



MUNICIPAL INFRASTRUCTURE



SMART Water Grid / Life Cycle / Asset Management

Town of Collingwood (Canada) SMART Stormwater Project

The project was initiated in September 2017 to help reduce stormwater inflows from private properties into the municipal sanitary sewer system and Wastewater Treatment Plant. The landmark collaboration was also funded by the Federation of Canadian Municipalities (Green Municipal Fund) and completed in March 2020.

Our project team installed new internet connected sump pump and rain (roof runoff) cistern products in neighbourhoods at high risk from flooding. These products also prevented non-compliant connections to the sanitary sewer system and instead redirected discharges to Low Impact Development (LID) features. Data collected from the smart technologies (SafeSump™ and RainGrid™) were then be used with a concurrent sewer monitoring program and asset management study. Also, a renowned University of Waterloo team (www.intactcentreclimateadaptation.ca) participated too (see attached project letter of support).

The municipal-wide LID installations monitored permeable parking lots at institutional & commercial sites, as well as rain gardens, internet rain cisterns and basement sump pump installations at residential sites. Over 2 years of data was used to validate continuous sewershed models and using a proprietary decision support system developed by Greenland International Consulting Ltd. Study findings were then be used to analyze how community solutions could be cost-effectively scaled up and via de-risk investment programs with homeowner flood protection incentives. Reducing chronic extraneous inflows to the sewage system will also help reduce the Town's GHG footprint, including the Wastewater Treatment Plant. The concurrent asset management study results helped to quantify the severity of the residential stormwater connections to the Wastewater Treatment Plant. This enabled GREENLAND® to also identify sustainable options that addressed sewer system inflow/infiltration concerns and climate change related impacts too.

The "first-ever in Canada" work plan was developed by GREENLAND® to address the growing and costly problems of climate change induced stormwater inflows into the municipal sanitary sewer system. For example, in the spring of 2016 (during a severe rainfall event), untreated sewage from Collingwood's Wastewater Treatment Plant was released into Georgian Bay. Similar environmental impacts have occurred in Ontario from flood events affecting other municipally-owned facilities. Research by other municipalities indicate that inflow and infiltration from private properties may account for a significant portion of the storm event day flow rates that a wastewater treatment facility receives - which can be seven (7) times greater than the average flow rate. The Collingwood study was also intended to identify key factors for influent spikes at the Wastewater Treatment Plant during winter-spring snowmelt periods, as well as quantify impacts and develop "SMART" stormwater mitigation alternatives.

For more information, please visit the project website at www.collingwoodpilotproject.com.



November 21, 2016

**Corporation of the Town of Collingwood
97 Hurontario St., P.O. Box 157,
Collingwood, Ontario
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Attention: Mr. Martin Rydlo, Director of Marketing & Business Development:

I have been following the development of a very interesting technology pilot project related to mitigating stormwater risk that individual households can experience as weather patterns become less predictable and more extreme.

The integration of internet technology with Low Impact Development practices has the potential of generating unprecedented levels of data, information and insights about action homeowners can take to limit basement flooding. The Intact Centre on Climate Adaptation (ICCA) is highly supportive of this pilot project as it takes a Big Data approach to an issue that has been lacking this level of data collection.

The ICCA is a national applied research centre located at the University of Waterloo. It focuses on mobilizing practical and cost-effective solutions to address climate change and extreme weather events. To this end, the ICCA is an incubator of new adaptation ideas, conducting research, knowledge mobilization and promoting initiatives aimed at de-risking the negative impacts of a changing climate and extreme weather.

ICCA is now leading a project to establish national best practices to reduce flood risk in new communities. The ICCA is engaged in consultations with municipal engineers, insurers, mortgage lenders, developers, builders, real estate associations and others nationally to establish best practices and prioritize them. Another one of ICCA's concerns is a growing uninsurable housing market in Canada due to sewer backup and other home basement flooding risks. Accordingly, in August 2016, ICCA announced the Home Adaptation Assessment Program (HAAP), which was established to limit the risk of basement flooding across existing homes. Phase I has started in the City of Burlington, Ontario, with approximately 4,000 homes, and thereafter will continue with broader rollout across Canada.

This summer, I had the opportunity to visit Collingwood with one of my directors, Cheryl Evans. An ICCA industry partner, Greenland International Consulting Ltd., an established Collingwood business lead by the Palmer family and their business partners initiated the visit. During my visit, we had a chance to meet with you as well as representatives affiliated with the Province of

Ontario and the Manager Director from the Water Alliance in The Netherlands. What became apparent is that Collingwood is poised to become a world-class 'smart' (Internet-of-Things) technology ecosystem (or "cluster") composed of existing and new businesses. This cluster could bring together key growth sectors including water management, agri-food and health technology partnerships. Water management is of high interest to my organization. As a result I am supportive of this technology cluster concept and of discussing ICCA can participate on an initial project next year.

I would be interested in presenting to Council in person on the topic of reducing flood risk and the leadership position Collingwood can take in tackling this major issue with breakthrough technology. However, given my schedule at hand, I am hoping this letter will sincerely convey my team's interest to continue supporting the efforts by the Town and the partners involved in the stormwater technology pilot.

I also want to express the urgency for all levels of government (and citizens) to understand ICCA's mission statement and its desire to form beneficial national partnerships (including Collingwood). The urgency is highlighted in the interview I did with the CBC this month. [Please click here to view the full video.](#)

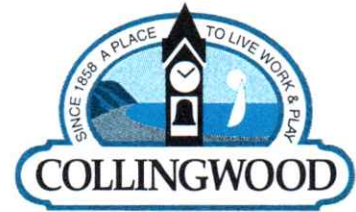
In closing, I am hoping to meet all of you next year. In the meantime, ICCA looks forward to a supportive relationship with Town of Collingwood, local businesses (including Greenland) and other partners (nationally and internationally).

Sincerely,



*Dr. Blair Feltmate
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TOWN OF COLLINGWOOD



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April 9, 2018

To whom it may concern:

I would like to recognize the active involvement of the GREENLAND Group of Companies in the Town of Collingwood's economic development efforts and dedication to helping advance the Town's vision of being a specialized technology hub. Their extensive knowledge of the water technology and land development industries, coupled with their desire to help propel Collingwood forward as a regional economic leader, are very much appreciated.

GREENLAND(r) has also assisted in advancing local "Smart (Internet-of-Things) and Sustainable Cities" partnerships. GREENLAND(r) was influential recently in launching our "Collingwood Storm Water Pilot Project" which will enable a team of local organizations to address basement and lot drainage flooding issues. The project website is www.collingwoodpilotproject.com. Their support also enabled the Town to secure sizeable funding for the project.

The Town is proud to have GREENLAND in the community as they have also been key supporters in facilitating introductions with renowned organizations, such as the University of Guelph, University of Waterloo, WaterTAP, Communitech, Canadian Water Resources Association and Canadian Water Network. These organizations and others will help Collingwood secure new businesses with a recreational and healthy lifestyle focus. GREENLAND is also a passionate supporter of youth networking and knowledge transfer initiatives, providing financial assistance for Collingwood Youth Centre initiatives at www.collingwoodyouthcentre.ca.

If you have any questions about the GREENLAND Group of Companies, please contact Martin Rydlo at (705) 445-8441 ext 7421 or mrydlo@collingwood.ca.

Yours truly,

Fareed Amin
Chief Administrative Officer
The Corporation of the Town of Collingwood