



Natural Environment



Air quality

8.0



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GOAL:

To lead communities in Northwestern Ontario and the Lake Superior basin in improving outdoor and indoor air quality by reducing air pollutant and noise emissions.

WHY IT MATTERS:

Local citizens enjoy the natural environment and expect the outdoors to be free of air contaminants and unwanted sounds (noise). Provincially, key air contaminants such as ozone (O₃), fine particulate matter (PM_{2.5}), nitrogen dioxide (NO₂), carbon monoxide (CO), sulphur dioxide (SO₂), and total reduced sulphur compounds (TRS) are generated by many sources.

Outdoor air contaminant and noise sources include:

- industrial stationary sources such as factories, power generating facilities and smelters
- mobile sources such as cars, buses, trucks, trains, marine vessels and aircraft
- residential sources such as household heating systems, chemical use, burning wood and garbage
- natural sources such as forest fires, wind/windblown dust and biogenic emissions from vegetation

Air pollution is not restricted by lines on a map and can travel from province to province and country to country, potentially impacting areas far from the source. From the time of emission to the time of removal, the atmospheric behaviour of air contaminants is complex and their movement is continuous. At a given location, pollutant concentrations are affected by source locations and strengths, sunlight, moisture, clouds, precipitation, geography and weather conditions. Similarly, the acoustic environment is determined by noise source locations and strengths, the terrain between sources and receptors, and weather conditions.



With much of the year spent indoors, indoor air quality has a significant potential impact on comfort and health. In workplaces, schools and homes, indoor sources of air contaminants include:

- equipment such as furnaces, air conditioners, vacuum cleaners, appliances
- combustion sources such as fuel-fired furnaces, water heaters, space heaters, generators, woodstoves
- building materials such as paints, adhesives, caulking, insulation
- household items such as personal care products, cleaning products, “air fresheners”, candles
- pets, insects, other pests (e.g. birds, bats, rodents), water damage, mould
- occupant activities including cooking, cleaning, hobbies (e.g. woodworking, stained glass, pottery) and smoking
- outdoor air (e.g. vehicle exhaust, forest fires)
- radon

Fresh outdoor air is key to optimizing indoor air quality!

New technology and regulatory requirements have made measureable air quality improvements in Ontario. Ongoing diligence is required to ensure that environmental impacts are considered during personal, business and municipal decision making.

Compared to other Canadian cities of similar size, Thunder Bay's overall air quality is among the cleanest. This is primarily because of a smaller number of industrial sources and the absence of major transportation routes, as compared to cities in more urbanized areas. The Ministry of Environment Report on Air Quality for 2011 identified Thunder Bay's air quality index (AQI) results as among the best of the 40 provincial stations. The poorest 2011 Thunder Bay AQI occurred when forest fire smoke impacted the city in July.

As the largest community in Northwestern Ontario, the City of Thunder Bay must be a leader in protecting air quality. Thunder Bay is the most significant contributor to air emissions in the region and has the largest population subject to potential air quality impacts. Thunder Bay citizens face constantly changing issues: the evolving nature of local industry has impacted air and noise emissions; there are fewer resource-based industries; there is a move to biomass fuel or alternate power generation; and, climate change could be impacting the nature of air contaminant sources.

Currently there are robust provincial and federal regulatory frameworks that address air quality, noise and consumer products. Thunder Bay must support its citizens, visitors, and current or potential business leaders in promoting air quality by providing education, information, tools, and options, so environmentally responsible consumer choices and business decisions can be made.

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OBJECTIVES and RECOMMENDED ACTIONS

A. By 2016 the City of Thunder Bay has developed and implemented anti-idling programs, reducing emissions from idling vehicles.

B. By 2020, emissions from household wood combustion and garbage burning are reduced.

ACTIONS FOR CORPORATION

- By 2016, City of Thunder Bay fleet vehicles participate in an anti-idling program
- By 2016 City staff claiming mileage for personal vehicle use participate in an anti-idling program

ACTIONS FOR COMMUNITY

- Create a model anti-idling charter that would be signed and adopted by businesses and individuals

ACTIONS FOR CORPORATION

- By 2020, use By-law, building permit, and/or other municipal regulatory tools to require that woodstoves and other wood heating appliances installed in residential buildings in Thunder Bay are US Environmental Protection Association (EPA) certified
- Starting immediately, work with retailers to educate consumers about air emissions from woodstoves and other wood burning appliances
- By 2020, use By-law, fire permit, and/or other municipal regulatory tools to prohibit burning of household garbage

ACTIONS FOR COMMUNITY

- By 2020, install in Thunder Bay residences, new wood burning appliances that are US Environmental Protection Association certified
- Continue and/or initiate public education and outreach programs on household combustion including Bernie the Burn Barrel
- Starting immediately, work with retailers to educate consumers about air emissions from woodstoves and other wood burning appliances



The City of Thunder Bay has developed and implemented anti-idling programs, reducing emissions from idling vehicles.

Photo by Ashley Priem



C. By 2016, fragrance free policies in public buildings and commercial establishments are adopted.

ACTIONS FOR CORPORATION

- a. By 2016 adopt fragrance-free policies for City of Thunder Bay facilities

ACTIONS FOR COMMUNITY

- a. Create a model fragrance free charter that could be used by businesses and organizations, including participant stickers (actual/virtual)
- b. Continue and/or initiate public education and outreach programs

D. By 2020, traffic noise control measures are in place.

ACTIONS FOR CORPORATION

- a. Review and assess the noise pollution By-law as it relates to community noise concerns
- b. By 2020, use By-law and/or other municipal regulatory tools to limit vehicle noise

ACTIONS FOR COMMUNITY

- a. Initiate public consultation, education, and outreach programs
- b. Solicit community input about noise concerns

E. By 2020, Thunder Bay citizens have the air quality and noise resources they need to make environmentally responsible decisions.

ACTIONS FOR CORPORATION

- a. Champion the educational initiative by providing and maintaining website
- b. Support air quality research and baseline data collection

ACTIONS FOR COMMUNITY

- a. Educate and inform citizens about air quality and noise by means of educational initiatives and community resources including a website highlighting ideal resources and links. Topics should include indoor air quality issues such as radon, fragrance products, personal care products, mould, dust, building materials, combustion sources and toxics reduction, and outdoor air quality issues such as wood burning and garbage burning.
- b. Collect and provide baseline air and noise quality information for air and noise quality database
- c. Carry out radon monitoring study within the city
- d. Promote, within the existing building permit process, the requirement for radon mitigation "rough-ins" to be included in new housing construction
- e. Engage the community with a consultation on current air and noise quality issues that would inform the By-law review and potential amendment
- f. Become an active research partner

HIGHLIGHT:

The City of Thunder Bay currently operates over 600 licensed and off road motorized units that potentially contribute to poor air quality and adverse effect on human health and climate. The Green Fleet Implementation Plan was adopted in 2009 to reduce greenhouse gas emissions (and save money). Some of its initiatives focus on phasing in biodiesel, anti-idling, and choosing right size of vehicles per fleet unit.

WHAT YOU CAN DO:

- Avoid the use of chemical cleaning products, bug sprays, or other volatile chemicals. Use environmentally friendly cleaning products such as soap and water, vinegar, baking soda, and good old-fashioned elbow grease instead
- Limit use of gas-powered yard maintenance equipment
- Use VOC-free solvents and paints
- Trade in your inefficient woodstove for a low-emission model
- Keep off-road vehicles well maintained
- Develop fuel-efficient boating habits
- Dust with damp cloth, especially around electronics.

