URBAN SPRAWL

Land Use and Transportation

What does urban sprawl mean for the Great Lakes region?

GREAT LAKES FACT SHEET

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Background

Suburban development is an inevitable part of the growth of a city. The very first suburbs developed along railway and streetcar tracks, and the transit stations provided each suburb with a clearly defined centre, surrounded by shops and businesses. While suburban neighbourhoods were less dense than cities, they did not resemble the sprawling suburbs of today – immense tracts of exclusively residential development without nearby access to shopping, services and employment. Historically, urban sprawl is associated with the rise of personal automobile ownership, the availability of relatively cheap land on the outskirts of cities, and the willingness of governments to invest the capital necessary for infrastructure, such as roads and water treatment plants. In the 1950s and '60s, moving away from the inner city and into the surrounding countryside became a lifestyle choice associated with success and a higher quality of life. The decades following the Second World War saw a tremendous boom in suburban development around Great Lakes towns and cities.

By the mid-1990s, it had become evident that urban sprawl was fundamentally altering the region's ecosystem. The urban planning and transportation approach known as "smart growth" has developed as a means of responding to the issues presented by urban sprawl. Smart growth focuses on high-density development providing a range of housing choices within existing communities, compact building design, walkable neighbourhoods with readily available services and amenities, mixed land uses, preservation of farmland and natural areas, and multiple transportation choices.

Communities around the Great Lakes are beginning to embrace the principles of smart growth. The City of Markham grew by 25 per cent between 2001 and 2006 and is projected to keep growing. To deal with this growth, the city has committed to developing sustainable communities that feature the mixed use developments associated with smart growth, a cycling master plan for the city, and a strategy to become carbon neutral by reducing dependency on non-renewable sources of energy. In 2011, Markham released its Greenprint – a sustainability plan that respects natural cycles and promotes zero waste in the provision of materials, goods and services, protects ecosystems and seeks to meet the needs of its communities as they continue to grow.

WHAT IS URBAN SPRAWL?

More Canadians than ever are living in cities. The 2011 census showed that more than 80 per cent of the country's population are urban dwellers – a historic high. The Great Lakes Basin contains some of the fastest growing communities in the country, making land use planning decisions key to the region's future and the health of the lakes.

Urban sprawl refers to low-density, primarily residential development on previously undeveloped or agricultural land on the edge of a city. New growth takes the form of suburbs or subdivisions that are isolated from the services and amenities concentrated in the core of urban centres. In comparison to the population densities of urban cores, relatively few people occupy more land in developments on the outskirts of cities, and houses and other buildings are spread out along extensive networks of roads. Distances make modes of transportation with low environmental impacts, such as walking and cycling, impractical. Similarly, because of the distances involved, development of efficient, cost-effective public transit infrastructure is difficult. Most residents and businesses are dependent on cars and trucks to move people and goods, generating high levels of transportation-related emissions that contribute to poor air quality and climate change. As population growth outstrips the traffic capacity of road infrastructure, gridlock compounds these effects.

Sprawling subdivisions eat up fertile farmland and other greenfields (previously undeveloped land) at an alarming rate. Road and highway infrastructure accelerates this process because it takes up more land than the equivalent public transportation networks would require. Like transportation, other infrastructure development related to urban sprawl, such as water, sewers, waste management and electricity transmission, are expensive and environmentally disruptive. The effects of urban sprawl are felt in city centres too. Residents and businesses move out of the downtown core in search of cheaper housing and office space, leaving buildings vacant and a smaller tax base to sustain services in the central core.

HOW DOES URBAN SPRAWL AFFECT THE GREAT LAKES?

Urban sprawl ...

- **contributes to poor air quality and climate change:** Transportation emissions are a major source of smog and air pollution, including the greenhouse gases (GHGs) associated with climate change, in the Great Lakes region. Smog is a noxious mixture of vapours, gases and particles that often appears as a yellowish-brown haze in the air. While cars are becoming more fuel efficient and less polluting on an individual basis, the growing number of vehicles on the roads offsets some of the benefits of improved automotive technology. Because of the distances involved, urban sprawl plays a key role in this increase in traffic volume and vehicle emissions.

