



Hamilton

INFORMATION REPORT

TO:	Mayor and Members Board of Health
COMMITTEE DATE:	July 13, 2017
SUBJECT/REPORT NO:	Clean Air Hamilton 2016 Progress Report (BOH17026) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Trevor Imhoff (905) 546-2424, Ext. 1308 Brian Montgomery (905) 546-2424, Ext. 1275
SUBMITTED BY & SIGNATURE:	Kevin McDonald A/Director, Healthy Environments Division Public Health Services Department

Council Direction:

Not applicable. Clean Air Hamilton reports annually to Board of Health (BOH) on the trends in local air quality and the actions undertaken by members of Clean Air Hamilton to address local air quality in Hamilton.

The “Clean Air Hamilton 2016 Air Quality Progress Report”, attached as Appendix A to Report BOH17026 provides further details.

Information:

Clean Air Hamilton is a community initiative to improve air quality in the City of Hamilton. It has a diverse membership with representation from environmental organizations, industry, businesses, academic institutions, citizens and different levels of government (federal, provincial and municipal). Initiated in 1998, Clean Air Hamilton works to improve air quality throughout the City of Hamilton and meet all ambient air quality criteria. BOH supports the work of Clean Air Hamilton through an annual budget of \$56,000.

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Clean Air Hamilton hosted a strategic visioning workshop in 2016 and has identified five strategic themes related to air quality improvements to focus on for the next two to three years. These include:

- Governance & Structure
- Air Zone Management
- Transportation
- Air Monitoring
- Dust & PM_{2.5} Mitigation

Further details are included in Appendix A.

Air Quality in Hamilton

Many air pollutant's annual percentages have decreased over time as measured at Ministry of the Environment and Climate Change (MOECC) downtown air monitoring station (Station 29000). Total reductions in pollutant levels since the mid-1990s are:

- Total Suspended Particulate (TSP) levels, 55% total reduction over 20 years
- Inhalable Particulate Matter (PM₁₀) levels, 33% total reduction over 19 years
- Respirable Particulate Matter (PM_{2.5}), 26% total reduction over 17 years
- Nitrogen Dioxide (NO₂) levels, 53% total reduction over 20 years
- Sulphur Dioxide (SO₂) levels, 47% total reduction over 20 years
- Total Reduced Sulphur (TRS) odours, 100% total reduction over 20 years
- Benzene levels, 87% total reduction over 19 years
- Polycyclic Aromatic Hydrocarbon (PAH, measured as benzo[a]pyrene), 76% total reduction over 19 years

It should be noted, both benzene and benzo[a]pyrene levels for downtown for 2016 were not available when this report was created. In previous years there has been a gradual decline in respirable particulate matter (PM_{2.5}) in Hamilton but has been above the Canadian Ambient Air Quality Standards (CAAQS) of 10 µg/m³. In 2016, PM_{2.5} levels are now below the CAAQS. The standards are becoming more stringent in 2020 so continued effort to reduce PM levels will be needed.

Air Quality Health Index

The Ontario MOECC replaced the Air Quality Index (AQI) on June 24, 2015 with the Air Quality Health Index (AQHI). An update to BOH (BOH10008 & BOH10008a) was made regarding the implementation of this new reporting structure in Hamilton. The AQHI is a scale designed to help people understand what the air quality around you means to your health. It is a health protection tool that will help limit your short-term exposure by

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providing advice to vulnerable people and recommended activity levels during all levels of air quality. The AQHI scale is from 1 to 10+ with ranges and activity recommendations for at risk populations and the general population.

Table 1 Air Quality Health Index Categories and Health Messages¹

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population*	General Population
Low	1 – 3	Enjoy your usual outdoor activity.	Ideal air quality for outdoor activities.
Moderate	4 – 6	Considering reducing or rescheduling strenuous activities outdoors, if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High	6 – 10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

*People with heart or breathing problems are at greater risk. Follow your doctor’s usual advice about exercising and managing your condition.

The MOECC have three air quality monitoring stations in Hamilton which provide the data used to calculate the AQHI. For approximate locations of air monitoring stations see Appendix A. Two different air quality alerts are issued during periods of poor air quality. A Special Air Quality Statement (SAQS) will be issued when the AQHI is a high risk (>6) and is forecast to last for 1 to 2 hours. If the high risk AQHI is forecast to be a persistent duration of at least 3 hours, then a Smog and Air Health Advisory (SAHA) will be issued.

In 2016 Hamilton experienced only two SAQS and no SAHA instances. Clean Air Hamilton does note that air quality can be variable at a local neighbourhood level and some areas of Hamilton can be impacted more than others by air pollutants.

Delineation of Ontario Air Zones²

In 2016 the Government of Ontario has finalized its decision to delineate its air zones consistent with the policy proposal posted for public consultation in June 2015. Ontario is implementing the Air Quality Management System (AQMS), a flexible cross-Canada framework developed through the Canadian Council of Ministers of the Environment (CCME). The AQMS is a comprehensive approach consisting of an interconnected set of drivers and mechanisms to achieve continuous improvements to overall air quality using an all sources approach².

For a map and description of the air zones see Appendix A.

Clean Air Hamilton Programs in 2016

Clean Air Hamilton undertook a number of air quality programs in 2016 to improve local air quality through research, education and communication. Several of these programs were supported and assisted by partnerships with the City and other government and non-government organizations. Examples of these programs are provided below.

