

Air Quality Guidelines

Regional Official Plan Guidelines



Halton Region Official Plan Guidelines

The **Regional Official Plan (ROP)** is Halton's guiding document for land use planning. It contains policies that guide decisions related to, among other things, managing growth and its effects on Halton's social, economic and natural environment.

The **ROP Guidelines** are a set of documents that clarify, inform, and aid in the implementation of the Plan's policies.

The Guidelines have been prepared in accordance with Section 192 of the ROP. They provide direction and outline approaches that can be used to satisfy the relevant policies of the Plan. They do not introduce additional policy requirements, and, in the event of a conflict between the Guidelines and the Regional Official Plan, the Plan shall prevail.

The Guidelines may be updated from time to time as required through a report to Regional Council.

For more information, visit halton.ca/ROP or halton.ca/ROPguidelines or call 311.

"This Plan calls for the preparation of certain guidelines or protocols to provide more detailed directions in the implementation of its *policies*."

Halton Region Official Plan – Section 192
as adopted by Regional Council, December 16, 2009

Air Quality Guidelines

Purpose	Identifies applicable legislation regulating industrial, transportation and utility source emissions and their adverse effects on sensitive uses. Land use and development patterns that support the use of alternative energy, reduce greenhouse gas emissions, and identify design adaptations for climate change are highlighted.
Application & Use	Reviewing consents to sever, official plan/zoning by-law amendments and site plans for sensitive uses (residential and natural heritage) in proximity to industrial and utility sources of emissions and within 30 m of arterial roads and 150 m of Provincial highways.
Legislation	<p>Government of Canada</p> <ul style="list-style-type: none">● <i>Environmental Assessment Act, 2012</i>● <i>Environmental Protection Act, 1999</i>● National Building Code of Canada 2010● <i>Canadian Transportation Act</i> (air, rail, marine)● Vehicle Emissions standards <p>Government of Ontario</p> <p>Ministry of Municipal Affairs & Housing</p> <ul style="list-style-type: none">● <i>Ontario Building Code</i>● <i>Planning Act</i><ul style="list-style-type: none">- Provincial Policy Statement 2005- Places to Grow- Greenbelt Plan <p>Ministry of the Environment:</p> <ul style="list-style-type: none">● <i>Environmental Protection Act</i><ul style="list-style-type: none">- Ontario Regulation 419/05: Air Pollution – local air quality- Environmental Compliance Approval <p>Ministry of Transportation</p> <ul style="list-style-type: none">● <i>Highway Traffic Act</i><ul style="list-style-type: none">- Environmental Standards and Practices, Class EA: Environmental Standards & Practices User Guide (ESP User Guide):<ul style="list-style-type: none">- Section 7: Land Use- Section 13: Air- <i>MTO Environmental Reference for Highway Design</i><ul style="list-style-type: none">- Assessing Land Use Impacts- Section 3.5 expectations for undertaking an assessment of land use impacts.
Version	Version 1.0 This version of the Air Quality Guidelines was brought before the Inter-Municipal Liaison Committee on June, 18 2014 through Report No. IMLC01-14.

Table of Contents

1.0	Introduction.....	1
1.1	Legislated Authority Related to Land Development.....	2
1.2	Provincial Policy Statement 2005 (PPS)	3
1.3	Region Official Plan	3
2.0	Application Checklist.....	5
2.1	Scope.....	5
2.2	Application.....	5
2.3	Approval Authority Checklist	5
2.4	Mitigation	6
3.0	Land and Development Patterns.....	7
3.1	Regional Scale Land Development Pattern	7
3.2	Alternative Energy Sources: development patterns.....	7
3.3	Reducing Greenhouse Gas Emissions: development elements	7
3.4	Climate Change: Adapting through plans, practices and design	8
	APPENDIX 1: Vulnerability Assessment.....	9

1.0 Introduction

Canada has a hierarchy of interdisciplinary legislation that guides environmental protection, renewable energy and climate change adaptation under the guiding principles of improving the natural and built environments. From the Government of Canada to the Province of Ontario, there is a multi-layer of legislated authority that ensures that the 'built environment' achieves a safe and healthy standard for residents: from rail/air/marine facilities; to vehicle emission standards; to environmental protection through transportation corridor plans and designs; to how buildings are built.

This guideline focuses on land development and its application as guided through the policies of Section 1.8, Provincial Policy Statement 2005 and supported by Halton Region land use policies.

