

Barrie Creeks, Lovers Creek, Hewitt's Creek, and Innisfil Creeks Subwatershed Plans

Implementation Plan: 2013 - 2017



Lake Simcoe Region
conservation authority

2012

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Background

Working in partnership with the MNR, MOE, MAFRA, Simcoe County, City of Barrie, Town of Innisfil, and South Simcoe Streams Network, the Lake Simcoe Region Conservation Authority (LSRCA) has developed subwatershed plans for the four subwatersheds located in the City of Barrie and Town of Innisfil; namely, the Barrie Creeks, Lovers Creek, Hewitt's Creek, and Innisfil Creeks subwatersheds. These subwatershed plans include an assessment of the current state of the environment in these subwatersheds, the stressors upon their health, and the current management framework to address those stressors. As a result of that assessment, the subwatershed plans developed a list of 75 recommended actions which, if implemented, would provide additional support for the protection and restoration of those subwatersheds. For a full list of recommendations, see Chapter 8 in the Barrie Creeks, Lovers Creek and Hewitt's Creek subwatershed plan.

In reality though, it may not be practical to implement all of the 75 recommendations within a short time frame. Furthermore, some stresses upon the health of the subwatershed may be more critical than others, requiring a more timely response. Recognizing these realities, LSRCA and its partners have developed this implementation plan to guide and focus effort on the implementation of a short-list of priority recommendations.

Prioritizing the recommendations

The first stage in developing an implementation plan was to short-list the full list of 75 recommendations to focus effort on those that address priority threats. The short-listing process followed The Nature Conservancy's Conservation Action Planning framework, which is a two-stage process: a threat assessment, and a cost-benefit assessment.

The threat assessment evaluated the scope and severity of each of the threats identified in the subwatershed plan on the targets and indicators of watershed health as articulated in the Lake Simcoe Protection Plan. Threats were ranked from low to very high for both scope (how extensive the threat is across the subwatershed) and severity (how severe the impact of the threat would be to each individual target), and summed across all watershed health targets. This assessment was done separately for the four subwatersheds, recognizing that the stresses vary among them.

Recommendations which addressed threats ranked as High or Very High were subjected to the cost – benefit assessment.

Each candidate recommendation was scored from 1 (low) to 4 (high) in terms of the benefits if it were implemented (i.e. scale, contribution, and duration of outcomes, as well as indirect benefits to other actions) and the costs to implement (in both staff time and dollars, as well as the length of time anticipated to achieve the recommendation). Short-listed recommendations were those which had above average benefit in addressing High or Very High threats, at below average cost.

Working in collaboration with the Subwatershed Working Group, a table was developed for each of the selected short-list recommendations to provide further detail on its implementation, including:

- One or more **Activities** which must be undertaken to accomplish the recommendation.
- An output, or **Measure of Success** to identify intended end goals for each activity. These measures provide an important metric against which agencies responsible for watershed management can hold themselves accountable to the public and other stakeholders
- A **Lead Agency** which will be tasked with ensuring the activity is completed. The role of the lead agency may include project management, identifying and securing funding, and reporting on progress to the Subwatershed Working Group. Some activities also include a list of collaborating agencies (provided in brackets). In cases where unanticipated budget constraints limit the ability of the designated lead agency to project manage one or more activities, they will be responsible for soliciting other partners to lead on their behalf.
- A **Target Deadline** to identify the date by when the activity should be completed. This target deadline plays an important role in ensuring accountability of lead agencies to the public and other stakeholders, and is particularly important in the case of activities upon which other activities or other recommendations depend.

The priority recommendations and associated activities are presented below, grouped by the primary lead agency on each recommendation. In many cases, recommendations require collaboration between multiple agencies. Recommendations which agencies contribute to, but don't lead on, are listed in point form at the end of each section, for ease of cross-referencing.

Barrie Creeks, Lovers Creek, Hewitt’s Creek, and Innisfil Creeks Priority Activities

Protection and policy

The adaptive watershed planning process

Recommendation 8-1 – That the LSRCA and other relevant and interested stakeholders establish an implementation working group to assist in coordinating the implementation of priority recommendations to address the most significant threats in these subwatersheds.			
Activity	Measure of success	Lead (collaborating) agency	Target deadline
Have subwatershed plans approved by the LSRCA Board of Directors	Plans approved	LSRCA	2012 (approval by LSRCA Board)
Strike implementation working group and invite key stakeholders to participate	Invitations sent	LSRCA (MNR, MOE, MAFRA, Barrie, Innisfil, Simcoe)	2013
Develop Terms of Reference to identify scope, membership, and meeting frequency	Terms of Reference developed and endorsed by members of working group	LSRCA (implementation working group)	2013
Meet periodically to report on status of implementation of working group, including number of stewardship projects completed	Meetings held and report completed	LSRCA (implementation working group)	ongoing
Share annual reports with watershed municipal councils and CAOs, MPPs, MPs, Lake Simcoe Stewardship Network, Lake Simcoe Science Committee, Lake Simcoe Coordinating Committee, and other interested stakeholders	Report shared. Partners aware of work being done and accomplishments achieved to improve the health of the Barrie, Lovers, Hewitt’s and Innisfil Creeks subwatersheds	LSRCA (implementation working group)	ongoing

Recommendation 8-2 (3-24) - That the LSRCA, MNR and MOE analyse and report the results of the existing and proposed water quality, water quantity, and aquatic and terrestrial natural heritage monitoring programs annually, and that the information be used to update the LSRCA Watershed Report Card. Further, stakeholders should be made aware when updates are available, and be provided access to the monitoring data.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Work with the Comprehensive Monitoring Strategy team to ensure reporting requirements such as web portal are included in the reporting plan	Completed Comprehensive Monitoring Strategy with reporting plan that includes easy access to key indicators at regular intervals, and relevant spatial units via the internet, and other approaches as appropriate.	LSRCA, (MOE, MNR)	2013
Work with the Comprehensive Monitoring Strategy team to characterize the current state of information management for monitoring data and identify gaps	Completed Comprehensive Monitoring Strategy with process to ensure key data is available to support the identified reporting products	LSRCA (MOE, MNR)	2013
Develop a detailed reporting and communication strategy for all future reporting on Lake Simcoe	Business plan outlining potential products, roles and responsibilities and resource allocation.	LSRCA (MOE, MNR)	2014
Analyze and report on results of environmental monitoring program	Provide identified products (e.g. web portal) within specified time frames and resources	LSRCA (MOE, MNR)	Ongoing. To begin in 2014

