



# 2007 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 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://airnow.gov/>.

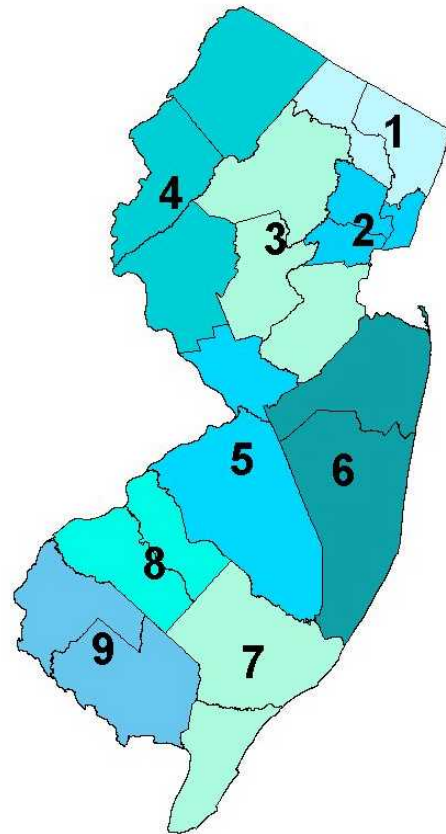
**Table 1**  
**Air Quality Index**

| 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            |
| 200-300              | Very Unhealthy                 | Purple         |

Each weekday morning a forecast is prepared using the AQI format. The forecast is provided to participating radio and television stations. Each afternoon, an air quality update, which includes the current air quality information and a forecast for the following day, is issued to various newspapers.

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.

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



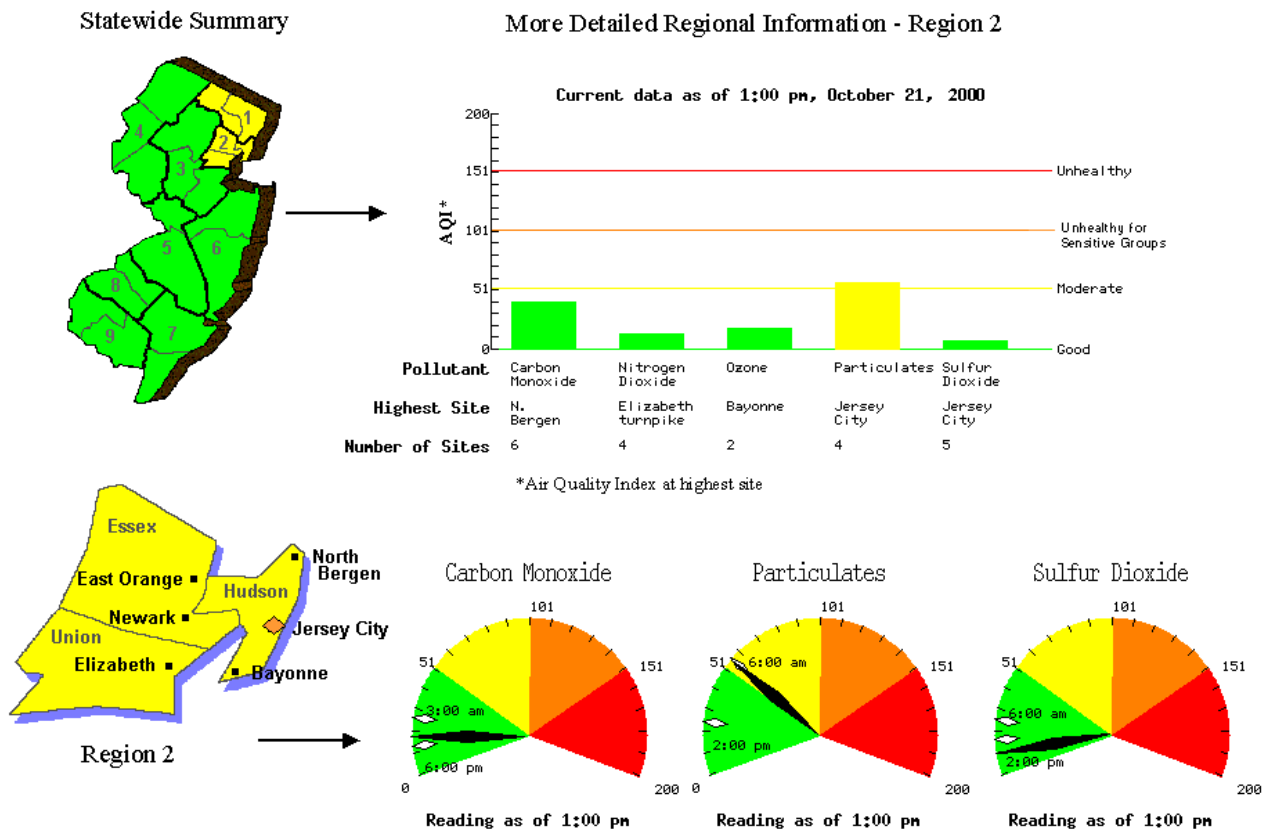
**Table 2**  
**Pollutants Monitored According to Air Quality Index Reporting Region - 2007**

