THE REGIONAL MUNICIPALITY OF HALTON

Report To:	Chair and Members of the Health and Social Services Committee
From:	Bob Nosal, Commissioner & Medical Officer of Health
Date:	May 29, 2007
Re:	Health Department's Proposed Air Quality Program
Report No.:	MO-35-07

RECOMMENDATION

1. THAT Regional Council endorse the Health Department's Air Quality Program for addressing air quality at a community level as described in Report No. MO-35-07 re: "Health Department's Proposed Air Quality Program".
2. THAT Regional Council approve a new capital project to be set up for the Air Quality Program in the amount of $266,280 for 2007 as set out in Appendix D.

REPORT

Purpose

At its February 27th, 2007 meeting, the Health and Social Services Committee provided the Medical Officer of Health with approval in principle to commission and operate an air monitoring program as part of an overall air quality strategy, and instructed staff to report back with a recommended plan and associated costs to address the air modelling and air monitoring issues as outlined in report MO-12-07 entitled, "Air Quality, Human Health and the Built Environment" and report MO-18-07 entitled, "Halton Airshed Monitoring Project Update".

This report discusses the elements of the Health Department's Air Quality Program that were approved at the February 27th, 2007 meeting and identifies the resources required to implement them. There will be a presentation on this report at the Health and Social Services Committee meeting.

Background

At Meeting No. 05-07, on February 27, 2007, the Health and Social Services Committee recommended:

1. That approval be given in principle for the Commissioner and Medical Officer of Health to proceed with Phase III of the Halton Airshed Monitoring Project to commission and operate the monitoring network as part of an overall air quality strategy; and

2. That staff report back to the Health and Social Services Committee by the end of May 2007, with a recommended plan and associated costs to address the air modelling and air monitoring issues as outlined in reports MO-12-07 and MO-18-07.

The Committee also approved the following recommendations in report MO-12-07:

3. THAT the 2007 Health Department Operating budget be increased by $50,000, funded by a transfer from the Tax Stabilization Reserve, to develop a community-wide air quality modelling program that can be used to assess air quality across the Region, evaluate the contribution of new emission sources on air quality, and inform land use planning decisions, policy development, and health promotion campaigns;

4. THAT the Region examine the portable air monitoring equipment and/or resources that could be used to assess air quality in micro-environments such as traffic corridors and validate air quality modelling results, to support land use planning decisions and policy development;

5. THAT the Region, in collaboration with the local municipalities, examine the policy instruments that might be used to support the development of "complete communities" that reduce reliance on automobiles in order to reduce vehicle-related emissions of air pollutants and greenhouse gases across the Region;

6. THAT the Region, in collaboration with the local municipalities, explore the policy instruments that might be used to encourage the early application of the EnerGuide 80 standard to small residential buildings, the application of LEED™ standards to large buildings, and the use of alternative or renewable energy systems in new buildings; and

7. THAT the Region develop and implement a health promotion program that educates the public about the links between air quality, human health, climate change, and the built environment, and about the actions that can be taken by individuals, organizations and governmental agencies to improve air quality and/or retard climate change.

As a result of the above recommendations, the Health Department is identifying the need to add the following elements to its Air Quality Program:

- Development of an air monitoring and air quality modelling program that will provide a clearer picture of air quality across the Region, inform land use planning processes such as the Sustainable Halton process, support policy development, and inform health promotion related to air quality;
- Development of air quality policies (e.g., requiring the assessment of air quality for developments beside highways) and instruments (e.g., methods of encouraging developers to build "complete communities" that support public transit and active modes of transportation) that can be used to effectively address air quality through the land use planning process; and
- Development of an air quality/climate change health promotion program that includes public education, social marketing which aims to change behaviour, and advocacy for policy changes by senior levels of government.

Air Monitoring and Air Quality Modelling

Air Monitoring

Air monitoring instruments can be used to measure the actual concentrations of various pollutants in the air. They can provide continuous readings of the air pollutants in a particular location or they can provide an averaged reading for a particular time period depending upon the equipment used and the air pollutant monitored.

Air monitors can be used to provide an indicator of exposure for the whole community if located near the population and distant from specific emission sources or they can be used to indicate exposure near particular emission sources such as highways, factories, or quarries. Stationary monitors can be used to identify peaks in air pollution or to follow trends in air quality over time.

Recent air quality and health studies have demonstrated that levels of air pollutants can vary significantly across a community. As discussed in the report MO-12-07, and its background report "Air Quality, Human Health and the Built Environment", a number of studies have identified that micro-environments such as traffic corridors can be associated with much higher levels of air pollution and a significantly greater number of negative health impacts than indicated by stationary monitors that are situated to measure ambient air quality. For this reason, there is a growing level of interest in air monitoring that is directed at these micro-environments.

