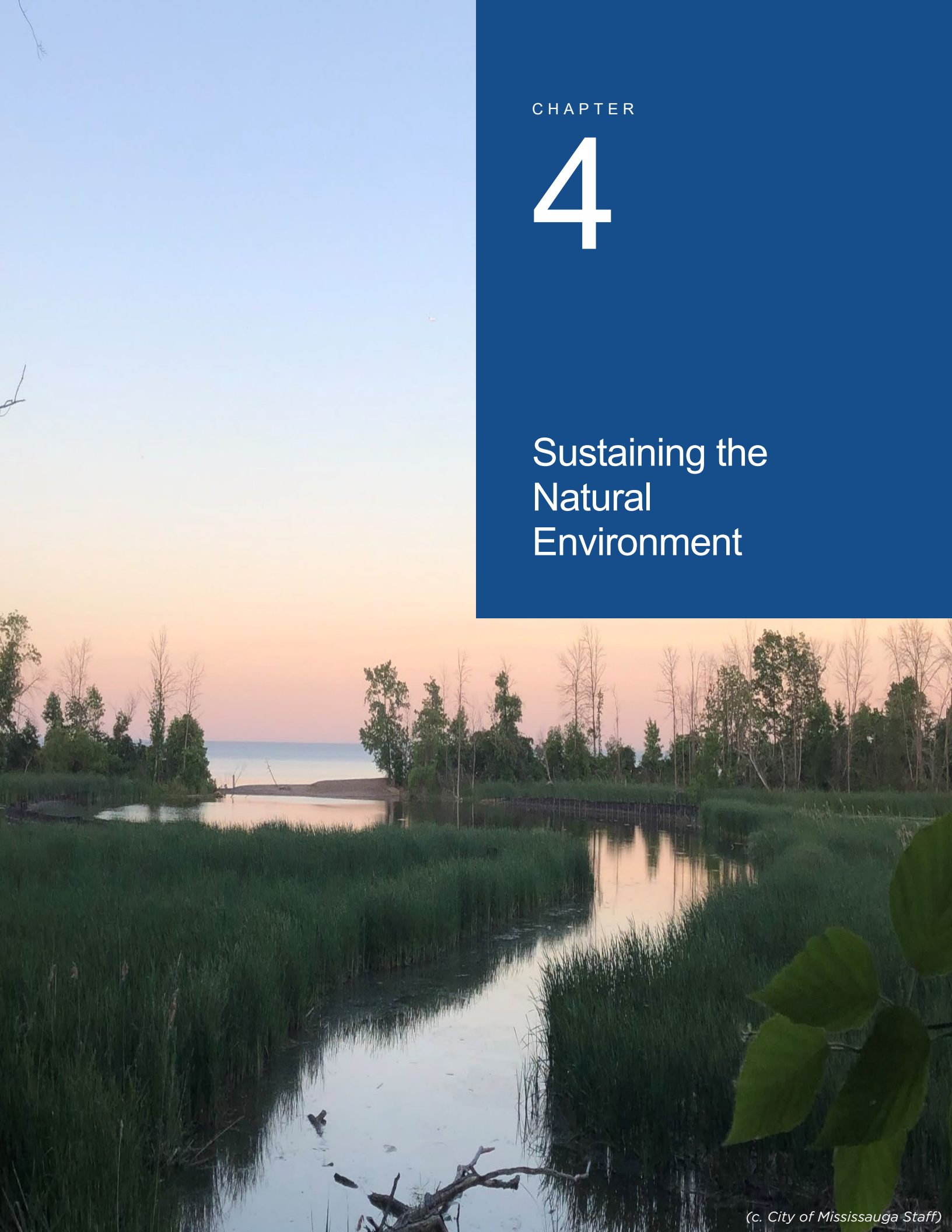
CHAPTER

# 4

# Sustaining the Natural Environment



*(c. City of Mississauga Staff)*

# 4.1 Introduction

**Mississauga is located on the shore of Lake Ontario, part of the largest system of freshwater lakes in the world. Mississauga contains *watersheds* of the Credit River, Etobicoke Creek, the western edge of the Humber River and other *watercourses* that form part of the Great Lakes drainage basin. The city is home to some of Canada's most rare and endangered plants and animals, and is within the most threatened ecological region in Ontario. Protecting this unique yet fragile environment is a priority for the city, its residents, and the *Indigenous Peoples* that have Treaty Rights to and ongoing stewardship of the lands, water and resources in Mississauga.**

Protecting, restoring and enhancing the natural environment is critical to human and economic vitality and the overall well-being of society. The natural environment provides the fundamental necessities of life – clean water, air and land and is an essential component of the fabric and character of communities. It also helps reduce the amount of carbon in the air and absorb excess water from precipitation which supports the city's infrastructure. Furthermore, the natural environment has and will continue to provide the necessary elements that support cultural and economic practices of ***Indigenous Peoples*** who rely on specific natural items and a clean earth for crafts and ceremonies.

Figure 4.1. Flood events are predicted to be more common in the near future. *(c. Adobe Stock)*

It is, however, increasingly challenging to protect and enhance the natural environment as we collectively face threats posed by the changing climate and severe weather events. Recent storms, droughts, floods and other severe weather events have caused great damage to the natural environment. These events are anticipated to increase in frequency and severity as the planet continues to warm up, which will further weaken the natural environment and its ability to function.

The city's steady growth and intensification will continue to put pressure on its natural environment, causing the fragmentation and loss of Natural Heritage Features and their valuable *ecological functions* and services. It is therefore essential that while planning for growth, efforts are made to protect, maintain, restore and enhance the natural environment while working jointly with conservation authorities, federal and provincial agencies to seek out creative ways to enhance and expand it.

To this end, the City of Mississauga has adopted a system-based approach to the protection and enhancement of its natural environment. System-based approaches go beyond protecting a feature such as a *woodland*, a river or a *wetland* and include considerations for existing dependencies it may have, both spatially and functionally, with other natural areas above and underground. A System-based approach provides ways to holistically protect, restore and expand the Green and the Water Resource Systems, which make up the natural environment, in order to maximize their ecological services and function. The comprehensive and integrated system-based approach to protecting these areas and associated biodiversity is essential for their preservation, especially as the city continues to grow and intensify.

## 4.2 Climate Response

Climate change is one of the most pressing issues of our time. The increase in greenhouse gases emitted locally and globally is warming our earth and is the cause of more frequent and extreme events such as ice storms, flooding, extreme heat and droughts. Many of these events are increasingly occurring in Mississauga. It is therefore necessary to consider the climate and environmental impacts of every development proposal and planning decision, and to adopt appropriate mitigation measures to avoid environmental harm and adapt to changing environmental conditions.

Climate change has been identified as a danger to human health and wellbeing. It is regarded as one of the greatest health challenges that will affect many lives including those of Mississauga's residents. This effect will be felt disproportionally by those with a lower socioeconomic status as well as the city's most vulnerable populations. This highlights the urgency and importance to address climate change through this Plan.

This chapter explores the important role the natural environment plays in building the city's resilience to climate change. Other chapters of this Plan address climate change through a strong city structure that directs growth to *Strategic Growth Areas* where compact, mixed use communities will be supported by transit and micromobility and where walking and cycling will be viable modes of transportation. This is essential to reduce greenhouse gas emissions and preserve, enhance and expand the city's Natural Heritage System which is key to mitigating the effects of climate change. ***Stormwater best management practices*** and *green infrastructure* for new development will be encouraged to support the City's response to severe weather events. Use of sustainable development standards such as Leadership in Energy & Environmental Design (LEED) in addition to adherence to the City of Mississauga Green Development Standards can ensure that new development or existing development is low-carbon and environmentally sustainable.

4.2.1 Mississauga will strive to become a resilient low-carbon city. This will be achieved by reducing greenhouse gas emissions through mitigation efforts in buildings and transportation.

4.2.2 Mississauga will support the planning and design of new communities and buildings that aim to achieve near net zero emissions.

4.2.3 Mississauga will support efforts to protect against the impacts of the changing climate with adaptation measures that make the city more resilient to climate change impacts including extreme weather events.

4.2.4 Mississauga will build communities that are compact, low-carbon, mixed use, and *transit-supportive*. The City will promote ***renewable energy***, energy conservation and efficient design. These initiatives will reduce greenhouse gases and help the city achieve its emission targets.

Figure 4.2. The Maanjiwe nendamowinan (2018) at the University of Toronto Mississauga, has an Anishinaabemowin name meaning "a gathering of minds". This certified LEED Silver building features elements such as energy-efficient mechanical systems, a green roof space, and rainwater cycling. *(c. City of Mississauga)*

4.2.5 Mississauga will protect, enhance, restore and expand the Natural Heritage System and the Water Resource System to improve ecosystem structure, functions, and services including biodiversity habitat, heat resilience, and protection against flooding and storms through water absorption.

4.2.6 Mississauga will collaborate with all levels of government to undertake community energy and greenhouse gas emissions reduction planning. This will include developing energy use and greenhouse gas inventories for local community emissions, establishing emission reduction targets, objectives or scenarios, and recommending strategies and actions to reduce emissions and promote low carbon energy alternatives.

4.2.7 Development will be encouraged to assist the City in meeting its environmental sustainability policies, programs and goals such as, greenhouse gas emissions targets, climate change actions, encouraging Green Development Standards, tree management and the Tree Protection Bylaws, cycling infrastructure and stormwater initiatives.

4.2.8 Mississauga will encourage the retrofitting of existing buildings and the development of sites to be more environmentally sustainable and energy efficient, incorporating adaptation measures or features, to enhance resilience to climate change impacts.

4.2.9 Mississauga will encourage the creation of innovative strategies for:

a. net zero greenhouse gas emissions development, including embodied carbon emissions from materials;

b. the preservation and enhancement of existing landforms, Natural Heritage and drainage patterns; and

c. ***waste*** management, source reductions, adaptive reuse and construction ***waste*** diversion.

4.2.10 Mississauga will require development proposals to account for the impacts of the changing climate when addressing the management of stormwater, using ***stormwater best management practices*** and *green infrastructure* as well as the reduction of hard surfaces.

4.2.11 Mississauga will encourage the use of innovative nature-based solutions and low impact development technologies and design to assist in absorbing greenhouse gas emissions and adapting to the changing climate.

4.2.12 Mississauga will encourage tree planting and natural habitat enhancements on public and private lands and an increase in the Urban Forest canopy in order to reduce the urban heat island effect, a phenomena characterized by the warming of an area due to the concentration and quantity of impervious and dark surfaces. These natural enhancements will also increase carbon sequestration, protect against flooding and storms through water absorption, and maintain and increase biodiversity.

# 4.3 Green System

## 4.3.1 Overview

The Green System in Mississauga, consisting of the Natural Heritage System, Natural Hazard Lands, the Urban Forest and Parks and Open Spaces, constitutes a valuable natural environment in the city and makes our community more resilient to the changing climate. These areas provide habitats for flora and fauna to thrive, and although not all of these areas are within the Natural Heritage System, they serve to support and connect the Natural Heritage System. These areas also provide locations for residents, employees and visitors to engage in recreation activities and enjoy nature. Components of the water resource system, including *ground water features*, *surface water features* (such as shorelines), Natural Heritage Features and *hydrologic functions*, contribute to the functioning of the entire Green System. The Urban Forest, comprising of trees on public and private properties in the city, also contributes to a healthy and sustainable city, and should be protected, enhanced, restored and expanded where possible.

The principal components of the Green System, as listed above, are part of a broader urban ecosystem that includes other *green infrastructure* (e.g., trees on boulevards, landscaping on private property) and should be viewed within the context of a single, interrelated system of green spaces.  As shown in Figure 4.3 these components are interconnected.

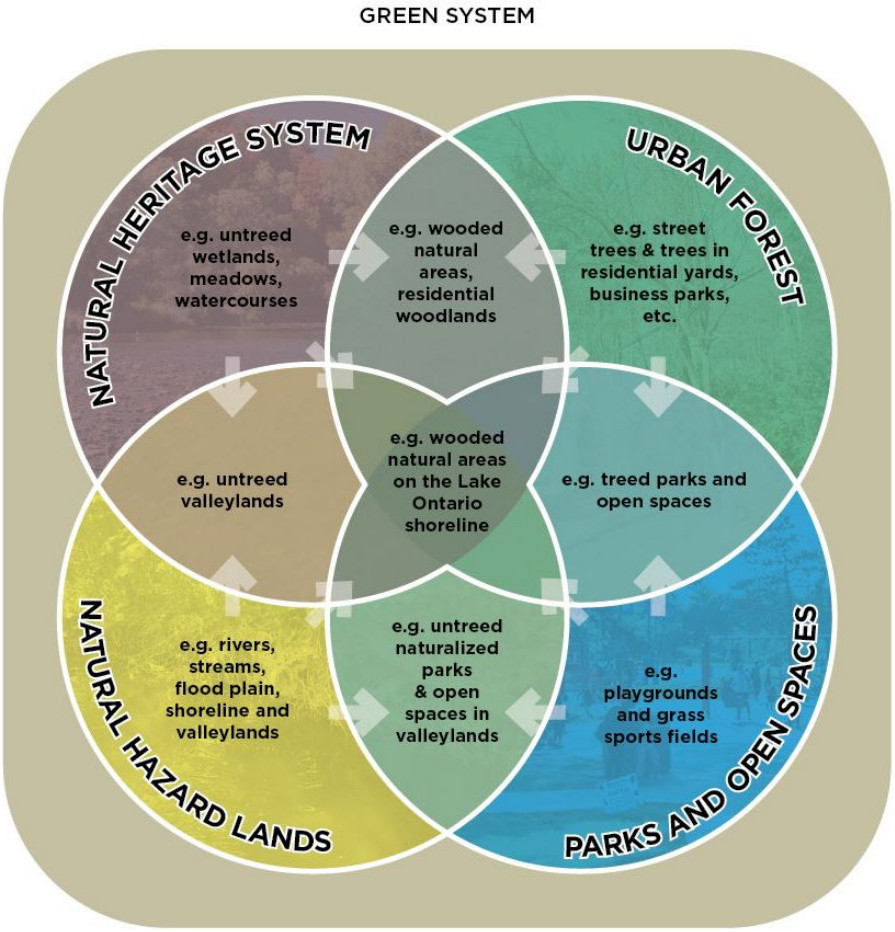



Figure 4.3. The Green System is classified into four categories: the Natural Heritage System, the Urban Forest, ***Natural Hazard Lands***, and Parks and Open Spaces. There is significant overlap between these categories and their components. (*c. City of Mississauga)*

Adopting a system approach to environmental protection and enhancement through the Green System allows the City to maintain and improve connectivity of Natural Heritage Features within an urban environment, in order to maximize their *ecological functions* and benefits.

