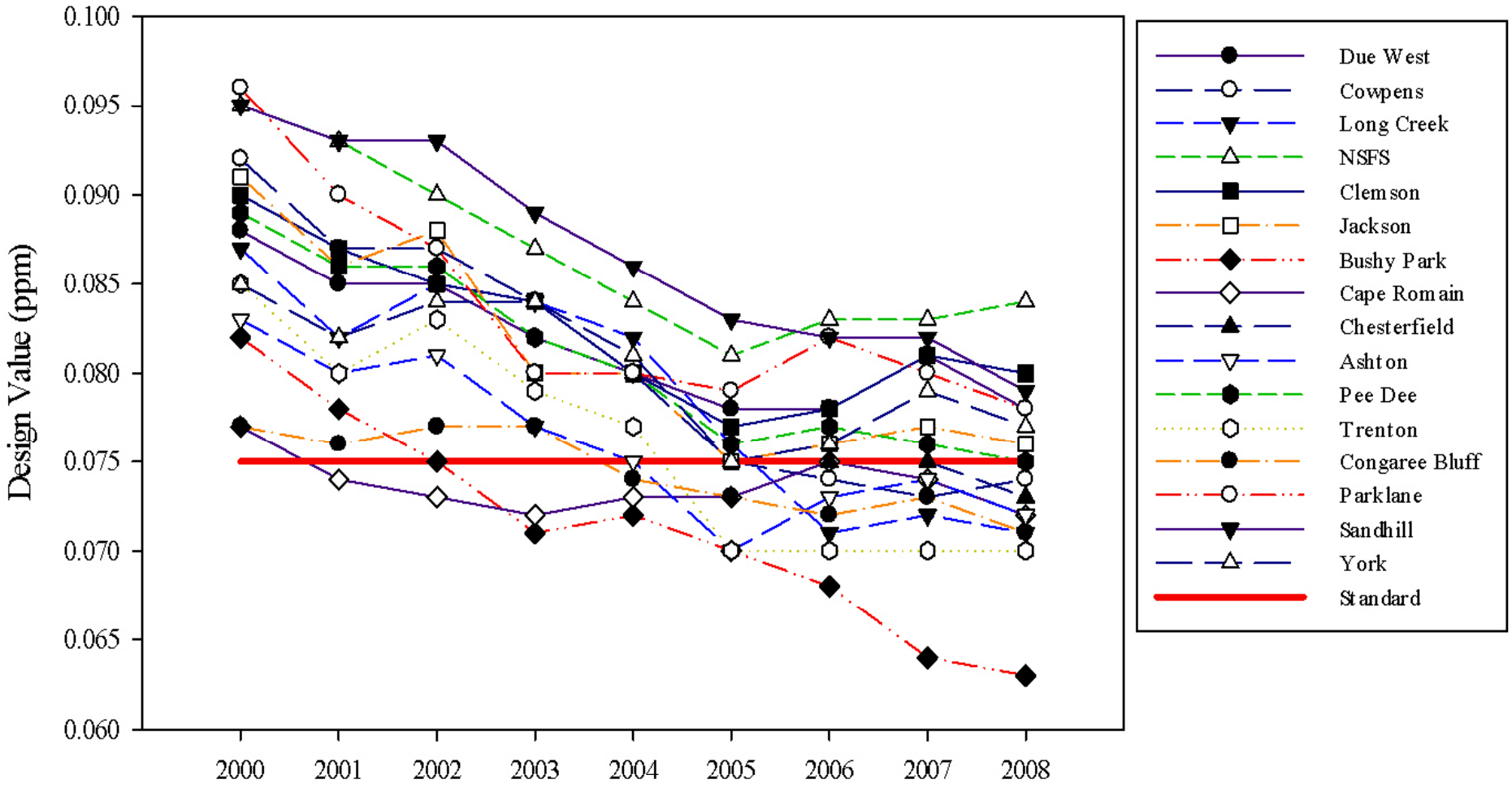
Source: EPA's Air Explorer (http://www.epa.gov/airexplorer/)

