

# ACTION PLAN

Report of the Air Quality Task Force  
to the Honourable John Gerretsen,  
Minister of the Environment

Southwest Greater Toronto Area  
Oakville-Clarkson Airshed

David Balsillie Ph.D.  
Task Force Chair  
June 24, 2010



June 24, 2010

Dear Minister Gerretsen:

I am pleased to submit to you today this Action Plan for the Oakville-Clarkson Airshed in the Southwest Greater Toronto Area. The Action Plan creates a unique opportunity for the Ministry of the Environment and its many potential partners to make a real difference through sustainable improvement in air quality in this airshed.

We all appreciate what it means to have cleaner air for ourselves, our children, and the environment. The Ontario government has done much to improve air quality in the province. It can do more, beginning in the Oakville-Clarkson Airshed by breaking new ground through a new model for airshed management. This model also has the potential for implementation in other problematic airsheds across Ontario.

This has been a focused process. We have not undertaken any new studies or reviews; instead we have developed a series of actions aimed at preventing air pollution as well as abating emissions when they do occur. Every sector in the community is expected to contribute to solutions for improving the airshed.

I have been fortunate in having the support and guidance of a Community Advisory Committee which has brought expertise and the benefit of experience to the work of the Task Force. I should also mention the significant contributions made by staff from across the Ontario Public Service. Staff in the Ministry of the Environment were particularly supportive. I could not have completed my work in the six months I was given without their dedication.

I am happy to have been asked to be the one-person Task Force. The work has created an opportunity for me to share my insights and also gain new perspectives on critical issues which affect the well-being of people who live, work, and play in the Oakville-Clarkson Airshed. This is a forward-looking document. The Action Plan presents a series of steps to produce a legacy of cleaner air and a better environment about which we should be proud.

Yours sincerely,



David Balsillie Ph.D.

Task Force Chair





**ACKNOWLEDGEMENTS ..... I**

**EXECUTIVE SUMMARY ..... III**

**INTRODUCTION ..... 1**

**BACKGROUND ..... 3**

**AIR QUALITY TASK FORCE ..... 7**

**VISION ..... 10**

**PART I: AIRSHED MANAGEMENT SYSTEM ..... 12**

**PART II: COMPONENTS OF THE ACTION PLAN ..... 17**

    AIR QUALITY IMPROVEMENT TARGETS ..... 17

    STRATEGIES FOR ACHIEVING THE TARGETS ..... 18

    TIMELINES FOR IMPLEMENTING STRATEGIES ..... 21

    STAKEHOLDER ROLES AND RESPONSIBILITIES ..... 23

    REPORTING REQUIREMENTS ..... 24

    MONITORING AND REPORTING STRATEGIES ..... 25

    RECOMMENDATIONS FOR ONGOING IMPLEMENTATION ..... 27

**PART III: SUPPORTIVE POLICIES AND PROGRAMS ..... 28**

    BUSINESS ENVIRONMENT ..... 28

    EMISSIONS FROM OUTSIDE THE OCA ..... 29

    PLANNING ENVIRONMENT AND PLANNING POLICY ..... 30

    TRANSPORTATION AND TRANSPORTATION TECHNOLOGY ..... 33

    ACCOUNTABILITY ..... 39

**CONCLUSION ..... 40**

**APPENDICES ..... 41**

    APPENDIX 1: AIRSHED DEFINITIONS ..... 41

    APPENDIX 2: SWGTA AIR QUALITY TASK FORCE ORDER IN COUNCIL ..... 42

    APPENDIX 3: COMMUNITY ADVISORY COMMITTEE MEMBERS ..... 44

    APPENDIX 4: COMMUNITY ADVISORY COMMITTEE TERMS OF REFERENCE ..... 45

    APPENDIX 5: CONSULTATION RECORD ..... 48

    APPENDIX 6: PROPOSED GOVERNANCE STRUCTURE ..... 52

    APPENDIX 7: PROPOSED CONSTITUTING INSTRUMENT ..... 53

    APPENDIX 8: MUNICIPAL LETTERS ..... 60

    APPENDIX 9: INDUSTRY LETTERS ..... 62

    APPENDIX 10: ROLES AND RESPONSIBILITIES ..... 64

    APPENDIX 11: REFERENCES ..... 67



The Air Quality Task Force has only one member. Therefore, it would not have been possible to complete its mandate, especially within a six-month timeframe, without the support and assistance of a legion of individuals and organizations.

I would like to thank Minister Gerretsen and his staff for their keen interest in the progress of the Task Force. The Minister was always encouraging, but he refrained from giving the Task Force direction. In this way, he allowed the Task Force to operate as an independent body. The assistance provided by Utilia Amaral and Lyndsay Miller was especially helpful.

The Task Force was assisted in its work through its connection with numerous elected officials and their staff. MPPs (Flynn and Sousa), Regional Chairs (Carr and Kolb), and Mayors (McCallion and Burton) were supportive of the project and made their collective staff available in a very timely and helpful fashion.

The Task Force's fourteen-member Community Advisory Committee (CAC) played a crucial role. I cannot say enough about the valuable part they played. Their positive and visionary attitudes, intimate knowledge of the community, experience, and the advice they gave were invaluable assets. They worked diligently throughout the Task Force process. When it came time to review the draft Report, they gave me extensive and helpful comments on how to improve it. Their names are in Appendix 4.

The Task Force met with a large number of individuals and organizations within the airshed and beyond. They provided valuable assistance which was most helpful in the ultimate production of the Action Plan. These individuals are shown in Appendix 5.

Jim O'Mara was the Task Force's Project Director. Our personalities meshed and we got along well which was important because we spent so much time together. Jim brought exceptional management and communication skills, contacts throughout the public service and beyond, knowledge of government processes, tact and diplomacy, sound advice, and attention to detail which assured a high quality product delivered "on-time."

Two other Ministry staff were assigned to the Task Force. Christina Cheng was my Researcher. Ayta Farrokhyar was the Task Force's Administrative Assistant. They did the "heavy lifting" in terms of finding and summarizing important information, preparing and making presentations, keeping the Task Force organized and on track, and assisting the Community Advisory Committee. They carried out their duties in a manner which made it a pleasure to have them associated with the Task Force.

Finally, the Ministry of the Environment Executives and Staff readily provided their assistance and support to the entire project. Head Office, Regional, and District Office staff all contributed to the process. Their efforts on our behalf are certainly appreciated.

David Balsillie

Task Force Chair





The Southwest Greater Toronto Area Air Quality Task Force was established on September 29, 2009, and Dr. David Balsillie was appointed as the one-person Task Force on November 24, 2009. Work began immediately after Dr. Balsillie's appointment.

The Task Force was given 6 months to produce an Action Plan. The plan was to make recommendations to improve air quality and manage air pollution impacts in the Oakville-Clarkson Airshed (OCA). The Task Force has produced more than 30 recommendations. They include implementing a new approach for the OCA to improve air quality through strategies, emission targets, timelines, and the assignment of roles and responsibilities. Of the more than 30 recommendations in the Action Plan, several are relevant to a new vision for managing the airshed.

The first is the establishment of a new Airshed Management System (AMS). Unlike the current approach to managing air quality, the AMS deals with *all* emissions in the airshed, regardless of source. Under an AMS, it is expected that every sector in the community will assume some responsibility for improving air quality. An important component of this approach is a new governance model. Under this model, the community would work with the Ministry of the Environment to implement the Task Force's recommendations, including the formation of the Oakville-Clarkson Airshed Action Committee (OCAC). This new governance model also sees the Ministry of the Environment playing a crucial role in fostering greater cooperation and participation among all provincial ministries and agencies which have policies and programs that affect the airshed. For the governance model to be effective, regional and municipal governments, local industry, and residents will also have to be at the table.

Linked to the AMS is the need to manage air quality impacts on a cumulative basis. At the present time, the impact of emitters on Oakville-Clarkson's air (and for that matter, any other airshed), is assessed on a case-by-case basis. The idea of assessing emissions on a cumulative impact basis means that all newly proposed emission sources would have to take into account the contributions of all other emitters. Approval for new emissions in the Oakville-Clarkson Airshed should be granted only if there is no new net contribution to existing pollutant loadings. Given that the OCA is "taxed," the Task Force recommends that no new major sources of pollution would be allowed unless there is a plan to fully offset the key air contaminants identified in the Action Plan within the OCA. This would be managed through the Certificate of Approval process.

The *status quo* for air emissions, however, is not sufficient. Pollution from transportation, industrial, and residential sources must come down. There are practical reasons why this must be the case quite apart from the health and environmental benefits. Congestion on the highways and roads in the airshed is getting worse. The economy is starting to re-bound, and many industries are looking forward to expanding production. The population of the area is growing. There will be pressure to increase air pollution emissions. This is

unacceptable.

The Action Plan makes a series of recommendations which every sector in the OCA must undertake to create “air space.” These efforts involve continuous improvement in production processes and in energy conservation to reduce pollution and allow for growth and expansion. In addition, changing the way people travel in and through the airshed, and the choices they make with regard to lifestyle will also contribute to air quality improvements.

Several recommendations involve ambient air quality criteria and standards. They are, for the most part, comparable to those which can be found in many other jurisdictions. But some of the criteria have been in place for a very long period of time and are based on outdated science. They need to be reviewed and, if necessary, updated. In Ontario, Certificates of Approval are granted according to a facility’s ability to meet point-of-impingement standards. It has been argued that some standards are out of date or do not exist, for example  $PM_{2.5}$ . And while individual facilities may be in compliance with a standard or standards, on a cumulative basis the loadings in the airshed go beyond what may be considered acceptable.

The specific components of the OCA Action Plan are delivered after the discussion of the AMS. These components involve: air quality improvement targets; strategies; timelines; short-, medium- and longer-term actions; stakeholder roles and responsibilities; reporting; monitoring; and ongoing implementation.

Recommendations are also made about policies and programs which would support the implementation of the Action Plan. These recommendations take into account that the Action Plan will impact ministries other than MOE, and the plan will be affected by the actions of other provincial agencies and other levels of government. For the Action Plan to be fully effective, consideration must be given to addressing these contextual issues.

There is much to be gained if air quality in the airshed improves. When pollution is reduced, people’s exposure to harmful pollutants is also lessened. This translates into fewer premature deaths, hospital admissions, emergency room visits, and minor illnesses. Improvements in air quality can be expected to lower health costs. Other benefits would include fewer adverse impacts on the environment and property values, and a general improvement in the quality of life in the OCA.







The OCA, within the Southwest Greater Toronto Area (SWGTA), is the focus of this Action Plan. This airshed has been the topic of many studies about the sources of air pollution and the types of emissions, impacts on human health and the environment, and potential actions to improve air quality.

The Air Quality Task Force (AQTF) was:

*... created to be a catalyst for developing forward-looking solutions on long-debated air quality problems ... the goal of the AQTF is to give the Ontario government an **Action Plan** (emphasis added) to achieve real improvements in air quality to enhance the health of residents and their children, the quality of the environment, and the economic competitiveness in the SWGTA.*

Source: CAC Terms of Reference

It should be understood that the term “economic competitiveness” is used in the broadest sense. It includes the quality of life for residents and the area’s ability to attract employees and employers. The trend is clear that individuals and corporations are seeking out safe, healthy, environmentally-progressive communities for their residences and places-of-work.

This Action Plan for the OCA presents a new vision for the effective and coordinated management and improvement of air quality. The recommendations presented here build on the extensive work already carried out by Ontario government ministries and agencies, area industries and residential groups, as well as work conducted by provincial, national and international research and policy organizations.

There is a widespread consensus among stakeholders that the time for further study of the airshed and its health and environmental impacts is over. It is time to determine a course for the future which combines actions to deal collectively with the problems in the OCA. Incremental or fragmented change is no longer sufficient to dramatically improve the air quality now and in the decades ahead.

The future of air quality in the OCA will depend on the timely implementation of the recommendations of this Action Plan. This is a vision for the long-term sustainable management of the OCA. Some of the initiatives proposed in this Action Plan will provide immediate changes which should lead to positive impacts on air quality. Other improvements will be realized only with the passage of time because they will require planning, investment, performance trials, and the involvement of numerous partners. The time to commence this effort is now, and the first steps should be

taken as soon as is possible. If action is delayed, the current situation will deteriorate over time.

The Action Plan which follows is divided into three parts. Part I makes the case for a new Airshed Management System in the OCA. It outlines the governance model and the new policies and programs which would be needed to make the AMS work. Part II provides information about the specific components of the OCA Action Plan. These components involve: air quality improvement targets; strategies; time lines; short-, medium- and longer-term actions; stakeholder roles and responsibilities; reporting; monitoring; and ongoing implementation. Part III deals with the policies, programs, and operations of other ministries and the regional and municipal levels of government. The success of the Action Plan will require the involvement of many parties both inside and outside of government.

An “airshed” is a defined physical geographical area which is covered by a volume of air that has similar characteristics and into which air pollutants are deposited and often remain for a period of time. (See Appendix 1 for airshed definitions). The pollutants may originate from within the airshed or they may be transported to that location from medium or long distances.

Pollutants collectively have the capacity to adversely affect the health of the residents and the quality of the environment in which they live. Airsheds are characterized by factors such as: numerous local pollutant emission sources; relative proximity to external pollution sources; local topography; micro-meteorology; climatic features; capacity for cleansing; and administrative or political boundaries.

The OCA is situated in southern Ontario, along the north shore of Lake Ontario, between the rising terrain associated with the old Lake Iroquois shoreline and the lakeshore. It is east of the Hamilton urban and industrial complex and west of much of the Greater Toronto Area. It is also downwind from several U.S. states that produce high levels of air pollutants which travel long distances and impact much of southern Ontario.

A map of the OCA is shown in Figure 1. This is a relatively small airshed and its boundaries are artificial. The boundaries are adopted from the area of inquiry of Part III of the Clarkson Airshed Study (CAS). The airshed is defined by the dashed yellow line. It encompasses Chartwell Road on the west and Mississauga Road on the east and Dundas Street East and West on the north and Lake Ontario on the south. Ideally, the airshed would be larger and would take into account more of the areas of influence on air quality, and it would be bounded by ecological or topographical features.

The OCA has a number of unique features. It has numerous emission sources, and is upwind and downwind of other regional and international sources of air pollutants. The OCA has distinct local topographical and meteorological features. It is influenced, especially during warmer weather, by high pressure systems moving south of the Great Lakes. These meteorological factors can result in long-range transport of pollutants into the airshed. Cleansing of the airshed occurs mainly when a northwesterly meteorological system, or front, pushes through southern Ontario.

The local topography can play a role in the meteorology of the area. Under the correct conditions, the air mass can become trapped between the elevated terrain of the old Lake Iroquois shoreline to the north and the lake to the south. During the

night, due to temperature changes, the air mass can move out over the water, but with the warmth of the morning sun, it can flow back over the land again. This situation is not unique to the Oakville-Clarkson area, but it could be an air quality factor in this particular situation.

The Ministry of the Environment (MOE) began the Clarkson Airshed Study (CAS) in the year 2000. This study was carried out as a response to concerns from the community about poor air quality, elevated levels of inhalable particulate matter ( $PM_{10}$ ) being measured in the community downwind of the Clarkson Airshed, and an evaluation of historical regional monitoring data showing potential sources of oxides of nitrogen ( $NO_x$ ) within the area of the airshed. The CAS consisted of the following parts:

- PART I, carried out between 2001 and 2002, identified major sources of targeted pollutants.
- PART II, carried out between 2003 and 2005, was a 22-month ambient air monitoring program that confirmed, at times, especially during smog events, that the CAS study area represents a “taxed” or compromised area with respect to respirable particulate matter ( $PM_{2.5}$ ).

Figure 1: Map of Oakville-Clarkson Airshed





- PART III, carried out between 2006 and 2008, focused on major sources of targeted industrial pollutants. The study involved complete emission inventories and air dispersion modelling. The findings were submitted to MOE. Regional modelling was then carried out to evaluate the contribution of these sources to the air quality in the area of the airshed.

The major findings from PART III of the CAS were:

- There were 4 major source sectors: industry; vehicular traffic (including re-suspended road dust); residential; and miscellaneous (dry cleaning, fuel marketing, pesticide and fertilizer applications)
- The selection of 10 individual industry sources located in the CAS area which were considered as important contributors to sector emissions
- The identification of key contaminants of interest: PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub> and VOCs
- The development of a comprehensive list of all significant air emission sources
- The use of a dispersion modelling system to predict contaminant concentrations and to help define the contributions of the various source sectors to the ambient air quality:
  - PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>x</sub>: ..... Vehicular Sector (50 - 70%)
  - PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>x</sub> ..... Industrial Sector (25-35%)
  - VOCs: ..... Miscellaneous Sector (~40%)
- Long range transport and sources outside of the CAS area accounted for about 15 - 60% of the measured values on any given day, depending on the meteorological conditions at the time

PART IV of the CAS began in the spring of 2007, with the formation of the Clarkson Airshed Advisory Committee (CASAC). The mandate of CASAC was to operate an air quality management system within the Clarkson area on the basis of shared responsibility and the use of consensus building and a collaborative approach towards improving air quality. The Committee, working with an environmental consultant, began to develop and implement a permanent air monitoring program. Local industries were expected to design and operate abatement programs to reduce emissions of targeted pollutants. The original focus of CASAC was to achieve

commitments from industry to “go beyond compliance.”

This process involving CASAC did not achieve the desired outcomes. It was abandoned in mid-2009. The current Task Force effort was commenced subsequently in the late fall of 2009.

The Ontario government passed an Order in Council (OIC) to establish the AQTF on September 29, 2009. Although many organizations desired membership on this Task Force, the Ontario government selected a single individual to carry out this work. (A copy of the OIC which established the AQTF is in Appendix 2).

The Task Force was required to provide an update to the Minister of the Environment by the end of December, 2009. The update was to contain a work plan and membership of a Community Advisory Committee (CAC) which was to assist and guide the work of the Task Force and the development of its Action Plan.

The Task Force sent an Interim Report to the Minister on December 15, 2009. The report contained the Terms of Reference for the CAC. The proposed composition of the CAC, representing all sectors of the community, was also presented in the Interim Report. (Please see Appendix 3 for the CAC membership and Appendix 4 for the CAC Terms of Reference). The CAC was limited to a maximum of 15 members. No elected individuals served as members. Further, no substitute delegates or teleconferencing in on meetings were allowed.

The members of the CAC were committed to their task, were diligent in their efforts to assist and guide the Task Force, were collegial and professional in their conduct, and were a pleasure to work with. Each member brought a different perspective and dimension to the table and added greatly to achieving the development of this comprehensive Action Plan. Their work is acknowledged and deeply appreciated.

The OIC which created the Task Force required that an Action Plan be developed and submitted to the Minister by June 30, 2010. The Action Plan, which is presented here, is moderate in length, insures accountability and transparency, and contains a series of results-oriented recommendations. The Action Plan is designed to reduce pollution from transportation, industrial, and residential sources in the short-, medium-, and long-term in the OCA. It addresses:

- Air quality improvement targets;
- Strategies for achieving the targets;
- Timelines for implementing strategies;
- Stakeholder roles and responsibilities;

- Reporting requirements;
- Monitoring strategies; and
- Recommendations for ongoing implementation.

The work of the Task Force, presented in this Action Plan, has been guided by six operating principles:

- Shared responsibility and stewardship for protecting the environment and human health through ongoing improvements in air quality
- Sustainable development which balances environmental protection and the economic well-being for the Oakville-Clarkson Airshed
- Integrated planning coordinated with other local, provincial and federal actions
- Continuous improvement and the use of the most effective means to improve air quality by bringing down pollution levels
- Flexibility to allow stakeholders to develop their own air quality solutions
- Open communication and a transparent, accountable process

The Task Force had both “In-Scope” and “Out-of-Scope” activities. In effect, the Scope defined the boundaries of the work of the Task Force and the matters on which to report and make recommendations. (See Appendix 4)

In carrying out its work, the Task Force met with numerous individuals and organizations. The meetings involved: elected individuals from the provincial, regional and municipal governments; staff from MOE and other Ontario government ministries; local planning departments; municipal arborists; a municipal compliance staff; representatives of resident associations; the Clarkson Airshed Industry Association (CASIA) and numerous individual industries; the Ontario Power Authority; TransCanada Energy; Enbridge and Union Gas; Enersource and Oakville Hydro; Clean Air Hamilton; and Toronto Region and Credit Valley Conservation Authorities. (Appendix 5 contains a list of individuals and organizations with which the Task Force met.)



These meetings were designed to accomplish several objectives. They familiarized the Task Force with the components of the airshed and informed the Task Force of the history of the airshed. The meetings also helped the Task Force to understand production processes among local industries, gain an appreciation of possible future abatement opportunities, and learn of expectations and possible management systems that might prevail.

Through this extensive consultation process, it became apparent that all representatives of the community are looking for positive change within the airshed and are willing to cooperate and to contribute to the success of this venture. Without exception, every meeting was extremely cordial, informative and productive. The Task Force was able to build relationships in all quarters of the community, and these relationships proved to be very helpful when drafting the recommendations in this Action Plan.

As a result of the above consultation process, as well as the monthly meetings of the CAC, all interested parties were kept informed of the progress of the Task Force.

With the release of this Action Plan, a journey begins to manage and improve the air quality in the OCA. Over the next decade, steps will be taken to enhance the quality of life, the environment and economic prosperity. This process requires leaders or champions from each sector of this community. Individuals from the residential community, industry, and government will determine the success of the recommendations in this Action Plan. The following outcomes are possible:

- A higher quality of life for individuals who live and/or work in the community
- Improved human health as a result of reduced exposure to air pollutants
- A sustainable environment with fewer and lower emissions, creating smaller footprints in the airshed
- The economy of the airshed, in a healthy and protected environment, is competitive on a provincial, national and international basis
- Businesses thrive because the actions taken to improve the airshed attract investment and lead to greater economic activity
- A legacy of a clean environment is created for future generations

If the current population and industry in the OCA were to remain static over the next ten years, pollution loadings will be considerably less than they are today. But this will not be the case. It is anticipated that the population in and around the airshed will grow significantly. The implementation of this Action Plan, therefore, will become even more imperative. This will involve some overarching actions which will include:

- All levels of government planning and operating in an integrated manner which puts potential impacts of their actions on the airshed into the forefront of their thinking
- Companies adopting “beyond compliance” measures to further reduce their emissions
- Residents who will take their environmental responsibilities seriously and who will make conscious choices to lessen their impact on the airshed
- Reduced use of private automobiles and greater reliance on transit and active transportation such as biking and walking

- Efficient, seamless and affordable public transit throughout the GTA
- A new generation of car, truck, bus and train fleets

Many jurisdictions around the world have adopted an airshed management approach to address local air quality problems by reducing emissions from every sector in the airshed. To implement an airshed management model, new tools are needed. In particular, cumulative impact assessments for airsheds with multiple sources are critical. This approach goes beyond “point-of-impingement” which currently characterizes the way in which the Ministry of the Environment approves and manages regulatory compliance for point-source emissions. The implementation of an Airshed Management System (AMS) is critical to the success of the Action Plan for the OCA.

### RECOMMENDATION 1

**Develop and implement a new form of governance and an AMS in the OCA to effectively manage cumulative impacts.**

Implementation of cumulative impact assessment is not fully supported by the existing legislative and regulatory framework; therefore its complete application to current situations is not going to occur in the near timeframe. The Oakville-Clarkson Airshed, however, could serve as a pilot project for the more widespread application of cumulative impact assessment for AMSs. Without this tool, it will be very difficult, if not impossible, to make logical and important decisions concerning the current and future emission sources within this and other airsheds. In order to facilitate the implementation of the Action Plan, the development of some place-based (airshed specific) policies and/or regulations will be required.

### RECOMMENDATION 2

**Development of supportive and required policies and regulations for the Airshed Management System should be a priority.**

The implementation of the AMS will require the integrated involvement of several ministries, the two levels of municipal government, local industries, interest groups, and individual residents. The current silos of independent operation among these stakeholders can no longer be sustained. Some arrangements are currently in place. But there needs to be greater cooperation and communication among all groups to make the Action Plan fully effective.