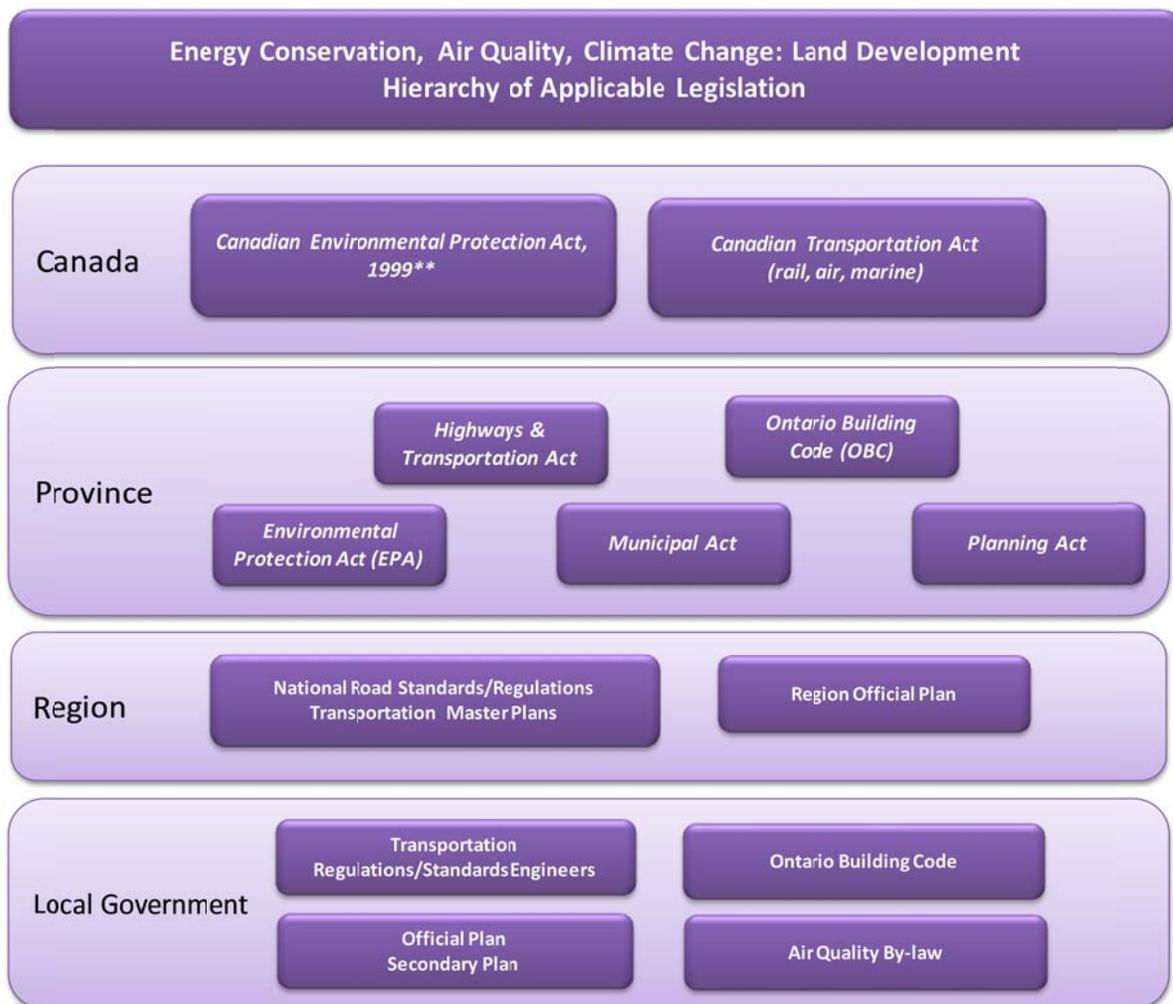
Halton Region establishes broad-scale land use policy direction regarding land development within the regional context, and more generally for settlement areas (e.g. compact form; mixed use) based on Provincial Plan direction. Burlington, Oakville, Milton and Halton Hills establish the community and neighbourhood specific land use policies that guide local development patterns (e.g. residential, industrial, commercial, institutional, open space uses).

1.1 Legislated Authority Related to Land Development

In Canada, there is a hierarchy of legislation that guides land development to address energy conservation, air quality and climate change. The Government of Canada provides legislation regarding the protection of the environment and human health within the *Canadian Environmental Protection Act, 1999*. Similarly, the *Canadian Transportation Act* (rail, air, marine) ensures that the health and safety of Canadians is upheld in national transportation design matters.

