



# 2011 Air Quality Index Summary

New Jersey Department of Environmental Protection

## WHAT IS THE AIR QUALITY INDEX (AQI)

The Air Quality Index (AQI) is a national air quality rating system based on the National Ambient Air Quality Standards (NAAQS). Generally, an index value of 100 is equal to the primary, or health based, NAAQS for each pollutant. This allows for a direct comparison of each of the pollutants used in the AQI (carbon monoxide, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide). The Nitrogen Dioxide and Sulfur Dioxide NAAQS were revised in 2010 because the U.S. Environmental Protection Agency (EPA) had determined that the old standards were not sufficiently protective of public health. On January 22, 2010, they set a revised standard of 100 ppb maximum daily 1-hour average for NO<sub>2</sub> and on June 2, 2010, they set a revised standard of 75 ppb maximum daily 1-hour standard for SO<sub>2</sub>, making 2011 the first full year with these new standards. The AQI rating for a reporting region is equal to the highest rating recorded for any pollutant within that region. In an effort to make the AQI easier to understand, a descriptive rating and a color code, based on the numerical rating are used (see Table 1). For more information on the AQI, visit EPA's web site at <http://www.airnow.gov>.

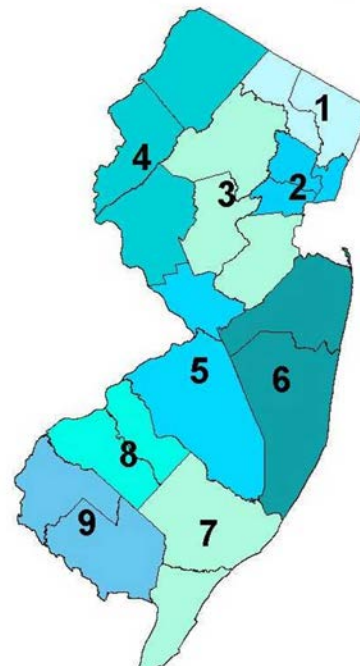
Every morning a forecast for the current and following day is prepared by NJDEP using the AQI format. The forecast is provided to EPA and is disseminated through the Enviroflash system (<http://www.enviroflash.info>) to those who subscribe to receive air quality forecast and alert emails. Those who are not subscribed to Enviroflash can view the forecast and current air quality conditions at EPA's AirNow website or on NJDEP's air monitoring webpage.

For purposes of reporting the AQI, the state is divided into 9 regions (see Figure 1). Table 2 shows the monitoring sites and parameters used in each reporting region to calculate the AQI values.

**Table 1**  
**Air Quality Index**

Numerical AQI Rating	Descriptive Rating	AQI Color Code
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151-200	Unhealthy	Red
201-300	Very Unhealthy	Purple

