Iowa and the 8-hour Ozone Standard

Is Iowa at risk of going into non-attainment with the 8-hour ozone standard?

Ozone Monitoring Sites In Iowa: 2001

What are the current Ozone Standards?

The EPA issued a revised National Ambient Air Quality Standard (NAAQS) for ozone in July 1997. This new and stricter standard is based on an eight-hour rolling average and three complete years of data. The standard is met when the 3-year average of the annual fourth-highest daily maximum 8-hour average is not greater than 85 parts per billion (ppb).

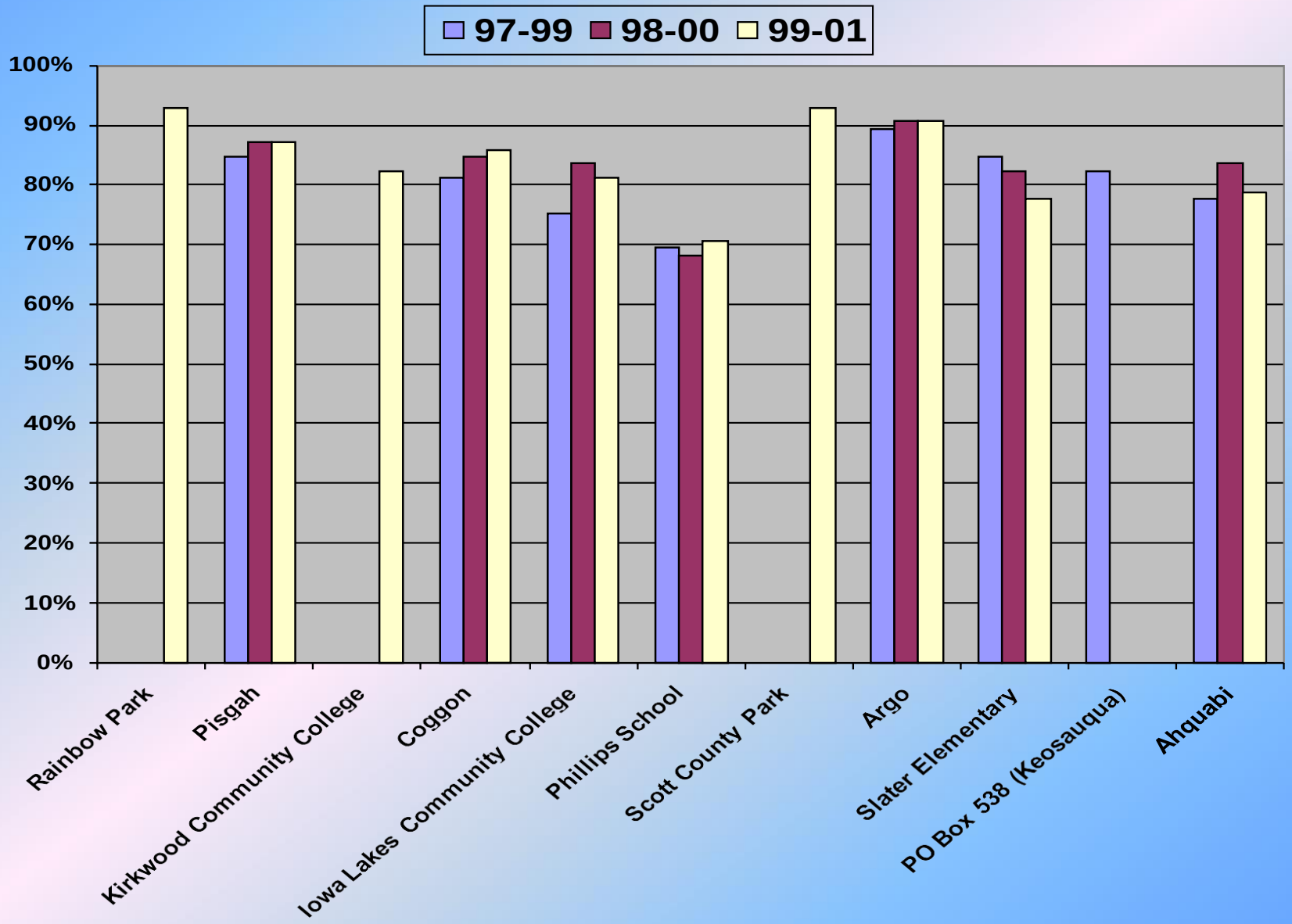
Subsequent lawsuits and court decisions have prevented the agency from enforcing the new standard, however states must calculate ozone values against the new standard and report the results to the EPA. All data reported here has been computed based on the eight-hour ozone standard.

