

# Air Quality Monitoring Results 2016



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# Air Quality Monitoring in New Brunswick

This report provides an overview of air quality in the province of New Brunswick. General information about air quality science and the province's monitoring networks is also provided.

Air quality monitoring in New Brunswick is a partnership between the Federal Government (Environment and Climate Change Canada) and the Provincial Department of Environment and Local Government (DELG). This partnership has been formalized under a long-standing National Air Pollution Surveillance (NAPS) Agreement.

Through the NAPS agreement, Environment and Climate Change Canada provides the necessary monitoring equipment and a centralized national database for the air quality information collected. It is the Province's responsibility to deploy and maintain the equipment, operate the stations, perform necessary calibrations, and otherwise ensure that the data is accurate.



A typical air quality monitoring station (Moncton).

In 2016 the provincial network included 13 air quality monitoring stations. There was a total of 38 instruments collecting data at these stations.



Air quality monitoring equipment. A Volatile Organic Compound (VOC) sampler (left/near-field), and a Particulate Matter monitor (PM<sub>2.5</sub>) (right/far-field).

The stations and monitors have been established for a number of purposes:

- to detect and quantify impacts from regulated sources of pollution;
- to assess and track ambient background levels of various pollutants;
- to monitor transboundary migration of pollution into New Brunswick; and,
- to provide real-time data to public health reporting systems such as the Air Quality Health Index.

As a condition of regulatory approval under the *Clean Air Act*, the Province also requires the operators of large industrial facilities to participate in air quality monitoring. During the 2016 reporting

year there were 32 industry-operated stations, with 55 instruments, dedicated to continuously monitoring the ambient concentrations of industry-specific contaminants in nearby communities.

Each air quality monitoring station is different, with monitors set up to target the pollution sources in that particular area. Site maps and monitor inventories are provided on pages 5 and 6.

# Understanding Air Pollution

Air quality is constantly changing from season to season, and is affected by a wide variety of factors, including the weather, long range movements of air from other parts of the world, natural events, industry cycles, and other human activities.

Below, we look at some of the more common air pollutants: what they are, where they come from, and how they can affect our environment and our health.

| Overview of Key Air Pollutants - Sources and Effects           |   |  |
|--|---|--|
| Air Pollutant  | What is it?   | What does it do?   |
| <b>Sulphur Dioxide (SO<sub>2</sub>)</b>                        | A colourless gas with a sharp odour, like that of a struck match. It is produced by the burning of sulphur-bearing fuels such as oil and coal.  | SO <sub>2</sub> can irritate the eyes, throat, and lungs. It is a major contributor to acid rain, which impacts sensitive lakes and rivers. At very high concentrations it can also damage plants, and corrode metals.   |
| <b>Reduced Sulphur Compounds (Total Reduced Sulphur - TRS)</b> | A group of gases with a characteristic “rotten egg” odour. These are produced by the natural decay of dead plants and animals (e.g., in marshes and tidal flats), and by certain industrial processes (e.g., kraft pulp mills, and oil refineries).   | Causes nuisance odours. At very high concentrations they can cause respiratory irritation and related health concerns. They also contribute to acid rain.  |
| <b>Nitrogen Dioxide (NO<sub>2</sub>)</b>                       | A reddish-brown gas with a sharp odour. It is generated through combustion, especially motor vehicle exhaust and the burning of fossil fuels for electrical power generation.   | Similar to SO <sub>2</sub> , high concentrations can harm plants, corrode metals, and cause irritation to the eyes, throat, and lungs. It also contributes to acid rain. NO <sub>2</sub> also reacts with other pollutants to cause the formation of ground level ozone. |
| <b>Carbon Monoxide (CO)</b>                                    | A colourless, odourless and tasteless gas. It is produced by the incomplete burning of carbon-containing materials such as coal, oil, gasoline, wood, or natural gas. Forest fires, industrial activity, and home heating systems also contribute significantly. Motor vehicles are also a source of CO.  | CO interferes with the blood's ability to carry oxygen to vital organs and tissues. Exposure to higher concentrations can be fatal.  |
| <b>Ground Level Ozone (O<sub>3</sub>)</b>                      | Ozone is invisible and odourless at typical ground level concentrations. It is formed through chemical reactions between a variety of “ozone precursor” pollutants, which are released by industrial facilities and motor vehicles. Most of New Brunswick’s ground level ozone is carried here by air masses originating in the United States and central Canada. | Irritates the lungs and makes breathing difficult. Also damages plants, weakens rubber, and attacks metals and painted surfaces.   |

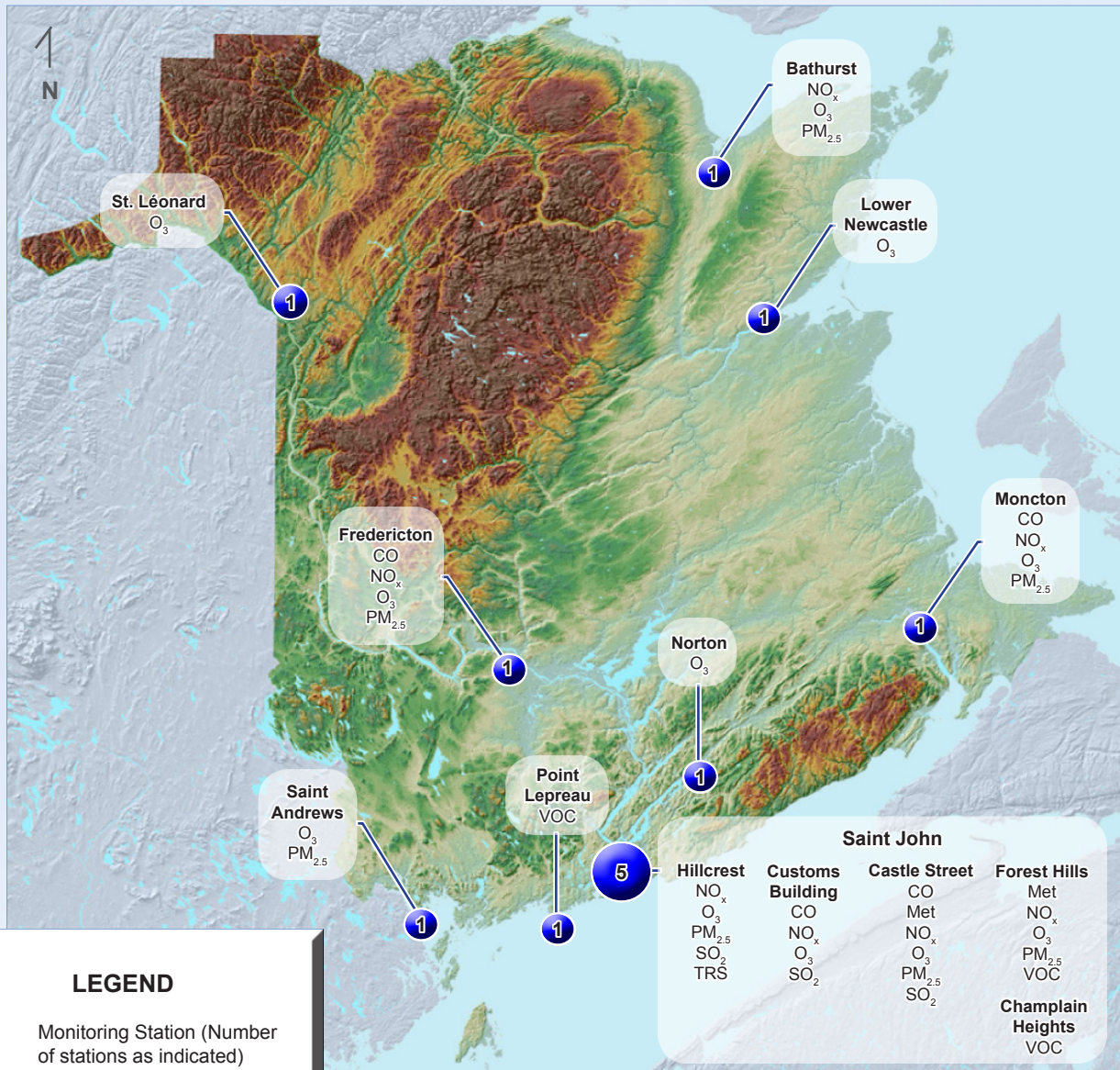
## Overview of Key Air Pollutants - Sources and Effects

