Innisfil (Mobility) Orbit & Related Municipal Infrastructure Projects

INTRODUCTION

The **Innisfil Orbit** is a new Transit Oriented Community being developed in the Town of Innisfil (Ontario). The Orbit, located on the shores of Lake Simcoe, includes a (developer lead) Metrolinx GO Station at its core. The Orbit is proposed to grow over generations to a population **target of 150,000 people.**

The Orbit development includes three (3) primary phases and over 2,000 ha in an 800 m radius centered at the Metrolinx GO Station at 6th Line in Innisfil and the Metrolinx tracks.

In 2020, Greenland International Consulting Ltd. (Greenland), in association with affiliate Urban Watershed Group Limited (2006), was retained by the Cortel Group to prepare a Master Servicing Plan, Stormwater Management Master Plan, Functional Servicing Reports and detailed designs for individual phases and associated infrastructure for the development. In 2024, Greenland successfully defended the project from potentially devastating Duty to Consult litigation and involving a First Nations Treaty consortium.

The award of these services was the culmination of **over 20 years** of water resources planning and engineering design and using Greenland's proprietary software and "forward-thinking" civil design of municipal infrastructure. Details of these collaborative projects are presented later on.

As of January 2026, Greenland has completed the design of Phase '1' of the Innisfil Orbit community, including over **$60 Million of municipal and site plan infrastructure to commence construction in 2027.**

Assisting Government of Ontario to Create Housing & Protecting Lake Simcoe (2003-11)

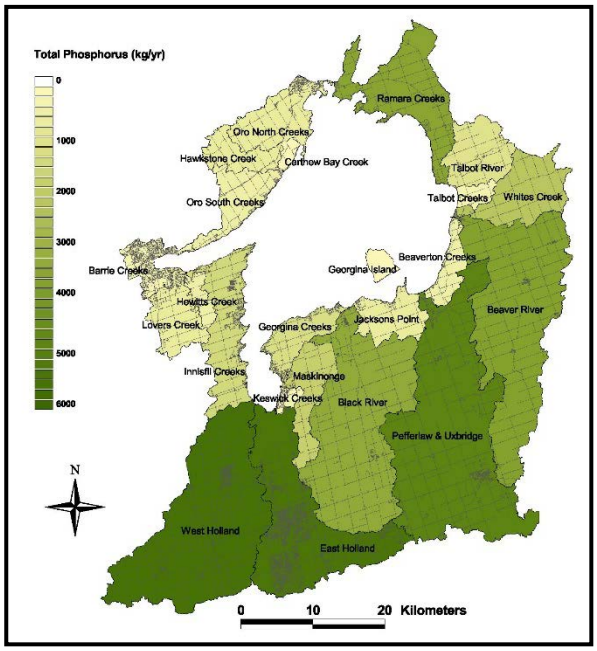
Phosphorus has been an issue in Lake Simcoe for many decades. In water bodies such as lakes, a certain amount is necessary, but over time too much phosphorus can cause serious issues including excessive weeds, toxic algae and depleted oxygen levels in our rivers, streams and ultimately, Lake Simcoe.

Following the passing of the Greenbelt legislation in the Province of Ontario in 2005 and the lack of development land supply in the Greater Toronto Area (GTA), the County of Simcoe faced intense growth pressures. Forecasts from both public and private sectors identified Simcoe County as a key region for planned employment and population growth opportunities. Demand for growth also presented timely opportunities to implement sustainable solutions for growth, which included the protection of Lake Simcoe.

1,200-unit subdivision by Greenland (Innisfil, Ontario)

To this end, Greenland was retained by the local Conservation Authority for a pilot study to model the runoff and loading of phosphorus from the Black River, Innisfil Creek and Nonquan River to Lake Simcoe and develop a watershed-based decision support tool to complete "what-if" intensity growth assessments. Greenland ultimately developed its proprietary tool called the **CAN**adian **W**atershed **E**valuation **T**ool (**CANWET**™) to complete this landmark project.

The pilot studies ultimately lead to Greenland using CANWET™ (in 2006) to complete Assimilative Capacity Studies for all subwatersheds within the Lake Simcoe Basin and adjacent Nottawasaga River Basin.