### RECOMMENDATION 3

**The province should develop an Inter-Ministry Action Team, consisting of senior staff from the Ministries of the Environment, Transportation, Health and Long-Term Care, Municipal Affairs and Housing, and Energy and Infrastructure to coordinate provincial policy development in order to implement the Air Quality Action Plan.**

The Task Force recommends for the OCA that a governance structure, similar to the one shown in Appendix 6, should be developed. The MOE remains as the delivery agent for programs and is fully accountable for the application of the process and the outcomes. The MOE would be supported and guided by the OCAC of up to 10 persons, who would be representative of the various sectors within the airshed. A part-time Chair would head this Committee and liaise with the Regional Director and the MOE District Manager who would work with members of the OCAC. The Chair would prepare an Annual Report of the progress of the work within the airshed. The Committee members would be asked to attend one meeting per month. The Chair would be compensated for up to two days per week for time spent on OCAC activities. Committee members would not be remunerated. Some form of authorization would be required to create this new body (Oakville-Clarkson Airshed Action Committee). A draft Order-in-Council to create the OCAC can be found in Appendix 7. It is recognized that time would also be required to create this new body.

A key element of the implementation plan is a careful, consistent and long-term communication plan in order for all sectors of the community to understand what is being proposed and how the outcomes will be achieved.

#### *Addressing Cumulative Effects*

The MOE has identified the OCA as “taxed” and as such, is considered to be incapable of accepting additional pollutant loadings. All applications for Certificates of Approval for new or increased emissions need to be reviewed in light of this fact. Although there is real estate available for new or expanded industrial facilities, there must be careful consideration given to the amounts of additional emissions that would potentially be released.

Such is the case with TransCanada Energy. The company is preparing an Environmental Review Report for the operation of a 900 MW dual cycle gas-fired

power plant on a property in the southwest corner of this airshed. The siting of this power plant within this airshed is a major science and technical issue, as well as a major social-political issue with the residents of the area.

The main pollutants emitted by the power plant will be NO<sub>x</sub> and particulate matter. Of most concern is fine particulate matter (PM<sub>2.5</sub>). The Task Force's Terms of Reference do not call upon it to be involved in the approval process for the power plant. The approval process for the power plant is a parallel activity to the work of the Task Force. The approval process is not expected to be close to completion when this Action Plan is filed. All other applications for Certificates of Approval will have to consider the recommendations of the Task Force whether the power plant gains approval or not.

#### RECOMMENDATION 4

**All applications for Certificates of Approval for new or modified industrial activities, which will increase emissions within the airshed, must be considered in light of the current capacity of the airshed. This recommendation would also apply to the issuance of a Certificate of Approval for the power plant.**

Ontario has regulations, guidelines, policies, and initiatives to address local and regional impacts of PM<sub>2.5</sub>. The Canada-wide Standard for PM<sub>2.5</sub> over a 24-hour period of 30 µg/m<sup>3</sup> was adopted in 2000, with the first report due for 2010. NO<sub>x</sub> and SO<sub>2</sub>, which are the precursors of secondary PM<sub>2.5</sub>, are dealt with under Regulation 194/05, Regulation 397/01, Regulation 419/05, and by the "A" series Guidelines under the *Environmental Protection Act*.

The current regulatory approach of dealing with precursors does not address all sources of PM<sub>2.5</sub> loadings. Direct emissions of PM<sub>2.5</sub> are a concern. These emissions originate from many sources, including point-sources such as home heating and industrial processes, and from mobile sources such as the operation of cars, trucks, and diesel train engines. According to the U.S. Environmental Protection Agency, dust from roads, parking lots and construction sites are also major sources of fine particulates. PM<sub>2.5</sub> also frequently originates from outside the airshed and is carried into the area by regional and long-range transport.



There is no safe exposure level to PM<sub>2.5</sub>. The consequences from exposure are particularly severe among infants, people with health conditions such as asthma, lung cancer and cardiovascular disease, and is linked to brain damage and frequently cited as a cause of premature death. In 2009, a study published in the *New England Journal of Medicine* found that decreases in the concentration of PM<sub>2.5</sub> by 10 µg/m<sup>3</sup> are associated with an increase in life of expectancy of almost one year. The analysis was based on looking at reductions in particulate pollution over several decades in 217 counties in 51 metropolitan areas in the United States.

While MOE's *Air Quality in Ontario 2008 Report* found that none of the province's designated ambient air monitoring sites exceeded the 24-hour Canada-wide Standard for PM<sub>2.5</sub> of 30 µg/m<sup>3</sup>, the lack of regulatory control for direct emissions is troubling for persons who live in airsheds such as Oakville and Clarkson.

#### **RECOMMENDATION 5**

**The Ministry of the Environment should set a provincial standard for emissions of primary PM<sub>2.5</sub>. Other ministries with mandates that affect air quality should also work cooperatively with MOE on development of other air standards.**

Notwithstanding the federal government's commitment to conduct a smog science assessment, the Ontario government should undertake its own review of the state-of-the-science of air pollutants and associated human health and ecological effects, as well as a review of ambient air quality criteria and standards. This would ensure provincial standards are based on current science and prevent any delay in responding to new evidence.

#### **RECOMMENDATION 6**

**A review of the state-of-the-science of air pollutants and provincial standards and criteria should be conducted on a regular basis (i.e., every five years).**

The dramatic impacts of air pollutants on human health have been reported upon as a result of numerous studies, especially those of the Ontario Medical Association (OMA) in 2005 and the Canadian Medical Association (CMA) in 2008. Every year in Ontario, thousands of premature deaths, emergency room visits and hospitalizations can be attributed to the presence of air pollution. These numbers continue to increase with time. The direct annual cost to the health system is estimated to be in the hundreds of millions of dollars. These impacts are felt in the Oakville-Clarkson Airshed. In 2008, the OMA reported 700 premature deaths in Peel Region and 336 in Halton Region associated with bad air quality. Of most concern is the level of particulate matter which is 2.5 microns or less in diameter ( $PM_{2.5}$ ). Toxic compounds such as acrolein and acrylonitrile also are a concern given they are known carcinogens and mutagens. In addition to human health concerns, there are a wide range of other effects, including lost productivity, health care expenditures, and impacts on the quality of life.

**RECOMMENDATION 7**

**The Ministry of the Environment should release the “Acrolein” report, along with an action plan for dealing with this (and other similar) pollutant(s).**

When pollution is reduced, people’s exposure to harmful emissions is also lessened. This translates into fewer pre-mature deaths, hospital admissions, emergency room visits, and minor illnesses. Improvements in air quality can be expected to lower health costs. Other benefits would include fewer adverse impacts on the environment and property values, and a general improvement in the quality of life.

The OIC that created the Task Force requires an Action Plan which addresses a wide range of matters which reduce pollution and improve air quality.

### *Air Quality Improvement Targets*

Four options were considered:

- 1) Reduce emissions of respirable particulates ( $PM_{2.5}$ ) and  $NO_x$
- 2) Reduce emissions of  $PM_{2.5}$  and  $NO_x$  and other major pollutants described in the Clarkson Airshed Study, including inhalable particulates ( $PM_{10}$ ) and VOCs
- 3) Reduce  $PM_{2.5}$ ,  $NO_x$ ,  $PM_{10}$ , VOCs and selected Criteria Air Contaminant emissions, including sulphur dioxide ( $SO_2$ ), total particulate matter (TPM), and  $O_3$ .
- 4) All of the above, phased-in over time

Option 4 offers the best opportunity to address the major environment and health issues, recognizing that it is not possible to accomplish everything at once. Many aspects can affect the capacity to take action, ranging from the state of the economy to the latest findings in health and epidemiological sciences.

This is an option in which no one sector bears all responsibilities for making improvements. Changes in emissions will be needed from transportation, industrial and residential sources. It is also consistent with other Ontario government efforts to improve air quality. In addition, it supports many of the initiatives which have been undertaken by municipalities and industries in the area. These initiatives are documented in Appendices 8 (municipal) and 9 (industry).

Implementation should also be consistent with the development of new national and international standards.

#### **RECOMMENDATION 8**

**Air quality improvement targets should address the emissions of  $PM_{2.5}$ ,  $NO_x$ ,  $PM_{10}$ , VOCs and selected Criteria Air Contaminants, but phased in over time, commencing with  $PM_{2.5}$  and  $NO_x$ .**

### *Strategies for Achieving the Targets*

Five options were considered:

- 1) Emission reporting and disclosure, similar to the program which operates under California's *Air Pollution Control Act* or the City of Toronto's *Environmental Reporting and Disclosure By-law*
- 2) An emission offset program
- 3) Percentage reductions for emissions
- 4) Tonnage reductions for emissions
- 5) A strategy that uses elements from options 1 to 4 that can be tailored to address current and emerging situations

Option 5 is the preferred strategy. It is the option that best takes into account emission targets being phased in over time. It also offers an increased degree of flexibility.

Reporting and disclosure, which is sometimes referred to as “community right-to-know,” has been shown to be successful in reducing the release of pollutants by stimulating pollution prevention. Currently, emissions are reported on an annual basis to Environment Canada through the National Air Pollution Release Inventory (NPRI). Those facilities emitting acetone are required to report releases through Ontario Regulation 127/01 *Airborne Contaminant Discharge Monitoring and Reporting*. There are also new reporting requirements under the provincial *Toxics Reduction Act*. Notwithstanding these reporting requirements, the data released to the public is not reflective of the current state of air quality as inventories can be outdated. Although it is recognized that the compilation of emissions data is complex and not static, the delay in releasing current emissions data is unacceptable. Effective management decisions cannot be made utilizing data which is so ‘outdated’.

Industries within the airshed should be required to report their emissions on a regular basis. Very few of the industries have either real-time or intermittent monitoring of their emissions. Most utilize mass balance equations to calculate emissions. The intent here is not to force industries to install full-time emissions monitoring devices now because they are expensive to purchase and operate. But as time progresses, new and more economical monitoring devices will become available

for use by the industries within the airshed. Such monitors will improve the accuracy of emission measurements and should be adopted when available. In the meantime, available emissions data in the OCA should be reported regularly to the Ministry and communicated to the public through a community website to ensure full disclosure and transparency. Reporting schedules can be negotiated on a case-by-case basis.

#### **RECOMMENDATION 9**

**Available emissions data should be reported on a more regular basis to the MOE and these data should be posted on the community website.**

New industrial and residential development locating within the airshed must find emission offset reductions within the airshed, and the offsets should be incorporated into the planning and environmental approval requirements. Any consideration of an “offset” system must be local and verifiable, and it must include the goal of improving local air quality over time. The system must include a requirement for a retirement process and caps or limits on the specific air contaminants.

An offset program for operators would enable a given emitter to trade for cash or other credits their additional (beyond required) emission reduction credits to another emitter. This would create “air space” capacity within the airshed to accommodate growth.

#### **RECOMMENDATION 10**

**Establish an offset system for the OCA. Emission offsets would only be allowed between emitters located within the airshed and embrace the concept of increasingly more restrictive caps to sequentially improve the air quality of the airshed.**

During the period when the Task Force was at work, the Ontario Power Authority announced the Industrial Energy Reduction Program (IERP). The IERP is a joint program between the OPA and local gas and electrical utilities in Oakville and Clarkson. The essence of the program is that funding would be made available to local industries for process upgrades which result in reducing energy consumption. This has the dual effect of reducing the demand for energy and reducing emissions.

In addition to the funds that might be available through IERP and other funding incentive programs, the Ontario government should consider the development of an “Incentive” fund to assist industry in “going beyond compliance.” In this way, industries could remain competitive, reduce emission levels of pollutants and continue to operate. The Oakville-Clarkson Airshed could act as a pilot project for a program that might operate at the provincial-level.

**RECOMMENDATION 11**

**Funding should be available to industries from both the IERP and an Incentive Fund to assist industry with “going beyond compliance.”**

During the course of meetings with local industries, it was brought to the attention of the Task Force that some site improvements for managing air pollution attracted higher assessment rates. The result for at least one company was that going “beyond compliance,” meant having to pay more municipal property taxes. This type of municipal response could have the unintended effect of slowing progress toward improving air quality in the OCA. No recommendation is made here on this issue. The municipal tax system is outside of the Task Force’s mandate and is not something that the Task Force feels comfortable commenting on.

The focus of pollution reduction actions should be on the “front end” of the production process. These reductions could be achieved through process changes; energy conservation activities, equipment upgrades, the use of alternative fuels, or the development of combined heat and power projects. This approach has the increased benefit of preventing rather than mitigating pollution. Alternatively, using “end-of-pipe” abatement technologies to control discharges into the air are another possibility. An unfortunate side-effect of “end-of-pipe” technologies is that they usually result in an unwanted by-product, which also requires disposal.

**RECOMMENDATION 12**

**Local industry, working with the Inter-Ministry Action Team, should focus on process change and energy reduction to lower emissions.**

### *Timelines for Implementing Strategies*

Some actions will show results in a relatively short timeframe (12 months). Other actions take longer for results to appear. Structural or systemic changes in the economy and the introduction of new technologies are examples of longer-term actions which could change emission levels dramatically.

A major behavioural or cultural change is required to make these actions come to fruition. Air quality will need to be seen in a new way and the severity of human health and environmental impacts will need to be given new weight and priority. These changes are as much about social acceptance as they are about science and technology.

*Short-Term Actions:* Results seen in twelve months or less

Short term actions focus mainly on immediate reductions of PM<sub>2.5</sub> and NO<sub>x</sub>.

#### Dust Management

- Pave parking lots, trucking yards, and road shoulders
- Utilize dedicated, state-of-the-art street cleaning devices
- Control dust at construction sites and tracking of material onto roadways

#### Traffic Management

- Greater enforcement of engine idling, especially for large diesel trucks
- The development of High Occupancy Vehicle (HOV) lanes
- Development of bike-friendly roads and pathways
- Re-routing of traffic on arterial roads

#### Environment and Land Use Planning

- Air quality monitoring and reporting
- Tree planting and use of vegetation to reduce levels of pollutants
- Development and implementation of separation distances

- No new housing close to industrial and transportation sources
- Cumulative impact assessment
- Development of an Airshed Management System
- No new industry without emission offsets
- Conservation and demand management: public institutions can be pace setters (government offices, schools, hospitals, libraries, sports facilities, etc.)

*Medium-Term Actions:* Results seen in 3 to 7 years

- Industrial abatement following design, pilot and test trials and implementation
- Car, truck and transit fleet upgrades
- New and extended transit routes
- Right sizing transit vehicles
- Commercial fleet upgrades
- Active transportation planning
- Transportation demand management
- Development of local renewable energy and combined heat and power systems
- Ontario Building Code changes which significantly boost energy conservation performance and/or directly reduce emissions into the community

*Longer-Term Actions:* Results seen in five to ten years

- Turnover of car and commercial vehicle fleets
- New generation of locomotives and electrification of GO Transit's Lakeshore Line



- New generation of road transit vehicles
- Official Plan amendments

Actions need to be taken on a number of fronts. New MOE policies and programs are needed (cumulative assessment); new or enhanced air regulations and standards need to be developed; tree planting and vegetation management; changes to the Building Code and participation in Provincial Policy Statement reviews and Official Plan Amendments are but a few of the activities which need to commence quickly. There is no apparent need for the development of new legislation at this time.

This will be a period when champions and leaders from all sectors will have an opportunity to provide the necessary leadership to maintain the momentum of the program during these early days. Governments especially can show support through a mix of positive messages and actions and through outreach and education. The “Airshed Management System”, presented in Part I (MOE and the Oakville-Clarkson Action Committee) would be the driver for the implementation of this program.

The roles and responsibilities for the Action Plan can be found in Appendix 10.

#### *Stakeholder Roles and Responsibilities*

Returning to the six guiding principles, all stakeholders have a shared responsibility and stewardship for protecting the environment and human health and developing a balance between environmental protection and economic well-being. Planning needs to be integrated and coordinated with other local, provincial and federal actions to achieve continuous improvement in air quality. Flexibility should be given to stakeholders to develop their own air quality solutions. All programs must be developed with open communication and with transparency and accountability.

Participation in airshed management could be either voluntary (B.C. model) or mandatory (California model). In Alberta, participation is voluntary, but it can be stipulated in the Certificate of Approval process. The CAC preferred the California model where the industries are mandated to participate in the airshed management process. In the OCA this would be accomplished as a condition of approval through the Certificate of Approval process.

#### **RECOMMENDATION 13**

**Participation in airshed management would be mandated through the Certificate of Approval process.**

### *Reporting Requirements*

The issue of industry reporting emissions data was covered earlier in the “Strategies for Achieving Targets” section of the Report. The Task Force and CAC considered some options for data validation and notification.

#### *Data Validation Options:*

- 1) The status quo in which MOE validates all air quality information
- 2) A third party audit of the emissions data posted on the community website

Option 2 was selected to ensure openness and transparency. Once again, this recommended audit process need not be excessively onerous, or costly.

#### **RECOMMENDATION 14**

**Emissions data posted on the community website should be audited by an independent third party. The audit does not have to precede the posting of this data.**

#### *Notice Options:*

- 1) The status quo in which proposals for new or amended Certificates of Approval for air are posted on the Environmental Registry by the Ministry of the Environment.
- 2) All proposals for new or amended Certificates of Approval for air within the Oakville-Clarkson Airshed, including those which result from the approval of an environmental assessment, are posted on the community website prior to approval by the Ministry of the Environment under the *Environmental Protection Act*. The Ministry’s decision would also be posted on the community website. Proprietary information would be protected.

Option 2 is recommended, since this issue has been a source of conflict and controversy over the past several years. Interest groups have felt that they were unaware of certain Certificates of Approval being processed by the MOE for the airshed. They indicated that decisions were taken by the MOE before local groups had an opportunity to participate in the process. This new posting requirement is designed to enhance transparency and community involvement.

**RECOMMENDATION 15**

**All proposals for new or amended Certificates of Approval, including those subsequent to an environmental assessment, will be posted on the community website at the same time as they are posted on the EBR. Ultimately the Ministry's decision would also be posted on the community website.**

*Monitoring and Reporting Strategies*

The development and maintenance of an ambient air quality monitoring network is required to determine: the flux of pollutants related to long-range transport; the impact of local emissions on the local environment; and changes in air quality resulting from emission reductions or additions. The network will need to develop a record for trend analysis over the ensuing period. The network would be comprised of the two existing CASIA monitoring stations, plus an additional 4 to 5 stations.

Three Monitoring Strategy Options were considered:

- 1) Retain the status quo, based on the Ministry's existing ambient air quality monitoring stations and CASIA's two industrial monitoring stations
- 2) Industry self-monitoring, similar to the Hamilton Air Monitoring Network (HAMN Air) and CASIA's two industrial monitoring stations
- 3) Community-run ambient air monitoring program

The CAC was strongly of the opinion that the ambient air monitoring network should be carried out (or managed) by the MOE. In this case, this new option is being recommended by the Task Force. The ownership and control of the CASIA sites can be determined at some future date.

It is also recommended that the data produced by this network should be posted on the community website in real-time. Appropriate quality disclaimers related to subsequent data validation would be required. Annual reports of the air quality data, with analysis and discussion of highlights and trends, should be prepared and distributed.

The real-time sharing of monitoring data measures progress and enhances accountability. It helps to de-mystify emission impact information in a timely manner

and puts the information in the hands of those who are most interested and where responsibility is foremost. Immediate knowledge of air quality problems is likely to result in responsive actions sooner than later.

This transparency builds a new level of trust in the community, with an acceptance of the integrity of both the emissions and air monitoring data.

The sites for the new monitoring stations should be based upon pollutant dispersion modelling results, developed using the most recent emissions data. It is recognized that finding suitable sites for these stations may be a challenging exercise. The public is not necessarily accepting of a monitoring trailer in their neighbourhood. The use of more portable air pointer monitoring devices may be an alternative solution to this dilemma. Consideration should be given to the need for longer-term monitoring data in order to assess air quality trends. These data can only be obtained through the establishment of permanent or monitoring stations in the airshed.

#### **RECOMMENDATION 16**

**The MOE should develop and operate an ambient air monitoring network for the OCA and the monitoring data should be posted, in real-time, on the community website.**

In addition to the reporting of real-time monitoring data, the Community Advisory Committee has also indicated the need for a communication tool to translate the meaning of the data to residents. This would assist residents in their response to elevated air pollution levels in the airshed. The Province has in place an Air Quality Index and issues smog advisories on days when air pollution levels are elevated. However, the national Air-Quality-Health-Index (AQHI) is another useful tool that should be adopted by the Province to report on the cumulative health effects of  $PM_{2.5}$ ,  $O_3$  and  $NO_2$ .

#### **RECOMMENDATION 17**

**The Province should adopt the national AQHI and report on cumulative health impacts associated with smog pollutants monitored at suitable locations. The successful adoption of the AQHI requires the leadership of the Ministry of Health and Long-Term Care, support from the Ministry of the Environment and input from the local health departments which are the source of local information, awareness programming and citizen contact.**

*Recommendations for Ongoing Implementation*

In the opinion of the Task Force, implementation is imperative. Failure to implement will mean: lost investment of the work of the Task Force and the Community Advisory Committee; a return to unacceptable levels of air emissions and subsequent air quality, as the economic downturn dissipates and growth begins; loss of the goodwill and integrated work ethic generated by the Task Force; further erosion of government credibility; and continued high costs of environmental and human health damages.

A new staff position within the Ministry should be developed at the Senior Environmental Officer level to handle the responsibilities related to the implementation of the Airshed Management System.

**RECOMMENDATION 18**

**A new position for a Senior Environmental Officer should be created and funded.**

### *Business Environment*

There are many small, medium and large-scale industrial operations located in the airshed. It must be recognized that these industries are important because they contribute to society through the jobs they create, the products they manufacture, and the taxes they pay.

The context of the current economic situation is reflected in this Action Plan. Almost all of the industrial facilities have reduced their production rates, or production schedules, or both. As a result, emission rates of air



pollutants are lower than they were before the economic downturn of 2009. With the anticipated economic recovery, some industries are expecting to return to former production levels. Indeed, in future years they anticipate that some amount of growth in production will also occur. Accommodation for this anticipated return to full production and future growth must be considered in the planning process.



These industries are in economic competition with other plants within their own company, as well as other companies in the same field of business. Although fluctuating, the increased value of the Canadian dollar against its U.S. counterpart increases the cost of exported manufactured products. The costs for pollution abatement must also be included in the decision-making activities.



As part of the consultation process with municipalities and industries, the Task Force became aware that many initiatives had already been taken to reduce their emissions. Oakville, Halton, Mississauga, and Peel have all developed programs to improve air quality. The municipalities were invited to submit letters describing their environmental achievements during the past several years as a context point from which we can assess the present and future roles of these four governments in improving the air quality of Oakville and Clarkson. Their letters can also be found in Appendix 8.

Individual industries were also invited to submit a letter describing their abatement activities over the past few years. These actions have already led to major reductions in emissions from the industrial sector of this airshed. To view the list of air quality improvement activities, please see the submitted letters in Appendix 9.

#### *Emissions from Outside the OCA*

Long-range transport of air pollutants impacts the OCA. This occurs mainly during the warmer months of the year when a slow moving or stationary high pressure weather system moves from west-to-east, south of the Great Lakes area. Air flows clockwise around the centre of the high. Subsequently, emissions from air pollution sources in numerous U.S. states are caught up in this airflow and transported into southern Ontario.

The result for the OCA is that ground level concentrations of a number of air pollutants are elevated. These pollutants include: Nitrogen Oxides (NO<sub>x</sub>), Volatile Organic Compounds (VOCs); Ozone (O<sub>3</sub>), and PM<sub>2.5</sub>. Because these pollutants travel long distances, they can contribute to the formation of secondary compounds in the atmosphere. NO<sub>x</sub> and VOCs in the presence of sunlight generate O<sub>3</sub>. Sulphur dioxide and NO<sub>x</sub> gases are both oxidized in the atmosphere to produce sulphates and nitrates in the form of respirable particulate matter. The airshed is also influenced by the emissions of its regional neighbours, such as the Cities of Hamilton and Toronto, depending upon wind speed and direction at the time in question.

Collectively these pollutants form “Smog.” On days when “Smog events” occur, Ontario emitters have little or no “airspace” into which they can discharge their effluent. The number of “events” that occur in any given year is a function of the weather systems which occur during that period. In 2009, there were only 3 events covering 5 days. In 2007, however, there were 13 smog advisories covering 39 days.