| Air Pollutant                            |  | What is it?   | What does it do?   |
|--|--|---|--|
| <b>Volatile Organic Compounds (VOCs)</b> |  | VOCs are a group of carbon-containing substances that can quickly evaporate at room temperature. They are produced through combustion and the evaporation of paint, solvents and other surface coatings. Also, some are naturally released from plants. | They can contribute to smog, the depletion of Earth's ozone layer, and toxic air pollution. These pollution issues are correlated with a broad range of adverse health and environmental effects.                                      |
| Important VOC Subgroups                  | "Smog Forming" VOCs  | A group of VOCs that when combined with nitrogen compounds can accelerate the formation of Ground Level Ozone and Smog. Smog formation is reliant on heat and sunlight so it can be of particular concern in the summer months.                         | Smog is a yellow/brown haze or a thick fog of air pollution. It reduces visibility and can cause numerous respiratory problems. It can also cause damage to crops and vegetation.  |
|  | "Air Toxic" VOCs   | A class of organic compounds that are directly harmful to most living things, including humans. This group contains some well known VOCs such as Benzene and Formaldehyde.  | Many compounds in this category can cause eye and respiratory irritation, dizziness, nervous system damage, and some are also known carcinogens.   |
|  | Ozone Depleting Substances                                 | Ozone-depleting substances (ODS) generally contain chlorine, fluorine, bromine, carbon, and hydrogen in varying proportions. They are widely used in refrigerators, air conditioners, fire extinguishers, cleaning solvents, and electronic equipment.  | Although stable and non-toxic in the lower atmosphere, they are able to float up to the stratosphere and destroy ozone molecules, which make-up the protective ozone layer. This layer protects us from harmful ultraviolet radiation. |
| <b>Particulate Matter (PM)</b>           |  | Particulate matter is made up of solid or liquid matter, including dust, ash, soot, smoke or tiny particles of pollutants.  | Can cause a variety of respiratory problems, reduce visibility, damage vegetation, and creates nuisance dust.  |
| Important PM Subgroups                   | Fine, 2.5 microns in diameter or less (PM <sub>2.5</sub> ) | Tiny (invisible) airborne specks of solid or liquid material (i.e., dust & soot). It is generated by natural sources (e.g., wind-blown dust and forest fires), and through fuel burning (especially fossil fuels and wood).                             | Causes and aggravates a variety of human breathing ailments (e.g., asthma, lung disease, and bronchitis). It also contributes to haze.   |
|  | Total Suspended (TSP)                                      | Tiny airborne particles suspended in the air with no defined size limit. All particle sizes are included. They can come from natural sources, such as pollen and spores, as well as particles from vehicles or smokestacks.                             | The health effects may include damage to the respiratory and cardiovascular systems (smaller particles). The key issue for larger particles is the nuisance of dust accumulation and reduced visibility.                               |

In addition to the key pollutants described above, there are a variety of other air pollutants that can be monitored on a case-by-case basis, depending on local emission sources.

# The Provincial Air Quality Monitoring Network

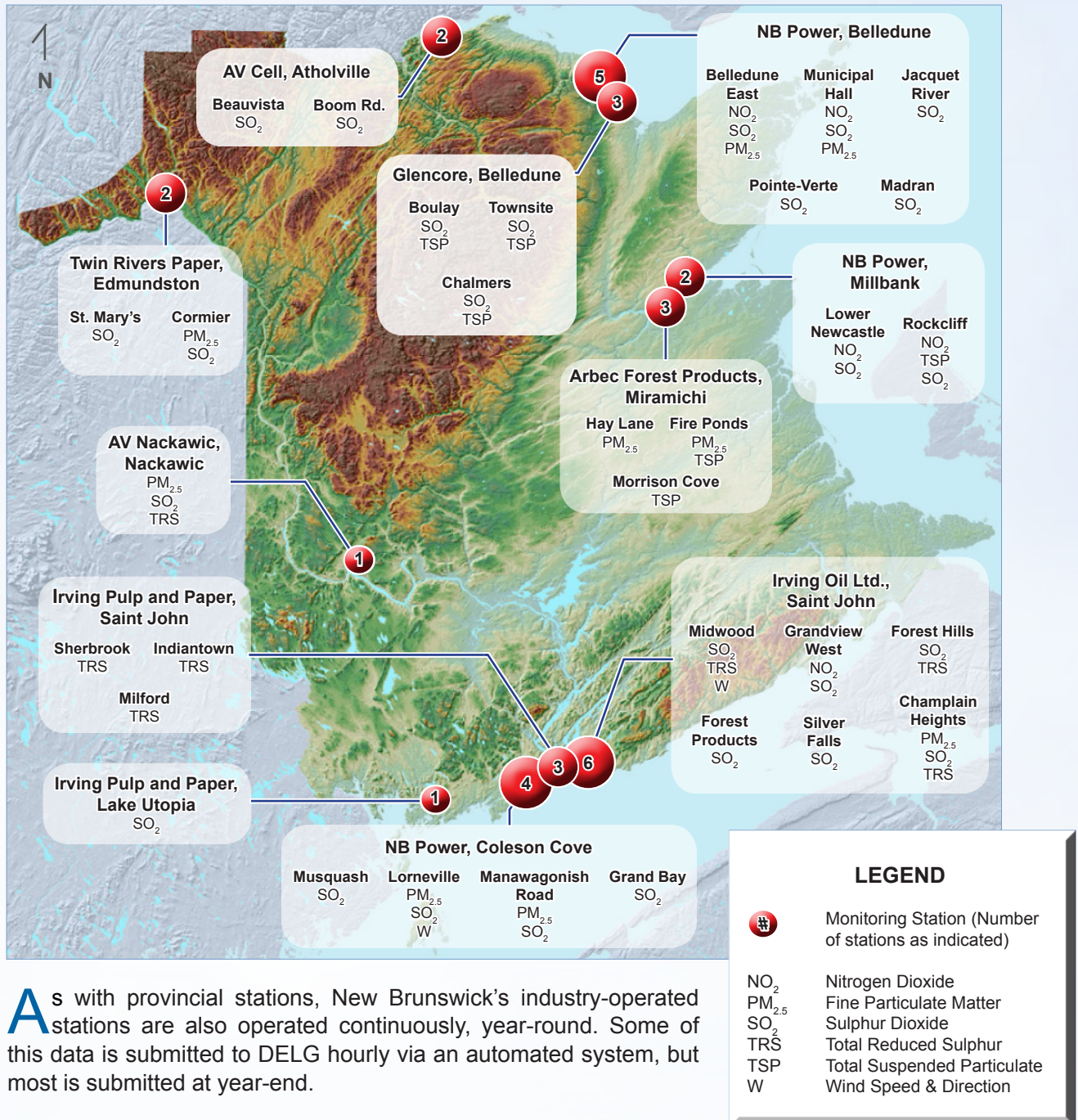
## Stations Operated by the Province



New Brunswick's 13 provincial air quality monitoring stations collect data continuously, year-round. For most monitors the collected data is transmitted to a central data management system in real time. The operation and oversight of the network and the associated data management system requires the constant attention of a team of dedicated air quality personnel.

