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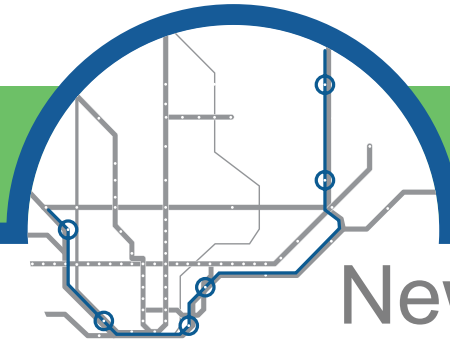
METROLINX TORONTO 4TRANSIT PARSONS HATCH WSP



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1. Introduction

This Volume outlines how climate change considerations were taken into account in the environmental assessment and design of the Transit Project. The following sections describe how the Transit Project Assessment Process (TPAP) for SmartTrack stations incorporates the Ministry of the Environment and Climate Change (MOECC)'s guidance for considering climate change in environmental assessments, with a focus on climate change *mitigation* and *adaptation*, as summarized in Table 2-1 and Table 2-2.

The stations will be constructed and operated with future climate change projections in mind, so construction delays and service interruptions due to extreme weather events will be minimized.

2. Climate Change

The Intergovernmental Panel on Climate Change (IPPC) defines climate change as:

> "…a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use." (Intergovernmental Panel on Climate Change, 2014)

The term "climate change" can apply to any major variation in temperature, wind patterns or precipitation that occurs over time. Changes in the composition of the atmosphere are resulting in processes that alter global temperature and precipitation, and are affecting local weather patterns. These processes can ultimately lead to increased occurrence of extreme weather events such as floods, droughts, ice storms and heat waves across the Greater Toronto and Hamilton Area (GTHA) (Metrolinx, 2017).

To mitigate climate change and the effects it can have on the natural and built environments, government agencies at all levels have developed strategies and guidelines to reduce greenhouse gas (GHG) emissions into the atmosphere. Government agencies are also implementing measures that promote resiliency to a changing climate. Consistent with these strategies and guidelines, the planning and design of the Transit Project will consider both climate change *mitigation* (i.e., minimizing effects of a project on climate change) and *adaptation* (i.e., resilience of a project to future climatic changes).

Section 2.1 outlines the policy context which guides how climate change has been considered in the planning of this Project. Given the relatively small effects of the Transit Project on climate change, and Metrolinx's extensive existing guidance on how to build and operate the stations considering future extreme weather events, reference to existing climate change strategies and policies was judged to be sufficient in considering climate change in the TPAP.

Sections 2.2 (mitigation) and 2.3 (adaptation) describe how these considerations are being implemented in project planning and design.

2.1 Policy Context

2.1.1 Government of Ontario

The Government of Ontario has committed to reducing GHG emissions to 80% below 1990 levels by 2050 and has established two mid-term targets: 15% below 1990 levels by 2020 and 37% below 1990 levels by 2030 (Government of Ontario, 2015). To achieve these targets, the government has developed a Climate Change Strategy (Government of Ontario, 2015) and Climate Change Action Plan (Government of Ontario, 2016) which outline the following five areas of focus:

- A prosperous low-carbon economy with world-leading innovation, science and technology;
- Government collaboration and leadership;
- A resource-efficient, high-productivity society;
- Reducing GHG emissions across key sectors; and
- Adapting and thriving in a changing climate.

The *Infrastructure for Jobs and Prosperity Act*, *2015* (Province of Ontario, 2015) indicates that infrastructure should be planned to mitigate effects on climate change and be designed to consider climate change adaptation. Specifically, Section 3.11 of this Act states that:

"*Infrastructure planning and investment should minimize the impact of infrastructure on the environment and respect and help maintain ecological and biological diversity, and infrastructure should be designed to be resilient to the effects of climate change.*"

The 2014 Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2014) issued under the *Planning Act* advises on the need to consider reducing GHG emissions and reducing the potential risk of climate change-related events like droughts or intense precipitation. It encourages green infrastructure and strengthened stormwater management requirements; energy conservation and efficiency; reduced GHG emissions; climate change adaptation (e.g., tree cover for shade and for carbon sequestration); and consideration of the increased risk associated with natural hazards (e.g., flooding due to severe weather).

