

Environment

Goal Statement:

Protect and conserve the natural environment to ensure residents can breathe clean air, drink safe water and have access to nature and greenspace, and to help mitigate extreme weather events.

Rationale: Clean air, safe water and access to nature and greenspace are critical to the health of the community, making it essential that these resources be protected and conserved. Exposure to environmental pollution can result in increased illness, chronic disease, hospitalization and death. Individuals and families living in lower income neighbourhoods are more likely to live close to highways or industrial zoned land, which exposes them to even higher levels of outdoor air pollution and increased risk of illness and disease.

Additionally, as the effects of climate change increase, the risk and severity of extreme weather's affect on community health also increases by impacting air and water quality, limiting the availability and accessibility to safe and potable water, increasing the incidence of infectious disease and damaging essential community infrastructure. As a result, communities must also be developed in a sustainable manner that supports community resiliency to extreme weather.

Objectives

- EN 1** Ensure land use designations and zoning bylaws have a positive impact on health and protect the environment.
- EN 2** Promote renewable energy systems, conserve energy and protect air quality.
- EN 3** Decrease reliance on motor vehicles and provide the necessary infrastructure and social climate to support active modes of transportation and transit.
- EN 4** Incorporate climate change adaptation and mitigation strategies to protect the built and natural environments.

Environment

Objective 1

EN 1 - Ensure land use designations and zoning bylaws have a positive impact on health and protect the environment.

Land Compatibility Rationale: Children living in communities with higher levels of traffic-related pollution have lung function growth approximately 10 per cent slower than children in communities with less air pollution.¹ Seniors are also vulnerable to the impacts of air pollution. Estimates indicate that by 2026, the 65+ age group will experience a 74 per cent increase in premature mortality due to air pollution. Additionally, smog-related cardiac symptoms account for three times more emergency room visits than respiratory symptoms.²

Close proximity of residential and other sensitive areas to non-compatible uses could result in adverse health effects. Exposure to noise can introduce or aggravate stress-related health outcomes including those on the cardiovascular system, immune system, sleep, task performance, behaviour and mental health.³ Periods of odour nuisance often go together with headache, nausea, sleep disturbances, a loss of appetite and stress.⁴

Major facilities and sensitive land uses should be planned to ensure they are appropriately designed, buffered and/or separated from each other to prevent or mitigate adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term viability of major facilities.

(Provincial Policy Statement 2014, 1.2.6.1)

/// Planning Policies (Land Compatibility)

- EN 1.1** Land use designations shall consider impacts on community health especially for vulnerable populations (e.g. children and seniors) when located adjacent to high traffic, trucking and highway corridors.
- EN 1.2** Proposed residential development shall be compatible with neighbouring uses including industrial and commercial emissions, nuisance noise and odour impacts. Proposed development shall consider water resource protection.
- EN 1.3** Agricultural land and environmentally sensitive areas shall be protected through land use designations and transportation planning to sustain the economic viability of agriculture within the community.
- EN 1.4** Water resources shall be protected through the implementation of water protection strategies.

/// Implementation Activities (Land Compatibility)

Short term

- i) Review existing zoning bylaws and where necessary amend to include guidance pertaining to nuisance noise, odour, and other adverse health effects.

Medium Term

- i) Establish municipal policies for residential areas, park space and athletic fields/venues to ensure sufficient distance away from traffic corridors.
- ii) Work with community groups to implement and promote programs that encourage residents to dispose of hazardous waste products safely and properly.

Long Term

- i) Form a land use advisory committee focused on community and environmental health to work with council and staff to ensure land use designations support positive growth and development of the community.

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Greenspace Rationale: The protection and conservation of greenspace minimizes the effects of heat islands which drive up cooling and refrigeration energy consumption and generation. Greenspaces also provide vital ecosystem services. Urban trees can reduce air temperature thereby reducing ozone formation and removing air pollutants.⁵ Greenspaces protect water quality by providing opportunity for water absorption and filtration.⁶

In addition to the environmental benefits, forest ecosystems can support healthy communities by increasing physical activity, improving cardiovascular and respiratory health, preventing cancer and reducing stress.⁷

The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

(Provincial Policy Statement 2014, 2.1.2)

/// Planning Policies (Greenspace)

- EN 1.5** Design standards shall be developed that require the use of natural and/or naturalized landscapes to improve air and water quality throughout the community.
- EN 1.6** A community-wide Urban Forestry Management Plan shall be developed to maximize the environmental and community health benefits of having healthy trees, with particular attention to protecting the community's stock of existing trees, supporting the growth of new trees and expanding the tree canopy in the community.