Air Monitors – Stationary and Portable

Conventional outdoor air quality monitors are usually stationary monitors. They are fairly big instruments that must be housed in air conditioned trailers or housing stations that can be about eight by ten feet in size. These instruments have to be connected to an electricity supply and usually need to be connected to telephone lines. They are frequently sited on properties where leases are required and may require security fences around them.

When it comes to outdoor air quality where air pollutants are measured in parts per billion (ppb), hand-held instruments do not usually have the detection levels or accuracy that is needed. There is however a new generation of air monitoring equipment that is compact (i.e. size of a mini-refrigerator) and relatively light in weight (i.e. less than 120 kilograms). These instruments provide their own housing and air conditioning. They do not need to be housed in trailers or buildings because they are designed with weather-proof housing. They can run on low voltage electrical lines. Some of these instruments use wireless technology so they do not need to be connected to telephone lines. All of this means that they can be moved from one location to another with relative ease. These instruments can be used to measure air quality at different locations across the community or to measure air quality in micro-environments such as traffic corridors.

Air Quality Modelling

Air monitoring equipment cannot easily be used to identify the sources of emissions, nor can it predict how air quality will be affected by growth, new facilities, or changes in policy. Air quality modelling, conducted with sophisticated computer models, can fill the gap left by air monitoring instruments.

Using meteorological information, topography, and emissions data that include the height, speed and frequency of emission releases, air quality modelling can be used to estimate the concentration of different air pollutants across the community. Because air quality models can examine emission sources separately, they can also estimate the contribution of different emission sources to air levels in different parts of the community. They can also be used to predict how concentrations of air pollutants might be impacted by new emission sources or by changes in policy. For example, air quality modelling can be used to estimate the contribution of vehicles to air quality in a community or to estimate how air quality might be impacted by the introduction of 50,000 additional vehicles into that community (see air quality modelling examples in Appendix A).

Air dispersion modelling has been used for many years to estimate the impact of point sources such as industries on air quality, the air quality impacts associated with various transportation options, and the long-range transport of some air pollutants. In recent years, innovative work has been done by a few organizations to apply air dispersion modelling to large urban areas to assess the cumulative impacts of all emissions sources on air quality across the community. This is sometimes called airshed modelling.

For example, for several years now, the City of Toronto, Technical Services Division, has been building a Toronto airshed model that is based on the CALPUFF model. CALPUFF is an air dispersion model developed by the U.S. Environmental Protection Agency (EPA) that can handle complex terrains, long source to receptor distances, and chemical transformations and deposition. This model is used with the meteorological model, CALMET, which produces a 3-dimensional wind and temperature field and a 2-dimensional field for mixing heights and other meteorological variables. CALMET can address multiple processes and multiple sources within one spatially varying meteorological field. It can be used over the entire expanse of the Toronto Area. The Toronto airshed model includes an algorithm to deal with the effect of buildings on dispersion. It also includes a module that addresses the effects caused by the lake. This model can estimate ground-level concentrations of air pollutants over varying periods of time (e.g. in hourly, daily, or annual averages) (EarthTech, 2003). The Toronto airshed model can be used to estimate concentrations of sulphur dioxide, nitrogen dioxide, coarse particulate matter, carbon monoxide, and fine particulate matter and more recently, ground-level ozone.

MOE Monitoring Equipment Offered to the Region

As indicated in report MO-18-07, in 2005, the Ministry of the Environment (MOE) Central Region Operations Division, offered to give the following air monitoring equipment to Halton Region for an air monitoring program:

- one meteorological station and three monitoring station buildings;
- five continuous nitrogen oxide (NO_x) monitors;

- five high volume, non-continuous, coarse particulate matter (PM_{10}) samplers;
- five high volume, non-continuous, fine particulate matter ($PM_{2.5}$) samplers,
- five non-continuous total suspended particulate (TSP) samplers, and
- five non-continuous volatile organic compound (VOC) samplers.

The Health Department has confirmed with the MOE that this equipment is still available for the Region's use and will convene a meeting with the MOE once staff have clarified the Region's air monitoring equipment needs (see Appendix C) (MOE, 2007).

Halton's Air Monitoring & Modelling Program

Stationary Air Monitoring Station in Milton

At present, there are two MOE air monitoring stations in Halton Region and both are located in the southern portion of the Region; one near Joseph Brant Hospital in Burlington and one near the Glenashton Drive Regional Reservoir in Oakville. Residents in north Halton who are feeling anxious about the pace of development in their communities have expressed the need for better information about air quality in north Halton. The MOE, which currently maintains about 40 air quality monitoring stations in Ontario, will not site a station in Milton at this time because there is a view that the Region is adequately covered by the two air monitoring stations in south Halton and the station in Guelph (see map in Appendix B) (MOE, 2007a).