Applicability to the Transit Project

Improving the public transit network can reduce traffic congestion and reduce the need for new road infrastructure, as well as reduce carbon emissions and air quality concerns associated with automobile use, contributing to reductions in GHG emission and helping to achieve provincial targets. Metrolinx is working in alignment with the spirit of the *Infrastructure for Jobs and Prosperity Act*, *2015* in the planning and design of the Transit Project.

Since the Transit Project will be operational for the foreseeable future, there is a need to consider both their operational impacts to climate change, as well as how they will be affected by future climate change-related events such as droughts or intense precipitation. This

includes consideration of most of the aspects highlighted in the PPS, including: green infrastructure; stormwater management; energy conservation and efficiency; GHG emissions; vegetation/carbon sequestration; and resiliency to natural hazards such as flooding. These aspects are further discussed in Sections 2.2 and 2.3.

2.1.2 Ministry of the Environment and Climate Change

The MOECC has prepared a guide titled *Considering Climate Change in the Environmental Assessment Process* (The Ministry of Environment and Climate Change, 2017), to describe how environmental assessment processes can incorporate consideration of climate change impacts, including:

- The effects of a project on climate change;
- The effects of climate change on a project; and
- Various means of identifying and minimizing negative effects during project design.

Considering climate change in accordance with the guide is meant to result in a project that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate.

The guide states that proponents should take into account climate change mitigation and adaptation during both the assessment of *alternatives to the undertaking* and *alternative methods of implementing the undertaking*. Specific to transit projects assessed under the TPAP, the guide advises that the consideration of climate change should be scaled to the significance of the project's potential environmental effects, and that evaluation can be qualitative and/or quantitative.

Applicability to the Transit Project

The TPAP starts with a selected transit project. The regulation does not require proponents to look at the rationale and planning alternatives or alternative solutions to public transit or the rationale and planning alternatives or alternative solutions to the particular transit project (The Ministry of the Environmental and Climate Change, 2014). The climate change assessment contained in this Environmental Project Report (EPR) focuses on the various design and mitigation measures that will support climate change mitigation and adaptation during construction and operations of the Transit Project.

Overall, the Transit Project's effects on climate change (i.e., mitigation) are expected to be small. There will be insignificant GHG emissions resulting from both construction and operations, as detailed in the Air Quality Impact Assessments completed for the Transit Project (see Appendix G within Volumes 2 to 7 of this EPR). The Air Quality Impact Assessments involved a high-level quantitative analysis of local GHG emissions during operations, comparing station emissions to Provincial targets.

Since the Transit Project will be operational for the foreseeable future, it will likely be affected by future climate change-related events such as droughts or intense precipitation. As a result, the stations need to consider designs, construction and operations with these future events in mind. The Project will continue to take climate change considerations into account as the

design progresses. The TPAP is based on the Initial Preferred Design, as discussed in Volume 1 of this EPR.

Table 2-1 outlines how climate change was considered in this TPAP. Each of the areas considered is described in greater detail in Sections 2.2 and 2.3.

Table 2-1: Consideration of Climate Change in the Pre-TPAP and TPAP Phases

Consideration	Project Phase where Consideration Implemented	Areas Considered	Type of Evaluation
Effects of the project on climate change (mitigation)	Pre-TPAP, detailed design, construction, operations	• Planning for transit	• Qualitative
		• GHG emissions	• Quantitative
		• Vegetation compensation and revegetation	• Qualitative
		• Energy consumption and emissions	• Qualitative
Effects of climate change on the project (adaptation)	Detailed design, construction, operations	• Air temperature	• Qualitative
		• Precipitation	• Qualitative
		• Drought	• Qualitative

Further, Table 2-2 outlines how the primary expectations for proponents when considering climate change according to the MOECC's guide (as indicated by "should" statements in the guide) have been addressed in this volume of the EPR.

Table 2-2: Consideration of Climate Change in the Pre-TPAP and TPAP Phases

Recommendation	Section(s)
The ministry expects proponents to take into account: • The project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation). • Resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).	• Section 2.2.2 (greenhouse gas emissions). • Section 2.2.3 (impacts on carbon sinks). • Section 2.3 (climate change adaptation).
The proponent should also include a discrete statement in their study report detailing how climate change was considered in the environmental assessment.	• Section 2.1.2. • Table 2-1.
Proponents of natural resource related projects should consult Appendix B for treatment of carbon stocks as sinks versus sources.	The Transit Project is not natural resource related, so this is not applicable.
Proponents should include evaluation criteria, such as greenhouse gas emissions and impacts on carbon sinks, in the assessment of alternatives and alternative methods.	The TPAP does not include an assessment of alternatives or alternative methods, so this not applicable.
In concluding an environmental assessment study, the proponent should also include a statement in their study report about how climate change	• Section 1.