As the city continues to urbanize, lands with trees and vegetation in parks, *valleylands* and landscaped green spaces, on both public and private property, are necessary for providing connections between Natural Heritage Features. This reduces the fragmentation of the natural landscape and contributing to hydrologic and *ecological functions*. Connections may be direct, as when a city park is situated between two features within the Natural Heritage System, or may be indirect by providing "stepping stones" that allow temporary refuge for species that are moving between features. The health and integrity of the Green System is important to the city's resilience. Features, urban trees and natural areas provide multiple functions such as rain water absorption, curbing heat island effects and carbon sequestration, which help the city better adapt to future severe weather events.

4.3.1.1 Mississauga will give priority to actions that identify, protect, enhance, restore and expand the Green System and its components and linkages in accordance with various city plans including *watershed* plans, ***sub-watershed*** plans, strategies, and ***Environmental Impact Studies*** or other required studies.

4.3.1.2 The City will prioritize the protection, restoration, expansion and enhancement of the Green System, throughout the planning approval process, as it is integral to protecting the city's Natural Heritage Features, particularly its role in supporting biodiversity and providing ecological linkages, functions and ecosystem services.

4.3.1.3 The City will work towards expanding, enhancing and restoring its Natural Heritage System and Urban Forest through the development process in order to meet targets set out in the city's plans and strategies.

4.3.1.4 The City will work with the conservation authorities to encourage the protection, restoration, enhancement, stewardship and management of lands within the conservation authorities' Natural Heritage Systems.

4.3.1.5 Mississauga will encourage naturalized landscaped areas using native, non-invasive species, as per the City's applicable plans, especially on lands within the Green System.

4.3.1.6 The City will, where feasible, consider opportunities to naturalize City owned lands, particularly where they abut or directly connect areas within the Natural Heritage System.

4.3.1.7 Buffers should be naturalized, planted and allowed to assume a self-sustaining state.

4.3.1.8 Buffers which are naturalized vegetated protection areas that provide a physical separation of development from the limits of Natural Heritage Features and ***Natural Hazard Lands***, will be provided to perform some of the following:

a. maintenance of slope stability and reduction of erosion on valley slopes;
b. attenuation of stormwater runoff;
c. reduction of human intrusion into Natural Heritage Features and allowance for predation habits of pets, such as cats and dogs;
d. protection of tree root zones to ensure survival of vegetation;
e. provision of a safety zone for tree fall next to *woodlands;*
f. enhancement of *woodland* interior and edge areas through native species plantings;
g. enhanced *wildlife habitat* and corridors for wildlife movement; and
h. provision of a naturally vegetated riparian buffer to maintain and improve *fish habitat*.

4.3.1.9 Generally, buffer widths will be at least 10 metres from the limits of the Natural Heritage Features and at least 30 metres from the limits of a provincially significant *wetland* or as per provincial requirements.

4.3.1.10 The appropriate buffer width may exceed the minimums required and will be determined on a site specific basis as part of an ***Environmental Impact Study*** or other similar study, to the satisfaction of the City and, if applicable, appropriate conservation authority.

4.3.1.11 Determining the appropriate buffer width must take into consideration the following criteria:

a. sensitivity and significance of the Natural Heritage Features and ***Natural Hazard Lands***;

b. sensitivity and significance of species utilizing the Natural Heritage Features and ***Natural Hazard Lands*** for important life cycle functions;

c. habitat requirements of species utilizing the Natural Heritage Features and ***Natural Hazard Lands***;

d. proposed land uses and risks of potential impacts to the Natural Heritage Features and ***Natural Hazard Lands***;

e. land use context (i.e., surrounding land uses and existing form);

f. Natural Heritage System targets set out in the city's plans and strategies;

g. provision of additional buffer width where passive recreation and/or other approved development is proposed within a buffer;

h. adhering to the City's Natural Heritage standards and tree protection requirements; and,

i. current best practices and science-based evidence to support recommended buffer widths.

## 4.3.2 Natural Heritage System

The Natural Heritage System is made up of *Natural Heritage Features and areas*, and linkages intended to provide connectivity and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of native species, and ecosystems. The Natural Heritage System includes natural areas (e.g., meadows, fish and *wildlife habitats*), *woodlands*, *wetlands* and valley and ***watercourse*** corridors. Lands within the Natural Heritage System perform an essential *ecological function*. They sustain biodiversity by providing habitat for plants and animals and they clean the air and water. The connectivity of the Natural Heritage System is important for maintaining native vegetation communities and providing corridors for urban wildlife. Preserving, enhancing and restoring these lands in their natural state is essential to the overall health and functioning of the natural environment, especially under the threat of climate change. Although some Natural Heritage Features are of higher quality than others, it is a fundamental premise that the loss of any portion of the system diminishes the entire system.

Figure 4.4. The *valleyland* corridor that runs along the Credit River is the largest continuous open space system within the City of Mississauga, providing recreational, environmental, social and economic benefits. *(c. City of Mississauga Staff)*

The location and extent of the Natural Heritage System is conceptually illustrated on Schedule 2: Natural System. Not all Natural Heritage Features are shown on Schedule 2. Additional features are identified through the development approval process, routine city related Natural Heritage work and through *watershed* planning.

4.3.2.1 Mississauga's Natural Heritage System is composed of the following:

a. ***Significant Natural Areas***;
b. ***Natural Green Spaces***;
c. Special Management Areas;
d. Residential *Woodland*s; and
e. Linkages.

4.3.2.2 Mississauga will have regard for the maintenance of the long term function and ecological integrity of the Natural Heritage System in all decisions regarding development and *site alteration*.

4.3.2.3 The exact limit of components of the Natural Heritage System will be determined through site specific studies such as an ***Environmental Impact Study***.

4.3.2.4 Minor refinements to the boundaries of the Natural Heritage System may occur through ***Environmental Impact Studies***, updates to the Natural Heritage System, or other appropriate studies accepted by the City without amendment to this Plan. Major boundary changes require an amendment to this Plan.

4.3.2.5 The Natural Heritage System and its associated buffers will be identified, protected, enhanced, restored and expanded to improve ecosystem and *watershed* health through the following measures:

a. ensuring that development in or adjacent to the Natural Heritage System protects and maintains Natural Heritage Features and their *ecological functions* through such means as appropriate buffers, tree preservation, appropriate location of building envelopes, grading, landscaping, and parking and amenity area locations;
b. placing those areas identified for protection, enhancement, restoration and expansion in public ownership, where feasible;
c. using native plant materials and non-invasive species, and reducing and/or eliminating existing invasive, non-native plant species to improve ecological value and the sustainability of indigenous vegetation, where appropriate;
d. using good forestry practices, and an ecosystem approach;
e. retaining areas in a natural condition and/or allowing them to regenerate to assume a natural state;
f. the promotion of stewardship within privately and publicly owned lands within the Natural Heritage System;
g. ensuring that development in or adjacent to the Natural Heritage System identifies areas for Natural Heritage System expansion and new or improved linkage;

h. controlling activities that may be incompatible with the retention of the Natural Heritage System and associated *ecological functions*; and

i. regulation of encroachment into the Natural Heritage System and other public open spaces.

4.3.2.6 The City will not support new lots created by land division or units or parcels of tied land (POTLs) created by condominium that will have the effect of extending into or fragmenting the ownership of ***Significant Natural Areas, Natural Green Space,***. Residential *Woodlands* and buffers, in the absence of a supporting ***Environmental Impact Study*** to the satisfaction of the City.

4.3.2.7 Notwithstanding the policies of this Plan, development and *site alteration* will not be permitted in the following areas:

a. provincially significant *wetlands* or provincially significant *coastal wetlands*;

b. *habitat of endangered species and threatened species*, except in accordance with provincial and federal requirements;

c. *fish habitat*, except in accordance with provincial and federal requirements; and

d. provincially significant *woodlands*, provincially significant *valleylands*, provincially significant *wildlife habitat*, provincially significant *areas of natural and scientific interest*, and *coastal wetlands* that are not provincially significant, unless it has been demonstrated that there will be no negative impacts on the natural features or their *ecological functions*.

4.3.2.8 Development and *site alteration* on lands adjacent to a provincially significant *wetland*, provincially significant *coastal wetland* and *habitat of endangered species and threatened species* or other ***Significant Natural Area*** will require an ***Environmental Impact Study***, demonstrating no *negative impact* to the Natural Heritage Features or on their *ecological function*, to the satisfaction of the City and the appropriate conservation authority.

4.3.2.9 Conservation, education, trails and nature appreciation activities may be allowed in provincially significant *wetlands* and provincially significant *coastal wetlands* subject to review and approval by the City and appropriate conservation authority.

4.3.2.10 Setbacks and buffers adjacent to *fish habitat* areas will be determined by an ***Environmental Impact Study***, which will conform to approved fisheries management plans.

4.3.2.11 Development and *site alteration* will not be permitted within or adjacent to ***Natural Green Spaces***, Linkages and Special Management Areas unless it has been demonstrated that there will be no *negative impacts* to the Natural Heritage Features and their *ecological functions* and opportunities for their protection, restoration, enhancement and expansion have been identified. This will be demonstrated through a study in accordance with the requirements of the *Environmental Assessment Act*. When not subject to the *Environmental Assessment Act*, an ***Environmental Impact Study*** will be required.

4.3.2.12 ***Environmental Impact Studies*** will delineate the area to be analyzed, describe existing physical conditions, identify environmental opportunities and constraints, and evaluate the ecological sensitivity of the area in relation to a proposal. It will also outline measures to protect, enhance, restore and expand the Natural Heritage System and associated *ecological functions*. ***Environmental Impact Studies*** will be prepared to the satisfaction of the City and, if applicable, the appropriate conservation authority.

4.3.2.13 The requirement for an ***Environmental Impact Study*** may be waived at the discretion of the City subject to the following:

a. where the impacts of the proposed development or *site alteration* are expected to be limited in area or scope;

b. it is determined through a site visit that development will not likely result in *negative impacts* on the Natural Heritage Feature or its *ecological functions*; and

c. where site specific studies fulfill the requirement of an ***Environmental Impact Study***.

4.3.2.14 The expansion and connection of the Natural Heritage System will be encouraged. Where appropriate, ***Significant Natural Areas***, ***Natural Green Spaces***, Residential *Woodlands*, Linkages, Special Management Areas and buffers will be incorporated with public parks and will be managed in accordance with Natural Heritage System policies.

4.3.2.15 In ***Significant Natural Areas*** and ***Natural Green Spaces***, recreation potential will be restricted to protect the Natural Heritage Feature and its *ecological function*. Formalized passive recreational uses such as trails may be permitted to minimize the impacts of uncontrolled public access.

4.3.2.16 Mississauga, in consultation with the appropriate conservation authority, will continue to improve the *ecological function* of ***watercourses*** and the Lake Ontario shoreline through means such as:

a. naturalization with native non-invasive plants;

b. establishment of buffer areas; and

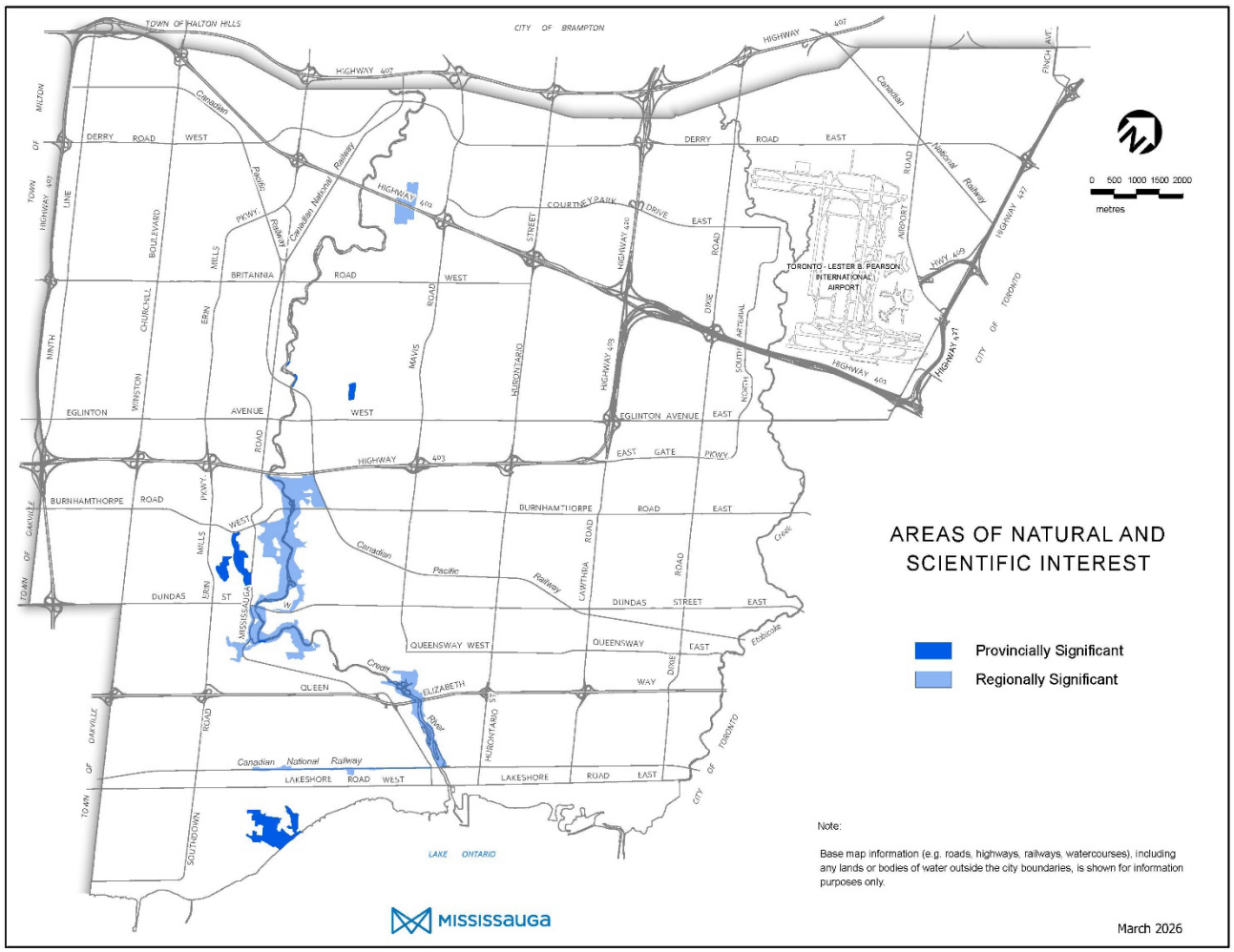
c. ***watercourse*** and shoreline restoration and protection, where appropriate.