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>    | Fort Lee              | X   | ---             | X   | ---            | ---             |
|                                    | Hackensack            | X   | X               | X   | ---            | ---             |
|                                    | Ramapo                | --- | ---             | --- | X              | ---             |
| <b>2. Southern Metropolitan</b>    | Bayonne               | --- | X               | --- | X              | X               |
|                                    | East Orange           | X   | ---             | --- | ---            | X               |
|                                    | Elizabeth Lab         | X   | X               | X   | ---            | X               |
|                                    | Jersey City           | X   | X               | X   | ---            | ---             |
|                                    | Jersey City Firehouse | --- | ---             | X   | ---            | ---             |
|                                    | Rahway                | --- | ---             | X   | ---            | ---             |
| <b>3. Suburban</b>                 | Chester               | --- | X               | --- | X              | X               |
|                                    | Morristown            | X   | ---             | X   | ---            | ---             |
|                                    | New Brunswick         | --- | ---             | X   | ---            | ---             |
|                                    | Perth Amboy           | X   | X               | X   | ---            | ---             |
|                                    | Rutgers University    | --- | ---             | --- | X              | X               |
| <b>4. Northern Delaware Valley</b> | Flemington            | --- | ---             | X   | X              | ---             |
| <b>5. Central Delaware Valley</b>  | Burlington            | X   | X               | X   | ---            | ---             |
|                                    | Rider University      | --- | ---             | --- | X              | X               |
| <b>6. Northern Coastal</b>         | Colliers Mills        | --- | ---             | --- | X              | ---             |
|                                    | Freehold              | X   | ---             | X   | ---            | ---             |
|                                    | Monmouth University   | --- | ---             | --- | X              | ---             |
| <b>7. Southern Coastal</b>         | Brigantine            | --- | X               | X   | X              | ---             |
|                                    | Nacote Creek          | --- | X               | --- | X              | ---             |
| <b>8. Southern Delaware Valley</b> | Ancora State Hospital | X   | X               | --- | X              | ---             |
|                                    | Camden Lab            | X   | X               | X   | X              | X               |
|                                    | Clarksboro            | --- | X               | --- | X              | ---             |
|                                    | South Camden          | --- | ---             | X   | ---            | ---             |
| <b>9. Delaware Bay</b>             | Millville             | --- | X               | X   | X              | X               |

Along with the forecast, cautionary statements are provided for days when the air quality is expected to be unhealthy. A weekday air quality forecast map, introduced during the 1996 ozone season, is televised on New Jersey Network's (NJN) TV News Broadcast. A web page was also created in 1996 to show current air quality levels. This page can be accessed at the following internet address: <http://www.state.nj.us/dep/airmon>. Some examples of the air quality information available on our web site are shown in Figure 2 below:

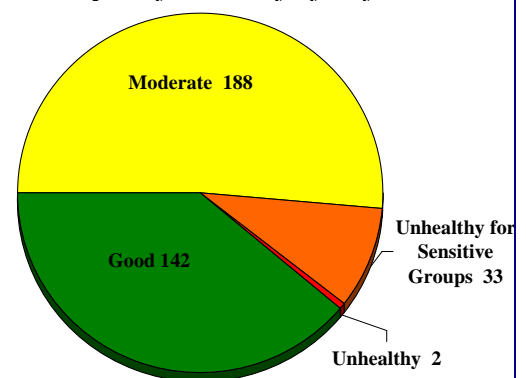
**Figure 2**  
Examples of NJDEP's Air Monitoring Website



## 2007 AQI SUMMARY

A summary of the AQI ratings for New Jersey in 2007 is presented in the pie chart to the right. In 2007 there were 142 "Good" days, 188 were "Moderate", 33 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 ten. 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 (AQI data was not available for every day therefore some of the regions total day count does not add up to 365).