Recommendation	Section(s)
was considered in the environmental assessment and how the preferred alternative (project) is expected to perform with climate change considered.	
Proponents should include evaluation criteria such as extreme weather events in their screening of alternatives, and alternative methods.	The TPAP does not include an assessment of alternatives or alternative methods, so this not applicable.
Proponents should also include in their study report, a statement about how climate change was considered in the environmental assessment, specifically in relation to the preferred alternative (project).	The TPAP does not include an assessment of alternatives or alternative methods, so this not applicable.
All climate parameters with potential to interact with a project should be defined and considered at a screening level to fully understand which interactions pose higher risk.	• Section 2.3. • Table 2-3.
Proponents should also document any uncertainty related to either downscaling climate change projections to specific sites, or expected impacts to the environment or project, within the environmental assessment.	Metrolinx is moving towards using downscaling projections as described in its *Planning for Resiliency* report (Metrolinx, 2017) to inform decisions regarding planning, construction and operations of infrastructure. This considers adaptation to climate change across all infrastructure assets, including existing and future stations.
Considering climate change in the terms of reference for an environmental assessment should commit the proponent to considering climate change impacts in related project studies prepared in support of the environmental assessment report.	The TPAP does not include a terms of reference, so this not applicable.
Considering climate change in an environmental assessment should result in the proponent refining and documenting measures for dealing with climate change impacts as the undertaking moves toward implementation stage. Examples could include adapted design or maintenance schedules, additional studies, and revised operating procedures.	• Section 2.3.2.1.
Considering climate change in streamlined environmental assessment processes and studies could result in the inclusion of a commitment on how the proponent will implement climate change adaptation and mitigation measures during the detailed design phase of any given project.	• Section 2.2.3. • Section 2.3.2.
Proponents should consider whether making reference to existing climate change strategies or policies alone is sufficient as a consideration of climate change, or whether a more detailed consideration of climate change should be carried out when conducting project-specific environmental assessment studies. Documentation of the results of this consideration should be included as part of project reporting.	• Section 2.

2.1.3 Metrolinx

Metrolinx's draft Regional Transportation Plan (RTP) (Metrolinx, 2018) outlines the long-term projects, plans, and activities Metrolinx will deliver to support reduction of Ontario's overall GHG emissions by promoting a shift from single occupant vehicles to more energy-efficient options like public transit, walking, cycling, carpooling, and teleworking.

Metrolinx is committed to ensuring that the existing transit network and new transit facilities/infrastructure will have a low-carbon footprint[1] and contribute to a clean and healthy environment for future generations (Metrolinx, 2016). Metrolinx has outlined key climate change goals in its Sustainability Strategy (2015 - 2020) (Metrolinx, 2016). The Sustainability Strategy addresses climate change through five goals, which are:

- Goal 1: Become Climate Resilient - Accelerate and intensify our efforts to implement a climate adaptation and resilience program to manage and mitigate climate change risks.
- Goal 2: Reduce Energy Use and Emissions - Adopt processes, programs and technologies that allow us to effectively track, monitor and reduce our energy consumption, and carbon and air emissions.
- Goal 3: Integrate Sustainability in our Supply Chain - Minimize the impact associated with the use, extraction, processing, transport, maintenance, and disposal of materials and integrate sustainability criteria into our vendor management decisions. This goal extends to consideration of embodied carbon (i.e., the carbon dioxide emitted during the manufacture, transport and construction of materials, together with end of life emissions).
- Goal 4: Minimize Impacts on Ecosystems - Consider the impact of infrastructure and services on ecosystems and ecosystem services and make best efforts to manage, preserve and protect. This includes the consideration of infrastructure projects within the broader context of ecosystems and ecological values, including watershed/stormwater management considerations.
- Goal 5: Enhance Community Responsibility - Leverage our significant investment in the region to create a lasting legacy for our communities, and work closely with communities to create economic and social value.

