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REPORT
Regional Council

For Information

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REPORT TITLE: **PLANNING AND AIR QUALITY TOOLS**

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OBJECTIVE

To respond to comments and questions from Council during the Regional Official Plan Amendment 21 (ROPA 21) public meeting on April 23, 2009 and inform Council about some current practices for land use-related air quality assessment tools.

REPORT HIGHLIGHTS

- This report is in response to comments and questions from Council during the Regional Official Plan Amendment (ROPA 21) public meeting on April 23rd, 2009.
- The goal of the air quality section of draft ROPA 21 is, "to create healthier and sustainable communities by improving local air quality and reducing greenhouse gas emissions".
- This report discusses possible tools for assessing air quality, such as air monitoring and modeling, and summarizes some current practices in other jurisdictions.
- The formal report back on adoption of ROPA 21 is expected in October 2009.

DISCUSSION

1. Background

This report is in response to comments and questions from Council during the ROPA 21 public meeting on April 23, 2009.

ROPA 21 is the second draft amendment to the Regional Official Plan (ROP) being proposed through the Peel Region Official Plan Review (PROPR). PROPR addresses requirements under the *Planning Act* that the Region undertake a five year review of the ROP to ensure that it is in conformity with provincial policy including the 2005 Provincial Policy Statement and Growth Plan for the Greater Golden Horseshoe. ROPA 21 addresses policy related to natural heritage, agriculture, integrated waste management and air quality.

The air quality section of ROPA 21 was drafted to:

- Conform with Provincial planning legislation;
- Consider air quality in the context of the rapid growth in population and employment in Peel;

- Address growing concerns related to air quality impacts on human health, the environment and economy;
- Address climate change and the use of fossil fuels; and to
- Support sustainability objectives of the ROP.

The goal of the air quality section is "to create healthier and sustainable communities by improving local air quality and reducing greenhouse gas emissions".

Regulation of emissions to air is the responsibility of the Ontario Ministry of Environment (MOE). However, municipalities can also influence air quality through planning policy and land use approvals. The following outlines the role of the MOE, the Region (including the Medical Officer of Health), and the area municipalities. The report also discusses some tools available to the Region to address poor air quality.

2. Role of the Ontario Ministry of Environment (MOE) in Air Quality

Air standards in Ontario are set by the MOE, and are influenced both by the federal government and by bi-lateral agreements with, for example, the United States.

The primary tool for regulating air quality in Ontario is *Regulation 419/05* (Air Pollution - Local Air Quality) under the *Environmental Protection Act. O. Reg. 419/05* came into force in 2005 and is being phased in by sector with full implementation by February, 2020. Under *O. Reg 419/05*, the MOE has recently moved to an air standard setting process based upon evidence of impacts to human health.

The MOE sets two kinds of standards to protect air quality. Ambient air quality criteria (AAQC) are used to assess the general quality of the air, while "point of impingement" (POI) limits air emissions from individual industrial sources of pollution through the Certificate of Approval process.

While Peel Public Health is very supportive of the new air standard process, the Medical Officer of Health has been critical of aspects of the regulation. A major weakness of *0. Reg. 419/05* is that it does not routinely consider cumulative impacts during the Certificate of Approval process. The Region of Peel and Peel Public Health have advocated on multiple occasions that the Ministry review the cumulative impacts when issuing Certificates of Approval, especially in airsheds with poor air quality.

The MOE has recently begun to consider cumulative impacts on a case-by-case basis due to a recent Environmental Tribunal decision (upheld by the Ontario Court of Appeal) related to Lafarge. Lafarge, near Bath, Ontario, proposed to burn alternative fuels, including tires, in its cement kiln. The company applied for two Certificates of Approval to operate a waste disposal site to accept, process and incinerate alternative fuels and for the resulting air emissions.