4.3.2.17 Privately owned lands in the Natural Heritage System are not intended to be open to the public. Consideration will be given to public acquisition of these areas through the development approval process or through the City's land securement program.

### Significant Natural Areas

4.3.2.18 Lands identified as or meeting the criteria of a ***Significant Natural Area***, as well as their associated buffers will be designated Greenlands and zoned to ensure their long term protection. Uses will be limited to conservation, flood and/or erosion control, essential infrastructure and passive recreation. ***Significant Natural Areas*** include provincially or regionally significant *areas of natural and scientific interest* (ANSI) which are shown on Map 4-1.

4.3.2.19 Development and *site alteration* as permitted in accordance with the Greenlands designation as defined in this Plan, within or adjacent to a ***Significant Natural Area*** will not be permitted unless all reasonable alternatives have been considered and any *negative impacts* minimized. Any *negative impacts* that cannot be avoided will be mitigated through restoration and enhancement to the greatest extent possible. This will be demonstrated through a study in accordance with the requirements of the *Environmental Assessment Act*. When not subject to the *Environmental Assessment Act*, an ***Environmental Impact Study*** will be required.




Map 4-1: Areas of Natural and Scientific Interest (ANSI)

4.3.2.20 Significant *Woodlands* may exclude treed communities which are dominated by invasive non-native tree species such as Norway maple (Acer plantanoides) that threaten the ecological diversity of native communities, good forestry practices and environmental management. Such exceptions may be considered:

a. when supported by satisfactory site specific studies that demonstrate the degree of the threat posed, any potential positive and/or *negative impacts* on the *ecological functions* or biodiversity of nearby or adjacent native communities, and the projected natural succession of the community;

b. where native tree species comprise less than 10 percent of the tree crown cover and are represented by less than 100 stems of any size per hectare, as demonstrated through studies performed on the entire *woodland* and to the City's satisfaction;

c. when the *woodland* does not support other significant Natural Heritage Features; and

d. when the *woodland* cannot be restored to through good forestry practices and environmental management to address the concerns identified in 4.3.2.1.4.a to the City's satisfaction.

4.3.2.21 When determining the size of a *woodland*, areas of ***cultural savannahs*** and ***cultural woodlands*** that are confirmed to have significant ecological value that contributes to the integrity and function of the *woodland*, will be included for the purpose of determining *woodland* size and included as a ***Significant Natural Area***. This determination will be made through an ***Environmental Impact Study*** prepared to the satisfaction of the City.

4.3.2.22 *Woodlands* and other Natural Heritage Features that have been fully or partially changed, damaged or destroyed by natural causes or intentionally changed, damaged or destroyed without due process are still to be considered Natural Heritage Features and will be protected and treated as such. Such changes are considered temporary whereby the forest still retains its long term ecological value. These areas will not be subject to a boundary adjustment and will not be predesignated in this Plan.

### Natural Green Spaces and Special Management Areas

4.3.2.23 Special Management Areas are lands adjacent to or near ***Significant Natural Areas*** or ***Natural Green Spaces*** and will be managed or restored to enhance and support the ***Significant Natural Area*** or ***Natural Green Space***.

4.3.2.24 Where Special Management Areas are on private lands, the City will encourage landowners to promote stewardship and enhancement of their lands.

### Residential Woodlands

4.3.2.25 Residential *Woodlands* are areas, generally in older residential areas, with large lots that have mature trees forming a fairly continuous canopy and minimal native understorey due to the maintenance of lawns and landscaping. These are identified in residential areas that were historically developed within an existing *woodland*. Where *woodland* conditions remain, these areas would be subject to the *woodland* policies of this Plan.

Figure 4.5. Mature trees with large canopies line this residential area, contributing to the City's Natural Heritage System. *(c. Google Streetview)*

4.3.2.26 Lands within Residential *Woodlands* will be subject to Site Plan Control for types of development specified by the City's Site Plan Control By-law. Existing trees within these areas will be preserved, ensuring they will not be injured, damaged or destroyed to maintain the nature of these areas.

4.3.2.27 Development proposals and *site alteration* for lands within a Residential *Woodland* will protect, enhance, restore and expand the existing tree canopy and understorey. A site development plan is required to demonstrate how the following, among other matters, have been addressed:

a. Live and dead/damaged trees that pose no public hazards are not injured or removed, to the greatest extent possible;
b. root protection zones have been preserved and prioritized in the proposed development;
c. existing topography and drainage patterns have been maintained;
d. maintenance of a high proportion of permeable ground cover to facilitate ground water recharge;
e. habitat for migratory and breeding birds has been protected and enhanced;
f. habitat for urban wildlife has been protected and enhanced;
g. connections to other elements within the Green System have been protected, restored, and enhanced; and
h. naturalization is enhanced through native tree, shrub and herbaceous plantings.

4.3.2.28 Character Area policies may identify additional requirements to protect Residential *Woodlands*.

4.3.2.29 In order to preserve the form and function of the Residential *Woodlands*, which are part of the Natural Heritage System, the following applies:

a. replacement tree plantings for any trees removed must be accommodated on the same lot;

b. payment-in-lieu of tree planting is strongly discouraged; and

c. replacement for tree removals within a Residential *Woodland* feature will be based on an assessment of functions and impacts and determined by the city and may exceed the requirements under existing tree protection and preservation bylaws.

4.3.2.30 Notwithstanding the Natural Heritage System policies of this Plan concerning Residential *Woodlands*, sites characterized by trees that are generally in good condition as determined by the City, will be subject to a review of a tree preservation plan prior to consideration of proposed development.

### Linkages

4.3.2.31 Linkages are those areas that are necessary to maintain biodiversity and support *ecological functions* of ***Significant Natural Areas and Natural Green Spaces*** but do not fulfill the criteria of ***Significant Natural Areas***, ***Natural Green Spaces***, Special Management Areas or Residential *Woodlands*.

Figure 4.6. Part of the Nine Creeks Trail, a 9 kilometre east-west multi-use recreational trail that contributes to the greater connectivity network in Mississauga. *(c. City of Mississauga)*

4.3.2.32 Linkages will provide connections between and among other lands within the Green System, particularly the Natural Heritage System and Urban Forest.

4.3.2.33 The City will seek to enhance the connectivity of lands in the Green System by linking features in the Natural Heritage System through management initiatives on public lands and encouragement of stewardship on private lands.

4.3.2.34 The City will seek to maintain, restore and improve the diversity and connectivity of the Natural Heritage System and recognize the linkages between and among the Natural Heritage System, surface and *ground water features*.

4.3.2.35 The City, through the development approval process, will strive to identify, protect, restore, and enhance the health and integrity of the Natural Heritage System and its biodiversity, paying particular attention to opportunities to create new natural linkages between existing and future candidate components of the Natural Heritage System and between the Natural Heritage System and other areas of the Green System.

4.3.2.36 The City will encourage the creation of terrestrial east-west linkages and the use of *green infrastructure* and nature-based solutions within linkage areas, such as utility corridors, urban parks and other urban areas.

## 4.3.3 Urban Forest

The Urban Forest means all the trees in the city, including those within and outside of the Natural Heritage System, and on public and private lands, as well as the soils that sustain them.

Trees are a fundamental component of a healthy city and sustainable community. As such, trees are a valuable asset to the city and contribute to community pride and cultural heritage. The Urban Forest within Mississauga consists of over 2 million trees on both private and public property. This asset is especially important in helping the City mitigate climate change by reducing energy needs and removing carbon from the air while contributing to efforts to adapt to the changing climate.

4.3.3.1 Natural Heritage System policies are applicable to the Urban Forest. This includes policies regarding ***Significant Natural Areas, Natural Green Spaces***, Linkages, Special Management Areas and Residential *Woodlands* and all related policies.

4.3.3.2 The Urban Forest will be protected and managed with the goals of:

a. maintaining and increasing the city's canopy cover;

b. improving both species and structural diversity, as well as overall health;

c. being more evenly distributed across the city; and

d. monitoring the amount and quality of the tree canopy in the city.

4.3.3.3 Mississauga will protect, enhance, restore and expand the Urban Forest. This will be achieved by the following:

a. providing sustainable growing environments for trees by allocating adequate soil volumes and landscaped areas during the design of new development and infrastructure projects;

b. developing and implementing consistent standards for tree protection and planting across the city;

c. ensuring development and *site alteration* will not have *negative impacts* on the Urban Forest;

d. increasing tree canopy coverage and diversity, by planting trees appropriate to the location and avoiding the use of non-native tree and shrub species that are invasive;

e. regulating the injury and destruction of trees on public and private property;

f. promoting the management and enhancement of the Urban Forest on public and private property;

g. providing public education and encouraging stewardship;

h. providing strategic partnerships with regulatory agencies and others to address invasive non-native species and diseases and other management challenges;

i. developing policies and programs that require or promote measures to eliminate and/or manage non-native species; and

j. compliance with by-laws pertaining to tree preservation and protection.

4.3.3.4 The preservation of trees and *woodlands* on public and private property that serve to connect and enhance the overall Natural Heritage System and improve *wildlife habitat* will be encouraged.

4.3.3.5 Development and *site alteration* will demonstrate that there will be no *negative impacts* to the Urban Forest. An arborist report and tree inventory that demonstrates tree preservation and protection both pre and post construction, and where preservation of some trees is not feasible, identifies opportunities for replacement, will be prepared to the satisfaction of the City in compliance with the City's applicable by-laws.

4.3.3.6 Where tree replacement cannot be accommodated on-site, the City may require cash-in-lieu for replacement trees elsewhere or replacement plantings at a location approved by the City.

4.3.3.7 Mississauga may require ecologically based *woodland* management plans that reflect good forestry practices to be provided by a landowner prior to municipal acquisition.

4.3.3.8 Mississauga will promote and support tree planting and landscaping within Regional road rights-of-way.

## 4.3.4 Natural Hazard Lands

***Natural Hazard Lands*** are generally associated with ***valley and stream corridors***, unstable slopes, soils and bedrock and the Lake Ontario shoreline. These areas tend to be unsafe for development due to naturally occurring processes such as flooding and erosion, which have been significantly accelerated by climate change.

Significant *valleylands* and the valley and ***watercourses*** are also ***Significant Natural Areas*** and form part of the city's Natural Heritage System. ***Watercourse*** corridors and the Lake Ontario shoreline, including the physical hazards associated with these areas, are critical to the Natural Heritage System due to the *ecological functions*, including linkage function, that they provide. Of particular concern within valley and ***watercourse*** corridors is the preservation and enhancement of *fish habitat* as an indicator of a healthy environment and for leisure activity and tourism. Lands in southern Mississauga serve an important *ecological function* related to the migration of birds and butterflies.

Figure 4.7. Sawmill Creek is in need for rehabilitation, as erosion impacts the channel banks and woody debris, posing significant risks to the adjacent trail, sanitary sewer infrastructure and the environment. *(c. City of Mississauga)*

4.3.4.1 ***Natural Hazard Lands*** and buffers will be designated Greenlands and zoned to protect life and property. Uses will be limited to conservation, flood and/or erosion control, essential infrastructure and passive recreation.

4.3.4.2 Mississauga will consider and address the impacts of a changing climate in the management of risks associated with natural hazards.

4.3.4.3 Mississauga will encourage the naturalization as well as the use of low impact development and *green infrastructure* to reduce potential future flooding and erosion risks and cool and clean water.

### Lake Ontario Shoreline

The Lake Ontario shoreline is an integral component of the Green System and is a key provincial linkage due to the unique *ecological functions* and habitats it provides. It measures approximately 22 kilometres and is a part of the Natural Heritage System. Its waterfront is a major regional and local public destination.

To sustain the health of shoreline and *watershed* ecosystems, the local physical and *ecological functions* should be retained in an undisturbed state to the greatest extent possible and, where deemed appropriate, enhanced and restored. Effective natural hazards management and ecological conservation can only occur on a comprehensive shoreline or *watershed*/***sub-watershed*** basis.

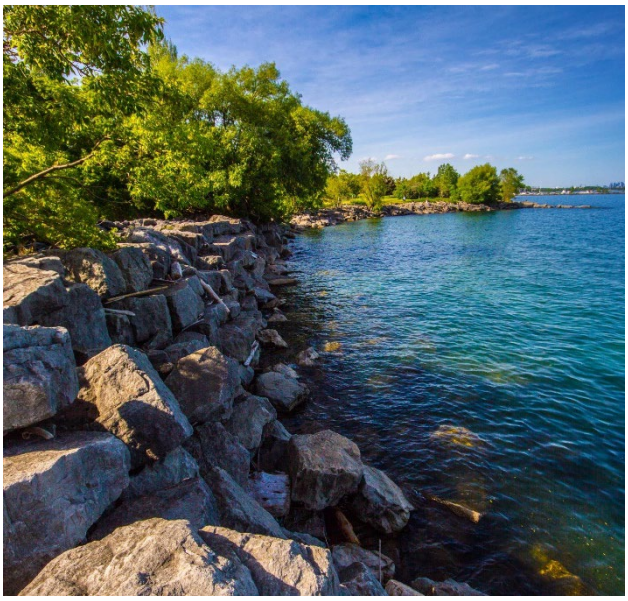


Figure 4.8. As an integral park of Mississauga's Green System, Lake Ontario's shoreline must be retained, enhanced and restored. *(c. Jojo Santa Ana Photography, 2018)*

4.3.4.4 Where modifications to the existing Lake Ontario shoreline occur, they should contribute to its restoration, the healthy functioning of coastal processes, and include opportunities for the creation and enhancement of aquatic and other *wildlife habitat*, where appropriate.

