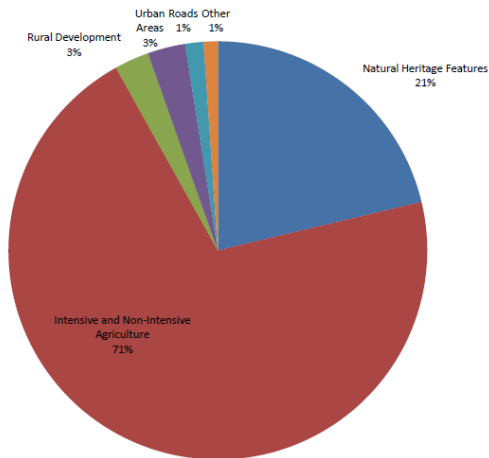


Executive Summary

The Maskinonge River occupies 63.5 km² of lands to the east of the tip of Lake Simcoe's Cook's Bay. There are three main branches to the subwatershed, with the southern branch extending past the community of Queensville, and a small portion in the southeast of the subwatershed (2%) falling on the Oak Ridges Moraine. The majority of the subwatershed flows through mainly agricultural areas with some pockets of wetland and forest, before reaching the community of Keswick and its outlet into Lake Simcoe. The subwatershed falls entirely within York Region, and includes portions of the municipalities of East Gwillimbury and Georgina.



Land use within the Maskinonge subwatershed

The land within the Maskinonge River subwatershed provides a number of benefits to the river, to Lake Simcoe, and to its residents and visitors. Although they occupy a relatively low percentage of the subwatershed area (21%), the Maskinonge's natural areas help to absorb rain and snow melt, aiding in preventing flooding and erosion, as well as helping to improve water quality. These areas also provide habitat for a wide variety of plant and animal species. The river also supports recreation opportunities, such as boating, snowmobiling, and fishing. In addition, some of the Maskinonge's agricultural areas, which occupy 70% of the subwatershed, provide a close-to-market supply of fresh vegetables, as well as opportunities for infiltration. In a study

undertaken to estimate the value of the services provided by the subwatershed's ecosystem, it was found that it would cost over \$12.5 million to replace these natural services with man-made solutions. Given the intrinsic and monetary value of the subwatershed's features, the development of this subwatershed plan is an important step in ensuring that these services continue to be performed economically, while balancing the other demands on the subwatershed such as urban growth, agriculture, industrial, and recreational uses in a truly integrated fashion.

In spite of the benefits provided by its natural areas, the Maskinonge River is showing signs of stress from anthropogenic land uses. For example, in both the 2008 Watershed Report Card, the Maskinonge subwatershed received the lowest grades in the Lake Simcoe basin for both forest cover and forest interior, and in both the 2008 Report Card and 2009 Report Card Update, the subwatershed displayed low levels of riparian vegetation as well as low grades for both the fish and benthic invertebrate communities. Much of this state can be attributed to the very large extent of agricultural land use in the subwatershed. Impacts from the agricultural areas include the removal of riparian vegetation,



Cows in the Maskinonge River

the input of sediment-laden sediment which impacts both water quality and the habitat of fish and benthic invertebrates, the use of large volumes of water for irrigation, channelization, and

the rapid conveyance of stormwater directly to area watercourses by tile drainage. Some of these impacts, such as low water levels, are more acutely felt in the Maskinonge subwatershed because it lacks the groundwater influence of the Oak Ridges Moraine in its headwater areas, given the very small portion of the subwatershed that falls on the moraine. Although located mainly in the community of Keswick near the mouth of the subwatershed, the urban areas are likely impacting conditions in the subwatershed as well. Impervious surfaces cause decreased infiltration of rain and melt water, which can result in low groundwater levels and reduced baseflow in area watercourses; impacts to water quality as contaminants are carried with stormwater runoff; instability and erosion of streambanks; effects on stream habitat such as sediment deposition or disruption of natural riffle-pool sequences, resulting in changes to the composition of aquatic communities; and impacts on biodiversity. These impacts can be particularly detrimental in those areas of the subwatershed that lack stormwater controls. Additional issues in this subwatershed include habitat alteration, and the introduction of invasive species. The cumulative effects of these activities have caused considerable stress in the Maskinonge River subwatershed.



Tree planting in the Maskinonge River subwatershed

There have been numerous successes in improving the conditions in the Maskinonge River subwatershed. Initiatives such as the completion of streambank erosion control projects, tree plantings, establishment of riparian vegetation, and other best management practices (BMPs) will help to improve conditions with respect to bank stability, water quality and quantity, and aquatic and terrestrial natural heritage in the subwatershed. The recently introduced Maskinonge River Recovery Program is a community stewardship program designed to undertake on the ground environmental

improvement projects within the subwatershed. This is being accomplished through education and outreach, the development of communication materials, and the implementation of BMP projects.

The Maskinonge subwatershed is scheduled to experience some growth in the coming years. The Provincial Places to Grow Plan identifies that population and employment growth will occur in the Lake Simcoe watershed. Provincial growth forecasts have been allocated to all municipalities in the Region. In the Maskinonge River subwatershed, this growth is mainly focused around the community of Keswick. The population of Keswick is estimated to grow from approximately 20,000 residents to close to 40,000 by 2026. Along with the housing that will have to be built to accommodate these new subwatershed residents, new employment lands, shopping centres, and schools will also be required to meet their needs. In addition to the above, in order to services these increases in population and employment, critical municipal infrastructure projects, including roads, municipal sewers and treatment facilities and water supply systems will also need to be built, maintained and expanded in the subwatershed. This will result in increased levels of impervious surfaces and its associated impacts, combined with a reduction in the natural features that help to mitigate these impacts. These changes, as well as the unknown impacts that climate change may bring to the subwatershed, could have a significant effect on the health of the subwatershed if measures are not taken to mitigate them.

To build on the successes of the projects initiated so far, and to mitigate impacts of the changes that are to come, a comprehensive, integrated subwatershed plan is needed for the Maskinonge

River subwatershed. The plan that follows is intended to provide the blueprint for the conservation authority, the municipalities, and subwatershed stakeholders to move forward and continue the important work that has been completed in order to mitigate the impacts of land use changes and improve conditions in the subwatershed. It includes chapters dedicated to each of five subwatershed parameters, these being water quality, water quantity, aquatic habitat, fluvial geomorphology and terrestrial natural heritage, although it is acknowledged that all of these parameters are related and certainly interact with each other. Each chapter is loosely structured around a state-pressure- response framework, in that each chapter firstly describes the current condition (state), secondly describes the stressors likely leading to the current condition (pressure), and finally recommends management responses in the context of the current management framework (response) (See text box below).