### RECOMMENDATION 19

The Ministry of the Environment must develop a strategy to deal effectively with air pollution originating from outside the OCA, including the long-range transport of emissions originating outside of Ontario. The development of this strategy should involve Environment Canada, the U.S. Environmental Protection Agency, and relevant U.S. state governments.

#### *Planning Environment and Planning Policy*

Residential sources account for approximately 20% of  $PM_{2.5}$  emissions in the airshed and about 10% of all others.

Additional housing units will result in more emissions from home heating, fireplace use, barbeques and gas-powered equipment. More vehicles in the area also will add to

impacts on the airshed. Expectations for a continuous improvement in the residential quality of life will strain local relationships and increase the demand for energy to support such lifestyles.



### RECOMMENDATION 20

Outreach, education, and moral-suasion can be used to persuade residents to reduce their emissions into the community through such steps as: using high efficiency gas furnaces and high combustion efficiency fireplace inserts; refraining from using gasoline powered gardening equipment at any time, but particularly during smog events; utilizing public transportation when possible; and avoiding the use of barbeques on smog days.



It is probably fair to say that in the past, there appear to have been instances in which the municipal governments in the OCA could have shown greater regard to “the orderly development of safe and healthy communities” and the “appropriate location of growth and development.” This is particularly the case in respect of past decisions on residential land uses, which pre-date the broad legislative and regulatory framework for planning and development now provided by the *Planning Act*. The decisions led to encroachment on industrial areas that have been in existence since the 1940s and 1950s.

Now, under the *Planning Act*, the Ontario government has identified areas of provincial interest which municipalities and local planning boards “shall have regard to.” But there are plans for residential intensification in the OCA, and there is continuing encroachment on industrial areas. On Lakeshore Road West, east of Southdown Road, and along Lakeshore Road East, west of Winston Churchill Boulevard, there are areas where there will be significant growth in housing which means more comfort heating and air conditioning, more cars and additional sources of pollutants from the residential sector. There is, as well, industrial land which has not been occupied and some existing sites which are vacant because companies have closed. Some of these properties are close to residential and other land uses. Were they to be developed or re-developed for industrial uses, they could adversely impact the surrounding area.



Transportation routes are also a major source of air pollution. It is noteworthy that Halton Region has amended its Regional Official Plan to create new setbacks between transportation routes and residential land uses. The amendment is currently being reviewed by the Ministry of Municipal Affairs and Housing. Planners and policy makers in the OCA municipalities should take note of this progressive action.

**RECOMMENDATION 21**

**Residential and industrial planning needs to be reviewed to reduce the level of encroachment into industrial zones and transportation routes of all types.**

On May 12, 2010, the Ministry of Municipal Affairs and Housing began the 5-year review of the Provincial Policy Statements (2005). This review is intended to reinforce the provincial goal of strong, livable and healthy communities. But it is also intended to identify areas of emerging land use concerns. Issues in the OCA draw particular attention to industrial areas and separation distances and setbacks, and the compatibility of development with existing land uses.

**RECOMMENDATION 22**

**Pending the development and issuance of an updated Provincial Policy Statement, every proposal for new land uses in the OCA should be examined carefully to ensure that it is consistent with the Provincial Policy Statement's provisions for the "orderly development of safe and healthy communities" and the "appropriate location of growth and development."**

The Task Force also considered some recent municipal government by-laws. This includes Oakville's Interim Control By-law and the appeals by TransCanada Energy; Oakville's By-law 2010-035 which is to control the health effects of major emissions of PM<sub>2.5</sub> and other pollutants; and Oakville's request, supported by a Resolution from the City of Mississauga, for MOE on behalf of the Ontario government, to undertake a review to determine if a new air pollution Act or regulation is needed to address PM<sub>2.5</sub>. This could include establishing a limit on PM<sub>2.5</sub> emissions to prevent an uneven patchwork of by-laws and standards across Ontario.

### RECOMMENDATION 23

**The Ministry of Municipal Affairs and Housing and the Ministry of the Environment should take a position on whether municipalities have the authority to set environmental protection standards in areas of provincial jurisdiction through the by-law process.**

#### *Transportation and Transportation Technology*

Transportation sources account for approximately 60% of the air pollution burden. This is due, in part, to two major 400-series highways, the Queen Elizabeth Way (QEW) and Highway 403, plus major arterial roads which traverse the area. Daily high volumes



of traffic along these thoroughfares contribute to elevated levels of pollutants, especially NO<sub>x</sub> and PM<sub>2.5</sub>. Car and large truck traffic along municipal roadways also contribute significantly to the pollutant load. Studies have shown that pollutant levels are highest near the edge of roads and major highways. The studies suggest that living within zones of elevated pollution can adversely affect human health.

The Ministry of Transportation (MTO) has recently issued a Notice of Study Commencement for those parts of the Highway 403 and the Queen Elizabeth Way which are located in the OCA. MTO will undertake a Preliminary Design Study and Class Environmental Assessment to identify operational and capacity needs, evaluate alternatives, and develop both short- and long-term improvement plans for these highways. Potential improvements may include the addition of new HOV lanes to facilitate traffic flow during peak periods and reduce unnecessary idling. Other improvements may include interchange improvements and the addition of the 'north to east' and 'east to north' freeway at the Highway 403 and QEW interchange. Improvements to these highways have the potential to alleviate congestion challenges in the OCA and subsequently, improve air quality in the area.

**RECOMMENDATION 24**

**The MTO should work closely with the Oakville-Clarkson Airshed Action Committee (OCAC), when established, in the Preliminary Design Study to ensure transportation-related emissions in the OCA and its impacts on the communities are at the forefront of decision-making. In addition, the Ontario government should also examine alternative traffic management tools such as rush hour tolling to facilitate the movement of traffic through the OCA.**

Discussion with the Ministry of Transportation (MTO) determined that erecting additional sound barriers along these routes would benefit residents who live very close to highways; however, residents farther away from these thoroughfares would experience greater pollution effects. Planting trees and other vegetation barriers, on the other hand, would be helpful in reducing pollution levels in the area. The planting of these trees could be accomplished through a partnership with Trees Ontario. The development of High Occupancy Vehicle (HOV) lanes also would facilitate traffic flow during peak periods and would reduce unnecessary idling.

**RECOMMENDATION 25**

**MTO should proceed quickly with plans to plant trees and other vegetative barriers to absorb pollutants generated by the vehicles using the major highways in the airshed.**

Fugitive emissions in the OCA are significant can be readily observed in heavily travelled areas. Inhalable coarse particles ( $PM_{10}$ ) are the primary components of fugitive dust. They originate from on- and off-road vehicles and make up the largest component of particulate matter associated with vehicular traffic. Dust can also come from unpaved roads and track-out from heavy duty vehicles, as well as storage piles in industrial and construction sites. Fugitive dust emissions contribute significantly to local air quality problems.



#### RECOMMENDATION 26

Municipalities should pave the shoulders of main roads within the airshed to prevent dust entrainment and tracking of materials into the roadway. Royal Windsor Drive, from Winston Churchill Boulevard to Ford Drive, is an example of such a roadway.

#### RECOMMENDATION 27

MTO, municipalities, industry and construction companies should adopt best management practices to develop dedicated street sweeping programs for removing road dust materials so that the re-entrainment of particles by car and truck traffic is lessened.

#### RECOMMENDATION 28

Industrial and construction sites should adopt best management practices to lower fugitive dust emissions. Solutions range from the application of dust suppressants to paving of parking lots and loading areas.



Transportation occurs not only on roads, but also on rail in the OCA. GO Transit operates the Lakeshore West Line between Toronto and Hamilton, with stops in Clarkson and Oakville. At the present time, GO Transit uses diesel-powered locomotives. The trains pass through the neighbourhood at frequent intervals during the rush hour period and are a source of transportation-related pollution.



Cleaner technologies have been studied for some period of time, with electrification studies dating back to the 1980s. GO Transit carried out a study for the electrification of the Lakeshore Line in 1982. To date, GO has not implemented non-diesel technology alternatives because their economic advantages did not match those of diesel.

In May, 2009 Metrolinx announced that it would study the electrification of the entire GO Transit rail network. The study is due in December, 2010. In June, 2009 Metrolinx also published an interim Benefits Case Analysis report for an electrified GO Transit Lakeshore Express Rail. The analysis concluded that a combination of enhanced service and electrification would be very effective in attracting people out of their cars, reducing automobile usage and, under one scenario, would result in a reduction of greenhouse gas emissions of more than 170,000 tonnes annually by 2031. Other emissions were not studied directly although the study concluded that electrification would lessen emissions associated with GO Transit operations.

**RECOMMENDATION 29**

**Metrolinx should accelerate the timetable for modernizing its fleet of locomotives from diesel to electric technologies. Power for electrification needs to be sourced from emission-free generation facilities. Consideration should be given to making the electrification of the Lakeshore West Line the first priority. (Note: This recommendation could also apply to all rail traffic activities, especially the shunting of freight cars within the airshed).**

A move to alternative forms of transportation must occur. The availability and use of improved transit and commuter systems in the area has to become a reality. Within the local areas, facilities for bicycles and electric bikes are required to further reduce the amount of locally-generated pollutants from the transportation sector. Employers would also need to accommodate commuters who cycle to the work place.

**RECOMMENDATION 30**

Transit, commuter and local forms of transportation should be improved to encourage utilization of these facilities, including synchronization of buses and GO trains. Items such as “one fare” tickets, right-size buses, structured and safe biking lanes and ample parking availability at all transit venues, are also examples of improvements.

**RECOMMENDATION 31**

It is also vital that the Ontario government provides long-term, stable funding assistance for transportation capital improvements and operations. The federal government also has a role in supporting improved transit and other measures aimed at improving the flow of goods along the QEW and Highway 403 while improving air quality.

Current emission levels from transportation sources have improved dramatically from previous generations of vehicles. But further major reductions will be required. British Columbia, Québec, and Nova Scotia have already drafted legislation for more stringent vehicle emissions standards that are in line with those in California. The provinces of Manitoba and New Brunswick have also indicated their support for tougher standards.

The Action Plan acknowledges the announcement in April, 2010 by the federal government of its proposed *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* which harmonize emission standards with federal U.S. and State of California standards. The proposed regulatory standards would require a fleet-wide fuel economy target of 35½ miles per gallon (or 6.63 litres/100 kilometers) by 2016. It is anticipated that the regulations will result in co-benefits for air quality and climate change, and these emission reductions are expected to contribute to health and environmental benefits.

In late May, 2010 President Obama ordered work to begin on setting the first-ever fuel economy and greenhouse standards for heavy duty trucks. The intent is to reduce fuel consumption by half over the next 20 years. It will be important to watch developments in the U.S. carefully because the OCA experiences heavy truck traffic and the associated emission impacts from sources such as the Queen Elizabeth Way, Highway 403, and arterial roads.

**RECOMMENDATION 32**

**The Ontario government should join its provincial partners and accelerate the adoption of more progressive vehicle emission standards in advance of the implementation of the proposed *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*. The Ontario government should also be at the forefront in championing tougher fuel economy standards for heavy duty trucks.**

**RECOMMENDATION 33**

**Municipal and commercial fleets of motorized vehicles should be converted to lower emission vehicles as soon as possible.**

Emissions per vehicle have come down. But there has been an increase in the total number of vehicles, and this trend towards more vehicles on the road continues. In addition to alternative forms of transportation, over time, there must be a continued evolution to lower emission vehicles through the use of alternate fuels and energy sources (hybrids, bio-fuels, battery driven, electrical).

The Action Plan must reinforce other government air-related initiatives that have benefits for air quality, including, but not limited to: the phase-out of coal-fired power plants by 2014; protecting green space (Green Belt and the Oak Ridges Moraine); Places to Grow; investing in transit; transportation demand management; active transportation; revising and establishing new air quality standards; the federal Volatile Organic Compounds (VOC) emission reduction programs; Modernization of Approvals; Toxics Reduction Strategy; Drive Clean; and energy conservation and efficiency programs. These programs will not be summarized here for the sake of report length; however each was carefully considered in the ultimate development of the recommendations.

**RECOMMENDATION 34**

**All work undertaken in the airshed must be compatible with other government programs that are currently in place or are subsequently developed.**



### *Accountability*

Since we live and operate within a democratic system, elections play a large role in the management of our society. Therefore it important to note that Municipal elections will be occurring in the fall of 2010 and Provincial elections will be occurring in the fall of 2011. The issues related to air quality within the Oakville-Clarkson Airshed will be important for the local candidates to address.

Thus, it can be seen that this is a very complex and complicated issue with many facets. It will therefore require the participation and cooperation of all parties involved to determine a set of solutions to these situations. The responsibilities need to be widely shared, with no single sector bearing the full burden. Transparent and timely disclosure of information and data will be required in order to make this process a success.

#### **RECOMMENDATION 35**

**In order to facilitate transparent and timely disclosure of information and data, a community website must be set-up for the posting of real time monitoring data with the relevant activities and outcomes within the airshed.**

This Action Plan is based on six months of discussions with key personnel within the Oakville-Clarkson Airshed, and with individuals or organizations who had direct linkages to the matters of the airshed. A series of 35 recommendations, which taken collectively, provide a new vision for the comprehensive management of airsheds and dealing with the assessment and management of cumulative impacts. This is a ten-year plan, and to be successful it will require the leadership and sustenance of champions of the program and cooperation from all quarters of the airshed, and beyond.

It is the belief of the Task Force that this airshed management program could represent a model for the future management of complex airsheds in the SWGTA and across Ontario.

*Clarkson Airshed Study:* a geographical region covered by a volume of air that has similar characteristics.

*British Columbia:* An "airshed" or "air basin" is an area in which the terrain and weather conditions hinder the movement of pollutants away from the area.

*Idaho:* An area covered by a volume of air that has similar characteristics and is separated from other volumes of air by weather patterns or topography.

*City of Newcastle, New South Wales, Australia:* The three dimensional atmosphere above a defined geographical area requiring unified management for achieving air pollution control.

*Levelton Consultants Inc.:* An area bounded by topographical features, within which airborne contaminants can be retained for an extended period; is a part of the atmosphere that behaves in a coherent way with respect to the dispersion of emissions; is a defined, geographical region within which air quality can be monitored and managed.

Source: ([http://www.pnwis.org/Ch\\_VI/2010%20February%20Airshed%20Presentation.pdf](http://www.pnwis.org/Ch_VI/2010%20February%20Airshed%20Presentation.pdf))



Ontario

Executive Council  
Conseil exécutif

Order in Council  
Décret

On the recommendation of the undersigned, the Lieutenant Governor, by and with the advice and concurrence of the Executive Council, orders that:

Sur la recommandation de la personne soussignée, le lieutenant-gouverneur, sur l'avis et avec le consentement du Conseil exécutif, décrète ce qui suit :

**WHEREAS** the Government of Ontario is committed to improving air quality through initiatives that would reduce emissions in the Province;

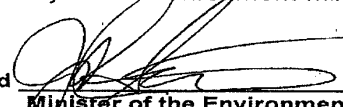
**WHEREAS** the Ministry of the Environment wishes to establish a one person task force, supported by a community advisory committee, that will be tasked with the mandate of developing an action plan for improving air quality in the Clarkson-Oakville Airshed;

**THEREFORE**, pursuant to the prerogative of Her Majesty The Queen in Right of Ontario to establish advisory committees and to provide for the appointment of advisors to serve Her Majesty's Government in Ontario in the discharge of its executive obligations and responsibilities;

1. The South-West Greater Toronto Area Air Quality Task Force (the "Task Force") is hereby established as a short-term advisory committee, accountable to the Minister of the Environment (the "Minister"), for a period commencing on the date of this Order until June 30, 2010.
2. The Task Force will:
  - (a) create and liaise with a community advisory committee made up of members of the public who are participants in the committee on a voluntary basis without remuneration or reimbursement of expenses;
  - (b) develop a work plan and an action plan for the Minister addressing how to improve local air quality in the Clarkson-Oakville Airshed through the reduction of air emissions from industrial, vehicular and residential sources. At a minimum the action plan is to include recommended: (i) air quality improvement targets, (ii) time lines for achieving the targets, (iii) strategies for achieving the targets, (iv) reporting requirements on implementation of the action plan, (v) strategies for obtaining and maintaining updated information on air quality in the Clarkson-Oakville Airshed, and (vi) oversight, coordination and leadership for plan implementation; and
  - (c) provide such other assistance as may be required by the Minister.

O.C./Décret : 1619/2009

3. The Task Force shall consist of one member appointed by the Lieutenant Governor in Council who will also be appointed as the Chair.
4. The one member of the Task Force shall submit the action plan to the Minister prior to, and serve until, June 30, 2010.
5. The one member of the Task Force shall be paid such remuneration as the Lieutenant Governor in Council may determine.
6. The one member of the Task Force will be entitled to receive reimbursement of all reasonable expenses incurred in the performance of duties in accordance with guidelines established by Management Board of Cabinet.
7. The one member of the Task Force will report to the Minister.
8. The Ministry of the Environment will provide secretariat support to the Task Force.

Recommended   
Minister of the Environment

Concurred   
Chair of Cabinet

Approved and Ordered SEP 29 2009  
Date

  
Lieutenant Governor

Residential	4	Doug Mackenzie Dr. Boyd Upper Dorothy Tomiuk Julie Desjardins
Business and Industry	4	Blake Smith Dave Fletcher Irina Vassilieva Mark Hiseler
City of Mississauga	1	Jeff Smylie
Town of Oakville		Cindy Toth
Peel Region	2	Dr. David Mowat Paul Callanan
Halton Region	2	Dr. Bob Nosal Peter Steer

## Background

Air pollution comes from many sources and moves with air masses. It affects health, environment, and economy through illness, negative effects on ecosystems, and lost productivity. The costs of air pollution are high and rising, so it is imperative to not just slow down the increasing rates of air pollution, but to take steps to actually reverse current trends in harmful emissions so that air quality improves.

The Air Quality Task Force (AQTF) was created by the Ontario government to be a catalyst for developing forward-looking solutions on long-debated air quality problems in the Southwest Greater Toronto Area (SWGTA) airshed. The goal of the AQTF is to create an action plan to achieve real improvements in air quality to enhance the health of residents and their children, the quality environment, and the economic competitiveness in the SWGTA.

## Mandate

The Order-in-Council which created the AQTF gave it a mandate to develop an action plan to reduce pollution from industrial, transportation, and residential sources for the short, medium, and long term in the Oakville-Clarkson Airshed. The AQTF was also directed to establish a Community Advisory Committee (CAC) to provide to provide advice and direction on the development of the plan. In creating the CAC, the Task Force has determined that it will represent all quarters of the Oakville-Clarkson Airshed and have no more than 15 members.

## Objectives and Expected Outcomes

By the end of June 2010, the AQTF will report back with an action plan which has:

- Air quality improvement targets;
- Strategies for achieving the targets;
- Time lines for implementing strategies;
- Stakeholder roles and responsibilities;

- Reporting requirements;
- Monitoring strategies; and
- Recommendations for ongoing implementation.

### Next Steps

In the near term, the AQTF's will create a work plan for the January to June 2010 period, establish the CAC, and provide information about the work plan and CAC to the Minister of the Environment before the end of December 2009.

The Task Force will continue to consult key stakeholders, seek information from air quality experts if it is needed, and contact other jurisdictions to determine best practices for local air quality improvement initiatives. The AQTF will hold monthly meetings with the CAC between January and June 2010. The meeting schedule and the Task Force's work plan time table are outlined in separate documents.

### Guiding Principles

The AQTF's planning process to improve air quality in the Oakville-Clarkson Airshed will operate under six guiding principles:

- Shared responsibility and stewardship for protecting the environment and human health through ongoing improvements in air quality;
- Sustainable development which balances environmental protection and the economic well-being for the Oakville-Clarkson Airshed;
- Integrated planning coordinated with other local, provincial, and federal actions;
- Continuous improvement and the use of the most effective means to improve air quality by bringing down pollution levels;
- Flexibility to allow stakeholders to develop their own air quality solutions; and
- Open communication and a transparent, accountable process.



“In” Scope	“Out” of Scope
<p>Emissions by origin and toxicity (human health effects) from industrial, transportation, and residential sources</p> <p>Reductions by priority and source from industrial, transportation, and residential sources</p> <p>Long range transmission of in-bound and out-bound air quality pollutants</p> <p>The impact of local meteorological conditions</p> <p>The potential impact of the proposed natural gas-fired electricity generating station on the Oakville-Clarkson Airshed</p> <p>Recommending policy and regulatory initiatives and programs to achieve air quality improvement targets</p> <p>Time lines for short, medium, and long term actions</p> <p>Guidance on roles and responsibilities for implementing strategies</p> <p>Definition of milestones and targets, as well as direction on progress reports</p> <p>Strategies for maintaining up to date air quality information</p> <p>A proposal for public access to real-time monitoring data</p> <p>An implementation plan</p> <p>Recommendations for ongoing oversight, coordination and leadership on the implementation plan</p>	<p>Beyond what currently exists, additional air quality monitoring studies</p> <p>Air quality impacts outside of the Oakville-Clarkson Airshed</p> <p>Approval process for the natural gas-fired electricity generating station in Oakville</p> <p>Specific approval processes (if any) for other major infrastructure projects which may affect air quality in the SWGTA</p>

**Elected Officials**

MPP Kevin Flynn, Oakville (November 18, 2009; June 17, 2010)

MPP Charles Sousa, Mississauga South (November 18, 2009; June 17, 2010)

Mayor Rob Burton, and staff, Town of Oakville (November 27, 2009; April 22, 2010)

Mayor Hazel McCallion, City of Mississauga (December 1, 2009; June 21, 2010)

Regional Chair Gary Carr, and staff, Halton Region (December 9, 2009)

Regional Chair Emil Kolb, and staff, Peel Region (December 11, 2009)

Councillor Pat Mullin, Mississauga (November 27, 2009)

Councillor Allan Elgar, Town of Oakville (May 25, 2010)

**Provincial Officials**

Gord Miller, Environmental Commissioner of Ontario (January 27, 2010)

Ministry of the Environment: Head Office, Central Region, Halton-Peel District Office, Environmental Monitoring and Reporting Branch, Standards Development Branch, Air Policy and Climate Change Branch, Air Policy Instruments and Program Design Branch, Legal Services Branch

Ministry of Transportation, Transportation Planning Branch

Ministry of Transportation, Central Region

Ministry of Municipal Affairs and Housing, Central Region Field Services

**Municipal and Broad Public Sector**

City of Mississauga: Urban Forestry (February 2, 2010); Planning Department (February 3, 2010)

City of Toronto, Transportation Services Division (May 13, 2010); Toronto Public Health (June 2, 2010)

Credit Valley Conservation (May 4, 2010)

Region of Halton: Region of Peel: (December 11, 2009)

Town of Oakville: Town of Oakville Arborist, John McNeil (January 6, 2010);  
Planning and Development (February 16, 2010)

Toronto and Region Conservation (May 4, 2010)

### **Individuals and Associations**

Citizens for Clean Air, Doug Mackenzie (December 7, 2009)

Clarkson Airshed Industrial Association (December 10, 2009)

HAMN Air (December 8, 2009)

Denis Corr, Rotek (December 8, 2009)

Dr. Bryan McCarry (May 17, 2010)

MIRANET Environment Committee, Dorothy Tomiuk, Ivan Sack, Mike Douglas,  
Bryan Holtham (November 30, 2009)

Dr. Boyd Upper (November 30, 2009)

John Pegram (December 11, 2009)

Julie Desjardins (November 27, 2009)

Residential and Civil Construction Alliance of Ontario (June 2, 2010)

Jim Tovey (January 6, 2010)

### **Companies**

Ashland Canada Corporation (January 12, 2010; April 2, 2010)

CertainTeed Gypsum Canada (February 2, 2010; April 19, 2010)

Clean Harbors Environmental Services (April 14, 2010)

Daimler Buses North America (January 14, 2010; April 19, 2010)

Electrovaya (May 6, 2010)

Ford Motor Company of Canada (December 8, 2009; April 20, 2010)

Grant Haulage Ltd (January 25, 2010; April 19, 2010)