Recommendation 8-4 – Within five years of the completion of this subwatershed plan, that the LSRCA, in collaboration with MOE, MNR, subwatershed municipalities, and other interested and relevant stakeholders, review and update this subwatershed plan.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review monitoring data on the state of the subwatershed, and implementation reporting. Revise subwatershed plans using “state-pressure-response” model, in context of that review	Subwatershed plans updated	LSRCA (MOE, MNR, Barrie, Simcoe, Innisfil)	2017
Conduct gap analysis of policies and programs in place to address watershed stressors. Develop recommendations to address policy gaps	Suite of subwatershed recommendations developed	LSRCA (MOE, MNR, Barrie, Simcoe, Innisfil)	2017
Develop implementation plan to implement priority recommendations	Implementation plan developed and approved by LSRCA Board	LSRCA (MOE, MNR, Barrie, Simcoe, Innisfil)	2017

Natural heritage protection

Recommendation 6-2 – Recommendation 6-2, which relates to mitigation for the loss of natural heritage features through development, remains in discussion with LSRCA’s partners

Recommendation 6-3 – That the MNR, MOE, and LSRCA review the terrestrial natural heritage data provided by the comprehensive monitoring program, when it becomes available, to define site level characteristics or indicators of ‘high quality’ natural heritage features, and provide policy recommendations to subwatershed municipalities (as necessary) to ensure high quality natural heritage features are adequately protected from development and site alteration.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Collect terrestrial natural heritage data through the terrestrial monitoring strategy	Data collected with sufficient sample size for analysis	MNR	2016
Define characteristics of habitat quality, and range of those characteristics found in benchmark examples of ecosystem types in the Lake Simcoe watershed	Range of conditions of high quality examples of ecosystem types defined	MNR	2017
Develop index incorporating factors related to habitat amount and habitat quality to assist in monitoring and reporting	Index developed. First report on state of natural vegetative cover in the Lake Simcoe watershed written	MNR	2017
Modify “composition” criteria of Key Natural Heritage Feature definition to include characteristics of high quality habitats, as necessary	Key Natural Heritage Feature definition revised, as necessary	MNR (Barrie, Innisfil)	2017
Amend terms of reference for Environmental Impact Study requirements to address habitat quality characteristics, as necessary	EIS requirements updated and implemented	Barrie, Innisfil, (MNR)	2017

Recommendation 6-5 – That the MNR, MAFRA, LSRCA, subwatershed municipalities, and interested members of the agricultural community review the results of the studies being conducted on methods and policy tools to protect grassland dependent wildlife on active agricultural land as they become available, to determine if they provide solutions for the conservation of grassland habitat which would be applicable for these subwatersheds.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review results of grassland bird conservation studies and other relevant studies being conducted by MNR, Bird Studies Canada, OFA, and their partners	Review complete, recommendations for action identified	MNR (interested members of the agricultural round table)	2015
Revise stewardship programs, as necessary	Stewardship programs revised as necessary	MNR, LSRCA	2015
Pursue revision to the definitions of Key Natural Heritage Features in the Lake Simcoe Protection Plan, as necessary	Key Natural Heritage Feature definition revised, as necessary	LSRCA, (MNR, Barrie, Innisfil)	2017

Incorporating LSP objectives in Environmental Assessments

Recommendation 6-9 – That reviewers of Environmental Assessments for municipal infrastructure in the Lake Simcoe watershed, including subwatershed municipalities, and LSRCA and MOE (when reviewing such documents), give due consideration to the preservation of barrier-free connectivity for wildlife between nearby wetland and upland habitats. This should include due consideration of alternate route configuration, the use of wildlife crossing structures, and/or the use of traffic calming measures in critical locations.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Provide municipal engineering staff and Environmental Assessment reviewers with copies of “A guide to road ecology in Ontario”, as well as brief training sessions (as need and interest dictate)	Document provided, brief training provided (as necessary)	MNR, (LSRCA)	2013
Include assessment of barrier-free connectivity in Environmental Assessment reviews	Best practices acted upon, and barrier-free connectivity preserved	Barrie, Innisfil, Simcoe, (LSRCA and MOE as necessary)	ongoing

Promoting low impact development

Recommendation 3-1-That the LSRCA develop a discussion paper for MOE that will: (1) describe the range of LID technologies that could potentially be used to mitigate the impacts of development on surface and groundwater quality and quantity; (2) identify the barriers associated with the uptake of LID technology and, (3) with the support of MOE, identify opportunities for overcoming these barriers.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Create a working group to advance LID use across the subwatersheds.	Working group established. Education and outreach provided to the BILD community	LSRCA (MOE, MNR, BILD, interested municipalities in the Lake Simcoe watershed)	2013
Refine the draft " <i>Low Impact Development Discussion Paper</i> " developed by LSRCA, TRCA and CVC, in consultation with municipalities	Municipal support for the content of the " <i>Low Impact Development Discussion Paper</i> " provided	LSRCA (interested municipalities in the Lake Simcoe watershed)	2013
Submit refined discussion paper to MOE, and seek their support for standards associated with advancing LID	Discussion paper submitted to MOE. Standards developed.	LSRCA (interested municipalities in the Lake Simcoe watershed)	2013

Recommendation 3-2 - That the LSRCA develop an action plan to address barriers associated with the implementation of LIDs.			
Activity	Measure of success	Lead (collaborating) agency	Target deadline
Based on results of the LID discussion paper, and response from MOE, develop recommendations to address barriers to LID implementation	Effective recommendations developed and shared with MOE	LSRCA (interested industry groups, professional organizations, and municipalities in the Lake Simcoe watershed)	2013
Develop funding strategy for submission to the federal and provincial governments to address LID barriers	Funding strategy developed and submitted. Federal and provincial funding to support the implementation of LIDs secured	LSRCA (interested municipalities in the Lake Simcoe watershed)	2013
Act on recommendations to address barriers	Barriers to implementing LID reduced	MOE (interested municipalities in the Lake Simcoe watershed)	ongoing
Undertake pilot LID projects to showcase innovations, monitor and document efficacy, and for educational purposes	Completion of at least 12 LID pilot projects, associated awareness program developed, and monitoring report completed.	interested municipalities in the Lake Simcoe watershed (MOE, LSRCA)	2017
Developing training courses and/or workshops on the design and construction of LID approaches	Workshops developed and provided	LSRCA (LID working group)	2017
Incorporate LID as a tool in municipal stormwater master plans, pending results of monitoring studies	LID mainstreamed as a tool to manage urban stormwater	interested municipalities in the Lake Simcoe watershed (MOE, LSRCA)	As determined by development

