Kitchener 2010

air quality

Inside...

Learn how we are leading by example

A message from the Mayor

We are all environmental stewards

Preserving our environment and keeping our community safe and healthy are key priorities of Kitchener City Council. They are foremost in the decisions we make for our city as your elected representatives. In fact, it is incumbent on all of us to take on the role of environmental stewards as we live our daily lives, conduct business and set examples for generations to come.

Kitchener's physical situation, within Waterloo Region, in South Western Ontario, in Canada and in North America, remains critical to our air quality, as we are subject to forces outside our city and we have an impact beyond any such borders. We have the opportunity to be leaders as we approach issues like land use, emissions reductions and inspiring our citizens to keep environmental considerations primary in their personal and business priorities. Particularly today, as Kitchener grows and becomes increasingly urban, focusing efforts on green initiatives such as our parks master plan and the popular Local Environmental Action Fund helps set a standard for our community which others may emulate.

Thank you to everyone who has contributed to this report. I can see the entrepreneurial spirit so prevalent in our community is helping to mobilize our citizens to find innovative solutions to the environmental challenges we face today. Your participation is essential and greatly appreciated.

Keep up the great work!

Sincerely,

Carl Zehr
~Mayor~
City of Kitchener

We have the opportunity to be leaders as we approach issues like land use, emissions reductions...

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Preface

Air Quality in Kitchener 2010

Maintaining good air quality is a society-wide responsibility, and all levels of government have important roles to play in protecting the public from the dangers of poor air quality. Provincial and Federal efforts to improve air quality are important, but the role of our local government is vital. A 2009 report by the Federation of Canadian Municipalities notes that municipalities have direct or indirect control over about 44 per cent of Canada's overall greenhouse gases. That's because municipal governments wield much control over urban and rural development, transportation, economic activity and energy use.

Cities around the world have used their capacity to implement educational campaigns, their purchasing practices, infrastructure investment, bylaws and other targeted initiatives to make a positive impact on local air quality. The City of Kitchener can play a vital role by advocating action from all levels of government, facilitate local action to clean the air and inform residents about air quality issues.

In October 2003, Kitchener's Environmental Committee recommended that staff be directed to develop and post Stop Idling signs outside City facilities, community centers, school zones and other significant areas. At the same time, the Environmental Committee also recommended that staff be directed to investigate the feasibility of incorporating into the City's Parking By-Laws designated "No Idling" zones within specified public areas. Staff reported back to the Environmental Committee in October 2004 (Staff Report DTS-04-145) with the committee recommending that Council fund a one-time cost of $21,500 for the manufacture and installation of Stop Idling advisory signs at idling "hot spots" – approximately 60 City facilities and 50 school zones.

Amendments to City parking by-laws to incorporate "no idling" provisions were determined by staff to be problematic from a legal perspective. The "no idling" provisions, proposed education campaign, the impact of drive-through restaurants on air quality, and Council's desire for a long-term, comprehensive plan for air quality was considered at a number of Kitchener meetings (Council, Development and Technical Services Committee, Environmental Committee) through October and November of 2004. Ultimately, in November 2004, Council deferred the Environmental Committee's air quality recommendations and referred them back to that committee in order that a long-term, comprehensive plan be developed on air quality in the city of Kitchener.

The Air Quality in Kitchener - 2010 is a continuation of the fist comprehensive report requested by Council and, as such, makes recommendations for initiatives to improve Kitchener's air quality to be implemented by all departments within the City's administration as well as by the citizens of Kitchener.

It is recommended that future Kitchener Environmental Committees pursue, and present to Council, recommendations flowing from this document as well as update this plan in five years.

Air Quality in Kitchener 2010

Executive Summary

The population of Southwestern Ontario is over 2.3 million people, approximately half of whom live in the metropolitan areas of Windsor, London and Kitchener. Southwestern Ontario experiences unique air quality challenges arising from its distinct economy and geography. The highly industrialized nature of parts of the region, and its proximity to emissions sources in the United States, are major regional air quality issues. In the last decade several Canadian studies have linked environmental pollution to adverse health impacts in Ontario communities. These reports have shown that Southwestern Ontario has several 'hot spots' in terms of air pollution exposure. (Southwestern Clean Air Partnership)

Air quality remains one of the pressing problems of modern cities, and the city of Kitchener is no exception. Local governments have a significant role to play in addressing air quality. Local communities are vulnerable to the impacts of air quality and thus have a stake in efforts to reduce emissions. Although air quality is far reaching, local governments have regulatory authority over many direct and indirect sources of air pollution. For example, local governments: define land-use, zoning and transportation policy; and enforce the Ontario Building Code. Action at the local level is a key component of Kitchener's response to the impacts of poor air quality.

To effectively improve air quality in the city of Kitchener, emissions reduction will need to come from all sectors.

Participating in an effort to address our air quality is an issue that requires the best from citizens, entrepreneurs, scientists, communities and governments. The Environmental Committee's report Air Quality in Kitchener - 2010 identifies actions that can result in improved air quality and significant societal benefits.

This Report

- is intended to provide a vision of a responsible, innovative, healthy and energy-efficient community
- strikes the balance needed to enable our local economy to flourish even as we reduce our polluting emissions
- aims to advance these goals without placing an unreasonable burden on the City of Kitchener in an attempt to make the successful transition to a less polluting, healthy community.

The Air Quality in Kitchener - 2010 proposes both short-term and long-term recommended actions. Some actions can be undertaken now, such as encouraging energy and water conservation, improving public awareness and knowledge of air quality issues and providing businesses with the tools and incentives to make more energy-efficient decisions. Other initiatives require effort over a number of years, such as investing in more energy-efficient technologies.

