

AIR: STRATEGIC DIRECTIONS

**City of Toronto's Environmental Plan
"Clean, Green and Healthy"**



City of Toronto

FEBRUARY 2000

Background

"Air: Strategic Directions" and the attached "Air: Background Report for the City of Toronto's Environmental Plan" are part of a series of background and strategic documents on Water, Land and Air. These reports were prepared by the Environmental Impact Assessment & Policy Development Unit of Works & Emergency Services in collaboration with Environmental Task Force members and staff, Toronto Public Health, Urban Planning & Development Services, the Healthy City Office and Corporate Services. The key strategic directions and recommendations provided to address air quality are derived from the review of the background information collected on the conditions of the air environment.

These reports were developed to provide background information and analysis for the Environmental Plan and reflect the results of a review of environmental initiatives current as of November/December 1999. The Environmental Plan was endorsed by the Environmental Task Force in February, 2000 and the reports have been revised to consider comments received during this process. These reports also serve to provide part of the foundation for an integrated environmental policy framework that is currently being developed by the Environment Impact Assessment & Policy Development Unit.

Comments

Introduction

Air quality (smog, acid rain and air toxics) and atmospheric change (climate change and stratospheric ozone depletion) are two environmental and health issues that have substantially increased in urgency and importance.

According to a 1998 study conducted by Environics International entitled "Public Opinion and the Environment: A Summary of Major Trends in the Toronto Region", nine out of every ten citizens in Toronto say that they are concerned about environmental problems. This study also determined that air quality is the number one environmental concern for the people of Toronto. These individuals also viewed respiratory problems as their greatest health concern, rating higher than cancer.

Effective public and private sector initiatives are needed to address air quality, as atmospheric emissions per capita are continuing to increase. Environmental and community groups also play a key leadership role in ensuring that our decision-makers and community are well informed and that the conditions of our air environment improve.

Smog

Each summer, the Greater Toronto Area experiences "smog episodes" where air quality falls below acceptable provincial standards. Over the past decade the situation has worsened and during the summer of 1999, five separate Air Quality Advisories were called by the Ministry of Environment, lasting nine days. In response to provincial advisories, the City's Medical Officer of Health issues a Smog Alert. Part of the challenge in developing effective strategies to improve Toronto's air quality lies in the fact that poor air quality does not respect political or geographical boundaries.

Federal/provincial initiatives include the Phase Three Federal Smog Management Plan, prepared by Environment Canada, Natural Resources Canada and Transport Canada, and the Ontario Ministry of Environment's Smog Plan. At the City of Toronto, actions and strategies include the Toronto Atmospheric Fund, Corporate Smog Alert Response Plan, the Smog Reduction Workgroup, the Corporate Green Fleets Strategy, the City Employee Trip Reduction

Program, the Employee Commute Survey, and an air emissions baselining project. City Council also supported Environment Canada's initiative that establishes new standards and regulations that reduce sulphur in gasoline. Sulphur content has become an important decision-making criterion for City Council for the purchase of fuels for the Corporate fleet.

Acid Rain

Acid rain is caused by emissions of sulphur dioxide (SO₂) and nitrogen oxides (NO_x), and is mainly a result of human activities. In Ontario, even though SO₂ emissions have dropped substantially in the past decade, acid rain continues to be a major concern. A large area of Ontario, including Toronto, receives acidic depositions exceeding the critical load. The environment and effects on human health respond to this total pollutant loading. Key initiatives underway at this time include the Acidifying Emissions Task Group, the Canada-Wide Acid Rain Strategy for Post-2000, and the Canada – U.S. Air Quality Agreement.

Air Toxics

Air-borne toxic contaminants are also present in the atmosphere, and include inorganic (lead, copper, iron, mercury, arsenic and manganese) and organic chemicals such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzodioxins (dioxins), polychlorinated dibenzofuran (furans) and volatile organic compounds (VOCs). Many of these hazardous pollutants are persistent in the air and are a hazard to human and ecosystem health. Upward of 160 different toxic chemical compounds have been detected in Toronto's air, including 24 inorganic and 136 organic compounds.