The Design Value for an ozone site is an indicator of how close the site is to the standard and is calculated the same way as the standard.

How Does Iowa Data Compare With the Ozone Standards?

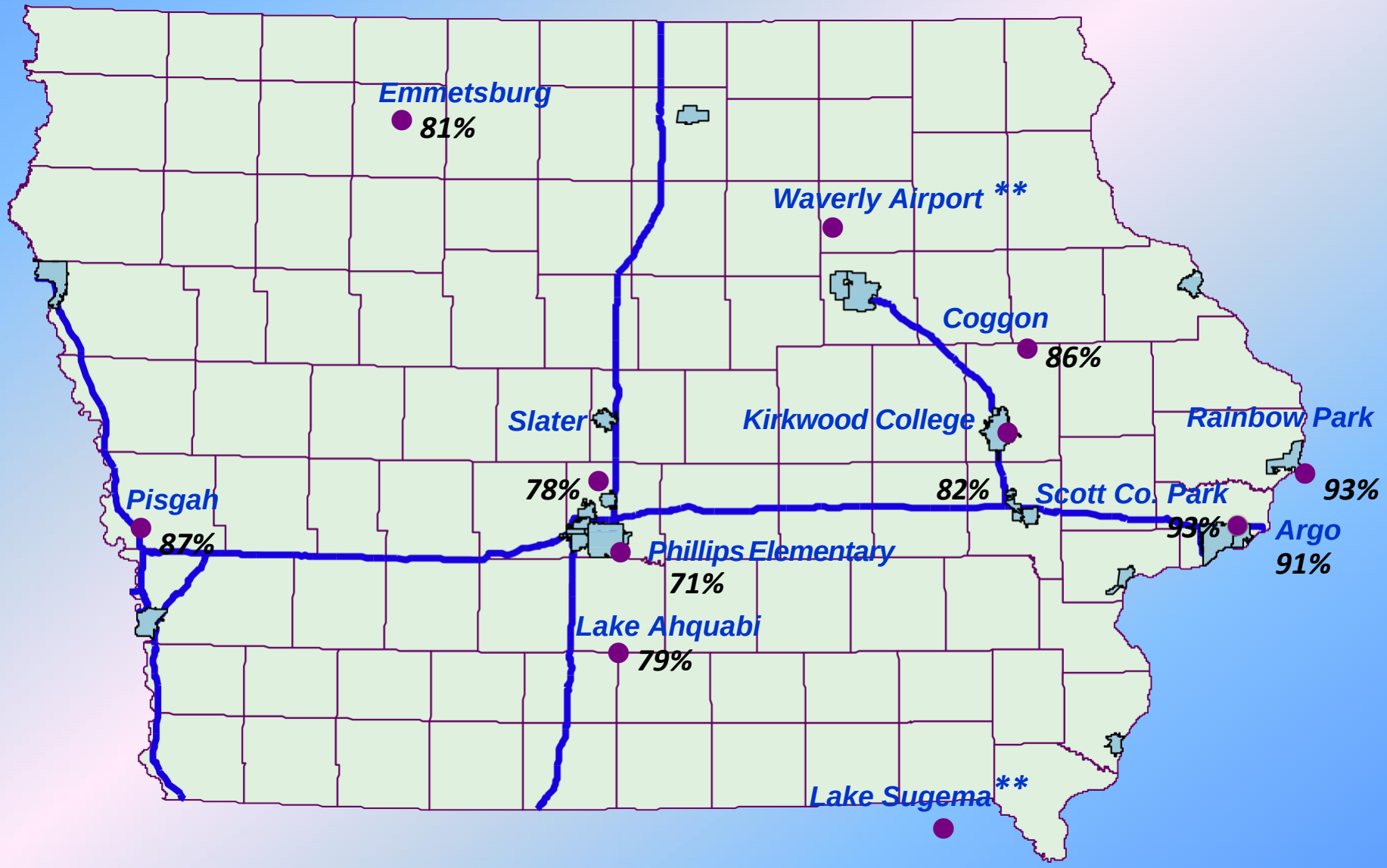
- There are currently no areas in Iowa that would be designated non-attainment with regard to the new eight-hour standard.
- Monitors in portions of Iowa (north Davenport) have measured values of up to **93%** of the eight hour standard over the past three averaging periods.
- Two Iowa monitors do not have a full three years of data and the statistic cannot be calculated. Both of these monitors are currently measuring values less than the eight-hour standard.
- Some sites measuring less than the eight-hour standard have been discontinued.