Holcim Canada Inc (December 10, 2009; April 7, 2010)

IPEX Inc (May 17, 2010)

Kraft Canada (May 13, 2010)

Mancor Canada Inc. (February 18, 2010; April 27, 2010)

Musket Melburn Group (March 8, 2010)

Nestlé Purina Petcare (January 27, 2010; May 4, 2010)

Ontario Power Authority (November 19, 2009; January 20, March 23, April 20, June 3, 2010)

Reunion Island Coffee (January 25, 2010; May 4, 2010)

Royal Ready-Mix Inc (January 25, 2010; April 19, 2010)

Schaeffler Canada Inc (April 27, 2010)

Suncor Energy (January 13, 2010; April 14, 2010)

TransCanada (January 11, 2010; May 6, 2010)

UBA Inc (May 17, 2010)

Universal Drum (January 14, 2010; April 7, 2010)

Voith Hydro Inc (April 27, 2010)

Xerox Research Centre of Canada (May 6, 2010)

#### Utilities

Enbridge Gas Distribution Inc. (April 26, 2010)

Enersource Hydro Mississauga (March 4, 2010)

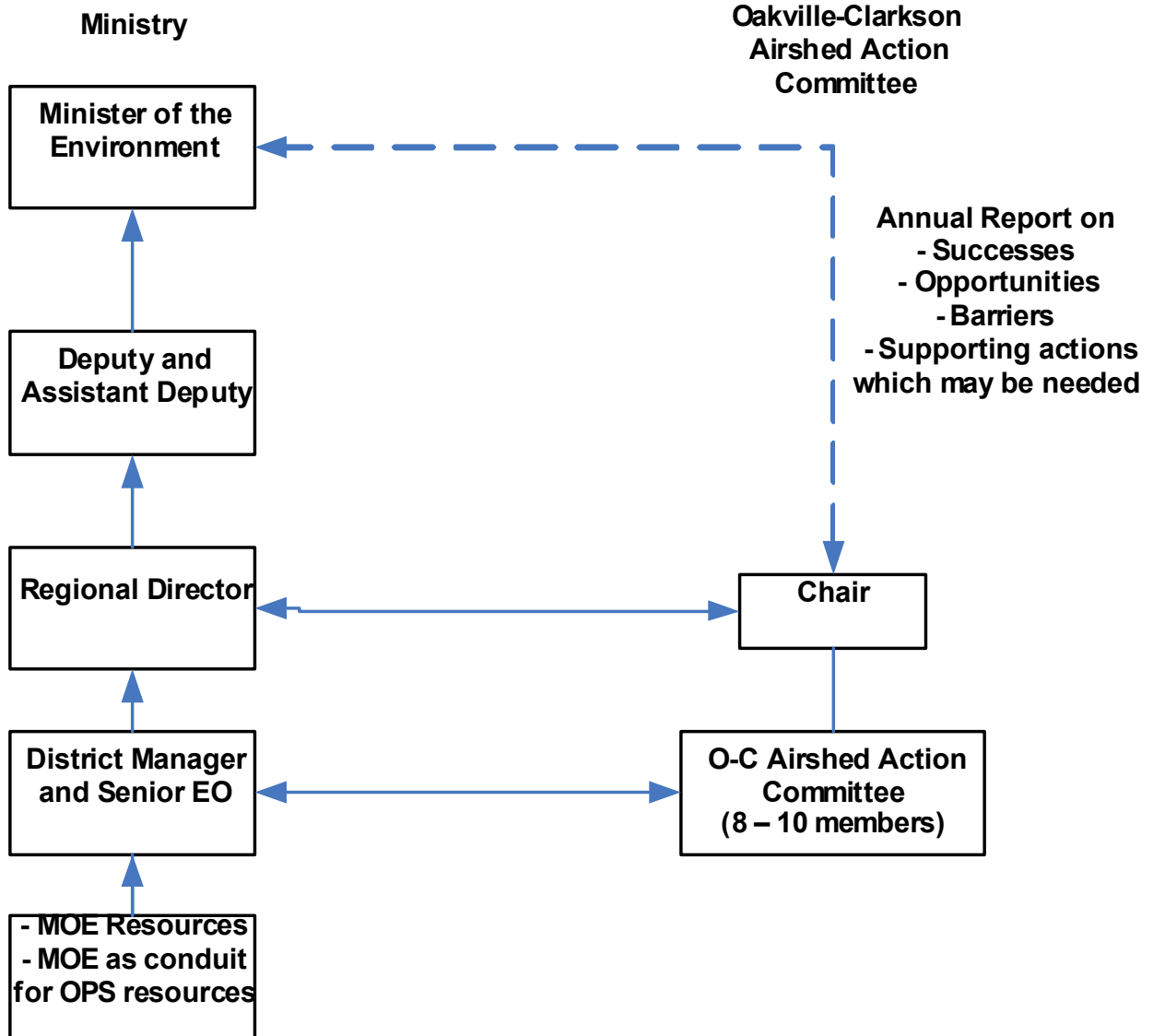
Oakville Hydro (March 8, 2010)

Union Gas (February 10, 2010)

**Media**

Oakville Beaver, David Lea (January 12, 2010)

Mississauga News, Radhika Panwani (January 12, 2010)



## Draft Order in Council

### Oakville-Clarkson Airshed Action Committee

The Ontario government is committed to improving air quality through initiatives by reducing emissions which created adverse health and environmental effects in the Province.

The Ministry of the Environment, therefore, is creating an advisory body of local residential and industry representatives to oversee, coordinate, and lead the implementation of Air Quality Task Force's Action Plan for the Oakville-Clarkson Airshed.

Her Majesty The Queen in Right of Ontario, therefore, is forming an advisory committee to discharge executive obligations and responsibilities.

The Oakville-Clarkson Airshed Action Committee (OCAC) is hereby established as a short-term advisory committee, accountable to the Minister of the Environment (the Minister) for a period commencing on September 1, 2010 until August 31, 2013.

The OCAC will:

- 1) implement the Action Plan which was recommended by the Air Quality Task Force for the Oakville-Clarkson Airshed (OCA)
- 2) consult with the Minister or her/his delegate regarding the oversight and leadership of the Action Plan which, at a minimum, is to include:
  - a) air quality improvement targets and any changes which may be required
  - b) strategies to achieve those targets and any adjustments which may be needed to provide greater progress toward air quality improvement targets
  - c) an air quality monitoring and reporting for the OCA
  - d) a description of any public education and outreach which occurred during the reporting period
  - e) providing such other information which the OCAC believes will contribute to

managing pollution and improving OCA air quality and

- f) an annual report on the status of the implementation of the Action Plan
- g) such other assistance as may be required by the Minister
- h) carry out the Terms of Reference as outlined below.

The OCAC shall consist of not more than 10 members appointed by the Lieutenant Governor in Council.

The Minister of the Environment shall advertise for and subsequently appoint a Chair of the OCAC.

The members of the OCAC, including the Chair, shall serve at the Minister's pleasure from the commencement date of this Order until August 31, 2013.

The Chair will receive remuneration.

The OCAC members shall not receive any remuneration.

The OCAC members, including the Chair, will be entitled to receive reimbursement of all reasonable expenses incurred in the performance of their duties in accordance with guidelines established by Management Board of Cabinet

The OCAC will receive in-kind provincial support in the form of technical expertise, meeting space, and any other services deemed necessary by the OCAC and agreed upon by the Minister

The OCAC, through the Chair, will report to the Minister

The Ministry of the Environment shall provide secretariat support to the OCAC



## Draft Terms of Reference

### 1. Definitions

When used in the Terms of Reference (TOR), the following words or expressions have the following meanings:

“**Annual Report**” means the document described in s. 5(ii)(a);

“**AQAP**” means the Air Quality Task Force Action Plan;

“**Chair**” means the Chair of the Oakville-Clarkson Air Quality Action Committee;

“**Fiscal Year**” means the period commencing on April 1 and ending on the following March 31;

“**Government**” means the Ontario Government;

“**MBC**” means Management Board of Cabinet;

“**MOE**” means the Ministry of the Environment;

“**Minister**” means the Ontario Minister of the Environment, or his or her delegate;

“**OCA**” means the Oakville-Clarkson Airshed;

“**OCAC**” means Oakville-Clarkson Airshed Action Committee;

“**OIC**” means Order in Council;

“**PSOA**” means the *Public Service of Ontario Act, 2006*, S.O. 2006, c. 35, Sched. A, as amended.

### 2. Background

On September 29, 2009, the Ontario government established by OIC an Air Quality Task Force. The Minister of the Environment announced the appointment of Dr. David Balsillie as the one-person Task Force on November 24, 2009. Under the terms of the OIC, the Task Force prepared and submitted an AQAP on June 30, 2010. The plan contains recommendations, including a local governance model, to manage pollution and improve air quality in the OCA. This TOR provides definition of the objectives, expected outcomes, and operation of the OCAC.

### 3. Purpose of the Committee

The purpose of the OCAC is to provide advice and feedback to the Minister of the Environment on managing pollution and improving air quality in the OCA.

### 4. Objectives and Expected Outcomes

The objective of the OCAC, working with the Ministry of the Environment, is to implement the recommendations of the AQAP in the OCA by:

- 1) Providing ongoing oversight, coordination, and leadership for air quality improvements in the OCA which includes:
  - a) Providing input into air quality improvement targets
  - b) Identifying strategies and actions to achieve air quality improvement targets;
  - c) Identifying barriers to the achievement of air quality improvement targets and suggesting options to remove or mitigate the barriers
  - d) Reporting to the Oakville-Clarkson community on the achievement of air quality improvement targets and the strategies to achieve those targets
  - e) Making adjustments as may be needed targets and strategies reflect social and economic changes in the OCA
  - f) Obtaining and maintaining up to date air quality information for the OCA
  - g) Filing an annual report with the Minister on progress during the reporting period.

### 5. Roles and Responsibilities

#### The Minister:

- A. Is accountable to the Legislative Assembly for the performance of the OCAC in the fulfillment of its objectives and in compliance with applicable TB/MBC guidelines, directives and policies;
- B. Is responsible for reporting and responding to the Legislative Assembly on the affairs of the Committee;
- C. Is responsible for representing the OCAC in the Cabinet and its committees, the Legislative Assembly and before committees of the Legislature;

- D. Will inform the Chair of the Ontario government's priorities and broad policy directions for the OCAC, and when appropriate or necessary, will take action or direct that corrective action be taken in respect of the fulfillment of the OCAC's purpose;
- E. Will consult, as appropriate, with the Chair (and others) on significant new directions for the OCAC and/or when the Government is considering regulatory or legislative changes which may affect air quality in the OCA;
- F. May recommend appointments and reappointments pursuant to the process for Council appointments established by legislation or by Management Board of Cabinet, after consultation with the Chair as appropriate;
- G. May meet with the Chair as required; and
- H. Shall respond in writing to the OCAC within 60 days of the Minister receiving the Annual Report.

**The OCAC:**

- A. Shall meet on the third Wednesday of every month except in July, August, and December;
- B. The Chair will send an agenda out two weeks in advance of each meeting. Members of the OCAC are encouraged to contribute to the agenda;
- C. The OCAC shall provide written outcomes of its meetings;
- D. Will operate on the basis of consensus, with the Chair finding common ground when differences may emerge among members. If a consensus of all OCAC members cannot be reached, then the differences in opinion will be documented in the Annual Report to be submitted to the Minister for consideration;
- E. May establish, as may be deemed necessary, task forces and working groups to address specific issues and report back to the OCAC;
- F. Shall establish and operate a community-based website to make the information about air quality in the OCA available and shall post the outcomes of its meetings;
- G. May consult with the Town of Oakville, the City of Mississauga and the MOE

regarding the contents of a website that will contain information about the air quality in the OCA;

- H. Shall draft an Annual Report which describes the progress of implementing the AQAP the and other matters related to improving air in the quality;
- I. Shall submit the Annual Report on the anniversary of the first Committee meeting and each subsequent anniversary of the first OCAC meeting.

## **6. Membership**

OCAC members are appointed by the Minister pursuant to the OIC and are subject to member selection and appointment as stipulated by the Ontario Government's Public Appointments Processing Guide or any successor document.

The OCAC shall have a maximum of ten (10) members, with an equal number of representatives drawn from resident associations and businesses in the OCA.

Members of the public may apply to the Minister of the Environment to participate on the OCAC, and membership will be on the basis of an invitation from the Minister.

The OCAC will have ex-officio representation from the Town of Oakville, the City of Mississauga, and the Ministry of the Environment, which will determine who their representatives are and how they will be appointed.

The position of Chair will subject to confirmation by the Public Appointments Secretariat.

## **7. Reporting**

The OCAC's advice on progress toward implementing the recommendations of the AQAP is to be provided to the Minister in its annual report.

## **8. MBC Directives**

The OCAC is subject to and shall comply with the Treasury Board/MBC and Ministry of Finance Directives specified in Schedule 1 to this TOR and any other directives, guidelines and policies that may be applicable to the OCAC pursuant to its classification as a Short-Term Body and a Commission public body under the PSOA unless the OCAC is explicitly exempted by MBC and the exemption is communicated in writing to the Chair by the Ministry.

The position of Chair will be subject to confirmation by the Public Appointments

#### **9. Duration of TOR**

From the date of this Order, the TOR shall remain in effect until August 31, 2013.

Notwithstanding the sentence above, the TOR shall remain in effect for no more than six (6) additional months until a newly signed TOR is provided to the Secretary, MBC.

The OCAC shall be subject to sunset review two years from the date of its first meeting, with a report and recommendation to the Minister of the Environment on or before January 31, 2013.

On the basis of the report, the Minister of the Environment may seek to extend, amend, or end the mandate of the OCAC.

#### **10. Process for Review and Amendment**

This TOR shall be reviewed upon appointment of a new Minister or a new Chair. The purpose of the review is to ensure that the Minister or the Chair, as the case may be, is aware of this TOR and to give the Minister or the Chair the opportunity to amend this TOR. Where the Minister and the Chair agree to continue this TOR with or without requiring any amendment, both parties must affirm the continuance and set out the amendments to the TOR, if any, in writing.

This TOR may be amended in writing at any time with the agreement of the Minister and the OCAC. Either the Minister or the OCAC through the Chair may propose amendments to this OCAC.

City of Mississauga

Halton Region

Town of Oakville

Peel Region



---

May 12, 2010

Dr. David Balsillie  
Air Quality Task Force SWGTA  
135 St. Clair Avenue West, 8<sup>th</sup> floor  
Toronto, Ontario M4V 1P5

Dear Dr. Balsillie:

In response to your letter, dated April 15, 2010, requesting a summary of actions taken by the City of Mississauga which have contributed to improved air quality in the Clarkson Airshed, we are pleased to provide you with the attached document. The majority of these actions have been implemented across the City and where available, estimates of the resulting emissions reductions have been provided. However, estimates of emissions reductions specific to the Clarkson Airshed are not available.

In addition to the actions which have already been taken, we have also included several initiatives which, though they are not yet approved by Council, give a strong indication of the City's on-going commitment to providing the residents and businesses of Mississauga with a healthy environment, including clean water, soil and air.

Thank you for the opportunity to provide you with this information and should you have any questions or concerns, please do not hesitate to contact me.

Respectfully,

A handwritten signature in black ink, appearing to read "Jeff L. Smylie".

Jeff Smylie, P.Eng.  
Environmental Engineer  
Environmental Services  
Transportation and Works Department

CC: M. Powell, Commissioner, Transportation and Works  
B. Osborne, Manager, Environmental Management



**Summary of Air Quality Improvement Actions**  
**City of Mississauga**

- Mississauga's Strategic Plan – Approved in 2009
  - Several Strategic Pillars of the Plan, notably 'Living Green' and 'Developing a Transit-Oriented City' promote increased transit use as well as cycling and walking and a clean and healthy natural environment, including improving our air quality
- Southdown District Policies – Approved in 2008
  - New trucking terminals, outdoor storage of motor vehicles and waste processing or transfer stations are prohibited in Business Employment and Industrial areas
  - Restrictions on the outdoor storage of materials
  - Promotes the 'greening' of streetscapes, increased use of transit and a safe and comfortable pedestrian and cycling environment
- Smart Commute Mississauga – Initiated in 2006
  - Trip reduction programs resulted in 17,851 tonnes of greenhouse gas emissions reduced and 119,335 kg's of air quality indicators reduced in 2009
- Idling Control By-law and Awareness Campaign – Enacted in 2009
  - Ticketable offence if idling exceeds 3 continuous minutes
  - Unnecessary Vehicle Idling Policy for City staff adopted in 2009
- Dust Management Initiatives in Southdown – Initiated in 2002
  - Street Sweeping -Arterial roads are swept once per week
  - Paved shoulders – majority of roads in Southdown area now include paved shoulders
- Native Tree and Shrub Planting on City-owned Land – Initiated in 2008
  - 12,750 trees and shrubs planted in 2008
  - 22,200 trees and shrubs planted in 2009
- Bus Shelter Solar Lighting – Launched in 2004
  - 119 Solar powered shelters as of December 2009
- LED Traffic Signal Light Retrofits – Completed in 2004
  - 390 intersections completed resulting in 1,344 tonnes of eCO<sub>2</sub> reductions/year
  - As of 2002, all new installations are LED
  -
- Green Fleet Right-Sizing Program – Initiated in 2006
  - Once 5 year replacement schedule is complete in 2011, it is anticipated that 548 tonnes of eCO<sub>2</sub> will be reduced

- Use of Biodiesel in Mississauga Transit Buses – Started in late 2007
  - Buses used 15,904,427 litres of biodiesel in 2009 resulting in approximately 1,785 tonnes of eCO<sub>2</sub> reduced
- Energy Management Program (City) – Initiated in 2001
  - Program consists of six essential components: Energy Monitoring; Procurement; Audits; Conservation/Efficiency Initiatives; Awareness Programs and Renewable Energy Initiatives. The current figure for greenhouse gas reduction from the Energy Management Program is 18,400 tonnes for the seven years from 2002 to 2008
  - Green Power for the Civic Centre – since 2008
    - Greenhouse gas emission reductions of 4,400 tonnes/year.
  - Hershey Centre Photovoltaic System – installed in late 2007
    - Will reduce greenhouse gas emissions by 25,800 kilograms per year for approximately 25 years
  - Energy Conservation Initiatives – 2008 to 2010
    - Includes projects to recover waste heat, improve pump efficiency and install energy efficient lighting, resulting in a total reduction of 2900 tonnes of greenhouse gas emissions/year

#### Initiatives In-Progress

- Draft Mississauga Official Plan – will provide a policy framework to support a strong public transportation system and address the long term sustainability of the City
- Clarkson Village Study – will likely promote transit, walking, additional street trees and less surface parking
- Million Trees Planting Program – trees planted on public and private property should save energy costs and reduce greenhouse gas emissions
- Living Green Master Plan – will lay out a roadmap for environmental sustainability for Mississauga, including becoming a `net-zero` carbon city
- Cycling Master Plan – goal is to incorporate cycling into the City's way of life by building an integrated on-road and off-road cycling network
- Transportation Master Plan – will look at retrofitting the City's transportation network to a multi-modal system, including transit, cycling and pedestrian mobility
- Green Development Standards – all new City facilities will be designed and built to meet the LEED Silver standard with facilities 10,000 square feet and over requiring certification
- Green Development Strategy – goal is to increase the sustainability of new development applications, including actions to reduce greenhouse gas emissions
- Future Green Energy and Energy Conservation Initiatives – includes plans for solar hot water heating of Community Centres and additional lighting retrofits



May 13, 2010

Mr. David Balsillie  
Air Quality Task Force  
Southwest Greater Toronto Area  
135 St. Clair Avenue West, 8th Floor  
Toronto, ON M4V 1P5

Patrick Moyle  
Chief Administrative Officer  
1151 Bronte Road  
Oakville ON L6M 3L1  
Ph: 905-825-6070  
Fax: 905-825-8273

Dear Mr. Balsillie:

RE: Request for Information: Initiatives By Halton Region To Improve Air Quality

In response to your request of April 18<sup>th</sup>, 2010, staff at Halton have prepared the following overview of Regional activities that support the protection of Air Quality across Halton and in the Oakville-Clarkson air shed. Staff are of the understanding that the list of actions submitted will be included as an appendix to the Action Plan for the Oakville-Clarkson which will in turn be submitted to the Minister of the Environment on or before June 30<sup>th</sup>.

If you have any questions and/ or require further information, please contact either Dr. Bob Nosal, our Medical Officer of Health at [bob.nosal@halton.ca](mailto:bob.nosal@halton.ca) or Ron Glenn, our Chief Planning Official at [ron.glenn@halton.ca](mailto:ron.glenn@halton.ca).

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Moyle", is written over a faint, larger version of the signature.

Patrick Moyle,  
Chief Administrative Officer

Attach:

c: Dr. Bob Nosal, Medical Officer of Health  
Ron Glenn, Chief Planning Official  
Peter Steer, Senior Policy Analyst

The Regional Municipality of Halton

**Halton Region's Initiatives to Improve Air Quality  
Documentation for the Southwest Greater Toronto Area Air Quality Task Force  
May 2010**

Halton Region Initiatives	Policies and Actions to Improve Air Quality
<p><b>Regional Official Plan Amendment No. 38 (ROPA 38)</b></p> <p>Adopted by Regional Council on December 16, 2009. Currently awaiting Provincial approval.</p>	<p>The Sustainable Halton planning conformity exercise concluded with ROPA 38 and contains policies to address air quality and climate change in Part IV on Healthy Communities. Sections 142 and 143 pertain to Air and Ambience. ROPA 38 can be accessed at: <a href="http://www.halton.ca/common/pages/UserFile.aspx?fileId=333306">http://www.halton.ca/common/pages/UserFile.aspx?fileId=333306</a></p> <p>Policies focus on: monitoring and reporting on air quality; airshed modelling to predict future air quality in Halton; addressing future degradation of air quality; a Halton Response Plan to address climate change, including measures and best management practices the Halton community can take to reduce greenhouse gas emissions and sequester carbon dioxide; and encouraging the Local Municipalities to adopt landscaping policies and practices that would reduce emissions of greenhouse gases and air pollutants and reduce the urban heat island effect.</p> <p>Two Implementation Guidelines will be prepared for Council adoption in 2011. The <i>Land Use Compatibility Guidelines</i> are intended to minimize the adverse effects of noise, vibration, odour and air pollution from industrial, transportation and utility sources on sensitive land uses, including the identification and application of separation distance criteria between these non-compatible uses. The <i>Air Quality Impact Assessment Guidelines</i> are intended to ensure development will not result in reduction in air quality in Halton.</p>
<p><b>Corporate Energy Management</b></p> <p>Commenced in 2007</p>	<p>Energy Management Action Plan (2008- 2010) defines approaches to manage energy including audits, retro-fits, benchmarking, and reporting. The 2009 energy audit of 15 facilities identified the need for a number of retrofits. \$400,000 has been allocated for lighting and water conservation retrofits in 2010 which will yield a 3-year payback.</p> <p>A Renewable Energy Feasibility Study of all Halton Facilities is underway with completion anticipated in September 2010. A Sustainable Policy for New Construction and Renovation (eg. ASHRAE, LEED and other programs) is also underway.</p>
<p><b>Air Programme</b></p> <p>Commenced in 2007</p>	<p>Halton's Air Quality Programme is directed at community emissions, and includes air monitoring (portable and stationary air monitors), airshed modelling, policy development, and health promotion directed at air quality and climate change as they relate to the built environment.</p>

Halton Region Initiatives	Policies and Actions to Improve Air Quality
<p><b>Landfill Gas Collection &amp; Utilization Project</b> Commenced in 2007</p>	<p>More information on the air programme can be accessed at: <a href="http://www.halton.ca/airquality">http://www.halton.ca/airquality</a></p> <p>The Project is a partnership between Halton Region and Oakville Hydro to collect landfill gas and use it to produce energy. The Project eliminates almost 40,000 tonnes of carbon dioxide while generating just over 1 megawatt of electricity.</p>
<p><b>Water Efficiency - Low Flow Toilet Rebate</b> Commenced in 2007</p>	<p>The Region has a number of water conservation programmes. Water efficiency measures, such as Halton's Low Flow Toilet Rebate Program, have resulted in an estimated savings of more than 185,000 m<sup>3</sup> of water per year. This can translate into a savings of approximately 144,300 KW hours of electricity annually, based on reduced water and wastewater treatment requirements.</p>
<p><b>Energy Star Office Equipment</b> Commenced in 2004</p>	<p>The Energy Star procurement programme in place for all printers, copiers, and monitors has reduced electricity consumption by over 1.0 million kilowatt hours (kwh) since 2004.</p>
<p><b>LED Traffic and Pedestrian Signals</b></p>	<p>The Region has converted over 90% of all traffic signals to LED technology which has reduced energy consumption of 2 million kilowatt (kwh) per year.</p>
<p><b>Green Fleet</b> Commenced in 2004</p>	<p>Two main components of the Greening of Corporate Fleet include a biodiesel program which uses B5 &amp; B20 biodiesel blends, amounting to 370,000 litres a year at all Corporate fuelling locations; and a Hybrid Vehicle program which includes the purchase of 3 vehicles which has achieved a 29% average increase in fuel efficiency under actual driving conditions. Vehicle Right Sizing will be looked at in 2010.</p>

# Town of Oakville Health and Air Quality Initiatives

May 2010

The Town of Oakville is undertaking actions to protect the health and air quality of our community. Initiatives related to improving health, air quality, and reducing greenhouse gas and energy consumption are noted. More detail on all initiatives can be found at [www.oakville.ca](http://www.oakville.ca). Annual reports on the implementation of sustainability and environmental initiatives are published in the 'Let's Go Green' (2008, 2009, 2010) and the 'Oakville State of the Environment' (2008, 2009) booklets.