Recommendation 4-11. Municipalities in collaboration with the Lake Simcoe Region Conservation Authority shall undertake an education and outreach program focusing on the importance of significant recharge areas, and the actions residents and businesses can take to maximize infiltration from impervious surfaces while minimizing contamination such as salt.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Develop and compile easily understood information on groundwater processes, the importance of recharge areas, and actions residents and businesses can take to protect these features, and make available to the public through web access or hardcopies in municipal offices	Information developed and made available to the public	LSRCA (Barrie, Innisfil)	2013

Improving stormwater management

Recommendation 3-3: That the subwatershed municipalities, with the assistance of the LSRCA, promote the increased use of innovative solutions to address stormwater management and retrofits, particularly in areas lacking adequate stormwater controls, and lacking conventional retrofit opportunities

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Pursue opportunities to incorporate LID projects as urban redevelopment occurs	LID projects implemented as opportunities arise	Barrie, Innisfil	Ongoing
Review scheduling for street sweeping, catch basin maintenance, and oil grit separator maintenance to reduce phosphorus inputs in areas lacking stormwater controls	Timelines set, and achieved	Barrie, Innisfil (LSRCA)	Ongoing, to begin in 2014
Continue to increase the extent of riparian vegetation in these subwatersheds, with priority given to areas lacking stormwater controls	Stewardship projects implemented in priority areas	LSRCA, MNR, members of Lake Simcoe Stewardship Network	Ongoing

Recommendation 3-7 - That the subwatershed municipalities complete the Stormwater Management Master Plans as outlined in the LSP 2011 Comprehensive Stormwater Management Master Plans Guidelines document with particular emphasis on maintenance of facilities, and the need for retrofits where appropriate.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Incorporate LIDs in engineering design standards and/or design policies in stormwater management master plans	The use of Low Impact Development incorporated in municipal design standards	Barrie, Innisfil	2014
Develop stormwater management master plans for each settlement area in the Barrie, Lovers, Hewitt's and Innisfil Creeks subwatersheds, as per policy 4.5 of the Lake Simcoe Protection Plan	Stormwater management master plans developed and approved	Barrie, Innisfil	2014
Transition the working group which developed the Comprehensive Stormwater Master Plan guidelines into a working group for sharing information related to stormwater management	Working group established, meet on an as-needed basis	LSRCA (MOE, municipalities in the Lake Simcoe watershed)	2013

Improving construction practices

Recommendation 3-10 - That the LSRCA and watershed municipalities promote and encourage the adoption of best management practices to address sedimentation and erosion controls during construction and road development.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Conduct a review of best practices in use in the Lake Simcoe watershed and other jurisdictions, including the identification of effective and ineffective measures and barriers to uptake	Review complete and report written	LSRCA (Barrie, Innisfil, MOE, MNR, interested members of industry and professional organizations)	2013
Develop a draft best management practices guide	Draft guide developed	LSRCA (Barrie, Innisfil, MOE, MNR, interested members of industry and professional organizations)	2013
Consult on the draft guide with municipal and industry stakeholders, and incorporate necessary revisions in final document	Consultation completed and best practices guide finalized	LSRCA (Barrie, Innisfil, MOE, MNR, interested members of industry and professional organizations)	2013
Raise awareness of best practices guide in the construction industry and begin implementation of best practices	Best practices implemented and mainstreamed	Barrie, Innisfil	2014
Develop funding model to ensure sufficient resources are available to undertake monitoring and reporting activities, as identified	Sufficient resources to provide programs are secured	Barrie, Innisfil	2014
Monitor and report on implementation of best practices on an annual basis	Annual reports completed, and made available to municipal councils and interested members of the public	Barrie, Innisfil	Ongoing, beginning in 2015
Implement periodic update of best practices	Best practices updated and adopted, as necessary	LSRCA (Barrie, Innisfil, MOE, MNR, interested members of industry and professional organizations)	Ongoing, beginning in 2015

Recommendation 3-11: That subwatershed municipalities and LSRCA review and, where necessary, revise current monitoring, enforcement, and reporting on site alteration and tree cutting by: 1) undertaking a review of the current programs and actions, 2) encouraging the allocation of adequate resources for the improvements, and 3) monitoring and reporting on results.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review of programs and associated enforcement, to ensure programs are effective and enforceable	Review completed. Reporting, monitoring and enforcement programs revised as necessary	Barrie, Innisfil, Simcoe County (LSRCA)	2014
Develop a business plan, including a funding model, to ensure sufficient resources are available to undertake reporting, monitoring, and enforcement activities, as identified	Sufficient resources to provide programs are secured	Barrie, Innisfil, Simcoe County	2015
Complete monitoring and reporting on an annual basis	Annual reports completed, and made available to municipal councils and interested members of the public	Barrie, Innisfil, Simcoe County	Ongoing, to begin in 2015

Land securement by public agencies

Recommendation 6-11 – That the LSRCA and subwatershed municipalities, with the assistance of the MNR, continue to refine their land securement decision processes to ensure that they are securing natural areas that are critical to the health of the watershed (or securing and restoring areas which have the potential to become critical to the health of the watershed), but which are otherwise vulnerable to loss through incompatible land uses.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Map opportunity areas for preserving the health of the watershed, based on the needs identified in the Barrie Creeks, Lovers Creek, Hewitt’s Creek, and Innisfil Creeks subwatershed plans	Securement opportunity map created	LSRCA	2015
Prioritize opportunity areas, based on relative contribution to watershed health, and vulnerability to loss if not protected	Securement priority areas map created	LSRCA	2015
Develop funding model to support land securement in the Town of Innisfil and the City of Barrie	Greenland acquisition reserve established, for use in securing priority natural areas	LSRCA,(Barrie, Innisfil, Simcoe)	2015
Develop strategy for securement of priority areas in the Barrie Creeks, Lovers Creek, Hewitt’s Creek, and Innisfil Creeks subwatersheds. This strategy may include a review of the LSRCA Land Securement Project, the Simcoe County Forest Acquisition principles, and municipal parkland dedication processes	Partners aware of the priority securement areas in their jurisdiction, and their role in acting upon their securement	LSRCA,(MNR, Barrie, Innisfil, Simcoe)	2015

Significant groundwater recharge areas

Recommendation 4- 6 - Municipalities shall only permit new development or redevelopment in significant recharge areas, where it can be demonstrated through the submission of a hydrogeological study and water balance, that the existing groundwater recharge will be maintained (i.e. there will be no net reduction in recharge).

Recommendation 4-7 - Municipalities should amend their planning documents to require that runoff in significant recharge areas meet the enhanced water quality criteria outlined in the MOE Stormwater Management Guidance Document, 2003, as amended from time to time, prior to it being infiltrated.