There is increasing recognition that indoor air quality can have a significant impact on human health. This is particularly true in northern climates where people spend most of their time indoors. Chemicals released from construction materials, furnishings, and human activities in indoor environments and biological agents found indoors such as bacteria, mould, and dust mites have been linked to health effects. Toronto Public Health received more than 500 indoor air quality complaints in 1998.

Key federal/provincial initiatives underway include the Canada-Ontario Agreement respecting the Great Lakes Basin Ecosystem (COA), the National Pollutant Release Inventory (NPRI), and the Canada-Wide Standard (CWS) process. The City of Toronto continues to be involved in the consultation process and new standards development for particulate matter and ground level ozone, advocating for protective Canada-wide standards. CCME and are expected to be endorsed in May 2000. In Canada, there are currently no legal standards regulating the levels of indoor air pollutants for non-industrial workplaces or in residential and institutional buildings. However the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) has developed guidelines for ventilation requirements for residential, office and institutional buildings.

Climate Change

The concentration of greenhouse gases in our atmosphere is rising at a clearly measurable rate. Current concentrations of carbon dioxide are 30% above pre-industrial levels and one-half of this growth has happened in the past 30 years. In Ontario, an estimated 166 million tonnes of carbon dioxide were emitted to the atmosphere in 1990, and in Toronto, 1988 CO₂ emissions were estimated at over 27 million tonnes.

Scientific evidence is gathering that increased emissions of greenhouse gases, mainly due to human activities such as the burning of fossil fuels, will lead to increase global average temperatures and produce climate change. In the past 50 years, most parts of Canada have experienced warmer

temperatures and increased precipitation. In Toronto, five of the warmest years on record occurred in the 1990s.

Results from Environment Canada's Global Circulation Model (GCM) simulations of climate suggest an average annual warming of 2° to 5°C for Ontario by 2100. These projections are based on an atmosphere that contains twice the current amount of greenhouse gases. Even if greenhouse gas amounts stabilize at that point, temperatures would continue to increase thereafter, with overall warming of 3° to 8°C possible. Toronto itself will be more affected by local climate controls such as the temperature moderating effect of Lake Ontario, but is predicted to have increased amounts of precipitation (both snow and rain) and more frequent and severe weather events, in addition to higher temperatures.

Federal/provincial initiatives underway to reduce CO₂ include the Framework Convention on Climate/Kyoto Protocol, Natural Resources Canada's Office of Energy Efficiency, and the Federal Climate Change Action Fund. The City has embarked on a number of strategies/actions including the Energy Efficiency Office/Better Buildings Partnership, Energy Efficiency and Conservation Plan, City-owned Building Retrofit, Deep Lake Water Cooling, Street and Lane Lighting Conversion, the Pilot Emission Reduction Trading (PERT) project and land-use/transportation initiatives. Other important local initiatives include the Toronto Atmospheric Fund and Toronto Hydro's Green Energy Program.

Stratospheric Ozone Depletion

Our planet's only natural sunscreen, the ozone layer located in the Earth's stratosphere, absorbs ultraviolet radiation and protects the Earth from most of the damaging rays from the sun. Stratospheric ozone depletion is largely the result of human activities such as the use of chlorofluorocarbons (CFCs), carbon tetrachloride, methyl chloroform, hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, and hydrobromofluorocarbons (HBFCs). Almost all substances released are still in the atmosphere and will continue to destroy ozone for many years.

Initiatives underway at the international/federal/provincial level include the Montreal Protocol on Substances that Deplete the Ozone and Canada's Ozone Layer Protection Program. City initiatives include an ozone-depleting by-law that prohibited and regulated the manufacture, sale, distribution, use and disposal of certain products, material, and equipment containing or manufactured with ozone-depleting substances, and an appliance/white good collection and recycling program. The Province used the City's by-law as a template for the provincial regulation on ozone-depleting substances.

