

# Oro and Hawkestone Creeks Subwatershed Plan Implementation 2014-2018



**Lake Simcoe Region**  
conservation authority

**2013**

## Contents

Background .....	1
Prioritizing the recommendations .....	1
<b>Oro Creeks South, Oro Creeks North, and Hawkestone Creek Priority Activities .....</b>	<b>3</b>
<b><i>Protection and policy</i> .....</b>	<b>3</b>
The adaptive watershed planning process .....	3
Promoting wildlife passage .....	6
Promoting Low Impact Development (LID).....	7
Improving stormwater management.....	8
Improving construction practices .....	9
<b><i>Restoration and remediation</i>.....</b>	<b>10</b>
Managing agricultural impacts.....	10
Promoting native species.....	12
Prioritizing stewardship projects .....	13
Increasing uptake of stewardship programs.....	16
Reducing salt use .....	18
<b><i>Science and research</i> .....</b>	<b>21</b>
Establishing instream flow targets.....	21
Increasing our understanding of climate change .....	23
Monitoring and assessment.....	25
<b>Implementation status report .....</b>	<b>26</b>

## ***Background***

Working in partnership with the MNR, MOE, OMAF, the County of Simcoe, City of Orillia, and Township of Oro-Medonte, the Lake Simcoe Region Conservation Authority (LSRCA) has developed subwatershed plans for the three subwatersheds located in the Township of Oro-Medonte and City of Orillia; namely, the Oro Creeks South, Oro Creeks North, and Hawkestone Creek 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 80 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 Oro and Hawkestone Creeks subwatershed plan.

In reality though, it may not be practical to implement all of the 80 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 80 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 three 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.

# Oro Creeks South, Oro Creeks North, and Hawkestone Creek 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Have subwatershed plans approved by the LSRCA Board of Directors	Plans approved	LSRCA	2013 (approval by LSRCA Board)
Strike implementation working group and invite key stakeholders to participate	Invitations sent	LSRCA (MNR, MOE, OMAF, Oro-Medonte, Orillia, Simcoe)	2014
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)	2014
Meet periodically to report on status of implementation of subwatershed plan recommendations, 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 Oro Creeks South, Oro Creeks North, and Hawkestone Creek subwatersheds	LSRCA (implementation working group)	ongoing

**Recommendation 3-21 (8-2) - 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Identify a set of Key Performance Indicators that can succinctly describe the health of the Lake Simcoe watershed	Key Performance Indicators selected	LSRCA (MOE, MNR)	2014
Identify data needs to support Key Performance Indicator tracking (see also recommendation 5-13)	Review of current monitoring program complete. Any temporal or spatial gaps in data identified	LSRCA	2014
Develop a detailed reporting and communication strategy to report on Key Performance Indicators	Completed business plan outlining potential products, roles and responsibilities, and resource allocation.	LSRCA (MOE, MNR)	2014
Analyze and report on Key Performance Indicators	Provide identified products (e.g. web portal) within specified time frames and resources	LSRCA (MOE, MNR)	Ongoing, to begin in 2016
Update watershed report card, using data collected on the health of Lake Simcoe, and its watershed	Watershed Report Card updated and made available to the public	LSRCA (Conservation Ontario)	2018

**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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
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, Oro-Medonte, Simcoe, Orillia)	2018
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, Oro-Medonte, Simcoe, Orillia)	2018
Develop implementation plan to implement priority recommendations	Implementation plan developed and approved by LSRCA Board	LSRCA (MOE, MNR, Oro-Medonte, Simcoe, Orillia)	2018

## Promoting wildlife passage

**Recommendation 6-7 – That reviewers of Environmental Assessments for municipal infrastructure in the Lake Simcoe watershed, including subwatershed municipalities, MTO, 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Develop map of priority areas for preservation of wildlife movement corridors	Map completed	LSRCA (MNR)	2014
Provide workshop on maintaining and enhancing connectivity for wildlife in infrastructure development projects. Workshop may include results of mapping exercise, an overview of 'road ecology', and recommendations for mitigation, including case studies	Workshop provided	LSRCA (MNR, other interested and qualified groups and individuals)	2014
Include assessment of barrier-free connectivity in Environmental Assessment reviews	Best practices acted upon, and barrier-free connectivity preserved	Oro-Medonte, Orillia, Simcoe, MTO (LSRCA and MOE as necessary)	ongoing