The stations are also audited by Environment and Climate Change Canada to ensure that monitors are appropriately maintained and data is accurate. Since the beginning of the program in the early 1970s these audits have consistently confirmed the high quality of the Province's reported data.

## Stations Operated by Industry



As with provincial stations, New Brunswick's industry-operated stations are also operated continuously, year-round. Some of this data is submitted to DELG hourly via an automated system, but most is submitted at year-end.

Just as Environment and Climate Change Canada audits DELG stations, the industry-operated sites are audited by DELG to ensure accuracy of the reported data. Data quality problems are rare, but when issues do occur they are corrected immediately.

# Provincial Air Quality Objectives

One of the main goals of this report is to describe the Province’s success in achieving the provincial air quality objectives (listed below), which were established under the *Clean Air Act* in 1997.

The provincial air quality objectives apply to ambient air. That is, the normal outdoor air that is generally available for use by people and the environment. They are not meant to apply indoors, nor directly at the end of a chimney or smokestack.

The air quality objectives are described in units of “micrograms” (i.e., millionths of a gram) per cubic meter ( $\mu\text{g}/\text{m}^3$ ). In the table to the right, most are also provided in the somewhat more common “parts per million” (ppm) or “parts per billion” (ppb) units.

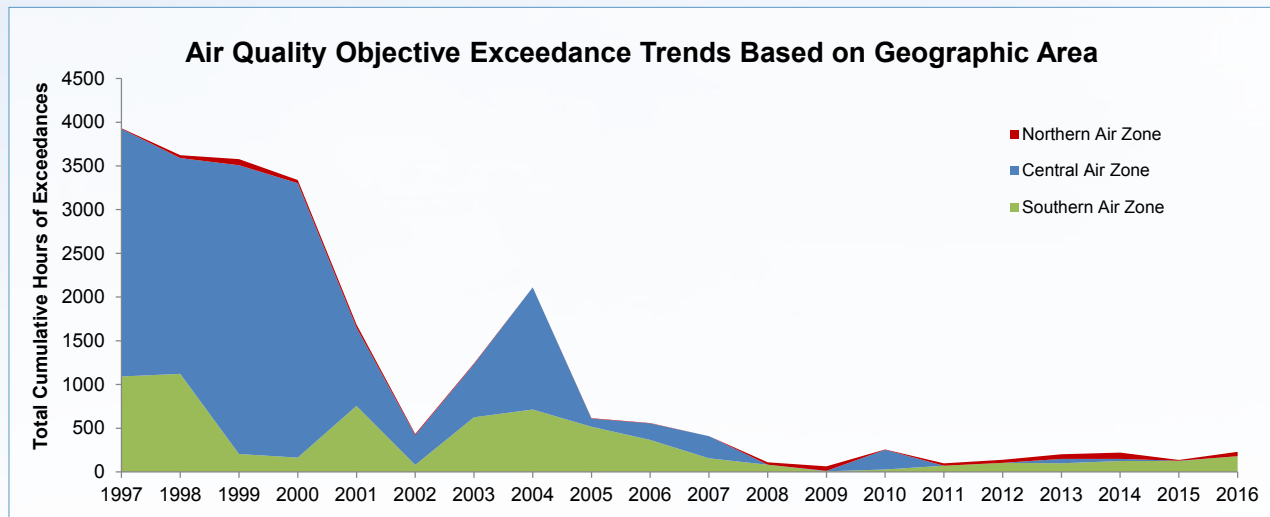
As reflected in the table to the right, there are two or more objectives for each pollutant, each with an associated “averaging period”. This is to ensure that the objectives properly address a variety of exposure scenarios, including short-term peaks, long-term exposure to lower levels, and potential combinations.

| New Brunswick Air Quality Objectives |   |   |   |  |
|--------------------------------------|---|---|---|--|
| Pollutant                            | Averaging Period                            |   |   |  |
|                                      | 1 Hour                                      | 8 Hour                                      | 24 Hour                                   | 1 year                                   |
| Carbon Monoxide                      | 35,000 $\mu\text{g}/\text{m}^3$<br>(30 ppm) | 15,000 $\mu\text{g}/\text{m}^3$<br>(13 ppm) |   |  |
| Hydrogen Sulphide                    | 15 $\mu\text{g}/\text{m}^3$<br>(11 ppb)     |   | 5 $\mu\text{g}/\text{m}^3$<br>(3.5 ppb)   |  |
| Nitrogen Dioxide                     | 400 $\mu\text{g}/\text{m}^3$<br>(210 ppb)   |   | 200 $\mu\text{g}/\text{m}^3$<br>(105 ppb) | 100 $\mu\text{g}/\text{m}^3$<br>(52 ppb) |
| Sulphur Dioxide*                     | 900 $\mu\text{g}/\text{m}^3$<br>(339 ppb)   |   | 300 $\mu\text{g}/\text{m}^3$<br>(113 ppb) | 60 $\mu\text{g}/\text{m}^3$<br>(23 ppb)  |
| Total Suspended Particulate          |   |   | 120 $\mu\text{g}/\text{m}^3$              | 70 $\mu\text{g}/\text{m}^3$              |

\* The objective for sulphur dioxide is 50% lower in Saint John, Charlotte, and Kings counties.

## Long Term Trend

There have been tremendous improvements in accomplishing our air quality objectives since they were first established in 1997. As seen in the graphic below, the provincial network recorded 230 cumulative hours of exceedences (across all stations) in 2016, down from 3,931 hours in 1997. This represents a 94% improvement on this metric since the creation of the *Clean Air Act*.





# Accomplishing Our Air Quality Objectives

The table below summarizes the exceedances of the provincial air quality objectives that occurred in 2016. Province-wide, there were 18 exceedance events in 2016. Most events were very short-lived. The longer duration events were all odour related, involving relatively low concentrations of odorous reduced sulphur compounds that were likely related to unusual local weather conditions (poor dispersion).