**Figure 1**  
**Air Quality Index Regions**



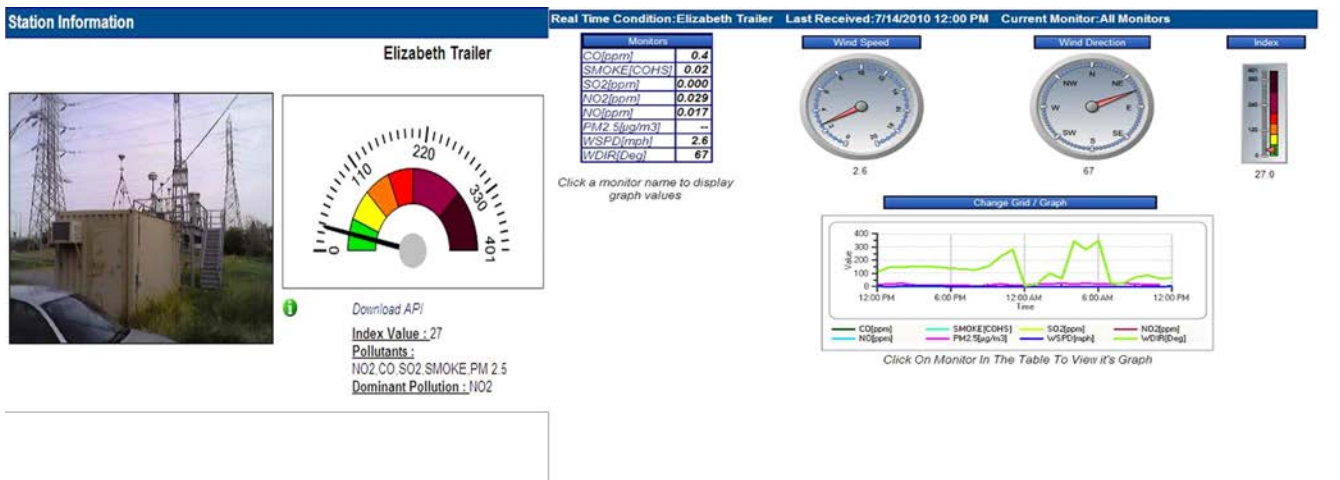
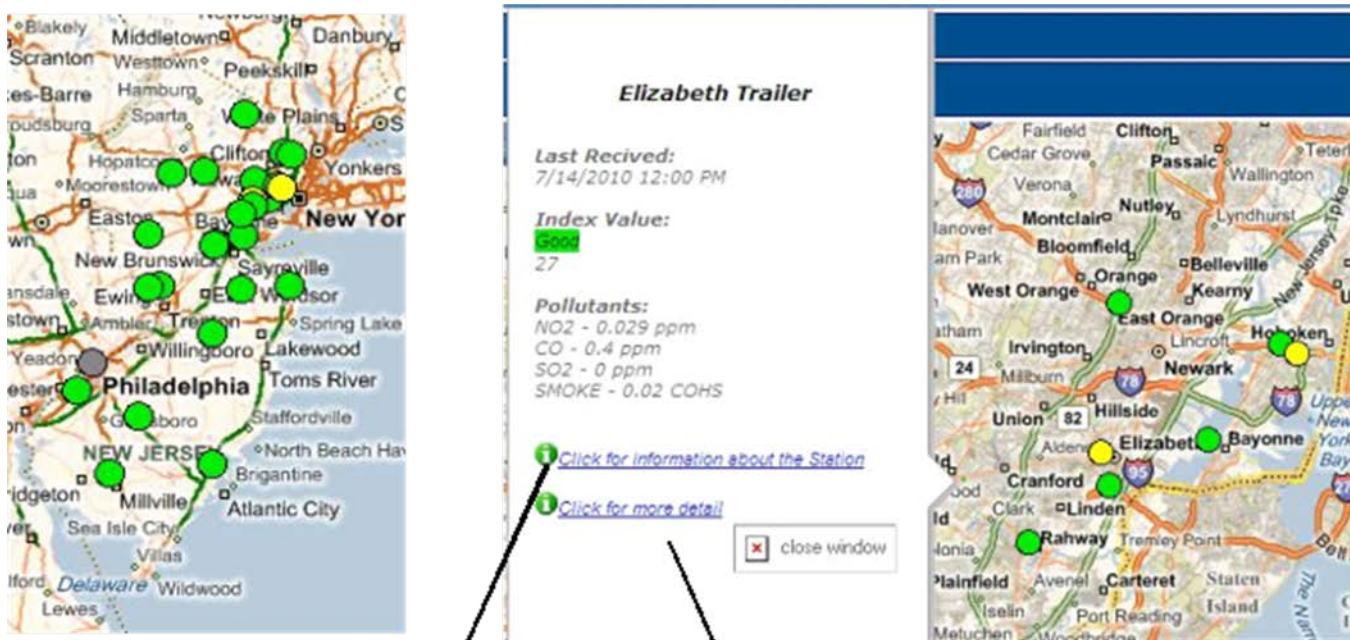
**Table 2**  
**Pollutants Monitored According to Air Quality Index Reporting Region – 2011**

CO - Carbon Monoxide      O<sub>3</sub> - Ozone  
 SO<sub>2</sub> - Sulfur Dioxide      NO<sub>2</sub> - Nitrogen Dioxide  
 PM - Particulate Matter

Reporting Region	Monitoring Site	CO	SO <sub>2</sub>	PM	O <sub>3</sub>	NO <sub>2</sub>
<b>1. Northern Metropolitan</b>	Leonia	---	---	---	X	---
	Ramapo	---	---	---	X	---
<b>2. Southern Metropolitan</b>	Bayonne	---	X	---	X	X
	East Orange	X	---	---	---	X
	Elizabeth	X	X	X	---	---
	Elizabeth Lab	X	X	X	---	X
	Jersey City	X	X	X	---	---
	Jersey City Firehouse	---	---	X	---	---
	Newark Firehouse	X	X	X	X	X
	Rahway	---	---	X	---	---
<b>3. Suburban</b>	Chester	---	X	---	X	X
	Morristown	X	---	---	---	---
	New Brunswick	---	---	X	---	---
	Perth Amboy	X	---	---	---	---
	Rutgers University	---	---	---	X	X
<b>4. Northern Delaware Valley</b>	Columbia WMA	---	X	X	X	X
	Flemington	---	---	X	X	---
<b>5. Central Delaware Valley</b>	Ewing	---	---	X	---	---
	Rider University	---	---	---	X	---
<b>6. Northern Coastal</b>	Colliers Mills	---	---	---	X	---
	Freehold	X	---	---	---	---
	Monmouth University	---	---	---	X	---
<b>7. Southern Coastal</b>	Brigantine	---	X	X	X	---
<b>8. Southern Delaware Valley</b>	Ancora State Hospital	X	---	---	X	---
	Clarksboro	---	---	---	X	---
	South Camden	---	---	X	---	---
<b>9. Delaware Bay</b>	Millville	---	---	X	X	X