Recommendation 4-8 - That municipalities incorporate the requirement for the re-use or diversion of roof top runoff (clean water diversion) from all new development in significant recharge areas away from storm sewers and infiltrated to maintain the pre-development water balance (except in locations where a hydrogeological assessment indicates that local water table is too high to support such infiltration) in their municipal engineering standards.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Update municipal Official Plans, Secondary Plans, and Community Improvement Plans to ensure consistency with the Barrie and Innisfill subwatershed plans' compiled recommendations.	Draft policies completed and endorsed by regional and local municipalities. Municipal Official Plans, Secondary Plans, and Community Improvement Plans come into consistency with subwatershed plans	Barrie, Innisfil, Simcoe County	Prior to first scheduled update of Municipal Official Plans, or development of Secondary Plans or Community Improvement Plans, after subwatershed plan approval

Recommendation 4-9 - The MOE should only issue Environmental Compliance Approvals for new storm water management facilities within significant recharge areas that maintain the pre-development groundwater recharge rates and meet the enhanced water quality criteria outlined in the MOE Stormwater Management Guidance Document, 2003, as amended from time to time.

Recommendation 4-10 - The MOE shall only issue Environmental Compliance Approvals for Stormwater Management Facility retrofits within significant recharge areas, that attempt to improve, maintain or restore the pre-development water balance, and meet the enhanced water quality criteria outlined in the MOE Stormwater Management Guidance Document, 2003, as amended from time to time.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Revise Environmental Compliance Approval process, as necessary, to meet the intent of the recommendation	Compliance approval process revised, as necessary	MOE	2013
Implement revised Environmental Compliance Approval process	Environmental Compliance Approvals provided meet the intent of recommendations 4-9 and 4-10	MOE	Ongoing, to begin in 2013

Restoration and remediation

Improving stormwater management

Recommendation 3-4 - That the Province of Ontario, through the implementation of the Lake Simcoe Phosphorus Reduction Strategy, be encouraged to support, through financial or other measures, municipalities and/or the LSRCA to maintain, construct, and /or retrofit stormwater facilities as identified by the LSRCA Stormwater Rehabilitation program.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Seek funding opportunities to assist with stormwater pond maintenance, construction and/or retrofits	Clarity regarding existing provincial funding opportunities	LSRCA (interested municipalities in the Lake Simcoe watershed)	Ongoing, to begin in 2013
Seek non-financial provincial support for stormwater pond management (including regulatory, technical, administrative support, etc)	Support from MOE is forthcoming	LSRCA (interested municipalities in the Lake Simcoe watershed)	Ongoing, to begin in 2013

Recommendation 4-12 - That the LSRCA shall create eligibility for stormwater management retrofits and infiltration projects under the LEAP program within significant recharge areas.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review existing funding programs and create eligibility for stormwater management retrofit and infiltration projects within recharge areas	Program review complete	LSRCA	2013

Managing agricultural impacts

Recommendation 3-16 - That the subwatershed municipalities, through the LSRCA, create a roundtable made up of municipalities, LSRCA, MOE, MNR, OFA, NGOs, and related landowner representatives, or through existing frameworks such as the Lake Simcoe Stewardship Network, to determine co-operative ways of implementing phosphorus reduction and improved water quality measures in Hewitt's, Lovers, and Innisfil Creeks, and to develop an 'action plan' for their implementation within the agricultural and rural communities.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Invite watershed municipalities, LSRCA, MAFRA, MOE, MNR, OFA, NGOs, and related landowner representatives to participate in agricultural roundtable	Invitations sent	LSRCA	2014
Develop Terms of Reference for agricultural round table to identify scope, membership, and meeting frequency	Terms of Reference developed and endorsed by members of round table	LSRCA (subwatershed municipalities, MAFRA, MOE, MNR, other members of the roundtable, as identified)	2014
Meet periodically, or as necessary, to share information and coordinate efforts on best practices for phosphorus reduction on agricultural land, achieving in-stream flow targets, implementation of stewardship programs, and methods of increasing public awareness	Meetings continue. Members feel that meetings are a good use of their time	LSRCA (subwatershed municipalities, MAFRA, MOE, MNR, other members of the roundtable, as identified)	ongoing
Review current state of financial and technical assistance provided to rural landowners, including types of projects supported and amount of support provided, in context of phosphorus reduction action plan	Stewardship program reviewed, and updated as necessary	LSRCA (agricultural round table)	2015

Recommendation 5-10 –That the LSRCA work with subwatershed municipalities and MAFRA to examine the suitability of using the *Drainage Act* to protect and restore the ecological function of watercourses.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Undertake a study to assess the feasibility of using the <i>Drainage Act</i> to protect natural watercourses, including meanders, pool / riffle sequences, and riparian buffers	Study complete. Direction provided on moving forward	LSRCA (MAFRA, municipal drainage superintendents)	2014
Pending the results of the study, establish a pilot project in the Lake Simcoe watershed which would modify an existing drain to promote ecological function	Pilot study established, as appropriate. Monitoring undertaken	LSRCA (MAFRA, municipal drainage superintendents)	2015
Pending the results of the study, modify existing stewardship programs to provide eligibility for financial and technical support for projects that would enhance the ecological function of municipal drains	Programs revised to provide support, as appropriate	LSRCA, MNR	2015
Pursue opportunities to decommission or otherwise modify and naturalize municipal drains that become unnecessary as a result of development	Drains decommissioned and naturalized using the principles of natural channel design	LSRCA, (Barrie, Innisfil)	As opportunities arise

Dealing with enclosed watercourses

Recommendation 5-11 - That the City of Barrie and Town of Innisfil, in partnership with the LSRCA, complete an inventory of enclosed or buried streams from which removal of enclosures or “day lighting” can be prioritized.			
Activity	Measure of success	Lead (collaborating) agency	Target deadline
Compile map of enclosed watercourses, based on existing watercourse maps and municipal infrastructure information	Map created	LSRCA, Barrie, Innisfil	2014
Develop process to document new watercourse enclosures	Process established. Enclosed watercourses documented as they occur	LSRCA, Barrie, Innisfil	Ongoing. To begin in 2014
Classify or prioritize enclosed streams for daylighting as opportunities arise	List of priority opportunities developed	LSRCA (Barrie, Innisfil)	2014
Include results of prioritization exercise in aquatic stewardship decision support tool (recommendation 5-7)	Aquatic stewardship priority map updated as necessary	LSRCA	2015
Examine the feasibility of developing policies that would require a review of the possibility of daylighting streams as part of development proposals	Feasibility study completed, and policies developed (if appropriate)	Barrie, Innisfil (LSRCA)	2015