**Figure 3**  
Air Quality Summary by Days



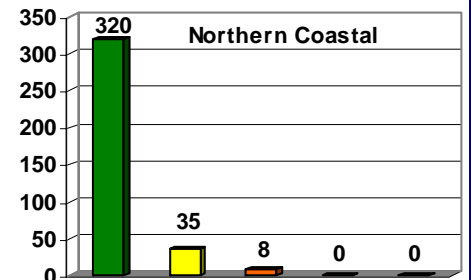
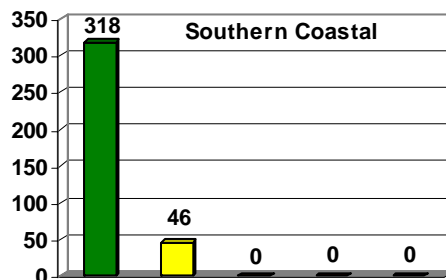
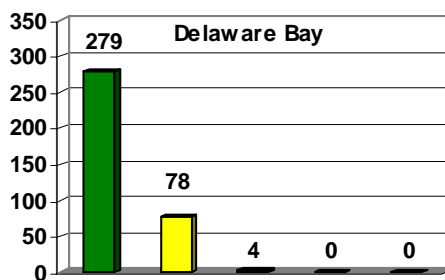
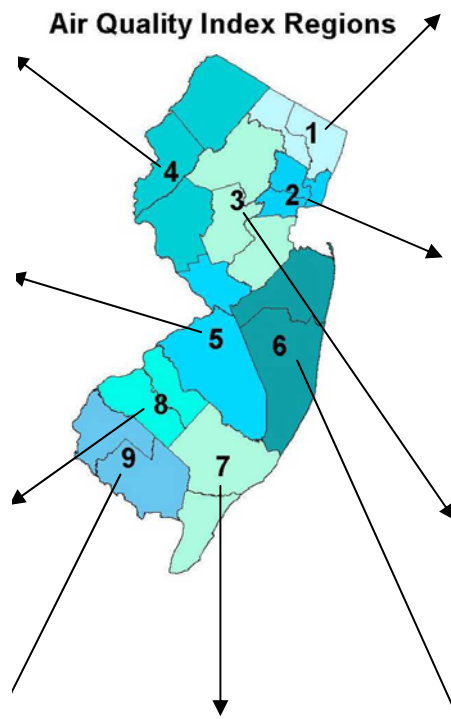
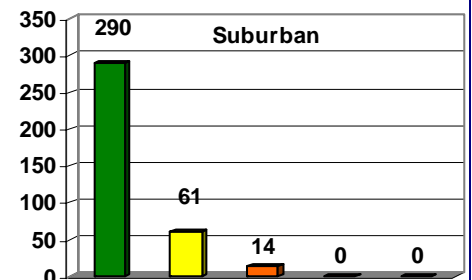
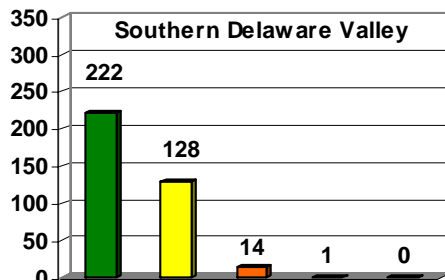
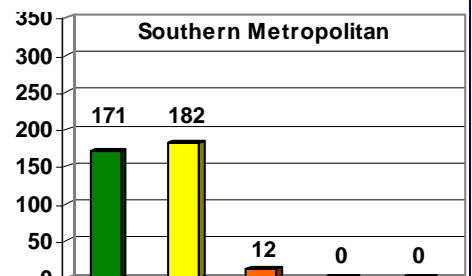
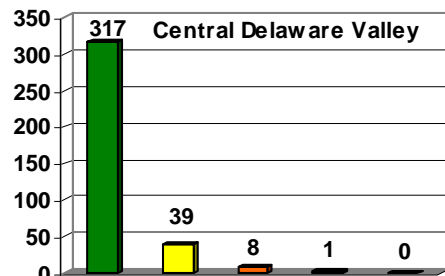
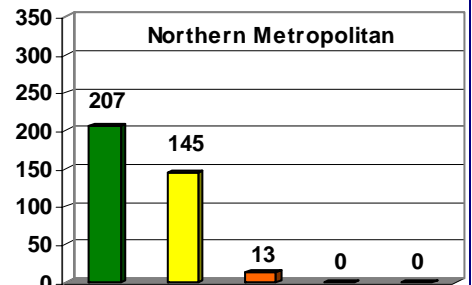
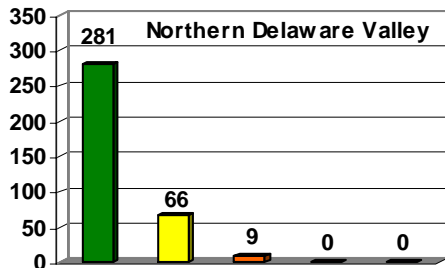
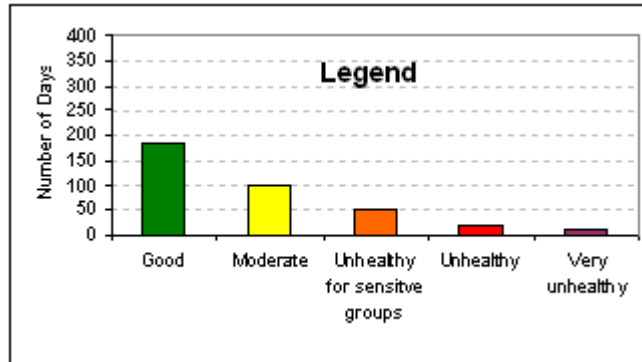
**Table 3  
Air Quality Index (AQI) Exceedances of 100 During 2007**