Along with the forecast, cautionary statements are provided for days when the air quality is expected to reach the unhealthy for sensitive groups range and above. These air quality alerts are issued through Enviroflash emails, displayed on the AirNow and NJDEP air monitoring websites, and can also be viewed on the National Weather Service page for the Philadelphia/Mount Holly area (<http://www.erh.noaa.gov/er/phi/>). Maps, charts and photos of the air quality information and sites from which data is collected are available on the NJDEP air monitoring web site as shown in Figure 2 below:

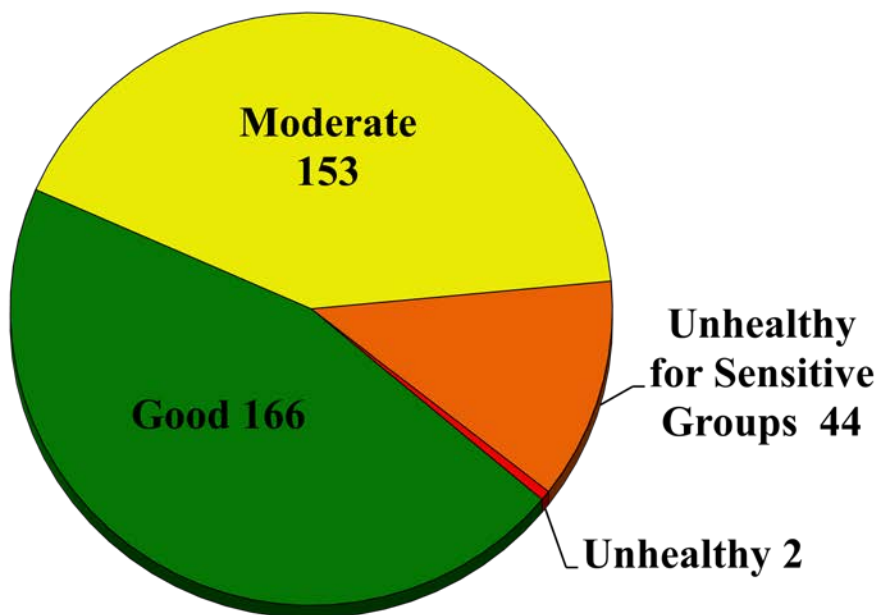
Figure 2  
Examples of NJDEP's Air Monitoring Website



## 2011 AQI SUMMARY

A summary of the AQI ratings for New Jersey in 2011 is presented in the pie chart in Figure 3 below. In 2010, there were 166 "Good" days, 153 were "Moderate", 44 were rated "Unhealthy for Sensitive Groups", 2 were considered "Unhealthy", and zero were rated "Very Unhealthy". This indicates that air quality in New Jersey is considered good or moderate most of the time, but that pollution is still bad enough to adversely affect some people on about one day in eight. This is very similar to last year and an increase from 2009, however 2009 was an unusually cool and wet summer accounting for much lower concentrations of pollutants. Table 3 lists the dates when the AQI reached the "Unhealthy for Sensitive Groups" threshold at any monitoring location and shows which pollutant(s) were in that range or higher. Figure 4 shows the AQI ratings for the year broken down by AQI region.