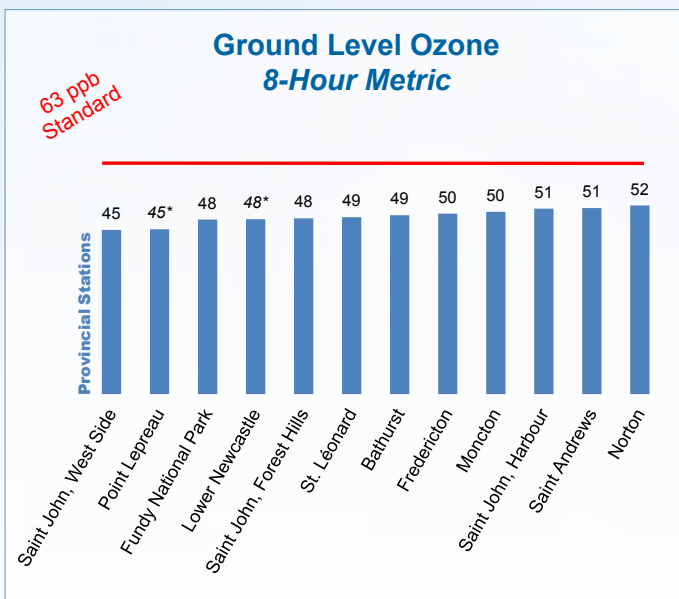
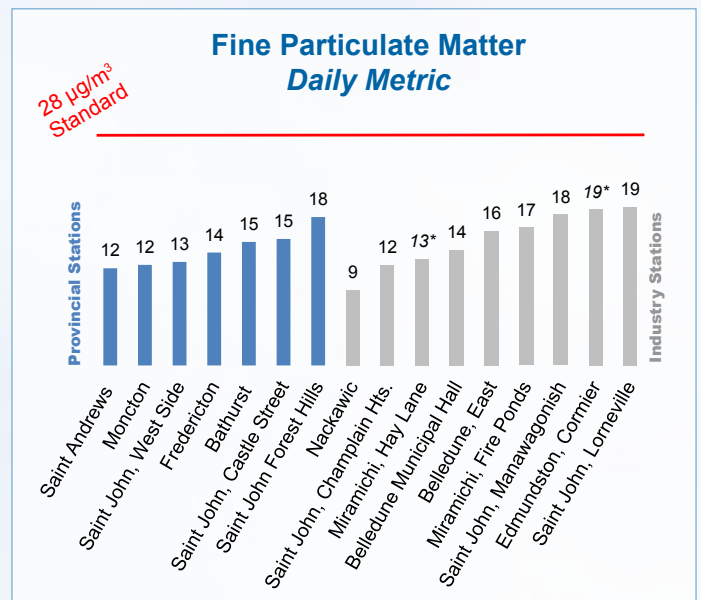
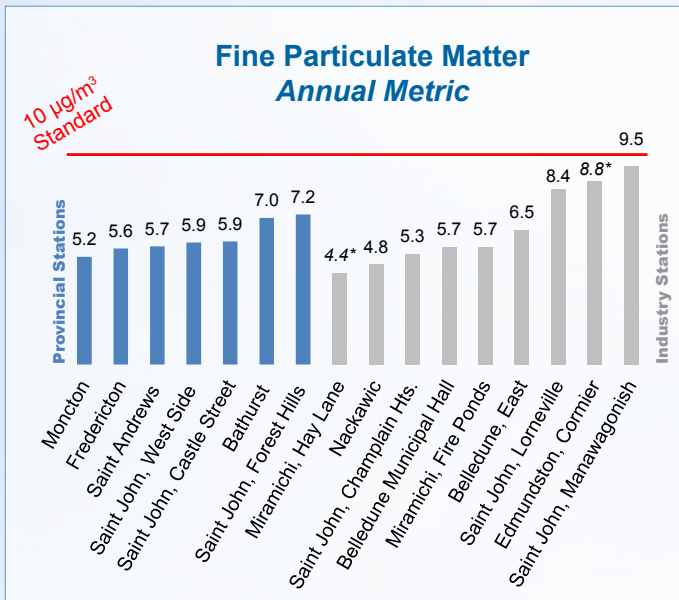
| Air Quality Objective Statistics for 2016    |                             |                  |   |
|--|-----------------------------|------------------|---|
| Parameter                                    | Number of Exceedance Events | Location         | Comments  |
| Carbon Monoxide                              | 0                           | -                | None  |
| Hydrogen Sulphide (as Total Reduced Sulphur) | 3                           | Saint John, East | The one hour objective was exceeded on three occasions at the Midwood Avenue station (Irving Oil Limited), each lasting one hour. No operational issues were recorded at the refinery during these episodes. Emissions from a nearby wastewater treatment plant and/or adjacent tidal flats may have contributed.   |
|  | 10                          | Saint John, West | The 24 hour objective was exceeded on eight occasions (174 cumulative hours) at the Sherbrooke station (Irving Pulp and Paper). Local industrial emitters recorded no operational issues during these episodes. These higher than normal concentrations were likely due to unfavourable weather conditions (poor dispersion).<br><br>The one hour objective was exceeded on two occasions (one hour duration for each). The first was recorded on April 13th at the Hillcrest station (DELG) and corresponds to one of the 24 hour exceedance events previously described for the Sherbrooke station (Irving Pulp and Paper). The second occurred on December 16th at the Milford station (Irving Pulp and Paper). This was associated with an unplanned release from the pulp and paper plant. |
| Nitrogen Dioxide                             | 0                           | -                | None  |
| Sulphur Dioxide                              | 1                           | Saint John, East | The one hour objective was exceeded once (one hour duration) at the Grandview West station (Irving Oil Ltd.) on November 24th. This was associated with a short interruption of the operation of the sulphur plant at the refinery.   |
|  | 2                           | Belledune        | The one hour objective was exceeded twice (one hour duration each) at the Boulay station (Glencore). The first event occurred on March 5th, and the second on June 17th. In response to each, the smelter was fully or partially shut down in accordance with its Air Quality Action Plan.  |
| Total Suspended Particulate                  | 2                           | Belledune        | The 24 hour objective was exceeded on two occasions. The first event was recorded at the at the Boulay station (Glencore) on March 7th. The second was recorded at the Townsite station (Glencore) on May 30th. In both cases, further analyses of dust from the filters suggests that the smelter was not likely to have been the source. The cause is undetermined.   |

# Canadian Ambient Air Quality Standards

In 2012, the Canadian Council of Ministers of Environment (CCME) approved Canadian Ambient Air Quality Standards (CAAQS) for particulate matter and ground level ozone. The approved standards include two target deadlines. The first was 2015, followed by a more stringent objective in 2020.

There are two CAAQS for fine particulate matter. The first is an “annual metric”, which is based on annual average values. The second is a “daily metric”, and uses the daily average from the 98<sup>th</sup> percentile day (one of the poorest air quality days of the year). Similarly, the ozone CAAQS uses an “8-hour metric” that is based on the fourth worst day of the year. In all cases, an annual value is calculated and is then averaged over a three year period.

As illustrated below, New Brunswick has achieved its 2015 CAAQS targets at all reporting sites. This is based on data collected in 2014, 2015, and 2016.