Generated on: 06OCT09

Where we stood at the end of 2008



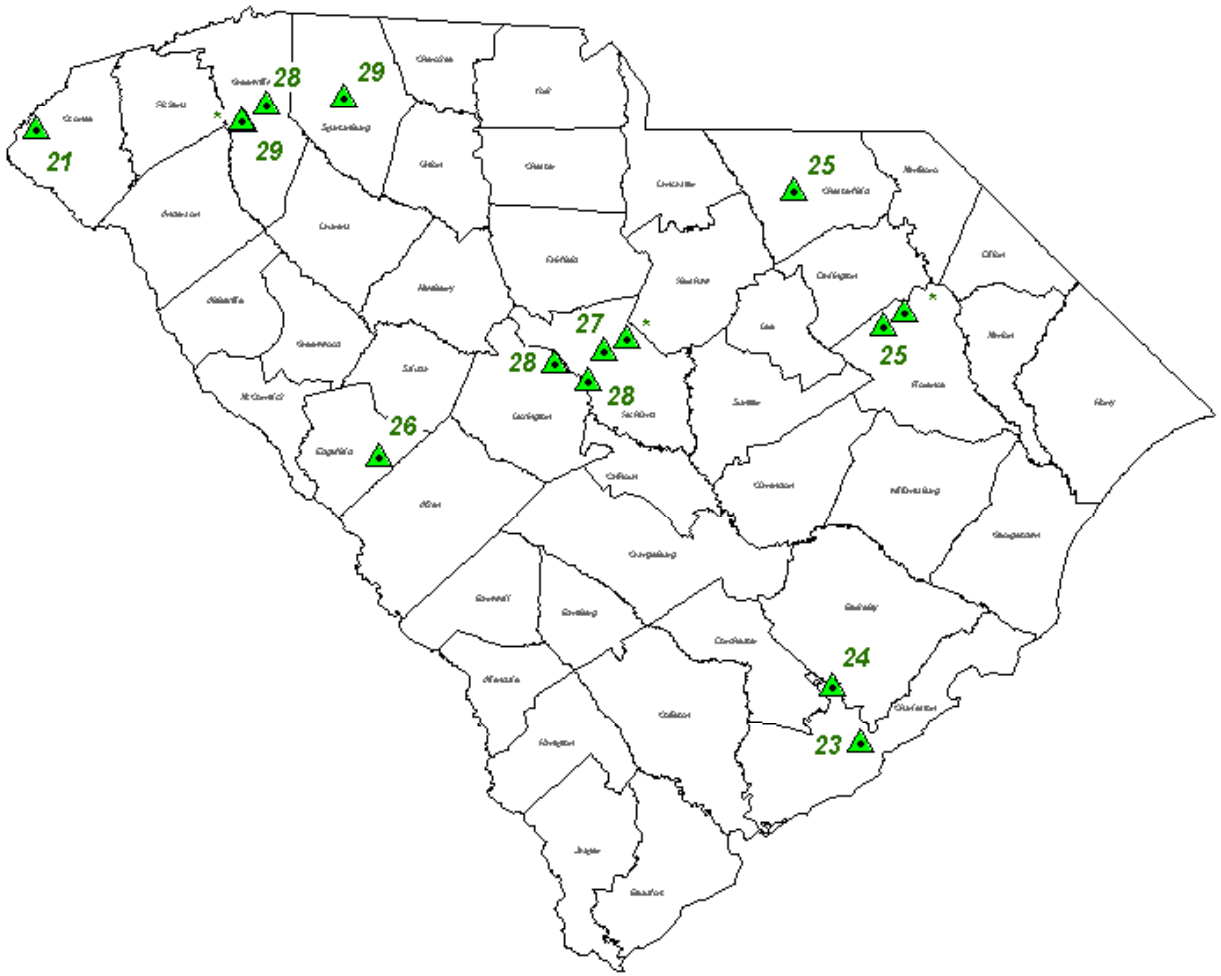
South Carolina Historical Ozone Design Values
2000 - 2008



Monitor	2007	2008	2009	2009 Number of hits*	DV through:*	9/30/2009	2010 Critical Value	2009 Critical Value	2010 Critical value if standard is 70 ppb
Ashton	72	70	60	0	67		98	86	83
Big Creek		65	61	0					
Bushy Park	60	67	56	0	61		105	101	90
Congaree Bluff	70	73	58	0	67		97	85	82
Chesterfield	73	72	66	0	***70***		90	83	75
Clemson	**81**	**80**	66	0	***75***		82	67	67
Cowpens	67	**80**	57	0	68		91	81	76
Cape Romain	69	71	63	0	67		94	88	79
Due West	**83**	74	61	0	***72***		93	71	78
Famoda Farms		65	65	0					
Hilcrest			67	0					
Jackson	**82**	75	68	0	***75***		85	71	70
Longcreek	**76**	72	66	0	***71***		90	80	75
N. Spartanburg	**83**	**85**	67	0	**78**		76	60	61
Pee Dee	73	**76**	65	0	***71***		87	79	72
Parklane	**77**	**77**	64	0	***72***		87	74	72
Sandhill	**84**	**77**	67	0	**76**		84	67	69
Trenton	73	71	63	0	69		94	84	79
York	**80**	75	62	0	***72***		91	73	76

