



CORPORATE SERVICES DIVISION

Environment Section

TO: Chair and Members of the Community and Corporate Services Committee
SUBJECT: Air Quality Initiatives Update

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Department Head General Manager City Manager

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Committee Disposition & Comments	

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Council Disposition & Comments	

01- Approved 02 - Not Approved 03 - As Amended 04 - Referred 05 - Deferred 06 - Received & Filed 07 - Withdrawn

1.0 RECOMMENDATION:

For information only.

2.0 PURPOSE:

The purpose of this report is to provide an update of the air quality initiatives being carried out by the city, including the Halton Public Sector Smog Response Plan, to reduce the emissions that contribute to smog.

3.0 BACKGROUND AND RELATIONSHIP TO STRATEGIC PLAN:

Smog is a form of poor air quality that negatively impacts one's health, the environment, and the economy. Until recently, it has generally been perceived that poor air quality only occurs in the summer months. However, the level of awareness associated with poor air quality is increasing and more people now know that it can and does occur throughout the year, including the winter months.

Serious smog episodes causing death were documented in the late 19th and early 20th century due to industrialization. Examples include the Meuse Valley in Belgium where 63 people died in 1930; Donora, Pennsylvania where 20 people out of a population of 14,000 died in 1948; and in London, England where 4,000 people died in 1952. In addition to the deaths, there were thousands who also experienced respiratory symptoms. Poor air quality continues to affect countries around the world contributing to approximately 5% of the 55 million deaths that occur each year, or almost 3 million people (Pollution Probe. June 2002. The Smog Primer. <http://www.pollutionprobe.org/Reports/smogprimer.pdf>).

In Canada, poor air quality is known to predominantly affect the Lower Frazer Valley in British Columbia, the southern Atlantic Region, and the Windsor-Quebec City corridor although other parts of Canada are not exempt. A large percentage of air pollution in southwestern Ontario is often blamed on the migration of emissions from power plants in the Ohio Valley. However, there is an increasing link between transportation, mainly the single occupant vehicle, and poor air quality. Although fuels are becoming cleaner and devices, such as catalytic converters, have been placed in vehicles significantly reducing tailpipe emissions, there are more vehicles on the road and increased congestion. Due to this transboundary issue, all levels of government are involved in programs to try to alleviate the situation.

Government officials at the federal level continue to be involved with international and national initiatives that address the health and environmental effects of air pollution. In 1979, the Convention on Long-range Transboundary Air Pollution was adopted and entered force in 1983. Today, it has 49 members including Canada and the United States, both of whom were original signatories. Through the years, several protocols were developed from this Convention addressing smog precursors such as nitrogen oxides and volatile organic compounds (precursors to ground level ozone) and sulphur dioxide. In addition, Canada entered into bilateral agreements with the United States including the 1991 Canada-US Air Quality Agreement and later the Ozone Annex.

Other federal initiatives include: Canada-wide standards for particulate matter and ozone; new emission standards for all gasoline and diesel internal combustion engines including on-road and off-road vehicles, lawnmowers, snowblowers, chainsaws, etc.; and new standards for sulphur levels in gasoline and diesel fuel.

Provincially, the Ontario Ministry of the Environment (MOE) is responsible for air quality issues. In 2002/03, the ministry spent approximately \$28 million for programs related to air quality. The majority or \$18 million was spent on the Drive Clean program for light-duty and heavy-duty vehicles. Other provincial programs or activities include: issuing certificates of approval for activities that might discharge pollutants into the environment; rating air quality on

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an index and notifying the public when poor air quality is expected; an emissions trading program for sulphur dioxide and nitrogen oxides to help meet Canada's commitment under international agreements; an air emissions reporting process for facilities on over 350 airborne substances requiring organizations to provide a report if any of the substances are exceeded; and the Smog Patrol which is an on-road vehicle emissions enforcement unit.

Halton Region's Strategic Plan 2004-2006 was approved by Regional Council on July 14, 2004. One of the goals under the "managed growth" theme of the strategic plan is "*to work to improve air quality in Halton in cooperation with other orders of government, business and the community.*" Actions for this goal are identified in the annual operational plans of the planning and public works committee. These include:

1. *Identify the appropriate number of air quality monitoring stations required within Halton to establish the baseline for assessment of improvements and work in partnership with industry and other levels of government to establish the stations.*
2. *Develop and advocate for policies that support air quality improvements.*
3. *Develop a policy framework that provides for the enhancement of air quality through land use and transportation planning.*