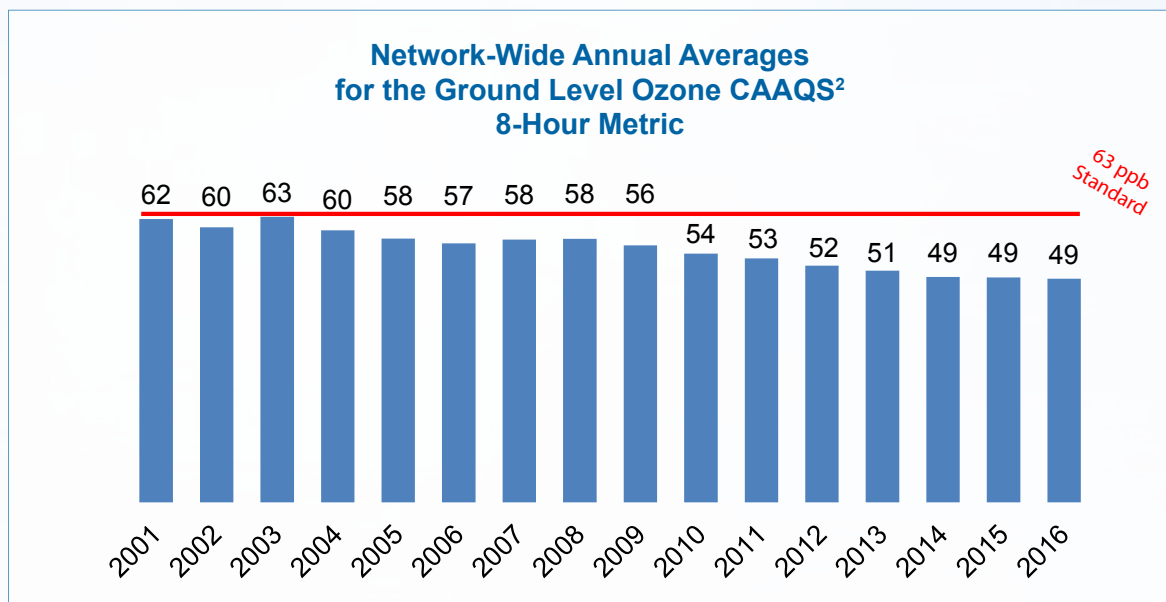
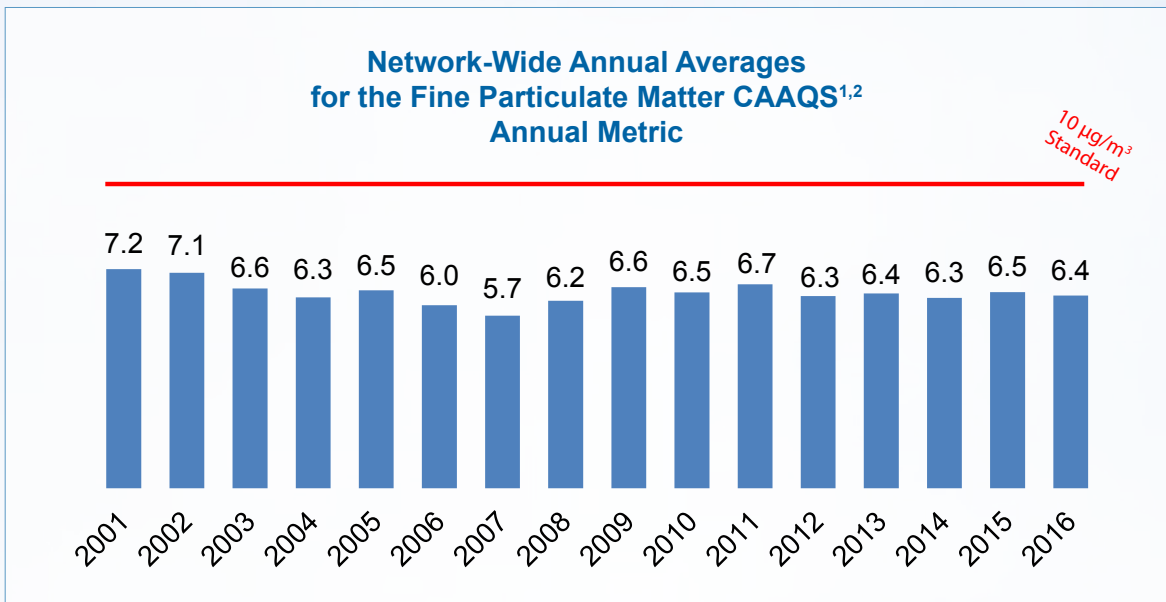
\*Marked values are based on only one year of valid data (a minimum of 2 years is required per CCME guidelines)

**2015 Targets Achieved at All Stations!**

# Particulate Matter and Ozone Trends

The illustrations on page 9 provide a detailed, station-by-station view of CAAQS achievement status for a single year (2016) but this tells us little about our long-term progress toward reducing the levels of these contaminants in our air. The graphs below are included to provide this historical context.

These graphs are based on the CAAQS calculations previously described, with the added step of averaging all of the CAAQS values from all sampling stations in New Brunswick for each year. In so doing, they reveal the 15-year network-wide trends for these contaminants.



<sup>1</sup> Due to changing technologies, more recent values may not be directly comparable to those measured with older instruments.

<sup>2</sup> The number and location of sampling stations has varied throughout the period represented.

# Air Zone Management

In addition to the Canadian Ambient Air Quality Standards that were approved in 2012, the CCME has also created an accompanying Air Zone Management Framework (AZMF) to help guide air quality management actions within each province.

Under the AZMF, each province will establish “Air Zones”, which are geographic areas that have similar air quality profiles and challenges. New Brunswick’s air zones were established in 2013 and are illustrated right. New Brunswick’s air zone boundaries match pre-existing boundary lines used by DELG’s regional offices.

Each year, CAAQS values for each Air Zone are graded against a colour-coded system of “Management Levels”. The Management Levels and their thresholds are described in the table below.

New Brunswick’s 2016 Management Levels for each provincial station are illustrated on page 12.

**New Brunswick’s Provincial Air Zones**



| Air Zone Management Levels                        |                                    |                                     |                    |
|---|------------------------------------|-------------------------------------|--------------------|
| Management Level and Associated Goal              | Threshold Values                   |                                     |                    |
|   | Fine Particulate Matter            |                                     | Ground Level Ozone |
|   | Daily ( $\mu\text{g}/\text{m}^3$ ) | Annual ( $\mu\text{g}/\text{m}^3$ ) | 8-Hour (ppb)       |
| Red<br>Goal: Achieve CAAQS                        | >28                                | >10                                 | >63                |
| Orange<br>Goal: Prevent CAAQS non-achievement     | >19 to 28                          | >6.4 to 10                          | >56 to 63          |
| Yellow<br>Goal: Prevent air quality deterioration | >10 to 19                          | >4 to 6.4                           | >50 to 56          |
| Green<br>Goal: Keep clean areas clean             | 0 to 10                            | 0 to 4                              | 0 to 50            |

Additional information about the CAAQS and AZMF are available via the CCME web site:

[www.ccme.ca](http://www.ccme.ca)

# 2016 Air Zone Management Levels

## Guide to Interpretation

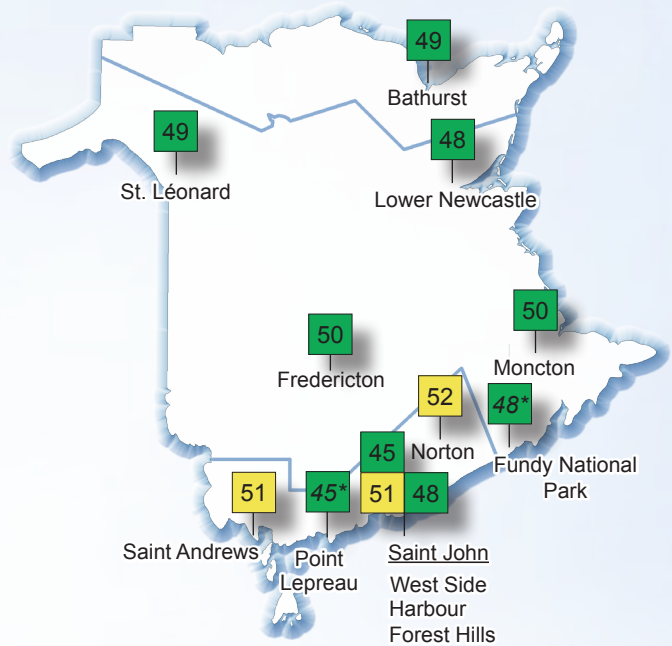
Each signpost in the three illustrations identifies the location of a monitoring station that collects data for the CAAQS metric identified.

The colour of each signpost indicates the Air Zone Management Level associated with that location.