/// Implementation Activities (Greenspace)

Short term

- i) Promote and increase public awareness of the environmental and health benefits for supporting tree and forest restoration.
- ii) Develop tree cutting and/or tree conservation bylaws.

Medium Term

- i) Conduct an assessment of existing greenspace and identify opportunities to increase the amount of and access to greenspace.

Long Term

- i) In consultation with community groups and foresters, develop an Urban Forestry Management Plan; determine restoration initiatives as well as the infrastructure and budgeting needs required to meet tree planting and conservation targets.
- ii) Develop a partnership framework to assist the municipality with implementing the Urban Forestry Management Plan.



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Objective 2

EN 2 - Promote renewable energy systems, conserve energy and protect air quality.

Rationale: The most significant sources of air pollution and human generated greenhouse gas emissions in Ontario are energy consumption, energy generation and transportation. Electricity generation produces a significant share of nitrogen oxides and sulphur dioxide emissions. These contribute to smog, acid rain and the formation of fine particulate matter which all reduce air and water quality.⁸ Numerous studies show that poor air quality contributes to premature death, cardiovascular disease, cancer, stroke, asthma and other respiratory diseases.⁹

Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and climate change adaptation through land use and development patterns which:

promote compact form and a structure of nodes and corridors;

promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas;

focus major employment, commercial and other travel-intensive land uses on sites which are well served by transit where this exists or is to be developed, or designing these to facilitate the establishment of transit in the future.

(Provincial Policy Statement 2014, 1.8.1)

/// Planning Policies

- EN 2.1** A compact urban form shall be developed that incorporates mixed land uses and promotes active transportation, transit use and trip reduction.
- EN 2.2** Opportunities shall be provided to use or develop renewable energy sources through design regulations and land use and zoning requirements.

/// Implementation Activities

Short term

- i) Establish municipal policies to promote and incorporate energy efficiency and water conservation strategies.

Medium Term

- i) Conduct a community outreach program to facilitate dialogue and develop partnerships with local groups focused on environmental issues, energy and water conservation and renewable energy.

Long Term

- i) Work with local stakeholders to develop policies and implementation guidelines for sustainable building practices for municipal and private development projects.



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Objective 3

EN 3 - Decrease reliance on motor vehicles and provide the necessary infrastructure and social climate to support active modes of transportation and transit.

Rationale: Motor vehicle transportation is the primary contributor to air pollution. On-road transportation and engine idling contribute to greenhouse gas emissions and release carbon dioxide, nitrogen oxides and carbon monoxide hydrocarbons, which are the precursors of smog.¹⁰ Health impacts from air pollution include respiratory problems, asthma and increased risk of heart attack.⁹ Transportation activities can also increase the outdoor levels of ozone and particulate matter. Ozone irritates the respiratory tract and eyes and results in chest tightness, coughing and wheezing. Fine particulate matter can penetrate deep into the respiratory system triggering a heart attack or stroke.¹¹

Land use patterns within settlement areas shall be based on:

a) densities and a mix of land uses which:

1. efficiently use land and resources...

3. minimize negative impacts to air quality and climate change, and promote energy efficiency;

4. support active transportation;

5. are transit supportive, where transit is planned, exists or may be developed.

(Provincial Policy Statement 2014, 1.1.3.2)

Long-term economic prosperity should be supported by: providing for an efficient, cost-effective, reliable multimodal transportation system that is integrated with adjacent systems and those of other jurisdictions, and is appropriate to address projected needs to support the movement of goods and people...

(Provincial Policy Statement 2014, 1.7.1)

/// Planning Policies

- EN 3.1** The zoning bylaw shall develop patterns of land use that ensure appropriate separation of incompatible land uses and those that negatively impact pedestrian-oriented development.
- EN 3.2** Transportation master plans, environmental assessments and road designs shall be based on a complete streets design perspective.

/// Implementation Activities

Short term

- i)** Implement a safe routes to schools program that includes improvements to walkways, crossings, signage and traffic calming to encourage more walking and cycling by school-aged children.
- ii)** Provide wayfinding signage at key destinations throughout the community (such as commercial and retail areas, places of worship, parks, schools, civic buildings, etc.) and end of trip facilities such as bike racks to encourage and facilitate active forms of transportation.