Local residents appealed to the Minister that the proposal be subjected to an environmental assessment under the *Environmental Assessment Act.* That request was denied and the MOE issued the approvals. The Applicants sought leave to appeal under the *Environmental Bill of Rights, 1993.*

The Tribunal accepted the Applicants' argument that the Director's decision to issue the Certificates failed to take into account the MOE's "Statement of Environmental Values" on the ecosystem approach as well as its precautionary approach.

The Ministry is now considering the tools, including science, policies and guidelines, necessary to support the application of an ecosystem approach. This also includes consideration of cumulative effects in environmental decision making.

The MOE is also responsible for air quality monitoring. The MOE monitors Ontario's ambient air quality through 38 air monitoring stations across the province (11 are in the GTA). Two monitoring stations are located in Peel Region and five are located in areas bordering Peel. The Mississauga station is currently located at the University of Toronto, Mississauga campus. The Brampton monitoring station is at Peel Manor. Several facility-specific air monitors also exist in Peel Region providing data related to specific sources of pollution (e.g. industrial sources).

3. Role of the Medical Officer of Health (MOH)

The Medical Officer of Health has authority to deal with health hazards under the *Health Protection and Promotion Act ("HPPA")* under the guidance of Council in its capacity as a Board of Health, but also independently.

The *HPPA* empowers the MOH to issue an order requiring a person to take or refrain from taking any action in respect of a health hazard. This requires the MOH to form an opinion, upon reasonable and probable grounds that a health hazard exists. A health hazard is that which has or is likely to have an adverse effect on the health of any person. Such an order is appealable to the Health Services Review and Appeal Board which has the power to confirm, alter or rescind the order and to substitute its findings for those of the MOH. It is important to note that the provisions of the *HPPA* pertaining to health hazards are intended to deal with existing conditions rather than with the approval of prospective operations. In practice the powers of an MOH to issue an order have not been found to be useful regarding outdoor air quality.

Public health units are not mandated to monitor, review or comment on Certificates of Approval. However, Peel Public Health staff do monitor the Province of Ontario's Environmental Bill of Rights weekly and respond to postings that have implications for public health.

4. Planning Policy Tools under the *Planning Act*

Municipalities have legislative authority under the *Planning Act* to adopt official plan policies to manage and direct physical change and the effects on the social, economic and natural environment. While the range of policy action and tools available to municipalities for air quality is broad, it is limited to municipal jurisdiction and does not include the ability to regulate emissions sources directly. Climate change, transportation, growth management, land use, community design, energy, greening strategies, building design, water and wastewater services, community awareness and advocacy are policy areas where actions can be implemented at regional and area municipal levels to improve local air quality and reduce greenhouse gas emissions.

There is also a range of planning policy, land division, zoning and site plan control tools available under the *Planning Act* to address compatibility between industrial facilities that are major air emission sources and sensitive land uses. The locational control of industrial sources is effective when planning for new growth areas to ensure appropriate location of incompatible land uses and separation of sensitive land uses from industrial air emission sources. The separation and buffering of incompatible land uses is intended to supplement,

and not replace, air emissions controls under provincial jurisdiction which are required for emissions at the facility source.

Provincial guidelines on "compatibility between industrial facilities and sensitive land uses" outline procedures, study requirements and planning tools available to municipalities when implementing land use control through planning policy and land use approvals. The provincial policy guidance and ability, under the *Planning Act*, to regulate or prohibit incompatible land uses is limited to planning for new development where a change of land use is proposed and is generally not applicable to areas where existing land use designations and the principle of development have been established. In accordance with the five principles of the Regional Official Plan, the regulation of land use is considered an area municipal responsibility.

The air quality component of the PROPR has considered the range of planning policy tools appropriate at a regional level and has identified recommended policy revisions to the ROP through the draft ROPA 21. The policy recommendations include regional air quality tools (air quality assessment tool for new development, air quality modelling, monitoring, etc.) that will support and complement regulatory tools already available to the Region and area municipalities.

a) Draft ROPA 21

Since the type of development to be located in an area affects local air quality, sound land use policies and tools can have a positive impact on air quality.