*=based on unofficial data

South Carolina Daily $PM_{2.5}$ Design Values - 2008



Legend

- $PM_{2.5}$ Sampler
- County Line

* = Insufficient data to calculate 3-year design value.

N
W E
S

0 5 10 20 30 40
Miles

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Map Created: 04/10/2009 tlr

Daily $PM_{2.5}$ Standard: 35 $\mu g/m^3$ (3-year average).

Sample design value based on primary Federal Reference Method from data downloaded from EPA-AQS in Jan. 2009.

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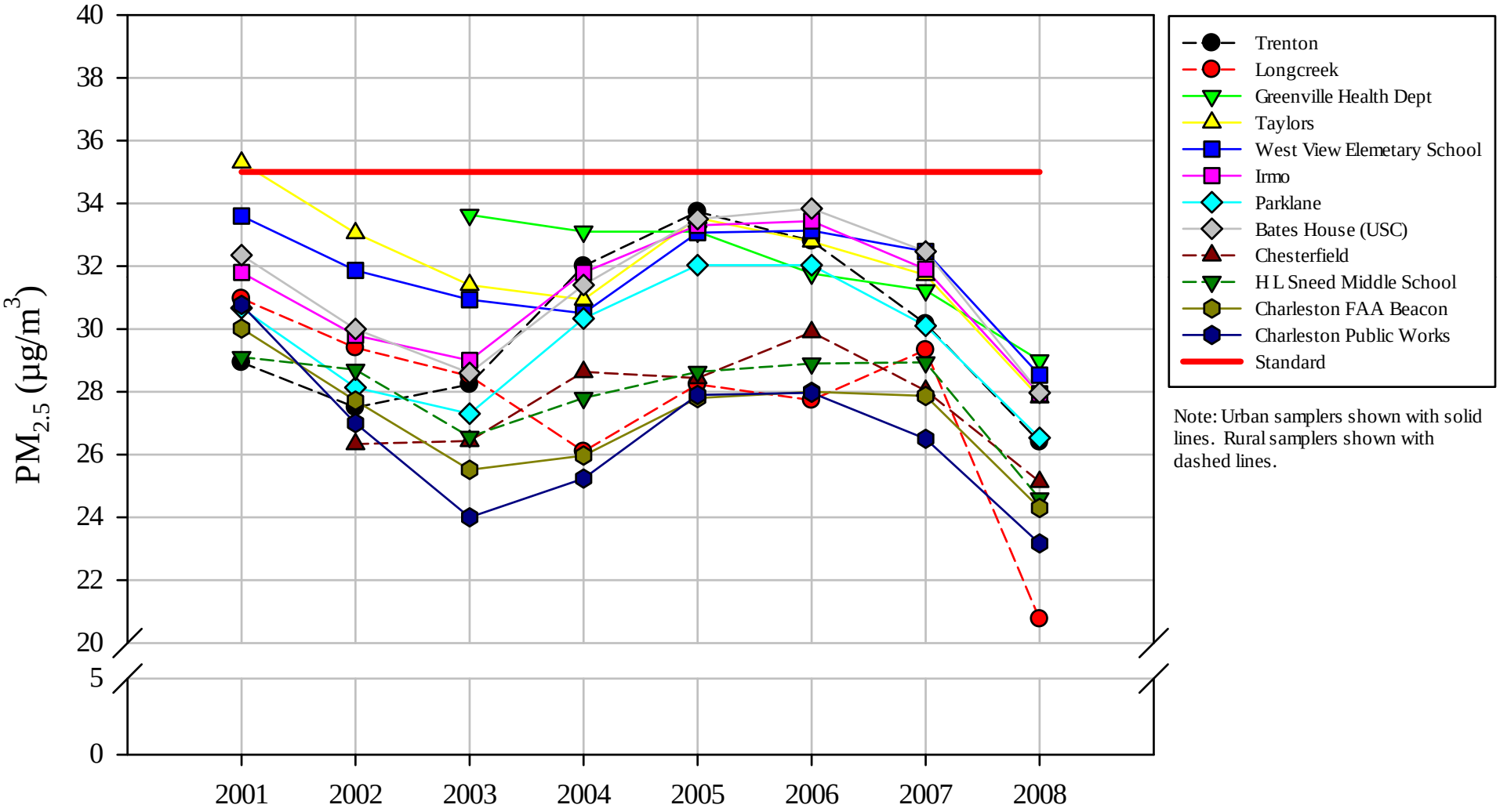
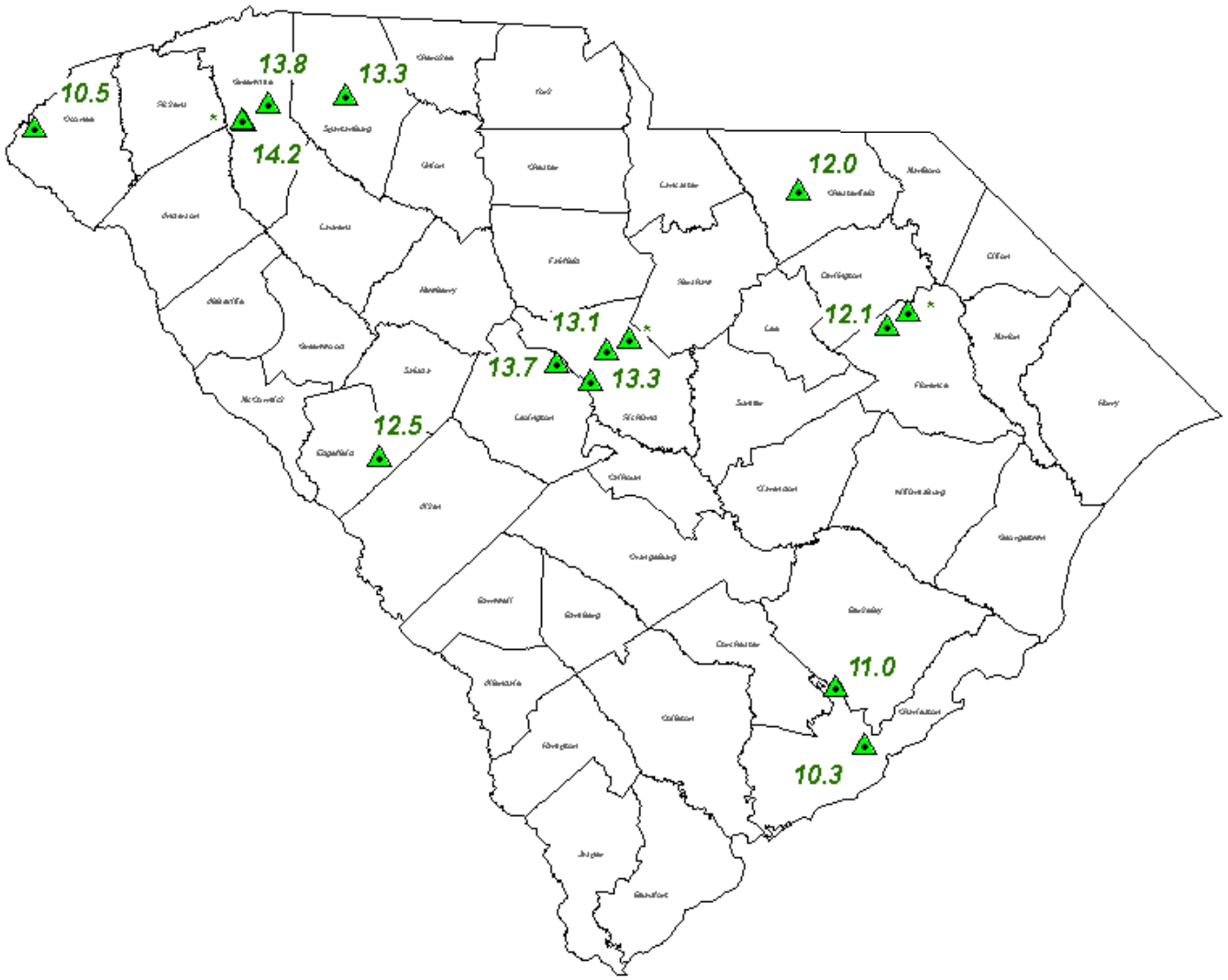
South Carolina Daily $PM_{2.5}$ Design Value Trends



Note: Urban samplers shown with solid lines. Rural samplers shown with dashed lines.

