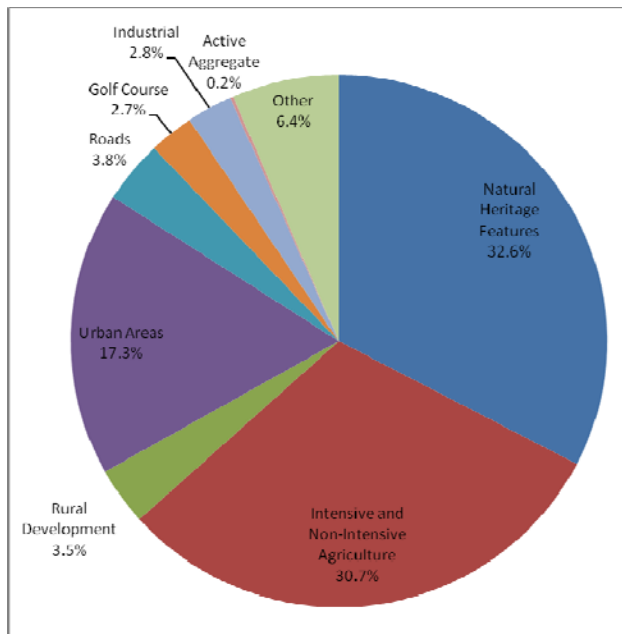


East Holland Subwatershed Plan Executive Summary

The East Holland River, one of the Lake Simcoe basin's most populated subwatersheds, occupies 247 km², from its headwaters on the Oak Ridges Moraine to the confluence with the West Holland River and the mouth at Lake Simcoe's Cook's Bay. It contains some of the most urban areas in the watershed, as well as some of the most popular recreation areas and a large area in agriculture, including two vegetable polders. Over 99% of the subwatershed lies within York Region, with a very small portion in the southeast in Durham Region. The municipalities found in the subwatershed are the Towns of Aurora, King, Newmarket, East Gwillimbury, Georgina, Whitchurch-Stouffville, and Uxbridge.



Land use distribution in the East Holland subwatershed

The land within the East Holland River subwatershed provides a number of benefits to the river, to Lake Simcoe, and to its residents and visitors. The 31% of subwatershed area that is occupied by natural areas absorb rain and snow melt, maintaining groundwater levels and baseflow, helping to prevent flooding and erosion, and improving water quality. These areas also provide habitat for a wide variety of species, as well as numerous nature-based recreation opportunities. In addition, the East Holland's agricultural areas provide a close-to-market supply of fresh vegetables, as well as opportunities for infiltration. The East Holland's natural features and greenspaces provide its urban residents with the connection with nature that so many of them value. In a study undertaken to estimate the value of the services provided by the subwatershed's ecosystem, it was found that

it would cost upwards of \$60 million to replace these natural services with man-made solutions. Given the immense 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 East Holland River is under considerable stress from anthropogenic land uses. According to the 2008 Watershed Report Card, the East Holland River was second only to the Barrie Creeks subwatershed in terms of impervious surfaces in the Lake Simcoe watershed. There are numerous impacts from the high level of impervious surfaces in the East Holland's urban areas, including 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. In the East Holland's agricultural areas, common stressors on subwatershed health include the removal of streambank

vegetation, the input of nutrient laden sediment eroding from fields and unstable banks, the use of large volumes of water for irrigation, and the conveyance of stormwater directly to watercourses via tile drainage. In addition, there are issues associated with other activities in the subwatershed such as recreation and industrial uses, including water consumption, the introduction of invasive species, and the input of nutrients and other contaminants into area watercourses. The cumulative effects of these activities have caused the East Holland to become one of the most stressed subwatersheds in the Lake Simcoe watershed, and one of the largest contributors to Lake Simcoe's phosphorus loads.

There have been numerous successes in improving the conditions in the East Holland River subwatershed. Recent initiatives such as the completion of streambank erosion control projects, tree plantings and stormwater retrofits will help to improve conditions with respect to bank stability, water quality and quantity, and aquatic and terrestrial natural heritage in the subwatershed. Specific examples include tree plantings and a stormwater retrofit at Bayview Park, restoration and naturalization of Eastern Creek at the Southlake Regional Health Centre, the use of innovative phosphorus removal techniques at the Cane Parkway stormwater pond, and bank stabilization works downstream of Fairy Lake.