Design Values as a Percentage of the 8-hour NAAQS



1999-2001 Design Values as a Percentage of the NAAQS

** Incomplete Data



What Harm Can Elevated Ozone Levels Cause?

- Ozone irritates the respiratory system and even healthy children and adults should avoid strenuous outdoor activities during ozone episodes.
- Causes decreased lung function and increased respiratory symptoms in active children and sensitive individuals.
- Increased hospital admissions and emergency room visits for children and adults with pre-existing conditions such as asthma.
- Elevated ozone levels can cause inflammation of the lung and possible long term damage to the lungs.
- Ozone lowers crop yields, damages forests and ecosystems and can visibly damage foliage of sensitive plant species.

Does Iowa Have Days When Ozone Levels are Dangerous?

- If ozone levels rise above 85 ppb, the EPA classifies the air quality as unhealthy for sensitive groups.
- For ozone, sensitive groups include active children and adults as well as people with respiratory disease such as asthma.
- People in these sensitive groups should limit prolonged outdoor exertion on days when ozone levels are above 85 ppb.
- Iowa ozone monitors have measured eight-hour averages above the 85 ppb level on eighteen occasions since April 1, 1998.
- Most of these exceedences have been measured in the Quad Cities area.

Location of Iowa Ozone Exceedences: 1999-2001

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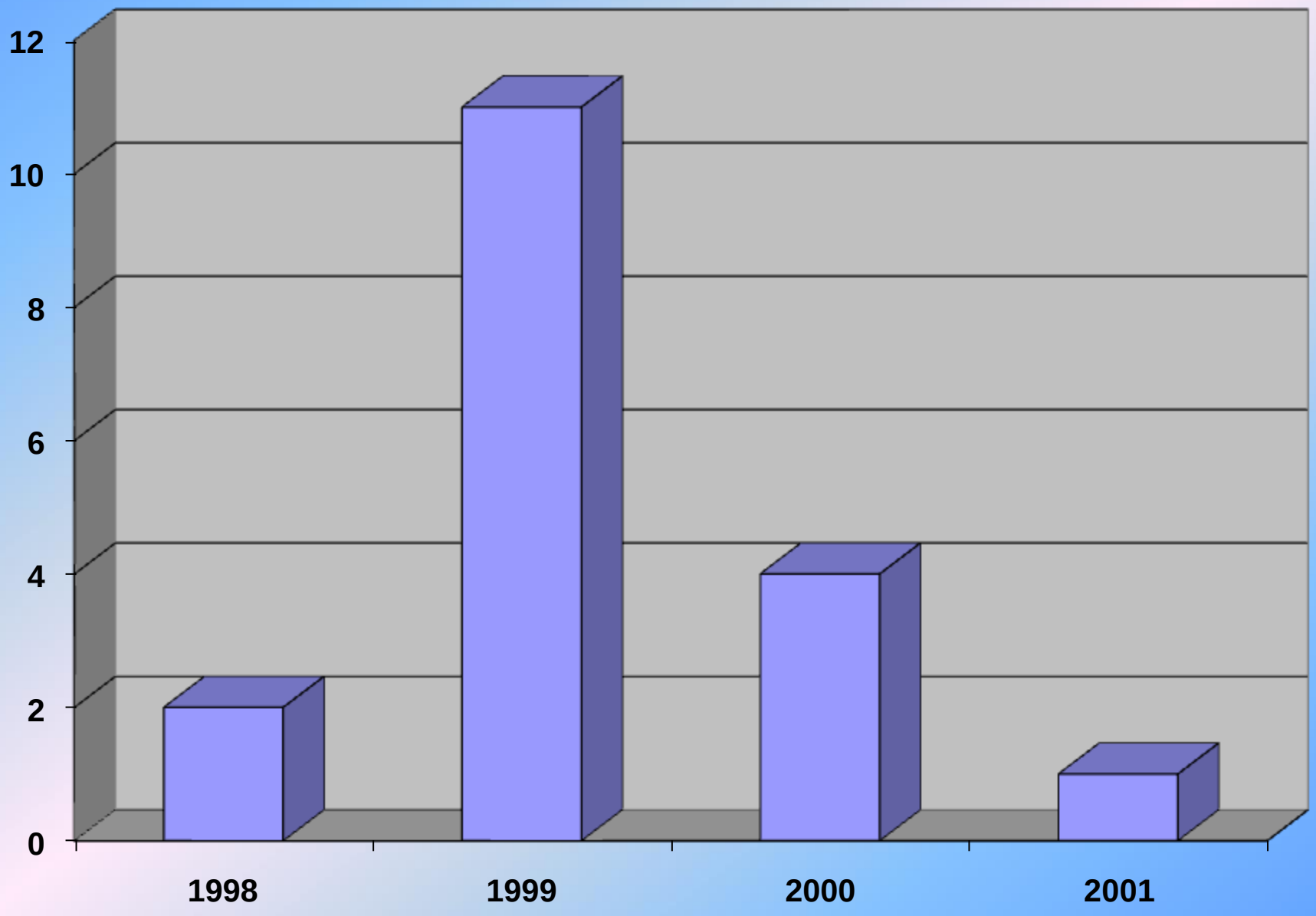
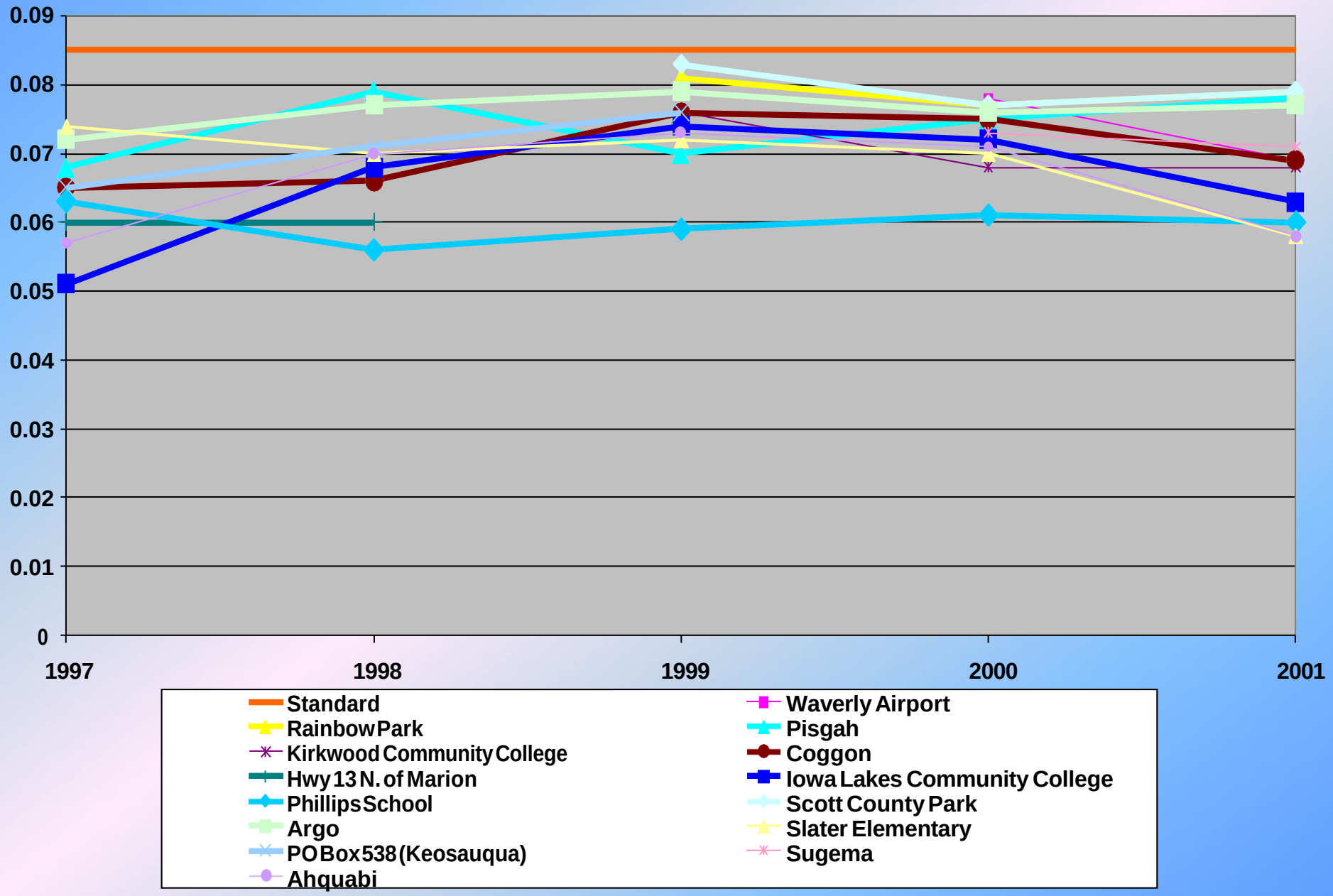
Iowa Ozone Exceedences by Year