Dealing with indirect impacts to natural areas

Recommendation 6-21 – That the LSRCA, County of Simcoe, City of Barrie, and Town of Innisfil conduct natural heritage inventories, and develop and implement management plans for publicly accessible natural areas that they own, to mitigate potential threats related to invasive species and increased recreation pressure.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Public land managers review their properties to identify opportunities to contribute to the goals of the subwatershed plan	Catalogue of opportunities developed	Simcoe, Barrie, Innisfil, LSRCA	2014
Develop prioritized lists of publicly-owned natural areas for management plans, based on opportunities to demonstrate appropriate stewardship practices, currency of existing plans, and expected pressures.	Prioritized lists developed	Simcoe, Barrie, Innisfil, LSRCA	2014
Develop and implement management plans for priority natural areas, which give due consideration to the principles of ecosystem management, including taking into account existing natural heritage conditions, expected future stresses, and public expectations and use levels	Plans completed and approved, as per the prioritized list.	Simcoe, Barrie, Innisfil, LSRCA	Ongoing
Showcase completed projects through appropriate communication approaches such as watershed tours, internet, and media outreach	Complete and implement communication approaches for showcasing pilot projects	Simcoe, Barrie, Innisfil, LSRCA	Ongoing

Recommendation 6-22 – That the MNR and its partners provide outreach to garden centres, landscapers, and garden clubs regarding the danger of using invasive species in ornamental gardens.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Generate list of garden centres, nurseries, landscaping companies, and horticultural societies in Barrie and southern Simcoe County	List developed	MNR (MAFRA)	Ongoing
Provide information on the danger of using invasive plants in ornamental gardens to the groups listed above	Information provided to members on the list	MNR (MAFRA)	Ongoing

Recommendation 6-23 – That the City of Barrie, the Town of Innisfil and the County of Simcoe, with support from LSRCA, make information available to residents on the impact of human activities on natural areas. Priority issues include the dangers of invasive species, the importance of keeping pets under control, and the importance of staying on trails while in natural areas

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Develop and/or compile information on reducing impacts of human activities on urban natural areas	Communication materials developed	LSRCA (Barrie, Innisfil, Simcoe County, MNR, MOE)	2015
Make material available to the public through web access or hardcopies in municipal offices	Communication materials made available to the public	Barrie, Innisfil	2015

Increasing uptake of stewardship programs

Recommendation 5-1 (6-13) – That the LSRCA, MNR, MOE, and MAFRA, continue to implement stewardship projects in these subwatersheds, and work collaboratively with other interested organizations, through the Lake Simcoe Stewardship Network, to do the same.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Establish interim and long-term targets for stewardship in the Barrie, Lovers, Hewitt's and Innisfil Creeks subwatersheds, based on restoration priority setting exercises (recommendations 5-7 and 6-19) and funding availability	Quantitative targets established. Protocol for counting projects established	LSRCA (MNR, MAFRA, interested members of the Lake Simcoe Stewardship Committee)	2014
Share targets with members of the Lake Simcoe Stewardship Network, to engage their participation	Presentation and documentation provided	LSRCA	2014
Enhance current funding model to support sustainable stewardship funding in the Lake Simcoe watershed	Stewardship funding program enhanced. More sustainable funding provided for stewardship projects	LSRCA, MNR, municipalities in the Lake Simcoe watershed	2015
Implement stewardship projects that address significant threats in the Barrie, Lovers, Hewitt's and Innisfil Creeks subwatersheds	Quantitative targets for stewardship projects achieved. Projects address significant threats to watershed health	LSRCA, MNR, MAFRA (Lake Simcoe Stewardship Network)	Ongoing, interim targets to be reached by 2017

Recommendation 5-3 (6-16) – That the MOE, MNR, MAFRA, LSRCA, and other members of the Lake Simcoe Stewardship Network be encouraged to document completed stewardship projects in a common tracking system to allow efficient tracking, coordinating, and reporting of stewardship work accomplished.

Activity	Measure of success	Lead (collaborating agency)	Target deadline
Identify barriers to sharing data related to stewardship uptake, and ways to overcome barriers (see also recommendation 5-5)	Clear understanding of what data can be shared, and agreement to share, achieved	MNR, (MOE, MAFRA, LSRCA, Members of the Lake Simcoe Stewardship Network)	2013
Continue to maintain stewardship tracking database associated with ourlakesimcoe.com	Stewardship tracking database remains available for use	MNR	Ongoing
Develop protocol for documenting stewardship projects completed through the development process (i.e. without support from stewardship funding)	Protocol established. Projects documented	MNR, LSRCA, municipalities in the Lake Simcoe watershed	2013
On an annual basis, document completed stewardship projects in the tracking database	Database updated on an annual basis	MNR (MOE, MAFRA, LSRCA, Members of Lake Simcoe Stewardship Network)	Ongoing
Assess ways of improving the functionality and information content of the stewardship tracking database	Tracking database and website updated as necessary	MNR (MOE, MAFRA, LSRCA, Members of Lake Simcoe Stewardship Network)	Ongoing

Recommendation 5-5 (6-17) – That the MOE, MNR, MAFRA, LSRCA, and other interested members of the Lake Simcoe Stewardship Network support research to determine public motivations and barriers limiting uptake of stewardship programs in these subwatersheds and share these results with other members of the Lake Simcoe Stewardship Network, to enable agencies and stakeholders to modify their stewardship programming as relevant. This research should include a review of successful projects to determine what aspects led to their success, and how these may be emulated.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Identify barriers to sharing data related to stewardship uptake, and ways to overcome barriers (see also recommendation 5-3)	Clear understanding of what data can be shared, and agreement to share, achieved	MOE, MNR, MAFRA, LSRCA	2013
Analyse patterns of stewardship program implementation, including uptake of various project types, trends in uptake, and comparison between uptake and opportunity or priority	Analysis complete and report written	LSRCA (MNR, MOE, MAFRA)	2014
Conduct literature review of factors related to stewardship behaviour of private land owners	Literature review complete and report written	LSRCA (MNR, MOE, MAFRA)	2015
Interview practitioners regarding perceived motivations of partners and barriers to uptake of stewardship programs, and successful examples	Interviews complete and report written	LSRCA (MNR, MOE, MAFRA)	2015
If questions remain as a result of earlier steps, survey subwatershed residents to determine their knowledge, attitudes, and behaviours related to watershed stewardship	Survey complete as necessary, with sufficient sample size to achieve statistical power	LSRCA (MNR, MOE, MAFRA, LSRCA)	2016
Present results of research to Lake Simcoe Stewardship Network	Presentation completed	LSRCA	2016