## Promoting Low Impact Development (LID)

<b>Recommendation 3-1 - That the LSRCA work with MOE to develop an action plan to address barriers to the implementation of LID technologies in the subwatershed, using the previously developed LID discussion paper</b>			
<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Identify candidate developments and/or developers to engage in design charettes related to incorporating LID in plans of subdivision	Candidate developments and developers identified	LSRCA, Oro-Medonte, Orillia, Simcoe	Ongoing
Continue to hold design charettes to engage developers in including LID in plans of subdivision	Charettes held	LSRCA	Ongoing
Undertake pilot LID projects to showcase innovations, monitor and document efficacy, and for educational purposes	Completion of at least 12 LID pilot projects across the Lake Simcoe watershed, associated awareness program developed, and monitoring report completed.	Interested municipalities in the Lake Simcoe watershed (MOE, LSRCA)	2017
Showcase pilot projects through appropriate communication approaches such as watershed tours, internet, and media outreach	Complete and implement communication approaches for showcasing pilot projects	Interested municipalities in the Lake Simcoe watershed (MOE, LSRCA)	Ongoing, as pilot projects get implemented
Developing training courses, trade shows and/or workshops on the appropriate use, design, construction, and maintenance of LID approaches	Workshops, tradeshow and/or training courses developed and provided	LSRCA (LID working group)	2017
Incorporate LID as a tool in municipal stormwater master plans, incorporating results of monitoring studies and similar studies completed in other jurisdictions	LID mainstreamed as a tool to manage urban stormwater	Interested municipalities in the Lake Simcoe watershed (MOE, LSRCA)	As determined by development

## 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**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Pursue opportunities to incorporate LID projects as urban redevelopment occurs	LID projects implemented as opportunities arise	City of Orillia	Ongoing
Prioritize stormwater retrofit opportunities identified in LSRCA's 2007 report	Prioritization map developed	City of Orillia (LSRCA)	2015
Develop funding model to pursue stormwater retrofit opportunities	Funding model developed	City of Orillia	2017

## Improving construction practices

**Recommendation 3-8 - That the LSRCA and watershed municipalities promote and encourage the adoption of best management practices to address sediment and erosion controls during construction and road development.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Identify challenges in implementing and monitoring construction site sediment and erosion control practices	Challenges identified	LSRCA, Oro-Medonte, Orillia, Simcoe	2014
Review practices in use in Lake Simcoe watershed, and elsewhere, in addressing the challenges identified, including possible funding mechanisms to ensure effective monitoring and enforcement	Review of current practices complete. Results of review presented to municipal staff and development professionals for comment	LSRCA	2014
Facilitate provision of training and certification for sediment and erosion control contractors and inspectors	Training provided. An increase in the number of certified sediment and erosion control professionals active in the watershed	LSRCA	2014 (and ongoing as required)
Develop report summarizing best practices in sediment and erosion control implementation and monitoring	Report complete	LSRCA	2015
Develop funding model to ensure sufficient resources are available to undertake monitoring and reporting activities, as identified	Sufficient resources to provide programs are secured	Oro-Medonte, Orillia	2015
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	Oro-Medonte, Orillia	Ongoing, beginning in 2016
Implement periodic update of best practices	Best practices updated and adopted, as necessary	LSRCA (Oro-Medonte, Orillia, MOE, MNR, interested members of industry and professional organizations)	Ongoing

