

Town of Huntsville Official Plan Review - POLICY BACKGROUND PAPER

Servicing our Residents – Stormwater Management

BACKGROUND:

- Stormwater is runoff that results from precipitation events and snow/ice melt. As it flows over the land and its features, the water picks up sediments, nutrients and bacteria, which it transports to nearby waterbodies on its route through the water cycle.
- In undeveloped areas containing forests, trees, plants and understory growth help hold stormwater close to where it falls and the soil absorbs much of the stormwater (infiltration).
- In developed areas, two issues can arise from unmanaged stormwater: i) flooding, due to increased volume and timing of runoff water; and ii) increased nutrient and bacteria loading in lakes and rivers. Increased sediments cause turbidity, cloudiness in the water, and can destroy fish habitat, damage recreational water quality and drinking water supply.
- Muskoka's [Lake System Health](#) program identified stormwater as an issue affecting the water quality of Muskoka's lakes and rivers.
- In Muskoka, stormwater management and construction mitigation is generally the responsibility of the Area Municipalities, except where it impacts a District of Muskoka interest such as DMM owned infrastructure or recreational water quality.
- The use of sustainable stormwater planning and practices in all land use designations will help ensure the continued health of the streams, rivers, lakes, fisheries and terrestrial habitats in our watershed.
- In considering climate change adaptation, in the waterfront and rural areas, the retention of naturalized areas and buffers will be key.
- In the Urban Settlement Areas and Communities, the traditional storm sewer and end-of-pipe approach to run-off has been proven to be ineffective to address water quality objectives and the increasing incidence of major storm events. Many municipalities are beginning to apply Low Impact Development (LID) approaches to stormwater management in order to deal with the onset of major storm events which are becoming more common.
- Low Impact Development (LID) is a stormwater management approach that seeks to mitigate the impacts of increased runoff and nutrient and sedimentation loading by managing the stormwater as close to its source as possible. Examples of LID techniques include green roofs, rainwater harvesting, permeable pavement bio-retention and engineered bio-swales. The District of Muskoka has developed [stormwater management guidelines](#) that promote LID implementation.

POLICY CONTEXT:

Provincial Policy Statement (2014):

- 1.6.1 Infrastructure (including stormwater management facilities) shall be provided in a coordinated, efficient and cost effective manner that considers impacts from climate change while accommodating projected needs.

- 1.6.2 Planning authorities should promote green infrastructure to complement traditional forms of Infrastructure.
- 1.6.6.7 Planning for stormwater management shall minimize/prevent increases in contaminants, minimize changes in the water balance and erosion, not increase risks to human health and safety and property damage, maximize the extent and function of vegetative and pervious surfaces and promote best practices, including stormwater attenuation and re-use and low impact development.

Current Muskoka Official Plan &

- F.14 The District of Muskoka will promote, and where possible and appropriate, require stormwater management approaches and practices that will protect the health of lakes and rivers within Muskoka.
- F.26 Shoreline development subject to site plan control should implement swm and construction mitigation techniques
- F.30,37 Development of highly sensitive and Over threshold lakes requires detailed swm mitigation measures
- H.29-32 Municipalities will be encouraged to consider the cumulative and off -site impact of stormwater from development; with best management practises being implemented to address the effect of stormwater. Identifies DMM interests in SWM
- K.12 SWM plans required in support of development applications where deemed appropriate

MOP Policy Directions Report:

- 38 Include policies that require the preparation of SWM strategies and incorporate those issues identified by the PPS

First Draft of Muskoka Official Plan:

- F2.4 a) Planning for stormwater management shall:
 - (i) Minimize, or, where possible, prevent increases in contaminant loads;
 - (ii) Minimize changes in water balance and erosion;
 - (iii) Not increase risks to human health and safety and property damage;
 - (iv) Maximize the extent and function of vegetative and pervious surfaces;
 - (v) Promote stormwater management best practices, including stormwater attenuation and re-use, and low impact development; and
 - (vi) Consider the impacts of climate change.
- b) In order to control flooding, ponding, erosion and sedimentation and to protect water quality and aquatic habitat or other natural habitat which depend on watercourses and other water bodies for their existence, stormwater management plans shall generally be required for any new development consisting of more than four lots or for commercial or industrial developments with large amounts of impervious area. Stormwater management will be

undertaken in accordance with the Provincial Ministry with jurisdiction's guidelines (e.g. Stormwater Management Planning and Design Manual, 2003).