Figure 3  
2011 Air Quality Summary by Days



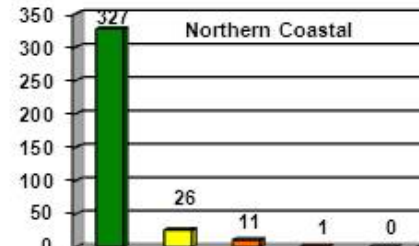
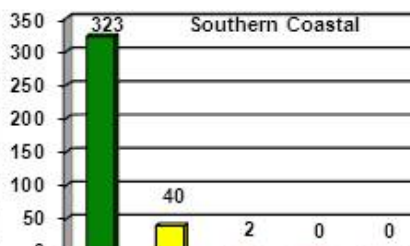
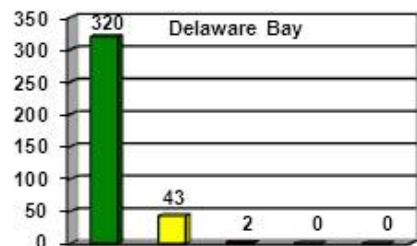
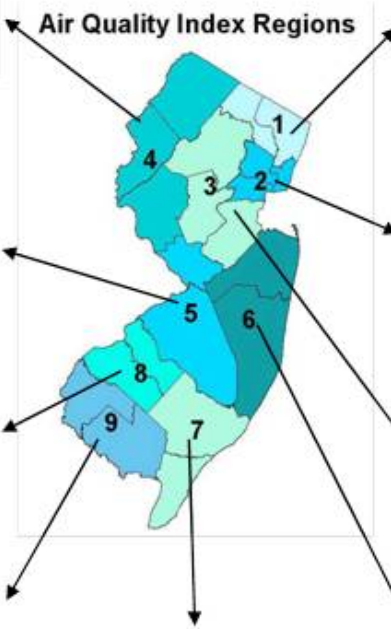
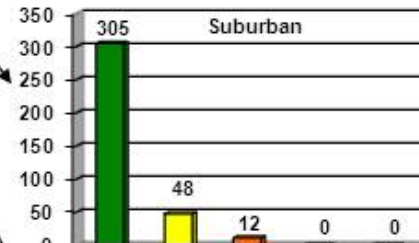
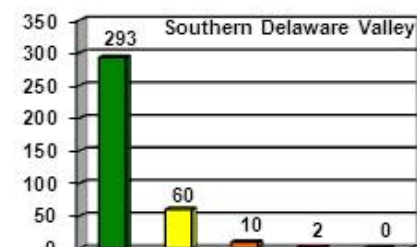
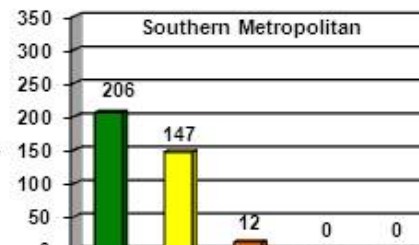
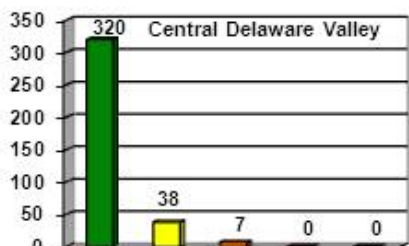
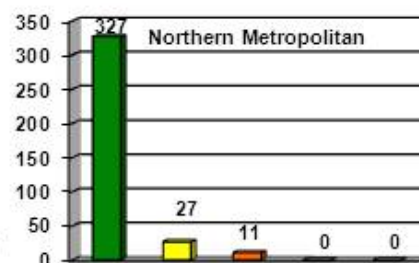
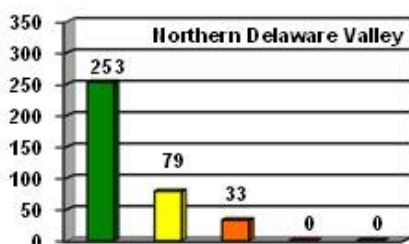
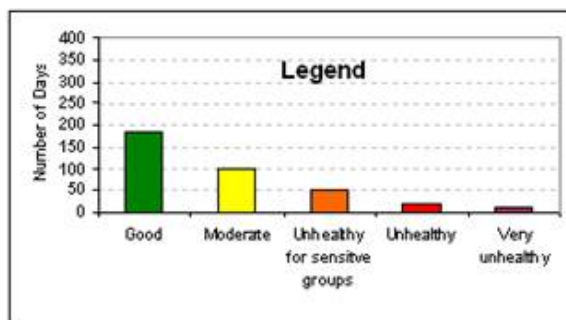
**Table 3**  
**Air Quality Index (AQI) Exceedances of 100 During 2011**

	<u>Ratings</u>		<u>Pollutants</u>
USG	- Unhealthy for Sensitive Groups	PM	- Fine Particle Matter (11 Sites)
UH	- Unhealthy	O3	- Ozone (15 Sites)
VUH	- Very Unhealthy	SO2	- Sulfur Dioxide (8 Sites)
		NO2	- Nitrogen Dioxide (8 Sites)

\* Number in parentheses ( ) indicates the total number of sites exceeding 100 by pollutant on the given day