Air Quality in Kitchener 2010

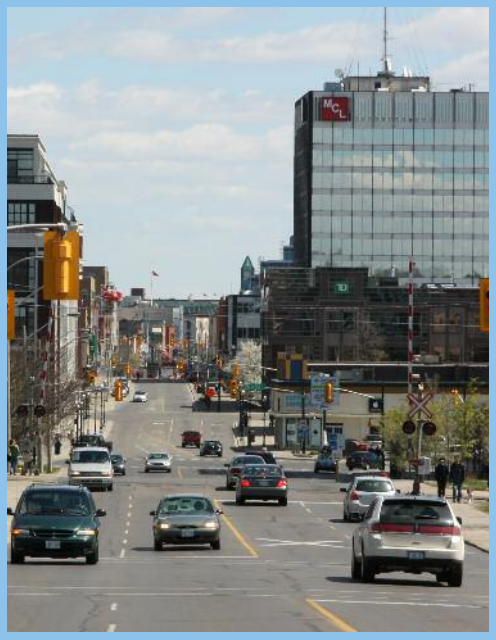
Background Information

This section provides a very short summary of the effects of air quality on health and climate change. Emissions produced through the combustion of fossil fuels, space heating and transportation degrade air quality, contribute to global warming, and can adversely affect human health

Health Effects of Poor Air Quality

Clean air is essential to health and well-being. Overall, air quality in Ontario has improved over the past 35 years, with significant reductions in carbon monoxide, nitrogen dioxide, and sulphur dioxide. However, some pollutants like ozone and particulate matter remain a concern. At certain levels, air pollution impacts both human and animal health and damages vegetation and property.

Air pollution is made up of gases, liquids, and particles that can react together to create harmful conditions. Pollutants come from a wide range of sources that include both natural and human-caused conditions. Sources of human-caused air pollution include: vehicle exhaust, home and building heating, wood burning, construction dust, industrial processes, and energy generation. Some of the pollution we are exposed to is carried from distant sources, but some is created locally. For example, emissions from vehicle traffic in Waterloo Region contribute to the creation of poor air quality.



The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system.

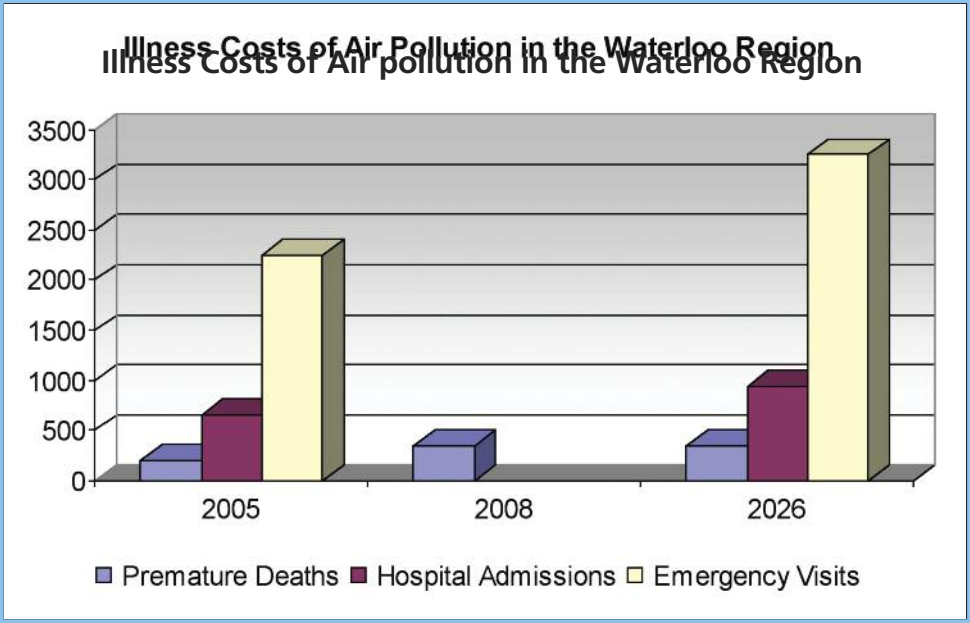
The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, the individual's health status and genetics. People who exercise outdoors, for example, on hot, smoggy days increase their exposure to pollutants in the air.

The health effects caused by air pollutants may range from subtle biochemical and physiological changes to difficulty breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and even premature death.

Children are particularly vulnerable to air pollution because they breathe faster than adults and inhale more air per kilogram of body weight. Air pollution also causes unnecessary difficulty for elderly people and those with respiratory problems, such as asthma, emphysema and chronic bronchitis. According to the Ontario Ministry of Health, asthma is currently the leading cause of hospitalization for children in Ontario. Asthma rates have markedly risen in Ontario over the past two decades with approximately 12 per cent of Ontario children and seven per cent of Ontario adults being diagnosed with asthma (Ontario Ministry of Health and Long term Care, report of the Chief Medical Officer of Health, October 2000, www.health.gov.on.ca).

Research in Ontario has shown a consistent and direct correlation between poor air quality and respiratory symptoms, medication use, and increases in hospitalization for respiratory disease (Ontario Ministry of Health and Long term Care, report of the Chief Medical Officer of Health, October 2000, www.health.gov.on.ca).

Health Canada estimates that more than 5,000 Canadians die prematurely each year because of air pollution, and thousands more become unnecessarily ill. Health Canada also estimated that over 1,900 Ontarians die each year directly related to air pollution.



Source: Ontario Medical Association (OMA) -Illness Costs of Air Pollution Regional Data for 2005 with Projections to 2026 and data derived form the OMA Illness Cost of Air Pollution (ICAP) Model.