4.3.4.5 Development and *site alteration*s along the Lake Ontario shoreline will be evaluated in the context of their potential impact on the overall physical and *ecological functions* occurring within the defined shoreline or *watershed* management area.

4.3.4.6 Mississauga will encourage the health and integrity of the Lake Ontario shoreline be protected, enhanced and, where possible, restored through development. Any mitigative measures to address natural hazards associated with the Lake Ontario shoreline will protect and enhance *ecological functions*.

4.3.4.7 Development and *site alteration* will not be permitted within Hazardous Lands adjacent to the Lake Ontario shoreline, which are impacted by *flooding hazards*, *erosion hazards* and/or *dynamic beach hazards*, unless it meets the requirements of the appropriate conservation authority and the policies of the City.

4.3.4.8 Development proposals may be required to protect, enhance, restore and expand Natural Heritage Features including their *ecological functions*, along the Lake Ontario shoreline.

4.3.4.9 As a condition of development approval, lands adjacent to the Lake Ontario shoreline may be placed in public ownership for their long term protection. Prior to placing lands in public ownership, the applicant will be required to determine what shoreline protection works are required, if any, and will be required to install such works to the satisfaction of the City, the appropriate conservation authority and other public agencies that have jurisdiction over the Lake Ontario shoreline.

4.3.4.10 Development and *site alteration* must comply with the City's Erosion and Sediment Control By-law to the satisfaction of the City and appropriate conservation authority, where applicable.

4.3.4.11 An Erosion and Sediment Control Study may be required for development and *site alteration*, where appropriate.

4.3.4.12 Future development in waterfront communities will have regard for the Mississauga Waterfront Parks Strategy, a comprehensive long term plan to manage the future development of the City's waterfront parks.

4.3.4.13 To ensure that the waterfront continues to remain a viable natural asset for present and future generations, Mississauga will:

a. continue to pursue the acquisition of physical and visual public access to the waterfront having regard for the function of the Natural Heritage System and the risks posed by potential natural hazards;
b. permit and promote a range of uses that recognize the waterfront as a focus for recreation, tourism and economic development activities while having regard for the natural hazards and natural environment associated with these areas; and
c. ensure that the design and programming of natural areas along the waterfront recognize the spatial needs of wildlife and local species.

Figure 4.9. Activating the waterfront to promote public use and contribute to the larger open space system *(c. Credit Valley Conservation).*

### Valleylands

*Valleylands* are shaped and reshaped by natural processes such as flooding and erosion. In general, *erosion hazards* associated with *valleylands* include consideration for slope stability and ***watercourse*** erosion, which are also interrelated with the *flooding hazard*. The degree and frequency with which the physical change occurs in these systems depends on many factors such as extent and type of vegetation present, soil/bedrock type, and the characteristics of the erosion and *flooding hazards* present. Climate change related severe weather events have significantly accelerated the rate and degree of physical changes along *valleylands*.

Development adjacent to *valleylands* and ***watercourse*** features must incorporate measures to ensure public health and safety; protection of life and property; as well as enhancements protection, enhancement, restoration and expansion of the Natural Heritage System.

4.3.4.14 Development and *site alteration* will not be permitted within *erosion hazards* associated with *valleyland* and ***watercourse*** features. In addition, development and *site alteration* must provide appropriate buffer to *erosion hazards*, as established to the satisfaction of the City and appropriate conservation authority.

4.3.4.15 Development adjacent to *valleyland* and ***watercourse*** features may be required to be supported by detailed slope stability and stream erosion studies and assessments that define ***natural hazard*** limits, where appropriate and to the satisfaction of the City and the applicable conservation authority.

4.3.4.16 Development on lands containing a ***watercourse*** system will be subject to the recommendations of the applicable erosion rehabilitation study where one has been established for that *watershed*. Where no such recommendations or studies are in place,

it will be demonstrated by the proponents of development that the ***watercourse*** is stable, either with or without the installation of erosion protection works, to the satisfaction of the City and the appropriate conservation authority.

4.3.4.17 *Urban agriculture* may be permitted within the Green System where demonstrated that there will be no *negative impact* on Natural Heritage and Hazard Features, and *ecological function* in accordance with the policies of this Plan, and to the satisfaction of the City and the appropriate conservation authority.

### Urban River Valley

Under the Greenbelt Plan, the Urban River Valley designation provides protection for publicly owned lands that form important river valley linkages and corridors in an urban context between the Protected Countryside of the Greenbelt and Lake Ontario.

4.3.4.18 Urban River Valley designated public lands are shown on Schedule 2: Natural System and are subject to the policies and objectives of the Urban River Valley designation under the Greenbelt Plan and the policies of this Plan.

4.3.4.19 In recognition of municipal trans-boundary ***watercourses*** such as the Credit River and Etobicoke Creek, which are identified in the Greenbelt Plan as Urban River Valleys, as well as other ***watercourses***, emphasis will be placed on partnerships among municipalities and conservation authorities to improve the ecosystem health of the ***watercourse*** corridors. Stewardship of these systems should improve their ability to function as connections to Lake Ontario.

4.3.4.20 Within Urban River Valley lands, the City will permit existing, expanded or new infrastructure that is subject to, and approved under the *Environmental Assessment Act*, or which receives a similar approval, if it supports the needs of the city's projected growth, economic development and Natural Heritage System policies, and conforms with the Urban River policies of the Greenbelt Plan.

### Flood plain

Lands subject to flooding are a danger to life and property and, as such, development is generally prohibited. However, it is recognized that some historic development has occurred within *flood plains* and may be subject to special *flood plain* policy consideration.

4.3.4.21 Development in *flood plains* will be subject to the one-zone concept, except where a *special policy area* or two-zone *flood plain* management concept has been approved. The designation of a *Special Policy Area*, and any change or modification to the official plan policies, land use designations or boundaries applying to *Special Policy Area* lands, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources prior to the approval authority approving such changes or modifications.

4.3.4.22 Development and *site alteration* is generally prohibited on lands subject to flooding.

4.3.4.23 Where historic development has occurred in the *flood plain*, minor works may be permitted subject to detailed studies to the satisfaction of the City and appropriate conservation authority.

4.3.4.24 The construction of buildings or structures permitted in or adjacent to the *flood plain* will be protected to the elevation of the Regulatory Flood and will not impact upstream or downstream properties. Additional flood protection and mitigation measures to be implemented relative to individual development applications will be determined by the City and the appropriate conservation authority.

4.3.4.25 Safe access for development adjacent to or within the *flood plain* will be subject to appropriate conservation authority policies and the policies of the City.

## 4.3.5 Parks and Open Spaces

Parks and Open Spaces have primary uses that include recreational, educational, cultural and utility services. These lands contain a significant amount of open space such as landscaped areas, lawns and sports fields. These areas have the potential to be managed in a manner that supports and enhances the Natural Heritage System, particularly by providing linkages between Natural Heritage Features and opportunities for Natural Heritage System expansion.

Figure 4.10. The Waterfront Trail along Lake Ontario runs through many of the City's waterfront parks. *(c. City of Mississauga)*

Parks and Open Spaces within the Green System include:

a. Public Open Space;
b. Private Open Space;
c. Parkway Belt West;
d. Educational Facilities; and
e. Utilities.

The city has an extensive system of parks within Open Spaces. Many of these parks are in Neighbourhoods and were acquired as residential areas were developed. As the city continues to grow and mature, it will be important to prioritize development and provision of parks in Open Spaces that support the protection, enhancement and expansion of the Natural Heritage System through out the City - particularly within *Strategic Growth Areas*.

In addition to parks, Open Spaces includes such uses as golf courses, cemeteries, private open space, and lands associated with community centres, public schools and utility corridors.

4.3.5.1 Mississauga will value and manage parkland and Open Spaces in a manner that protects and enhances the natural environment.

4.3.5.2 Mississauga will own, lease, operate, maintain and administer public parks and facilities to meet the recreational, cultural, educational and social needs of residents.

4.3.5.3 Public parks will be designed to allow equitable access for a variety of complementary activities through interconnections of pathways, a multi-use recreational trail and the public parkland network; and to provide a safe and accessible environment through development of clear sightlines, openness and visible entrances that can be achieved by maximizing street frontages, where possible.

4.3.5.4 City owned playgrounds will be unimpeded by major pedestrian barriers and should generally be provided within 800 metres of residential areas and or 400 metres within *Strategic Growth Areas*, or as determined to be appropriate by the City to provide for a balanced distribution of amenities.

4.3.5.5 The minimum parkland provision standard will be equivalent to:

a. 12 percent of the total area for the Downtown Core, all Growth Centres, and the Central Erin Mills and Lakeview Waterfront Growth Nodes; or

b. 1.2 hectares per 1,000 people in all other Growth Nodes and Neighbourhood Character Areas within the City.

4.3.5.6 A destination park containing major recreational and sport facilities that serve an area greater than Mississauga may be established.

4.3.5.7 The provision of parks and recreational facilities within parks will be responsive to identifiable needs and in general conformity with the city's applicable guidelines and Plans.

4.3.5.8 Destination parks should provide a higher level of accessibility to persons with disabilities.

4.3.5.9 In addition to the parkland identified in Schedule 7: Land Use Designations, additional public parkland may be acquired through the processing of development applications or through purchase.

4.3.5.10 Land conveyed to Mississauga for use as public parks and/or Greenlands will be in a condition that is acceptable to the City.

4.3.5.11 Mississauga will negotiate with the appropriate authorities for the use of rights-of-way to accommodate public open space uses.

4.3.5.12 Parks may incorporate components of the Natural Heritage System to provide opportunities for enjoyment, appreciation and protection of nature.

Figure 4.11. Jaycee Park is a barrier free, accessible playground inspired by the architectural forms found within Downtown Mississauga. *(c. City of Mississauga)*

4.3.5.13 Natural areas acquired by Mississauga will be designated in accordance with the policies of this Plan. Recreational activities will be restricted to protect the ecological viability of these areas.

4.3.5.14 Where Public Open Space contains or abuts the Natural Heritage System, the policies for the Natural Heritage System will apply.

4.3.5.15 The potential for Public Open Space areas to expand or connect the Natural Heritage System will be encouraged to ensure that sensitive areas, particularly *woodlands*, are maintained and enhanced.

4.3.5.16 Stormwater retention and stormwater quality ponds are generally not appropriate primary uses for public parks.

4.3.5.17 Wherever possible, significant treed areas throughout Mississauga will be incorporated into the Public Open Space network. Where appropriate, these areas will be retained in a natural condition or be permitted to regenerate to assume a natural state. Active recreation will be restricted to lands that have been specifically acquired and developed for such purposes.

4.3.5.18 Mississauga recognizes the Lake Ontario waterfront as a vibrant area of lake dependent and lake enhanced activities, with natural habitat areas protected, enhanced and restored and heritage resources incorporated. Through land acquisition, capital works and the review of proposals, Mississauga will endeavour to ensure this vision is realized.

4.3.5.19 Mississauga will encourage open space landowners to employ ***stormwater best management practices*** and planting of native non-invasive species.

4.3.5.20 Cemeteries will be permitted in Public Open Space and Private Open Space designations and will be subject to the following:

a. as cemeteries constitute an open space use, consideration will be given to using public cemeteries for passive open space purposes. However, cemeteries that are privately owned are not intended to be open to the public;
b. cemeteries and related facilities will be located to minimize conflict with existing and future land use and transportation; and
c. cemeteries will recognize, reflect and integrate all natural and cultural heritage resources within and/or adjacent to cemetery property.

4.3.5.21 Where lands are designated Private Open Space, it is not intended that they be free and open to the general public nor that they will be necessarily acquired by the City or any other public agency. Consideration will be given however, to public acquisition of these lands through the development approval process or through the City's land securement program.

4.3.5.22 The development of private parks may be permitted subject to the following conditions being met:

a. adequate access;

b. compatibility with adjacent uses;

c. protection, enhancement and restoration of the Natural Heritage System; and

d. an approved site plan, where applicable.

### 4.3.6 Wildland Fire Hazards

Wildland fires are generally associated with areas where hazardous forest types grow. These forest types have been found to be associated with the risk of high to extreme wildland fire using risk assessment tools established by the provincial government.

4.3.6.1 The City, in consultation with the appropriate public bodies, will generally direct development away from wildland fire lands that are unsafe for development due to the presence of hazardous forest types for wildland fire unless the risk is mitigated in accordance with wildland fire assessment and mitigation standards, and provincial objectives and policies.

## 4.4 Urban Agriculture

The agricultural system is comprised of a group of inter-connected elements that collectively create a viable, thriving agri-food sector. The *agri-food network* is a component of the agricultural system that includes elements important to the viability of the agri-food sector such as regional infrastructure and transportation networks; agricultural operations including primary processing; agricultural services, farm markets, and distributors; and vibrant, agriculture-supportive communities. This includes providing opportunities for *urban agriculture* within the City.

Figure 4.12. The Parkway Green Generation Garden at Central Parkway East and Rathburn Road East fosters community while providing safe, affordable and sustainable food. *(c. City of Mississauga)*

*Urban agriculture* connects with many pressing issues of our time. These issues include food insecurity, loss of biodiversity and pollinators, threats to public health, inequality and climate change. While growing food in the city is only one of many solutions to these issues, it remains one of the most accessible and creative actions individuals can undertake. Mississauga supports a variety of urban agricultural practices that allow access to freshly grown local produce, supports the surrounding agricultural community, enhances local food security, reduces the energy costs associated with transporting food great distances and achieves a more resilient community and contributes to the *agri-food network*. *Urban agriculture* means food production in *settlement areas*, whether it is for personal consumption, commercial sale, education, or therapy.

4.4.1 Mississauga supports urban agricultural practices that include, but are not limited to, the following:

a. urban gardening;

b. ***community gardening***;

c. the creation of rooftop gardens;

d. vertical agricultural activities; and

e. greenhouses urban farms.

4.4.2 Farmers' markets will be encouraged particularly in *Strategic Growth Areas*.

4.4.3 Mississauga will support small scale urban farm opportunities to aid in mitigating and adapting to the effects of climate change and to provide food security, build a greater sense of community, and foster positive health and wellbeing.