Prioritizing stewardship projects

Recommendation 6-19 – That the MNR, with the assistance of the MOE and LSRCA, develop a spatially-explicit decision support tool to assist in targeting terrestrial stewardship projects in the Lake Simcoe watershed.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Map opportunity areas for improving the health of the watershed, based on relative needs identified in the Lovers, Hewitt's and Innisfil Creeks subwatershed plans	Restoration opportunity map created	MNR	2013
Prioritize opportunities based on relative needs in the Lovers, Hewitt's, and Innisfil Creeks subwatersheds	Restoration priority map created	LSRCA (MNR)	2014
Share decision-support tool with members of the Lake Simcoe Stewardship Network	Presentation provided. Tool available to Network members.	LSRCA	2014
Refine prioritization based on conservation opportunities as identified through research on barriers to uptake, as appropriate (recommendation 5-5)	Restoration priority map revised, to include an identification of opportunity areas	LSRCA (MNR)	2016

Recommendation 5-7 – That the LSRCA, with the assistance of the MNR and MOE, develop a spatially-explicit decision support tool to assist in targeting aquatic habitat stewardship projects in the Lake Simcoe watershed.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Prioritize projects identified in BMP opportunity database based on relative needs identified in the Barrie, Lovers, Hewitt’s and Innisfil Creeks subwatershed plans	BMP priority map created	LSRCA (MNR)	2013
Share decision-support tool with members of the Lake Simcoe Stewardship Network	Presentation provided	LSRCA	2013
Refine prioritization based on conservation opportunities as identified through research on barriers to uptake (Recommendation 5-5)	BMP priority map revised to include an identification of opportunity areas	LSRCA (MNR)	2016

Recommendation 5-8 – That prioritized restoration areas be integrated into a stewardship plan that ensures prioritized restoration opportunities are undertaken as soon as feasible. This stewardship plan should incorporate the outcomes of recommendations to improve uptake.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review output of prioritization tools (recommendations 5-7 and 6-19), and assessment of barriers to stewardship uptake (recommendation 5-5), to prioritize areas for action, and identify communication / outreach needs to engage priority landowners	Stewardship plan drafted	LSRCA	2016
Review existing funding programs, to ensure that stewardship funds are provided in locations, and for project types, where maximum benefit can be achieved	Stewardship funding program reviewed and revised as necessary	LSRCA, MNR, MAFRA	2016
Share results of stewardship plan with members of the Lake Simcoe Stewardship Network	Presentation provided	LSRCA	2016
Revise and/or develop communication and outreach tools to address identified barriers, as necessary	Communication products developed or updated	LSRCA	2016

Reducing salt use

Recommendation 3-14 - That the LSRCA, in collaboration with subwatershed municipalities, develop and deliver a salt education program, to increase awareness and understanding of the importance of salt management by snow removal contractors, property managers, and the general public.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Create salt management working group to share information on salt management practices, to coordinate on public education programs, and to assist municipalities in ensuring that municipal salt management plans sufficiently protect watercourses	Working group struck, Terms of Reference developed, and periodic meetings occur	LSRCA (MOE, MNR, MTO, EC, municipalities in the Lake Simcoe watershed)	Ongoing, to begin in 2013
Develop and compile information on best practices for salt storage and application, and make available to the public through web access or hardcopies in municipal offices	Information compiled and made available to the public	Barrie	2013
Generate list of snow removal contractors operating in Barrie and Innisfil	List developed	Barrie, Innisfil	2013
Provide outreach to companies on the above list, including copies of the salt application best practices information	Information provided to members on the list	Barrie, Innisfil	2013
Require that major developments include an assessment of how changes in chloride export to nearby watercourses will be minimized	Chloride loading evaluations included in development process	Barrie, Innisfil	Ongoing, to begin in 2014
Continue to monitor chloride concentrations and loads in Lake Simcoe and its tributaries	Monitoring continues, chloride report provided periodically to salt management working group	MOE (Lake Simcoe), LSRCA (tributaries)	Ongoing, reporting to begin in 2013

Recommendation 4-15. Municipalities should include significant recharge areas in their assessment of areas vulnerable to road salt, and modify their municipal Salt Management Plans and snow disposal plans as necessary.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Provide maps identifying Significant Groundwater Recharge Areas (SGRAs) and Ecologically Significant Groundwater Recharge Areas (ESGRAs) in the Lake Simcoe watershed to the salt management working group, along with recommendations for their protection	Maps and recommendations provided to municipalities	LSRCA	Ongoing (as ESGRAs delineated), to begin in 2013

Science and research

Establishing instream flow targets

Recommendation 4-4 (5-9) –That the MOE, with assistance from LSRCA, MNR and the University of Guelph, determine in-stream flow regime targets for Barrie, Lovers, Hewitt’s, and Innisfil Creeks. These targets should be based on the Guidance Document framework (LSRCA 2010) which is being used for the Maskinonge River subwatershed.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Complete the pilot environmental flow assessment for Lovers Creek subwatershed using methods from the e-flows guidance document	Pilot environmental flow assessment complete.	MOE, (University of Guelph (LSRCA)	2013
Collect additional data to describe current flow regimes in the Barrie, Lovers Hewitt’s, and Innisfil Creeks subwatersheds, as required	Data collected	LSRCA	2014
Develop in-stream flow targets, based on the e-flows guidance document or other accepted methods, that ensure that flow regimes protect the ecological function of watercourses	In-stream flow regime targets established	MOE (LSRCA, MNR)	2016

Recommendation 4-5 (5-9) – That the MOE, with assistance from LSRCA and MNR, develop a strategy to achieve the in-stream flow regime targets. This strategy should address both high and low flow requirements and provide a plan for implementing strategy recommendations.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Develop strategy, based on in-stream flow targets, and current water budgets to identify and prioritize options to achieve or maintain in-stream flow targets	In-stream flow strategy developed	MOE (Barrie, Innisfil, Simcoe, LSRCA)	2016
Use the in-stream flow targets, when identified, to inform all future stormwater management plans, as necessary	All future stormwater management plans are consistent with respective in-stream flow targets	Barrie, Innisfil (LSRCA, MOE)	As determined by development
Use the in-stream flow targets to refine Official Plan policies related to impervious cover and low impact development, as necessary	Official Plans updated, as necessary	Barrie, Simcoe, Innisfil	First scheduled Official Plan review after in-stream flow targets established
Use the in-stream flow targets to inform Permit to Take Water process, as necessary	All future allocations under the PTTW process are consistent with recommendations in the respective in-stream flow targets	MOE	2016
Use the results of the in-stream flows assessment to refine stewardship prioritization tools (recommendations 5-7 and 6-19) to assist in maintaining ecological flows, as necessary	Stewardship prioritization maps revised as necessary	MNR (terrestrial), LSRCA (aquatic)	2016