By siting an air monitoring station in Milton that monitors the five common air pollutants that have been most clearly linked to negative human health impacts – ground-level ozone, fine particulate matter, carbon monoxide, sulphur dioxide and nitrogen dioxide – the Region could provide residents in north Halton with better information about the ambient air quality in the north end of the Region. It would also allow the Region to track air quality in north Halton as growth and development occurs. It would also provide data from north Halton that can be used to validate air quality modelling that will be discussed below.

This monitoring station should be equipped with continuous monitors capable of providing measurements on a real-time basis. It should be located on the northeast side of Milton to capture the influence of local air pollutants as well as transboundary air pollutants that tend to come from the southwest. It should be located at least one kilometre south of Highway 401 and distant from any large emissions sources in order to provide a good indicator of general exposure among Milton residents (Corr, 2007).

Using some of the equipment donated by the MOE, with a replacement value of approximately $45,500, it would cost the Region approximately $92,880 in 2007 to purchase the additional instruments needed (see Appendix C) and $5,000 to commission this station. In addition, it would cost approximately $86,000 per year beginning in 2008 to have the station operated and maintained and to have the data managed and audited by external consultants with expertise in air monitoring (Corr, 2007). If the Region chose to connect this air monitoring equipment to an active website so residents could access the information on a real-time basis, it would cost an additional $10,000 per year beginning in 2008 to have the air monitoring consultant organize and present the current air quality data on a website that could be accessed by the public through a link on the Region's website.

The total costs of $97,880 required for 2007 are included in the proposed 2007 capital project. Future costs associated with operating the equipment, data management, and equipment replacement costs are also included in the 10 year forecast in the Financial/Program Implications section of the report.

Air Quality Modelling for Halton

Report MO-12-07 articulated the need to use air quality modelling to assess air quality across the Region, predict the impact of broad land use and transportation planning decisions on air quality, and predict the impact of broad policies on air quality. Regional Council endorsed this report and approved the expenditure of $50,000 in 2007 to establish an air quality modelling program for Halton Region to be managed by the Health Department.

The Health Department plans to contract the services of a consultant with expertise in air quality modelling to begin building a Halton airshed model that includes detailed emissions data for industrial sources, the transportation sector, buildings, electricity generation, and open sources such as road dust and aggregate mining. The first phase of the work, to be undertaken with the 2007 budget, involves collecting data and inputting that data into the model. The second phase of the work, to be undertaken in 2008, involves validating the model using the two existing MOE air monitoring stations, the new air monitoring station proposed for Milton, and the portable air monitoring equipment discussed below, and adjusting the model accordingly. The third phase, which can begin once the model has been validated, is to use the model to evaluate the impact of different scenarios.

For the first few years at least, this airshed model would have a 2 kilometre resolution, which means that it could only be used to address policies, decisions or emission sources that are expected to have a substantial impact on air quality across a fairly large area of the community. During those years, this model could be used to:

- identify taxed airsheds across the Region by modelling the cumulative impacts of emission from all sectors;
- demonstrate the contribution of the transportation sector to air quality in Halton;
- demonstrate the contribution of other local sources in Halton to air quality in Halton;
- identify how an increase in vehicle use with growth could impact on air quality and how a 20% reduction in that vehicle use could impact on air quality; and
- identify how a new major point source, such as a new generating station, might contribute to air quality across the community (see Appendix A).

The information from this airshed modelling would be used to:

- inform public education and social marketing;
- inform the Sustainable Halton process and the development of the new Transportation Master Plan;
- inform policy development by identifying emission sources or incompatible land uses that require attention; and
- inform the review process for certificates of approval by providing better information about background air levels across the community.

Over the next few years, while this model is being developed and fine-tuned, it would not be used to assess the air quality impacts associated with small emission sources, small development proposals, or specific transportation routes such as:

- Specific subdivision plans or development proposals;
- Small point sources such as dry cleaners or autobody shops; or
- The introduction of a bus route to a secondary highway.

It is recommended that $50,000 per year starting in 2007 be budgeted in the proposed capital project for the Air Quality Modelling program. Should this be approved, it is then recommended that the $50,000 currently included in the Health Department's Tax Operating Budget and its funding from the Tax Stabilization Reserve be reduced to $0.

Portable Air Monitoring for Halton

While air modelling is a very cost-effective way to assess air quality across the Region, the modelling results must be validated with actual air monitoring data to ensure that the model is accurate. The two existing air monitoring stations operated by the MOE will provide validation points for all five air pollutants as would the air monitoring station proposed for Milton. However additional monitoring will be needed in different locations across the Region. This requires the use of air monitoring equipment that can be located in several different sites across the Region over the course of a year for a month or two at a time.