- c) Where feasible, proposals for development or re-development shall provide for a low impact development approach to stormwater management which may include techniques such as rainwater harvesting, phosphorus reduction, constructed wetlands, bio-retention swales, green roofs, permeable surfaces, clean water collection systems, and the preservation and enhancement of native vegetation cover.
- d) The District and the Area Municipalities shall require the use of stormwater management facilities downstream of new developments, where appropriate, to mitigate development impacts on stormwater quantity and quality.
- e) The development of naturalized stormwater management facilities, constructed with gentle slopes is promoted, and should be designed in accordance with the Provincial Ministry with jurisdiction's guidelines.

Town Strategic Documents:

Unity Plan

Goal #2 Municipal Operations and Infrastructure: The Town will strive to be a model sustainable community, by reducing its impact on the environment and planning for climate change adaptation by following best management practises in all municipal operations and infrastructure project and leading by example.

Goal #5 Land Use Planning: Huntsville will become a model of sustainable community development, by incorporating the principles of smart growth, sustainable design and green buildings into all land use planning decisions. This will include a commitment to the protection and maintenance of Huntsville's rural small town character and vibrant downtown, both of which are valued by the community.

Strategic Plan 2017 and Beyond

Natural Environment and Sustainability

Goal #1: Demonstrate the Town's commitment to protecting the quality and character of the natural environment.

Goal #2: Integrate sustainability principles into planning and development policies and processes.

Huntsville Official Plan:

- 10.10 All major development shall require SWM plans.
- 10.10.2 Management of SW on-site helps with shoreline protection
- 10.10.3 All SWM ponds should be placed in restrictive zoning categories to reflect potential flood hazard, maintain long-term function

10.10.4 SWM facilities will be designed for open space uses and integrated into an open space network.

CONSIDERATIONS:

- All stormwater eventually ends up in nearby waterbodies. Increases in overland flow as a result of disruption in the natural vegetation (leading to erosion) in and beyond the riparian zone as well as increased amount of stormwater run-off from impervious surfaces can both lead to negative impacts on surface water quality. As municipal water supply systems use surface waterbodies there are associated risks to human health.
- With climate change, more frequent and more severe storm events are occurring, which in turn exacerbates erosion, flooding and harmful environmental impacts, as well as potential increases in risks to human health.
- Low Impact Design stormwater management strategies can be applied at various scales ranging from the large plans of subdivision to the site specific. The most effective strategies are developed at the large scale and subsequently refined at progressively more detailed scales in the planning and design process.
- Effective stormwater management strategies employ a ‘treatment train’ approach, combining a suite of source controls, conveyance controls and end-of-pipe facilities to treat runoff efficiently. Strategies that are comprised of a full suite of stormwater management facilities implemented as an integrated system have the potential to achieve a broad range of benefits including the following:
 - Maintaining and enhancing shallow groundwater levels and interflow patterns;
 - Maintaining predevelopment discharge patterns at receiving watercourses;
 - Moderating runoff velocities and discharge rates;
 - Improving water quality;
 - Enhancing evapotranspiration;
 - Maintaining soil moisture regimes to support the viability of existing vegetation communities; and
 - Maintaining surface and groundwater supplies to support existing wetland, riparian and aquatic habitats
- Stormwater is both an urban and rural/waterfront issue and has been addressed differently in each situation. Urban stormwater is managed through a network of drainage pipes and inflow and outflow points. Rural/waterfront stormwater is managed by natural topography including slope, elevation and land cover. The principles of LID can be used regardless of location.

SUMMARY:

- Ensure that stormwater management policies applicable to the Rural and Waterfront designations take a LID approach so that stormwater is managed through use of impervious surfaces, structure location, natural topography including slope, elevation and land cover.

- In the Urban Settlement Area and Communities, policy should ensure development and re-development addresses effective Low Impact Development (LID) approaches to stormwater management for new development including techniques that will help to reduce erosion; avoid downstream flash flooding; reduce nutrient, siltation and sediment loading; sustain fish habitat; and help to improve the quality of lakes and rivers. These could include but not be limited to minimizing stormwater volume and contaminant loads, maximizing infiltration through an integrated treatment train approach, which may include techniques such as rainwater harvesting, runoff reduction of solids and materials at source, phosphorus reduction, constructed wetlands, bio-retention swales, green roofs, permeable surfaces, clean water collection systems, and the preservation and enhancement of native vegetation cover
- Consider policy that requires development proposals to meet enhanced fish habitat (80% of suspended solids are removed) protection levels, because of the sensitivity of the lake systems to water quality impairment (sensitive receiver).