## ***Restoration and remediation***

### **Managing agricultural impacts**

**Recommendation 3-15 - That the subwatershed municipalities, through the LSRCA, create a roundtable made up of municipalities, LSRCA, MOE, MNR, MAF, agricultural groups, and related landowner representatives, or through the expansion of existing frameworks such as the Lake Simcoe Stewardship Network or the Water Quality Trading Working Group, to determine co-operative ways of implementing phosphorus reduction and improved water quality measures in Oro North, Hawkestone, and Oro South Creeks, and to develop an 'action plan' for their implementation within the agricultural and rural communities.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Working with municipalities and the Lake Simcoe Stewardship Network, identify key landowner and agricultural representatives to engage in discussion	Stakeholders identified	LSRCA	2014
Hold workshop(s) as necessary to share information and coordinate efforts on issues such as best practices for phosphorus reduction on agricultural land, achieving in-stream flow targets, implementation of stewardship programs, and methods of increasing public awareness	Workshops held, as necessary. Participants feel that workshops are a good use of their time	LSRCA (subwatershed municipalities, OMAF, MOE, MNR, interested environmental groups, others as identified)	Ongoing

**Recommendation 5-10 –That LSRCA work with the municipalities and OMAF to examine innovative forms of municipal drain maintenance, or opportunities to create new drains using the principles of natural channel design. Look for opportunities to abandon drains when there is no longer a need for a municipally managed drainage system. These projects would need to ensure that there are no consequences for neighbouring properties on the same drain, or that any potential issues could be mitigated.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Undertake a study to assess the practicality of using the <i>Drainage Act</i> to protect and manage natural watercourses, and enhance the habitat values of existing municipal drains, including the introduction of meanders, pool / riffle sequences, and riparian buffers	Study complete. Direction provided on moving forward	LSRCA (OMAF, municipal drainage superintendents)	2014
Share results of study with members of the agricultural round table (recommendation 3-15)	Presentation provided. Feedback from agricultural community included in feasibility study	LSRCA (subwatershed municipalities, OMAF, MOE, MNR, active environmental groups, others as identified)	2015
Pending the results of the study and input from agricultural round table, 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 (OMAF, 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, OMAF	2015
Pursue opportunities to abandon or otherwise modify and naturalize municipal drains that are no longer needed for a municipally managed drainage system	Drains abandoned and naturalized using the principles of natural channel design as opportunities arise	LSRCA, (Oro-Medonte, Orillia)	As opportunities arise

## Promoting native species

**Recommendation 6-20 – That the MNR and its partners provide outreach to watershed residents, garden centres, landscapers, and garden clubs regarding the danger of using invasive species in ornamental gardens.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Generate list of garden centres, nurseries, landscaping companies, and horticultural societies in Orillia and southern Simcoe County	List developed	MNR	Ongoing
Provide information on the danger of using invasive plants in ornamental gardens, invasive species that are of particular concern, and appropriate native alternatives, to interested landowners and the groups listed above	Information provided to members on the list	MNR	Ongoing

**Recommendation 6-22 – That the City of Orillia and Township of Oro-Medonte give preference to native species when selecting trees to be planted in boulevards, parks, and other municipal lands, recognizing that Orillia does give such preference in the policies for their Downtown planning designation.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Provide subwatershed municipalities a list of recommended native tree species, including those resistant to road salt	List provided	LSRCA	2014
Update relevant plans, policies, and procedures as necessary	Plans, policies, and procedures updated as necessary	Oro-Medonte, Orillia	Upon next scheduled update
Modify relevant plans, policies, and procedures as necessary to incorporate recommendations for addressing climate change (Recommendation 6-18), as they become available	Plans, policies, and procedures modified as necessary	Oro-Medonte, Orillia	2017

## Prioritizing stewardship projects

Recommendation 5-1 (6-11) – That MNR, MOE, OMAF, and LSRCA continue to implement stewardship projects in these subwatersheds, and encourage other interested organizations in doing the same.			
Activity	Measure of success	Lead (collaborating) agency	Target deadline
Establish interim and long-term targets for stewardship in the Oro Creeks South, Oro Creeks North, and Hawkestone Creek subwatersheds, based on restoration priority setting exercises and funding availability	Quantitative targets established. Protocol for counting projects established	LSRCA (MNR, OMAF, 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 Oro Creeks South, Oro Creeks North, and Hawkestone Creek subwatersheds	Quantitative targets for stewardship projects achieved. Projects address significant threats to watershed health	LSRCA, MNR, OMAF (Lake Simcoe Stewardship Network)	Ongoing, interim targets to be reached by 2017

