

Oshawa Creek Watershed Management Plan

EXECUTIVE SUMMARY

The Central Lake Ontario Conservation Authority (CLOCA) has recognized the need to prepare comprehensive management strategies for all of its watersheds. In order to prepare and enact an effective strategy, CLOCA has initiated a watershed management planning process to supplement previous studies and to guide future management decisions.

In an effort to create an up-to-date, and complete foundation of information, several key watershed components were investigated:

- history of the watershed
- land use
- climate, physiography and surficial geology
- surface water
- groundwater
- hazards
- fisheries
- vegetation
- wildlife habitat
- corridors and connections

After gathering and analysing the relevant data, numerous issues of concern became evident:

- An initial analysis has been undertaken to apply the guidelines for habitat rehabilitation as developed by Environment Canada. The Oshawa Creek watershed falls short of achieving the majority of these guidelines including those for forest and wetland cover.
- An approximate water budget indicates that the annual excess storage in the regional aquifer is limited.
- Water quality studies have shown that the Goodman Creek, Montgomery Creek and Oshawa Harbour have impaired water quality. Additionally, nutrient enrichment is occurring in the northern part of the watershed.
- Thermal studies have shown a warming in water temperatures.
- There are areas where existing developments are subject to both flooding and erosion hazards.
- Wildlife habitats are greatly concentrated within the remaining natural areas of the landscape and the distribution of core areas is poor, with no representative areas within the watershed from Conlin Road to Columbus Road.
- The landscape corridors are not intact, causing restrictions to wildlife movement. The local corridors are intact, but do not function to connect with core areas. Linkages are compensating in areas without local or landscape corridors, but these connections are weak.

Despite these apparent problems, this investigation also revealed several positive indicators of watershed health for the Oshawa Creek. It is important to recognize situations where ongoing appropriate management can build upon existing strengths:

- The Oak Ridges Moraine, the South Slope including the Outwash area, and the Lake Iroquois Beach, are sources of groundwater recharge.
- There are concentrations of naturally vegetated areas across the Oak Ridges Moraine and the Lake Iroquois Beach.
- The north - south oriented valleys are generally well vegetated.
- The Enfield Wetland Complex is a locally significant wetland, and has been previously identified as an ESA and ANSI.
- Remnant wetlands are located on the Iroquois Beach in the form of deciduous and mixed swamps.
- Smaller wetlands are present in headwater and riparian areas.
- The watershed has seven Life Science ANSIs and one Earth Science ANSI, all having local significance.
- The watershed has ten ESAs, two within the Oak Ridges Moraine with the highest level of sensitivity.
- The watershed has healthy warm water and cold water fish communities.
- The watershed has a system of good to high quality wildlife habitats within the northern portion of the watershed.
- The watershed has an extensive, yet somewhat fragmented publicly accessible greenspace established adjacent to the creek valley.

Additional concerns may come as a result of natural and human trends that may directly or indirectly affect the future health of the watershed including:

- increased recreational demands
- cumulative effects of land management practices
- additional demand for water resources
- stresses on natural systems due to climate change

Action has been, and is continuing to be undertaken to protect and improve the watershed's health. Governments at all levels, agencies, residents and visitors are showing an interest in taking steps to protect and improve the natural heritage components of our environment and to reduce or eliminate the negative impacts of human related activities including:

- Oshawa Creek Watershed Study
- Groundwater Management Strategy Study
- Oshawa Harbour Pollution Prevention Study
- Stewardship Activities

We can also see that development within the watershed will continue and pressures for the use of the watershed's natural resources will increase. Programs that will assist in protecting watershed health into the future include:

- municipal land use and infrastructure planning
- municipal park system and conservation areas
- tree cutting by -laws
- topsoil preservation/site alteration by -laws
- public education programs
- federal and provincial legislation
- CLOCA plan input, review and regulations

This plan examines what a healthy watershed would look like in the future, and provides the following recommendations outlining what needs to be done to make that a reality.

Protection

The watershed has reached a point where approximately 15% of its land base is in impervious uses. Studies have shown that this is a threshold that should not be exceeded in urban watersheds in order to "maintain stream water quality and quantity and leave biodiversity relatively unimpaired". Large areas are already designated to allow for additional urban uses that will increase this percentage well over the threshold. Through long term planning exercises such as The Region of Durham and local municipal Official Plan reviews, consideration is required regarding the impacts of exceeding this threshold.

Throughout the watershed, policies applied to new development must reflect the need for protection of the existing valued features as identified in this study. Site-specific recommendations are provided. Additionally specific policies are recommended regarding development review for Groundwater, Natural Hazards Surface Water Quality and Infrastructure Planning.

Recommendations are made to improve landowner awareness in order to assist in protecting the watershed's existing valued features.