## 4.5 Water

Mississauga has access to rich ground and surface water resources which include Lake Ontario as well as a number of features and areas such as aquifers, ***ground water recharge*** and discharge areas, springs, rivers, streams, ponds, *wetlands,* lakes, and stormwater. These resources face increasing pressures from higher land use intensities and climate change threats. It is, therefore, imperative to conserve water and to protect the quantity and quality of surface and ground water resources.

Figure 4.13. The Saigon Park stormwater management pond helps reduce the risk of flooding in the area and protects the water quality. *(c. City of Mississauga)*

### 4.5.1 Lake Ontario

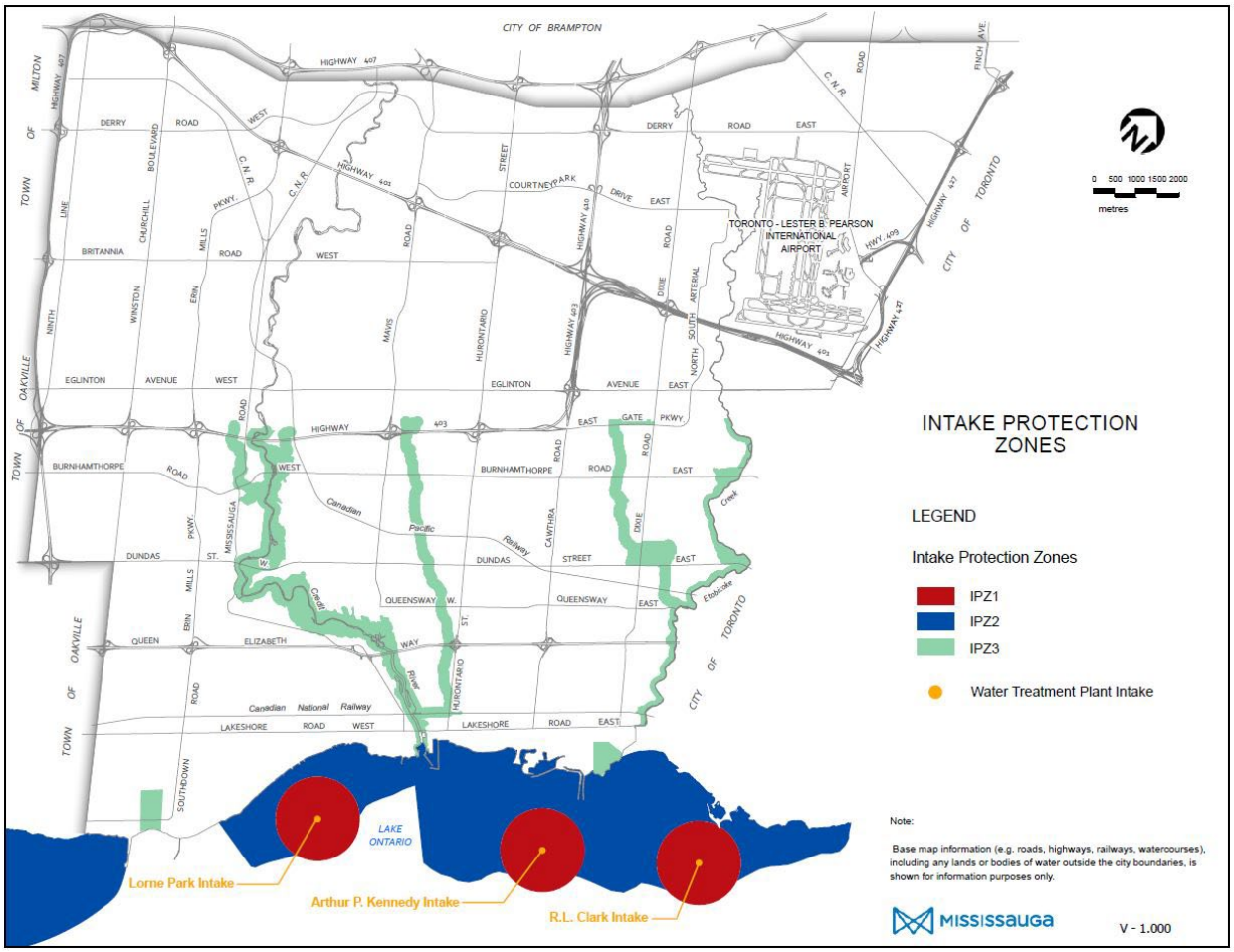
The Great Lakes are a treasure which contain nearly 20 percent of the earth's fresh surface water, with Lake Ontario being a component of the Great Lakes system. Lake Ontario is an important economic resource that provides access to ocean shipping and supports an important freshwater fishery.

Lake Ontario is a source of drinking water for the City of Mississauga and the creeks, streams and rivers within the City eventually reach the Lake. The health of these water sources has an impact on the Lake. It is important that land and water resource initiatives are complemented by initiatives to sustain and create *fish habitat* and *wildlife habitat* along the Lake Ontario Waterfront and contribute to the overall health of the Lake.

4.5.1.1 Mississauga will participate in international, national, and inter regional initiatives, including the implementation of *Ontario's Great Lakes Strategy and Great Lakes Protection Act*, and the preparation and implementation of initiatives to protect, improve and restore the aquatic ecosystem of Lake Ontario and its associated shoreline.

4.5.1.2 Mississauga, in collaboration with the conservation authorities and appropriate agencies, develop and integrate an Integrated Shoreline Management Plan for Lake Ontario and its shoreline and associated hazards.

4.5.1.3 Mississauga will protect, improve and restore the quantity and quality of water resources and municipal surface water intake zones, as identified on Map 4-2 and as defined in the applicable Source Protection Plan, for the supply of potable water and maintenance of ecological integrity in the City.




Map 4-2: Intake Protection Zones in Mississauga

## 4.5.2 Water Resource System

Mississauga is part of a complex and rich Water Resource System comprised of ground and *surface water features* and areas. Ground water resources include ***ground water recharge*** and discharge areas, seepage areas, water tables and highly vulnerable aquifers. Surface water resources include springs, rivers, streams, ponds, *wetlands*, inland lakes, shoreline and stormwater. Some of the Water Resource System features and areas are shown on Schedule 2: Natural System. Additional Water Resource System features mapping is available through the Ministry of Natural Resources (MNR).

The system approach to protecting and enhancing ground and *surface water features* and areas provides a consistent framework for water protection. This framework builds on policies and plans which include source protection plans developed under the *Clean Water Act*. It allows a better understanding and consideration of the connections that exist between water features and areas both above and under ground and the importance of their *hydrologic functions*.

4.5.2.1 Mississauga will work jointly with conservation authorities to implement the applicable recommendations and targets of the Great Lakes Strategy, the *Great Lakes Protection Act* and applicable Source Water Protection Plans as well as coastal or waterfront planning initiatives.

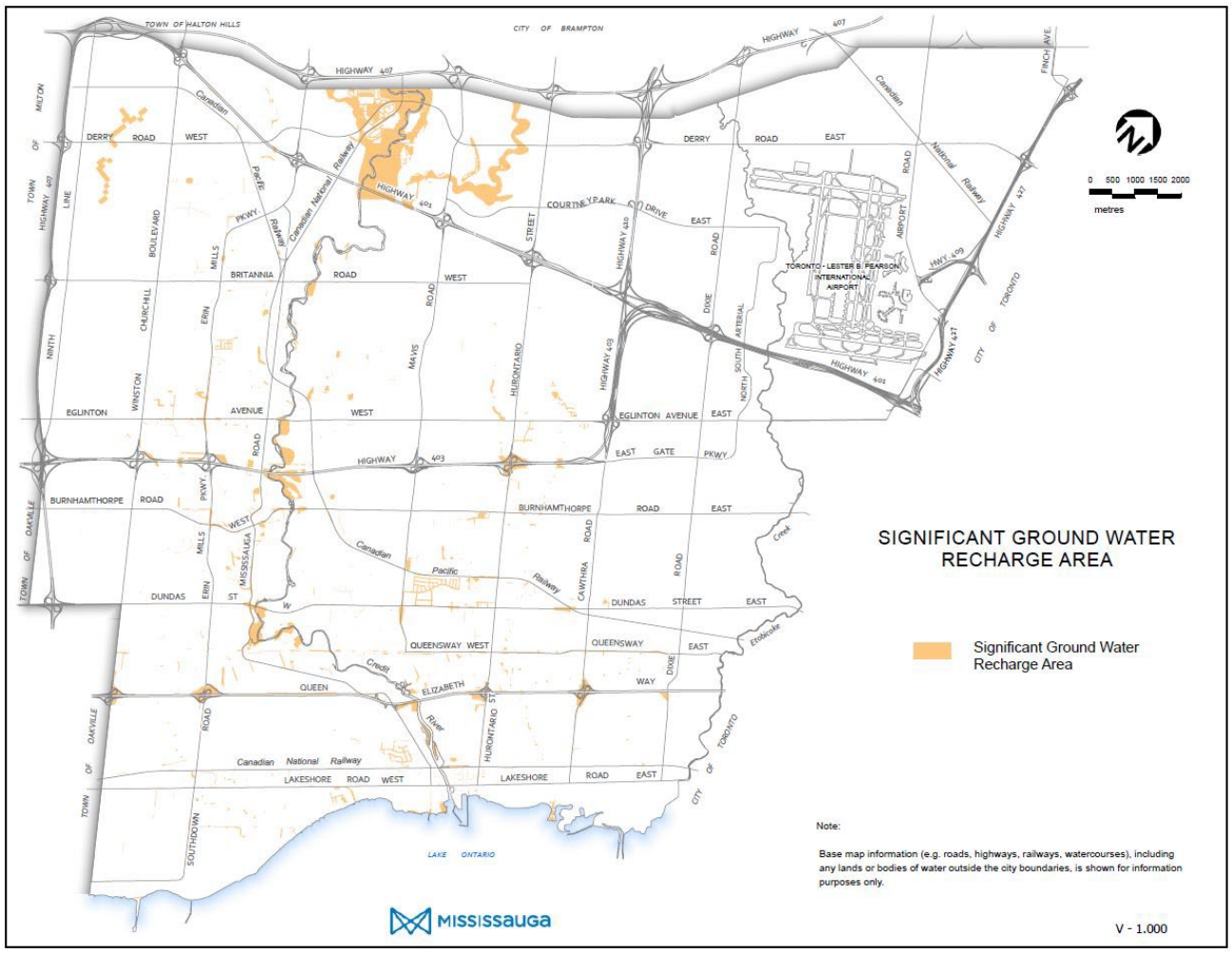
4.5.2.2 Mississauga will work jointly with conservation authorities and the Region of Peel as required to prepare *watershed*, ***sub-watershed*** and other equivalent plans. These plans will ensure the protection, enhancement and restoration of the *quality and quantity of water* and will inform planning for infrastructure.

4.5.2.3 Development will be subject to the recommendations of *watershed* and ***sub-watershed*** studies, where applicable, to assess potential *negative impacts* on vulnerable surface and *ground water features* and their *hydrological functions*.

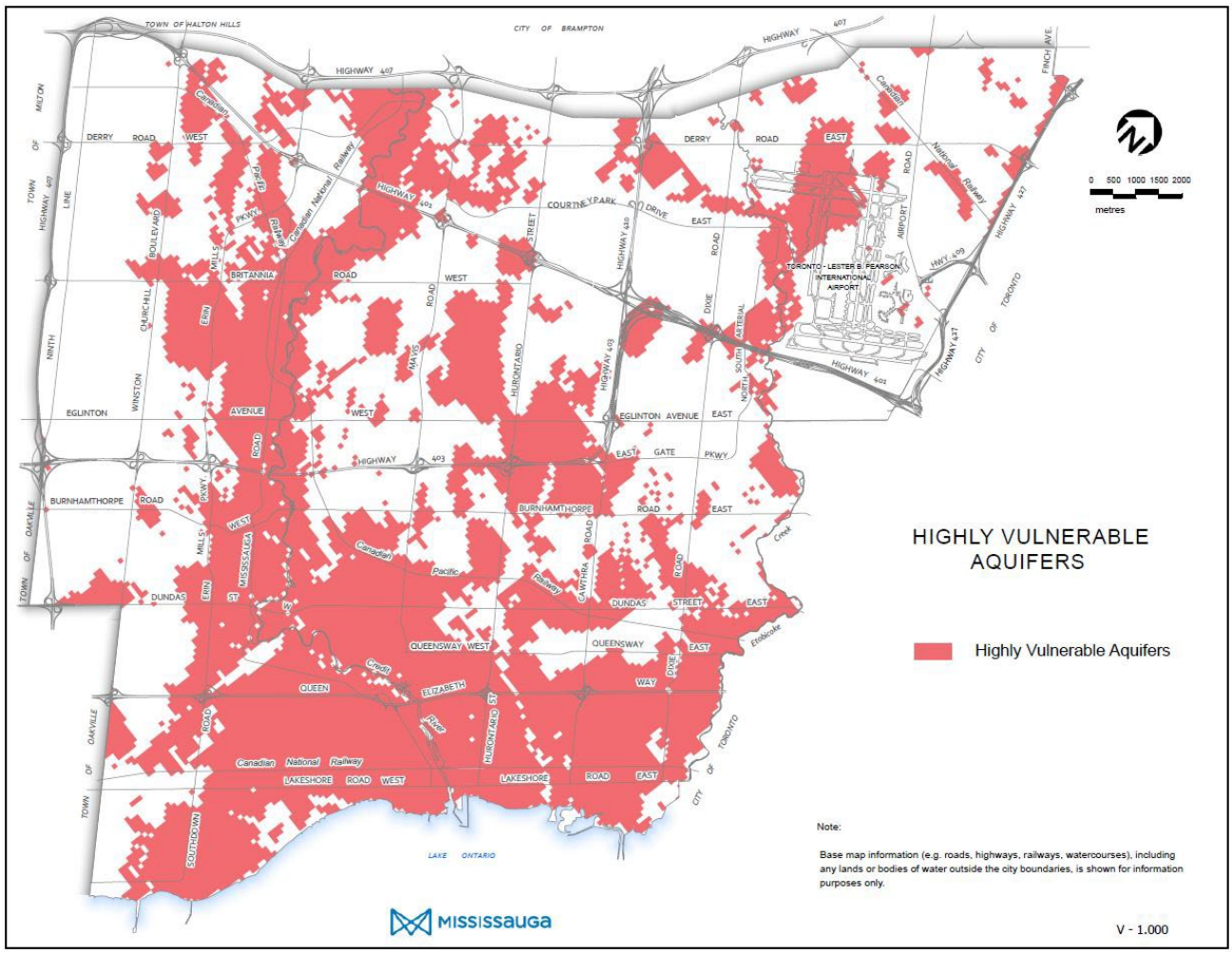
4.5.2.4 Proposals for development and *site alteration* will incorporate appropriate restrictions to protect municipal drinking water supplies, and designated vulnerable areas, and to protect, improve and restore vulnerable surface and ground water, *sensitive surface water features*, *sensitive ground water features*, key hydrologic features and key hydrologic areas, and their functions.