This monitoring can be done with stationary monitors but it would be much more cost-effective to do this monitoring with portable instruments that are smaller, lighter, and do not require the use of station houses or trailers. The portable air monitoring program should be supported by instruments that can measure the desired air pollutants on a continuous basis with a high level of accuracy. Instruments should be available for four of the common air pollutants -- ground level ozone, nitrogen dioxide, fine particulate matter, and carbon monoxide -- because these are the common air pollutants that are associated with the greatest variability within a community (Buonocore, 2007).

It would cost the Region approximately $113,400 in 2007 to purchase a sophisticated portable monitoring instrument capable of measuring all four air pollutants on a continuous basis and $5,000 to have the data managed and audited by external consultants. This instrument should include a data logger, an air conditioner, instruments to collect meteorological data, and should not need housing or a telephone connection. It would cost the Region approximately $62,000 per year beginning in 2008 to have this instrument operated and maintained, to have its data managed and audited, and to have it relocated eight times through the year by external consultants with expertise in air monitoring (Buonocore, 2007)(see Appendix C).

The total costs of $118,400 required for 2007 are included in the proposed 2007 capital project. Future costs associated with operating the equipment, data management, and equipment replacement costs are also included in the 10 year forecast in the Financial/Program Implications section of the report.

Air Quality Policy Development

In March 2007, Regional Council also approved recommendations #5 and #6 above in Report MO-12-07, requiring the Region, in collaboration with the local municipalities to:

- Examine the policy instruments that might be used to support the development of "complete communities" that reduce reliance on automobiles; and
- Explore the policy instruments that might be used to encourage the early application of the EnerGuide 80 standard to small residential buildings, the application of LEED^{TM} standards to large buildings, and the use of alternative or renewable energy systems in new buildings.

To support the Region's work in these two areas, it is recommended that:

- A consultant be hired in 2008 at an estimated cost of $30,000 to identify and assess the policy instruments that could be applied to both of these recommendations; and
- A consultant be hired in 2008 at an estimated cost of $20,000 to compare the air pollutants, greenhouse gases and energy needs (i.e., electricity and natural gas) associated with the addition of 150,000 new homes built to the Ontario Building Code which reflect the recent mix of housing types within the Region, to 150,000 new homes built to EnerGuide 80 standards with the mix of housing types recommended in the "Housing Directions" report for the Sustainable Halton process.

Air Quality Health Promotion Program

In March 2007, Council approved recommendation #7 above in Report MO-12-07, and thereby approved the development of a health promotion program directed at educating the public about the link between air quality, human health, climate change, and the built environment, and about the actions that can be taken by individuals, organizations and governmental agencies to improve air quality and/or retard climate change.

A strong health promotion program, which can include public education and social marketing campaigns, often requires a public survey on the topic to determine the level of awareness, attitudes and behaviour within the community. It can also include the development of outreach materials, ad campaigns, workshops, and special events. Staff have estimated that an air quality/climate change health promotion program would require $75,000 a year on an ongoing basis beginning in 2008 with funding going towards a public survey to measure public attitudes before and after the development and implementation of the program, and towards materials and advertising required for the education and social marketing components of the program. This $75,000 in costs is included in the proposed 2007 capital project and in the 10 year forecast in the Financial/Program Implications section of the report.

Staff Resources

While a good deal of the air quality work identified above requires the specialized expertise of external consultants, a great deal of work must be done internally by staff with specialized expertise in air quality, policy development, and/or health promotion as well.

It will require a Senior Policy Analyst effective August 1, 2007 to establish and manage the air monitoring and air quality modelling programs described above. This position will be hired on a temporary basis in 2007 and the costs associated with this position of $50,000 will be managed within the Health Department's tax supported operating budget through savings realized in other Health areas. This position would be required on a permanent basis effective January 1, 2008.

The Program will also require a permanent 1.0 FTE Environmental Health Specialist effective January 1, 2008 to support policy development work in this area and to establish and implement an air quality/climate change health promotion program in 2008. The permanent positions and costs will be brought forward to be considered by Council as part of the 2008 budget process.

FINANCIAL/PROGRAM IMPLICATIONS

In February 2007, Regional Council approved a one-time 100% regionally funded cost of $50,000 to develop a community-wide air quality modelling program (MO-12-07). The total estimated costs including the costs for 2.0 FTE additional staff required to implement the entire air quality program elements as outlined in report MO-35-07 are shown in the table below.

It is recommended that that a new capital project be set up for the Air Quality Program with a budget of $266,280 for 2007. Should this project be approved, it is then recommended that the $50,000 currently included in the Health Department's Tax Operating Budget (as per MO-12-07) and its funding from the Tax Stabilization Reserve be reduced to $0 as this amount is included in the 2007 capital budget requirement of $266,280 (see Appendix D). Should Council choose not to proceed with the recommendations as set in MO-35-07, the Air Quality Program budget should remain at $50,000 for 2007.