South Carolina Annual $PM_{2.5}$ Design Values - 2008



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N W E S

0 5 10 20 30 40 Miles

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Annual $PM_{2.5}$ Standard: 15 $\mu g/m^3$ (3-year average).

Sample design value based on primary Federal Reference Method from data downloaded from EPA-AQS in Feb. 2009.

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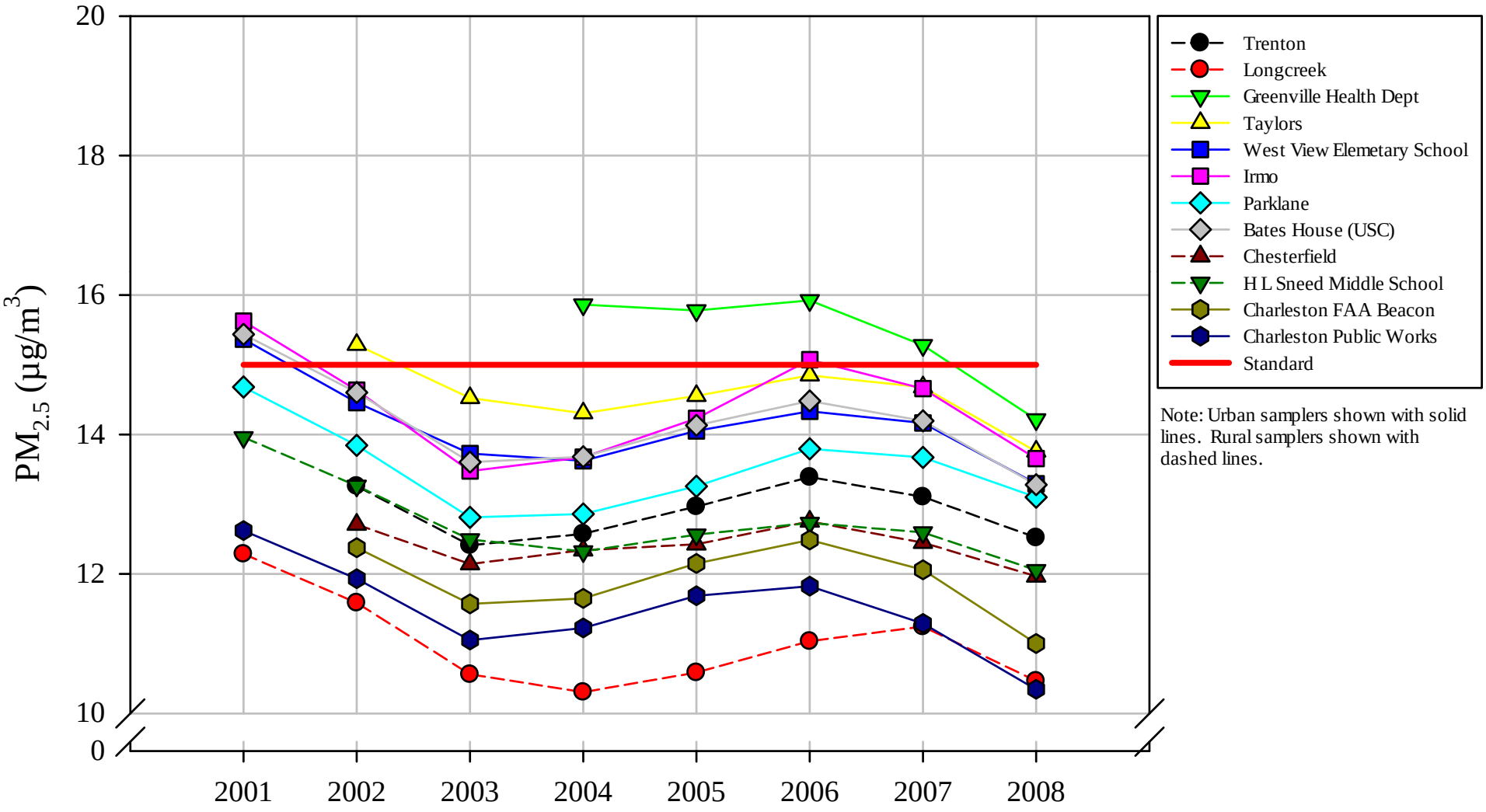
South Carolina Annual $PM_{2.5}$ Design Value Trends



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