Climate Change

Global climate change is another reason to improve our air quality. Canadians want to see their governments taking concrete action on climate change here at home," said Councillor Berry Vrbanovic (CBC News, December 8, 2009) Climate change will occur more rapidly in the future because of an increase of greenhouse gas emissions from human activities.

Actions to reduce greenhouse gas emissions will also improve regional air quality. Such actions include improved energy efficiency of buildings and heating systems, widespread use of cleaner fuels, and the implementation new green technologies.

Air Quality in the City of Kitchener

Waterloo Region is an extraordinarily dynamic metropolitan economy, rich in industrial heritage while supporting innovative advances in technology, education and the arts. As the central hub of the region, Kitchener's economy has begin to focus less on suburban industrial/manufacturing and more on building a healthier urban economy.

Emissions, produced through the combustion of fossil fuels for industrial/manufacturing, transportation, heating and electric power, diminish our air quality, and continue to take a toll on climate change and human health. Occasionally, periods of poor air quality occur in Waterloo Region. These are normally associated with weather conditions in the summer months, but outdoor air pollution is possible at any time of year.

Southern Ontario has the worst level of air quality in the country with Waterloo Region ranked in the same category as bigger cities such as Hamilton and Toronto. According to a study printed in Canadian Geographic (May/June 2000), Waterloo region has some of the worst air quality in the country in terms of ground-level ozone and respirable particulate matter.

From April to October, the region of Waterloo often experiences extended periods of poor air quality.

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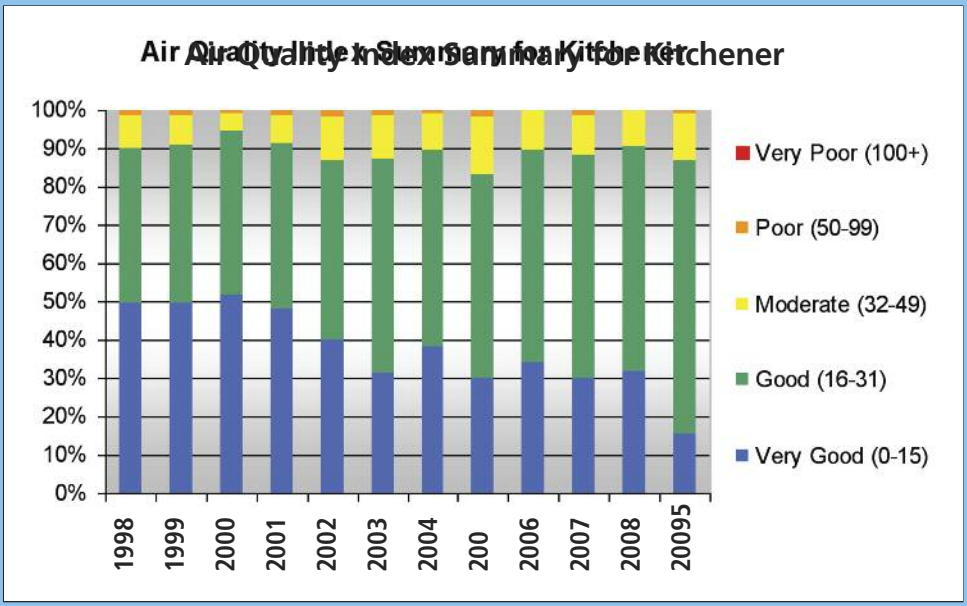
Smog, traffic congestion and sprawl are the consequences of the way cities have developed and, in particular, the decisions made about the form of cities. If we conduct 'business as usual' and allow emissions to increase, ambient air quality and the quality of life in Kitchener will deteriorate to irreversible levels. In an attempt to curb emissions, several initiatives exist in Kitchener.

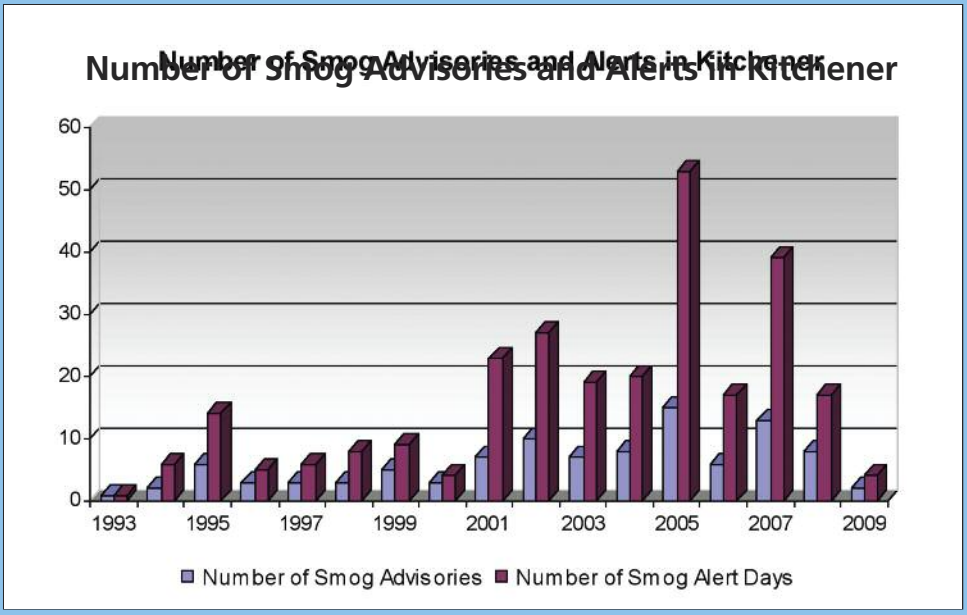
Generally, emission sources are managed and/or influenced by a number of government agencies. There are many benefits to an inter-governmental approach to addressing air quality issues. Having multiple jurisdictions at the same table enhances networking and the exchange of resources and information. It also ensures that no one group is working in isolation and efforts are not unnecessarily duplicated.