The Table below also shows the estimated annualized costs of the Air Quality Program for 2008 and beyond. This includes the annualized capital project costs detailed in the previous sections of the report along with future impacts on the Health Department's Tax Supported Budget. Costs to be included for 2008 and beyond would include annual contributions to the tax capital reserve to repay the reserve and to make provisions for the replacement of the equipment. The Health Department's Tax Supported Budget for 2008 and beyond would also include approximate annual staffing and corporate administration support costs. The permanent positions and associated costs will be brought forward to be considered by Council in the 2008 budget process.

Staff will explore grant funding opportunities from the Provincial and Federal governments for the air quality initiatives outlined in report MO-35-07 and update Regional Council accordingly.

Halton Region

Air Quality Monitoring Implementation and Support Cost - 10 Year Summary

CAPITAL COSTS	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
STATIONARY AIR MONITORING STATION IN MILTON											
Equipment	92,880	-	-	-	-	-	-	-	-	-	92,880
Contracted Services - Operation/Data Mgmt	5,000	86,000	86,000	86,000	86,000	86,000	86,000	86,000	86,000	86,000	779,000
Website Development and Maintenance		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	90,000
Equipment Replacement					49,140					92,880	255,420
	97,880	96,000	96,000	96,000	145,140	96,000	96,000	96,000	96,000	188,880	1,217,300
AIR QUALITY MODELLING FOR HALTON											
Consultant Costs*	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	500,000
PORTABLE AIR MONITORING FOR HALTON											
Equipment	113,400	-	-	-	-	-	-	-	-	-	113,400
Contracted Services - Operation/Data Mgmt	5,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	563,000
Equipment Replacement										113,400	
	118,400	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	175,400	676,400
POLICY DEVELOPMENT - Consultant	-	50,000	-	-	-	-	-	-	-	-	50,000
HEALTH PROMOTION - Consultant	-	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	675,000
Total	**266,280**	**333,000**	**283,000**	**283,000**	**332,140**	**283,000**	**283,000**	**283,000**	**283,000**	**489,280**	**3,118,700**

*$50,000 previously approved in 2007 in report MO-12-07 in the operating budget.

ANNUAL OPERATING IMPACT	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Direct Operating Costs											
Staff Resources	50,000	206,000	212,000	218,000	225,000	232,000	239,000	250,000	253,000	261,000	2,146,000
Corporate Administration Support Cost	-	23,400	24,000	25,000	26,300	27,900	29,600	31,600	33,400	35,400	256,600
Sub-total	**50,000**	**229,400**	**236,000**	**243,000**	**251,300**	**259,900**	**268,600**	**281,600**	**286,400**	**296,400**	**2,402,600**
Capital Financing											
Operating Transfer - Initial Capital	-	138,280	200,000	250,000	300,000	375,000	400,000	400,000	400,000	400,000	2,863,280
Operating Transfer - Equipment Replacement	-	35,200	35,200	35,200	35,200	23,020	22,900	22,900	22,900	22,900	255,420
Sub-total	**-**	**173,480**	**235,200**	**285,200**	**335,200**	**398,020**	**422,900**	**422,900**	**422,900**	**422,900**	**3,118,700**
Gross Operating Requirements	**50,000**	**402,880**	**471,200**	**528,200**	**586,500**	**657,920**	**691,500**	**704,500**	**709,300**	**719,300**	**5,521,300**
Savings in the 2007 Budget	(50,000)	-	-	-	-	-	-	-	-	-	(50,000)
Net Operating Requirements	**-**	**402,880**	**471,200**	**528,200**	**586,500**	**657,920**	**691,500**	**704,500**	**709,300**	**719,300**	**5,471,300**
Annual Incremental Increase		**402,880**	**68,320**	**57,000**	**58,300**	**71,420**	**33,580**	**13,000**	**4,800**	**10,000**	

RELATIONSHIP TO THE STRATEGIC PLAN

This report supports goal #9 in the 2004-2006 Strategic Plan which requires the Region to: "Work to improve air quality in Halton, in cooperation with other orders of government, business and the community". It fulfills Action items #9a) to: "Define, in conjunction with the development of Healthy Communities principles, a framework of policies leading to improved air quality, to be implemented through the Sustainable Halton Plan and the resulting Official Plan".