**Recommendation 6-17 – That the LSRCA, with the assistance of the MOE and MNR, use their draft ‘Delineation of Priority Areas for Restoration’ report to develop a spatially-explicit decision support tool to assist in targeting terrestrial stewardship projects in the Lake Simcoe watershed.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating agency)</b>	<b>Target deadline</b>
Make use of MNR stewardship opportunity areas map to identify priority areas for LSRCA stewardship program, based on targets established for the Oro Creeks South, Oro Creeks North, and Hawkestone Creek subwatershed plans	Restoration priority map created	LSRCA (MNR)	2014
Share priority area map with members of the Lake Simcoe Stewardship Network	Presentation provided. Map made 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, as necessary	LSRCA (MNR)	2016



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

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Review output of all available stewardship prioritization tools developed for the Lake Simcoe watershed, and assessment of barriers to stewardship uptake, to prioritize areas for action, and identify communication / outreach needs to engage priority landowners	Stewardship plan drafted	LSRCA (MNR, OMAF, MOE)	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, OMAF (MOE)	2017
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 (MNR, OMAF, MOE)	2017

## Increasing uptake of stewardship programs

**Recommendation 5-5 (6-15) – The MOE, MNR, OMAF, LSRCA and other interested members of the Lake Simcoe Stewardship Network support research to determine 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Identify barriers to sharing data related to stewardship uptake, and ways to overcome barriers	Clear understanding of what data can be shared, and agreement to share, achieved	MOE, MNR, OMAF, LSRCA	2014
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, OMAF)	2014
Conduct literature review of factors related to stewardship behaviour of private land owners	Literature review complete and report written	LSRCA (MNR, MOE, OMAF)	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, OMAF)	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, OMAF, LSRCA)	2016
Present results of research to Lake Simcoe Stewardship Network	Presentation completed	LSRCA	2016

**Recommendation 5-6 (6-16) – The MOE, MNR, OMAF and LSRCA continue to investigate new and innovative ways of reaching target audiences in the local community and engage them in restoration programs and activities (e.g. 4H clubs, high school environmental clubs, through Facebook groups, hosting a Lake Simcoe Environment Conference for high schools/science community interaction). Results of these efforts should be shared with the Lake Simcoe Stewardship Network.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Review existing web presence and develop online communication strategies, including assessment of the role of social media in increasing public awareness of the state, and management, of Lake Simcoe	Online communication strategy developed	LSRCA	2014
Implement communication strategy	Strategy implemented	LSRCA	2014
Identify and engage other groups active in the subwatershed, particularly those which include non-farm rural landowners, such as schools, faith groups, or public libraries	New audiences found. Presentations or other communications material provided	LSRCA, MNR, MOE	2014
Review results of study on motivations and barriers related to stewardship uptake (recommendation 5-5) to determine key communication needs	Stewardship communication strategy developed	LSRCA (agricultural round table)	2016

## Reducing salt use

**Recommendation 3-14 - Recognizing that increasing concentrations of chloride in watercourses is an emerging issue shared by all municipalities in the Lake Simcoe watershed, that the watershed municipalities, LSRCA, MOE, MTO, MNR, and academia representatives form a Salt Working Group as a mechanism to share information on best practices for salt application, methods of increasing public awareness of the environmental impacts of road salt, and the effectiveness of municipal Salt Management Plans.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
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, interested members of Landscape Ontario)	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
Meet periodically, or as needed, to share information and coordinate efforts on best practices for chloride reduction, including management of salt vulnerable areas, effectiveness of training and certification program, and trends in chloride in Lake Simcoe and its tributaries	Meetings continue. Members feel that meetings are a good use of their time	LSRCA (MOE, MNR, MTO, EC, municipalities in the Lake Simcoe watershed)	Ongoing, to begin in 2014
Develop strategy to update salt management plans, Official Plans, or site plan approvals processes, as necessary to act on lessons learned	Strategy developed. Salt Management Plans, Official Plans, or site plan approvals updated as necessary	Oro-Medonte, Orillia, Simcoe, MTO	2016