Additional public land acquisition is identified as a means to protect existing valued features. The identified components of the natural heritage system of the Oshawa Creek watershed should be reflected as a priority in acquisition strategies implemented by public bodies, either alone or in partnership. As well, valleyland/hazard land and tableland dedications to the local municipalities should continue through the land use planning process to protect existing valued features and assist in developing further linkages.

Enhancement/Restoration

A number of enhancement restoration opportunities have been identified. These may be achieved through a wide variety of partners including, individuals, schools, community groups, public lands managers, municipalities, private land stewardship and conservation agencies.

Monitoring

It is recommended that a program to monitor key indicators within the Oshawa Creek watershed be established and undertaken and that a review of the Oshawa Creek Watershed Management Plan be undertaken within a 10-year timeframe.

Oshawa Creek Watershed Management Plan Endorsement

It is recommended that CLOCA seek the endorsement of the Oshawa Creek Watershed Management Plan from the Region of Durham, the City of Oshawa, the Municipality of Clarington, the Town of Whitby and the Township of Scugog.

SUMMARY OF KEY RECOMMENDATIONS

1. That the City of Oshawa be encouraged to action the recommendations of the Oshawa Creek Watershed Study (1995)
2. That the Region of Durham, City of Oshawa, Municipality of Clarington, Town of Whitby and Township of Scugog be requested to consider the implications of exceeding the threshold of 15% imperviousness of the land base in the Oshawa Creek watershed through long term planning exercises such as Official Plan reviews. (Studies have shown that this is the threshold that should not be exceeded in urban watersheds in order to maintain water quality and quantity and leave biodiversity unimpaired.)
3. That the Region of Durham, City of Oshawa, Municipality of Clarington, and Town of Whitby be requested to examine means to ensure policies applied to new development reflect the need for protection of the existing valued features as identified in this study (Figure 26) including:

The City of Oshawa

- All watercourses and their riparian areas be shown in the Official Plan schedules and identified as “Hazard Lands” or “Environmentally Sensitive Areas”. or included in the definition of watercourses contained in the Environmental Management policy 5.1.2 (d).
- Consideration of wildlife habitat features be completed in an Environmental Impact Study prior to consideration of any change in designation for lands which are designated “Open Space and Recreation” and identified as “Hazard Land” or “Environmentally Sensitive Areas” covering four areas of core habitat in the northern portion of the watershed.
- It is recommended that the “Special Study Area” designation at the headwaters of the Goodman Creek not be amended until such time as a provincial wetland evaluation has been completed.
- In addition, any study undertaken to amend the designations should require an adequate level of protection for the following as currently provided by this area:
 - wetland features and functions
 - core habitat (interior habitat);
 - groundwater recharge/discharge functions;
 - thermal water quality;
 - wildlife linkages west to Pringle Creek Woods; and
 - wildlife linkages to habitat in WS.
- Provision of a corridor should be required as a condition of any amendment to the “Agricultural” designation found on lands containing a local corridor in the most eastern extent of Concession 7 or linkages identified along tributaries and across tablelands to upland habitats.
- Consideration of wildlife habitat features be completed in an Environmental Impact Study prior to consideration of any change in designation for lands which are designated “Agricultural” containing upland habitats in the northern portion of the watershed.

The Municipality of Clarington

- The preparation of an Environmental Impact Study be required for core habitat areas found on lands adjacent to the Enfield Wetland Complex, as provided through policy 4.3.7 of the Clarington Official Plan (features and land characteristics presently not identified on Map C).
- Provision of a corridor should be required as a condition of any amendment to the “Oak Ridges Moraine” and “Prime Agricultural Area” designation found on lands containing linkages and watershed corridors .

The Town of Whitby

- Consideration of existing valued features (e.g., watercourses, local corridor and linkages) be completed in the required Environmental Impact Study prior to consideration of any development application for existing valued features found in areas which are “Hazard Land” and “Environmentally Sensitive Areas”.
- Provision of a corridor be required as a condition of any amendment to the “Agriculture” designation found on lands containing the linkage in Concession VII or the watershed corridor immediately north of Taunton Road.
- Consideration of wildlife habitat features be completed in an Environmental Impact Study prior to consideration of any change in designation for lands which are “Hazard Land” and “Environmentally Sensitive Areas” containing a large parcel of early regeneration habitat immediately east of the Hamlet of Myrtle Station.