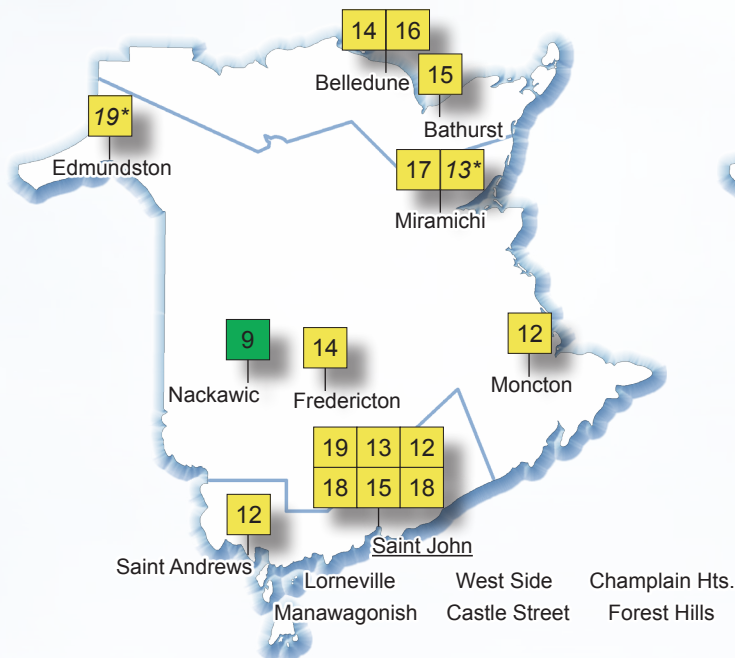
The number on each signpost represents the calculated 2016 Management Level value for that parameter at that location. The three-year averages used for each metric include data from 2014, 2015 and 2016. Management Levels are based on the CAAQS metric values, but may be adjusted to remove the influence of exceptional events (e.g., forest fires). No adjustments were necessary for any of the years in question.

Each air zone is considered to have an overall management level that corresponds to the colour assigned to its poorest air quality station.

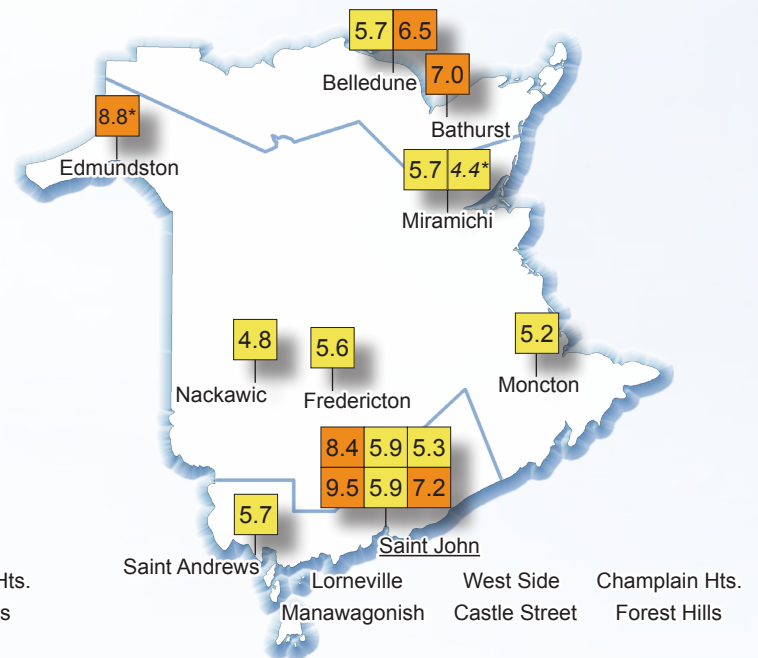
**Ground Level Ozone- 8 Hour Metric (ppb)**



**Fine Particulate Matter - Daily Metric ( $\mu\text{g}/\text{m}^3$ )**



**Fine Particulate Matter - Annual Metric ( $\mu\text{g}/\text{m}^3$ )**



\*Marked values are based on only one year of valid data (a minimum of 2 years is required per CCME guidelines)

# Volatile Organic Compounds in the Saint John Region

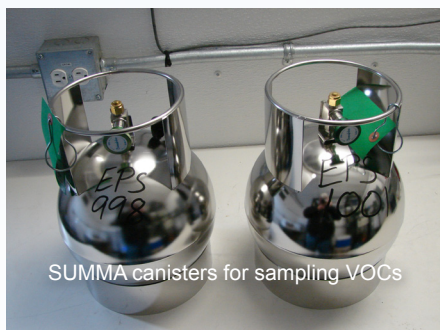
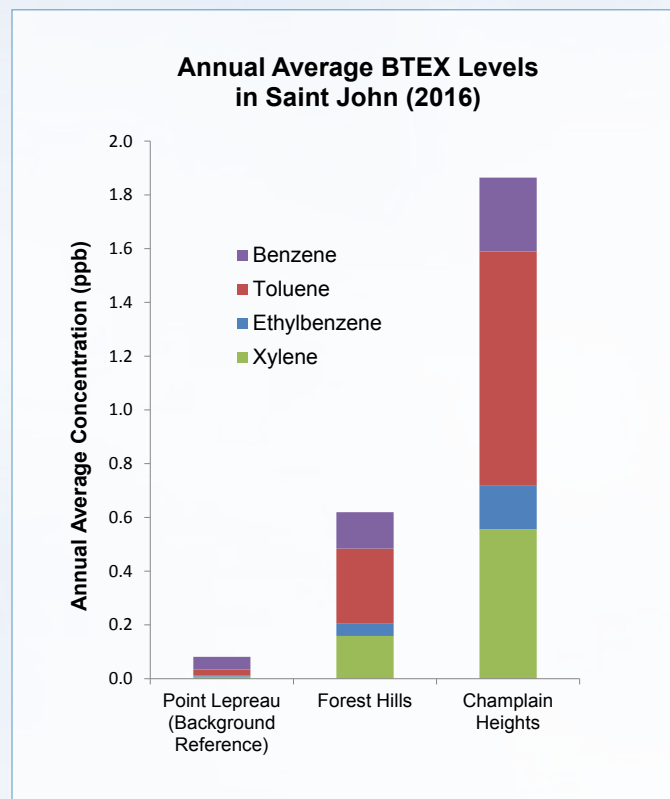
The City of Saint John is home to a variety of industries, including a large oil refinery and supporting facilities. The types of industrial activities at these facilities (fuel burning, petrochemical storage, refining, etc.) can result in the emission of a variety of Volatile Organic Compounds (VOCs). Consequently, VOCs are monitored by DELG in the Saint John region, and have been on an ongoing basis since 1992.

Within the city, VOC data is being collected in Forest Hills and Champlain Heights. Background data is also being collected west of the city at Point Lepreau. All samples are analyzed for more than 150 VOC compounds.

For many of the VOC compounds monitored, the primary interest is their impact on the formation of ground level ozone. However, some carry other environmental and human health risks.

In consideration of the petrochemical industry in Saint John it is worthwhile to consider a group of four VOCs that are commonly associated with this sector: benzene, toluene, ethylbenzene, and xylene. This group, which is collectively abbreviated as “BTEX”, can serve as an indicator of petrochemical industrial activity (refining, petroleum product storage, and burning) in an area.

A comparison of BTEX levels between monitoring locations in the Saint John region is provided in the graph to the right. As indicated, levels are highest at the location nearest to the refinery (Champlain Heights).