## CORPORATE INITIATIVES

### Policy and Master Plans:

**Council's Strategic Plan** (2007-2010) – Mission to create and preserve Canada's most livable community that enhances the natural, cultural, social and economic environments

**Environmental Strategic Plan** (2005) – Goals to protect and enhance resources including airsheds, develop environmentally friendly transportation systems and maintain healthy neighbourhoods

**Livable Oakville** (2009) – Growth directed to protect the natural environment, and heritage and stable neighbourhoods, and green community development and building

**Transportation Master Plan** (2007) / **Active Transportation Master Plan** (2009) – Establishes transportation policies and infrastructure plans for all travel modes in Oakville (vehicles, transit, cycling, walking)

**North Oakville Secondary Plan** (2007/8) / **New Communities of Oakville** – Transit-first, sustainable, walkable community plans for lands north of Dundas

**Parks, Recreation, Culture and Library Master Plan** (2006) – Principle to provide leadership in environmental stewardship, protect and enhance parklands, trails, and the urban forest

**North Oakville Implementation Guidelines** with Sustainable Development Guidelines and Checklist for developments (2009) – Establishes framework for sustainable development

**Environmental Sustainability Policy** (2009) – Sets policy to carry out environmental initiatives advancing Oakville as a sustainable community

**Health Protection Air Quality By-Law** (2010) – To assess and control the health effects of major emissions of fine particulate matter in Oakville

**Anti-Idling By-law 2002-153** (2002) – To control vehicle idling

**Private Tree Protection By-law 2008-156** (2008) – Protects significant trees on private property along with other related tree protection regulation

**Pesticide By-law** (2007) – Use of pesticides strictly restricted in Oakville, replaced by Provincial Act in 2009, applied to private lands, corporate restrictions in place (2004 onwards)

**Urban Forest Strategic Master Plan** (2008) – Establishes policies and actions to protect and enhance Oakville's urban forest working towards the Mayor's legacy goal of 40% canopy cover by 2057, significant annual planting program

### Programs:

**ICLEI / FCM Partners For Climate Protection**, Milestones 1, 2, 3 (2008 onward) – Baseline energy and greenhouse gas emissions (GHGe) established, GHGe targets set, Corporate Action Plan approved, green energy purchased, annual reporting with measurables

**Sustainable Energy Management Plan** (2010) - Establishes corporate-wide coordination to optimize energy management, achieve efficiencies and reduce consumption

**Sustainable Green Fleet Procedure and Guidebook** (2009) – Implementation plan defined to green fleet with annual reporting on effectiveness, and smart fleet driving

**Sustainable Green Purchasing Procedure and Handbook** (2009) – Implementation plan defined to ensure sustainable purchasing, annual reporting

**Towards Zero Waste Program** (2009) – Enhanced recycling and composting options and water bottle restrictions and removal of office garbage bins to achieve significant waste reduction and recycling improvements

**Green Building Procedure / Sustainable Green Building Design Guidelines** (June 2010) – Establish standards to ensure corporate sustainable building

**Clean Air Plan** (2002/2010) – Action plan to mitigate impact of operations on air quality through behaviour change and operational improvements

**LED Traffic Light Replacement** (2004 to 2008 complete) – Conversion of older energy inefficient technology with energy efficient LEDs

**Technology Improvements and Pilot Testing** (ongoing) – Dustless, waterless street sweepers, LED street lights, alternative fuels, fuel use improvements

**Transit Service Improvements** (ongoing) – Improved, more fuel-efficient routes for better service, PRESTO farecard early adopter, launched May 2010

**Staff Education** (ongoing) – Tire Smart, energy conservation, environmental stewardship, home energy audits supporting environmental action at work and home

### Buildings:

**LEED Certified Buildings** under construction, LEED Accredited Professionals on staff

**Green energy projects** - Oakville Hydro/Region of Halton landfill gas capture project (2007), new Transit Facility with geothermal (2010), rooftop solar installations planned

**Green energy purchase** (2005 onward)

**Building Audits** (2007) - All major town buildings have implementation plans

### COMMUNITY INITIATIVES

**Energy Conservation Outreach** (2006 onward) – Annual Conservation Fair, Watt Not Waste Not energy meter Library lending program, BIA ‘Doors Closed’ campaigns

**Municipal Energy Conservation Officer** (2008) - Conducts outreach to promote energy conservation and consumption reduction actions by community

**Environmental Stewardship Outreach** (2004 onward) - To promote actions to protect and enhance Oakville’s environment

**Air Quality Improvement and Anti-Idling Outreach** (2004 onward) – School community program, signage, community events

**EcoAction Calculator** (April 2010) – To provide community motivation to make behaviour changes to improve their environment, measurables will be tallied

**Clean Air Plan** (2002) – Community actions are identified to improve air quality



## **Air Quality Task Force - Southwest Greater Toronto Area Summary of the Region of Peel's Air Quality Activities**

### **Steps which have been taken to improve air quality by reducing emissions**

The Region of Peel is involved in a number of initiatives to improve air quality and reduce emissions. Improving air quality is a priority for the Region and this can be seen in the Region's Strategic Plan, which commits the Region to implementing strategies to improve air quality. Improving air quality requires multiple solutions and the activities that Peel is involved in range in scale and scope. Below is a summary of Peel's activities based on the information requested.

- Different initiatives require different partners and, as a result, the Region of Peel has developed a complex network of partners ranging from the local area municipalities, local Transportation Management Associations, the Governments of Ontario and Canada, the Ontario Public Health Association, the GTA Clean Air Council, non-governmental organizations, the Association of Municipalities of Ontario, local school boards, utilities and local businesses and the residents of Peel. The Region's Public Health Unit also chairs an inter-departmental working group on air quality which includes the three local area municipalities. The working group meets to discuss air quality initiatives and share best practices.
- The Region of Peel's Energy Management Plan sets the framework for energy management throughout the corporation. The Strategy outlines a strategic plan for mitigating against volatile energy prices and unstable energy supplies; advancing energy conservation; enhancing environmental social and financial performance in a sustainable manner. Examples of activities that have been implemented under the Energy Management Plan include: building energy audits and retrofits, energy retrofit of the South Peel Water and Wastewater Treatment Plants and Pumping Stations, setting energy performance standards for buildings and capital equipment, renewable energy initiatives, conversion of traffic signals and lighting to light emitting diode (LED) technology and reducing building energy consumption through building automation.
- Six partners within the geographic region of Peel are proactively creating a Climate Change Strategy, which will include both mitigation and adaptation strategies, as well as a monitoring framework to evaluate the success of the Strategy (<http://www.peelregion.ca/planning/climatechange/>).
- Through the Regional Official Plan Update, the air quality section of the Plan has been enhanced and new policies have been added.
- The Region's [Water Efficiency Plan](#) outlines the Region's strategy to reduce water consumption in Peel by 10 per cent by 2015. A reduction in water consumption reduces associated energy requirements and greenhouse gas emissions related to water and wastewater treatment and distribution processes. Examples of initiatives undertaken include: toilet replacement program for residents and businesses, indoor water audit program, lawn and garden consultation program and water efficiency retrofit projects.

- The Region is involved in initiatives aimed at reducing kilometres travelled by increasing alternative modes of transportation such as walking or cycling, increasing the efficiency of fleets, purchasing hybrid fleet vehicles and reducing idling to help improve air quality by reducing pollutants.
- The Region is involved in a number of activities to raise awareness and create behavior change. Examples of initiatives include a program delivered by Peel Health called 20/20 the Way to Clean Air which encourages a reduction in energy use and vehicle kilometers traveled by 20 per cent each by 2020 (<http://www.cleanairpartnership.org/2020/>). In addition, the Region's Clean Air Peel website educates individuals on air quality, the health effects resulting from poor air quality, actions they can take and what the Region is doing to improve air quality (<http://www.peelregion.ca/health/cleanairpeel/>).
- The Region has a goal of 70 per cent waste diversion by 2016. The following initiatives help to improve air quality in the Region:
  - Biodiesel from Waste Vegetable Oil  
The Waste Operations Section collects used vegetable oil from the Region's Community Recycling Centres. The waste vegetable oil is diverted from disposal and the biodiesel produced burns cleaner than fossil fuel, emits fewer toxins, and decreases ozone and smog. The Waste Operations Section has a fleet of vehicles which run on the biodiesel produced from waste vegetable oil and in 2010, the program will be expanded and the biodiesel created will be used in a TransHelp bus, a roll-off tractor trailer and a CAT loader at the Battleford Community Recycling Centre.
  - Landfill Gas Utilization Plant  
The Britannia Landfill Gas to Electricity Project in Mississauga collects approximately 2,500 ft<sup>3</sup> of landfill gas per minute. The plant has a total generation capacity of approximately 5.5 megawatts which is enough to power approximately 5,000 homes on a daily basis for the next 20 years. The project abates the release of 250,000 tonnes of CO<sub>2</sub> equivalents and 10,000 tonnes of methane annually.
  - Organics Collection  
Region-wide household food waste is centrally composted thereby reducing landfill gas emissions. The associated reduction in vehicle emissions is also being realized.

#### **When the steps were implemented**

The implementation of air quality improvement initiatives is an on-going priority and activity for the Region.

#### **The reductions and an estimate of the quantity of the reduction**

- The Region is in the process of establishing corporate-wide annual energy consumption and greenhouse gas emission reporting.

- Currently, emission reduction results for all of the Region's activities are not available. Calculators designed to quantify corporate activities are not as readily available as are web-based calculators that quantify emissions reductions resulting from actions taken by individuals.
- The estimated greenhouse gas reductions for 2010 are approximately two tonnes. The Region does not have estimates of the criteria air contaminants reductions.

#### **Future Plans**

- Continued implementation of air quality improvement activities.
- The Region will work towards the implementation of the Official Plan air quality policies.
- On-going work on the completion of the Climate Change Strategy for the geographic region of peel.



Ashland

CertainTeed

CleanHarbors

Daimler Buses North America

Electrovaya

Ford Motor Company of Canada

Grant Haulage

Holcim

IPEX

Kraft

Mancor

Reunion Island

Royal Ready-Mix

Schaeffler Canada Inc.

Suncor Energy

UBA

Voith Hydro Inc

Xerox Research Centre



**Ashland Canada Corp.**  
Subsidiary of Ashland Inc.  
2620 Royal Windsor Drive, Ontario  
Canada L5J 4E7 Tel. 905-823-1800

---

May 28, 2010

Mr. David Balsillie  
Air Quality Task Force  
Ministry of the Environment  
135 St. Clair Ave. West, 8th floor  
Toronto ON M4V 1P5

RE: Response to April 15<sup>th</sup> Request for Information  
Actions to Improve Air Quality in the Oakville-Clarkson Airshed

Dear Mr. Balsillie:

Ashland Canada Corp., subsidiary of Ashland Inc. (Ashland) operates a facility at 2620 Royal Windsor Drive in Mississauga, Regional Municipality of Peel. The facility manufactures and distributes a wide variety of chemicals and synthetic resins for the Canadian industry and for export. The product's serves numerous markets, including the pharmaceutical, automotive, food, plastic and paint industries.

The facility has been recognized for both ISO 9001 certification of excellence in meeting quality standards and ISO 14001 certification of excellence in meeting environmental standards. In 2010, this facility was recognized to be one of the first sites in Canada to receive RC 14001 certification which encompasses excellence in environmental, safety and security processes.

Over the thirty-five years that Ashland has been operating the plant, the company has made multiple improvements to decrease the amount of air emissions. In 1989, the facility added the thermal oxidizer to control emissions from the process operations. The addition of the thermal oxidizer resulted in a net decrease in volatile organic compound emissions with a control efficiency of greater than 99.9%. In 2006, Ashland installed a scrubber system for one of its storage tanks to reduce emissions. The addition of the scrubber resulted in a net decrease in volatile organic compound emissions with a control efficiency of greater than 95%.

Ashland subscribes to the principles of Responsible Care<sup>1</sup> as set forth by the Chemistry Industry Association of Canada (CIAC) and American Chemistry Council (ACC) and has implemented management systems accordingly. We take our commitment to the health and safety of our employees, communities and the environment very seriously. Thank you for this opportunity to provide the foregoing information.

Regards,

Sohail Khan  
Plant Manager

<sup>1</sup> Responsible Care is a service mark of the CIAC and ACC  
CC: Nicole Hamilton, Ashland Inc.; Gerry Moss, Ashland Inc.; File: APM/Correspondence/Air/2010

---

Canadian Head Office  
2620 Royal Windsor Drive  
Mississauga, Ontario  
L5J 4E7  
(905) 823-1800

U.S. Headquarters  
5200 Blazer Parkway  
Dublin, Ohio  
U.S.A. 43017  
(614) 889-3333

Dr. David Balsillie  
Air Quality Task Force  
135 St. Clair Avenue West, 8th Floor,  
Toronto, ON M4V 1P5

Dear Dr. Balsillie,

Thank you for the opportunity to share some of our successes with you. For an overview of the business, CertainTeed Gypsum Canada, a subsidiary of Saint-Gobain, is a manufacturer of interior building materials for both commercial and residential markets. Our manufacturing facility on Lakeshore Road West in Mississauga has manufactured wallboard/drywall since it opened in 1964. The plant is designed to operate 24/7 and employs between 65 and 90 residents of the GTA. In addition, several corporate staff departments are based at the site, employing approximately 25 employees.

The facility, and indeed, the company as a whole, prides itself on manufacturing green, environmentally friendly products as one of its core values. The two main raw materials we use in the manufacturing of wallboard are 100 percent recycled or by-product materials. The gypsum material used is a by-product material, created in the process of the scrubbing of coal fired power station emissions and the paper used is 100% recycled.. As a result, the products bear the EcoLogo<sup>M</sup> seal of approval and are often specified for LEED-rated jobs.

As an ongoing continuous improvement program, the Mississauga facility has implemented a number of projects to conserve energy and improve air quality. Some highlights are:

- ISO 14001 accredited since 2001
- Developed products to meet EcoLogo<sup>M</sup> and LEED certification requirements
- Installed an exhaust recovery system to recycle waste gases, resulting in significant energy reduction.
- In addition, upgrade of two sections of the drying machinery in 2008 to reduce energy usage by a total of 13 percent. For this improvement, the plant was awarded Canadian Industry Program for Energy Conservation recognition.
- Participate in an Interruptible Service program for power in which we cease operations, if required, during periods of peak public demand
- Reduced the amount of water we use by 4 percent since 2007.
- Installed sub-metering equipment for gas in the plant to track and identify opportunities to reduce energy usage and emissions from the plant.
- Undertake a robust preventive maintenance program to ensure our gas burners are highly tuned and therefore burn gas efficiently and clean.
- Recycle all plastic used in the packaging process.
- Set up a program to actively encourage customers to return packaging spacers to the facility for us to recycle into the process.
- Set up a program to actively encourage customers to return wooden pallets for reuse.



CertainTeed Gypsum Canada Inc.  
2424 Lakeshore Road West  
Mississauga, ON  
L5J 1K4  
Tel 905 823-9881  
Fax 905 823-4479

- Regular structured review of new and existing processes to reduce energy usage and seek greener alternatives
- Recently completed a 'Lights Off' program to reduce energy consumption when facility is not operating, reducing energy consumption by 750,000 kWh/yr.
- On-going replacement program to install high efficiency motors and variable frequency drives across the plant where energy reductions can be made.

Through our corporate and local program of continuous Improvement to become a World Class Manufacturing facility, CertainTeed Gypsum Canada is committed to continue to actively reduce energy and emissions from the plant to minimize any environmental impact in the community.

Best Regards

Dr. Jason Davies, CSci, CEng., CChem  
Plant Manager, Mississauga  
CertainTeed Gypsum Canada Inc.





Clean Harbors Canada, Inc.  
551 Avonhead Road  
Mississauga, ON L5J 4B1  
905.822.3781  
www.cleanharbors.com

Clean Harbors is a leading provider of environmental, energy and industrial services throughout North America. The company provides a board range of hazardous material management and disposal services including collection, packaging, transportation, recycling, treatment and disposal of hazardous and non-hazardous waste. Field Services provide a wide variety of environmental cleanup services on customer sites or other locations on a scheduled or emergency response basis.

The Clean Harbors Canada, Inc. - Mississauga Transfer Service Disposal Facility (TSDF) consists of a 4-hectare parcel of land located at 551 Avonhead Road in Mississauga, Ontario. The site receives various hazardous and non hazardous wastes that are liquids, solids, sludges and gases. Received wastes are bulked, blended or treated and resultant materials are shipped for final disposal, reuse or recycling. Materials are received in bulk tankers, bulk luggers/rolloffs, dump trucks, drums, pails, totes, bags boxes, skids and labpacks.

The site operates under as Waste, Air and Sewage Industrial C of A. The facility has always complied with Section 5 of the General Air Pollution Regulation (RRO 1990 Reg 346) under the Environmental Protection Act. Sources of emissions from the facility can be divided into 2 general groups at Clean Harbors – Mississauga Facility; Emissions from processes or sources related to the storage and processing of wastes, and emissions from non-production or support equipment. Emission control equipments for processes include activated carbon bed for tank farm and drum pumping operation, and a kerosene scrubber with stack for a specific customer stream. With emissions exhausting through activated carbon adsorber, it results in a reduction in the emission of approximately 90%. Fugitive emissions from non-production or support equipment are mitigated through strict facility standard operating procedures and policies such as ensuring all containers are closed and properly sealed when in storage and minimizing the amount of drums that can be opened at a given time. A misting system is also attached to the facility drum shredder for the occasional dusty load. Since the conception of the processes, these emission control equipments were implemented to improve air quality and reduce emissions.

Clean Harbors Canada, Inc. constantly strives to improve the air quality and reduce emission at the site. Before acceptance of every stream, not only is acceptance criterias reviewed, but handling method and impact of material to site along with job hazard assessment are also conducted. Rigorous training of the staff to bring awareness is also part of the facility's strategy to reduce emission and minimize our impact to the Clarkson area. In addition, processes reviews are conducted to capture improvements that can be made to existing equipments and improve emission control.

Lastly, Clean Harbors Mississauga TSDF just recently requested permission for our solid mix tubs replacement. The reason for this request is to improve of ease of housekeeping for this area but as a consequent of the proposed replacement, the fugitive emission will be reduced because the surface area of the new mixing tubs will be smaller than current. However, this application is still pending review by MOE, Region of Peel and City of Mississauga.

## **Daimler Buses North America, Mississauga plant Air Quality Improvement initiatives**

Daimler Buses North America (DBNA), Mississauga plant is located at 350 Hazelhurst Road, and has been in operation since Year 1999.

The plant assembles and paints the integrated chassis and body structure of diesel, diesel-electric hybrid, and compressed natural gas transit buses.

DBNA Environmental Policy states our company's commitment to sustainable business growth leveraged by managing environmental impacts of operations through the basic principles of pollution prevention and waste minimization. In recognition of our efforts to support a clean environment the plant was granted ISO 14001:2004 Environmental Management System Certificate in January 2010 – the first DBNA plant in North America.

The company has been constantly pro-active in controlling and minimizing air emissions, energy consumption and waste generated.

Activity	Impact/Benefit	Comment
ISO 14001 Certification	Established control of environmental impacts of operational aspects	Jan. 2010. Voluntary commitment to environmentally friendly operations
Water based paint was considered for use.	The idea was to use water based paint as undercoat paint	Jan. 2010. Water based paint is suited for high volume operations, not economically feasible for our volumes
Introduced high efficiency particulate filters to the paint booth	Reduction in PM emissions by 5%	November 2009. Floor paper filters are replaced every day
Assessed gas burners in baking ovens to ensure highest operation efficiency.	Optimization of gas/air mixture. Reduction in gas consumption by 5%	Year 2009. "Traditional Air Systems" confirmed 99.9% efficiency of burners installed by "Enmar"
Installed controller on air compressor	Reduction in energy consumption by 5%	Year 2008. Air compressor automatically shuts down when air flow drops to 110 cfm
Installed automatic control at HVAC system	5% energy savings	Year 2008. HVAC programmed to operate only during office on hours. Temperature control in each office
Introduced new guns for replacement on as needed basis	Reduction in paint and solvent usage by up to 15%.	Oct. 2008. New paint guns have higher paint transfer efficiency

Hydrex drying system considered to reduce drying time and bake requirements	Drying air with less moisture content prompts less baking time, hence less gas consumption/emissions	Sept 2008. Project is in approval by Corporate.
Equipped 5 air make-up units with timers	Reduced electricity consumption by 5%	Year 2007. Control of air make up units run time.
Installed magnets on gas lines to optimize gas flow	5% reduction in gas consumption.	Year 2007. Savings through optimization of air/gas mixing
Introduced Imron Elite Express Paint system to reduce gas consumption	Reduction in baking time: from 40 min to 20 min, savings on gas consumption.	Nov. 2007. DBNA works closely with DuPont and constantly challenges it on new technologies which help reduce paint, solvent, energy consumption, hence air emissions
Certificate of Approval (Air)	MOE approval of allowed air emissions	June 2006. Legal compliance
Changed light bulbs with energy efficient T8 fluorescent bulbs	46 % savings per fixture (290 fixtures).	Jan. 2006. Old fixtures operated on 360 Wt, the new fixtures use 192 Wt
Converted solvent borne undercoat (Tectyl 121B) to water borne undercoat (Tectyl 355)	Eliminated solvent emissions from undercoating	May 2005. Black undercoating in a wheel wells
Introduced new gun cleaner to reduce solvent use	Reduction in amount of solvent used by up to 15%	June 2005. New gun cleaner utilizes mixture of air and solvent, which provides better cleaning with less solvent
Installed 3M Paint Preparation System: paint gun for small applications	Optimization of mixed paint amount. Reduction in paint used by this gun by 50%; 60% saved on gun cleaning solvent	Nov. 2003. 3M system allows mix paint more accurately in amount needed.
Identified all operations generating PM's and equipped with central vacuum system of 99.87% efficiency	Calculated PM emissions are below NPRI reporting criteria for PM, PM 10 and PM 2.5	Year 2001. Enclosed major dust generating operations in the booths
HVLP spray guns introduced for spot repairs and low volume paint applications	Paint savings up to 10 %	May 2001. High Volume Low Pressure use less air for painting, hence less overspray and air borne paint. Applies to small jobs: re-work, damage.

Thursday, May 20, 2010

Dr. David Balsillie  
Task Force Chair  
Ministry of Environment  
Toronto, Ontario  
M4V 1P5

**Sub: Response to Air Quality Task Force**

Electrovaya is a world renowned manufacturer of Lithium-Ion SuperPolymer cells and also an integrator who creates full battery systems from these cells. In addition, Electrovaya has developed electronic battery management system solutions, tailor made for use with its proprietary cells. Electrovaya also has a retail arm: Electrovaya integrates its own cells into electronics packs, to sell them as battery booster packs through its mail-order business.