Respectfully submitted,

Robert M. Nosal MD FRCPC
Commissioner and Medical Officer of Health

Approved by

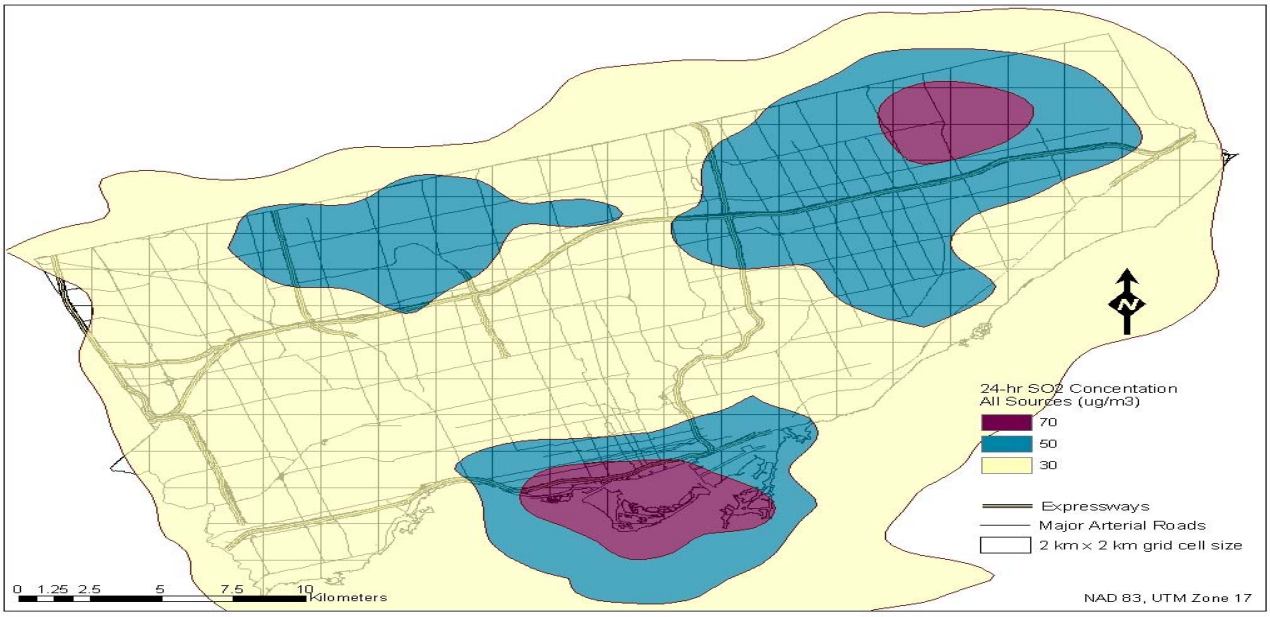
J. E. MacCaskill
Acting Chief Administrative Officer

If you have any questions on the content of this report, please contact: Kim Perrotta Tel. # 7943

References:

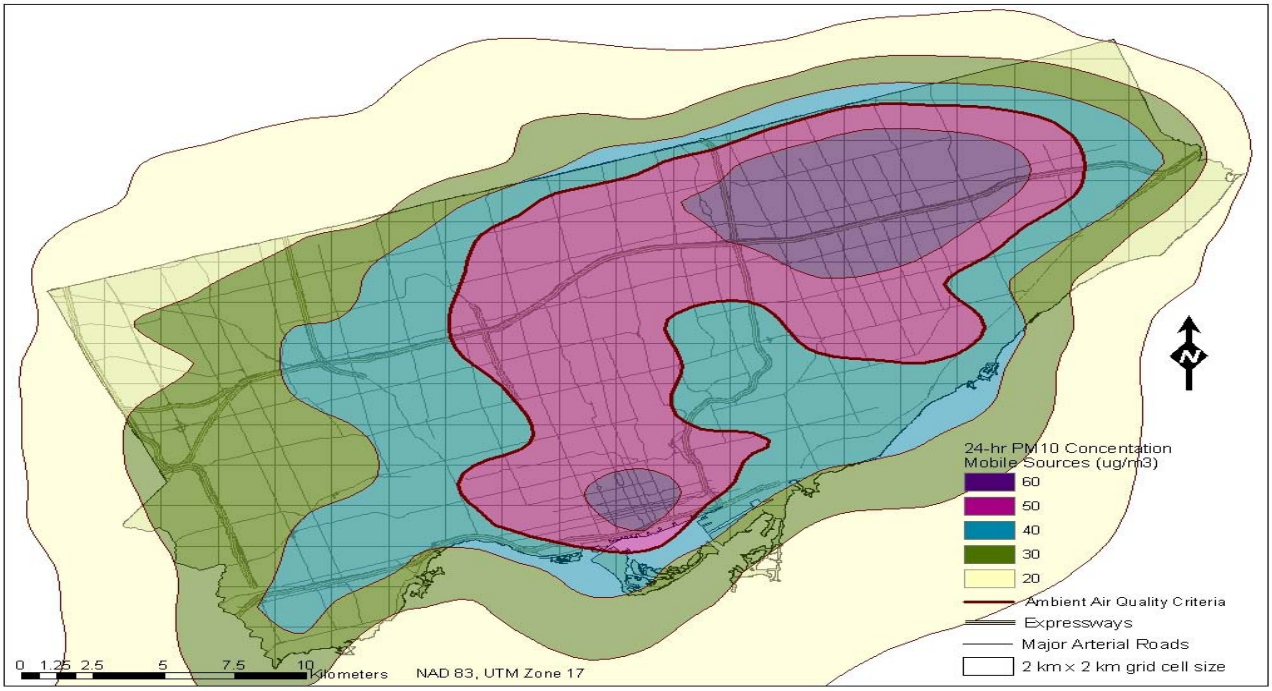
- Buonocore, Neil. 2007. Personal Communication. Clean Air Environment. May.
- Corr Associates, 2007. Proposed Halton Air Monitoring Program Summary Report. Report for Halton Region Health Department. April.
- Earth Tech Canada, 2003. CALPUFF Modelling System. Prepared for City of Toronto, Technical Services, Air Quality and Improvement Branch, September.
- Ministry of the Environment (MOEa), 2007. Personal Communication, Dan Orr, Air Quality Monitoring Unit. April.
- Ministry of the Environment (MOEb), 2007. Personal Communication, M. Antunes, Central Region, May.