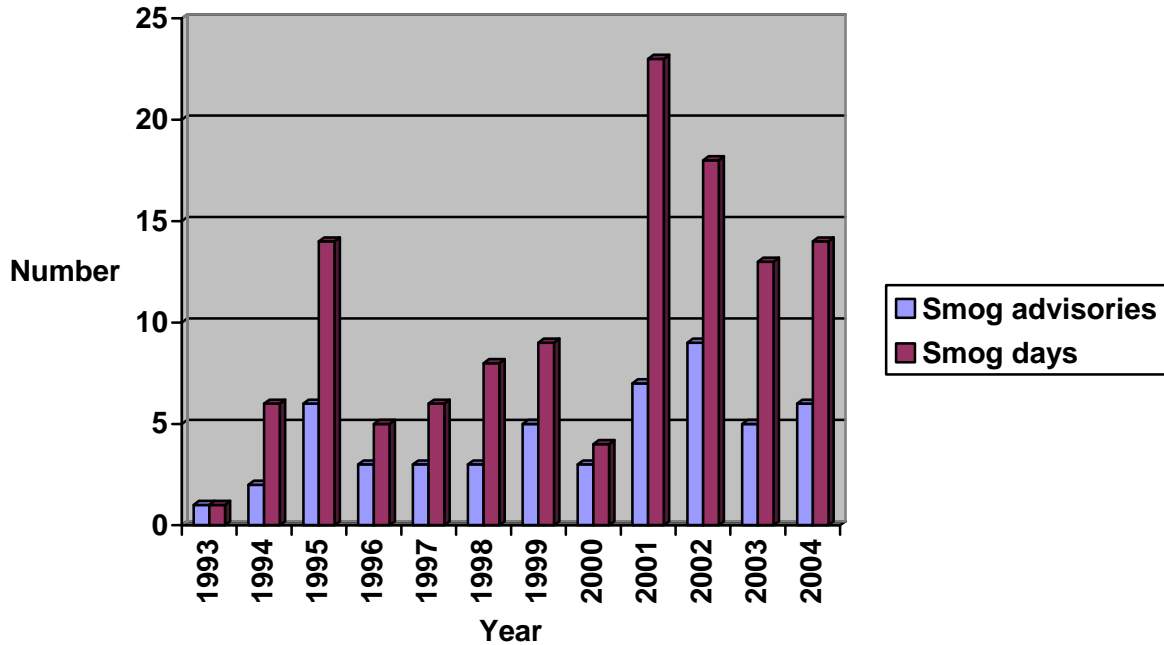
Burlington's city council and staff have recognized the need to curtail the emissions that contribute to smog and have taken several steps related to the issue. In 2000, the City of Burlington adopted the Halton Public Sector Smog Response Plan that is administered by Halton Partners for Clean Air. Membership includes the Region of Halton, its four area municipalities, four utilities, two school boards, and Conservation Halton. The city is also represented each year at the Smog Summit and is a signatory of the annual Intergovernmental Declaration for Clean Air.

As previously noted, the Ontario MOE monitors air quality. The ministry issues smog advisories when poor air quality is predicted within the next 24 hours. Advisories can last for one or more days. During such events the Halton Public Sector Smog Response Plan, which highlights activities that should be curtailed, comes into effect. Key city staff are registered with the ministry to receive direct email notification enabling them to act upon the information as soon as it is received. Smog advisories are also posted under "alerts" on the city's intranet site and on posters placed at all city hall entrances.

It should be noted that changes are being considered to Ontario's current air quality index, which rates outdoor air quality, to make it more of a health based index. The proposed National Air Quality Index for Canada will also include cumulative health impacts associated with multiple pollutant exposure.

Table 1 illustrates historical information related to smog advisories, which peaked in 2001 and 2002. Poor air quality is often formed when there are few clouds, the winds are calm and temperatures are approaching 30°C. The cooler summers of 2003 and 2004 may explain the decrease in smog days reported.

Table 1: Smog advisories & days in the Halton-Peel Region



The city’s participation in the Halton Public Sector Smog Response Plan and its initiatives to reduce emissions correspond with the long and short-term goals of the strategic plan, *Future Focus VI: Pillars for Success*.

Long Term Goal Statement – Liveable Community #2

The city will be a leader in making a high level of environmental performance one of its primary goals of its policies, programs and operations, and in the actions of its citizens, to provide the highest quality of life for all.

Short-term goals

1. *Burlington will maintain a corporate awareness of environmental improvement in all its daily operations.*
2. *The city will enhance the quality of air, land, water and the city’s natural heritage.*
3. *The city will increase citizen and business awareness and participation in improving the environment.*

4.0 DISCUSSION:

In 2003, the Halton Partners for Clean Air agreed to expand the public sector partnership to include the private and community sectors while also creating roles for the Ministries of the Environment and Natural Resources. In addition, two advisors from the human health and environment fields can be called upon as needed. The terms of reference were revised to accommodate these changes and were adopted by Burlington’s city council in early 2004. In

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October 2004, the first meeting was held with the new partnership. Chairpersons for the subcommittees are being sought and meetings will commence in 2005. The three subcommittees include the public sector, private sector and community sector.

Besides administering the smog response plan, city staff are also involved in other initiatives to help combat smog. Ongoing programs include purchasing biodiesel and the idling campaign. New programs include raising awareness regarding the connection between fossil fuel burning electricity generating stations and smog.

Energy Efficiency

In 2004, the city partnered with the Elora Centre for Environmental Excellence to administer the Halton Residential Energy Efficiency Project (REEP). The purpose of the REEP is to inform the homeowner, through a home energy audit, how to improve the efficiency and thus comfort level of their home. Residents then have up to 18 months to implement any changes they want and have a free re-evaluation. If the energy efficiency of their home has improved they are eligible for a federal grant of up to \$3348.