For GO stations, terminals, and facilities, including the Transit Project, Metrolinx generally requires that contractors adhere to the *GO Design Requirements Manual* (DRM) (Metrolinx, 2017). The DRM outlines the Guiding Principles and technical details for designing and building GO infrastructure. The DRM covers a number of areas directly and indirectly related to climate change adaptation and mitigation, including stormwater management, energy consumption and emissions, and vegetation.

Also included in the DRM is how infrastructure should target Leadership in Energy and Environmental Design (LEED) accreditation and credits to reduce GHG emissions, as per Canada Green Building Council standards.

[1] A carbon footprint is the total greenhouse gas emissions attributed to a body (e.g., person, facility, or event) expressed as carbon dioxide equivalent (CO_2e). CO_2e is a standard unit for measuring carbon footprints, as a way to express the impact of each different greenhouse gas in terms of the amount of CO_2 that would create the same amount of warming.

Applicability to the Transit Project

Of the goals identified above, Goals 1, 2, 3 and 4 line up most directly with climate change adaptation and mitigation as described in the MOECC's guide. Goal 1 is focused on adaptation, and has been considered in various aspects of station design. Goals 2 and 3 relate to minimizing emissions during station construction and operations (mitigation), while Goal 4 focuses on minimizing impacts to ecosystems both during construction and operations (adaptation and mitigation). The following sections outline how project planning and design have been undertaken with regard to climate change mitigation and adaptation.

Goal 5 more broadly speak to how the construction and operations of the Transit Project can maximize social and economic value, and is not addressed in this volume as it does not relate to climate change directly.

The DRM indicates that new stations will target LEED accreditation and credits, and indicates which credits are mandatory and which are optional depending on project specifics.

2.2 Considering the Effects of the Transit Project on Climate Change (Climate Change Mitigation)

As indicated in Table 2-1, the effects of the project on climate change (mitigation) have been evaluated both quantitatively (for GHG emissions) and qualitatively (for transit planning, vegetation compensation/revegetation, and energy consumption/emissions).

2.2.1 Planning for Transit

Public transportation is a beneficial service that can reduce traffic congestion and the need for new road infrastructure, as well as reduce carbon emissions and air quality concerns associated with automobile use. Improvements to transit will decrease average transit trip times in the GTHA, even with an increasing population, leading to more people using public transportation and fewer vehicle-kilometres travelled in congested conditions. This reduction in congestion, when combined with expected improvements in automobile fuel efficiency, will result in a decrease in per capita GHG emissions from automobile trips (Metrolinx, 2018).

The Transit Project has been identified for implementation through a comprehensive, iterative planning process for new stations in the GTHA. An initial set of 120+ potential station sites was refined to 12 new stations, including the six SmartTrack Stations, through a network-wide analysis that occurred prior to the TPAP. Business case analysis for the six SmartTrack Stations to date has indicated that benefits (travel time savings for new station users, auto usage decrease) outweigh impacts (delays to upstream passengers, auto usage increase). Further information about the business cases for new stations is provided in Volume 1. It is anticipated that the introduction of these new stations will promote the use of public transportation, thereby decreasing congestion and per capita GHG emissions.

2.2.2 Greenhouse Gas Emissions

GHG/Climate Change analyses were undertaken as part of the Air Quality Impact Assessment for each new SmartTrack station, to evaluate the local impacts to air quality (see Section 3.6 of Volumes 2 to 7 of the EPR). The assessments considered combustion engines (from cars, buses and trains) accessing/passing by the station as the sources of emissions and indicated that the presence of some of the stations (Finch-Kennedy, Lawrence-Kennedy,

King-Liberty, and St. Clair-Old Weston) would result in a small increase in GHGs as a result of diesel train (at King-Liberty and St. Clair-Old Weston) and vehicle (automobile, bus) traffic at the stations. However, this increase is insignificant as total GHG emissions from the Full-Build Scenario will be trivial (<0.001%) compared to the 2020 Provincial Target (150 Mt/year) for these stations.

Table 2-3 summarizes the findings for the six SmartTrack stations.