Increasing our understanding of climate change

Recommendation 3-19 (4-17) -That the LSRCA work with its federal, provincial, and municipal partners to refine the anticipated impacts of climate change in the Lake Simcoe watershed. This information can then be used to develop management strategies to address these impacts. Emphasis at this time should be placed on building ecological resilience in vulnerable subwatersheds through stream rehabilitation, streambank planting, barrier removal, and other BMP implementation in conjunction with the protection of current hydrologic functions.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Build anticipated impacts of climate change into stewardship prioritization tools (recommendations 5-7 and 6-19)	Stewardship prioritization tools updated as necessary	LSRCA (aquatic), MNR (terrestrial)	2014
Share results with members of the Lake Simcoe Stewardship Network and watershed municipalities, and promote its use in stewardship programs and projects	Presentation provided	LSRCA, MNR, MOE,	2014

Recommendation 6-20 – That the members of the Lake Simcoe Stewardship Network be encouraged to build into their projects relevant provisions for the anticipated impacts of climate change, such as the need to recommend species which are suitable for future climate conditions, and the likelihood of an increase in invasive plants, pests, and diseases which may further limit the success of traditional stewardship approaches.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Modify existing recommended planting lists for reforestation, based on expected changes to climate in southern Ontario	Recommended planting list developed	MNR (LSRCA)	2017
Share recommended planting list with members of the Lake Simcoe Stewardship Network	Presentation provided	MNR	2017
Share recommended planting list with garden centres, nurseries, landscaping companies, and horticultural societies in Barrie and southern Simcoe County	Information provided	MNR	2017
Incorporate a percentage of species from the recommended climate change planting list as planting stock used on an annual basis in stewardship projects	Planting prescriptions transition toward species mix relevant for future climate scenarios	LSRCA, MNR, interested members of the Lake Simcoe Stewardship Network	2017
Establish timeline for review and update of recommended planting lists, based on actual climate trajectories and pest and disease occurrences	Review timeline established, and responsibility delegated	MNR	2017

Recommendation 4-16 –That the LSRCA, with the assistance of MOE and MNR, develop a fully integrated groundwater and surface water model, that is able to take advantage of real-time or near real-time flow data, to predict how stream flow volumes will respond to the seasonal and ecological impacts of climate change, in terms of increase peak flows, reduced baseflows, and increased water demand.

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Enhance and down-scale existing regional-scale integrated water models, using modelling framework developed by MNR, to develop subwatershed-scale model	Subwatershed-scale model developed	LSRCA (MNR, MOE)	2016
Incorporate model outcomes into in-stream-flow assessments	In-stream flow assessments give regard for modeled impacts of climate change on flow regime	MNR (LSRCA, MOE)	2016

Monitoring and assessment

Recommendation 3-25 - That the LSRCA, in collaboration with MNR, MOE, and MAFRA, develop a program for assessing efficacy of new stormwater facilities, stewardship best management practices, and restoration projects, to improve understanding of the effectiveness of stewardship efforts			
Activity	Measure of success	Lead (collaborating) agency	Target deadline
Develop a program, which would identify types of projects to be assessed, and indicators of success, using standard protocols. Protocols should be consistent with protocols used for the Comprehensive Monitoring Program, where possible	Assessment program, and suite of standard protocols established	LSRCA, MNR, MOE, MAFRA, interested members of the Lake Simcoe Stewardship Committee	2014
Implement assessment program	Assessment program implemented, and results reported to members of the Lake Simcoe Science Committee and Lake Simcoe Stewardship Network	LSRCA, MNR, MOE	Ongoing, to begin in 2014
Use assessment program, results to refine stewardship prioritization tools and subwatershed plans, as appropriate	Restoration prioritization map revised, as necessary. Subwatershed plans revised, as necessary	LSRCA (aquatic prioritization, subwatershed plans) MNR (terrestrial prioritization)	2017

Implementation status report

The Barrie and Innisfil Subwatershed Plan Implementation Working Group will meet annually or semi-annually (as determined in the Working Group's forthcoming Terms of Reference) to report and coordinate on the status of implementation of the Barrie, Lovers, Hewitt's, and Innisfil Creeks Subwatershed Plans. The following Implementation Status Report will form the basis of that reporting framework, and will contribute to the Working Group's annual reporting (as described under Recommendation 8-1). This same table is available in Excel format from LSRCA.

Rec #	Activity							Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017	ongoing				
8-1	Approve subwatershed plans	X						LSRCA			
	Strike implementation working group	X						LSRCA			
	Implementation working group ToR	X						LSRCA			
	Implementation working group meetings						X	LSRCA			
	Share annual reports with partners						X	LSRCA			
8-2	Establish reporting plan for comprehensive monitoring strategy	X						LSRCA			
	Review current state of data sharing	X						LSRCA			
	Develop reporting and communication strategy		X					LSRCA			
	Analyse and report on monitoring results		X				X	LSRCA			
8-4	Review subwatershed monitoring data					X		LSRCA			
	Revise subwatershed plan					X		LSRCA			
	Revise implementation plan					X		LSRCA			
6-2	Define Key Natural Heritage Feature	X						MNR			
	Define natural vegetative cover	X						MNR			
	Natural heritage mitigation policy review	X						Barrie, Innisfil			
	Develop natural heritage mitigation policies		X					Barrie, Innisfil			
6-3	Collect natural heritage data				X			MNR			
	Define high quality habitat					X		MNR			
	Develop habitat quality / amount index					X		MNR			
	Revise KNHF definition					X		LSRCA			

Rec #	Activity							Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017	ongoing				
6-5	Modify EIS requirements					X		Barrie, Innisfil			
	Review studies of grassland bird conservation			X				MNR			
	Review stewardship programs			X				LSRCA, MNR			
6-9	Modify KNHF definition					X		MNR			
	Provide barrier-free best practices	X						MNR			
3-1	Include in EA review						X	Barrie, Innisfil, Simcoe			
	Strike LID working group	X						LSRCA			
	Finalize LID white paper	X						LSRCA			
	Submit LID white paper to MOE	X						LSRCA			
	Recommendations to address LID barriers	X						LSRCA			
	Develop LID funding strategy	X						LSRCA			
3-2	Act on LID recommendations						X	MOE			
	LID pilot projects					X		municipalities in Lake Simcoe watershed			
	LID training courses					X		LSRCA			
	Incorporate LID in storm water plans						X	municipalities in Lake Simcoe watershed			
4-11	Develop information on groundwater protection	X						LSRCA			
3-3	Pursue LID during urban redevelopment						X	Barrie, Innisfil			
	Review timeline for street sweeping, etc		X					Barrie, Innisfil			