Are Measured Ozone Values in Iowa Improving?

- Ozone is a secondary pollutant, it is not emitted directly into the atmosphere, but produced from other pollutants under certain meteorological conditions.
- Ozone is formed from Volatile Organic Compounds (VOC's) and Nitrogen Oxides (NOx) in the presence of strong sunlight. Both ozone and these precursor gases can travel many miles from where they are produced and impact areas far downwind.
- The ozone season in Iowa is April-October. Due to the nature of the pollutant ozone is not monitored in the winter months.
- Trends seen in a few years of ozone data may be due more to meteorological conditions than changes in local emissions or air quality.

4th Highest Annual Ozone Values Measured In Iowa



What is Being Done About Ozone Levels in Iowa?

- The Department of Natural Resources has the authority to implement stricter emissions regulations on new and expanding industries once an area has been declared non-attainment.
- Near real-time air quality data is available on the Internet and public warnings are issued if unhealthy pollution levels are expected.
- The DNR tracks emissions from industry and area sources and uses this data to evaluate models and develop control strategies.
- The Iowa-Illinois Bi-State Regional Commission formed the Quad Cities Air Quality Task Force with representatives of both government and industry. The mission of the task force is to maintain ozone attainment status in the Quad Cities through voluntary measures.
- DNR modeling staff is currently working on regional scale models to assist in source attribution and regional transport of ozone and its precursors.

Errata

This document was modified on April 27, 2010 to address errors in the original. These errors included:

- Incorrect rounding conventions for design values
- Computation of design values at sites with less than three years of data

Some Internet Resources

Real-time Iowa air quality data:

In Polk County:

http://www.co.polk.ia.us/departments/hdept/airquality/AQI.asp

In Linn County:

http://www.air.linn.ia.us/

Outside Polk and Linn Counties:

http://www.uhl.uiowa.edu/Services/

Ozone Maps:

http://www.epa.gov/airnow/index.html

Historical values for Iowa and Other States:

http://www.epa.gov/air/data/