A community tree planting event along a tributary to the East Holland River

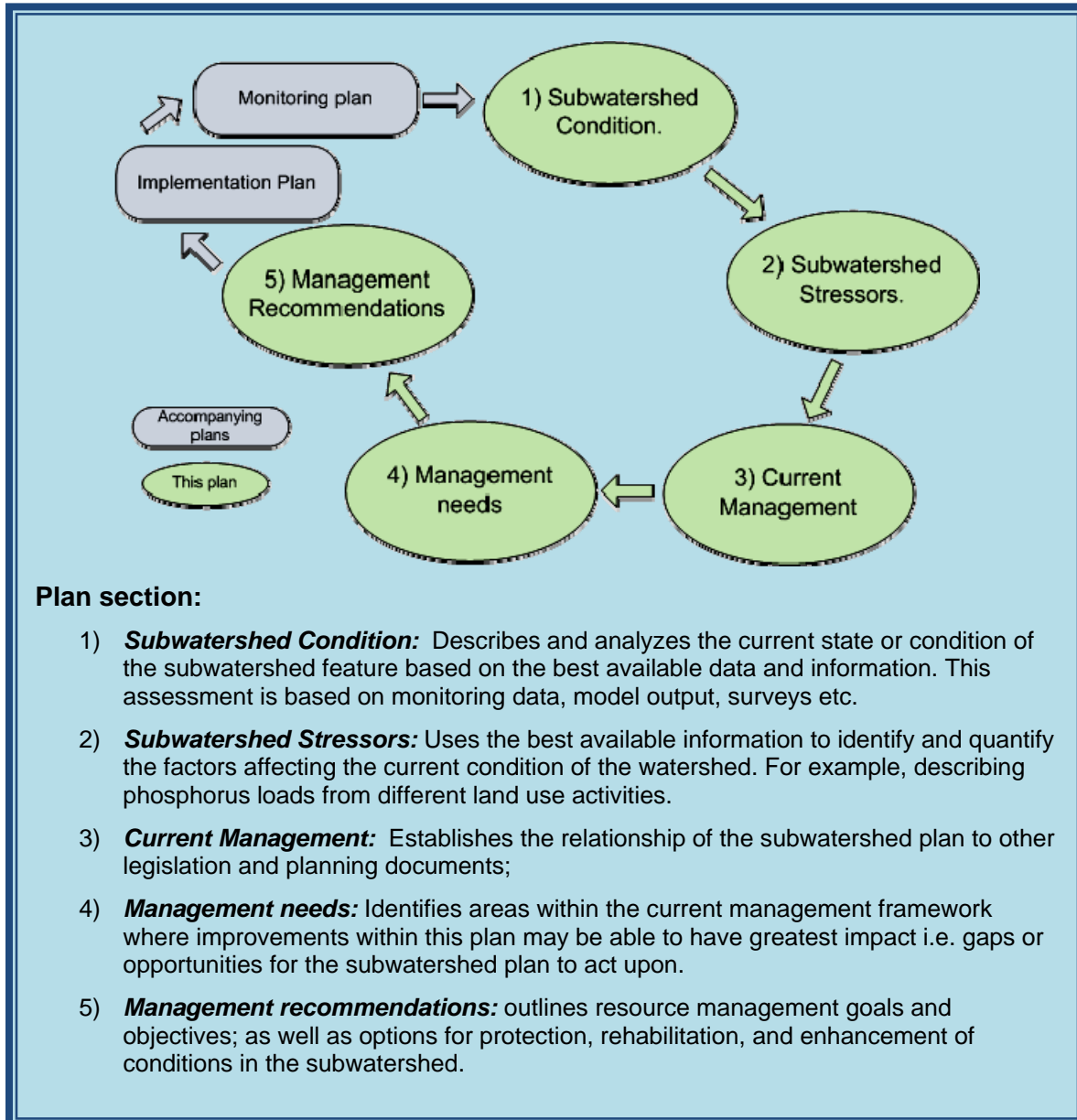
The East Holland subwatershed will experience a great deal of growth in the coming years. The Provincial Places to Grow Plan identifies that population and employment growth will occur in the Lake Simcoe watershed. Provincial growth forecasts have been allocated to all municipalities in the Region. According to York Region's Official Plan (draft, 2009) Aurora and Newmarket will continue to grow, reaching populations of 70,000 and 97,000, respectively, while the population of East Gwillimbury will increase four-fold to 88,000.

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 service 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, will 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 East Holland 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).



The management responses (high level recommendations) fall into eight broad categories, these being:

