

Lake Scugog Enhancement Project

A critical component of strengthening regional resilience to the impacts of climate change is the strategic investment in natural assets, like wetlands and forests. This natural or “green” infrastructure can help us mitigate some of the largest threats facing our region, including flooding, water quality issues and rising temperatures.

By understanding what services our natural assets provide, we can better plan for and manage them – just as we would any other municipal asset.

Building an Economic Case

The Lake Scugog Enhancement Project will help protect local tourism and recreation, and ultimately the economic value associated with people’s use and enjoyment of the lake. The Enhancement Project will address water quality issues, while managing the amount of excess nutrients and invasive species in the lake. It will also create new wildlife habitat and recreational amenities.

The major risk factors to the long-term ecological health of Lake Scugog are:

- Eutrophication
- Sedimentation
- Weed growth caused by phosphorous and nitrogen loading
- Climate change; and,
- Harmful algal blooms (linked to climate change).

The Scugog Enhancement Project, estimated at a capital cost of \$3.0 million, will include the following components:

- Dredging for one time removal of sediment and invasive aquatic plant species
- Installation of storm water management features
- Construction of new wetlands, and shoreline extensions (including a berm); and,
- Naturalization to enhance habitat and recreation.

To build the economic case for this project, the ecosystem services resulting from the lake’s enhancement were evaluated for their ability to reduce phosphorous loading, one of many services expected from the project. The net present value of the project’s phosphorous loading reduction over the 50-year study period was estimated to be approximately \$716,000 to \$936,000. This was the only service resulting from the project that could be directly quantified with the available information. To understand the importance of undertaking this work for the larger lake ecosystems, annual ecosystem services provided by the entire Lake Scugog watershed were also estimated.

Annual Ecosystem Services Values from Lake Scugog watershed in million \$

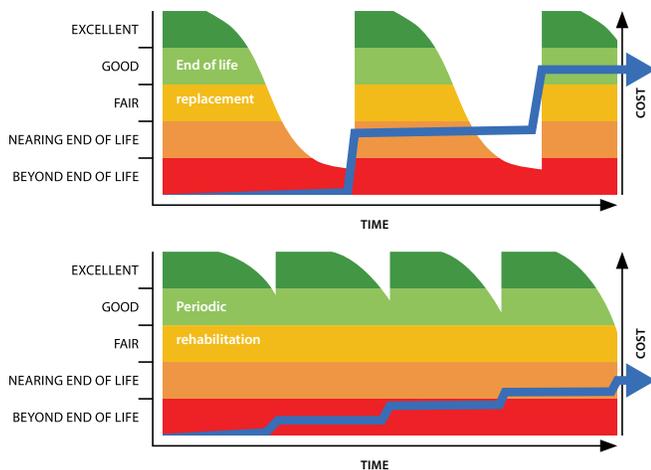


Possibility grows here.



Maintaining the current ecosystem service level provided by Lake Scugog requires investments, as phosphorous and sedimentation levels are continuing to rise from ongoing human activity. The Lake Scugog Enhancement Project plays a role in the asset renewal of Lake Scugog. Long-term cost comparison shows that making more frequent renewal investments can lead to significant cost savings over time compared to letting an asset deteriorate so much that it needs to be replaced.

Long-term maintenance investments in assets compared to replacement costs. Adapted from Figure 42 of Richmond Hill's 2016 Asset Management Plan



Lake Scugog provides valuable services to the community that surrounds it. The community's closeness to the lake also means that humans are influencing the lake's health, largely with ecological stressors like phosphorous inputs. If nothing is done until there is such significant ecological decline that the system no longer functions on its own, a higher cost is likely to be incurred than if timely and continued investments were to be made.

Beyond its ecological significance, this project is an investment in the aesthetic and perceptual value of the lake. With continued eutrophication and ongoing risks of harmful algal blooms (HABs), the lake's decline threatens the region with a loss of tourism. The economic costs associated with HABs are significant; a 2019 study suggests that they will impose equivalent annual costs equal to \$272 million over a 30-year period in Lake Erie, if left unchecked.

The Lake Scugog Enhancement Project is supported by many in the community who see it as an important investment in the lake's future. This community support and the local knowledge and understanding of the project's benefits is critical.

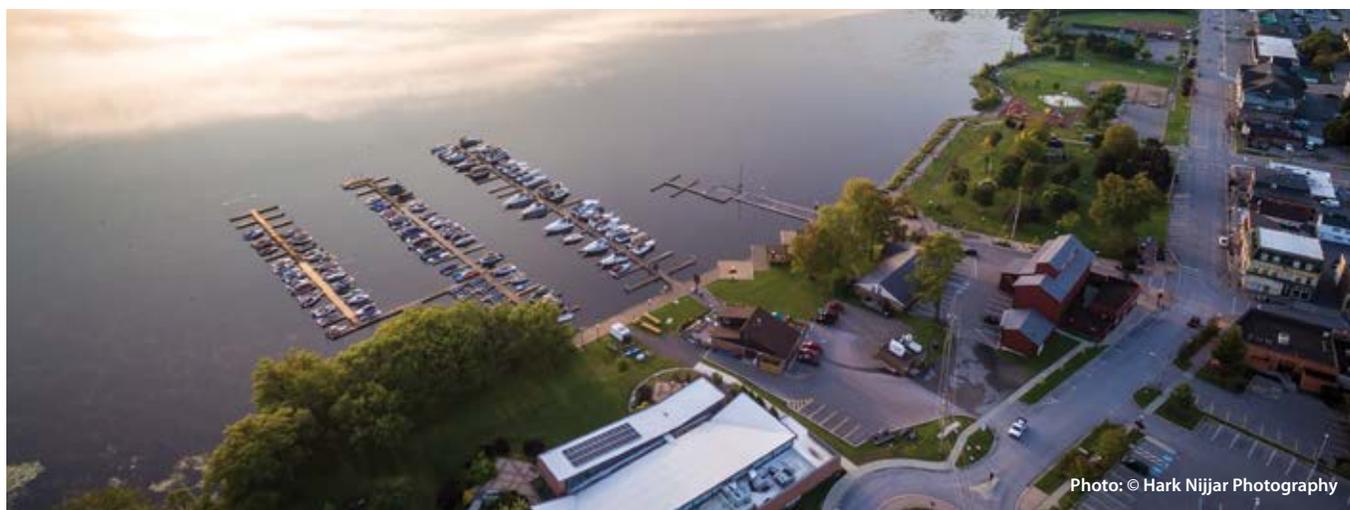


Photo: © Hark Nijjar Photography

Beyond the Economic Case

In addition to the services that restored natural areas can provide as infrastructure, they provide communities with more intangible benefits as well. Natural settings can improve moods, lower blood pressure and increase reported happiness.

Studies have shown connections between access to blue spaces like Lake Scugog and improved physical and mental health for residents of the region¹.

¹ Pasanen, T. P., White, M. P., Wheeler, B. W., Garrett, J. K., & Elliot, L. R. (2019). Neighbourhood blue spaces, health and wellbeing: The mediating role of different types of physical activity. *Environmental international*, 131, 105016

