WATER PRIMER

Coalition for a Liveable Sudbury – January 2015



Our lakes, waterways & watersheds are protected

PROTECTING WATER QUALITY IN OUR CITY OF LAKES

Sudbury has the distinct privilege of having more lakes than any other municipality in Canada. With greater incidents of blue-green algae blooms and beach closures, lake water quality is a top priority and concern for residents. Swimming, boating and fishing is a way of life in Greater Sudbury, and all of us rely on safe drinking water sources. Our lakes have suffered greatly from years of smelting activity but we have been able to bring many lakes back from the brink. Now new challenges also face our lakes, especially urban lakes.

Urban lakes are at risk due to human activity. Urban stormwater runoff is one of the leading sources of water quality impairment in lakes and rivers. Urban stormwater runoff raises water temperatures and contains suspended solids, nutrients, bacteria, heavy metals, oil and grease, road salt, phosphorus and other contaminants.

Through regreening, we have learned that healthy land = healthy water.

COST-BENEFIT ANALYSIS

'An ounce of prevention is worth a pound of cure' is an apt saying when it comes to water quality. Preventing poor water quality is much less difficult and costly than trying to address water quality problems. Poor water quality has ecological and health impacts. It also makes for an unappealing place to live.

Traditional stormwater management focuses on piping water off-site. Building and maintaining storm sewer systems is a big strain on municipal budgets (1). The modern approach to stormwater management is based on watershed planning. It has fewer pipes, and more green infrastructure; less cost, and more resilience (2).

For example:
- Ontario: Credit Valley Conservation makes the business case for Low Impact Development. (3)
- New York: "The Green Infrastructure strategy was also found to be more cost effective "($0.62 per gallon for Grey Strategy vs. $0.45 per gallon for Green Strategy)."
- "The City of Portland's Tabor to the River plan, which showed a cost benefit of $63 million to the city by the inclusion of green strategies in combination with a grey infrastructure approach for upgrading an undersized sewer pipe system in order to help control CSOs and improve sewer system reliability." (4)

To protect the value of our community, we need to protect the health of our watersheds. Taking a modern approach to stormwater management is both more protective and more cost effective.

BUDGET 2015

Watershed studies are needed to make informed planning and development decisions that maintain the health of our lakes and waterways. Greater Sudbury has yet to complete a watershed study.

Annual funding for priority watershed studies must be included in the budget. Allocating $250,000 a year will allow us to complete required watershed and subwatershed studies listed in the Official Plan in approximately 8 – 9 years (5).

OFFICIAL PLAN

The Official Plan is the guiding document for the vision, strategic directions, and policies of our City. Official Plan policies must effectively protect water quality. We will especially be watching for: requiring larger shoreline buffers, and recognizing & protecting locally significant wetlands & natural areas.

Where possible, natural shoreline buffers should be required to be 30m as recommended by the Ministry of the Environment and Climate Change, and the Ministry of Natural Resources.

Maintaining wetlands and natural vegetation that filter out contaminants before they end up in the water is vital to water quality. Local conditions makes this even more fundamental in Greater Sudbury. Recent studies have shown the heightened importance of wetlands in Greater Sudbury (6). Natural areas are part of holistic stormwater management, and the natural services they provide for free cannot be fully replaced by expensive man-made solutions.

WHAT IS NEEDED

To be not only a city of lakes, but a city of clean healthy lakes, we need:

- **Watershed studies**: The Ontario Ministry of the Environment and Climate Change includes watershed studies as an essential part of stormwater management, stating, "Urban development without watershed/subwatershed planning is discouraged". Watershed plans should include: aquatics, water quality, hydrology, stream morphology, groundwater, terrestrial, social, and economics. (2)
- **More protective storm water management standards**: What goes down the storm drains goes into our water. Stringent stormwater treatment standards are needed to remove more contaminants before they reach our lakes. Enhanced Protection will remove 80% of suspended solids, compared with 70% under Normal Protection, and will thus remove more phosphorus. An Enhanced Level wetland, wet pond or hybrid pond has the potential to remove 80% of phosphorus (7). Local conditions dictate that Greater Sudbury should be using the most stringent stormwater management standards possible.
- **Green infrastructure**
- **Low Impact Development (LID)**: Low impact development absorbs rainwater where it falls, reducing run-off. This means less risk of flooding, less contaminants entering our lakes and waterways, and less maintenance costs and stress on our storm water systems. Some simple examples are rain barrels, rain gardens and other plantings, permeable pavers, and disconnecting downspouts from sanitary sewers and sump pumps. LID techniques have been found to remove greater than 90% of suspended solids, compared to 50-65% for conventional storm water treatments such as retention ponds. (8) Implementing well-chosen LID practices saves money for developers, property owners, and communities while also protecting and restoring water quality.
- **More natural areas and wetlands in watersheds, especially within 200ft of shorelines.**
- **Implementation of the Source Water Protection Plan**
- **To recognize and plan for the impact climate change on our lakes, rivers, and floodplains and act now to mitigate and prevent issues of such as flooding and water temperature increases.**

