

Definition/Description:

The Manitoba Department of Conservation monitors the quality of ambient air at several urban locations as part of an on-going environmental quality-monitoring program. Established monitoring sites with specialized instruments for continuous air sampling and analysis are used during this process. Sampling procedures for the urban air quality program align with those within the Federal/Provincial National Air Pollution Surveillance (NAPS) program (Krawchuk, 2002).

Activities that can impact on air quality include industrial and agricultural operations, vehicle emissions and man-made substances released into the atmosphere. These contribute to ground level ozone (smog), stratospheric ozone (the ozone layer), global warming and acid rain. Changes in weather conditions can also cause poor air quality conditions.

The effects on human health due to poor air quality are significant, as it primarily affects the body's respiratory and cardiovascular systems. Often, this results in increases in medication use, physician or emergency room visits, hospital admissions and even premature death. (Health Canada, 2001)

More and more Canadians are becoming increasingly aware of and concerned about their health and the future of the environment. Governments, industry, communities and individuals are now working together to control air pollution and improve air quality.

Method

An Air Quality Index (AQI) is a system of calculating and reporting air quality in urban areas. Measurements of air pollutants are recorded using a rating of number and description ranges as shown below. The lower the number, the better the air quality. Ratings are based on provincial standards set by the Canadian Annual Index of Air Quality. The Index scale provides the public with a general idea of the air quality in their community. It promotes air quality awareness and serves as a precautionary advisory to residents when air quality has decreased.

Source:

The following information regarding Air Quality has been obtained from Manitoba Conservation and Health Canada. Publications including Annual Reports and other reference materials are available at the Manitoba Conservation web site (www.gov.mb.ca/conservation/airquality) and the Health Canada web site (www.hc-sc.gc.ca/hecs-sesc/air_quality).

The sources of information for this section:

1. Krawchuk, B.P., 2002 Manitoba Ambient Air Quality Annual Reports for 1997, 1998 and 1999, Manitoba Department of Conservation, Air Quality Section, Report No. 2002-08, xvi+100.

Detailed information regarding air quality objectives and guidelines, air quality indexes, sampling sites and methodology can be found in their report along with charts for all parameters and the air quality index for 1997, 1998 and 2000 at both Winnipeg measuring sites.

2. Manitoba Department of Conservation, 2004 (web-site), Air Quality Section (www.gov.mb.ca/conservation/airquality/aq-management)
3. Health Canada, 2004 (web-site), Health and Air Quality – Health Effects of Air Pollution (www.hc-sc.gc.ca/hecs-sesc/air_quality)

Findings:

Air Quality Index

Description	Number	General Impacts
Good	0-25	No effects
Fair	26-50	Noticeable health effect unlikely, some environmental effects may be observed
Poor	50-100	Some people, especially those with pre-existing health conditions may notice health effects, some environmental effects may be observed
Very Poor	Over 100	Health effects may be experienced by all and especially those with respiratory conditions, some environmental effects may be observed

Summary of Air Quality Index Ratings for Downtown Winnipeg, 1995 to 2002.

	2002	2001	2000	1999	1998	1997	1996	1995
Good	87.0%	89.0%	93.0%	97.0%	94.3%	97.5%	91.0%	88.0%
Fair	7.0%	6.0%	2.0%	2.5%	5.6%	2.5%	3.0%	7.0%
Poor	1.0%	0%	0%	0.5%	0.1%	0%	0%	0%
V. Poor	1.0%	0%	0%	0%	0%	0%	0%	0%
N/A	5.0%	5.0%	5.0%	-	-	-	6.0%	5.0%

Highlights:

Winnipeg Air Quality

- Two National Air Pollution Surveillance Class 1 sites monitor air quality in Winnipeg, a downtown site and a residential site.
- Winnipeg generally enjoys very good air quality when compared to other cities in Canada of similar size.
- Overall, air quality is “good to very good” nine days out of every ten days.
- The average levels of common pollutants for Winnipeg residential were lower than those recorded at the Winnipeg downtown station for the same period of time.
- Levels of common pollutants were below the recommended Provincial standards.

Downtown

- Air quality in the downtown area of Winnipeg is represented by monitoring that occurs at the 65 Ellen Street surveillance site.
- Measurements of the levels of carbon monoxide, nitrogen dioxide, nitric oxide, nitrogen oxides, ground level ozone, soling index (coefficient of haze-discontinued in 1999), total suspended particulate, inhalable particulate, volatile organic compounds, polyaromatic hydrocarbons, and aldehydes/ketones are tracked.
- Based on the Annual Air Quality Index, the air quality in downtown Winnipeg in 2002 was rated as “Good” 87% of the time.

Residential

- Air quality in residential Winnipeg is represented by monitoring that occurs at the 299 Scotia Street site.
- Measurements of the levels of carbon monoxide, nitrogen dioxide, nitric oxide, nitrogen oxides, ground level ozone, soling index (coefficient of haze), inhalable particulate and total suspended particulate are observed.