Source: Ontario Ministry of the Environment: Annual Air Quality Reports

Inter-governmental cooperation also provides an opportunity to leverage scarce resources for research, outreach and other air quality improvement initiatives. Bringing together multiple staff from different departments and municipalities across the airshed also helps break down silos that may exist within and amongst municipalities, and increases cooperation on air quality issues (Southwestern Clean Air Partnership)

According to a 2009 Federation of Canadian Municipalities report, municipalities could cut between 20 and 50 megatonnes of emissions, which would represent 15 per cent to 40 per cent of Canada's 2020 emission reduction goal.



Source: Ontario Ministry of the Environment: Annual Air Quality Reports

Air Quality in Kitchener 2010

Government Involvement

The Federal Government

The Federal Government has developed an aggressive plan to tackle climate change by taking action to reduce greenhouse gases and to reduce air pollution. The target is to reduce Canada's emissions by 17 per cent from 2005 levels by 2020. This approach is concrete and practical, and should result in real improvements to our climate and our environment.

The Federal Government is committed to reducing GHG emissions from new vehicles. On April 1, 2010, Environment Canada released the proposed Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations. These tough new regulations align with the mandatory national standards of the United States beginning with the 2011 model year.

The Government's comprehensive environmental agenda also includes:

- the ecoENERGY Initiatives, including home retrofit grants and funding for renewable power;
- the ecoTransport Strategy;
- support for public transit; and
- action to expand the production and use of biofuels.

The federal government also has authority of the in-use fuel standards, the quality of fuel produced, imported and sold in Canada, and emissions from non-road vehicles and engines across Canada. Environment Canada and Health Canada share responsibility under the Canadian Environmental Protection Act (CEPA) to assess and manage threats posed by toxic substances. Environment Canada's National Pollutant Release Inventory has a community portal that allows the public to see pollution sources in their area.

The Provincial Government

Ontario's Ministry of the Environment (MOE) has been monitoring and protecting our air quality for over 30 years. The MOE collects and monitors air quality data using the Provincial Air Monitoring Network. The ministry issues official smog alerts. The Province also has new air quality regulations with respect to industrial emissions. The information collected is used to determine the state of air quality in Ontario and help develop abatement programs to reduce the burden of air pollutants, address key air issues and assess the efficacy of policies and programs.

The MOE is responsible for:

- Legislation and regulations that set strict air standards
- Facility Certificates of Approval to ensure companies operate within their limits
- Inspections and investigations of companies that are out of compliance
- Educating and informing the public about ways to reduce air pollution and protect themselves from the effects of poor air quality.

Region of Waterloo

In 2009, the Region of Waterloo completed an Environmental Sustainability Strategy. Within the Strategy the Environmental Policy states that the Region "will embrace environmental considerations in its entire decision making and will foster community stewardship of the natural environment." A Green Region of Waterloo provides environmental programs working together to promote choices which help contribute to a sustainable community.

A sample of Regional programs or initiatives are listed below

- Region of Waterloo Clean Air Plan
- Idling Control Protocol
- Waterloo Region Partners for Clean Air
- Pedestrian Charter (2005)
- Regional Master Transportation Plan
- Cycling Master Plan
- Clean Air Partnership (GTA, associate member)
- Energy Conservation Office
- ECOfest
- The Waterloo Wellington Children's Groundwater Festival
- Encourages Community Gardens in the Region

The City of Kitchener

The City of Kitchener has been a municipal leader in environmental planning and stewardship for many years. Kitchener City Council approved the city's first Strategic Plan for the Environment in 1992 and an updated plan in 2008. The plan identifies objectives and priorities for action in seven key areas of focus identified by the community, including: natural heritage system and recreational amenity areas, water resources, air quality, land resource and growth management, energy systems, resource consumption and waste management, and environmental education and public awareness.

A sample of Kitchener programs or initiatives are listed below

- ISO 14001 for fleet operations
- Fleet Idling Protocol
- Kitchener Energy Management Team initiatives
- Waterloo Region Partners for Clean Air (member)
- Active and Safe Routes to School
- Walkable Communities: urban design approach
- Pedestrian Charter (2005)
- Partners for Climate Protection (member)
- Kitchener Cycling Master Plan
- Community Trails Master Plan
- Local Environmental Action Fund (LEAF)
- LEED Gold for the construction of new large buildings
- Community Environmental Improvement Grants (CEIG)
- Kitchener Natural Areas Program (KNAP)

Non-Governmental Involvement

While the city accepts a leading role in a number of areas, it must work in partnership with both public and private interests within the community in order to achieve broad participation by the community and, thus, the maximum benefit to the environment.

Waterloo Regional Partners for Clean Air

The Waterloo Region Partners for Clean Air was originally established in 2005, and includes representation from local government including the City of Kitchener, school boards, college and university, hospitals and a utility.

It continues to build on the Clean Air Plan originally developed by Region of Waterloo in 1999. The partnership is intended to help raise the collective, as well as the individual, capacity of each participating organization to achieve reductions in air emissions and further develop the Clean Air Plan.

For the past several years, partners have focused on various aspects of their organizations' operations with the intent of improving environmental benefits such as reduced energy consumption and/or lower vehicle emissions

Residential Energy Efficiency Project (REEP)

A community-based non-profit environmental organization that is funded by a combination of local partners (including the City of Kitchener), provincial contracts, grants and client fees. REEP provides the citizens of Waterloo Region with tools for sustainable resource use, energy conservation and efficiency, and renewable energy applications

REEP provides the citizens of Waterloo Region with tools for sustainable resource use, energy conservation

Community Renewable Energy Waterloo (CREW)

A local non-profit organization dedicated to making renewable energy accessible to the citizens of Waterloo Region. Their vision is to be a network of knowledgeable advocates, early adopters and interested citizens who initiate resource and support all local projects that encourage energy conservation and sustainable use of energy or materials from naturally regenerating sources, such as wind, solar and earth energy.

