



## Natural Environment



## Water



Boulevard Lake Park

# 10.0



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### GOAL:

To ensure that water resources in the local watershed are protected and enhanced through the engagement of various stakeholders.

### WHY IT MATTERS:

Canada is home to roughly 7% of the globe's renewable freshwater, making it the third-largest water supply in the world. The City of Thunder Bay is blessed with water resources being situated on the headland of Lake Superior, the largest freshwater lake in the world by surface area. In Ojibwe, the lake is called Gitchigami, meaning "big water." A number of tributaries make their way through the City, including the Kaministiquia, Neebing and McIntyre Rivers, McVicar Creek, and the Current River.

Many Canadians believe that our freshwater resources are boundless. The truth is that only a small proportion of our water is renewable and located close to where most Canadians live. While we take water for granted in Canada, high population growth, rising consumption, pollution, and poor water management pose significant threats to the global water supply. Coupled with climate change, the results will be disastrous in some areas. The Secretary General of the UN recently condemned the lack of heed paid by governments to these warning signs: "Throughout the world, water resources continue to be spoiled, wasted and degraded...The consequences for humanity are grave. Water scarcity threatens economic and social gains and is a potent fuel for wars and conflict." Ban Ki Moon's remarks come as environmental experts in Great Britain have identified 46 countries — home to 2.7 billion people — where climate change and water-related crises will create a high risk of violent conflict. Humanitarian organizations including the United Nations have declared that water should be protected as a human right. Advocates of water governance stress the need for policies that protect the health of the planet, thereby protecting our water rights.

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Another emerging issue of concern is contamination of water from pharmaceuticals and personal care products such as soaps, lotions and hair dyes. Current municipal wastewater technologies across Canada have limited and unknown abilities to remove the dissolved contaminants that may be contained in the waste stream. Also, rainwater that falls on impervious surfaces like roads, park buildings is directed into storm sewers. This rainwater, called "stormwater runoff", can impact the natural ecosystem, potentially impacting the health of the ecosystem.

Much of our focus is on the municipal lakes as it serves the majority of local people. However, a large portion of Thunder Bay's land mass is urban or largely rural and relying on groundwater. Swimming and other non-consumptive uses of water such as canoeing and kayaking in Thunder Bay and also deserve special attention. Our community has an important role in protecting and enhancing our local waterways at

### HIGHLIGHT:

#### Cogeneration at the Atlantic Avenue Water Pollution Control Plant

A cogeneration facility was installed at Thunder Bay's Atlantic Avenue facility in January 2011 to capture digester gas, which contains the potent greenhouse gas methane. This "biogas" is combusted in a cogeneration engine to produce electricity and heat for the plant. The biogas is used to generate approximately 10,000 kW/day - roughly equivalent to the plant's daily energy consumption. In 2011 the plant produced 1.7 million cubic meters of biogas, 96% of which was used onsite.

### DEFINITIONS:

**Low-impact development (LID)** is a term used in Canada and the United States to describe a land planning and engineering design approach to managing stormwater runoff. LID emphasizes conservation and use of on-site natural features to protect water quality. This approach implements engineered small-scale hydrologic controls to replicate the pre-development hydrology through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source. Some examples of LID techniques are bioretention, permeable pavement, rain barrels, grassed swales, green roofs, reducing impermeable surfaces and tree box filters.



### OBJECTIVES and RECOMMENDED ACTIONS

**A. By 2020, integrated approaches to improve the management of water, wastewater, and stormwater based on best practices are supported.**

#### ACTIONS FOR CORPORATION

- Develop a comprehensive master plan for water, wastewater and stormwater
- Raise adequate financial resources for treatment and maintenance of stormwater
- Update the Official Plan with a water lens
- Develop watershed restoration plans to document and prioritize areas for adaptation, restoration and protection of water bodies
- Update storm, sanitary and property By-laws to support maintenance of SWM on private property
- Continue to separate wastewater from extraneous inflow to reduce peak flow to the wastewater treatment plant

#### ACTIONS FOR COMMUNITY

- Complete "clean-up" of contaminated North Harbour sediment inside breakwall off former Cascades/Superior Fine Papers Mill site
- Complete actions necessary to address Beneficial Use Impairments, as listed in the Remedial Action Plan for the Thunder Bay Area of Concern. Impairments to be addressed include issues associated with water quality, sediment quality, aquatic and terrestrial habitat, fish and wildlife

**B. By 2020, water conservation, stewardship and water management practices for healthy watersheds are promoted to the community.**

#### ACTIONS FOR CORPORATION

- Continue to educate property owners on applicable By-laws related to stormwater management and drainage
- Lead stormwater management, green infrastructure and water conservation projects and promote them to the community
- Reduce corporate water-use
- Educate the public, private sector and the Corporation on water issues and green infrastructure

#### ACTIONS FOR COMMUNITY

- Promote the use of Low Impact Development (LID) techniques for redevelopments and new developments
- Identify water-related research gaps or areas for further study
- Promote watershed stewardship through education & awareness campaigns focused on water conservation, enhancement, protection, and adaptation to climate change

**C. Adaptation and readiness plans are promoted to mitigate potential environmental impact due to climate.**

#### ACTIONS FOR CORPORATION

- Update the Emergency Preparedness Plan with a focus on hydroclimatic instability
- Expand the definition of "natural environment" in City plans, policies and bylaws to recognize the role of healthy aquatic and riparian ecosystems in climate adaptation
- Work with key stakeholders to define roles within jurisdictional boundaries to protect and enhance the City's water resources and aquatic habitat through management, conservation and remediation in anticipation of projected changes in climate

#### ACTIONS FOR THE COMMUNITY

- Implement remediation projects on non-City owned land (including in water bodies) to restore ecosystem health and thereby increase the resilience of the natural environment
- Promote the use of low impact development throughout the community as innovative approaches to climate adaptation and resiliency

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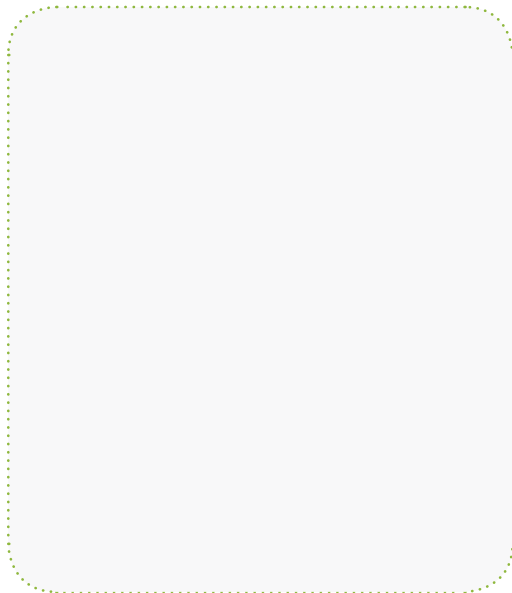
**D. Partnerships with various stakeholders have been developed to address existing and emerging water issues.**

### ACTIONS FOR CORPORATION

- a. Develop a communication strategy between agencies and the corporation

### ACTIONS FOR COMMUNITY

- a. Educate landowners on septic systems, safe fuels and solvent handling/storage, impacts of fertilizers and pesticides and safe marine activities
- b. Partner with Lake Superior advocacy groups



*The City's Parks, Engineering and Environment Division teamed up with EarthCare to create the City's first demonstration site to showcase Low Impact Development and sustainable stormwater management practices. The project is located at Beverly Street and High Street.*