When Electrovaya set up shop in Mississauga in 2002, all its competitors used the solvent N-Methylpyrrolidone (NMP) in the production of electrodes for lithium-ion cells. This volatile chemical solvent is known to cause birth defects, is considered carcinogenic, and can be accumulated in the body through the skin, as well as through breathing of fumes. From the onset, Electrovaya opted to develop an electrode-making process that would avoid the use of NMP.

Originally, our electrode manufacturing process was based on the use of acetone (a known volatile organic compound – VOC). Acetone is much more benign than NMP, but it still is a substance whose release must be minimized. Electrovaya installed a complex acetone recovery system in its factory, but the recovery rate was not 100%. Therefore, acetone escaped to the atmosphere in small quantities on a continuous basis.

Our director of manufacturing devised a method to convert the production of electrodes from a solvent based process to a solvent-free process. Through this break-through measure, we eliminated the use of acetone in the production process to zero. This conversion started in 2006 and was completed by 2008.

Acetone was also used in much smaller quantities in other sectors of the assembly process. Already by 2007, the use of acetone in these sectors had been completely eliminated.

We will endeavor to improve our manufacturing process further, but we are proud to be the only manufacturer of lithium cells worldwide that works completely without volatile solvents throughout the process. We also pay special attention to the toxicity properties of all materials and totally avoid the use of substances that are suspect of creating environmental harm.

Unlike all other rechargeable batteries, e.g. lead-acid, NiCd and NiMH, lithium ion batteries are environmentally harmless in disposal. However, in this context, it may be worth mentioning that we use an external recycling contractor to recover valuable raw materials which flow into the manufacturing process and which may be scrapped in the course of our rigorous quality assurance process. While this has no effect on the air quality, it is part of the commitment of Electrovaya to reduce all impacts on the environment, whether they are liquid, gaseous or solids.

Best regards,

A handwritten signature in black ink, appearing to read 'M. Machler'.

Meinrad Machler  
Director, Engineering and Technology  
Electrovaya  
2645 Royal Windsor Drive  
Mississauga, ON  
Canada L5J 1K9

[mmachler@electrovaya.com](mailto:mmachler@electrovaya.com)  
(905) 855-4613



**Ford Motor Company of Canada, Limited  
Ford du Canada Limitée**

C. B. Smith  
Director  
Environment, Energy and Vehicle Safety

The Canadian Road  
Oakville, Ontario L6J 5C7

May 20, 2010

Dr. David Balsillie, Chair  
Air Quality Task Force  
Southwest Greater Toronto Area  
135 St. Clair Avenue West  
8<sup>th</sup> Floor  
Toronto, ON M4V 1P5

Dear Dr. Balsillie:

In response to your letter dated April 15, 2010, Ford Motor Company of Canada, Limited (Ford) has prepared the following informational summary for our Oakville Assembly Complex, located in Oakville, Ontario.

The Ford, Oakville Assembly Complex (OAC), was first developed in the early 1950s and began manufacturing in 1953. A second plant was added in 1965. OAC currently operates in 5.5 million square feet (155,000 m<sup>2</sup>) of buildings on a 487 acre site (197 hectares). Current products include the Ford Edge, Lincoln MKX, Ford Flex, and Lincoln MKT.

Vehicle assembly involves three principle operations: body assembly and welding, paint, and final assembly. Final assembly includes installation of interior components, powertrain, suspension components and tires. Historically, a significant environmental focus for automotive assemblers has been on the reduction of volatile organic carbon compounds (VOCs) associated with painting.

Since the launch of the Clarkson Airshed Study (CAS) in 2000, the Oakville site has undergone a thorough revitalization at a cost of more than a billion dollars. In 2004, the Ontario Truck Plant was closed and in 2006 the site was reconfigured as a single flexible manufacturing complex, building crossover utility vehicles for North American and global customers. The largest of the two paints shops has recently been decommissioned reducing the maximum emission rates for VOCs, NO<sub>x</sub> and PM by 55%, 33% and 23%. The remaining paint shop has been refurbished and upgraded. These changes also significantly reduce our natural gas consumption and our CO<sub>2</sub> emissions.





Over the years, numerous initiatives have been undertaken to reduce emissions from the site:

- In the 1990s both site paint shops were replaced (1991, 1994) with new state-of-the-art facilities that reduced VOC emissions approximately 50% compared to historical levels. These facilities included state-of-the-art particulate removal technology and also included the first implementation of regenerative thermal oxidizers (RTOs) for VOC and odour control by an auto assembler in Canada. As stated earlier, one paint shop has been decommissioned, leaving one paint facility utilizing this advanced technology.
- Continuous improvement in emission performance resulting from improvements in automation, paint materials and management practices are reflected in the VOC trends over the years. For example, in 1992, 2002, and 2008: 1767, 1148, and 580 tonnes were emitted translating to a 67% reduction.
- From 2002 to 2008, emissions of VOC per vehicle improved by 24%.
- In 2007, Ford and its supplier reformulated paints to reduce Hazardous Air Pollutants (HAPs) to levels recognized by the USEPA as the maximum achievable control.
- In 2009, with the support of the Federal and Ontario governments, Ford completed the installation of the unique-in-the world "Fumes to Fuel" technology and research centre. This innovative, patented developmental technology recovers VOC ("Fumes") from the paint system exhaust. After recovery the solvent is used as fuel to generate electricity through a 120kw generator driven by an internal combustion engine or in a more complex and sophisticated scheme the solvent is reformed and used to generate electricity via a 300kw fuel cell to provide power to the plant without combustion. The system has the potential to reduce CO<sub>2</sub>, NO<sub>x</sub>, PM and VOC from the plant and reduce energy consumption. The installation at a production scale of Fumes to Fuel makes an emission source into a power source for the plant. Research assistance is being provided by Queen's University and the University of Alberta in addition to our internal expertise. The fuel cell has been generating combustion-free power to the plant since March at 150kw using natural gas.

Other environmental highlights related to OAC include:

- Installation of passive "solar walls" in the 1970s
- Ford was a partner in Canada's first pollution prevention agreement in 1992
- Oakville was the first assembly operation in North America to be registered to the ISO14001 Environmental Management System in 1996. System elements include continuous improvement, training and external system audit
- Stormwater management facilities have been added in the Joshua Creek and Wedgewood Creek watersheds to mitigate peak flows and improve water quality.
- Packaging of incoming components has been replaced with engineered retainable dunnage (96%) eliminating most solid waste.

- Air driven tools have been replaced with more efficient and precise electric tools eliminating a central air compression system
- In 2000, the boilerhouse that provided steam for heating and production was retired in favour of more efficient, lower emission direct fired heating units and conversion of remaining steam applications.
- Tree plantings and site naturalization has been undertaken.
- The connected electrical load has been reduced from over 55Mw to 29Mw since 2006. A reduction of almost half.

Vehicles are the focal point of our business, and we are proud of the progress being made to lessen the environmental impact of the products we produce. We are committed to be among the best in terms of fuel efficiency for every new vehicle we build and continue to strengthen this leadership position going forward with technologies such as EcoBoost™ which is offered in Oakville-assembled vehicles. For example, the all-new Ford Fiesta with the six-speed PowerShift automatic transmission has been EPA certified and achieves for 4.9 L/ 100 km highway and 6.8 L / 100 km city delivering class-leading fuel efficiency. We have implemented an electrification strategy which includes hybrids, plug-in hybrids and battery electric vehicles. Ford has increased the availability of flexible fuel vehicles (FFVs) capable of operating on up to 85% ethanol or up to 20% biodiesel content. Ford has also pioneered the use of biomaterials in our products, including an innovative material made out of wheat straw used to produce the storage bins for the Oakville-built Ford Flex and the use of soy-based foam in our vehicle seats. Further information on our efforts in sustainability can be viewed at [www.ford.com/go/sustainability](http://www.ford.com/go/sustainability).

I trust this will provide some insight into the culture of continuous improvement, efficiency and progress in reducing the environmental impact of our operations.

Yours very truly,



C.B. Smith

Director, Environment, Energy  
and Vehicle Safety

\* EcoBoost™ is the name for Ford's newest generation of small displacement, direct injection, turbocharged gas engines





2111 Lakeshore Road West, Mississauga, Ontario L5J 1J9  
Telephones: (905) 822-1600 1-800-663-5692 Fax: (905) 822-2142

Air Quality Task Force Southwest Greater Toronto Area

Summary Overview

The Company has existed on this location for approximately 50 years.

The primary business is "For hire, truckload" transportation services, being primarily dry bulk cement and resins.

The Company does not handle goods deemed "Hazardous" under the Transportation Dangerous Goods Act.

We operate approximately 85 highway tractors, and upwards of 150 trailers.

The facility serves as the Company's head office and maintenance departments as well.

Fugitive dust (yard)

Ownership has invested heavily in recent years, to upgrade the cap (yard surface) to include grading and paving in most areas.

The Company has a permit for the application of virgin oil on the un-paved areas of the lot.

We routinely sweep the paved surfaces, and as required, oil the gravelled areas.

Drivers operating in our yard, are held responsible for the speed limit, which was reduced in recent years, to assist in dust abatement.

The Company maintains and inventory of RAP product, to apply to the cap when necessary.

Equipment

All tractors have automatic idle shutdown features, to reduce environmental impact on air quality.

Operationally, the Company is endeavouring to have tractors and trailers "paired" to minimize the in yard traffic, and impact on the environment.

Moving Forward

The Company continues to invest in modern power equipment, which all feature "next generation" emission controls.

Trailers are now all spec'd with steering axles which provide for less disturbance of the cap and road surfaces.

Volumes of business

Trucking is a "derived demand" business, meaning that we only operate at the request of a shipper. No work is performed that is not tied to a revenue producing load of freight. That being said, our environmental footprint in the Clarkson Airshed, is driven in large part by our volumes with our principle shipper, Holcim Canada.

23-Apr-10

Ralph Shepley  
General Manager  
John Grant Haulage Limited

## **Addendum Submission – Holcim (Canada) Inc. – Mississauga Site**

Holcim (Canada) Inc. (HCA) is committed to sustainability and this commitment is embedded in the company's business strategies and day-to-day management.

As a member of the Southwest GTA Task Force, HCA took this commitment one step further by working together with key influencers and groups within the community to make recommendations to improve the quality of the Clarkson Airshed.

This recent involvement is in addition to the various initiatives undertaken by the company following the publication of the Clarkson Airshed Report in 2004. Over the past 10 years, more than \$100 million have been invested in support of our particulate matter (PM 2.5 and 10), Nitrogen Oxides (NOx) and Sulfur Dioxide (SO<sub>2</sub>) and Carbon Dioxide (CO<sub>2</sub>) emission reduction efforts.

### **General Management Practices**

The Holcim Canada Mississauga Cement Plant is one of the largest and most environmentally responsible suppliers of cement in Canada. It has driven ongoing technological advancements designed to meet the increasing needs of the marketplace, improve environmental performance, enhance employee safety and mitigate potential impacts on the local community. Corporate social responsibility and sustainable environmental performance are important mindsets that are firmly embedded throughout HCA.

Among some of the Plant's best management practices are:

- The performing of a comprehensive campaign of sampling and analysis by a third-party of the Plant's stack emissions on an annual basis. This allows for audited and transparent reporting to government agencies<sup>1</sup>.
- The implementation of a high level process control (Phase 1 ABB Linkman) auto-pilot system that allows the operation of the kiln under optimal and more stable conditions.
- The reduction of greenhouse gas (GHG) emissions intensity through the installation of a vertical roller mill and an innovative, leading edge hot gas diversion system.
- The continuous improvement of housekeeping activities.

These best practices have earned the Plant the following recognition:

- ISO 14001 certification<sup>2</sup>
- Portland Cement Association's (PCA) Environmental Excellence award (two time recipient)
- Best in Canada in terms of energy efficiency<sup>3</sup>

---

<sup>1</sup> Regulatory and permit requirements only require stack testing every three years.

<sup>2</sup> First plant in North America to receive this certification.

<sup>3</sup> Following a nationwide benchmarking study completed by independent consulting firms Ecofys and Marbek.

## **Particulate Matter (PM10, PM2.5)**

Holcim Canada recognizes concern that the emission of fine particulates presents a potential public health risk. The Mississauga Cement Plant has made investments to control these emissions, in both “filterable” and secondary (condensable) fractions, from all our stacks, as well as from other fugitive sources.

Recent emission reduction initiatives include:

- Fugitive Dust Control (Plant and boat loading)
  - Road paving
  - Installation of water sprinklers
  - Use of water, vacuum and sweeper trucks
  - Dry fog water spraying
  - Installation of a wet dust suppression system
  - Dust spray on off-loading stone
  - Greening of the Plant through tree plantings, among other initiatives
  - Spillage reduction through housekeeping improvement initiatives
- Installation of Opacity monitors
- Replacement of Particulate Controls on all stacks
  - State-of-the-art C730 system baghouse replacing Electrostatic Precipitator (ESP)
  - F280 cooler baghouse replacing Gravel Bed Filter
  - Installation of bypass stack baghouse
  - Slag grinding and drying system
  - CM#7 separator baghouse
  - Installation of AFM baghouse replacing ESP
  - Installation of Vertical Roller Mill dedusting system
- Installation of Teflon bags in system baghouse<sup>4</sup>
- Reduction of precursor chemical compounds (NO<sub>x</sub>, SO<sub>2</sub> and Ammonia)

## **NO<sub>x</sub> and SO<sub>2</sub> Emissions**

Under Ontario Ministry of Environment Regulation 194/05, all cement plants in the province must meet, by 2015, the NO<sub>x</sub> and SO<sub>2</sub> emission levels that were already achieved by the Mississauga Cement Plant in 2004. After setting the standard, the Mississauga Cement Plant continues to further leverage primary measures to achieve NO<sub>x</sub> and SO<sub>2</sub> emission reductions, as listed below:

- Kiln burner optimization projects<sup>5</sup>
- Systematic and rigorous quality analysis of fuels and raw materials
- Installation of PG/7 compliant CEMs for O.Reg.194/05 Industry Emissions

---

<sup>4</sup> These state-of-the-art bags are rated to achieve control of PM1 (ultrafine particulates). This led to a 79% reduction in PM, PM10, and PM2.5 from 2006 to 2009 due to phased in installation of new bags. Represents “Best Available Control Technology” for the cement sector.

<sup>5</sup> To avoid hard burning and over-heating, and control O<sub>2</sub> at inlet.

- Led to Process Optimization for NOx reduction, monitoring of NOx primary emission controls and secondary formation of fine particulate, and
- Process Optimization and control of SO<sub>2</sub> and secondary formation of fine particulate
- Raw meal injection for SO<sub>2</sub> reduction and plume control
- Separate bypass stack for plume control
- Training kiln operators on pyro-processing optimization

And secondary (end-of-pipe) measures, such as:

- Lime injection system for SO<sub>2</sub> reduction and plume control for control of SO<sub>2</sub> and secondary formation of fine particulate<sup>6</sup>
- Testing and installation of Selective Non-Catalytic Reduction System (SNCR) for Ammonia Injection to specifically reduce NOx emissions
- Vertical Roller Mill hot gas diversion system which reduces SO<sub>2</sub> emissions

### **CO<sub>2</sub> Emissions**

At Holcim Canada our challenge is to minimize the impact of our activities on natural systems and we are making constant, measurable progress. Since 1990, we have reduced the net production of CO<sub>2</sub> per tonne of cement by more than 30%.

Holcim Canada's greenhouse gas reduction strategy is consistent with its parent company, Holcim Ltd's strategy, common to all its operations worldwide, including the Mississauga Cement Plant. This approach was developed following a major technological review undertaken through the World Business Council for Sustainable Development - Cement Sustainability Initiative (CSI) of which Holcim is one of the three founding members.

Four key reduction levers are available to the cement industry to reduce CO<sub>2</sub> emissions. They are:

- Thermal and electric efficiency,
- Supplemental Cementitious Materials (SCMs),
- Alternative fuel use, and
- Carbon capture and storage.

The Holcim Canada Mississauga Cement Plant has already replaced its inefficient wet kilns with a state-of-the-art pre-heater/ pre-calciner to improve thermal and electric efficiency.

Approximately 60% of CO<sub>2</sub> emissions from the cement sector result from the chemical process that converts the calcium carbonate in limestone to calcium oxide during the production of clinker. By using suitable industrial by-products, such as slag from the steel industry, as supplementary cementitious materials – either directly in cement manufacturing or in cement mixes – we

---

<sup>6</sup> SO<sub>2</sub> decreased by 54% from 2003 to 2009. Represents "Best Available Control Technology" for the cement sector.

minimize this chemical reaction and the related greenhouse gas emissions. To this end the Plant spent \$88 million on a Vertical Roller Mill to produce GranCem®, a high quality slag cement.

The Mississauga Cement Plant began manufacturing GranCem® in 2001. Our investments in GranCem® production have contributed to a reduction in our clinker factor, resulting in a significant permanent decrease in our net specific CO<sub>2</sub> emissions. The Plant also continues to optimize its use of other SCMs (such as limestone additions) to reduce its overall CO<sub>2</sub> emissions intensity.

The greatest prospect for further reducing CO<sub>2</sub> emissions at Holcim Canada's Mississauga Plant involves the responsible use of alternative and engineered fuels to substitute for coal used to heat the cement kiln.

Holcim Canada's Mississauga Cement Plant continues to investigate carbon capture and storage. This technique is still at the research stage and currently not a proven technology for the cement sector.

These are just some examples of the initiatives the Mississauga Cement Plant has put in place over the past few years to help improve the quality of the environment in the Mississauga community. With some of them, the Plant has set standards against which other industry members across the country are now benchmarked. We intend to remain a leader in sustainable performance through further innovation and work with the community and local government and health agencies to implement measures to improve air quality in the Clarkson Airshed.

## **AFR Statement for Final Report**

While the cement industry acknowledges that the cement manufacturing process contributes to greenhouse gas emissions, there are a few levers available to the industry to reduce its impact. The major lever available to the cement industry to reduce absolute CO<sub>2</sub> emissions from its thermal process is alternative fuel use.

Alternative fuel use entails replacing conventional fuels, such as coal and/ or petcoke used to heat the cement kiln, with alternative and engineered fuels destined for other sources (e.g. landfill, incineration). By substituting these fuels for fossil fuels, overall emissions that may impact the Clarkson Airshed can be reduced.

The following four alternative and engineered fuels are the primary options available to the Holcim Canada Mississauga Cement Plant in order to maximize environmental benefit:

- Asphalt Roof Shingles
- MSW Pellets
- Recycling Rejects, and
- Dried Municipal Sludge.

These materials also have a lower metal content in their chemical composition than the coal and/ or petcoke they would replace.

Using the existing configuration and technology at the Mississauga Cement Plant, with an estimated additional investment of \$7.5 million in material handling equipment, and the ability to introduce alternative and engineered fuels at the Mississauga Plant (via the Ontario Ministry of Environment's approval process), the Plant could secure a 40% reduction in its use of coal, an 8 -10% reduction in CO<sub>2</sub> combustion emissions per year, and an overall reduction in emissions. Further reductions could be realized through implementation of a partnership approach with government that focuses on further coal reduction, consistent with the government's approved energy strategy.

## **Holcim Greenhouse Gas Reduction Statement for Final Report**

While the cement industry acknowledges that the cement manufacturing process contributes to greenhouse gas (GHG) emissions, there are four levers available to the industry to reduce its impact. These are:

- thermal and electric efficiency,
- supplemental cementitious materials (SCMs),
- carbon capture and storage, and
- alternative fuel use.

It is often the case that each individual lever has an influence on the potential of another lever to reduce emissions. Therefore, simply adding up the reduction potentials of each lever in order to calculate total potentials is not appropriate, but rather emissions reduction potential is based on net emissions.

The Holcim Canada Mississauga Cement Plant has already replaced its inefficient wet kilns with a state-of-the-art pre-heater/ pre-calciner to improve thermal and electric efficiency.

The Mississauga Plant continues to optimize its use of SCMs (such as limestone additions) to reduce its overall carbon dioxide (CO<sub>2</sub>) emissions intensity. To this end the Plant spent \$88 million on a Vertical Roller Mill to produce GranCem®, a high quality slag cement.

Holcim Canada's Mississauga Cement Plant continues to investigate carbon capture and storage. This technique is still at the research stage and currently not a proven technology for the cement sector.

The greatest opportunity for reducing CO<sub>2</sub> emissions at Holcim Canada's Mississauga Plant involves the responsible use of suitable by-products generated by other industries, non-hazardous wastes and engineered fuels. These existing resources can replace a portion of the conventional raw materials the Plant currently uses in the cement manufacturing process, some of which can be re-incorporated into its products. The energy derived from using engineered fuels as an alternative for coal in the cement kiln will result in lower consumption of fossil fuels, reduce CO<sub>2</sub> emissions, as well as overall emissions.

In support of these efforts, the Ontario GHG policy should incorporate the following:

- A uniform CO<sub>2</sub> intensity standard should be adopted. This standard should be expressed in a form (e.g. kg CO<sub>2</sub> per tonne of cement) which recognizes and incents the important role that supplementary cement substitutes can play in reducing GHG emissions from cement manufacturing;
- The use of alternative energies from biomass, engineered fuels, residual materials and other combustible by-products should be encouraged in GHG regulations and policy, and
- Aggressive adoption of the new National and Ontario building code standards (release in Q1, 2011) that allow for the increased use of SCMs. Ontario should be progressive in encouraging the maximum use of less carbon intensive cementitious materials that will be allowable under the new code in government projects and procurement. Ontario should initiate the development of the next level of building code changes which would allow for a more aggressive use of SCMs, to align with leading jurisdictions.





**IPEX™**

**Committed to Excellence**

**Clarkson Plant**

IPEX Inc.  
2441 Royal Windsor Drive  
Mississauga, ON, L5J 4C7

May 25, 2010

Mr. David Balsillie, PhD  
Ministry of the Environment  
135 St. Clair Avenue West, 8<sup>th</sup> Floor  
Toronto, ON, M4V 1P5

Dear Mr. Balsillie,

Thank you for your inquiry concerning an Action Plan for the Oakville-Clarkson Airshed.

IPEX Inc. manufactures the world's most diverse line of thermoplastic piping systems – pipe, valves and fittings to handle the full range of today's municipal, industrial, commercial and residential applications.

At our Clarkson Plant, we have 8 production lines and we manufacture PVC pipes with the range of ½" to 6" diameter. We formulate our own compounds and maintain strict control during production.

As a leader in the plastic piping industry, IPEX Inc. continually develops new products, modernizes manufacturing facilities and acquires innovative process technology.

As part of the IPEX Inc. commitment to excellence, we integrate environmental protection, public acceptability and economic sustainability into all aspects of our operations. Maintaining and preserving the environment we live in is our responsibility and our commitment.

We share an ongoing commitment to Recover, Recycle and Re-use (3R) programs by using a significant amount of recycled plastic in our product. In 2005 at our Clarkson Plant, we introduced a production line using triple wall technology (Ecolotube), where the middle layer of the pipe (approximately 50%) is made from recycled PVC material. In 2009 approximately 4% of our total raw materials were from recycled sources, and we are working continuously on

increasing the recycled content. In addition we improved our process in the last 2 years and now no PVC scrap material is sent from our plant to landfill. Thermoplastic scrap generated during the production process (usually during start up or shut down) is being re-used within our products.

In 2009, we finalized our energy efficiency lighting project. We replaced existing light fixtures with new high performance light fixtures. The project reduced the electrical power consumption by 693,605 kWh. This represented a yearly reduction of more than 6%.

In 2009, we replaced our old refrigeration system with a brand new high efficiency Carrier chiller using R134A, a chlorine free type of refrigerant vs. the R22 used before.

In 2008, we installed a damper system in the ducting of our air compressor. This allowed us to use the heat generated by the compressor to heat the interior of the plant. Estimated savings from this project are 40,742 cubic meters of gas per year.