Clean Air Partnership

Clean Air Partnership (CAP) is a registered charity whose mission is to work with partners to achieve clean air, facilitate the exchange of ideas, advance change and promote and coordinate implementation of actions that improve local air quality.

CAP's energies are directed at addressing the greening of cities through cleaning the air, stabilizing climate, and protecting people from air pollution and the impacts of climate change.

CAP works closely with local communities and others who share the common goal of healthy sustainable cities. CAP's strategic focus is to get results, using our resources for targeted efforts concentrated on the critical issues of air quality and climate change.

Sustainable Waterloo

Sustainable Waterloo is a not-for-profit that guides organizations in Waterloo Region towards a more environmentally sustainable future by facilitating collaboration between industry, local government, academia, and non government organizations. Their current focus is the Regional Carbon Initiative (RCI), which supports voluntary target-setting and reductions of carbon emissions by organizations across Waterloo Region.

Long Term Plan for Action

The intent is to maintain this report, Air Quality in Kitchener - 2010, as a "living document". Each year the Environmental Committee will select five actions (also know as 'best bets'). Those chosen 'best bets' will then be forwarded onto Council to be endorsed. With Council endorsement staff will then investigate the feasibility and means of implanting each of the selected best bets.

The recommended actions are inter-related and will require commitment from a range of staff and organizations on a number of issues. Therefore, advocacy and partnerships will be an essential component. It is important to note that there is no single action that can be taken to address air quality in Kitchener.

The recommended actions to improve air quality have been categorized under the seven functional areas outlined in the City of Kitchener Strategic Plan for the Environment as listed below:

1. Natural Heritage Systems and Recreational Areas
2. Water Resources
3. Air Quality
4. Land Resource and Growth Management
5. Energy Systems
6. Resource Consumption and Waste Management
7. Environmental Education and Public Awareness

It is important to note that there is no single action that can be taken to address air quality in Kitchener.

The following tables identifies a list of over 50 recommended actions that Kitchener should consider implementing. Also, while all the following actions are highly desirable and recommended for implementation, it is recognized that only a limited number of initiatives to improve air quality will be able to be addressed each year.

1. Natural Heritage Systems and Recreational Areas

With increased growth in Waterloo region, it is imperative that the City of Kitchener increases green space. Among many other functions, forests, wetlands, valleylands, parks and other green spaces help to moderate climate and provide a place to grow food locally – sometimes in community gardens. Focusing on planning and building "green connections" can also serve to provide greater trail access to public green spaces within the network and more options for walking, biking and alternative, healthy modes of personal transportation.

Recommendation	Action (Best Bet)	Facts – Did you know?
1.1 Promote the use of the City of Kitchener's (the City's) Park System	a) The City should continue to preserve and acquire parklands in existing developments; b) The City should promote educational opportunities that would inform citizens of the benefits of natural areas re: benefits of trees and wetlands - particularly native species; c) Ecological diversity should be promoted in City parks (e.g. butterfly habitat, wild-flower sections, plants that attract and/or sustain pollinators and removal of invasive species).	*Kitchener has accumulated an inventory of 348 public parks including more than 1 500 hectares of parkland trails and natural areas. For more information about Kitchener parks visit www.kitchener.ca search parks trails natural areas.*
1.2 Promote the value of the City's Park System, including natural areas and trees.	a) Encourage the City to establish a Tree Planting and Partnership Program by offering incentives to residents, community organizations, schools, business improvement areas and volunteers to expand resources for the planting, maintenance and care of trees.visit www.kitchener.ca/parks/	*Trees that shade your house can make it feel cooler in the summer.* *Businesses on tree-lined streets experience increased sales.* *Having good curb appeal that includes trees can help with home sales.* *Trees intercept rainwater improve air quality and make streets and public space more comfortable and attractive.*

Recommendation	Action (Best Bet)	Facts – Did you know?
1.3 Promote the use of trails as transportation routes	a) Citizens should be encouraged to take part in the commuter challenge or join walking / cycling organizations as a means of promoting the use of trails and cycle routes; b) Existing online mapping should be enhanced to show all natural areas and parks in addition to trails and cycling routes; c) Encourage the City to continue to retrofit and/or install bike lanes, paths and sidewalk connections that link trails to provide safer routes, a mix of recreational routes and encourage more users; d) Through initiatives such as the Crossing Guard Program, encourage school boards to persuade students to walk or take alternative modes of transportation to school.	*The Heart and Stroke Foundation of Canada recommends at least 30 minutes of exercise such as walking or biking every day to help reduce the risk of obesity heart disease and stroke.*
1.4 Promote natural yard care or "ecoscaping.".	a) The City should endeavour to ensure that it is undertaking up-to-date, sustainable park and yard care practices; b) In partnership with the Region of Waterloo (the Region), the City should encourage homeowners to adopt more sustainable yard care practices; c) Establish promotional material and fact sheets for the City's website that encourage the use of landscaping, using native plants where appropriate	*By adopting natural yard care practices you contribute to cleaner air and waterways and reduce your waste and water use.* *High concentrations of air pollution can negatively affect vegetation when absorbed through its leaves*

2. Water Resources

Water is one of our most precious resources—it is essential to human life and the health of our environment and our community. Much of our drinking water in Kitchener comes from groundwater sources; in the City, numerous creeks feed into the Grand River, which receives and assimilates our treated wastewater. .