4.5.2.5 Proposals for development and *site alteration* in or adjacent to *sensitive* surface water and *ground water features* will not be permitted unless satisfactory mitigation measures are provided to protect, improve and restore *sensitive surface water features*, *sensitive ground water features*, and their *hydrologic functions*.

4.5.2.6 Development or *site alteration* proposed within a significant ***ground water recharge area*** or highly vulnerable aquifer, as identified on Maps 4-3 and 4-4, may require the provision of a hydrogeological assessment to demonstrate that the *quality and quantity of water* will be protected, improved, and restored.




Map 4-3: Significant ***Ground Water Recharge*** Areas in Mississauga




Map 4-4: Highly Vulnerable Aquifers in Mississauga

## 4.5.3 Water Conservation

Water conservation measures will ensure present and future generations have access to a safe and abundant water supply, which will sustain life and ensure economic prosperity.

4.5.3.1 Mississauga will work with the conservation authorities to protect, improve or restore the *quality and quantity of water* by evaluating, where applicable, the impact of development on the City's Water Resource System at the *watershed* level.

4.5.3.2 Water conservation measures will be implemented in development including the use of low impact development and *green infrastructure* to reduce water demand from natural resources and protect natural areas associated with these resources.

4.5.3.3 A water conservation plan or an equivalent assessment will be required for development and *site alteration* proposing a large use of municipally treated and supplied water or having an immediate or cumulative impact on water resources. The Plan will consider alternatives to the use of water and evaluate mitigation measures to reduce the use of water, where technically feasible.

## 4.5.4 Stormwater and Drainage

Stormwater refers to rainwater and melted snow that flows over land, roads, parking lots, lawns and other sites. The effective management of stormwater is vital in protecting life, property, infrastructure and the natural environment. This is increasingly important as climate change threats such as more frequent and intense storms and flooding events are expected to increase rainwater runoff and overwhelm existing infrastructure.

Figure 4.14. The bioswales along Mississauga Road represent the ongoing *green infrastructure* initiatives within the City. *(c. City of Mississauga)*

The safe conveyance of storm flows, minimization of flood risks, enhancement of water quality, reduction of erosion and improvement of natural features and aquatic life and habitat will be a priority. Efforts will be made to preserve the natural hydrologic cycle using ***stormwater best management practices*** and *green infrastructure*. Stormwater management facilities may be part of the Green System.

4.5.4.1 Mississauga will recognize stormwater as a resource and will plan and manage stormwater and ground water in a manner that protects, improves or restores the health and quality of water resources, minimizes flooding and erosion, and considers the risks and impacts of climate change.

4.5.4.2 Mississauga will work jointly with conservation authorities to develop, where necessary, stormwater and drainage master plans that are informed by *watershed* planning and that rely on ***stormwater best management practices***.

4.5.4.3 Mississauga will approach the management of stormwater by encouraging and supporting measures and activities that reduce stormwater runoff peak flow and volume, improve water quality, promote evapotranspiration and infiltration, and reduce erosion using ***stormwater best management practices*** and *green infrastructure*.

4.5.4.4 Mississauga will require that development applications be supported by ***stormwater best management practices*** in accordance with relevant and contemporary plans, studies, development standards and policies. Additional measures may be specified by the City based on known concerns related to storm sewer capacity, pollution prevention, ground water quality and/or quantity, flood risk and erosion, and protection of the city's Natural Heritage and Water Resource Systems, including its

*ecological function*. ***Stormwater best management practices*** must be approved by the city, appropriate conservation authority and provincial government, where applicable.

4.5.4.5 Mississauga will encourage lot-level stormwater controls in areas adjacent to key hydrologic features and key Natural Heritage Features.

4.5.4.6 The location and design of ***surface drainage*** and stormwater management facilities will respect the Natural Heritage System and will include naturalization to the satisfaction of the City and the appropriate conservation authority.

4.5.4.7 ***Surface drainage*** and stormwater management facilities will be installed for the safety of residents and to protect infrastructure and property.

4.5.4.8 The design of storm drainage and stormwater management facilities will consider interim and ultimate development conditions.

4.5.4.9 The design of stormwater management facilities and ***surface drainage facilities*** must conform to City standards, policies and guidelines. A buffer may be required as determined by the City.

4.5.4.10 At-source controls should be provided to reduce the need for new stormwater infrastructure. All efforts to this effect should be guided by the appropriate environmental agencies, according to all provincial government and municipal policies, guidelines and regulations.

4.5.4.11 Protective measures should be developed and implemented, in consultation with the appropriate conservation authority and provincial government, for significant ***ground water recharge*** and discharge areas, where appropriate.

4.5.4.12 The design of storm drainage and stormwater management facilities will enhance the natural and visual landscape and *ecological functions* and provide recreational opportunities, if appropriate.

4.5.4.13 The City will ensure that stormwater drainage from Regional roads is considered and comprehensively managed during the development of stormwater management plans for new development or redevelopment.

4.5.4.14 The City will discourage the use of Regional road rights-of-way to accommodate drainage from development or *site alteration* on adjacent lands.

4.5.4.15 The City will only allow the use of Regional road rights-of-way to convey stormwater when it is demonstrated by the proponent that directing the flow of drainage into the City's municipal storm sewer system is not feasible and the stormwater run-off from a proposed development or *site alteration* will not negatively impact the performance of the Regional road drainage system, to the satisfaction of the City and other approval authorities.

## 4.6 Air Quality

Clean air is critical to human and environmental health. One of the most effective strategies to improve air quality is to encourage and achieve *complete communities* with a compact urban form, including alternative modes of transportation such as walking, cycling and transit and ensuring the compatibility of land uses. It is equally important to protect, enhance and restore the Natural Heritage System and Urban Forest, which all assist in capturing carbon emissions, reducing the heat island effect and providing overall air quality benefits.

4.6.1 To improve air quality, Mississauga will:

i. promote the use of alternative modes of transportation such as transit, cycling, walking and electric vehicles;

ii. prioritize compact, mixed use and transit oriented development that reduces car dependency;

iii. direct growth to *Strategic Growth Areas*;

iv. protect, enhance, restore and expand the Natural Heritage System and the Water Resource System;

v. encourage a balance of housing and jobs that provide opportunities for shorter commutes and *active transportation* modes;

vi. promote the use of the City's green building and development standards;

vii. promote retrofitting or electrification of indoor heating and cooling equipment for improved air quality and energy efficiency; and

viii. promote zero emission vehicles and equipment.

4.6.2 Mississauga will promote building and site design that improves indoor air quality, minimizes vehicular idling, energy consumption and maximizes the use of ***renewable energy*** and vegetative cover.

4.6.3 Appropriate techniques to mitigate odour and dust should be incorporated in development.

4.6.4 When determining land use compatibility, regard will be given to odours, air particulates, noise and other contaminants, which may impact adjacent or nearby land uses and natural areas, as outlined in applicable provincial compatibility guidelines. Incompatible land uses such as *sensitive land uses* and those uses that are sources of noise, odour and dust will be separated and/or the nuisances will be mitigated, so they do not interfere with each other.

4.6.5 Development proposals for a ***crematorium*** may be considered subject to the following:

i. air, noise, dust, odour and other fugitive emissions will be appropriately mitigated at the source in accordance with provincial requirements;

ii. permitted land uses which may be subject to *adverse effects* arising from the proposed ***crematorium*** use are not located within the area of influence of the proposed ***crematorium*** as determined by appropriate studies acceptable to the City;

iii. there is no impact to the permitted land uses, planned function or viability of the surrounding lands;

iv. the proposed ***crematorium*** is not located within a multi-unit building;

v. the scattering or interment of human remains is not permitted, except in cemeteries;

vi. the development is appropriately screened from adjacent uses and the public realm; and

vii. the site is appropriately buffered and landscaped.

## 4.7 Soil

Soil is vulnerable to erosion by wind and water, particularly during the construction process. Erosion affects human and environmental health especially water resources by reducing water quality and the condition of aquatic habitat through siltation. Reduced water quality in rivers, creeks and Lake Ontario also affects recreational opportunities such as fishing. Erosion can also damage vegetation by exposing roots, which assist in stabilizing soils. Loss of vegetation compromises the Natural Heritage System and Urban Forest. Eroded soils compromise the functionality of key infrastructure such as sewers and ditches, thereby increasing the frequency and severity of flooding. In addition, soil erosion, due to wind, causes dust and particulate matter, which affects human health.

Appropriate measures associated with development must be taken to safeguard public safety, protect property, enhance recreational opportunities and prevent damage to the environment due to erosion.

4.7.1 Proponents of development and *site alteration* will ensure there are no risks to life, safety, health, property and ecosystem health associated with soil erosion.

4.7.2 Proposals for development and *site alteration* will incorporate appropriate buffers adjacent to ***watercourses***, as per the policies of this Plan, natural areas and parks to protect against soil erosion and sediment impacts.

4.7.3 Topsoil will be protected by regulating and controlling construction, design and maintenance activities or any activity resulting in *site alteration*.

4.7.4 Maintaining vegetation to protect against erosion and degradation of topsoil will be required unless authorized by the City.

4.7.5 Mississauga will direct development proposals to follow Ontario applicable regulations for the management of excess soil generated and fill received during development or *site alteration*, including infrastructure development, to ensure that:

a. any excess soil is beneficially reused on-site or locally to the maximum extent possible and excess soil reuse planning is undertaken concurrently with development planning and design;

b. any excess soil that is transported beyond the project site is tracked on the provincial excess soil registry to the final destination reuse site;

c. appropriate sites for excess soil storage and processing or beneficial reuse sites are permitted in proximity to areas where proposed development is concentrated, where feasible and where permitted, and outside of Natural Heritage Features; and

d. soil or fill quality received and soil/fill placement at a site will be sufficiently characterized by a Qualified Person such that it will meet the applicable standards set out under provincial regulations with regard to the current or proposed use of the property or the sites for excess soil storage and processing.

## 4.8 Land Use Compatibility

4.8.1 *Sensitive land uses* will be planned and developed to avoid being located adjacent to existing *major facilities* such as the airport, transportation corridors, wastewater treatment plants, ***waste*** sites and industrial and aggregate activities in order to protect their long-term operation and economic role.

4.8.2 Where avoidance is not possible, adverse effects from these facilities must be minimized and mitigated in accordance with the *Provincial Planning Statement* and the applicable provincial guidelines, standards, and procedures.

4.8.3 *Sensitive land uses* may be considered in proximity to *major facilities* such as the Airport, transportation corridors, wastewater treatment plants, ***waste*** sites, industries and aggregate activities only where avoidance is not possible and where effective control is provided through appropriate site and building design, buffers and/or separation distances to prevent *adverse effects* from these facilities.

4.8.4 In accordance with the provincial compatibility guidelines, the development proponent will be required to undertake a feasibility study in those cases where:

a. a *sensitive land use* is proposed within the area of influence of a facility that generates contaminant discharges; or

b. a facility generates contaminated discharges, or a proposed facility is likely to generate contaminated discharges.

The study will evaluate the impacts, both before and after any proposed mitigation measures are applied and identify options for mitigation both at the source or elsewhere to the satisfaction of the City and other appropriate approval authorities.

4.8.5 Land uses which may cause a potential aviation safety hazard are prohibited.

4.8.6 Mississauga will work with other jurisdictions and levels of government and encourage and support partnerships among the City, industries, businesses and the community to improve air quality, protect, enhance and expand the natural environment, reduce energy use and manage ***waste***.

4.8.7 Pollution concerns may affect water, air and land quality. Mississauga will support other levels of government in their efforts to monitor water, air and land quality and where feasible, to establish programs to screen proposals for their impacts in this regard.

4.8.8 A Pollution Prevention Plan must be undertaken for development, which has the potential to generate pollutant discharges to a storm sewer system or to a water body prior to approval. The plan must consider the use of processes, practices, materials or technology that avoids or minimizes the creation of pollutant discharges to a storm sewer system or to a water body. The implementation of the recommended measures will be conditions of approval.

## 4.9 Energy and Power Generation

Energy efficiency and the diversification of energy supply are important actions that will enable the city to achieve its emission targets and build resilience in the face of climate change. The City supports energy initiatives that will enable it, its residents, businesses and *transportation systems* to conserve energy and reduce their dependence on fossil based energy sources by changing to *alternative* or *renewable energy systems.*

This Plan provides opportunities for power generation facilities to accommodate current and projected needs, where feasible, and recognizes the interdependencies that exist in the built and natural environments. However, it is essential that power generating facilities be located in appropriate locations away from residential and other *sensitive land uses*.

4.9.1 Mississauga will conserve energy by promoting energy efficient land use and development patterns,

Figure 4.15. Solar panels at the Lions Club of Credit Valley Outdoor Pool exemplify the use of a ***renewable energy*** source. *(c. City of Mississauga)*

efficient transportation and *alternative* and *renewable energy systems*.

4.9.2 Mississauga encourages appropriate land use and development patterns that are *transit-supportive*, site and building designs that conserve energy and opportunities for low carbon district energy.

4.9.3 Mississauga encourages the creation of innovative strategies for:

i. net zero greenhouse gas emissions, including embodied emissions from materials;

ii. energy conservation and peak demand management;

iii. resilience to power disruptions and small local integrated energy solutions that incorporate renewables;

iv. low renewable carbon thermal energy solutions, including district energy systems;

v. local electricity production; and

vi. ***waste*** management, source reductions, adaptive reuse and construction ***waste*** diversion.

4.9.4 Development will be encouraged to utilize technology such as green roofs, white roofs and the use of naturalization and tree plantings to achieve energy efficiencies.