Totally Transit Kids

Since 2007, Green Venture has partnered with the Hamilton Street Railway (HSR) to deliver “Totally Transit” to elementary aged students. “Totally Transit” is a unique bus education program that not only introduces riders to the HSR, but also provides awareness of the positive environmental, health and community benefits that can be achieved through their use of public and sustainable transportation.

Between 2007 and 2016, “Totally Transit” lessons reach over 11,000 students. This includes lessons by Green Venture and students participating at various school environmental fairs. The program builds riders’ confidence and makes the connection between public transportation and air quality.

Eco Stars Classroom Challenge

“Eco Stars Classroom Challenge” with funding from Clean Air Hamilton engaged students and teachers with practical strategies to reduce carbon dioxide and other greenhouse gas emissions in their classrooms, at home and at play. Individual classrooms are given challenges consisting of actions or activities that will teach them

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more about air quality and climate change, how to improve air quality and how to mitigate climate change. The goals of the program include:

- Improve local air quality,
- Reduce greenhouse gas emissions in the community,
- Build lasting partnerships within the community,
- Raise awareness of climate change impacts, specifically in Hamilton,
- Further the Hamilton Climate Change Map and visualization,
- Inspire, engage and empower youth while developing environmentally sound practices,
- Develop ecological literacy for all students, and
- Build a caring community engaged in environmental learning and actions.

Fresh Air for Kids

“Fresh Air for Kids” is a highly successful air quality program that began in 2013 that raises awareness of AQHI and air quality issues among school-age children. The program assists children to develop walking routes to schools that would have the lowest pollutant exposures and encourages them to use active modes of transportation. Corr Research and Green Venture partnered with four elementary schools in 2016 to provide a series of hands-on educational workshops. Partnering schools in 2016 included Fessenden Public School, Dundas Central Public School, St. Bernadette Catholic School, and Regina Mundi Catholic School.

Workshops included activities both inside and outside the classroom where students learned more about the AQHI and are asked what actions they could take to reduce their personal exposure. Outside, students got to collect real-time data on the levels of PM_{2.5} and PM₁₀ around their schools and around their neighbourhood. This program proves to be highly effective at teaching students about the importance of air quality and active/public transportation.

The “Fresh Air Kids” program has received funding to continue in 2017 with an enhanced anti-idling campaign as well.

Idling Reduction Campaign

Hamilton Conservation Authority (HCA) received funding from Clean Air Hamilton to install anti-idling signs across many of HCA’s parking lots. HCA staff over the years has noticed many visitor vehicles within the parks leaving their engine running for extended periods of time.

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Forty signs were purchased and distributed across HCA's owned parking lots. Locations of the anti-idling signs installed include:

- Dundas Valley – Gate House Museum
- Dundas Valley – Trail Center
- Eramosa Karst
- Devil's Punch Bowl
- Christie Lake Beach Marina
- Lakeside Marina
- Tews Falls
- Valens Lake
- Fifty Point

Now that the signs are installed, HCA staff will continue to observe the number of vehicles idling in each conservation area.

Hamilton Air Quality Health Index Mapping Update

With the help of Clean Air Hamilton funding, an extensive update occurred on the Hamilton AQHI website (www.hamiltonaqhi.com). The most recent air pollution data was uploaded and now accessible on the website. More interactive features were included in the website update. Citizens can now access hourly conditions during the past five years, as well as selected air quality events such as when the air quality health index was high.

This website presents community air quality information to residents of the City of Hamilton that will help citizens reduce their exposure to air pollutants through accessible information that will help behavioural change. Reduction of air pollution is a key component of improving overall public health.

Air Quality Programs in 2017

Clean Air Hamilton identified and BOH approved funding (BOH17026) for two programs to improve air quality in 2017: Enhanced Fresh Air for Kids (\$19,150); and Building Community Awareness & Action Regarding Respirable Particulate Pollution in Hamilton (\$8,000).

The results of these programs will be reported on next year in the Clean Air Hamilton 2017 Air Quality Progress Report.

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Future Actions

There has been substantial improvement in Hamilton's air quality since the 1970's, however air pollution continues to create adverse health impacts to Hamilton residents. Continued, concerted actions are imperative towards air quality improvements and reductions of greenhouse gas emissions in the City of Hamilton. Collaboration from individuals, organizations, industries, the City of Hamilton and other levels of government are required to reach our goals.

- Continue to support and undertake all the recommendations of the Air Quality.
- Task Force (BOH13029) in the areas of air modelling and monitoring, planning, education and outreach, green infrastructure, and updating of municipal policies that encourage and facilitate behavioural change to active and sustainable transportation and alternative forms of renewable and efficient energy for buildings.
- Continue to support and encourage Hamiltonians to reduce their transportation-based emissions through the use of transportation alternatives including: public transit, bicycles, walking, hybrid or electric vehicles, etc. and in supportive policies such as complete streets and transportation demand management.
- Encourage the continued efforts of the MOECC and industry to reduce air borne contaminants in the City of Hamilton and the Province of Ontario.

APPENDICES ATTACHED

Appendix A to Report BOH17026 – Clean Air Hamilton 2016 Air Quality Progress Report

REFERENCES

¹ Government of Ontario, Ministry of the Environment and Climate Change (2016). What is the Air Quality Health Index? Retrieved from:
http://www.airqualityontario.com/science/aqhi_description.php)

² Government of Ontario. (2016). Environmental Registry. Retrieved from:
<https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTI1MjE2&statusId=MTkzMDMw>)