Appendix A to Report No. MO-35-07: Air Quality Modelling
Maximum 24-hr SO_2 Concentrations from all Toronto Sources, Toronto, 2005



(Early Example, No Longer Current, AAQC for SO_2 =275 ug/m^3)

Maximum 24-hr PM_{10} Concentrations from Toronto's Transportation Sector, Toronto, 2005

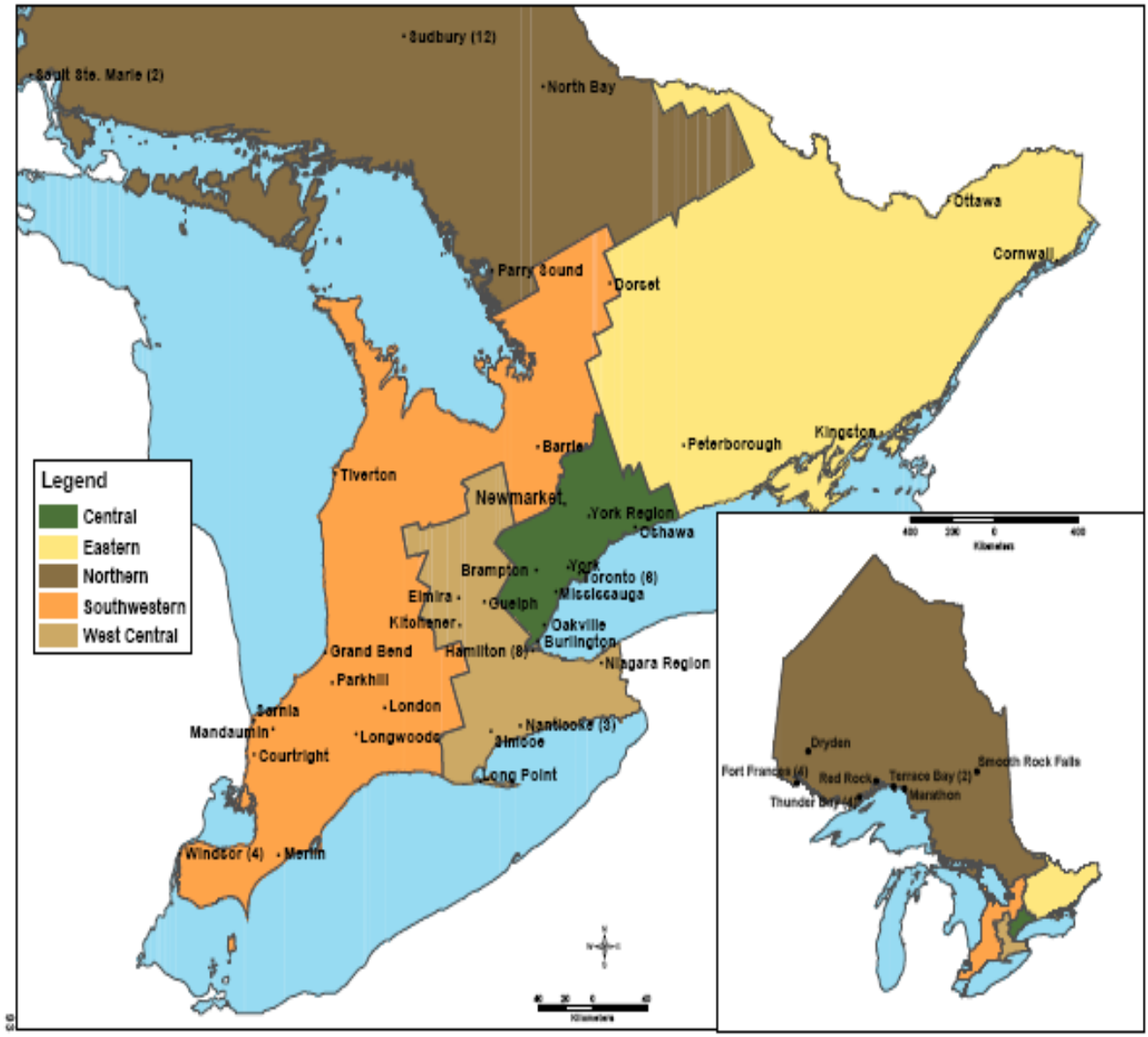


(Early Example, No Longer Current)

Appendix B to Report No. MO-35-07: Map of MOE Air Quality Monitoring Stations in Ontario, 2001

(Ministry of the Environment, 2001. Air Quality in Ontario,)

Map 1: Locations of Continuous Air Monitoring Stations in Ontario (2001)



Appendix C to Report No. MO-35-07: Air Monitoring Equipment Needed & MOE Equipment Available

EQUIPMENT DESCRIPTION	Stationary Air Monitor in Milton	Portable Air Monitoring	N/A to Air Quality Program
MOE DONATED EQUIPMENT FOR THE AIR QUALITY PROGRAM RESOURCE NEEDS			
1 continuous NO_x monitors *(Up to $18,000 each)*	18,000	-	-
1 meteorological station *(Up to $2,500)*	2,500	-	-
1 monitoring stations buildings *(Up to $15,000 each)*	15,000	-	-
1 Station loggers *(Up to $10,000 each)*	10,000	-	-
	$ 45,500	-	-
REGION OF HALTON EQUIPMENT FOR THE AIR QUALITY PROGRAM RESOURCE NEEDS			
1 Continuous Ozone Monitor	25,000	-	-
1 Continuous SO_2 Monitor	17,000	-	-
1 Continuous CO Monitor	16,000	-	-
1 Continuous $PM_{2.5}$ Monitor	28,000	-	-
1 Portable Monitor	-	105,000	-
	$ 86,000	**$ 105,000**	**$ -**
Taxes	6,880	8,400	
	$ 92,880	**$ 113,400**	**$ -**
OTHER MOE DONATED EQUIPMENT - NOT APPLICABLE TO THE AIR QUALITY PROGRAM			
5 high volume, non-continuous $PM_{2.5}$ samplers *(Up to $9,000 each)*	-	-	45,000
5 High volume, non-continuous PM_{10} samplers *(Up to $9,000 each)*	-	-	45,000
5 Non-continuous TSP samplers *(Up to $4,000 each)*	-	-	20,000