4.9.5 Mississauga encourages low carbon district energy systems where appropriate, to reduce greenhouse gas emissions and air pollution.

4.9.6 Mississauga will work jointly with other levels of government and other agencies to investigate the need, feasibility, implications and suitable locations for ***renewable energy*** projects and to promote local clean energy generation, where appropriate.

4.9.7 Mississauga will work with the other levels of government and other agencies in planning for the future expansion and location of power supply services and communication systems servicing the City.

## 4.10 Brownfield Sites

The rehabilitation of *brownfield sites* supports the economic prosperity of the city, reduces the environmental risk posed by these properties and enhances the community in which they are located.

4.10.1 To ensure that ***contaminated sites*** are identified and appropriately addressed by the proponent of development, the following will be required:

a. the owners of lands proposed for development will submit information as required by the City to identify the potential for contamination;

b. landowners will consider all potential sources of contamination such as disposal of ***waste*** materials, historic or currently present fuel storage tanks (including heating oil tanks), unknown fill quality, raw material storage, residue left in containers,

maintenance activities and spills and may also include contamination from adjacent commercial properties, such as, but not limited to, gas bars, motor vehicle service stations, motor vehicle repair garages and dry-cleaning facilities;

c. the development approval or approval of amendments to this Plan for known or potentially ***contaminated sites*** will be deferred until the proponent of development undertakes a study assessing the potential for contamination in accordance with the provincial government regulations and standards and City policies; and

d. if the study indicates potential for soil or ground water contamination, an assessment of the soil and ground water conditions will be required. If contamination is confirmed, a remedial action plan in accordance with provincial government regulations, standards and City policies appropriately addressing ***contaminated sites*** will be required. Recommendations contained within the plan will be implemented by way of conditions to development approval.

4.10.2 If a ***contaminated site*** cannot be remediated to the land use designation shown on Schedule 7: Land Use Designations, the land use designation will be reviewed based on the remediation plan and an alternative appropriate land use designation may be considered.

4.10.3 Policies regarding ***contaminated sites*** should not be construed as a commitment by the City to identify all ***contaminated sites***; rather they should be regarded as an effort by the City to responsibly obtain and utilize available information as part of the planning process.

4.10.4 Mississauga will actively promote the redevelopment and clean up, if necessary, of *brownfield sites*.

4.10.5 Mississauga will encourage the provincial and federal governments to provide legislation and financial incentives that will facilitate the redevelopment of *brownfield sites*.

## 4.11 Human-Made Hazards

Human-made hazards may have potential adverse impacts on public safety and property and occur when sites have not been properly rehabilitated. They are generally associated with *oil, gas and salt hazards* and former *mineral aggregate operations* and *petroleum resource operations.*

4.11.1 Mississauga will strive to protect life and property from human made hazards; to the extent practical and where it has jurisdiction over such matters.

4.11.2 Development will be directed away from human-made hazards as much as possible. Development may be permitted only if rehabilitation or mitigation of known or suspected hazards has been completed.

## 4.12 Waste Management

***Waste*** management is the responsibility of everyone - government, industries, businesses, communities, and individuals. Effectively managing, collecting and disposing of ***waste*** facilitates human and environmental health.

The efficient use of materials and resources and minimizing ***waste*** generation through reduction, reuse and recycling is critical to the success of an integrated solid ***waste*** management system. In addition, the provision of ***waste*** disposal and treatment facilities is part of ***waste*** management.

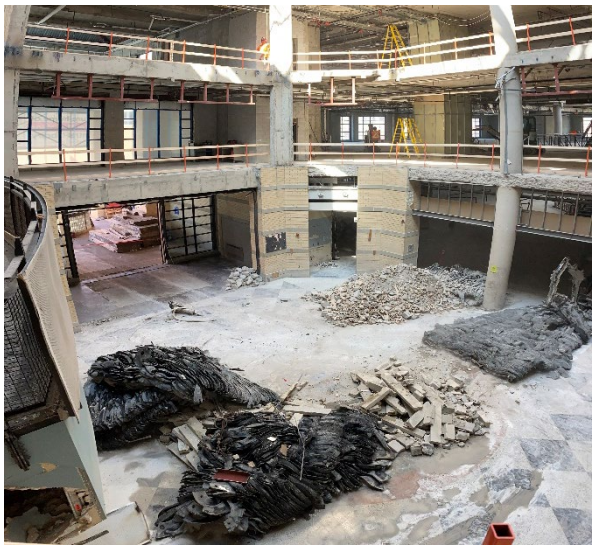


Figure 4.16. Construction ***waste*** diversion project for Hazel McCallion Central Library Renovation, where ***waste*** has been sorted in preparation for diversion. *(c. City of Mississauga Staff)*

4.12.1 Mississauga will manage ***waste,*** including City operational ***waste*** in a sustainable manner, including supporting and promoting reduction, reuse and recycling of ***waste*** in private and public sector operations.

4.12.2 Mississauga will work to promote and support ***waste*** reduction, diversion and circular economy concepts (repair, reduce, reuse, and recycle) to help inform purchases and decisions made by residents, consumers, businesses, and governments.

4.12.3 Mississauga will work to support the resource recovery of ***waste*** by encouraging eligible new developments and redevelopments including but not limited to residential buildings, retail establishments, and institutions, to include facilities for the collection and source separation of ***waste*** that provide convenient access to ***waste*** collection vehicles.

4.12.4 Mississauga will establish site design standards that allow adequate flexibility in ***waste*** handling for development proposals in keeping with the applicable ***waste*** standards. These standards will address a range of ***waste*** management options including on-site material separation, and multiple ***waste*** streams.

4.12.5 Mississauga will promote the reduction of ***waste*** generated through construction.

4.12.6 ***Waste transfer stations***, ***waste processing stations*** and composting facilities are permitted in Business Employment and Industrial areas subject to meeting the following criteria:

a. the location and operation of ***waste transfer stations***, ***waste processing stations*** and composting facilities must comply with all municipal and provincial government requirements including, where applicable, certification under the *Environmental Protection Act*; and

b. the sites for such facilities will be located, planned, designed, operated and maintained in such a way as to:

   i. ensure compatibility with adjacent, existing and future land uses;

   ii. reduce environmental impact, within applicable standards; and

   iii. mitigate dust, odour, health and safety concerns, noise, and visual impacts, within applicable standards.

4.12.7 Restrictions are placed on the development of closed ***landfill*** sites and the adjacent lands of closed sites. Closed ***landfill*** sites owned and operated by the Region have limited capability to support certain land uses and development will be restricted where such activity would constitute a hazard to human or ecosystem health. The size and extent of a ***landfill's*** influence area is dependent on many factors and is determined by site specific and detailed studies prepared by the applicant of development proposed within the potential influence area. These studies will be prepared to the specifications of the provincial government. Where no information is available on the influence area of the site, provincial government standards identify a 500 metre radius surrounding the ***waste*** cell for assessing potential impacts from the ***waste*** site.

4.12.8 Within a period of 25 years or less, development on lands formerly used for the disposal of ***waste***, requires approval of the provincial government.

## 4.13 Noise

Although ambient noise levels are part of living in an urban environment, excessive noise levels can adversely impact quality of life and, in extreme circumstances, public health. The most common source of noise complaints in Mississauga is from aircraft and motorized vehicles on highways and local roadways. Rail and industrial activities are also a source of noise in the city.

Sound barriers should be avoided wherever possible and feasible. Where sound cannot be mitigated at its source, the land use may not be appropriate, however noise abatement measures such as appropriate site planning, spatial separation and building design techniques are preferred, wherever possible.

As the city continues to develop and intensify, particularly with mixed uses, noise will continue to be of concern. Special attention must be given to land use compatibility and the incorporation of noise attenuation methods.

The applicable provincial government environmental noise guideline for sound level limits is the Environmental Noise Guideline, Publication NPC-300 or its successor.

### 4.13.1 Stationary Noise

Natural gas pumping stations, roof top cooling units and a wide variety of industrial processes are all examples of stationary noise sources. Due to the unique nature of this

type of noise, it can be difficult to mitigate through the use of sound barriers. Instead, consideration must be given to appropriate land use planning and building design techniques when locating *sensitive land uses* in the vicinity of stationary noise sources. Conversely, existing and proposed noise sources near residential and other *sensitive land uses* should incorporate mitigation measures at the source.

4.13.1.1 In order to discourage the encroachment of *sensitive land uses* on existing industrial noise sources, a detailed ***feasibility noise impact study*** will be submitted prior to approval of development in proximity to an existing industrial noise source. This will identify options for mitigation at the source and at the proposed development site.

4.13.1.2 Industrial, commercial or utility development will not be permitted where the noise transmitted to existing or proposed residential areas, or other noise *sensitive land use*, exceeds the mitigated outdoor and plane of window noise criteria established by the applicable provincial government environmental noise guideline.

4.13.1.3 The sound levels anticipated on the site of a proposed development will be established on the basis of the predictable worst case noise impact from the stationary source(s) in accordance with the applicable provincial government environmental noise guideline.

4.13.1.4 Development that includes outdoor passive recreation areas will generally not be permitted in locations where the mitigated outdoor noise levels are forecast to exceed the limits specified by the applicable provincial government environmental noise guideline.

4.13.1.5 Development with a residential component or any development that includes bedrooms, sleeping quarters or reading rooms and other noise *sensitive land uses* that will be subject to high levels of noise from a stationary noise source, will only be permitted if noise mitigation measures are implemented at the source of the noise or if the development contains mitigative measures which will result in noise levels that comply with the limits specified by the applicable provincial government environmental noise guideline.

4.13.1.6 The use of the Class 4 area classification, as specified in the applicable provincial government environmental noise guideline, is at the City's discretion. The introduction of a Class 4 area will require Council approval:

a. The use of Class 4 will only be considered where it can be demonstrated that:

   i. the development proposal is for a new noise *sensitive land use* in proximity to an existing, lawfully established stationary noise source;

   ii. the development proposal for a new noise *sensitive land use* does not impair the long *term* viability and operation of an employment use;

   iii. it is in the strategic interest of the City, furthers the objectives of Mississauga *Official* Plan and supports community building goals; and

   iv. all possible measures of noise attenuation have been assessed for both the proposed development site and the stationary noise source, including, but not

limited to, building design and siting options for the proposed new noise *sensitive land use*.

b. Notwithstanding the above conditions, the use of Class 4 will receive more favourable consideration if the stationary noise source is a temporary situation and it is expected that the stationary noise source will be removed through future redevelopment; and

c. Mississauga will require that prospective purchasers be notified that the building is located in a Class 4 area and informed of any agreements as may be required for noise mitigation. A noise warning clause will shall be included in agreements that are registered on title, including condominium disclosure statements and declarations.

## 4.13.2 Aircraft Noise

There are areas of Mississauga that are subject to high levels of aircraft noise. As a result, policies are required that set out the restrictions on development within the areas subject to high levels of aircraft noise. The policies of this Plan are based on a six runway configuration of the Airport.

4.13.2.1 The Airport Operating Area (AOA) is based on the 30 ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour.*** The AOA perimeter approximates the location of the 30 ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour*** by following readily identifiable natural (waterways), transportation (roads, rail lines) and planning (property and land use designation boundaries) features. The AOA establishes and stabilizes the aircraft noise area for the purpose of land use planning, which benefits both the air carriers and surrounding communities.

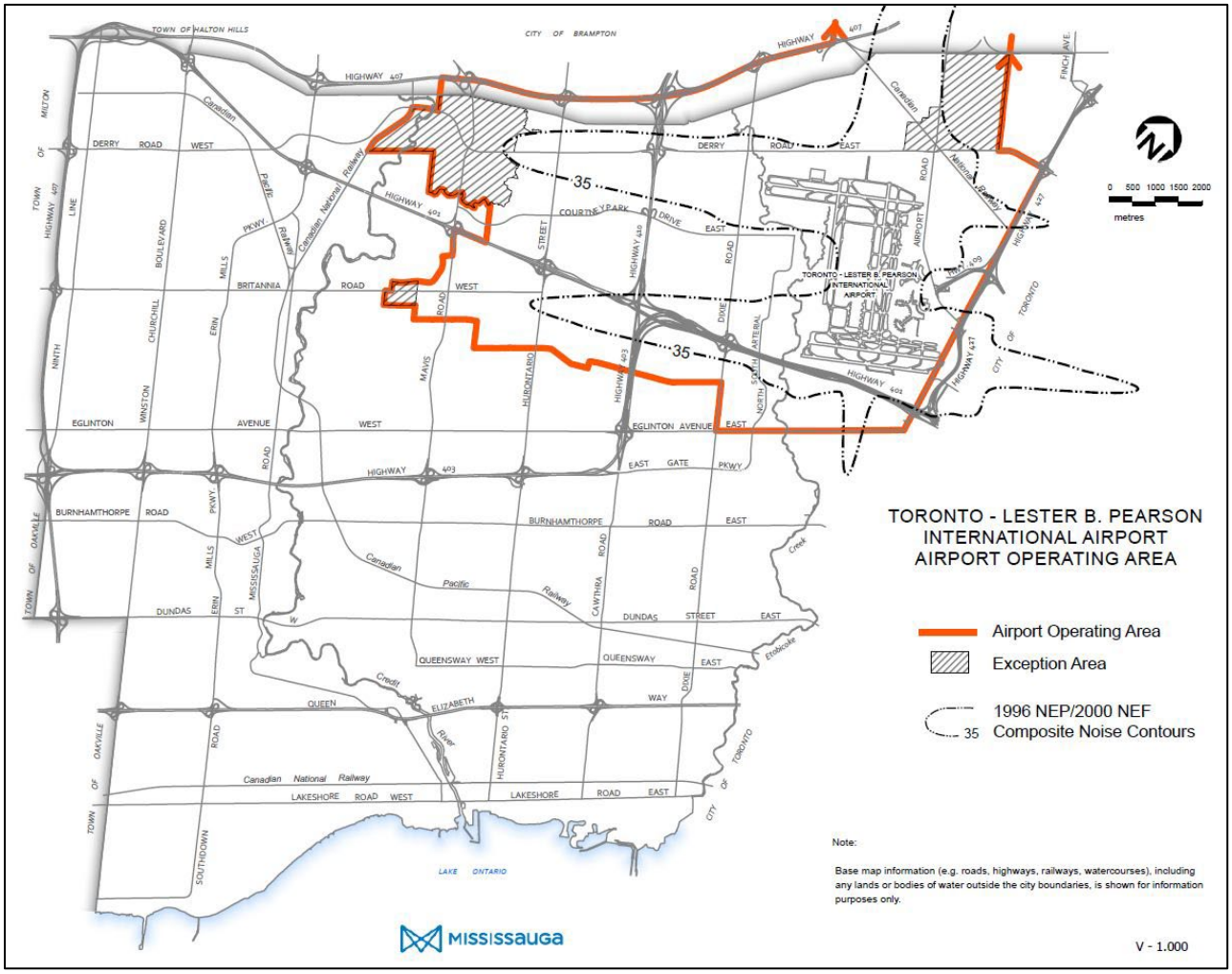
Lands within the Airport Operating Area as identified on Map 4-5 are currently developed for a variety of uses including residential, industrial and office. For the purposes of this section, development in this area consists of redevelopment and infill.