Table 2-3: Anticipated GHG Contributions of SmartTrack Stations' Operations (2028) compared to 2020 Provincial Target

Station	CO_2e Emissions from operations (tonnes/day)	CO_2e Emissions from operations (Mt/Year)	% of 2020 Provincial Target (150 Mt/year)
Finch-Kennedy	0.665	0.00024	0.000160
Lawrence-Kennedy	0.1457	0.00005	0.000033
Gerrard-Carlaw	-12.5	-0.00456	N/A
East Harbour	-11.1	-0.00405	N/A
King-Liberty	2.23	0.00081	0.00054
St. Clair-Old Weston	2.53	0.00092	0.00061

While there are minimal anticipated GHG emissions associated with operation of the Transit Project, an overall decrease in GHG emissions is predicted due to reduction in vehicles commuting, replaced by trains carrying more passengers. This expected decrease is qualitative since predicting the final destination of cars is not currently feasible with available data sources.

2.2.3 Vegetation Compensation and Revegetation

As noted in the Tree Inventory Plans (Appendix C in Volumes 2 to 7 of this EPR), the construction of the new stations will require the removal of trees and vegetation, which will result in a temporary loss of an existing carbon sink within the local environment, among other impacts.

Metrolinx is establishing a Vegetation Compensation Protocol for RER projects that will be applied to the Transit Project, and vegetation that is removed will be compensated for in accordance with the provisions of this protocol, as follows:

- **For Municipal/Private Trees:** Metrolinx will work with each municipality to develop a municipality-wide streamlined tree permitting / compensation approach for municipal and private trees. The goal is to reduce administrative permitting burden for trees along long stretches of rail corridor.
- **For Trees within Metrolinx Property:** Metrolinx is developing a methodology to compensate for trees located within Metrolinx's property. This will involve categorizing trees community types / ecological value and establishing the appropriate level of compensation. Metrolinx will be looking to partner with Conservation Authorities and municipalities to develop the final compensation plan.
- **Conservation Authorities:** For vegetation removals within Conservation Authority lands where required, applicable removal and restoration requirements will be followed.

- **Federal lands:** For vegetation removals within Federally-owned lands where required, applicable removal and restoration requirements will be followed.
- **Tree End Use:** Options for the end use of trees removed from Metrolinx property (e.g., reuse/recycling options) will be developed.

Revegetation of disturbed areas will take place as soon as possible. Post-planting monitoring of restoration areas will occur for one year after installation. One site visit will be conducted during the subsequent growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken one year thereafter with one additional monitoring visit in the following growing season.

Additionally, the Metrolinx DRM requires that plant materials suitable to the growing environment at project sites be selected for vegetation/revegetation, and that species (native or non-native) must be hardy, drought and salt-tolerant, and resistant to the stresses of compacted soils and weather exposure.

2.2.4 Energy Consumption and Emissions

Through the DRM, Metrolinx targets LEED accreditation and credits that reduce GHG emissions and improve energy performance and refrigerant management[2]. Specifically, the DRM directs that the stations be designed to reduce energy consumption and emissions by considering measures such as:

- Applying passive means of reducing energy where it does not conflict with other customer service and operational design requirements.
- Maximizing the use of natural light coupled with photocells, motion sensors and controls to activate lighting when necessary (enhanced building automation controls), where it does not conflict with other customer service and operational design requirements.
- Using LED lighting.
- Using heat recovery to conserve energy for heating and cooling.

2.3 Considering Potential Effects of Climate Change on the Transit Project (Climate Change Adaptation)

It is recognized that climate change is already underway and can be anticipated to affect the construction and operations of the Transit Project. There is general agreement that the Great Lakes Basin will see increases in temperature, precipitation, drought, wind gust events, and freezing rain by the end of this century; however, the level of confidence and quality of supporting evidence for these projections vary considerably (Metrolinx, 2017). Table 2-4 shows the current consensus predictions for climate change in the Great Lakes Basin.

[2] Some air-conditioning refrigerants are powerful GHGs.

Table 2-4: Climate Change Projections for the Great Lakes Basin

Theme	General Projections	Trend	Data Confidence
Air Temperature	• 1.5ºC-7ºC increase by 2080s depending on climate scenario and model used. • Greater increases in the winter. • Increased frost-free period and growing season.		 High evidence High agreement
Precipitation	• 20% increase in annual precipitation across the Great Lakes Basin by 2080s under the highest emission scenario. • Increases in rainfall, decreases in snowfall. • Increased spring precipitation, decreased summer precipitation. • More frequent extreme rain events.		High evidence Medium agreement
Drought	• Projected increases in frequency and extent of drought.		Low evidence High agreement
Wind	• Increased wind gust events.		 Low evidence Low agreement
Ice storms	• Greater frequency of freezing rain events.		 Low evidence Low agreement

Source: (McDermid, et al., 2015)

To focus the consideration of effects of climate change on the Transit Project, only those themes where there is high or medium agreement on data (i.e., air temperature, precipitation, and drought, which are the rows in Table 2-4 that are not greyed out) are addressed in the sections below, for both the construction and operations phases of the Transit Project.