Recommendation	Action (Best Bet)	Facts – Did you know?
2.1 Encourage energy and water conservation measures for buildings.	a) Continue to require LEED (Leadership in Energy & Environmental Design) standards in new civic buildings; b) Support the application of a rating system such as LEED for existing and new private sector projects or in site/building redevelopments; c) Encourage onsite controls that reduce individual contributions of stormwater runoff and pollutant loading to the municipal Stormwater Management System; d) Encourage the Region to actively enforce the Water Conservation By-law through more thorough monitoring.	*Heating water accounts for about 20% of a home's total energy costs.*
2.2 Increase potable and non-potable water conservation and efficiency	a) Encourage the Region to continue its community-wide water conservation strategy to achieve significant water, energy and emission reductions, resulting in cleaner air, better quality water and financial savings; b) Promote the use of rain barrels to capture run-off for all outdoor watering needs (lawn, garden, car washing); c) Encourage residents to invest in water and energy efficient appliances such as dishwashers and washing machines	*Five minutes of tap water running represents as much energy use as 14 hours from a 60-Watt light bulb.* *A tap leaking one drop of water per second wastes more than 25 litres of water a day! That's 9 000 litres a year!*

Recommendation	Action (Best Bet)	Facts – Did you know?
2.3 Create educational and awareness programs to protect, maintain and improve water resources.	a) Encourage Kitchener Utilities to continue its public awareness campaign against the use of bottled water; b) Continue to support community groups and citizens to undertake projects that protect and enhance our local water resources.	*The production of plastic water bottles requires more than 17 million barrels of oil annually to meet North American demand. Eliminating those bottles would be like taking 1 000 000 cars off the road*
2.4 Maintain basic water management systems.	a) Continue to support the creation or updating of watershed management plans that report on watershed health and the protection and restoration of environmentally significant land and water sources; thereby ensuring the long-term survival of forests/swamps to optimum forest cover in the City.	*Substances in the air can also be deposited in water bodies reducing water quality and affecting health of organisms in that water body*

3. Air Quality

Air quality remains one of the most pressing problems of modern cities and Kitchener is no exception. Emissions produced through the combustion of fossil fuels for transportation, heating and electric power diminish our air quality. Local air quality is a vital concern, however, winds and atmospheric turbulence can transport harmful emissions from neighbouring regions. This, ultimately, impacts overall local air quality levels. Poor air quality can cause acute and chronic diseases in humans as well as animals and plants.

Recommendation	Action (Best Bet)	Facts – Did you know?
3.1 Support citizens to reduce their level of automobile use and promote the use of non-automotive transportation	a) Support a Public Bike Sharing Program. The system could provide free or affordable access to thousands of bicycles as alternatives to private vehicles;`	*Statistics Canada reported that the average annual expenditure per household on transportation is about $7 800 second only to the cost of shelter at approximately $10 900.*

Recommendation	Action (Best Bet)	Facts – Did you know?
3.1 (Continued)	b) Encourage people to register their bicycles to reduce theft (www.bikeregistrycanada.ca) c) Recommend the establishment of a comprehensive network of bike lanes and routes. This includes trails and paths suitable for cycling in parks, along roads, green space or hydro and rail corridors that link people to shopping and services; d) Encourage the Region to continue to promote alternative modes of transportation to citizens for their daily commute at least once a month	*Bicycling to work every day can increase your energy level and leave you feeling relaxed during the day.*
3.2 Improve air quality locally by adopting emission reduction targets and activities tailored by sector (residential, municipal, industrial, commercial, institutional).	a) Encourage the Region to develop and implement an anti-idling By-law. This will allow for consistency across local municipal boundaries and will enhance effectiveness of its application; b) Encourage the Region to develop a program to shift all taxies and limousines operating in the City to low emission or hybrid technologies	*When you idle your vehicle you pollute the air and waste fuel and money.* *An old myth exists that idling will use less fuel than restarting your car. The fact is that idling your vehicle for longer than 10 seconds uses more fuel than it takes to restart it.*
3.3 Encourage the reduction of pollution, including dust and odour, from point source.	a) The City should adopt planning tools to assist with the development of Community Energy Plans that would support the Air Quality in Kitchener - 2010; b) The City and Region should provide creative measures to curb idling at traffic lights by adjusting the timing of traffic lights during non-peak hours.	*Transportation powered by renewable energy dramatically reduces greenhouse gas emissions and air pollution.*

Recommendation	Action (Best Bet)	Facts – Did you know?
3.4 Ensure that municipal operations and facilities meet or exceed applicable provincial regulations with respect to air quality.	a) Recommend the replacement of worn out street sweepers with more advanced environmentally friendly models. In addition to benefiting air quality in the vicinity of city streets, the new equipment will reduce the amount of fine road dust; b) Investigate phasing out the use of equipment powered by two-stroke engines in City operations (leaf blowers and lawn mowers); c) Where feasible, the City should avoid the use of gasoline-powered garden tools such as lawn mowers or leaf blowers on Smog Alert days	*The Ontario Ministry of the Environment maintains a current listing of air quality standards and guidelines for over 300 contaminants.*
3.5 Seek continuous improvement from Industrial/Commercial/ Institutional (ICI) point sources by developing a tiered approach that includes incentives and flexible regulatory approaches.	In consultation with ICI point sources, the City should: a) Develop business assistance and recognition programs to encourage businesses to adopt pollution prevention and eco-efficiency measures (LEED incentives); b) Adopt pollution prevention and eco-efficiency measures (LEED) on new and existing City buildings; c) Support Urban Design Standards that require all commercial, institutional and industrial developments to be designed to accommodate bicycle storage, showers, etc.	