Coalition for a Liveable Sudbury (CLS) is a grassroots group of citizens and community organizations who share a vision of Greater Sudbury as a green, healthy and engaged community. We support environmental, social and economic sustainability.

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liveablesudbury.org

LOCAL PROPONENTS OF WATERSHED HEALTH

Greater Sudbury Watershed Alliance - Lake Stewardship Committees - Junction Creek Stewardship Committee - Drinking Water Source Protection Committee and Authority – Conservation Sudbury – Lakes Advisory Panel - Lake Water Quality Program

GUIDING DOCUMENTS (LOCAL)

Official Plan
Source Protection Plan http://www.sourcewatersudbury.ca/en/

REFERENCES & RESOURCES

1. "Low Impact Development (LID) and Other Green Design Strategies" U.S. Environmental Protection Agency on-line fact sheet.
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=124

2. "Stormwater Management Planning and Design Manual". 2003. Ontario Ministry of the Environment
http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/std01_079721.pdf

3. http://www.creditvalleyca.ca/low-impact-development/low-impact-development-support/stormwater-management-lid-guidance-documents/

4. "FORGING THE LINK: Linking the Economic Benefits of Low Impact Development and Community Decisions". 2011. This study was conducted by the University of New Hampshire Stormwater Center, the Virginia Commonwealth University, and Antioch University New England.
http://www.unh.edu/unhsc/sites/unh.edu.unhsc/files/docs/FTL_Resource%20Manual_LR.pdf

5. Greater Sudbury Offical Plan Stormwater Background Study. 2006.
http://www.greatersudbury.ca/linkservid/D0886D42-CD5D-42FB-250A508C19F8C0C4/showMeta/0/

6. Erik J. Szkokan-Emilson , Brian E. Wesolek , and John M. Gunn (2011). Terrestrial organic matter as subsidies that aid in the recovery of macroinvertebrates in industrially damaged lakes. Ecological Applications, 21(6): 2082–2093

Brian E. Wesolek, Erik J. Szkokan-Emilson, and John M. Gunn (2010). Assessment of Littoral Benthic Invertebrate Communities at the Land–Water Interface in Lakes Recovering from Severe Acid- and Metal-Damage. Human and Ecological Risk Assessment, 16: 536–559

7. "LSRCA Technical Guidelines for Stormwater Management Submissions" 2010. Lake Simcoe Region Conservation Authority.
http://www.lsrca.on.ca/pdf/swm_guidelines.pdf

8. UNHSC, Houle, J., Roseen, R., and Ballestero, T. (2010). "UNH Stormwater Center 2009 Annual Report." University of New Hampshire Stormwater Center, Cooperative Institute for Coastal and Estuarine Environmental Technology, Durham, NH.

Also see:
Credit Valley Conservation Low Impact Development Guidance Documents http://www.creditvalleyca.ca/low-impact-development/low-impact-development-support/stormwater-management-lid-guidance-documents/

Portland's Grey to Green program: https://www.portlandoregon.gov/bes/47203

An example from Waterloo to encourage and reward private land owners who take action to reduce the amount of stormwater run off from their property.
http://www.waterloo.ca/en/living/creditprogram.asp

Lake Simcoe and its Watershed - Report to The Minister of the Environment
Prepared by the Lake Simcoe Science Advisory Committee. 2008.
http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/@resources/documents/resource/stdprod_078249.pdf
(Lake Simcoe is considered the gold standard in policies protective of water quality in Ontario)