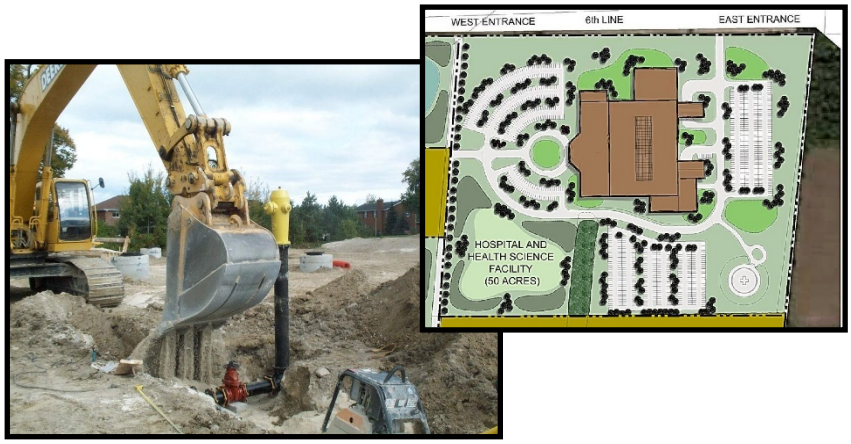


In 2007, Greenland was engaged by the Province of Ontario to complete CANWET™ related studies of different development scenarios and support the Province's projected growth scenarios for Simcoe County under the Province's *"Places to Grow"* legislation.

Greenland's work helped facilitate the passing of the award-winning "Lake Simcoe Protection Plan" by the Ontario Government in 2009. Greenland worked collaboratively with all levels of government to also implement additional policies and practices to reduce phosphorus. This work included development of a Phosphorus Loading Tool by Greenland in 2011 and used thereafter for all land development projects in the Lake Simcoe Basin. The tool was used to assess the impact of development on Phosphorus loadings to the Lake and assess and alternative mitigation measures.

Employment Corridor Master Servicing Planning, Innisfil ON (2008-2010)

Greenland was later retained by the Town of Innisfil to prepare a Master Servicing Strategy in support of the 6th Line Corridor Employment Infrastructure Project, which includes the future development of a portion of the Economic District along Highway 400 and a post-secondary Campus Node. The Master Servicing Strategy was completed in 2010 and included a feasibility analysis for the folllowing infrastructure works:



- Water supply allocation and distribution from the Alcona Water Treatment Plant (WTP) to the Campus Node lands and new trunk sewer servicing for the area;
- Required allocation and upgrades at the Alcona WTP to service the initial phase of the Campus Node;
- Extension of sewage collection system services from the Lakeshore Water Pollution Control Plant (WPCP) along the 6th Line and trunk servicing to the Campus Node lands;
- Required allocation and upgrades at the WPCP to service the initial Campus Node phase;
- Construction of a WPCP treated effluent / water reclamation (“purple pipe”) system from the WPCP and along the 6th Line to the Campus Node to provide a cost-effective and environmentally sound solution for local irrigation needs and other non-potable water uses; and,
- Stormwater management “target” requirements for the Campus Node and Economic District.

In 2014, related environmental assessment and preliminary design components for the initial phase were initiated by the Town of Innisfil. Greenland was retained for the 6th Line external servicing works and associated with a new 1,200 unit subdivision at the east end of the 6th Line Corridor.

Designing an Environmentally Sustainable 1,200 Unit Subdivision in Innisfil ON (2012-25)

Based on Greenland’s unmatched background knowledge and proprietary science-based tools to address sediment, nutrients and other water quality contaminant concerns arising from land development projects and policies associated with the enacted “Lake Simcoe Protection Plan”, Greenland’s consulting services became in high demand for the development industry. This success has continued to this day and now involves new, state-of-the art AI/ML modeling tools.

In 2012, Greenland was retained by the Cortel Group to prepare a Master Servicing and Stormwater Management Plan for a new 1,200 unit residential subdivision in the Town of Innisfil. To-date, the project has been innovative from the start and including a research pilot project with the University of Guelph that tested erosion and sediment control measures.

Ultimately, the project was designed by Greenland and where the organization has also provided construction services for all four (4) phases from 2017 to 2025. Design services included all sanitary, water, storm, three (3) stormwater management ponds, roadways and landscape features, including a Low Impact Development (LID) component to the unique SWM Plan for the Phase '1' development.

Front Yard LID Rain Gardens (Innisfil, Ontario)

In 2020, the Town of Innisfil retained Greenland to implement a Pilot Project, funded through the Federation of Canadian Municipalities' (FCM) Green Municipal Fund, to assess Advanced Sedimentation Technologies (ASTs) designed to reduce the sediment and nutrient loading rates to Lake Simcoe from stormwater runoff generated by the development sites. Conventional design of stormwater management facilities has been proven to be ineffective at removing fine-grained sediment (<40µm) from stormwater, causing negative impacts in downstream waterbodies. Compounding these impacts, are phosphorus and heavy metals pollution.