5 Non-continuous VOC cartridge samplers *(Up to $15,000 each)*	-	-	75,000
4 continuous NO_x monitors *(Up to $18,000 each)*	-	-	72,000
2 monitoring stations buildings *(Up to $15,000 each)*	-	-	30,000
3 Station loggers *(Up to $10,000 each)*	-	-	30,000
	-	-	**$ 317,000**

Key:

Respirable Particulate Matter ($PM_{2.5}$)
Inhalable Particulate Matter (PM_{10})
Total Suspended Particles (TSP)
Nitrogen Dioxide (NO_2)
Carbon Monoxide (CO)
Sulphur Dioxide (SO_2)
Hydrogen Sulphur (H_2S)
Volatile Organic Compounds (VOCs)

Note: Air monitoring equipment has a life-span of about 10 years; the MOE equipment being offered was used for the Clarkson Airshed Study and is 4-5 years old.

Appendix D to Report No. MO-35-07: Revised Air Quality Program Capital Budget and Financing Plan

Project Description: Air Quality Capital Program

Section "A" - Revised Budget			
Description	Gross Costs	Transfer from Tax Stabilization Reserve	Transfer from Tax Capital General Reserve
Approved Budget & Financing:			
MO-12-07*	$ 50,000	$ 50,000	$ -
	-		
Total	$ 50,000	$ 50,000	$ -
Budget Increase/(Decrease) per MO-35-07	**216,280**		
Total Revised Budget	$ 266,280		
Section "B" - Financing Plan			
Revised Financing Plan	$ 266,280	$ -	$ 266,280
Funding Increase/(Redeployed)	**$ 216,280**	**$ (50,000)**	**$ 266,280**
Reserve/Reserve Fund Account Number		**501020**	**505010**

* Report MO-12-07 approved $50,000 transfer from the Tax Stabilization Reserve to Operating to support Air Quality Modelling initiatives. Air Quality Modelling will now be completed as part of the capital project, therefore the transfer from Tax Stabilization to operating is not required and the total program financing required will be financed from the Tax Capital General Reserve.