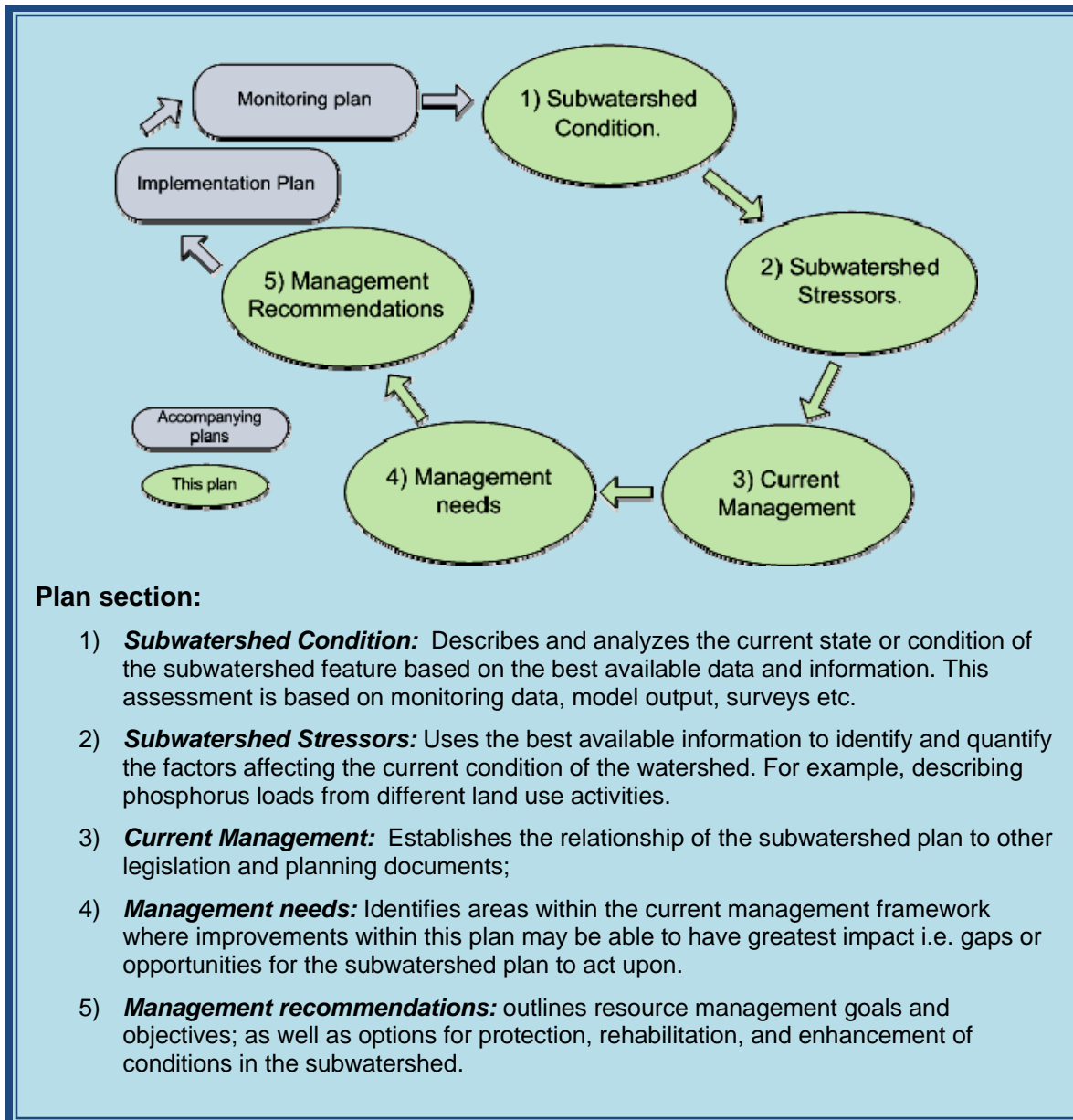
- A. Planning and Policy
- B. Use of Better Management Practices
- C. Changing the Way Things Are Done 'On the Ground'

- D. Applied Research and Science
- E. Monitoring (Surveillance, Compliance, and Reporting)
- F. Management, Rehabilitation, and Restoration
- G. Adaptive Response (Climate, Social, Political)
- H. Communications

From these recommendations fall a number of detailed recommendations, the implementation of which will help to meet the plan's goals and objectives. These detailed recommendations will form the implementation plan, a document which will assign responsibilities, develop timelines, estimate costs, and set priorities for undertaking the actions that will need to be taken in the East Holland subwatershed. Input from the subwatershed municipalities, conservation authority staff, stakeholders and members of the public will be incorporated through the process of developing the implementation plan. Implementing the recommended actions of this plan is a huge undertaking with respect to both the funding and human resources that will be needed, and will require assistance from all of these subwatershed partners.

Undertaking the actions outlined in the implementation plan will help to protect the existing natural resources, facilitate informed planning decisions, and improve the efficiency of the development review process. An over-arching concept to keep in mind throughout the subwatershed planning process is that it is far more beneficial, both financially and ecologically, to protect resources from degradation than to rehabilitate them once they have been damaged. These plans support this concept, and provide alternatives for instances where it may not be possible to maintain the East Holland's resources in their natural state.

The implementation plan will identify actions to be undertaken in both the short and the long term. However, the subwatershed plan will be reviewed on a regular basis as part of the adaptive management framework to ensure the effectiveness of the actions being undertaken. Depending on the state of the subwatershed the subwatershed and implementation plan may be updated at that point in order to incorporate the most up to date information on the subwatershed state and to incorporate any new tools and practices that may be used. By undertaking these regular evaluations and updates, the partners can ensure that all of the necessary steps are being taken in order to achieve the goal of a healthy East Holland River subwatershed.



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- A. Planning and Policy
- B. Use of Better Management Practices
- C. Changing the Way Things Are Done 'On the Ground'
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- E. Monitoring (Surveillance, Compliance, and Reporting)
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From these recommendations fall a number of detailed recommendations, the implementation of which will help to meet the plan's goals and objectives. These detailed recommendations will form the implementation plan, a document which will assign responsibilities, develop timelines, estimate costs, and set priorities for undertaking the actions that will need to be taken in the Black River subwatershed. Input from the subwatershed municipalities, conservation authority staff, stakeholders and members of the public will be incorporated through the process of developing the implementation plan. Implementing the recommended actions of this plan is a huge undertaking with respect to both the funding and human resources that will be needed, and will require assistance from all of these subwatershed partners.

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