SUMMA canisters for sampling VOCs

## VOC Sampling Technology

Unlike most other parameters in the provincial network, VOCs are not monitored continuously. Rather, air samples are collected in stainless steel canisters, which are shipped to an Environment and Climate Change Canada laboratory for analysis. Results are returned at a later date. For this reason, VOC data is not available in real-time.

## Key Pollutant: Benzene

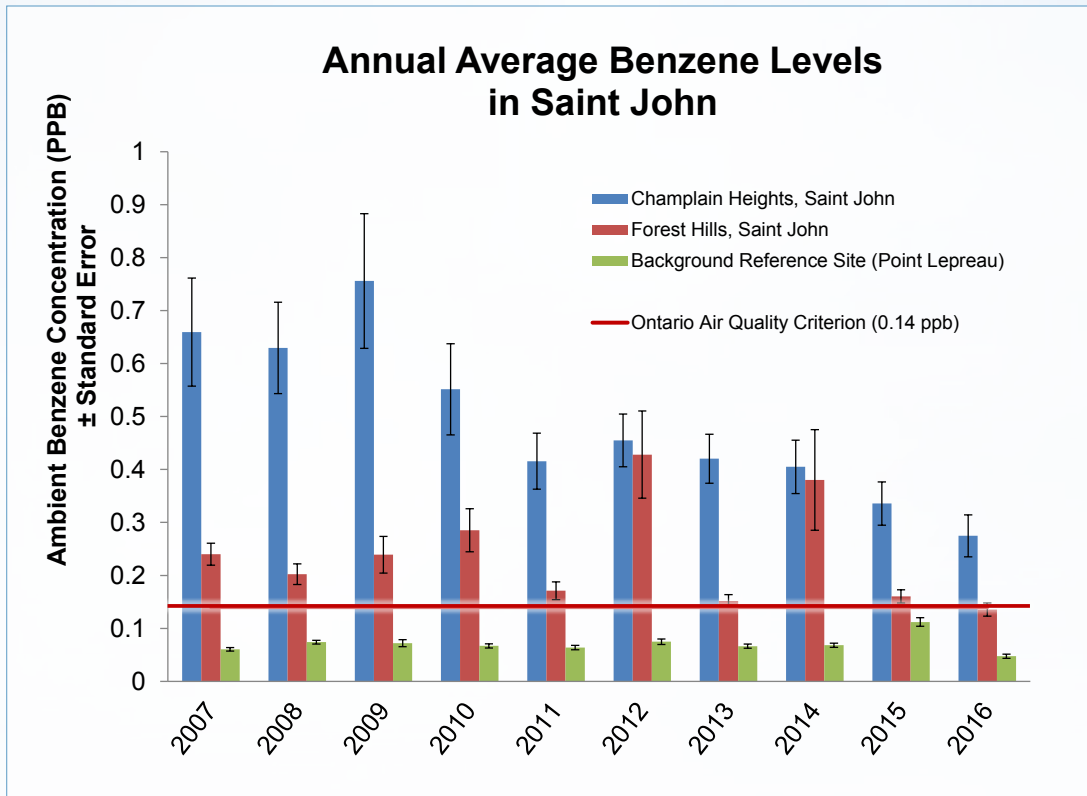
One particular BTEX VOC, benzene, receives special attention as it is recognized as cancer-causing by the World Health Organization and the United States Environmental Protection Agency. As such, it has been the target of emissions reduction efforts all over the world.

Major sources of benzene include evaporation from petroleum fuels and solvents, and combustion of petroleum products (especially gasoline), as well as other types of combustion. There are also natural sources (e.g., volcanoes and forest fires).

New Brunswick has not developed a provincial standard for benzene, but instead measures its progress against Ontario's provincial criterion for benzene, which is the most stringent currently available.

The ten-year trends for benzene values in Saint John are illustrated in the graph below. As indicated, the target value for benzene has not been reached. However, progress continues to be made.

Also notable in the graph below are the substantial year to year differences in levels measured at the Forest Hills location. A detailed review of the data indicates that this is due to seasonal trends in wind direction. For instance, the higher than normal values illustrated for 2014 were due to peaks recorded in the month of July. Winds during this period were unusual, as they blew almost continuously from the direction of the refinery and industrial park toward the monitoring station for the entire month.



Note: the black error bars on the graph represent the "Standard Error" of the average. This is a statistical tool meant to illustrate the variability of the data that contributed to each average value. Wider error bars indicate a larger amount of variability.

# Acid Rain Monitoring

Some air pollutants can be transformed in the atmosphere into acidic particles that ultimately fall out as acid rain (or snow, hail, etc). The emissions that cause acid rain typically travel long distances, hundreds or even thousands of kilometers, before returning to the surface as rain or snow.

The adverse impacts of acid rain have been recognized since the early 1980s. Acid rain harms sensitive ecosystems by changing the chemistry of lakes, streams, and forest soils. It can also damage trees and agriculturally important plants. Infrastructure is also impacted by acid rain, as it can degrade paints and protective coatings, which accelerates corrosion.

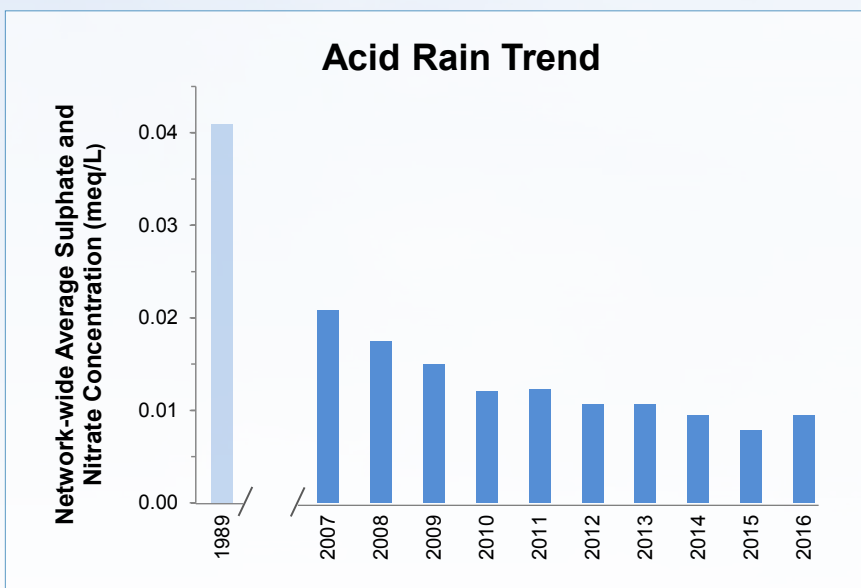
Measures to reduce the emissions that contribute to acid rain have been undertaken in North America since the late 1980s. Most recently, this has included commitments to reduce emissions under the Canadian Council of Ministers of Environment’s “Post-2000 Canada-wide Acid Rain Strategy”. Over the past two decades emissions from major sources within New Brunswick have been reduced significantly.

DELG has operated an acid precipitation (rain and snow) monitoring network in cooperation with NB Power since the early 1980s. The above map shows the location of the 5 acid precipitation monitoring sites in New Brunswick. Samples are collected at each of these sites by a local site operator every day and sent to the provincial laboratory for analysis. DELG staff coordinate the monitoring program, perform data quality assurance, and maintain the official data archive.