Draft ROPA 21 outlines proposed air quality policies and development of tools to assess air quality. Section 2.2.3.3.1 proposes the Region will "*in consultation with the area municipalities, develop tools to assess the air quality implications of development that minimize adverse human health effects. These tools would be applied to but not limited to development applications and projects that may be insignificant by themselves, but cumulatively are significant".*

Other relevant sections include:

- 2.2.3.3.7 *"Support and work with the area municipalities to develop policies including, but not limited to, requiring setbacks for residential developments and sensitive land uses to be located an adequate distance from both planned and existing sources of harmful emissions.*
- 2.2.3.3.8 *Monitor and model air quality to accurately establish local air emissions in Peel and report on the findings from the monitoring and modelling".*

b) Other PROPR Policies Related to Air Quality

In addition to land use and zoning-related policies, other planning policies, including energy and transportation polices, also contribute to the improvement of air quality. Reduction in energy and transportation demand as well as use of alternative energy will help to reduce burning of fossil fuels and therefore reduce greenhouse gas emission and other pollutants.

3.7.1.2. of ROPA 20 – Sustainability and Energy Policies reads, "*To plan and develop greener, healthier communities by reducing harmful greenhouse gas emissions and improving the air quality in the Region.*" There are a number of policies proposed that are related to energy conservation, efficiency and energy to help reduce fossil fuel consumption and in turn help to improve local air quality.

Under Draft ROPA 22 – Transportation, also includes a number of policies related to improvement of air quality. These policies include:

- working with other municipalities, Metrolinx, the Province of Ontario and other stakeholders to minimize traffic congestion, air and noise pollution,
- enhancing public education on the links between vehicles and environmental impacts,
- promoting Transportation Demand and active transportation programs,
- promoting fuel efficiency and conservation.

c) Development and Implementation of Tools to Assess Air Quality Impacts

The development and implementation of tools to assess air quality impacts will require further research and consultation with the local area municipalities as well as key stakeholders such as the Building Industry Liaison Team (BILT). As a first step, the Region of Peel retained GHK International and Golder Associates Inc. to develop an Air Quality Discussion Paper (www.peelregion.ca/planning/officialplan/pdfs/air-quality-discussion.pdf) which, among other things, looked at current practices for tools to assess land use-related air quality impacts. A proposal, based on further research and potentially Halton's model (see below) will be brought back to Council for the 2011 budget cycle.

i) United Kingdom's Air Quality Assessment

One example was the United Kingdom's Air Quality Assessment for Planning Applications. This tool provides technical advice to developers, their consultants and local authorities to screen applications that have an impact on air quality. Key considerations by the UK local authority when determining if an air quality assessment should be advised include:

- Location of development – including relevant exposure
- Length of time and scale of demolition/construction phases
- Likely increase in traffic levels from existing base (either through servicing or parking requirements)
- New industrial development e.g. boiler plant/energy production etc
- Size of development – residential/commercial floor space or number of units
- Street canyons and stationary or queuing traffic
- Increase in heavy duty vehicle movements (e.g. more than 20 per day) such as for lorry (truck) parks, depots, bus stations
- New rail, road building and signalling, bridge, tunnel, port or airport developments
- Waste handling activities

The UK guidelines indicate that there is no one definitive method for conducting a detailed air quality impact assessment for developments, but the method must be appropriate to the development. In some cases, screening may be completed, in others, more detailed dispersion modelling may be needed. In the case of dispersion modelling, the guidelines advise that proposed modelling techniques be coordinated with local air quality officers to ensure its appropriateness to the site.

ii) Halton Region

In 2007, the Halton Region Health Department tabled an air quality policy paper entitled, *Air Quality, Human Health and the Built Environment: Protecting Air Quality through the Land Use Planning Process.* This paper identified actions that could be

taken to address air quality issues associated with growth and development patterns in the Region. The program included:

- An air monitoring program
- An airshed modelling program
- Policy development work directed at air quality, climate change, and land use planning
- The development and implementation of an air quality/climate change health promotion program that seeks to shift attitudes towards energy use and production, modes of transportation and urban form.