Recommendation	Action (Best Bet)	Facts – Did you know?
3.5 (Continued)	d) Promote and provide incentives for businesses to ecoscape their properties; e) Establish sector-based emission standards and/or set performance standards for process or equipment modifications, i.e. ISO 14001.	

4. Land Resource and Growth Management

Local communities are vulnerable to the impacts of air quality and thus have a stake in efforts to reduce emissions. It is important to note that local governments have regulatory authority over many direct and indirect sources of air pollution. For example, local governments define land-use, zoning and transportation policy, as well as enforcing building codes. Action at the local level is a key component of Kitchener's response to the impacts of poor air quality.

Recommendation	Action (Best Bet)	Facts – Did you know?
4.1 Encourage sustainable development design standards.	a) Encourage the continued integration of environmentally sustainable/walkable urban design and neighbourhood design principles into the development approvals process.	
4.2 Incorporate "Clean Air Goals" into long-range plans.	a) Encourage an ongoing review of policies/guidelines that pertain to the City's transportation infrastructure to ensure that they provide clear direction as to the City's expectation to shift away from auto reliance toward alternative modes of transportation; b) Encourage the City to consider the implications for air quality and global climate change during the development of long-range plans.	*Reducing transportation pollution requires a mixture of transportation options including: efficient public transit systems walkable and bike-able communities in addition to cleaner vehicles cleaner fuels fewer vehicle kilometres travelled*

Recommendation	Action (Best Bet)	Facts – Did you know?
4.3 Encourage or facilitate the implementation of alternative modes of transportation.	a) Encourage the City to continue to retrofit and/or install bike lanes, paths and sidewalks on all streets where they do not currently exist; b) Encourage Grand River Transit to retrofit older public transit vehicles that would support continuous improvement, and optimize "express" transit service (on demand for bicycle carry-on service and cycle storage); c) Encourage Grand River Transit to specify stringent, but achievable, emission standards for the transit vehicles under consideration and to seek funding to help defray costs; d) Support the CAN-BIKE program to educate citizens about aspects of cycling safely and enjoyably on roads.	*Based on a poll undertaken for the Region (Ipsos Reid Public Affairs January 2008) residents agree that people should be using their cars less often recognizing the impact driving has on the environment and personal health and 46% think this is achievable.* *Information on CAN-BIKE courses may be found at www.canbike.net*
4.4 Encourage environmentally sound food choices.	a) Encourage the Region to continue to educate citizens about reasons to "buy local;" b) Continue to promote the "100 mile diet" at the Kitchener Market; c) Continue to support private or community vegetable gardens within the City.	*To join in discussions about community gardens and discover new and interesting information visit www.Regionofwaterloo.on.ca search: community garden*

5. Energy Systems

The world's energy demand has been increasing exponentially as a result of our ever-increasing world population. In Canada, the majority of energy is currently supported via fossil resources - natural gas, oil, and coal. These fossil fuels are used for transportation, commercial, industrial and residential uses.

Recommendation	Action (Best Bet)	Facts – Did you know?
5.1 Support future energy needs of the community in a manner that is efficient, cost-effective and environmentally responsible, and that fosters local economic development.	a) Encourage the Province to enact energy-efficiency regulations for heating and cooling (HVAC) equipment, and the use of clean efficient heat sources; b) Continue to support non-profit organizations, such as the Residential Energy Efficiency Project (REEP), which provides homeowners with practical, hands-on tools and assistance that enable sustainable resource use; c) Encourage the Province of Ontario to accelerate changes to the energy and sustainability requirements of the Ontario Building Code	*Since 1999 home energy retrofits by REEP customers have resulted in a reduction of 10 670 tonnes of greenhouse gas emissions annually*
5.2 Implement a conservation strategy for energy use within municipal facilities and operation.	a) Continue to support the replacement of traditional traffic, street, park and parking lighting with more efficient lights, such as Light Emitting Diode lamps (LEDs) and intelligent lighting system controls	*Products that display the ENERGY STAR symbol meet or exceed higher energy efficiency levels without compromising performance*
5.3 Support alternative and renewable energy sources	a) Encourage the development of a plan to obtain a portion of the City's facilities' energy needs from "green power" or low-impact renewable energy sources; b) Provide citizens with information about Renewable Energy Certificates (RECs).	*By purchasing RECs customers can choose to support clean renewable energy. The money generated by the sale of RECs goes to new and existing renewable energy facilities providing a financial incentive for developers to build more renewable energy projects.*

Recommendation	Action (Best Bet)	Facts – Did you know?
5.4 Reduce consumption of non-renewable energy sources, across all sectors of the community	a) Encourage the use, where appropriate, of energy efficient space heating (such as low-energy-use building design and operations, community energy systems, and heating alternatives to fuel combustion like geo-exchange, passive solar gain, active solar etc.;	
	b) Encourage the use of best design practices and guide-lines for sustainable design and construction practices within the community;	
	c) The City's website should incorporate a link to the Government of Canada ecoACTION web page.	

6. Resource Consumption and Waste Management Taking action on waste is essential. We are consuming natural resources at an unsustainable rate. Valuable energy is used in making new products that are, in turn, disposed of, also contributing to climate change.

Recommendation	Action (Best Bet)	Facts – Did you know?
6.1 Educate the community about resource consumption and waste management	a) Encourage citizens to find places to drop off hazardous and special wastes that can't be put in the blue boxes and should not go in the garbage (e.g. batteries, CFLs and unwanted electronics).	*Kitchener residents can safely dispose of hazardous and special wastes such as batteries CFLs and unwanted electronics at 20 or more approved collection points across the City.*
	b) Implement a green purchas-ing policy to require products provided to the City to have minimal packaging.	*Visit www.dowhatyoucan.ca or www.makethedrop.ca to find a more information or a drop-off location near you.*
		E-waste is growing four times more quickly than other waste streams but only 12.5% of that waste is being recycled.