The Province provides the next level of legislation within the hierarchy of laws pertaining to the land development. The legislation pertaining to protecting the environment and human safety and health at the Regional and local levels are: *Environmental Protection Act, Planning Act, Ontario Building Code*, and the *Municipal Act*.

The Region prepares general land development policies as directed by Provincial legislation and Provincial Plans. At the local municipal level, land development patterns are further refined through Official Plans and Zoning By-laws.



** "The potential risks of environmental pollutants and toxic substances are evaluated under this Act that addresses pollution prevention and the protection of the environment (Environment Canada) and human health (Health Canada) to contribute to sustainable development." www.hc-sc.gc.ca/ahc-asc/legislation

1.2 Provincial Policy Statement 2005 (PPS)

Under the *Planning Act*, all municipal land use policies must be consistent with the Provincial Policy Statement in effect.

The PPS states that land use patterns within settlement areas shall be based on densities and a mix of land uses which minimize negative impacts to air quality and climate change and promote energy efficiency in accordance with policy 1.8 (1.1.3.2.a.3).

The guiding policies are found in **Section 1.8 Energy and Air Quality** (see box below):

1.8.1 Planning authorities shall support energy efficiency and improved air quality through land use and development patterns which:

- a) promote compact form and a structure of nodes and corridors;
- b) promote the use of public transit and other alternative transportation modes in and between residential, employment (including commercial, industrial and institutional uses) and other areas where these exist or are to be developed;
- c) focus major employment, commercial and other travel-intensive land uses on sites which are well served by public transit where this exists or is to be developed, or designing these to facilitate the establishment of public transit in the future;
- d) improve the mix of employment and housing uses to shorten commute journeys and decrease transportation congestion; and
- e) promote design and orientation which maximize the use of alternative or renewable energy, such as solar and wind energy, and the mitigating effects of vegetation.

1.3 Halton Region Official Plan

Halton Region Official Plan (ROP) provides the Region's objectives and policies pertaining to the improvement of air quality, energy conservation and addressing climate change through land development. Several examples of such policies may be found in the following ROP sections:

72	Urban Area
77(5)	Compact Form, Active Transportation
77.4(5)	Employment Areas (transit-supportive)
78, 81	Intensification Areas
143(2.1)	Air and the Ambience

Section 143(2.1) states that this Guideline will assist land use planning staff in the review of development applications, which may include: consents to sever, official plan/zoning by-law amendments and site plans.

Studies to ensure that sensitive land uses are not negatively affected by sources of pollutants are undertaken by both the regional and local municipalities prior to lands being designated or zoned for residential, institutional or natural heritage uses.

Lands that are designated and zoned residential or institutional will have been subject to the subdivision approval process. Therefore, the applicable studies for source emissions will have been completed.

The Ontario Building Code provides building construction regulations that protect the health/safety of occupants.

2.0 Application Checklist

The checklist is provided as a best practice approach when reviewing sensitive land use applications in proximity to source emissions.

2.1 Scope

Under the Region's policy 143(12)*, any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed with these 3 conditions present:

- 1) Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway;
- 2) In proximity to an industrial use; and a
- 3) utility use.

(*Note: 143(12) under appeal; OMB 2014).

2.2 Application

Under existing Provincial legislation, land development studies, such as air quality, are already undertaken prior to lands being designated or zoned for sensitive uses. Local Zoning By-laws may permit secondary uses (i.e. sensitive land uses) within employment areas (i.e. industrial) and further studies would not be required.

Undertaking studies to justify sensitive land uses in proximity to industrial, transportation and utility sources may be required under the following situations:

- Official Plan Amendment (OPA)*
 - Residential designation within Employment Area
- Zoning By-law Amendment (ZBA)*
 - Industrial Zone to Residential Zone
- Consents (severances) with potential need for an OPA and ZBA
 - Residential zone parcel severed with severed parcel proposed as an industrial or utility use

With zoning in place, no studies would be required for:

- Site Plans

* Conversion of employment areas to non-employment uses would generally require a municipal comprehensive review.

2.3 Approval Authority Checklist

Given the above land use application 'triggers', the following is a checklist that local development authorities may reference:

- Local Official Plan policies and development criteria;
- complete application requirements;
- applicable municipal by-laws (e.g. local air quality by-law);
- local engineering standards; and
- local urban design guidelines.

2.4 Mitigation

Mitigation measures to reduce the adverse effects of industrial, transportation and utility sources of emissions on sensitive land uses is determined through local Official Plan policies and local Zoning By-laws. Examples of mitigation measures include the use of berms, fencing and vegetation, as well as structural elements (reference: Ontario Building Code).