Key Strategic Directions

The review of current air quality initiatives in the Background Report demonstrates the range and nature of individual, community, municipal, provincial and federal actions intended to improve our air environment and reduce environmental and human health impacts. The review also suggests that our efforts to date could benefit from a more integrated and coordinated strategic approach, grounded at the municipal level. In order to achieve this, contributions and expertise will be required from the policy, technical and operational units created in all of the new City departments through amalgamation, other government levels, the private sector, community and environmental groups, and the broader public.

A comprehensive air quality strategy that would minimize impacts on the environment and health should be based on an airshed approach. It should include a focus on cumulative emissions, impacts and pollution prevention. It should integrate and communicate all of the current separate and joint air quality initiatives into one framework, identify where the City is currently involved, and identify new areas where the City should be involved and how it can best apply its resources to maximum effect. Key aspects of this strategy would be focussed on:

- The identification and reduction of sources of local and long distance air emissions. This needs to be supported by effective air quality monitoring by the province, in conjunction with the City, and facilitated by the expansion of sources that report to the NPRI. It also requires a provincial review of existing air emissions Certificates of Approval, and the consideration of cumulative impacts and airshed carrying capacity when new emissions approvals are requested. It requires the support of transportation and land use policies that reduce our reliance on motor vehicles. This would include the identification of local sources and the reduction of emissions associated with the delivery of goods and services, including food production and delivery.
- an increased effort to shift away from coal-fired power plants to energy that is derived from renewable resources. In the interim, air emissions caps that are more protective of the environment and health are critical for coal-fired power plants that continue to operate. This must be achieved through a strong City influence in the electricity deregulation processes.
- increased provincial and federal funding for public transit and rail services. As with the identification and reduction of emissions sources, public transit and rail services need to be supported by a regional transportation plan and effective land use policies that reduce urban sprawl and reliance on individual vehicles. The Greater Toronto Services Board (GTSB) is currently focussing on GO Transit and transportation strategies and must ensure that air quality improvement is an important criterion in making future transportation decisions.
- the effects of air pollution and climate change on the environment and health. This requires that the City continue its research and documentation of health effects related to air quality, and continue its representation at provincial and federal air standards setting processes. It also requires effective City representation in provincial and federal regulatory processes and new regulations that are being developed. The City must continue to monitor and support the implementation progress of the federal sulphur in fuel regulations, which have significant implications for improving local air quality.
- continued and enhanced efforts to reduce greenhouse gas emissions in the City and influence and support other municipalities in their reduction efforts through the Federation of Canadian Municipalities, Association of Ontario Municipalities and GTSB. This will necessitate substantial increases in energy conservation and energy efficiency, and a substantially reduced reliance on fossil fuels. It also requires that the federal and provincial governments develop an effective mix of financial and taxation incentives that support a shift away from fossil fuel reliance. The Federal Minister of the Environment has recently shown leadership in speaking publicly to this issue and has identified its linkage to an enhanced regulatory approach, rather than continued reliance on voluntary greenhouse gas emission reductions. The City needs to recognize this opportunity to support and work with the federal government.
- improved cooperation between regional municipalities within the Greater Toronto Area and airshed, to facilitate air quality planning and produce consistent land use and transportation strategies that reduce local emissions and motor vehicle use. The City and the regions could enhance the role of the GTSB, or form joint organizations or potentially an air quality board, as has been done in some U.S. jurisdictions, to work together on air issues and increase the municipal influence on other levels of government. This added political strength could also increase the ability of the City to influence transboundary air pollution issues, and assist U.S. states that are engaged in efforts to reduce pollution in their areas that eventually affects our airshed.
- developing a strategy for improving the indoor air quality within City-owned buildings and facilities. The City should also advocate for necessary changes to the Ontario Building Code to ensure the highest quality of indoor air in new buildings as to protect human health.