4. That CLOCA continue to build upon the preliminary water budget provided in this watershed management plan to meet the recommended requirements of the Oak Ridge Moraine Conservation Plan.
5. That the Region of Durham, City of Oshawa, Municipality of Clarington, Town of Whitby and Township of Scugog examine means to ensure that all new development within areas delineated as Iroquois Beach, Outwash Plain, or Oak Ridges Moraine undertake geotechnical studies to identify the role of the site in the hydrological cycle. As deemed necessary, a water balance may be required from post development levels to predevelopment conditions. Infiltration of Stormwater may be required to accomplish this condition.
6. That CLOCA adopt a policy that all future development in hydrologic units W3, W2, W1.1, E3, E2, E2.1, E1.1, E1.2, G7, and G2 (as identified on Figure 8) provide stormwater management, designed with a capacity to control flows for all storm events (2 through 100 year) to pre-development levels.
7. That CLOCA require that Floodplain-mapping exercises include both peak flow rates for the 100-year and Hurricane Hazel Flood Event with the greater flood line considered the regulatory event.
8. That CLOCA require that where stormwater control ponds are planned to maintain a 100-year flood level, and the 100-year flood level is the regulatory event (larger than the regional floodline) in the receiving stream reach, then the control pond will be designed as a flood control facility.
9. That CLOCA require Level 1 treatment for stormwater quality and temperature control for the Oshawa Creek watershed.
10. That CLOCA require Level 2 treatment for stormwater quality and temperature control for the Montgomery Creek watershed.
11. That CLOCA require all developments with a proposed impervious land area of 0.25 hectares or more provide water quality treatment. For small sites, facilities may not be practical but source control, conveyance treatment or “best effort end of pipe” solutions should be examined.
12. That CLOCA continue to participate in the review of the transportation crossings of the Oshawa Creek specifically to recommend design considerations that will address:
 - protection of the existing width of corridor in order to maintain the corridor functions of the 2 main valleys (wildlife crossings);
 - provision of fish passage at all watercourse crossings, and no net loss of fish habitat;
 - maintenance of water quality and thermal stability in receiving streams;
 - maintenance of groundwater recharge function within the Outwash Plain;
 - maintenance of flooding conditions and surface runoff conveyance;
 - maintenance of natural channel processes (erosion, deposition and flows); and
 - use of only native species for planting purposes
13. That all Stewardship agencies acting within the watershed be encouraged to continue to support initiatives promoting landowner awareness in order to assist in protecting the watershed’s existing valued features.
14. That identified components of the natural heritage system of the Oshawa Creek watershed be reflected as a priority in land acquisition strategies implemented by public bodies, either alone or in partnership.
15. That valleyland/hazard land and tableland dedications to the local municipalities continue to be encouraged through the land use planning process to protect existing valued features and assist in developing further linkages.
16. That CLOCA and partners including, individuals, schools, community groups, public lands managers, municipalities, private land stewardship agencies and conservation agencies undertake Enhancement/Restoration projects in the watershed including:

Montgomery Creek Subwatershed

- retrofitting of developed areas with stormwater management facilities
- further investigations of the point and non-point sources of elevated trace and major elements in the creek
- develop a monitoring program of stormwater sewers in the watershed
- removal of non-native and invasive plant species

Main Branch Subwatershed

- retrofitting of developed areas with stormwater management facilities
- stream cleanup projects to remove garbage within and adjacent to the creek
- riparian zone restoration
- CPR Bridge redesign
- restoration of the channel and riparian areas to more naturally meandering (and vegetated) conditions in areas north of Highway 401
- reduce amount and distribution of invasive plants

Goodman Creek Subwatershed

- restore the channel and riparian area to reflect natural conditions (priority Rossland Road to Gibb Street)
- natural channel design for the confluence of the Goodman and Oshawa Creeks
- goldfish removed from Goodman pond and a program for prevention developed
- retrofitting of developed areas with stormwater management facilities
- stream cleanups to remove garbage within and adjacent to the creek
- riparian zone restoration
- expansion of core habitats in the subwatershed.
- corridor connections improved through planting and habitat protection.
- creation of tableland forest in the eastern portion of this subwatershed.
- corridor connections are needed to join the west branch of the Oshawa Creek with the Goodman Creek headwaters and linkages are required between the valley systems and tableland woodlots.
- wetland creation or reclamation

ES Subwatershed

- riparian restoration
- creation of habitat through plantings on upland areas currently lacking forest cover
- redesigning the Camp Samac Dam to allow fish passage
- removal of old tires within the channel and along the banks of the creek west of Simcoe Street
- wetland reclamation

WN Subwatershed

- riparian restoration
- expansion of both core areas through restoration of adjacent wetlands and agricultural lands
- wetland reclamation
- redesign of structures to allow fish passage
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EN Subwatershed

- revegetation of creek valley corridors
- create connections to upland habitats
- restore connections with adjacent watersheds
- riparian restoration
- redesign of structures to allow fish passage

17. That CLOCA continue to encourage the adoption of Best Management Practices by everyone in the watershed from individual landowners to corporate citizens to government agencies.

18. That CLOCA design and implement a program to monitor key indicators within the Oshawa Creek watershed.

19. That CLOCA undertake a review of the Oshawa Creek Watershed Management Plan within a 10-year timeframe.

20. That CLOCA seek the endorsement of the Oshawa Creek Watershed Management Plan from the Region of Durham, the City of Oshawa, the Municipality of Clarington, the Town of Whitby and the Township of Scugog.