Specific details of Halton's program can be found in Appendix 1.

The capital costs of this program are approximately $400,000 and the operating costs are approximately $268,000 a year.

Montreal and Vancouver have authority to regulate air quality. A detailed description of their activities can be found in Appendix II.

iii) Additional Related Initiatives – Health Impact Assessment Tool

In 2005, Peel Public Health and Planning presented a joint report to Regional Council entitled, *Overweight, Obesity and Related Health Consequences in Adults*, which highlighted the impact of the built environment on population health. As a result, Regional Council directed Peel Health to comment on land use development applications in Peel in an effort to improve the health-promoting potential of Peel neighbourhoods.

As many development applications that come to the Region and municipalities for review are small-scale and need to be commented on in a relatively short timeframe, a comprehensive checklist or extended health index is currently being sought to aid Regional staff to quantifiably assess the potential health impact of a new development on a routine basis. Some land use elements that most strongly impact health are documented in the literature. However, in order for existing research and guidelines to be useable and adopted into practice, more detailed quantifiable benchmarks and numerical targets need to be set for each land use element that affects health. These benchmarks and targets must not only conform to existing provincial standards and meet local targets, but also exceed those targets where possible to shift development practices into healthier patterns.

FINANCIAL IMPLICATIONS

Should Council desire to proceed with an air quality monitoring program similar to that administered by Halton Health Services, the 2010 10 year capital plan needs to be updated with planned expenditures for the project in 2011 for approximately $400,000. Both the capital and the operating costs for air quality monitoring equipment may be eligible for funding under the Ontario Public Health Standards programs.

CONCLUSION

Planning decisions have a very long life. Communities must think about what they want to look like in twenty or fifty years. The decisions made today will shape the landscape for our children and grandchildren.

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Land use affects air quality in numerous ways. Air quality is also influenced by how we use energy through urban form and transportation. The development of tools to assess air quality impacts will help inform decisions.

Following this report to Regional Council and additional consultation with stakeholders who have submitted comments on ROPA 21, Regional staff will bring forward a further report for adoption of ROPA 21. It is anticipated that the adoption report will be brought forward to Regional Council in October 2009.

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APPENDIX I

Halton's Air Monitoring and Modeling and Health Promotion Activities

Portable Air Monitoring Equipment

In July 2007, the Halton Health Department was authorized by Halton Region Council to purchase two portable air monitors capable of measuring four air pollutants with a high level of accuracy. Both monitors will be measuring ozone, fine particulate matter and nitrogen dioxide; one will also monitor sulphur dioxide, while the other will monitor carbon monoxide.

Halton Region will use these instruments to measure air quality at different locations across the community and to validate the results of the airshed modeling (described below). The monitors will also be used to measure air quality in micro-environments such as traffic corridors or near point sources of particular interest to Halton Region. The two portable monitors will be moved every 3 or 4 months. One is currently in Georgetown to validate airshed modeling. The other monitor will be sited at the Mountsberg Wildlife Centre (part of the Halton Region Conservation Authority) to clarify background air levels coming into the western part of the Region.

The monitors were purchased in 2007 at a cost of $113,400. The data is managed and audited by external consultants at a cost of $5000 and beginning in 2008, approximately $62,000 per year has been allocated to have the instruments 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.

Stationary Air Monitoring

In June 2007, the Health Department was authorized to establish a stationary air monitoring station in Milton. The primary purpose of the air monitoring station is to provide residents in Milton with a better picture of their exposure to air pollution. A secondary purpose is to see how air quality in Milton changes over time as the town grows. This monitoring station will also be used to validate the airshed modeling results. The MOE donated an 8' x 10' portable building that was used in the Clarkson airshed study. The building will house the five monitors that will measure air levels of fine particulate matter, ground-level ozone, sulphur dioxide, nitrogen dioxide and carbon monoxide.