**Recommendation 3-12 - That the LSRCA, with the support of subwatershed municipalities, identify areas within the Oro Creeks North, Hawkestone Creek, and Oro Creeks South subwatersheds which are vulnerable to road salt, such as Lake Simcoe and the watercourses flowing through the study area's urban areas (as outlined by Environment Canada). As outlined in Environment Canada's Code of Practice for the Environmental Management of Road Salt, municipalities should examine alternate methods of protecting public safety while reducing environmental impacts in these areas, once identified.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Develop map of Salt Vulnerable Areas, using approach developed by researchers from the University of Guelph	Map completed	LSRCA	2014
Develop map of areas where gains to aquatic ecosystem resulting from reduction in salt application could be maximized	Map completed	LSRCA	2014
Generate map of areas where future impacts could be greatest, based on areas designated for development in municipal Official Plans and Transportation Master Plans	Map completed	LSRCA	2014
Share maps of salt vulnerable areas with municipal and provincial road managers	Workshop provided, maps made available for use	LSRCA	2015
Salt management plans reviewed, and revised as necessary	Salt Management Plans revised, as necessary	Oro-Medonte, Orillia, Simcoe	2016

**Recommendation 3-13 - That the LSRCA, in collaboration with subwatershed municipalities, develop and deliver a salt education and certification program, to increase awareness and understanding of the importance of salt management by snow removal contractors, property managers, and the general public.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Provide training and certification program for municipal and private sector parking lot and road managers in the Lake Simcoe watershed	Training provided. Facilities and contractors start to become certified	LSRCA (MOE, subwatershed municipalities, Smart About Salt Council)	Ongoing, to begin in 2013
Evaluate effectiveness of training program in reducing application of road salt	Effectiveness evaluated, and report developed	LSRCA (MOE, Smart About Salt Council)	2015

## *Science and research*

### **Establishing instream flow targets**

<b>Recommendation 4-3 (5-9) – That the MOE, with the assistance of MNR and LSRCA determine if the Oro Creeks South, Oro Creeks North, or Hawkestone Creeks subwatersheds are water quantity stressed and require the development of in-stream flow targets.</b>			
<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Undertake an assessment of flow regimes in the Oro Creeks North, Oro Creeks South and Hawkestone Creeks subwatershed, to determine if existing flow regime stresses in-stream biotic communities	Assessment complete, level of stress identified	MOE, (MNR, LSRCA)	2015
If watercourses are determined to be water quantity stressed, 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, as necessary	MOE, (MNR, LSRCA)	2017

**Recommendation 4-7 – That the MOE be encouraged to routinely audit water takers to determine if they are in compliance with their PTTW, or to ensure permits are obtained when necessary.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Compile interim list of watercourses sensitive to water takings based on in-stream flow conditions, aquatic monitoring data, or other available data sources	List compiled	LSRCA	2014
Undertake audits of Permits to Take Water and investigate non-regulated water takings in sensitive water courses	Audits undertaken and risks reduced	MOE	Ongoing



## Increasing our understanding of climate change

**Recommendation 3-17 (4-20)- 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Provide presentation on the Lake Simcoe Climate Change Adaptation Policy and Community of Practice to the Lake Simcoe Stewardship Network, interested watershed municipalities, and interested members of the agricultural community	Presentation(s) provided	MOE	2014
Build anticipated impacts of climate change into stewardship prioritization tools	Stewardship prioritization tools updated as necessary	LSRCA	2014
Share results with members of the Lake Simcoe Stewardship Network, watershed municipalities, and Lake Simcoe Watershed Climate Change Adaptation Community of Practice, and promote its use in stewardship programs and projects	Presentation provided	LSRCA, MNR, MOE,	2014

**Recommendation 6-18 – 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 native species which will be tolerant of 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.**