Recommendation	Action (Best Bet)	Facts – Did you know?
6.2 Encourage the continuation of the Region's waste collection, recycling, composting and waste diversion programs.	a) Encourage the Region to open or enable permanent localized recycling/ electronic/hazardous waste drop off depots; b) Encourage the Region to reduce garbage collection to every other week or recommend reducing the number of bags collected per week; c) Encourage businesses and apartment buildings to increase recycling and composting efforts	*The Region of Waterloo Waste Management Division offers a free on-site environmental education program for school groups as well as the general public.*
6.3 Promote City recycling, composting and waste diversion programs.	a) Develop and implement policies for City facilities that require reusable, recyclable or compostable cups, food packaging and similar items; b) That City staff develop and implement a Green Festival Strategy for City managed events and examine the possibility of applying it to third party events; c) Encourage the diversion of construction waste from landfills, and waste reduction tools for new development and redevelopment projects	*New waste facilities that accept recycling garbage and compost are in place at City Hall that allow more waste to be diverted from the landfill.*

7. Environmental Education and Public Awareness

Public education and awareness programs are important to inform residents of their clean air responsibilities and efforts under way in their community to improve air quality.

Recommendation	Action (Best Bet)	Facts – Did you know?
7.1 Improve public awareness and knowledge of air quality issues.	a) Continue to support partnerships with school boards to increase public awareness regarding green yards, anti-idling and air quality; b) Encourage partnerships with citizens, community groups and schools to develop educational material that can be made available on the City's web site; c) Continue to support collaborations with school boards to green schoolyards through incentive programs	*We breathe a mixture of nitrogen oxygen water argon carbon dioxide and other trace gases. We inhale this mixture some 26 000 times each day a volume of about 14 000 litres*
7.2 Improve public awareness and knowledge of local programs and activities.	a) Continue to regularly provide results of Best Bets and other air quality initiatives on the City's web site and in Your Kitchener; b) Provide links on the City's web site to information on federal, provincial, private sector and community programs related to energy and other environmental issues; c) Continue to investigate and, where feasible, enact initiatives developed by other levels of government and non-government organizations to improve air quality; d) Continue to support community-networking opportunities for manufacturing, non-manufacturing and businesses to share best environmental practices	*Consumer demand can help increase availability of products buildings and modes of transportation that consume less energy at all stages of their lifecycle*

Recommendation	Action (Best Bet)	Facts – Did you know?
7.3 Improve public awareness and knowledge of transportation options..	a) Continue to support the Region's education campaign to increase awareness of the air quality benefits of public transit aimed at increasing ridership; b) Recommend that the federal and provincial governments promote cleaner, fuel-efficient vehicle purchases by providing financial incentives. Federal and provincial governments should promote regular vehicle maintenance; c) Through community design, encourage residents to walk or bike to places within their neighbourhoods	

Conclusions

This report itself – by necessity – will remain a work in progress, or "living document," for future members of the Environmental Committee and the City of Kitchener to monitor and update. It will evolve over time as we learn from our efforts and adapt to new possibilities and technologies.

Among the report's findings:

- Kitchener's fleet operations have maintained an environmental management system registered to the ISO 14001 standard since 2008 -- a practice that keeps us on the leading edge of municipalities in the province in terms of environmental due diligence.
- Data from the Ontario Ministry of Health and Long Term Care show that asthma rates amongst Ontario school aged children have significantly increased. Local school boards have an important role to play in addressing the problem of respiratory diseases. Schools need to provide a supportive, healthy environment for students. School boards can, with the assistance from the City of Kitchener, provide a direct link of information about air quality to a large number of students and parents.
- Green space moderates climate. Urbanization threatens what is left of the City's natural lands, making it important that the City conserve and create more green space. Focusing on planning and building "green connections" can also serve to provide greater trail access to public green spaces within the network and more options for walking, biking and alternate, healthy modes of personal transportation.

The promotion of a Natural Yard Care program encourages homeowners to adopt more sustainable yard care practices

- The promotion of a Natural Yard Care program will encourage homeowners to adopt more sustainable yard care practices such as reducing or eliminating the use of chemical fertilizers, gasoline-powered lawn mowers and other yard care equipment.
- The City of Kitchener is in a position to lead by example by developing and promoting clean and energy-efficient space heating and the exploration of alternative sources of energy. Examples of our support for energy conservation include the solar-roof project at the Consolidate Maintenance Facility (CMF) and the City's Leadership in Energy and Environmental Design (LEED) gold standard for the construction of all future municipal buildings larger than 5,332 square feet.

There are several steps that the City of Kitchener can take when preparing to act on air quality. They have started by establishing the Environmental Committee to advise on the process of reducing the City's impact on the environment. This committee, in this living document, has recommended a comprehensive approach to air quality improvement through specific proposals and planning processes for developing and implementing responsive strategies and actions. Government agencies, the private sector, local non-governmental organizations, and others should be involved.

The City of Kitchener can educate citizens and work with the private sector to determine voluntary actions they can take. Natural Resources Canada offers significant opportunities for cost-effective efforts that can trim expenses while helping the environment. These, and other opportunities, make good economic and environmental sense. The City can take a leadership role by making improvements in government operations. They can make their own operations more efficient, gradually convert government fleets to alternative-fuel vehicles, retrofit government buildings for energy efficiency and demonstrate the feasibility and cost-effectiveness of a variety of methods to reduce harmful air emissions.

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