- **impacts water quality:** The large, paved surface areas characteristic of sprawling urban areas – highways, roads, parking lots – do not allow water to be absorbed easily into the ground. During storms, water runs off hard surfaces, collecting oils, road salt, pesticides, fertilizers and other potentially hazardous materials as it moves across land, eventually ending up in nearby bodies of water. Runoff can compromise water quality and, because it often picks up high levels of phosphorus from sources such as fertilizers, can contribute to the nutrient overloading that stimulates harmful algal growth in the lakes.

- **contributes to human health problems:** Poor air and water quality have direct impacts on human health. In addition to these concerns, the high levels of vehicle use and long commute times associated with urban sprawl can make it difficult to achieve sufficient daily levels of physical activity. Inactivity has been linked to obesity, high blood pressure, heart disease and diabetes.

- **threatens wildlife and habitat:** The infrastructure development characteristic of urban sprawl – roads, sewers, electricity and communication corridors – divides open spaces, fragmenting natural habitat. This can result in reduced wildlife populations and, for some species, the threat of extinction. Native species stressed by habitat loss may also have trouble competing with invasive species**.**

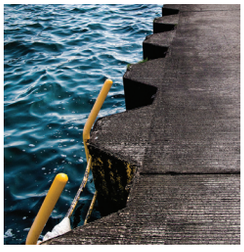
- **increases energy consumption:** Urban sprawl makes immense demands on energy systems, increasing the environmental costs of energy development and delivery. In addition to the fuel demands associated with transportation, services in sprawling communities, such as electricity transmission, water and waste management, require greater amounts of energy than comparable services in higher-density communities simply because of the distances involved. While the newer homes found in suburban developments are often more energy efficient than older homes, these gains are offset by the increased number of houses and the size of newer homes.

- **has economic and social costs:** Costs for infrastructure development and services as diverse as education and policing in new subdivisions, office parks and shopping centres can often exceed the cost of integrating people into existing, higher-density areas. The disappearance of prime farmland compromises agricultural viability and productivity, and development on greenfields means a reduction in natural areas that are easily accessible to urban centres for recreation and enjoyment.

CHALLENGES AHEAD

The following are some examples of the challenges that urban sprawl presents to the environment and quality of life in the Great Lakes region.

Population growth: Ontario's population is expected to grow by approximately 3.7 million people by 2031, much of it concentrated in the Great Lakes region, and it is predicted that much of this new population will seek the less expensive housing options and larger properties available in the suburbs. If urban sprawl continues unchecked, the costs of providing services and energy to these low-density developments will continue to rise, there will be more paved and roofed surfaces contributing to runoff, and green spaces and land available for agriculture will be greatly reduced.



Shoreline hardening: The artificial hardening of urban shoreline is a major concern in the Great Lakes Basin. Natural shorelines act as filters for pollutants and sediment and are home to a number of plants and animals. Hardening occurs when pavement or other synthetic materials are used in developments built along a shoreline, often destroying the natural shoreline in the process. Hardening also allows increased runoff into the lakes and intensifies the effects of erosion, causing ecological and economic impacts.

Transportation: Many of the sprawling suburban developments in the Great Lakes Basin have been built without access to public transportation, resulting in cities characterized by traffic congestion and the harmful emissions associated with it. As cities continue to grow and spread out, it is predicted that commute times in and around urban centres could increase by as much as 25 per cent from current levels, increasing levels of GHG and other transportation-related emissions. Unless public transportation becomes a key consideration in urban planning, the region could face paralyzing gridlock and even more serious threats to the environment and human health.

WHAT IS BEING DONE?

In addition to the initiatives undertaken by individual communities, such as Markham's Greenprint, the following are some examples of strategies intended to address urban sprawl in the Great Lakes region:

International Collaboration

» **Great Lakes Water Quality Agreement (GLWQA):** Signed by Canada and the United States in 1972 and amended most recently in 2012, the agreement addresses ongoing threats to the lakes, including population growth, urbanization and the impacts of land use activities on Great Lakes water quality.

Federal Initiatives

» **Canadian Environmental Assessment Act (2012):** This act is the basis for the federal environmental assessment process in most regions of Canada. The act requires that major development proposals be reviewed to evaluate their potential environmental effects. Land use and development in the Great Lakes Basin are subject to this legislation.