The monitor was purchased and installed in 2007 at a cost of $286,300. Servicing and maintaining the monitor costs $76,000/year. Over the four budget years the air monitoring program will cost the Region a total of $514,300, which is $318,000 less than was estimated in Halton Report No. MO-48-07.

Airshed Modeling Program

In July 2007, the Halton Health Department was authorized to establish an airshed modeling program. The first phase of the program will identify the levels of the five common air pollutants across the Region and clarify the contribution of different sectors, such as residential, commercial, industrial, transportation and agricultural to those air levels. The second phase of the program will be directed at validating those results and calibrating the model to ensure its accuracy.

A two year contract for $50,000/year has been signed to conduct airshed modeling for the Region and $50,000 has been budgeted for air quality modeling until 2016. Each year, this amount will automatically be placed in the budget for approval.

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Air Quality Health Promotion Program

The Health Department began developing their air quality/climate change health promotion program for Halton Region in January 2008. The program will build on education and awareness work that is currently being done by the Region and the local municipalities. It will incorporate the *20/20-The Way to Clean Air* social marketing materials that have been developed by Toronto Public Health and other partners (including the Region of Peel) of the GTA Clean Air Council. $75,000 has been budgeted beginning in 2008 and will continue each year until 2016.

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APPENDIX II

Powers of Other Municipalities

Two municipal governments, Montreal and the Greater Vancouver Regional District, have delegated authority from their respective provincial governments to regulate air emissions. As such, they are able to take direct action to control air pollution sources in their territories.

Montreal Urban Community (MUC)

The Montreal Urban Community is authorized by the Province of Quebec to manage air quality within its boundaries. The MUC approach to controlling air pollutants, including some hazardous air pollutants (refers to a broader group of air pollutants that includes hundreds of substances such as benzene, lead, mercury, and polycyclic aromatic hydrocarbons or PAHs), is primarily regulatory. By-law 90 is the principal air quality legislation that governs emissions sources. This by-law contains requirements for air permits, generic emission limits for selected sectors and ambient air quality standards. Specific emission limits for a given permit are generally based on generic emissions limits in by-law 90, dispersion modeling and the ambient air quality standards. There are 370 ambient air quality standards for various pollutants including hazardous air pollutants and persistent organic chemicals. The MUC also has a network of ambient air monitors for common pollutants and some targeted hazardous air pollutants.

Greater Vancouver Regional District (GVRD)

The GVRD was delegated the responsibility to manage air emissions within its jurisdiction by the Province of British Columbia. By-law 725 regulates air emissions which can include hazardous air pollutants from various industries, commercial operations and gasoline stations in the region. In addition to this by-law, a comprehensive Air Quality Management Plan (AQMP) was adopted in 1994 following an extensive stakeholder's consultation process. This Plan covers major point, area and mobile emission sources and sets out a prioritized action plan for reducing emissions of common pollutants. GVRD has an emission fee system in which permittees are charged for their discharges on a per tonne and per pollutant basis. This fee system is based on the B.C. Fees for Discharge Regulation, and contributes to air quality management programs in the region. For emissions from smaller and more diverse area sources which are not included in the current permit system the GVRD is developing sectoral regulations or legal codes of practice to control releases. For gasoline marketing sources, the AQMP vapour recovery initiatives for tank truck loading at bulk terminals and refilling operations at service stations and bulk plants have been implemented. These and other GVRD transportation initiatives, in conjunction with Provincial regulations and programs on clean vehicles and fuels, have helped reduce the emissions of selected hazardous air pollutants from mobile related sources. Some municipalities within the GVRD also have developed local by-laws to address specific hazardous air pollutant issues. For example, in West Vancouver, District By-law 3024 requires that dry cleaners purchasing new or replacing existing units acquire units equipped with self-contained, sealed and non-vented dry cleaning machines.