3.0 Land and Development Patterns

Undertaking climate change vulnerability assessments or risk management assessments for a period of 30 years (i.e. 2015 to 2045) may be developed by local municipalities as a base foundation to inform future solutions for land use and development patterns. The assessment would be an interdisciplinary exercise (a systems approach) to assess and address the impacts of changed weather patterns and to identify the potential risks or vulnerabilities that a municipality may be susceptible to. For example, the following may provide a base for discussions: temperature increases of 1 to 2°C; precipitation increases/decreases; Lake Ontario water warming; and health risks of increased incidents of insect-borne diseases/illness. Appendix 1 provides a sample framework for municipal vulnerability assessment discussions.

Based on the vulnerability assessment, local land use planners may recommend proactive solutions through policies, secondary plans, or urban design guidelines. The recommended solutions include seeking alternative energy sources, reducing greenhouse gas emissions (e.g. through carbon sinks) and proactively addressing potential climate change impacts through urban design.

3.1 Regional Scale Land Development Pattern

The Region's Official Plan designates broad-based land uses throughout the region. Regional land use designations provide a 'greenhouse gas emissions' balance between urban land forms and uses (buildings and traffic corridors) and other land uses such as agriculture (crop soils) and natural heritage features (woodlands, wetlands, water)

3.2 Alternative Energy Sources: development patterns

Encourage land development patterns that support the use of alternative energy sources, reduce greenhouse gas emissions, and identify design adaptations for climate change

- Patterns to support District Source Heating, Co-Generation or Ground Source Heating:
 - Key Elements may include:
 - Narrow lots
 - Housing clusters
 - Grid pattern streets
 - Topographic subdivision design solutions to provide solar access
 - Micro-wind turbines on buildings with access to adequate wind currents.

3.3 Reducing Greenhouse Gas Emissions: development elements

Development patterns that support the reduction of greenhouse gas emissions are based on the principle of 'complete, compact' communities. Supporting this form in urban areas, other aspects include the provision of:

- Greenroofs;
- Vegetation such as grass, trees, general vegetation (native species) that act as carbon sinks and reduce the heat island effect (high density areas; impermeable parking lots);
- Natural Heritage Systems (calculating % natural heritage land areas required to offset built form); and
- Active transportation corridors (linking residential uses to employment lands).

3.4 Climate Change: Adapting through plans, practices and design

Similar to the above goals of adapting to climate change and reducing greenhouse gas emissions is the concept of complete and compact communities.

Other mitigation measures in urban areas may include:

- preparation of a forest management plan or reforestation program;
- review of agricultural practices with the local farming community to ensure 'best soil management practices' may be implemented to assist in carbon capture;
- climate-resilient development (Building Design): retrofit homes to increase energy/water efficiency;
- increasing permeable surfaces (grass is a micro-carbon sink/tree planting – improve air quality; reduce stormwater runoff, slow erosion, enhance biodiversity – plant native species);
- woodland tree-planting/afforestation: (carbon offsets; protect soil/water/habitat for wildlife and biodiversity); red pine;
- microclimate design of properties (create local guidelines); siting building appropriate to topography/ sunlight access/ vegetation;
- burying hydro lines where possible (new development);
- stormwater run-off – through permeable surfaces (drainage swales); and,
- drip-water dispersion technology to water crops (reduces evaporation; monitors flow/use).

APPENDIX 1: Vulnerability Assessment

Undertaking a Vulnerability Assessment (risk management) assists in improving the implications of climate change. An assessment of temperature/precipitation changes that are predicted to occur over the next 30 years, and their potential impacts within a geographic area, may assist local municipalities in reviewing locally specific risks within their communities.

Vulnerability Assessments require significant data inputs and application of appropriate scientific models (software programs that correlate and assess data).

For example, the basic steps within an assessment may include:

- Determination of the 'systems' aspect to be assessed. Examples include: Environmental Systems (watershed; ecosystems); Social Systems (public safety; diseases; livelihood; cultural); and Economic Systems (financial impacts; property damage; infrastructure; transportation).
- The second step is to separate the Potential Impacts from the Adaptive Capacities
- Potential Impacts would require two sub-assessments of impacts: 1) exposure (quantity/quality) and 2) sensitivity (systems/human communities)
- Adaptive Capacity also requires two sub-assessments of impacts: 1) human communities; and 2) the system itself.
- Each sub-assessment requires in-depth data analysis and modelling to inform the impacts and adaptations required.