A comprehensive approach to air quality should include public consultation, education, communication and awareness to build public support for effective measures to improve our air. Initially this requires the development and ongoing revision of a map or framework that illustrates the initiatives, programs, policies, processes and regulatory efforts that are included in the air quality strategy. This framework will serve as one of the tools to communicate the strategy visually, increase our understanding of the complexity of the air environment issues, illustrate what is being done and what is not being done. This will also identify the linkages between different ongoing efforts, identify the roles of different government levels and the private sector, help set priorities for City action, and facilitate monitoring and reporting to Council and the broader public.

Recommendations

1. Air Quality Framework and Strategy

That the City should continue to develop a comprehensive air quality framework and strategy that:

- i) is based on an airshed approach;
- ii) includes a focus on cumulative emissions, impacts and pollution prevention;
- iii) increases our understanding of the complexity of the air issues;
- iv) integrates contributions and expertise from the policy, technical and operational units within City Departments, other government levels, the private sector, community and environmental groups, and the broader public;
- v) catalogues the current initiatives designed to improve the conditions of the air, identifies the linkages between different ongoing efforts and ascertains the roles of different government levels and the private sector;
- vi) assists in setting priorities for City action, facilitates monitoring and reporting to Council and public communication; and
- vii) identifies new areas where the City should be involved and how it can best apply its resources to maximum effect.

2. Emissions Identification

That the City focus on the identification and reduction of local and long distance air emissions by:

- i) advocating for improvements in air emission inventories at the City, Provincial and Federal levels;
- ii) ensuring the Provincial ambient air monitoring program is expanded to include a low-level ozone prediction tool similar to and including the Ozone Mapping which was developed by Northeast States for Coordinated Air Use Management (NESCAUM);
- iii) developing its own monitoring and reporting system for ambient levels of air pollutants and toxics.
- iv) calling for a Provincial review of Certificates of Approval process to ensure compliance with requirements and up-to-date records for emissions inventory; and
- v) researching and evaluating cumulative exposures.

3. Emissions Caps

That the City influence air standards and regulations by advocating for emissions caps specific to industries and re-examining the Provincial standard setting process. The City should also research and explore, jointly with the Province, the potential of setting standards based on absolute not relative emissions.

4. Transboundary Emissions

That the City should advocate for action from the Provincial and Federal governments on sources of air emissions outside of Toronto's boundaries, and assist those governments and

governments outside Canada in achieving air quality initiatives which affect air quality in Toronto.

5. Environmental and Human Health Effects and Standard Setting

That the City should continue to research and document environmental and human health effects related to air quality, and continue its representation at provincial and federal air standards setting processes.

6. Lead by Example and Influence other Governments

That the City should continue efforts to reduce greenhouse gas emissions and influence and support other municipalities in their reduction efforts.

7. Regulatory Approach to Greenhouse Gas Emissions Reduction

That the City support and work with the Provincial and Federal governments to develop an enhanced regulatory approach to reducing greenhouse gas emissions, using a variety of mechanisms to support a shift away from fossil fuel reliance. Options would include economic instruments (e.g. taxation and financial incentives), more effective policies, a continued voluntary system and regulations.

8. Addressing Emission Sources on Smog Alert Days

That the City should develop a strategy to monitor and address emissions sources in the Toronto airshed on Smog Alert days, including the potential development of a by-law to restrict point (i.e. power plants) and line (i.e. motor vehicles) source emissions.

9. Funding for Regional Transportation

That the City should advocate, through the Greater Toronto Services Board, for adequate provincial/federal funding for integrated public transit and rail services for moving people and goods in the Greater Toronto Area.

10. Indoor Air Quality in City-owned Buildings and Facilities

That the City should recognize the importance of clean indoor air to human health and should develop a strategy for:

- improving the indoor air quality within City-owned buildings and facilities; and
- advocating for necessary changes to the Ontario Building Code to ensure the highest quality of indoor air in new buildings.

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