The pilot project monitored the performance of Clearflow's Gel Flocculant Blocks and Treated Geo-Jute at removing fine sediments and nutrients at three (3) stormwater management facilities that discharge to Lake Simcoe over the course of one year in un-stabilized construction sites. Its primary goals included reducing sediment and nutrient discharge from new developments to watercourses, thereby benefiting both Innisfil and Lake Simcoe. By achieving these objectives, the initiative directly contributes to minimizing future municipal liability in compliance with Lake Simcoe Protection Plan requirements.

Over the 4-Season monitoring and sampling period, the ASTs resulted in an average total suspended solid removal rate of 90% on un-stabilized sites, compared to a pre-installation average of 60%. The products were also proven successful at removing phosphorus, with an average removal rate of 96% over the course of the sampling period.

The AST products provided a demonstrated improvement to TSS removal in SWMFs at un-stabilized sites, and were proven effective at removing sediment <40µm in diameter, which are unaccounted for in MECP design standards for TSS removal. In addition, high-levels of phosphorus removal were observed at both SWMFs under active construction, following the trend of TSS removal. The ASTs provide a viable solution that not only assists municipalities in long-term sediment management and stabilizing development sites but also offers a straightforward and efficient implementation process.

The most recent Phase '4' of the 1,200 unit subdivision, and completed in late 2025, resulted in the servicing the final 120 single and townhouse residential units.

Major Collector Municipal Road Reconstruction and Servicing in Innisfil ON (2017- 2025)

As part of the 1,200 unit subdivsion development and 6th Line employment corridor planning studies, Greenland was retained by the Town of Innisfil in 2017 to undertake the design, approvals and construction support necessary for the 6th Line Urbanization and Infrastructure Expansion Project. Based on the recommendations identified in the 6th Line Class EA, the design included: Expanded Road Geometrics, Watermain, Storm Sewer, Sanitary Sewer, Streetscaping, Road Re-construction, Utility Improvements, Illumination, and a Roundabout. The first two phases of the 6th Line road reconstruction included 2km of upgrades to support the subdivision development

Roundabout at 6th Line & Webster Blvd., Innisfil ON

Greenland is also now completing the design of a flood mitigation project in Alcona South and in cooperation with other local developers and the Town of Innisfil. Based on an excellent design track record, Greenland was added to the Town's SWM Peer Review Services 2024 Roster.

Green Infrastructure Solution to Reduce Flooding for Existing Residents in Innisfil

The Town of Innisfil and Lake Simcoe Region Conservation Authority retained Greenland in 2019 to complete a Conservation Authority Class Environmental Assessment (EA) to address the persistent flooding that occurs in the South Alcona Region. Residents have expressed concerns about public safety as well as the rising economic burden to repair annual damages (total ~$2M).

The objective of the Conservation Authority Class EA for the South Alcona region was to identify and evaluate engineering design options to address the chronic flooding issues which have persisted in the Belle Aire and Cedar Creek watersheds of South Alcona for over a decade. These design options included green infrastructure to assist with water quality and infiltration. The preferred stormwater management solution would minimize impacts to both the natural and social environments and would be technically feasible and economically sensible.

This study was conducted in accordance with the Conservation Authority Class Environmental Assessment for Remedial Flood and Erosion Control Projects (Class EA) guidelines. The Class EA process looked at potential environmental, cultural and economic effects, developed alternatives, determined preferred measures, and incorporated mitigation methods. This type of EA includes public and agency consultation.

The preferred stormwater management solution for the South Alcona area included channel improvements in the residential section of the Belle Aire Creek as well as redirecting flows above the 2-yr storm away from the Belle Aire Creek to the local Little Cedar Creek wetland. This diversion would be done with an engineer designed flow splitter. The diverted water would travel from the flow splitter to the wetland through a conveyance channel designed to increase sedimentation. A 1.2m berm would be built around the Little Cedar Creek wetland so that it would be able to handle the increase stormwater volume.

Finally, the primary outlet for the wetland would remain the Little Cedar Creek. A weir control structure would be built at the outlet to maintain pre-development flows in the Little Cedar Creek. An emergency outlet would also be built ~1 km southwest of the primary outlet to outlet any storm volume above the 100-yr storm.

Greenland is now finalizing design for this project and to facilitate construction in 2027.

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GREENLAND® Group of Companies Inc.