2016 Acid Precipitation Network Map



Acid Rain Trend



The key indicators for acid rain are sulphate and nitrate concentration. Each of these parameters has a slightly different effect on acidity, but can be combined and expressed as “milliequivalents per litre” (meq/L). As reflected in the chart to the left, peak levels occurred in 1989. Emission reduction strategies have reduced sulphate and nitrate concentrations by approximately 77% since then.

Although levels have declined, acid rain monitoring remains important to ensure that our most sensitive lakes and rivers are provided with long-term protection from acid damage.



# Special Air Quality Studies

In addition to its fixed network of permanent air quality monitoring stations, since 2001 DELG has operated a mobile air quality monitoring unit that can be moved from place to place to carry out special monitoring projects.

The mobile air quality monitoring unit is deployed as needs arise. Typical uses include:

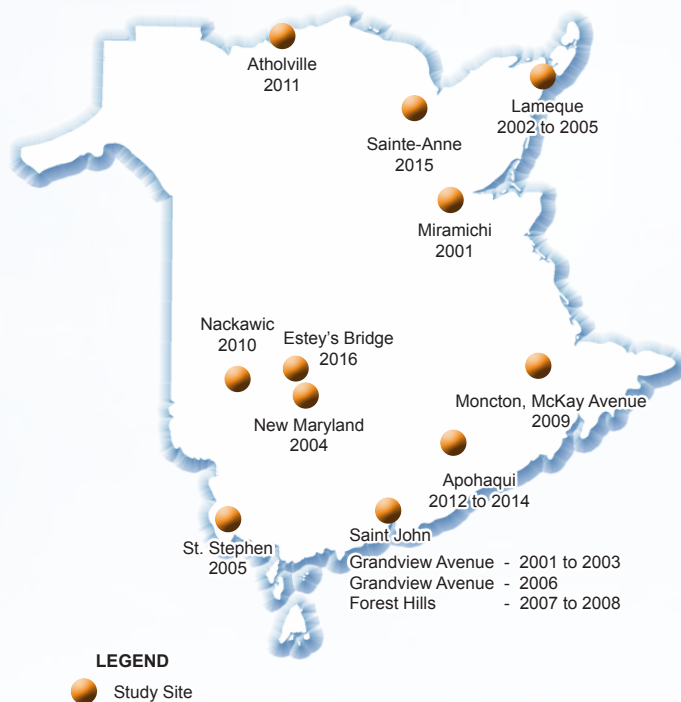
- Assessing air quality near pollution sources.
- Evaluating potential sites for permanent monitoring stations.
- Verifying air quality modelling predictions.
- Measuring background (baseline) air quality levels prior to a development.

Results from special studies are reported in the annual air quality monitoring results for the year in question, or in separate stand-alone reports.

During 2016 the unit was used to evaluate air quality in the Royal Road area of the Local Service District of Estey's Bridge, near Fredericton. Results for this study have been published in a separate report.



## Special Air Quality Study Sites (2001 - 2016)



## Common Study Parameters

The DELG mobile air quality monitoring unit (pictured above) is typically equipped with monitors for:

- Sulphur dioxide
- Nitrogen oxides
- Ground level ozone
- Carbon monoxide
- Fine particulate matter
- Total reduced sulphur
- Meteorology (wind speed, wind direction, temperature, and barometric pressure)

The unit can also be equipped with a variety of other sensors and sampling equipment when needed (e.g., total suspended particulate, volatile organic compounds, and metals).

# Local Air Quality Information

## When You Need It

Although daily fluctuations in ambient pollution levels may pass unnoticed by many, for people with reduced lung function from respiratory disease and similar sensitivities, such changes can have significant impacts on their daily lives. Recognizing this, the following tools have been developed to provide timely information to the public about current and forecasted pollution levels in different areas of the province.

### Air Quality Data Portal

New Brunswick operates an online Air Quality Data Portal to provide near real-time access to monitoring results at each of the provincially operated monitoring stations (see map on page 5). This service is available via the DELG website:

[www.gnb.ca/environment](http://www.gnb.ca/environment)

### Public Alerts & Advisories

Air quality data and pollution forecasts are continually monitored by DELG, the Department of Health, and Environment and Climate Change Canada. Whenever air quality objectives are exceeded or are forecasted to be exceeded, advisories are issued to the media (via the Department of Health) to provide timely notice to the public. These notices include health-related messaging to advise at-risk groups about the level of risk and appropriate precautions that they should take. **There were no alerts or advisories related to air quality in 2016**

### Air Quality Health Index

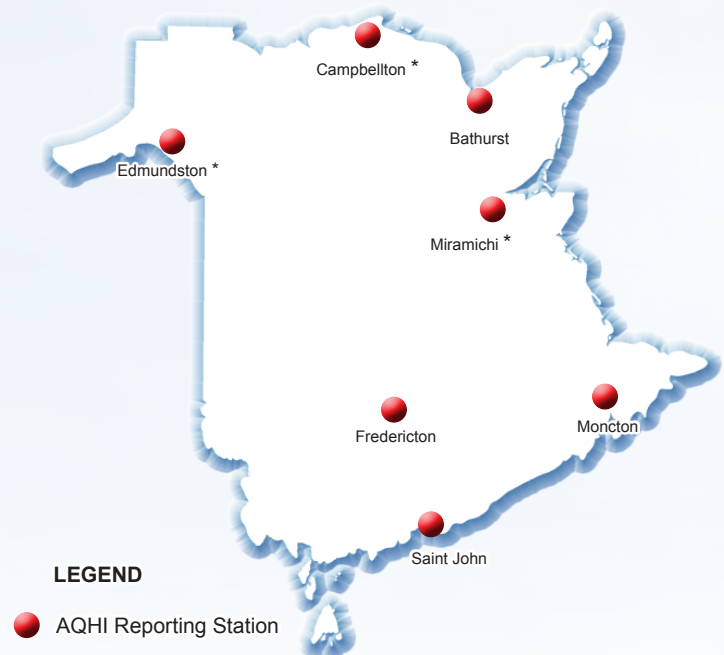
The Air Quality Health Index (AQHI) is a numbered scale that was designed by Health Canada to help communicate air quality information. It converts air quality data for key air pollutants into a single, easy to understand, number.

Health Canada also provides health-related messaging to accompany the AQHI values to aid the public in understanding what the numbers mean in terms of health risks, and how best to respond to those risks to avoid health problems.

AQHI values and forecasts are reported through a variety of media outlets via television and the Internet. Current AQHI values and related information are available via the following national website:

[www.weather.gc.ca](http://www.weather.gc.ca)

### 2016 AQHI Coverage



\* Index values for these locations are modeled

## Conclusion

As reflected in this report, air quality in New Brunswick is very good, and the province continues to benefit from air pollution reduction initiatives that have been implemented over the past decade such as the Canada - US Air Quality Agreement and the Canada-Wide Acid Rain Strategy for Post 2000.

The New Brunswick Department of Environment and Local Government remains committed to air quality surveillance throughout the province, and comprehensively reporting air quality information to New Brunswickers.

## Learn More About Air Quality

In addition to this overview, complete site-specific monitoring results are available in the “Air Quality Monitoring Results - Supplementary Data 2016” companion document, which is available electronically via the DELG website:

[www.gnb.ca/environment](http://www.gnb.ca/environment)

Data from the provincially operated monitoring network is also available through Environment and Climate Change Canada’s National Air Pollution Surveillance Program database, which is available online at:

[www.ec.gc.ca/mspa-naps](http://www.ec.gc.ca/mspa-naps)

## Feedback...

We are interested in your feedback on this report. All suggestions will be considered, and if possible, incorporated in future reports. Please forward any comments to:

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