Date	Highest Location	Highest AQI Value	Highest Pollutant	Highest Rating	Pollutant(s) with AQI above 100 *
Jan 01	Newark	103	PM	USG	PM (3)
Jan 22	Columbia WMA	127	SO2	USG	SO2 (1)
Jan 24	Columbia WMA	140	SO2	USG	SO2 (1)
Feb 13	Columbia WMA	117	SO2	USG	SO2 (1)
Feb 14	Columbia WMA	103	SO2	USG	SO2 (1)
Feb 16	Columbia WMA	115	SO2	USG	SO2 (1)
Feb 23	Columbia WMA	106	SO2	USG	SO2 (1)
March 30	Columbia WMA	102	SO2	USG	SO2 (1)
April 09	Columbia WMA	107	SO2	USG	SO2 (1)
April 11	Columbia WMA	124	SO2	USG	SO2 (1)
April 20	Columbia WMA	102	SO2	USG	SO2 (1)
May12	Columbia WMA	115	SO2	USG	SO2 (1)
May 20	Columbia WMA	138	SO2	USG	SO2 (1)
May 29	Columbia WMA	106	SO2	USG	SO2 (1)
May 31	Rutgers	106	O3	USG	O3 (2)
June 01	Rutgers	143	O3	USG	O3 (6), SO2 (1)
June 05	Columbia WMA	109	SO2	USG	SO2 (1)
June 07	Clarksboro	150	O3	UH	O3 (11)
June 08	Ancora	158	O3	UH	O3 (12)
June 09	Clarksboro	170	O3	USG	O3 (14), PM (4)
June 10	Clarksboro	134	O3	USG	O3 (3)
June 12	Columbia WMA	106	SO2	USG	SO2 (1)
June 18	Colliers Mills	110	O3	USG	O3 (1), SO2 (1)
June 21	Columbia WMA	120	SO2	USG	SO2 (1)
June 23	Elizabeth Lab	103	PM	USG	PM (1)
June 27	Columbia WMA	115	SO2	USG	SO2 (1)
July 2	Columbia WMA	115	SO2	USG	SO2 (1)
July 5	Clarksboro	108	O3	USG	O3 (1)
July 6	Newark Firehouse	115	O3	USG	O3 (3)
July 7	Clarksboro	136	O3	USG	O3 (5)
July 10	Columbia WMA	105	SO2	USG	SO2(1)
July 11	Leonias	117	O3	USG	O3 (3), SO2 (1)
July 15	Columbia WMA	104	SO2	USG	SO2 (1)
July 17	Columbia WMA	116	SO2	USG	SO2 (1)
July 18	Monmouth University	117	O3	USG	O3 (3)
July 19	Clarksboro	143	O3	USG	O3 (5)
July 20	Chester/Ramapo	117	O3	USG	O3 (4), PM (1)
July 21	Rutgers	143	O3	USG	O3 (8), PM (2)
July 22	Clarksboro	138	O3	USG	O3 (8), PM (1)
July 23	Colliers Mills	122	O3	USG	O3 (3)
July 24	Monmouth University	115	O3	USG	O3 (1)
July 26	Columbia WMA	110	SO2	USG	SO2 (1)
July 29	Clarksboro	115	O3	USG	O3 (4)
Aug 01	Clarksboro	113	O3	USG	O3 (3)
Aug 17	Columbia WMA	106	SO2	USG	SO2 (1)
Aug 20	Columbia WMA	109	SO2	USG	O3 (1), SO2 (1)

**Figure 4**  
**2011 Air Quality Index Summary**  
**Number of Days by Reporting Region**



## REFERENCES

*Air Quality Index, A Guide to Air Quality and Your Health*, USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, June 2000, EPA-454/R-00-005, URL: [www.epa.gov/airnow/aqi\\_cl.pdf](http://www.epa.gov/airnow/aqi_cl.pdf)

*Guideline for Reporting of Daily Air Quality - Air Quality Index (AQI)*, USEPA, Office of Air Quality Planning and Standards, July 1999, EPA-454/R-99-010, URL: [www.epa.gov/ttn/oarpg/t1/memoranda/rg701.pdf](http://www.epa.gov/ttn/oarpg/t1/memoranda/rg701.pdf)

*Air Quality Index Reporting, Final Rule: Title 40, Part 58, Code of Federal Regulations*, August 4, 1999. URL: [http://www.epa.gov/ttn/oarpg/t1/fr\\_notices/airqual.pdf](http://www.epa.gov/ttn/oarpg/t1/fr_notices/airqual.pdf)

*National Air Quality and Emissions Trend Report, 1999*, EPA-454/R-01-004, USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC, March 2001, URL: [www.epa.gov/air/airtrends/aqtrnd99/](http://www.epa.gov/air/airtrends/aqtrnd99/)