Home energy audits cost over \$300 but with a Natural Resources Canada subsidy, this cost is reduced to \$175. In 2004, council approved a \$25 subsidy for Burlington homeowners who were interested in having a home energy audit reducing the overall cost to \$150 per house. A total of 255 Burlington residents are eligible for this subsidy. Between July 1 and the November 30, 2004, 120 audits were conducted. A proposal to extend the subsidy for an additional 300 residents has been endorsed in principle by council pending the 2005 current budget process.

An energy efficiency forum was held at the Burlington Seniors Centre in April 2004 as part of the activities leading up to the Smog Summit in June 2004 in Toronto. Presentations were made by Halton's medical officer of health, a Burlington city councillor, and representatives of Halton REEP and 20/20: The Way to Clean Air. Displays were also set up representing the City of Burlington, Halton Region Health Department, Clean Air Partnership, Burlington Sustainable Development Committee, Halton REEP, Home Performance Energy Advisors, Positive Power, Eco-action, and the Lung Association.

City of Burlington facilities staff have also been active in the area of energy conservation. A separate report (CORPSERV-2/05) on energy management issues provides details on some of these initiatives.

Idling

In June 2003, staff launched an idling awareness campaign. In June 2004, staff provided an update on the campaign and also proposed an idling control bylaw. Council passed a bylaw that will come into effect in May 2005. Information tickets have been printed for distribution by parking enforcement staff while on patrol to inform the public of the issue and bylaw. 'Bylaw #71-2004' stickers were also printed and placed on all the 'idle free zone' outdoor signs that were posted during the 2003 campaign.

Biodiesel

Staff at the Roads and Parks Maintenance Department (RPM) continued to use biodiesel fuel (B20 in May, June and September and B50 in July and August) for non-licensed vehicles in the

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summer of 2004. Since the use of biodiesel significantly reduces overall emissions, RPM was able to continue operations during smog events throughout the summer. The intention was to use B5 clear diesel year round for its licensed diesel vehicles, however this was curtailed due to increasing prices. Both diesel and biodiesel prices increased raising concerns that it might be too costly to continue using B20 and B50 next summer. Should this be the situation, operations, such as lawn mowing, would have to be stopped on smog days as was the protocol prior to the use of biodiesel.

5.0 FINANCIAL MATTERS:

The cost of Halton REEP subsidy and communications in 2004 was \$8,925 (\$6,375 towards the subsidy and \$2,550 for marketing). The proposed cost for 2005 program is \$7,500 to subsidize 300 homes.

Additional costs were budgeted for the 2004 idling campaign. Printing the informational ticket booklets cost \$1,000 while printing 'bylaw # 71-2004' stickers to place on all the 'idle free zone' signs cost \$87.

There is a premium to use biodiesel. The cost to use B20 marked diesel rose between May and September from 0.5006 to 0.5470 while B50 marked diesel rose from 0.5616 in August to 0.6150 in September. B5 clear diesel also increased from 0.61 to 0.87 cents a litre. Marked diesel (used for off road non-licensed equipment) rose from 0.433 in May to 0.4924 in September while clear diesel rose from 0.62 to 0.70 cents. RPM has proposed an increase in the 2005 current budget to address the rising cost of diesel fuel.

6.0 ENVIRONMENTAL MATTERS:

Smog is a form of poor air quality containing a mixture of contaminants that might appear as a brownish-yellow or greyish-white haze. The contaminants that form smog come from the combustion of fossil fuels in our vehicles, power plants, factory boilers, and homes. They are also released through industrial processes, the evaporation of liquid fuels, and the use of solvents and other volatile products, such as oil-based paints.

Smog affects our health, the environment, and the economy. Members of the population that are most susceptible to smog include children, seniors, and people with asthma, heart, and lung conditions. Common health effects include eye, nose, and throat irritation, coughing, wheezing, and shortness of breath. More serious effects include premature mortality.

Recent studies have shown that long-term exposure to low levels of pollutants may cumulatively contribute to greater damage than short-term exposure to high pollution levels. The pollutant that appears to be of most concern is particulate matter, which is made up of solid and liquid airborne particles. The smaller the particle, the longer it can be suspended in the air possibly travelling hundreds of kilometres and increasing the possibility that the particle will bind with more harmful pollutants. Smaller particles also penetrate deeper into the lungs causing greater damage. Once in the lungs, the particles can be absorbed into the bloodstream and travel throughout the body potentially affecting not only the lungs and heart but all other organs too.

7.0 COMMUNICATION MATTERS:

Staff will work with corporate communications as needed to raise awareness regarding air quality issues. Staff will also attend events and place displays at city facilities to promote the city's environmental programs and initiatives.

8.0 CONCLUSION:

Poor air quality is an ongoing health and environmental issue. City staff will continue to administer the Halton Smog Response Plan, maintain existing partnerships, and consider joining other initiatives as they are presented to help curb our emissions.

Respectfully submitted,

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Appendices:

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Staff / Others Consulted:

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Special Instructions:

Consent agenda