Rec #	Activity							Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017	ongoing				
3-7	Continue riparian planting						X	LSRCA, MNR, LSSN			
	Incorporate LID in design standards		X					Barrie, Innisfil			
	Develop stormwater master plans		X					Barrie, Innisfil			
3-10	Establish LID working group	X						LSRCA			
	Erosion control best practice review	X						LSRCA			
	Draft erosion control BMP guide	X						LSRCA			
3-11	Consult on draft guide	X						LSRCA			
	Raise awareness of BMP guide		X					Barrie, Innisfil			
	Develop funding model			X				Barrie, Innisfil			
	Monitor and report on erosion control			X			X	Barrie, Innisfil			
	Periodic updates to BMP			X			X	LSRCA			
	Review site alteration programs		X					Simcoe, Barrie, Innisfil			
	Develop site alteration enforcement funding model			X				Simcoe, Barrie, Innisfil			
6-11	Site alteration monitoring			X			X	Simcoe, Barrie, Innisfil			
	Map land securement opportunity areas			X				LSRCA			
	Map land securement priority areas			X				LSRCA			
	Develop land securement funding model			X				LSRCA			
4-6, 4-7, 4-8	Develop land securement strategy			X				LSRCA			
	Update Official Plans, Secondary Plans and Community Improvement Plans						X	Simcoe, Barrie, Innisfil			
4-9, 4-10	Update compliance approval process	X						MOE			

Rec #	Activity						ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017					
	Implement revised process						X	MOE			
3-4	Seek storm water retrofit funding	X						LSRCA			
4-12	Review stewardship programs	X						LSRCA			
3-16	Strike agricultural round table	X						LSRCA			
	Agricultural round table ToR		X					LSRCA			
	Agricultural round table meetings						X	LSRCA			
	Review stewardship programs			X				LSRCA			
	Include barrier-free connectivity in EAs						X	Barrie, Innisfil, Simcoe, LSRCA, MOE			
5-10	Drainage Act feasibility study		X					LSRCA			
	Drain revision pilot study			X				LSRCA			
	Review stewardship programs			X				LSRCA, MNR			
	Pursue opportunities to enhance drains						X	LSRCA			
5-11	Map enclosed watercourses		X					LSRCA, Barrie, Innisfil			
	Establish process for documenting enclosures		X					LSRCA, Barrie, Innisfil			
	Prioritize daylighting		X					LSRCA			
	Include daylighting in stewardship tool			X				LSRCA			
	Daylighting policy review			X				Barrie, Innisfil			
6-21	Conduct natural heritage inventories						X	MNR			
	Public land management review	X						LSRCA, Simcoe, Barrie, Innisfil			
	Public land stewardship strategy	X						LSRCA, Simcoe, Barrie, Innisfil			

Rec #	Activity						ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017					
6-22	Public land management plans						X	LSRCA, Simcoe, Barrie, Innisfil			
	Showcase projects						X	LSRCA, Simcoe, Barrie, Innisfil			
	Generate list of garden centres, etc						X	MNR			
	Provide information on invasive species						X	MNR			
6-23	Compile information on impacts to natural areas			X				LSRCA			
	Make available to public			X				Barrie, Innisfil			
5-1	Establish stewardship targets		X					LSRCA			
	Share results with LSSN		X					LSRCA			
	Enhance stewardship funding			X				LSRCA, MNR, municipalities in Lake Simcoe watershed			
5-3	Continue to implement stewardship projects						X	LSRCA, MNR, MAFRA			
	Identify barriers to stewardship data sharing	X						MNR			
	Continue to maintain stewardship tracking database						X	MNR			
	Develop project tracking protocol	X						LSRCA, MNR, Barrie, Innisfil, Simcoe			
	Document completed stewardship projects						X	MNR			
	Assess functionality of tracking database						X	MNR			

Rec #	Activity	Year						Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017	ongoing				
5-5	Identify barriers to stewardship data sharing		X					MNR, MOE, MAFRA, LSRCA			
	Analyse stewardship program uptake		X					LSRCA			
	Conduct stewardship behaviour literature review			X				LSRCA			
	Interview stewardship practitioners			X				LSRCA			
	Survey watershed residents				X			LSRCA			
	Share results with LSSN				X			LSRCA			
6-19	Map terrestrial stewardship opportunities	X						MNR			
	Map terrestrial stewardship priorities		X					LSRCA			
	Share results with LSSN		X					LSRCA			
	Refine based on conservation opportunities				X			MNR			
5-7	Prioritize aquatic stewardship opportunities	X						LSRCA			
	Share results with LSSN	X						LSRCA			
	Refine based on conservation opportunities				X			LSRCA			
5-8	Develop stewardship plan				X			LSRCA			
	Review stewardship programs				X			LSRCA, MNR, MAFRA			
	Share results with LSSN				X			LSRCA			
	Revise communication tools				X			LSRCA			
3-14	Strike salt working group	X					X	LSRCA			
	Salt mgmt bmps	X						Barrie			
	List snow removal contractors	X						Barrie, Innisfil			
	Outreach to snow removal contractors	X						Barrie, Innisfil			

Rec #	Activity						ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017					
4-15	Minimize chloride loading in new development		X				X	Barrie, Innisfil			
	Monitor chloride						X	MOE, LSRCA			
	Provide ESGRA maps and guidance to municipalities						X	LSRCA			
4-4	Seek storm water retrofit support	X						LSRCA			
4-4	Complete pilot in-stream flow assessment	X						MOE			
	Collect additional flow data		X					LSRCA			
4-5	Develop in-stream flow targets				X			MOE			
	Develop in-stream flow strategy				X			MOE			
3-19	Use in-stream flow targets in stormwater plans						X	Barrie, Innisfil			
	Refine OP policies on stormwater mgmt							Barrie, Innisfil			
	Use in-stream flow targets in PTTW				X			MOE			
6-20	Revise stewardship prioritization tools				X			LSRCA, MNR			
	Revise stewardship prioritization tools		X					LSRCA, MNR			
6-20	Share results with LSSN		X					LSRCA, MNR, MAFRA			
	Develop climate friendly planting list		X					MNR			
	Share results with LSSN		X					MNR			
	Share results with garden centres, etc		X					MNR			
	Incorporate results in planting prescriptions		X					LSRCA, MNR, LSSN			
	Establish timeline for review and update		X					MNR			

Rec #	Activity						ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
		2013	2014	2015	2016	2017					
4-16	Develop subwatershed-scale integrated water model				X		LSRCA				
	Incorporate model outcomes in in-stream flow assessments				X		MNR				
3-25	Develop stewardship monitoring program		X				LSRCA, MNR, MOE, MAFRA				
	Monitor stewardship projects		X				X LSRCA, MNR, MOE				
	Revise stewardship prioritization tools					X	LSRCA, MNR				