|     |                |                                |    |                   |  |
|-----|----------------|--------------------------------|----|-------------------|--|
|     | <u>Ratings</u> |                                |    | <u>Pollutants</u> |  |
| USG | -              | Unhealthy for Sensitive Groups | PM | -                 | Fine Particle Matter<br>(10 Sites Monitored) |
| UH  | -              | Unhealthy                      | O3 | -                 | Ozone<br>(14 Sites Monitored)                |
| VUH | -              | Very Unhealthy                 |    |                   |  |

\* Number in parentheses ( ) indicates the total number of ozone and PM<sub>2.5</sub> sites exceeding 100 on a given day

| Date         | Highest Location      | Highest AQI Value | Highest Pollutant | Highest Rating | Pollutant(s) with AQI above 100 * |       |
|--------------|-----------------------|-------------------|-------------------|----------------|-----------------------------------|-------|
| March 14     | Fort Lee              | 103               | PM                | USG            |                                   | PM(2) |
| May 26       | Fort Lee              | 128               | PM                | USG            |                                   | PM(2) |
| May 29       | Colliers Mills        | 135               | O3                | USG            | O3 (1)                            |       |
| May 30       | Chester               | 140               | O3                | USG            | O3 (3)                            | PM(1) |
| June 01      | Rutgers University    | 147               | O3                | USG            | O3 (3)                            |       |
| June 17      | Rutgers University    | 119               | O3                | USG            | O3 (3)                            |       |
| June 18      | Rutgers University    | 154               | O3                | UH             | O3 (6)                            |       |
| June 19      | Jersey City Firehouse | 120               | PM                | USG            | O3 (3)                            | PM(4) |
| June 22      | Camden Lab            | 119               | O3                | USG            | O3 (5)                            |       |
| June 29      | Chester               | 104               | O3                | USG            | O3 (1)                            |       |
| July 2       | Monmouth University   | 111               | O3                | USG            | O3 (2)                            |       |
| July 3       | Colliers Mills        | 109               | O3                | USG            | O3 (1)                            |       |
| July 4       | Jersey City Firehouse | 105               | PM                | USG            |                                   | PM(1) |
| July 11      | Rutgers University    | 137               | O3                | USG            | O3 (4)                            | PM(2) |
| July 12      | Fort Lee              | 149               | PM                | USG            |                                   | PM(5) |
| July 17      | Ancora State Hospital | 177               | O3                | UH             | O3 (9)                            |       |
| July 18      | Ancora State Hospital | 169               | O3                | UH             | O3 (1)                            | PM(3) |
| July 19      | Chester               | 111               | O3                | USG            | O3 (1)                            |       |
| July 21      | South Camden          | 106               | PM                | USG            |                                   | PM(1) |
| July 26      | Chester               | 104               | O3                | USG            | O3 (2)                            |       |
| July 27      | Rider University      | 109               | O3                | USG            | O3 (1)                            |       |
| July 30      | South Camden          | 103               | PM                | USG            |                                   | PM(1) |
| August 01    | Ancora State Hospital | 122               | O3                | USG            | O3 (3)                            | PM(4) |
| August 02    | Camden Lab            | 124               | PM                | USG            | O3 (4)                            | PM(5) |
| August 03    | Colliers Mills        | 106               | O3                | USG            | O3 (2)                            | PM(2) |
| August 05    | Monmouth University   | 109               | O3                | USG            | O3 (1)                            |       |
| September 19 | Fort Lee              | 110               | PM                | USG            |                                   | PM(1) |
| October 4    | Fort Lee              | 106               | PM                | USG            |                                   | PM(1) |
| November 27  | Jersey City Firehouse | 106               | PM                | USG            |                                   | PM(1) |
| November 28  | Elizabeth Lab         | 120               | PM                | USG            |                                   | PM(4) |
| November 29  | Fort lee              | 110               | PM                | USG            |                                   | PM(2) |

**Figure 4**  
**2007 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/)