<b>Activity</b>	<b>Measure of success</b>	<b>Lead (collaborating) agency</b>	<b>Target deadline</b>
Modify existing recommended tree planting lists for reforestation, based on expected changes to climate in southern Ontario	Recommended planting list developed	MNR (LSRCA)	2017
Share recommended tree planting list with members of the Lake Simcoe Stewardship Network, and watershed municipalities	Presentation provided	MNR	2017
Share recommended tree planting list with garden centres, nurseries, landscaping companies, and horticultural societies in Orillia 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, subwatershed municipalities, interested members of the Lake Simcoe Stewardship Network	2017
Establish timeline for review and update of recommended tree planting lists, based on actual climate trajectories and pest and disease occurrences	Timeline for review established, and responsibility delegated	MNR	2017

## Monitoring and assessment

**Recommendation 6-24 – That the MNR, LSRCA, and OMAF continue to maintain an up-to-date seamless land cover map for the watershed, as defined by the LSPP, with natural heritage features classified using Ecological Land Classification, managed in such a way as to allow change analysis.**

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Undertake update of the Lake Simcoe land cover and land use map	Land cover and land use map updated	LSRCA (MNR, OMAF, MOE)	2018
Conduct land use change analysis to document changes in overall land cover since development of Oro Creeks North, Oro Creeks South, and Hawkestone Creek subwatershed plans	Land use change analysis complete	LSRCA	2018

**Recommendation 3-18 (5-13) – That the LSRCA enhance the existing monitoring network to address identified limitations and gaps of the current monitoring program.**

Activity	Measure of success	Lead (collaborating) agency	Target deadline
Review current location and frequency of water quality and aquatic habitat monitoring in the Lake Simcoe watershed, including parameters measured. Assess ability of current data to monitor impacts of land use change and report on proposed Key Performance Indicators (recommendation 8-2)	Review complete. Any spatial or temporal gaps in monitoring identified	LSRCA	2014
Develop business plan to improve monitoring program, including potential funding sources, as necessary	Business plan complete	LSRCA	2014
Implement enhanced monitoring program, as necessary, and as funding permits	Identified spatial and temporal gaps in monitoring resolved	LSRCA	2016

## **Implementation status report**

The Oro and Hawkestone Creeks 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 Oro and Hawkestone Creeks Subwatershed Plan. 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	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
8-1	Have subwatershed plans approved	X						LSRCA			
	Strike implementation working group	X						LSRCA			
	Develop Terms of Reference	X						LSRCA			
	Meet periodically to report on implementation						X	LSRCA			
	Share annual implementation reports						X	LSRCA			
3-21	Identify monitoring KPI	X						LSRCA			
	Identify data needs	X						LSRCA			
	Develop reporting and communication strategy	X						LSRCA			
	Analyse and report on KPI						X	LSRCA			
8-4	Update watershed report card					X		LSRCA			
	Revise subwatershed plans					X		LSRCA			
	Develop subwatershed recommendations					X		LSRCA			
	Develop implementation plan					X		LSRCA			
6-7	Develop priority connectivity map	X						LSRCA			
	Wildlife connectivity workshop	X						LSRCA			
	Include wildlife connectivity in EA reviews						X	subwatershed municipalities			
3-1	Identify charrette candidates						X	LSRCA, subwatershed municipalities			
	Hold design charrettes						X	LSRCA			

Rec #	Activity	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
3-3	Implement LID pilot projects				X			subwatershed municipalities			
	Showcase pilot projects						X	subwatershed municipalities			
	Develop LID training courses				X			LSRCA			
	Incorporate LID in municipal stormwater plans						X	subwatershed municipalities			
	Pursue opportunities for LID						X	Orillia			
3-8	Prioritize stormwater retrofits		X					Orillia			
	Develop funding model for retrofits				X			Orillia			
3-15	Identify challenges in erosion control	X						LSRCA, subwatershed municipalities			
	Review erosion control practices	X						LSRCA			
	Provide erosion control training	X					X	LSRCA			
	Develop report on best practices		X					LSRCA			
	Develop funding model for implementation			X				subwatershed municipalities			
5-10	Monitor and report on implementation						X	subwatershed municipalities			
	Update best practices						X	subwatershed municipalities			
	Identify key agricultural representatives	X						LSRCA			
5-10	Hold workshops as necessary						X	LSRCA			
	Drainage Act feasibility study	X						LSRCA			
	Share results with Ag round table		X					LSRCA			