Figure 4.17. Noise warning signs placed in residential areas exposed to higher noise levels due to aircraft at Lester B. Pearson. *(c. City of Mississauga)*

4.13.2.2 In accordance with the *Provincial Planning Statement*, new residential development and other *sensitive land uses* are prohibited in areas near the Airport above the 30 ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour.***

4.13.2.3 Redevelopment of existing residential uses and infilling of residential and other *sensitive land uses* in areas above 30 ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour*** will only be considered if it has been demonstrated that there will be no *negative impacts* on the long term function of the airport.

4.13.2.4 Land uses located at or above the corresponding ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour*** as determined by the federal government, will require a noise study as a condition of development. The noise study is to be undertaken by a licensed professional engineer with acoustical expertise in accordance with the applicable provincial government environmental noise guideline to the satisfaction of the City prior to development approval to determine appropriate acoustic design criteria.




Map 4-5: Airport Operating and Exception Area

4.13.2.5 Mississauga will require tenants and purchasers to be notified through the development process when a proposed development is located at the ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour*** of 25 and above.

4.13.2.6 A noise warning clause will be included in agreements that are registered on title, including condominium disclosure statements and declarations.

4.13.2.7 Residential and other *sensitive land uses* within the Airport Operating Area will not be permitted as a principal or an accessory use with the following exceptions:

a. lands identified as "Exception Area", as shown on Map 4-5; and

b. daycare facilities accessory to an employment use in the Corporate Centre Character Areas known as Gateway Corporate and Airport Corporate, on lands located below the 35 ***noise exposure projection (NEP)/noise exposure forecast (NEF) composite noise contour***.

4.13.2.8 Development applications for *sensitive land uses* including new residential dwellings, with the exception of replacement detached and semi-detached dwellings, for lands where permitted within the Airport Operating Area, may be processed for approval provided that all of the following are satisfied:

a. a ***detailed noise impact study*** will be submitted as part of a complete development application to verify that mitigated indoor and outdoor noise levels will not exceed the sound level limits established by the applicable provincial government environmental noise guideline;

b. appropriate conditions relating to noise mitigation that are consistent with the findings of the ***detailed noise impact study***, are included in the final approval;

c. a post-construction noise study and/or testing is undertaken to confirm, to the satisfaction of both the City of Mississauga and the Greater Toronto Airports Authority (or its successor), that all mitigation measures and features prescribed in the ***detailed noise impact study*** have been implemented and that they satisfy the applicable provincial government environment noise guideline; and

d. an ***Aircraft Noise Warning Agreement (ANWA)*** between the City of Mississauga, the Greater Toronto Airports Authority (or its successor) and the Developer, is required as part of any approval.

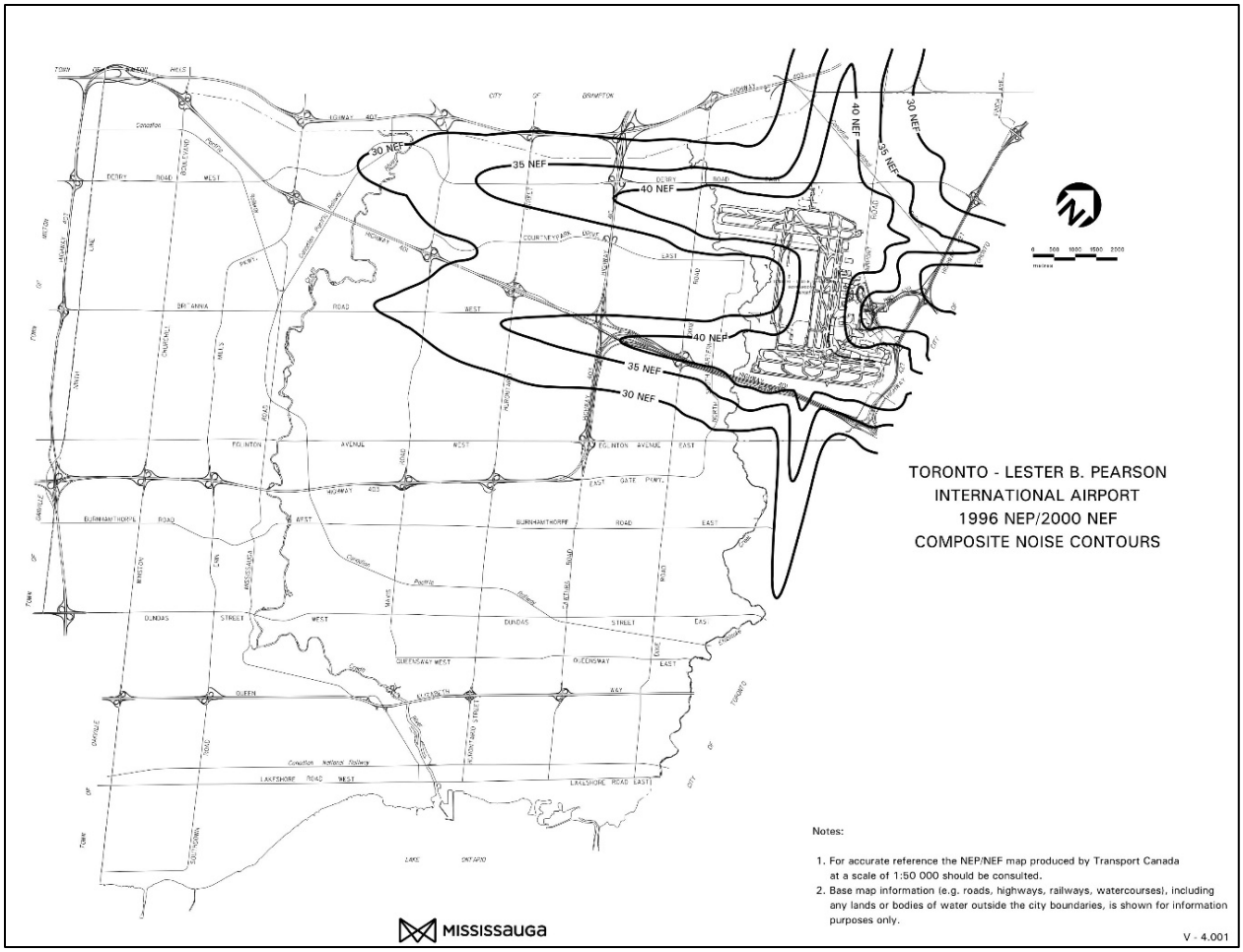



Figure 4.18. 1996 NEP/2000 NEF Composite Noise Contours. These contours are shown on Schedule 7: Land Use Designations

## 4.13.3 Road Noise

As intensification occurs within *Strategic Growth Areas,* road noise will increasingly be of concern. Careful attention must be paid to site planning and building design techniques to mitigate noise levels consistent with an urban environment.

4.13.3.1 Where residential and other land uses *sensitive* to noise are proposed in close proximity to provincial highways, it may be necessary to mitigate noise impact, in part, by way of building and site design. A ***feasibility noise impact study*** will be submitted prior to approval in principle of such land uses located within 50 metres of arterial and major collector rights-of-way and within 100 metres of a provincial highway right-of-way, or as required by the City.

4.13.3.2 Residential development or development that includes outdoor living areas will not be permitted in locations where the mitigated outdoor noise levels are forecast to exceed limits specified by the applicable provincial government environmental noise

guideline. A ***detailed noise impact study*** will be required to demonstrate that every effort has been made to achieve the sound level limits specified by the applicable provincial government environmental noise guideline, for an outdoor living area (55 ***dBA*** or less). Only in cases where the required noise attenuation measures are not feasible for technical, economic, aesthetic or administrative reasons would excess noise above the limit (55 ***dBA***) be acceptable, with a warning clause to prospective purchasers, consistent with the applicable provincial government environmental noise guideline. In these situations, any excess noise above the limit will not be acceptable if it exceeds 60 ***dBA.***

4.13.3.3 Development with a residential component or any development which includes bedrooms, sleeping quarters, living rooms or reading rooms which will be subject to high levels of traffic noise, will only be permitted if it includes structural features which result in interior noise levels that comply with the indoor standards specified by the applicable provincial government environmental noise guideline.

4.13.3.4 Where residential and other land uses *sensitive* to noise are proposed within 500 metres of a freeway, 250 metres of a provincial highway or 100 metres from other roads, development proponents will be required to submit detailed noise studies delineating mitigative noise measures required to meet provincial government and the City's noise guidelines. The recommendations of the approved reports are to be implemented as conditions of development.

4.13.3.5 Where the acoustical analysis indicates that anticipated sound levels in the outdoor living area would exceed the outdoor sound level limits stipulated by the applicable provincial government environmental noise guideline by up to five ***dBA***, Mississauga will require tenants and purchasers to be notified of such. Notice will also be required when road noise necessitates central air conditioning or the provision for central air conditioning to achieve the indoor noise levels limits stipulated by the provincial government environmental noise guideline.

4.13.3.6 A ***feasibility and/or detailed noise impact study*** prepared to analyze the impacts of road noise on a development are to incorporate the ultimate Annual Average Daily Traffic (AADT) for the road.

4.13.3.7 As a condition of approval of development applications, notice will be given by the developer to the purchasers and tenants of existing and potential impacts of the right-of-way and the maintenance of the required abatement measures.

## 4.13.4 Rail Noise, Safety and Vibration

Railways in urban areas require particular consideration not only because of the high levels of noise they generate, but also because of ground borne vibration. Safety is also a concern as intensification occurs in the vicinity of railway tracks. In addition, the encouragement of active modes of transportation will require consideration of cyclist and pedestrian safety in conjunction with railway operations.

4.13.4.1 Where residential and other land uses *sensitive* to noise are proposed in close proximity to rail lines, it may be necessary to mitigate noise impact, in part by way of

the building and site design. Residential development or any development that includes outdoor living areas will generally not be permitted in locations where the mitigated outdoor noise levels are forecast to exceed the limits specified by the applicable provincial government environmental noise guideline. A ***feasibility and/or detailed noise impact study*** will be required to demonstrate that every effort has been made to achieve the sound level limits specified by the applicable provincial government environmental noise guideline, for an outdoor living area (55 ***dBA*** or less). Only in cases where the required noise attenuation measures are not feasible for technical, economic, aesthetic or administrative reasons would excess noise above the limit (55 ***dBA***) be acceptable, with a warning clause to prospective purchasers, consistent with the applicable provincial government environmental noise guideline. In these situations, any excess noise above the limit will not be acceptable if it exceeds 60 ***dBA.***

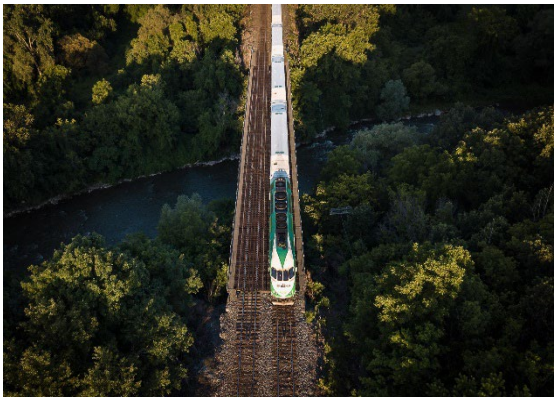


Figure 4.19. Railways play an important role in the City's economic development, contributing to the movement of people and goods. *(c. City of Mississauga)*

4.13.4.2 Development with a residential component such as dwellings, or any development which includes bedrooms, sleeping quarters, living rooms, reading rooms and other noise *sensitive land uses* which will be subject to high levels of railroad noise, will only be permitted if it includes structural features that result in interior noise levels that comply with the indoor standards specified by the applicable provincial government environmental noise guideline.

4.13.4.3 Mississauga will require that the owner/developer engage a qualified noise consultant to undertake an analysis of noise and vibration and recommend abatement measures as necessary to meet provincial and the city's guidelines, industry best practices and the requirements of the applicable rail company, to the satisfaction of the City, where *sensitive land uses* and other noise or vibration *sensitive* development that includes sleeping quarters, reading rooms and offices, are proposed within:

a. 1000 m of a Freight Rail Yard for noise;
b. 300 m of a Principal Main Rail Line for noise;
c. 250 m of a Secondary Main Line for noise;
d. 150 m of a Principal Branch Line for noise;
e. 75 m of a Secondary Branch Line for noise;
f. 75 m of a Spur Line for noise; and
g. 75 m of a rail yard and all rail lines for vibration.

4.13.4.4 Mississauga will require tenants and purchasers to be notified where the analysis indicates that anticipated sound levels in the outdoor living area would exceed the outdoor sound level limits stipulated by the applicable provincial government environmental noise guideline by up to 5 ***dBA***. Notice will also be required when rail noise necessitates central air conditioning or the provision for central air conditioning to

achieve the indoor noise level limits stipulated by the applicable provincial government environmental noise guideline.

4.13.4.5 As a condition of approval of development applications, notice will be given by the developer to purchasers and tenants of existing and potential impacts of rail use and operations and the maintenance of the required abatement measures.

4.13.4.6 Development applications for dwellings, significant additions thereto and places of public assembly, will incorporate an appropriate safety setback as necessary to meet industry best practices and the requirements of the applicable rail company, to the satisfaction of the City, which takes into account safety barriers (e.g. berms, walls), topography, intervening structures and the surrounding pattern of development.

4.13.4.7 Through development applications, the incorporation of security fencing to prevent trespassing on the railway right-of-way may be required.