Medium Term

- i)** Retrofit/purchase transit vehicles that allow for storage/transport of bicycles, strollers, wheelchairs, etc.
- ii)** Conduct community-wide walkability and bikeability audits with resident groups to identify priority projects to improve active transportation throughout the municipality.
- iii)** Develop and implement a program to provide seating and weather protection at all transit stops to facilitate use by seniors, persons with mobility issues, expectant mothers and people traveling with small children.

Long Term

- i)** Review the municipal Transportation Master Plan. Work with community partners to establish and promote an interconnected trail, sidewalk and bike lane system within and between communities.

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Objective 4

EN 4 - Develop climate change adaptation and mitigation strategies to protect the built and natural environments.

Adaptive Design Rationale: Climate change refers to any change in climate over time as a result of natural changes or from human activities.¹²

As the climate changes, the natural and built environment also changes. For instance, there can be increased incidences of water-borne diseases when water sources become contaminated during extreme weather events (e.g. flooding); decreased quantity of water from drought; threat to food safety (e.g. more food spoilage due to higher temperatures) and changing weather patterns may lead to a rise in infectious diseases in new and existing areas. In addition, higher temperatures cause increased air pollution, which leads to declining air quality.¹³ As a result, municipalities need to develop mitigation and adaptation strategies to protect the built and natural environments in response to climate change.¹²

Planning for sewage and water services shall:

b) ensure that these systems are provided in a manner that:

- 1. can be sustained by the water resources upon which such services rely;*
- 3. protects human health and the natural environment;*

c) promote water conservation and water use efficiency.

(Provincial Policy Statement 2014, 1.6.6.1)

/// Planning Policies (Adaptive Design)

- EN 4.1** Community infrastructure shall be designed to take into account the potential impacts from climate change to minimize damage, with a preference toward practices of better stewardship and protection of nature, naturalized areas, greenspaces and water resources.
- EN 4.2** Requirements for low impact development techniques shall be integrated into subdivision and site plan regulations and storm water management plans.

/// Implementation Activities (Adaptive Design)

Short term

- i)** Conduct a vulnerability risk assessment of the community and of all infrastructure to develop and support climate change mitigation and adaptation strategies.
- ii)** Update storm water management plans and strategies to address projected changes in frequency and severity of storm events.

Medium Term

- i)** Maintain, restore and expand greenspaces and areas of nature through a variety of community programs, adapted regulations and development incentives.
- ii)** In consultation with stakeholders, develop municipal climate change adaptation and mitigation plans.

Long Term

- i)** Work with community groups to advocate for the redevelopment of Ontario's Building Code to include strategies to mitigate greenhouse gas emissions.
- ii)** Work towards increasing use of energy efficient and water conservation technologies.

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Extreme Heat Mitigation Rationale: Both sensitive and healthy individuals can develop heat-related illness from prolonged exposure to high temperatures. Heat cramps, heat exhaustion, heat stroke and even death may occur. Individuals with diabetes, respiratory and cardiovascular disease are more susceptible to the effects of extreme heat.¹⁵

Solar energy absorbed by building materials and the urban heat effect contribute to higher temperatures. As the temperature increases, the demand for energy for cooling goes up, thus increasing greenhouse gas emissions.¹³ The temperature and quality of storm water run-off can be impacted by thermal pollution as water flows over low albedo and impervious surfaces (i.e. dark roofs and asphalt).¹⁵ Trees and other vegetation provide shade and help to dissipate heat by increasing the evaporation potential of an urban area.¹⁵

Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and climate change adaptation through land use and development patterns which:

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focus major employment, commercial and other travel-intensive land uses on sites which are well served by transit where this exists or is to be developed, or designing these to facilitate the establishment of transit in the future.

(Provincial Policy Statement 2014, 1.8.1)

/// Planning Policies (Extreme Heat Mitigation)

- EN 4.3** Incorporate vegetation and tree planting in new, existing, and future developments to increase areas for shade and assist with dissipation of heat.
- EN 4.4** Develop an urban forestry plan and associated implementation program to increase the health of the urban forest and expand the tree canopy throughout the community.

/// Implementation Activities (Extreme Heat Mitigation)

Short term

- i) Review existing emergency plans and amend to include heat response strategies and plans.

Medium Term

- i) Develop bylaws and landscaping guidelines to increase vegetation and tree planting in new, existing and future developments to increase areas of shade, mitigate the effects of heat islands and contribute to the sequestration of greenhouse gases.

Long Term

- i) Work with community groups to develop and support water conservation technologies and strategies.