At the end of 2007, we installed an automatic Model K-70 filter to allow us to clean our process wastewater and re-use it, therefore reducing our usage of city water.

At the end of last year, we joined the Energy Curtailment Program to reduce the usage of electricity. This program gives us some financial incentives in addition to reducing the usage of electricity, especially during peak periods.

We are proud of all these projects, made by voluntary commitment, to become more energy efficient and support Canada's goal of reducing greenhouse gas emissions and we are looking forward to helping you make a difference.

Please do not hesitate to contact me at [chrcis@ipexna.com](mailto:chrcis@ipexna.com) or at 905-403-8133 ext. 229 if you would like more information.

Yours sincerely,



Chris Ciszek  
Plant Manager,  
IPEX Inc., Clarkson Plant

Cc Stan Rodriguez, Director - Health, Safety & Environment  
Daniel Rajschmir, Manager – Health, Safety & Environment Operations  
Christopher Sooley, Maintenance Manager/Safety Coordinator



Mancor Canada Inc.  
2481 Royal Windsor Dr., Oakville, ON, L6J 7X6

Tel: (905) 844-0581  
Fax: (905) 844-6101

May 12, 2010

Mr. David Balsillie,  
Air Quality Task Force  
135 St. Clair Avenue West, 8<sup>th</sup> Floor,  
Toronto, Ontario M4V 1P5

Ref – Response to your letter about our actions to improve air quality in the Clarkson Airshed

Mancor Canada is a Tier 1 supplier of fabricated steel assemblies to North American OEMs (Original Equipment Manufacturers) involved in the production of heavy trucks, construction and agricultural equipment. Mancor currently employs approximately 120 people in its Facility that resides within the Clarkson Air Shed at 2481 Royal Windsor Drive, Oakville.

We have spent much effort in previous years to improve processes and many of these have savings with regards to environmental effects and emissions.

For over 5 years now we have been using a water-based conversion coat to replace our customer specified solvent-based primer. The water-based product is extremely low VOC; the switch to this product combined with our use of electrostatic spray process has an estimated VOC saving of over 500,000 pounds during the 5-year period.

Two years ago we retrofitted this facility to T8 high efficiency lights. In addition to improving the quality and quantity of light there is an estimated 563,000 kWh/year saving.

Last year we installed a 3.5 million BTU high efficiency gas burner/tube assembly in our paint line wash system that replaced an older style 5 million BTU gas burner/tube assembly. The estimated efficiency has improved from 50% to an actual 75% and saves an estimate of 1500 cubic meters of gas weekly.

An up-front change that is a current project is conversion of flux core welding to metal core or hard wire. The environmental improvement here is the reduction of weld fume and thus PM2.5 generation by about 6 fold. The following item is an overall control for the emissions but we would rather not generate the extra fume if possible.

The final improvement to mention has to do with some new air filtering techniques we are investing in. Two years ago we added a new robotic work cell for welding. At that time we installed a new style filtration unit to collect and control weld fume for the new cell. The filters utilize a permanent nanofiber web with very fine interfiber spaces for filtration. These filters use low energy and consume little compressed air for pulse cleaning. As with most similar type manufacturers our alternative method was to exhaust weld fumes to the outdoors. With this style of filtering equipment a reduction of PM 2.5 emissions results along with reduced heating load. Since this unit has worked out very well we have installed an additional 25-hp. filtration unit and are now making plans to convert the complete welding department. Similarly we are now also using the same filtering technique for a shot blast application. Our current thoughts are to continue equipment conversion via these filtering means. When completed these measures will reduce our PM2.5 emissions considerably. When production volumes return this will result in substantial savings of over 500 kg. Per year.

We are interested in early awareness of any rule changes and forthcoming funding that will allow additional equipment to improve environmental factors and emissions.

Yours truly,

***Brian Bailey***

**Engineering Manager**

**Mancor Industries**

**2481 Royal Windsor Drive**

**Oakville, Ontario, Canada**

**L6J 7X6**

Office 905 844 0581 ext 254

Fax 905 844 6101

Cell 905 334 4157

email [bbailey@mancor.com](mailto:bbailey@mancor.com)



# REUNION ISLAND

CAFFÈ · COFFEE · CAFÉ

May 13, 2010

Mr. David Balsillie  
Air Quality Task Force  
135 St. Clair Avenue West, 8<sup>th</sup> Floor  
Toronto, ON M4V 1P5

Dear Mr. Balsillie:

As requested, here is a summary of actions Reunion Island Coffee has taken to improve air quality in the Oakville-Clarkson Airshed along with some background information on our business.

## **Location**

2421 Royal Windsor Drive, Oakville, ON, L6J 7X6

## **About Us**

Reunion Island is a wholesale specialty roaster featuring gourmet coffee, espresso and tea, including organic and Fair Trade products. Our specialty is roasting 'perfect' whole bean coffee that looks as good as it tastes, however, we are also leading the industry in developing new formats like single cup coffee pods. We are a proud supplier to many of the finest cafés and restaurants in the Greater Toronto Area (GTA) and throughout Canada and the United States.

## **Initiatives to Improve Air Quality**

- In July 2008, we converted our facility to 100% green energy from Bullfrog Power. This electricity is generated with wind and low-impact hydro projects;
- We reduced our local delivery vehicles by one third with a more efficient delivery scheduling system and improved logistics efficiencies;
- In the last few years, we switched our fleet of delivery vehicles to diesel and are planning a conversion to hybrid or other alternative fuel vehicles once the current lease agreements expire;
- In 2009, we overhauled our afterburner system to increase efficiency with better insulation and improve functionality to exceed legislated requirements. We are now researching a long-term conversion to more efficient Regenerative Thermal Oxidizers to replace after burners;



# REUNION ISLAND

CAFFÈ · COFFEE · CAFÉ

- We increased the efficiency in the plant from 35% to over 80% resulting in the elimination of 2 shifts per day while maintaining production volumes;
- We are researching building enhancements to allow us to isolate our roasters. This will allow us to employ heat capture technologies during the winter and eliminate the heat quickly in the summer months;
- We are in the process of converting plant lighting from metal halide lights to more efficient lighting with the goal of reducing power usage by 60-70%. We are researching natural lighting possibilities for the plant to further reduce the need for artificial lighting;
- We have eliminated all lawns from our landscaping and have used native plants and perennials to minimize the need for watering and other maintenance. We have planted new trees and are planning to add trees on our property;
- We paved the parking area in the rear of our facility (formerly dirt/gravel) to eliminate dust as delivery vehicles pull in and out;
- We are researching E-Paint™ solution ([www.etimeenergy.com](http://www.etimeenergy.com)) for building and windows to enhance insulation and reduce heating/cooling requirements;
- Programmable thermostats minimize energy use when building is unoccupied;
- We have committed to adhering to LEEDS standards on building improvements and have set the long-term goal of achieving certification.

We are fully committed to being a 'green' leader in our business community. While we have already completed a variety of projects, we are very enthusiastic about future innovations. With financial assistance, we could complete these projects in a much more condensed timeframe.

Regards,

Peter Pesce  
President



2447 Royal Windsor Drive  
Oakville, Ontario L6J 4Z2  
Tel: 905-842-0770  
Fax: 905-842-5463



May 14, 2010

**Air Quality Task Force**  
135 St. Clair Avenue, West  
8<sup>th</sup> Floor  
Toronto, Ontario  
M4V 1P5

**Attn: David Balsillie, Air Quality Task Force Southwest Greater Toronto Area**

Dear Mr. Balsillie

Royal Ready Mix is a small independent operator of a Ready Mix plant located on Royal Windsor Drive, and located in the Oakville-Clarkson Air Shed. This facility has been in place for several years without any environmental incidents or concerns. We are proud of our company, our facility and the community and believe in promoting Environmental initiatives to improve our planet so much so that we incorporate them in our everyday business activities.

We make ready to use concrete for the construction trade. We blend cement powders and granular materials like sand and gravel in a controlled environment to produce the liquid "Ready Mix" in trucks for delivery to construction sites. This approach reduces the amount of emissions at construction sites. We also recycle old concrete and pavement for reuse as new construction materials.

We have on site control program for any dust we may generate. We accomplish this with having installed concrete and asphalt on most of our site area. Due to the incoming and outgoing vehicles to our site, we further control any dust by water washing and sweeping the site on a regular basis. For the granular materials stored on site we have misting water sprays to ensure that no dust is created.

We have worked diligently with the Ministry of Environment to ensure that we operate under a Certificate of Approval issued by the Ministry. We are members of RMCAO which is an industry organization and support various programs for reduction of waste and energy as well as better operating concepts and mangement.

Although we are a very small contributor, we believe that we have exceeded normal efforts to be a good corporate citizen and minimize our environmental impact.

Yours truly,  
**ROYAL READY MIX INC.**

A handwritten signature in blue ink, appearing to read "Leo Capobianco", is written over a horizontal line.

Leo Capobianco  
President



Schaeffler Canada Inc.

May 20 2010

From Schaeffler Canada Inc.  
2871 Plymouth Drive  
Oakville Ontario  
L6H 5S5

To Air Quality Task Force

Schaeffler Canada Oakville's Facility consists of Warehousing, manufacturing and office space. Schaeffler Oakville Warehouses a wide range of bearing products, our warehouse consumes about 50 percent of our total square footage. We also have two small manufacturing cells in our facility as well, one being a Linear component department, and a housing manufacturing department. In our Linear department we cut to length and machine a variety of profiles to specialty round shafting and rail systems. In our housing department we machine a range of flange and pillow block cast iron housings. Our manufacturing departments consume about 20 percent of or total square footage. Our office space consumes about 30 percent of our total square footage.

Steps we have taken to reduce emissions:

1. Installed programmable thermostats on our heating and cooling systems to reduce energy costs/emissions.
2. Have all our Furnace and Air Conditioning units on a quarterly preventive maintenance program to assure efficient operation of units.
3. We were below the reporting limits in 2009 for our NPRI reporting.

Schaeffler has completed a Certificate of Approval in July 2008 and completes NPRI Reporting each year. Schaeffler Oakville is primarily Warehousing and light manufacturing so there is not any heavy emitting of pollutants from our facility.

Thanks and Regards  
Warehouse and Manufacturing Manager  
Schaeffler Canada  
Ken Veld





Suncor Energy  
Petro-Canada Lubricants  
385 Southdown Road  
Mississauga, Ontario L5J 2Y3  
Tel: 905 822 4222  
Fax: 905 822 7602  
www.suncor.com

May 17, 2010

Dr. David Ballsillie  
Chair  
SW GTA Air Quality Task Force  
Ministry of the Environment  
8th Floor - 135 St. Clair Avenue West  
Toronto ON M4V 1P5  
416-314-3994

Dear Dr. Ballsillie:

Further to your request of April 15, I am pleased to attach a summary of actions taken by Suncor Energy that have improved air quality in the Southwest part of the Greater Toronto Area.

Our Mississauga plant has a long history of contribution to our community and the world. Originally constructed in 1943 by British American Plc, the refinery was commissioned as part of Canada's Second World War effort. In 1993, the facility was converted from a full-scale fuels & lubricants refinery to focus only on lubricants (a dramatic downsizing which in itself significantly reduced emissions). The plant now specializes in the production of ultra-pure lubricants products, which are sold to commercial, industrial, agricultural, food processing, pharmaceutical and cosmetics industries around the world. We also have a full line of environmentally responsible products sold under the EcoSia brand, which are inherently or readily biodegradable and not environmentally toxic based on the United Nations Globally Harmonized System (GHS) criteria.

I believe the specific information below, which documents work that has already been done to reduce emissions, will be useful for your report. I look forward to continuing to work with you as a part of the Community Advisory Committee (CAC) and would be happy to speak with you further about any part of the information included in this summary.

Sincerely,

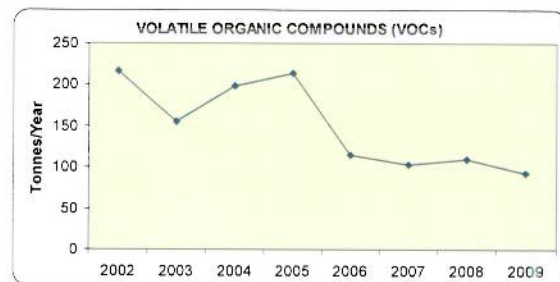
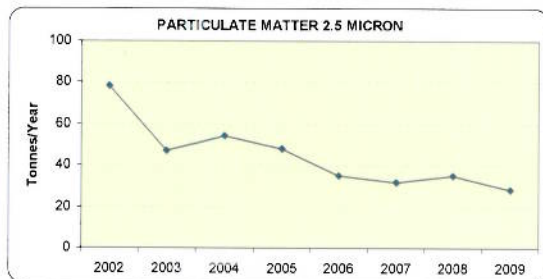
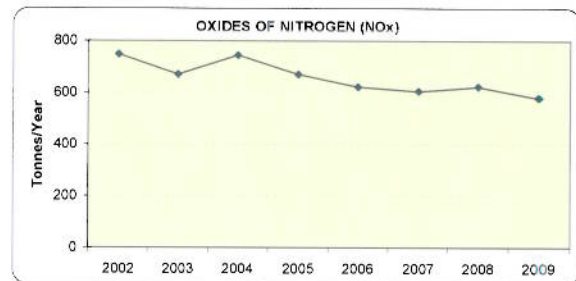
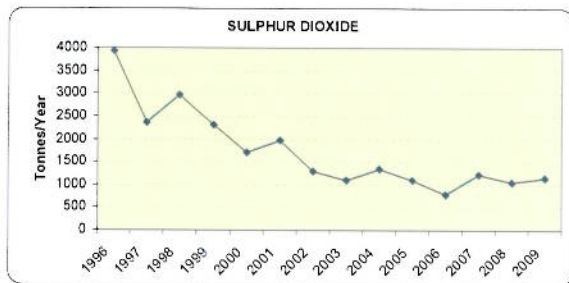
A handwritten signature in blue ink, appearing to read "M. Hiseler".

Mark Hiseler  
General Manager  
Production & Logistics

**Petro-Canada Lubricants Plant**  
385 Southdown Road, Mississauga

For many years, our plant has focused on minimizing its environmental impact in the community. Specifically related to air emissions, we have demonstrated a clear downward trend of pollutants such as Oxides of Nitrogen, Volatile Organic Compounds (VOCs), Particulate Matter (PM<sub>2.5</sub>) and Sulphur Dioxide.

**Emissions Reporting\*:**



\* Data for the period 2002-2009 is drawn from NPRI reporting requirements. For SO<sub>2</sub> specifically, data was available beginning in 1996 and has been included here.

Some of the more significant activities that contributed to this reduction in recent years are included below.

YEAR	EMISSIONS REDUCTION INIATIVE
1998	Significant new investment to increase the capture of sulphur from process streams to reduce SO <sub>2</sub> emissions
2001	Major capital improvements to waste water treatment, including covering parts of the process to reduce VOC emissions.
2004	Redesign of the pre-heat piping in the plant's De-Nitrification process to improve heat recovery and reduce fuel consumption
2005	All Asphalt processing completely shut down and dismantled, eliminating emissions.
2007	Plant management policy established to reduce or eliminate bunker fuel usage during Ministry of the Environment Smog Advisory days.
2008	Rail yard shunting locomotive replaced with newer unit, resulting in quieter operation and reduced emissions
2009	Plant received internationally recognized ISO 14001 Environmental certification

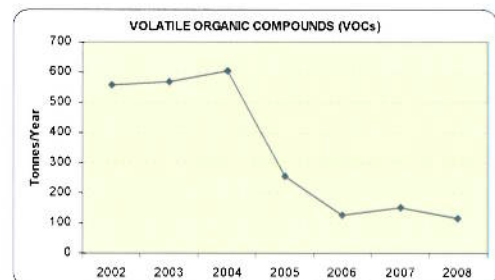
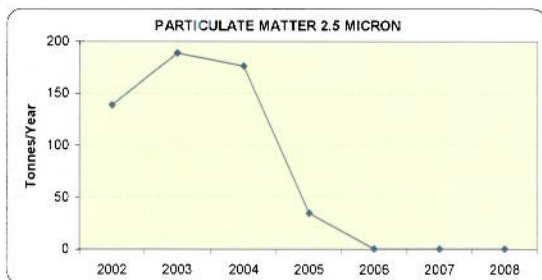
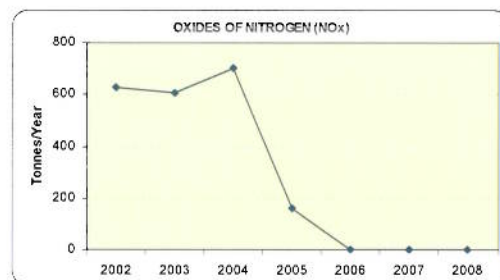
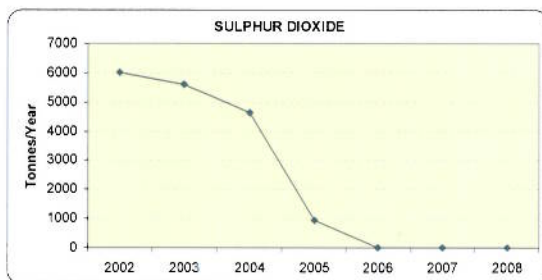


Other multi-year programs	<ul style="list-style-type: none"> <li>▪ Insulation on several large storage tanks has been upgraded for improved energy efficiency.</li> <li>▪ Highly advanced computer process controls have been introduced and continuously improved to enhance energy efficiency. Several improvements have been recognized by Enbridge Gas's Energy Efficiency Service for Large Industrial Customers</li> <li>▪ Large storage tank seals have been upgraded to new seal technology to reduce VOC emissions</li> <li>▪ Truck traffic marshalling is used to reduce idling in the plant and prevent congestion on Southdown Rd</li> </ul>
---------------------------	--

### Oakville Terminal

3275 Rebecca St., Oakville

In the Clarkson Airshed Study conducted by the Ministry of the Environment in 2003, the Oakville refinery was identified as a significant influence in the airshed. Since that time, refinery operations have ceased (2005) and the facility has been converted to a distribution terminal. The impact of this change in reducing emissions from our Oakville operation is very significant, and is demonstrated below.



### Other Actions by Suncor Energy benefitting the Southwest GTA:

Improvements in the refining industry overall, such as the introduction of low sulphur gasoline and ultra low sulphur diesel have enabled the development of "next generation" low emission vehicles, leading to even cleaner vehicle technologies and an overall reduction in transportation emissions both in our air shed and all jurisdictions.

Furthermore, Suncor Energy was a pioneer in bringing the benefits of ethanol to Southern Ontario. We continue to be a major producer of Ethanol in Ontario, with a further commitment to increase the availability of biofuels through a plan to double the size of our ethanol plant near Sarnia.

**UBA Inc.**  
**2605 Royal Windsor Drive**  
**Mississauga Ontario**  
**Environmental Commitments**  
**2010**

**Our Mississauga Fleet**

Ninety five percent of our power units are less than five years old. We have a system in place to ensure the preventative maintenance program for our units enables their engines to be working at peak performance in order to achieve maximum fuel efficiency. Units are replaced on a scheduled basis. Fifty percent of our power units are less than two years old and are equipped with the latest pollution control technology. These engines run on ultra low –sulphur diesel fuel, have on board diesel particulate filter systems that meet California regulatory guidelines for engine emissions. These systems reduce exhaust emission of particulate matter and nitrogen oxides. NOx is limited to just over 1 gram per brake horsepower hour and particulate matter cannot exceed 0.01g/bhp-hr.

**Product Delivery Systems**

We are unique in our industry in the way we take our product to market. The use of small, efficient, Honda gasoline motors driving our magnetic pumps to off load our products makes us a leader in our industry. By using this technology we cut running time on our tractors that were once delivering product-using an air off load system by means of large compressor on the tractors engine. The ladder unfortunately is still the industry standard; it is constantly contributing to the air pollution problems we see in Southern Ontario. When mobile air is used to off load a tanker the power unit must be idled higher for up to two hours to provide constant air pressure for the pressure vessel, then the 30 psi. of air in the pressure vessel must be evacuated at the end of the delivery. Our delivery hoses are inspected daily and replaced on a scheduled basis to ensure there is no environmental impact due to hose failure.

**Purchasing & Logistics**

Our routing efficiency lends to the reduction of fleet mileage travelled, which of course lessens our environmental footprint in southern Ontario. Global positioning satellite monitoring systems on all our power units to identify their location and engine on /off at all times. We have been able to source our products from multiple supply points delivering directly to our customer base in order reduce the actual through put of product to our site. In 2007 our fleet ran approximately 800,000 kilometres, 2008 was 650,000 kilometres, in 2009 we ran 525,000 kilometres. We are hoping to achieve 500,000 kilometres in 2010 while maintaining our sales volumes. This not only reduces our fuel consumption and tire replacement, it also has reduced the amount of product throughput here in Mississauga, which lowers our operating volumes through our scrubber system.

*UBA Inc.  
2605 Royal Windsor Drive  
Mississauga Ontario  
Environmental Commitments 2010*

**Facility**

Recent capital expenditures include replacement of our office HVAC system; the latest energy saving technology was procured from our supplier in 2009. Quarterly preventative maintenance program on this equipment ensures it is running at peak operational efficiency. Our five large facility bay doors are being replaced with R14 value insulated doors that will reduce energy consumption in the future. Lighting audits are being performed; we are going to be applying for programs that may help to cushion the cost of replacement of the current lighting requirements in a facility that is now thirty-two years old.

Our property continues to have approximately 20% of the land designated as green space. The entrance and tank farm area are paved, our trailer parking area is composed of re ground asphalt provided by the City of Mississauga, and this project was completed in 2008.

Tree lined on the south and west sides, acreage of grassland to the south as well, tide well kept gardens that employees participate in maintenance of are all part of our commitment to help reduce our environmental footprint in the Clarkson Air Shed.

Should you have any questions please contact the writer directly. A description of our business and capabilities are attached.

Graham Douglas  
Operations & Regulatory Manager

UBA Inc.  
2605 Royal Windsor Drive  
Mississauga On.  
Phone: 905 823 6460  
Fax: 905 823 0001  
Cell: 416 435 8992  
[gdouglas@uba.ca](mailto:gdouglas@uba.ca)

Voith Hydro Inc., 2185 North Sheridan Way, Mississauga, Ontario L5K 1A4, Canada

Voith Hydro Inc.  
2185 North Sheridan Way  
Mississauga, Ontario L5K 1A4  
Canada  
Tel.: +1 (905) 855-0242  
Fax +1 (905) 855-0249  
www.mississauga.voithhydro.com

A Voith and Siemens Company

May 13, 2010

Mr. David Balsillie  
Air Quality Task Force  
135 St. Clair Avenue West,  
8th Floor,  
Toronto, ON M4V 1P5

**Subject:- Summary of actions to improve air quality in the Oakville-Clarkson Airshed.**

Dear Sir,

It was nice talking with you and getting a better understanding on purpose, objective and various activities going on developing an action plan to improve the Oakville-Clarkson Airshed.

With reference to the letter sent to us by e-mail dated April 27, 2010, please find herewith the Summary of Actions taken by Voith Hydro to improve the air quality in the Oakville-Clarkson Airshed.

**Company name & location:-** Voith Hydro Inc; 2185 North Sheridan Way, Mississauga, ON L5K1A4

**A description of the business:-** Manufacturing of Hydro Generator Coils

**Steps which have been taken to improve air quality by reducing emissions:-**

- Use of the advanced sustainable environmental friendly Micalastic technology which will eliminate the Styrene emission by the end of 2010.
- Replacement of the High bay HID lights with energy efficient T12's and T8's along with the stand alone motion sensors which has reduced the energy consumption by 7.7 % over 2009.
- Installation of the stoppers in the hot air ovens to reduce presses to reduce the wastage of the natural gas.
- Reduce the water consumption by 30 % over 2009 by quick leak rectifications.

**Future Plans**

- Connection of the exhaust system with the machine operation to optimize the energy consumption.
- Installation of sustainable reliable digital thermostats which will optimize the use of the heating, venting and air conditioning system.
- Installation of the tank less water heaters which will reduce the natural gas consumption.
- Installation of the motion sensors in some areas which will reduce the energy consumption by 1 %.