Rec #	Activity	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
6-20	Establish Drain pilot study		X					LSRCA			
	Modify existing stewardship programs		X					LSRCA			
	Pursue opportunities to abandon drains						X	LSRCA			
	Generate list of garden centres						X	MNR			
	Provide information on invasives						X	MNR			
6-22	Provide recommended tree planting list	X						LSRCA			
5-1	Update plans and practices as necessary					X		subwatershed municipalities			
	Establish stewardship targets	X						LSRCA			
	Share targets with stewardship network	X						LSRCA			
6-17	Enhance stewardship funding model		X					LSRCA, MNR, subwatershed municipalities			
	Implement priority stewardship projects						X	LSRCA, MNR, OMAF			
	Identify terrestrial stewardship priorities	X						LSRCA			
	Share priority areas with stewardship network	X						LSRCA			
	Refine prioritization			X				LSRCA			
5-8	Develop stewardship plan			X				LSRCA			
	Review funding programs				X			LSRCA, MNR, OMAF			

Rec #	Activity	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
5-5	Present stewardship plan to stewardship network			X				LSRCA			
	Revise communication tools				X			LSRCA			
	Identify barriers to stewardship data sharing	X						MOE, MNR, OMAF, LSRCA			
	Analyse stewardship program uptake	X						LSRCA			
	Conduct stewardship behaviour literature review		X					LSRCA			
	Interview stewardship practitioners		X					LSRCA			
	Survey watershed residents			X				LSRCA			
5-6	Share results with LSSN			X				LSRCA			
	Review online communication strategy	X						LSRCA			
	Implement communication strategy	X						LSRCA			
	Engage new audiences	X						LSRCA			
3-14	Review results of stewardship behaviour study			X				LSRCA			
	Create salt management working group	X						LSRCA			
	Continue to monitor chloride levels						X	MOE, LSRCA			
3-12	Meet periodically						X	LSRCA			
	Update salt management plans			X				subwatershed municipalities			
	Map salt vulnerable areas	X						LSRCA			
	Map areas where gains could be achieved	X						LSRCA			
	Map areas of potential future impacts	X						LSRCA			
	Share maps with municipalities		X					LSRCA			



Rec #	Activity	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
3-13	Update salt management plans			X				LSRCA			
	Provide salt management training						X	LSRCA			
4-3	Evaluate effectiveness of salt training		X					LSRCA			
	Complete pilot e-flow assessment	X						MOE			
4-4	Collect additional flow data	X						LSRCA			
	Develop instream flow targets			X				MOE			
	Develop instream flow strategy					X		MOE			
	Use instream flow targets in stormwater plans						X	subwatershed municipalities			
4-7	Update official plans, as necessary						X	subwatershed municipalities			
	Use instream flow targets in PTTW					X		MOE			
	Refine stewardship priorities					X		LSRCA			
	Compile list of sensitive watercourses	X						LSRCA			
3-17	Refine list of sensitive watercourses					X		MOE			
	Audit PTTWs						X	MOE			
6-18	Provide presentation on climate change	X						MOE			
	Refine stewardship priorities	X						LSRCA			
	Share results with stewardship network	X						LSRCA			
6-18	Refine recommended planting list				X			MNR			
	Share list with stewardship network				X			MNR			
	Share list with garden centres				X			MNR			
	Incorporate recommended list in planting plans				X			LSRCA, MNR, subwatershed municipalities			

Rec #	Activity	2014	2015	2016	2017	2018	ongoing	Lead agency	Project status	Barriers to progress	Strategies for overcoming barriers
6-24	Establish timeline for list review				X			MNR			
	Update land cover map					X		LSRCA			
	Conduct land use change analysis					X		LSRCA			
3-18	Review monitoring program	X						LSRCA			
	Develop business plan to improve monitoring program	X						LSRCA			
	Expand monitoring program			X				LSRCA			