2.3.1 Air Temperature

Recognizing increasing summer temperatures, the DRM considers reducing effects of extreme heat on riders and the station. Specifically, the DRM indicates that station design will:

- Consider building material selection to limit absorption of solar radiation.
- Maximize shade along pedestrian routes.
- Reduce the urban heat island effect through plantings, selection of building materials and proactive shade management.

2.3.2 Precipitation

Precipitation, whether it is rainfall, snowfall, or other forms of frozen/liquid water, is the key climate and weather-related variable of concern in Stormwater Management (SWM). As a result of climate change, storm events are predicted to become more intense in the GTHA, which can result in larger volumes of precipitation at one time (see (McDermid, et al., 2015) as outlined in Table 2-4).

2.3.2.1 *Stormwater Management*

The SWM design for the Transit Project will consider the drainage and SWM objectives of the MOECC Stormwater Management Planning and Design Manual (2003), Ministry of Transportation (MTO) Drainage Management Manual (2008), and TRCA Stormwater Management Criteria (2012), among other guidance. This will be supplemented by current guidance such as the runoff volume control targets for Ontario recommended to MOECC (Aquafor Beech Ltd. and Earthfx Inc., 2016) from local municipalities and Conservation Authorities.

A detailed SWM Plan will be developed prior to the construction phase of the Transit Project so that runoff from rainfall is controlled based on predicted future scenarios, to promote climate resilience. Future increased rainfall intensities, and consequently increased runoff, will be predicted using precipitation Intensity-Duration-Frequency (IDF) curves, such as those found in the MTOs IDF Curve Lookup Tool. These can be incorporated into the SWM design of the Transit Project once the design life of the stations is determined.

IDF curves are graphical representations of the amount of water that falls within a given period of time in catchment areas, and are used by decision makers to plan and design infrastructure to withstand severe weather impacts (Office of the Auditor General of Canada, 2016). Current SWM practices include the use of IDF data and design storm distributions (e.g., Chicago Storm, Hurricane Hazel), as well as 2-year through to 100-year[3] storm events.

Designing the SWM systems for the Transit Project using IDF curves will lead to:

- Reduced ongoing operation and maintenance requirements; and,
- Minimized impacts on surrounding ecosystems, since SWM systems will be designed to ensure that runoff from rainfall is controlled mostly on-site.

Oil-grit separators[4] and stormwater management features must be sized appropriately to manage predicted future scenario flows and sediment loading (i.e., winter and spring).

2.3.2.2 *Erosion and Sediment Control Measures*

An increase in storm intensity, which is projected as a result of climate change (see Table 2-4), can make erosion and sedimentation more likely, especially during construction. Erosion and Sediment Control (ESC) measures as described in Appendix B in Volumes 2 to 7 of the EPR, including the development of an ESC Plan, will be implemented during the construction phase of the Transit Project to ensure stormwater runoff is controlled and sediment is prevented from entering sewers and watercourses. The ESC Plan will include consideration of the Greater Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guideline for Urban Construction (Greater Golden Horseshoe Area Conservation Authorities, 2006) and OPSS 805 (Erosion and Sediment Control Measures). Installation and monitoring of appropriate ESC measures will help mitigate potential effects of climate change on the Transit Project.

[3] Storm even frequency is used to simplify the definition of a rainfall event that statistically has a chance of occurring once within the given time period (e.g., a 100-year storm has a 1 in 100 (1%) probability of occurring in any given year.

4 Oil grit separators are underground devices designed to protect waterways from hazardous material spills and stormwater pollution.

2.3.3 Drought

As summarized in Table 2-4, the Great Lakes Basin is projected to see increases in frequency and extent of drought. Station design, in pursuit of LEED accreditation and credits as required by the DRM, will include consideration of water conservation measures to reduce effects of drought on the Transit Project, such as:

- Metering indoor and outdoor water use to better track and manage the impacts of extended droughts on operations and landscape plantings.
- Using water conserving systems to reduce consumption.
- Planting drought resistant vegetation.

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