» **Sustainable Development Strategy (2010):** This strategy aims to enhance the Government of Canada's incorporation of environmental sustainability into decision making related to development.

Federal-Provincial Collaboration

» **Canada–Ontario Agreement Respecting the Great Lakes Basin (COA):** This agreement, ratified in 1971 and currently being updated to reflect recent amendments to the GLWQA, makes provision for the federal and provincial governments to work together to protect the Great Lakes ecosystem. The COA sets goals for the protection of habitat, prevention of pollution and cleanup of areas of environmental concern through initiatives including water efficiency programs and conservation of ecologically valuable land.

Provincial Initiatives

» **Ontario Provincial Policy Statement (2005):** This statement promotes the integration of water, ecosystem, shoreline and watershed considerations into decisions related to development and land use.

» **Greenbelt Act (2005):** This act provides for the creation of a Greenbelt Plan to protect about 1.8 million acres of environmentally sensitive and agricultural land from urban development and sprawl in the highly populated area, known as the Golden Horseshoe, around the western end of Lake Ontario.

» **Places to Grow Act (2005):** This act provides for the establishment of growth plans in the province, with input from local officials, stakeholders and the public. The first growth plan (2006) developed under the act was for the Greater Golden Horseshoe area. The plan focused on protecting natural features, ensuring that they are accessible to residents, and on conserving important agricultural land.

Municipal Initiatives

» **Green Municipal Fund:** Administered by the Federation of Canadian Municipalities and supported by the federal government, this fund supports projects that show leadership and innovation in municipal sustainable development.

» **Great Lakes and St. Lawrence Cities Initiative (2003):** This initiative brings together a coalition of mayors from Great Lakes cities in Canada and the U.S. The coalition seeks to protect and restore the Great Lakes and St. Lawrence River by combining environmental, economic and social goals. Through its Green CiTTS (Cities Transforming Towards Sustainability) program, the initiative supports member cities in switching to more sustainable practices across a broad set of municipal operations and responsibilities.

WHAT CAN YOU DO?

- **Cut down on emissions from transportation:** Choose more sustainable modes of transportation when commuting to work or running errands – take public transit, carpool, bike or walk. Choosing a fuel-efficient vehicle and telecommuting when you can will also help to reduce your contribution to GHGs and other harmful emissions. If possible, choose a home within walking, biking or transit distance of work or school.
- **Choose permeable surfaces for driveways and walkways:** Permeable surfaces allow rainwater to be absorbed directly into the ground, minimizing flash flooding as well as reducing stormwater runoff and the need for stormwater treatment infrastructure. Choose materials such as gravel, wood chips or porous forms of concrete for your driveway or walkway.
- **Get involved:** Look for opportunities to get involved in public consultations on important issues related to urban sprawl, such as road expansions, transportation, suburban development and stresses on existing water and sewage facilities, and on agreements and legislation related to the Great Lakes. Urge government, businesses and other organizations to take action on Great Lakes issues.

SELECTED RESOURCES

For more information on urban sprawl and the Great Lakes, consult the following resources:

Canadian Environmental Assessment Agency. Legislation and Regulations. Canadian Environmental Assessment Act, 2012. **http://www.ceaa.gc.ca/default.asp?lang=En&n=9EC7CAD2-1**

Environment Canada. Great Lakes Wetlands Conservation Action Plan. **http://www.ec.gc.ca/tho-wlo/default.asp?lang=En&n=2D508F55-1**

Environment Canada. Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada. **http://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=F93CD795-1**

Environment Canada. Smog. **http://www.ec.gc.ca/air/default.asp?lang=En&n=13D0EDAA-1**

Ontario Ministry of Infrastructure. Places to Grow Initiative. **https://www.placestogrow.ca/index.php?option=com_content&task=view&id=1&Itemid=5**

Ontario Ministry of Municipal Affairs & Housing. The Planning Act. **http://www.mah.gov.on.ca/Page1760.aspx**

Ontario Smart Growth Network. **http://www.smartgrowth.on.ca/**

Pollution Probe. The Smog Primer. **http://www.pollutionprobe.org/report/smogprimer.pdf**

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PHOTOS

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