Yours Sincerely,

  
John Kotic,

Manufacturing Manager

  
Gautam Shah

Health, Safety and Environmental Manager



Xerox Research Centre  
of Canada

2660 Speakman Drive  
Mississauga, Ontario  
L5K 2L1

t 905.823.7091  
f 905.822.7022

May 20, 2010

Dr. David Balsillie  
Air Quality Task Force  
135 St. Clair Avenue West, 8th Floor  
Toronto, ON  
M4V 1P5

Dear Dr. Balsillie,

In response to your letter of May 7<sup>th</sup>, you will find below a summary table of the recent projects that Xerox has completed at three facilities that operate within the Oakville-Clarkson Airshed, the Xerox Research Centre of Canada, the Supplies Development Centre and the Oakville Colour Toner Plant. These projects have focused primarily on reducing electricity use which indirectly decreases emissions from fossil fuel electricity generating stations. However, reductions in water consumption have also been realized.

Aside from the infrastructure and process improvement projects described below, these Xerox facilities have developed and implemented a new toner manufacturing technology called Emulsion Aggregation (EA) that not only requires less electricity to make than conventional toner, but also reduces the energy consumption of the Xerox printers and copiers that use this new toner. This enables reductions in electricity consumption both inside and outside the Oakville-Clarkson Airshed area.

If you have any further questions about any of these projects or processes, please contact me.

Sincerely,

A handwritten signature in blue ink that reads "Brent Bryant". The signature is written in a cursive, flowing style.

Brent Bryant



<b>Xerox Research Centre of Canada – Materials research centre located at 2660 Speakman Drive, Mississauga</b>		
<b>Project Name</b>	<b>Project Description</b>	<b>Environmental Benefit</b>
Fume Hood Automation Project 1999-2000	Upgrade of lab fume hood system: <ul style="list-style-type: none"> <li>• Ultrasonic occupancy sensors to detect when staff is in proximity to the fume hoods allowing automatic setback to lower face velocities when not occupied</li> <li>• Improved control algorithms and response to provide reliable face velocity control and minimize energy waste.</li> <li>• Visual alarms encourage staff to lower the fume hood sash as an energy conservation measure.</li> <li>• Variable frequency drives were installed on the fume hood exhaust fans to continuously match exhaust volumes with real load.</li> </ul>	Electrical energy savings of approximately \$15,000 per year and reductions in heating and cooling costs.
Building Automation System 1999-present	Enhancements to building automation system focusing on energy conservation opportunities: <ul style="list-style-type: none"> <li>• The addition of variable frequency drives on all major air handling fan systems to accurately control air volume needs.</li> <li>• Automated temperature set-backs were implemented for most building zones to automatically adjust to occupied and unoccupied work periods.</li> <li>• Control upgrades were implemented to all heating boilers and humidification systems to optimize energy use, boiler cycling and boiler outputs.</li> </ul>	Not quantified, but energy reductions are evident from lower equipment run times or output reduction.
Chiller Upgrade 2005-2006	Replacement of three original poor efficiency chillers by two high efficiency chillers and consolidation of two evaporative cooling systems into a single cooling tower: <ul style="list-style-type: none"> <li>• Reduction in chiller energy consumption/capacity from 0.7 kW/ton to 0.56 kW/ton</li> <li>• Compliance with Ozone Depleting Substances regulations was maintained.</li> </ul>	About \$25,000 per year in electrical savings
Pilot Plant Process Chiller 2009	Upgrade of process cooling system to a closed loop design: <ul style="list-style-type: none"> <li>• The system is comprised of a new chiller and two rooftop air cooled liquid heat exchangers.</li> <li>• In the cold winter months, the system is capable of running in a “free cooling” mode where the chiller unit can be shut down and the cold outside air is used to directly cool the water/glycol circulation loop. This option allows the system to operate on a minimal amount of electrical energy.</li> </ul>	The savings from this system are expected to be in excess of \$25,000 per year.
Lighting Retrofit 2009	Complete retrofit of the lighting fixtures in the facility was undertaken: <ul style="list-style-type: none"> <li>• The project encompassed the retrofit of some 1500 lighting fixtures and the related recycling of 2200 existing T12 fluorescent tubes, in conjunction with the installation of energy efficient T8 electronic ballasts and T8 fluorescent tubes.</li> <li>• The new T8 ballasts and tubes offer lower power consumption, equivalent illumination, extended tube life spans and reduced mercury content.</li> </ul>	The project will ultimately reduce energy consumption by approximately \$20,000 per year
<b>Xerox Supplies Development Centre – EA particle and specialty materials manufacture located at 2660 Speakman Drive, Mississauga</b>		
<b>Project Name</b>	<b>Project Description</b>	<b>Environmental Benefit</b>
EA latex discharge temperature	A change in process where the discharge temperature of the product is allowed to be higher than before resulting in less process cooling required.	Approximately 32,000 kWh of electricity saved per year.
<b>Xerox Oakville Colour Toner Plant – Toner manufacture and packaging located at 1333 North Service Road East, Oakville</b>		
<b>Project Name</b>	<b>Project Description</b>	<b>Environmental Benefit</b>
Classifier outside air intake 2008	Use of outside air instead of internal, tempered air for processing toner: <ul style="list-style-type: none"> <li>• Reduced HVAC heating costs during winter months.</li> </ul>	Reduced natural gas consumption, but not quantified
Lighting Upgrade 2008	Upgrade to higher efficiency lighting similar to XRCC above.	Electricity savings not quantified, but project payback was 18 months.





**First Six Months (July to December, 2010)**

<p><b>MOE</b></p>	<ul style="list-style-type: none"> <li>• Finalizes Order in Council to establish OCAC and staff District Office to provide support for OCAC</li> <li>• MOE begins follow-up on beyond compliance with OCA industries</li> <li>• MOE starts ground work on air quality monitoring network</li> </ul>
<p><b>Oakville, Mississauga, MTO</b></p>	<ul style="list-style-type: none"> <li>• Implement enhanced dust suppression initiatives for roads, develop or update dust suppression construction codes of practice</li> <li>• Initiate anti-idling campaign</li> <li>• Vegetative planting on Queen Elizabeth Way and Highway 403; identify opportunities to expand vegetative plantings at municipal level</li> </ul>
<p><b>OPA</b></p>	<ul style="list-style-type: none"> <li>• Industrial Energy Reduction Program fully operational</li> </ul>

## Year 1 (January to December, 2011)

OCAC	<ul style="list-style-type: none"> <li>• Begin to meet, develops a work plan for 2011 and 2012, finalizes arrangements with MOE for Airshed Management System</li> <li>• Air quality monitoring network becomes operational and data posted</li> <li>• With Oakville, Mississauga, and MOE develop and begin operating community website, and with other partners, work on conservation and demand management</li> <li>• With MOE, follow through with local industry on “beyond compliance” opportunities</li> <li>• First Annual Report</li> </ul>
MOE	<ul style="list-style-type: none"> <li>• Publishes PM<sub>2.5</sub> standard, other standards under review</li> <li>• Established offset system</li> </ul>
Oakville	<ul style="list-style-type: none"> <li>• Paves road shoulders</li> </ul>
Oakville and Mississauga	<ul style="list-style-type: none"> <li>• Targeted outreach campaign, focusing on students and young people</li> <li>• Municipal reporting and disclosure by-laws</li> <li>• Accelerate development of bike friendly roads and pathways</li> <li>• Initiate traffic study on major arterial roads to examine potential for re-routing truck traffic</li> </ul>
Halton and Peel	<ul style="list-style-type: none"> <li>• Review of separation distance and setback provisions in regional Official Plans</li> </ul>

Years 2 and 3 (January, 2012 to August 31, 2013)

OCAC	<ul style="list-style-type: none"><li>• Beyond compliance work among OCA industries continues</li><li>• Second Annual Report</li><li>• Sunset review</li></ul>
------	--

- Alberta Capital Airshed Alliance. 2009-2011 Business plan. Retrieved on January 28, 2010, <http://www.capitalairshed.ca/LinkClick.aspx?fileticket=sCEq3060IRc%3d&tabid=56>.
- Baldauf, R., Thoma, E., Khlystov, A., Isakov, V., Bowker, G., Long, T. & Snowe, R. (2008). Impacts of noise barriers on near road air quality. *Atmospheric Environment*, 42:7502-7507.
- Boothe, V.L. & Shendell, D.G. (2008). Potential health effects associated with residential proximity to freeways and primary roads: Review of scientific literature, 1999-2006. *Journal of Environmental Health*, 70(8):33-41.
- British Columbia Government. (2003). *Environmental Management Act*. Retrieved February 1, 2010, [http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/03053\\_00](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03053_00).
- British Columbia Ministry of Environment. *Greenhouse gas reduction (vehicle emissions standards) Act: Policy intentions paper for consultation*. Retrieved on June 5, 2010, [http://www.elp.gov.bc.ca/epd/codes/vehicle\\_emissions/pdf/ggrves-paper.pdf](http://www.elp.gov.bc.ca/epd/codes/vehicle_emissions/pdf/ggrves-paper.pdf).
- British Columbia Ministry of Environment. *Provincial framework for airshed planning*. Retrieved on January 26, 2010, [http://www.env.gov.bc.ca/epd/bcairquality/reports/pdfs/airshedplan\\_provframework.pdf](http://www.env.gov.bc.ca/epd/bcairquality/reports/pdfs/airshedplan_provframework.pdf).
- Bowkera, G.E., Baldauf, R., Isakov, V., Khlystov, A. & Petersen, W. (2007). The effects of roadside structures on the transport and dispersion of ultrafine particles from highways. *Atmospheric Environment*, 41:8128-8139.
- Brugge, D., Durant, J.L. & Rioux, C. (2007). Near-highway pollutants in motor vehicle exhaust: A review of epidemiologic evidence of cardiac and pulmonary health risks. *Environmental Health*, 6(23).
- California Environmental Protection Agency, Air Resources Board. (2009 December). *Air toxics "hot spots" program: Annual status report on State fees fiscal year 2008-2009*. Retrieved January 28, 2010, <http://www.arb.ca.gov/ab2588/2588fees.htm>.
- Canadian Medical Association. (2008). *No breathing room: National illness costs of air pollution*. Retrieved on June 2, 2010, [http://www.cma.ca/multimedia/CMA/Content/Images/Inside\\_cma/Office\\_Public\\_Health/ICAP/CMA\\_ICAP\\_sum\\_e.pdf](http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Office_Public_Health/ICAP/CMA_ICAP_sum_e.pdf).
- Capital Airshed Partnership. (2008 December). *Capital region ozone management plan*. Prepared for Alberta Environment.

- City of Mississauga. (2006 August 25) *City fleet emissions reduction study*. Presented to the Chair and Members of General Committee on September 6, 2006.
- City of Mississauga. (2009 December). *Section 4.31: Southdown district policies of Mississauga Plan*.
- City of Toronto. (2008 January). *Environmental monitoring and disclosure bylaw*. Retrieved on April 28, 2010, [http://www.toronto.ca/legdocs/municode/1184\\_423.pdf](http://www.toronto.ca/legdocs/municode/1184_423.pdf).
- City of Toronto. (2008 April). *PM<sub>10</sub> and PM<sub>2.5</sub> street sweeper efficiency test protocol*.
- City of Toronto, Transportation Infrastructure Management Section. (2009). *Clean roads to clean air program*. Presentation at the Learning Summit 2009.
- Clean Air Strategic Alliance. (2009 June). *Recommendations for a clean air strategy*. A report to the CASA Board from the Clean Air Strategy Project Team. Edmonton (AB).
- Clean Air Strategic Alliance. (2005). *The comprehensive air quality management system: CASA's decision making process*. Edmonton (AB).
- Environ EC (Canada), Inc. (2009 May). *Final report - Feasibility of adapting regulations for air quality management to Ontario's existing regulatory framework*. Prepared for the Environmental Commissioner of Ontario.
- Environ EC (Canada), Inc. (2009 May). *Report - Jurisdictional review of regulations for air quality management*. Prepared for the Environmental Commissioner of Ontario.
- Federation of Canadian Municipalities and National Research Council. (2005 October). *Dust control for unpaved roads*. Retrieved March 22, 2010, [http://gmf.fcm.ca/files/Infraguide/Roads\\_and\\_Sidewalks/dust\\_control\\_unpaved\\_rd.pdf](http://gmf.fcm.ca/files/Infraguide/Roads_and_Sidewalks/dust_control_unpaved_rd.pdf).
- Finn, D., Clawson, K., Carter, R., Rich, J., Eckman, R., Perry, S., Isakov, V., & Heist, D. (2010). Tracer studies to characterize the effects of roadside noise barriers on near road pollutant dispersion under varying atmospheric stability conditions. *Atmospheric Environment*, 44:204-214.
- GO Transit. (1982 May). *Railway electrification of the GO Transit Lakeshore commuter line*.
- Gouvernement du Québec, Ministère du Développement durable, de l'Environnement et des Parcs. (2009 December). *Regulation respecting greenhouse gas emissions from motor vehicles*. Retrieved on June 5, 2010, <http://www.mddep.gouv.qc.ca/changements/ges/reg-ges-vehicule-en.pdf>.

- Government of Alberta. (2008 December). Alberta land-use framework. Retrieved February 2, 2010, <http://www.landuse.alberta.ca/AboutLanduseFramework/LUFProgress/documents/LanduseFramework-FINAL-Dec3-2008.pdf>.
- Government of Canada. (2010 April 17). *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations* (Proposed - Canada Gazette Part I). Retrieved on June 7, 2010, <http://gazette.gc.ca/rp-pr/p1/2010/2010-04-17/html/reg1-eng.html>.
- Government of New Brunswick, Ministry of the Environment. *Climate change action plan summary, 2007-2012*. Retrieved on June 5, 2010, <http://www.gnb.ca/0009/0369/0015/0002-e.asp>.
- Government of New Zealand. (2004). Legislation: *Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004*. Retrieved on February 1, 2010, <http://www.legislation.govt.nz/regulation/public/2004/0309/latest/DLM286835.html>.
- Government of Nova Scotia. (2007 April). *Environmental goals and sustainable prosperity Act*. Retrieved on June 5, 2010, [http://www.gov.ns.ca/legislature/legc/bills/60th\\_1st/1st\\_read/b146.htm](http://www.gov.ns.ca/legislature/legc/bills/60th_1st/1st_read/b146.htm).
- Government of Ontario. (1992 March). *GO Transit: Commuter rail services. Electrification study*.
- Government of Ontario. (2007 August). *Ontario Regulation 496/07, Cessation of coal use - Atikokan, Lambton, Nanticoke and Thunder Bay Generating Stations*. Retrieved on February 1, 2010, [http://www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_070496\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_070496_e.htm).
- Government of Ontario. (2009). *Toxics Reduction Act*. Retrieved on February 2, 2010, [http://www.e-laws.gov.on.ca/html/statutes/english/elaws\\_statutes\\_09t19\\_e.htm](http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_09t19_e.htm).
- Greater London Authority. (2006 November). *The control of dust and emissions from construction and demolition*. London (UK).
- Hagler, G.S.W., Baldauf, R.W., Thoma, E.D., Long, T.R., Snow, R.F., Kinsey, J.S., Oudegans, L. & Gullett, B.K. (2009). Ultrafine particles near a major roadway in Raleigh, North Carolina: Downwind attenuation and correlation with traffic-related pollutants. *Atmospheric Environment*, (43):1229-1234.
- Halton Region. (2010 March). *Air quality in Halton: Traffic Corridor Report, Major Arterial Roads*.

- Halton Region. *Amendment No. 38 to the Regional Plan (2006): Official Plan for the Halton Planning Area*. Retrieved March 8, 2010, <http://www.halton.ca/common/pages/UserFile.aspx?fileId=33306>.
- Heil, M. & Pargal, S. (1998 August). *Reducing air pollution from urban passenger transport: A framework for policy analysis*. Washington (D.C.): The World Bank, Development Research Group.
- Idaho Department of Environmental Quality. (2001). *Strategy for the development of an airshed management program for the Treasure Valley*.
- Levelton Consultants Ltd. (2009). *A review of airshed planning in British Columbia*. Prepared for the Ministry of Healthy Living and Support, British Columbia.
- Manitoba Vehicle Standards Advisory Board. (2009 January). *Moving forward - Reducing greenhouse gas emissions from passenger vehicles in Manitoba*. Retrieved on June 5, 2010, [http://www.gov.mb.ca/conservation/climate/pdf/vsab\\_report.pdf](http://www.gov.mb.ca/conservation/climate/pdf/vsab_report.pdf).
- Michigan Department of Environmental Quality. (2008 May 15). *State implementation plan submittal for fine particulate matter (PM<sub>2.5</sub>)*. Retrieved April 17, 2010, [http://www.michigan.gov/documents/deq/deq-aqd-air-aqe-PM25-SIP-Final-2008\\_238092\\_7.pdf](http://www.michigan.gov/documents/deq/deq-aqd-air-aqe-PM25-SIP-Final-2008_238092_7.pdf).
- Netherlands Directorate-General for Public Works and Water Management. (2010 January). *Dutch air quality innovation programme*. Retrieved April 22, 2010, [http://www.fehrl.org/upload/fckeditor/file/Miscellaneous/090565\\_Dutch%20Air%20Quality%20IP%20concluded.pdf](http://www.fehrl.org/upload/fckeditor/file/Miscellaneous/090565_Dutch%20Air%20Quality%20IP%20concluded.pdf).
- Newcastle City Council. *Newcastle airshed management action plan*. Newcastle (NSW). Retrieved February 9, 2010, [http://www.ncc.nsw.gov.au/\\_data/assets/pdf\\_file/0003/5556/Newcastle\\_Airshed\\_Management\\_Action\\_Plan.pdf](http://www.ncc.nsw.gov.au/_data/assets/pdf_file/0003/5556/Newcastle_Airshed_Management_Action_Plan.pdf).
- Nowak, D., Crane, D. & Stevens, J. (2006). Air pollution removal by urban trees and shrubs in the United States. *Urban Forestry & Urban Greening*, 4:115-123.
- Ontario Medical Association. (2005). *The illness of air pollution: 2005-2026 health & economic damage estimates*. Retrieved on June 2, 2010, <https://www.oma.org/Resources/Documents/2005HealthAndEconomicDamageEstimates.pdf>.
- Ontario Medical Association. (2008). *Local premature smog deaths in Ontario*. Retrieved on June 2, 2010, <https://www.oma.org/Resources/Documents/2008LocalPrematureSmogDeaths.pdf>.



- Ontario Ministry of the Environment. (1999 June 8). *Region of Hamilton-Wentworth air quality program: Street cleaning initiative*. Ontario, Canada: Queen's Printer for Ontario.
- Ontario Ministry of the Environment. (2006 November). *Clarkson airshed study: A scientific approach to improving air quality. Part II: The ambient air monitoring program*. Ontario, Canada: Queen's Printer for Ontario.
- Ontario Ministry of the Environment. (2008 May 27). *Cap and Trade: A primer*. Retrieved on March 22, 2010, <http://www.ene.gov.on.ca/en/news/2009/052701fs.php>.
- Ontario Ministry of the Environment. (2008 July). *Clarkson airshed study: A scientific approach to improving air quality. Part III: The air quality dispersion modeling source contribution assessment*. Ontario, Canada: Queen's Printer for Ontario.
- Ontario Ministry of the Environment. (2010 January 28). Drive Clean Regulatory Amendment. Retrieved March 10, 2010, <http://www.ontariocanada.com/registry/view.do?postingId=2242&language=en>.
- Ontario Ministry of the Environment. (2010 February 8). *Land use compatibility guidelines (DRAFT)*.
- Ontario Ministry of the Environment. (2010 May 17). *Fact sheet: Building a 21<sup>st</sup> century environmental approvals system*. Retrieved on June 1, 2010, [http://www.ene.gov.on.ca/en/business/mofa/includes/eap\\_factsheet.pdf](http://www.ene.gov.on.ca/en/business/mofa/includes/eap_factsheet.pdf).
- Ontario Ministry of Municipal Affairs and Housing. (2005). *Greenbelt Plan*. Ontario, Canada: Queen's Printer for Ontario.
- Ontario Ministry of Public Infrastructure Renewal. (2006). *Places to grow: Growth plan for the Greater Golden Horseshoe*. Ontario, Canada: Queen's Printer for Ontario.
- Peel Region. (2010 May). *Draft regional official plan*. Retrieved June 1, 2010, <http://www.peelregion.ca/planning/rop/rop-may2010.pdf>.
- Pope, C.A., Ezzati, M. & Dockery, D.W. (2009). Fine-particulate air pollution and life expectancy in the United States. *New England Journal of Medicine*, 360(4): 376-386.
- Regional Municipalities of Hamilton-Wentworth. (1997 October). *Hamilton-Wentworth Air Quality Initiative (HAQI): Summary report*.
- Republic of the Philippines. (1998 July). *Act providing for a comprehensive air pollution control policy and for other purposes*. Retrieved January 26, 2010, [http://www.congress.gov.ph/download/ra\\_11/RA08749.pdf](http://www.congress.gov.ph/download/ra_11/RA08749.pdf).

- Sacramento Metropolitan Air Quality Management District. (2009 March). *Recommended protocol for evaluating the location of sensitive land uses adjacent to major roadways*. Sacramento (CA).
- San Diego County Air Pollution Control District. (2009 September 23). *California Air Toxics "Hot Spots" Information and Assessment Act (AB2588): 2008 Air toxics "hot spots" program report for San Diego County*.
- Schilling, J.G. (2005). *Street sweeping - Report No. 3: Policy development & future implementation options for water quality improvement*. Prepared for Ramsey-Washing Metro Watershed District. North St. Paul (MN).
- State of Ohio. (2008 July). *Fine Particulate (PM<sub>2.5</sub>) State Implementation Plan for Ohio's Nonattainment Areas*. Retrieved April 16, 2010, [http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2\\_5/PM25Doc.pdf](http://www.epa.ohio.gov/portals/27/SIP/Attain/PM2_5/PM25Doc.pdf).
- The Sheltair Group Resource Consultants. (updated 2005). *A community-based approach to airshed management in the Sea-to-Sky corridor*. Submitted to the British Columbia Ministry of Water, Land, and Air Protection.
- The Sheltair Group Resource Consultants. (2008 May 13). *Implementation framework for the Sea-to-Sky air quality management plan*. Prepared for the Sea-to-Sky Air Quality Coordinating Committee.
- Thoma, E.D., Shores, R.C., Isakov, V. & Baldauf, R. (2008). Characterization of near-road pollutant gradients using path-integrated optical remote sensing. *Journal of the Air & Waste Management Association*, 58:879-890.
- Town of Oakville. (2009 November). *Livable Oakville*. Retrieved February 18, 2010, <http://www.oakville.ca/livable-draftplan.htm>.
- Town of Oakville. (2010 February). *By-law number 2010-035: A by-law to assess and control the health effects of major emissions of fine particulate matter in the Town of Oakville*.
- Town of Oakville. *Sustainable green fleet guide for Procedure EN-GEN-001-001*. Retrieved April 14, 2010, [http://www.oakville.ca/Media\\_Files/2009SustainableGreenFleetGuide.pdf](http://www.oakville.ca/Media_Files/2009SustainableGreenFleetGuide.pdf).
- TransCanada. (2010). *Draft environmental review report: Supporting document 1 - Air quality assessment*. Retrieved March 8, 2010, [http://www.transcanada.com/oakville/environment\\_safety.html](http://www.transcanada.com/oakville/environment_safety.html).

United Kingdom Government, Department of Environment, Food and Rural Affairs. (2009). *Local air quality management. Practice guidance 2: Practice guidance to local authorities on low emissions zones.*

United Kingdom Government, Department of Environment, Food and Rural Affairs. (2009). *Local air quality management. Practice guidance 3: Practice guidance to local authorities on measures to encourage the uptake of low emission vehicles.* London (UK).

University of Michigan: Urban and Regional Planning. (2008 April). *Breathing Easier in Southwest Detroit: Mitigating Fugitive Dust with Vegetation.* Project in collaboration with Southwest Detroit Environmental Vision and the Southeast Michigan Council of Governments.

Western Regional Air Partnership. (2006). *Fugitive dust handbook.* Retrieved June 7, 2010, <http://www.wrapair.org/forums/dejf/fdh/>.

