



**Lake Simcoe Region**  
conservation authority

# **Water Balance Recharge Offsetting Policy**

**2023-05-01**



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**Conservation Authority Resolution**

At the LSRCA Board of Director's Meeting on December 14, 2018, the Water Balance Offsetting Policy was approved by the Board of Directors through the following resolution:

Moved by: P. Ferragin

Seconded by: M. Quirk

BOD-179-18 **Resolved that** Staff Report No. 51-18-BOD regarding the Water Balance Offsetting Policy be received; and

**Further that** the Water Balance Offsetting Policy be approved for implementation effective January 1, 2019.



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### Revisions Registry

| Identification             | Date          | Description of revision                      |
|----------------------------|---------------|--|
| Draft Policy               | November 2018 | Presented to Board and approved              |
| Housekeeping Policy Update | May 2019      | Minor housekeeping updates approved by Board |
| Policy Update              | May 2023      | Updates approved by Board                    |



## 1.0 Introduction

The Lake Simcoe Region Conservation Authority (LSRCA) Strategic Plan, Transformation 2022-2024 reaffirms LSRCA's vision of watershed health and the mission we aspire to achieve. Through identified action items and goals, the LSRCA envisions a thriving environment that inspires and sustains the needs of generations to come. Goal one of the Strategic Plan is to champion watershed health and climate resilience. The development and implementation of a Water Balance Recharge Offsetting Policy supports this goal by providing a consistent approach to groundwater recharge, throughout the watershed.

## 2.0 Background

Recharge areas are the areas of land over which precipitation in the form of rain or snow infiltrates into the ground and flows to an aquifer. Recharge areas tend to be characterized by permeable and porous soils such as sand or gravel. These soils allow water to percolate downward and replenish the water system. A recharge area is considered to be significant when it helps to maintain the water level in an aquifer that supplies drinking water, or groundwater to a cold-water ecosystem that is dependent on this recharge to maintain its ecological function. Recharge can occur in all areas where the ground surface is permeable, and groundwater is below surface. This policy summarizes the recharge policies within the Lake Simcoe Watershed and establishes a recharge offsetting program which can be utilized where pre-development infiltration cannot be maintained on a development site.

The following policies provide the basis and justification for LSRCA's Water Balance Recharge Offsetting Policy:

- South Georgian Bay Lake Simcoe Source Protection Plan Policies:
  - Land Use Planning – 11
  - Land Use Planning – 12
- Lake Simcoe Protection Plan Policies:
  - Designated Policy 4.8
  - Designated Policy 6.40



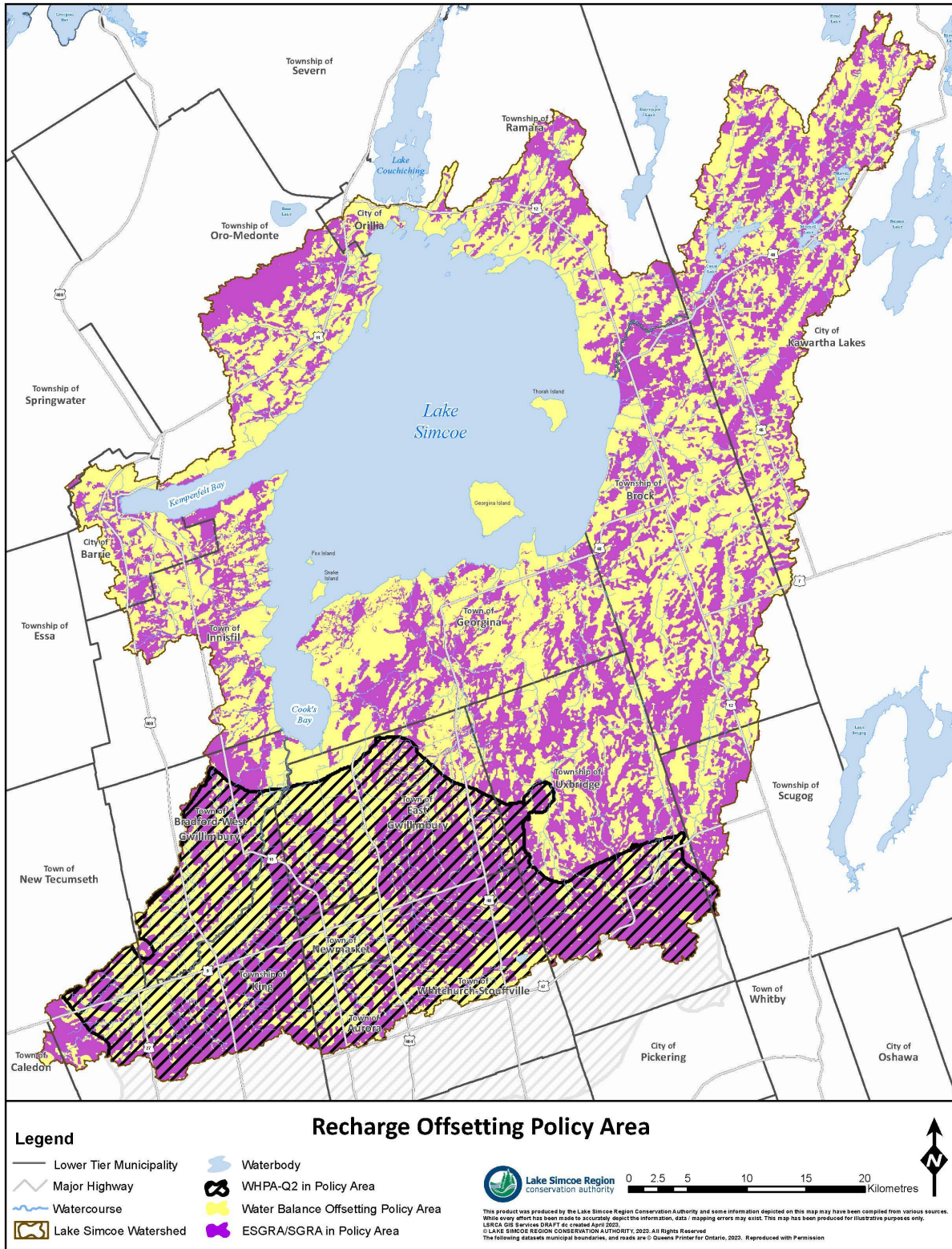
The Lake Simcoe Protection Plan came into effect in 2009. Since then, the Significant Groundwater Recharge Areas (SGRAs) and Ecologically Significant recharge Areas (ESGRAs) have been identified and mapped (Figure 1). Recognizing the importance of recharge areas to sustaining a healthy watershed the Lake Simcoe Protection Plan (LSPP) includes a number of policies to help identify and protect SGRAs and ESGRAs. The approach taken within the LSPP follows three basic steps: 1) define and identify SGRAs/ESGRAs; 2) develop guidance for their protection and restoration, and 3) incorporate policies into municipal official plans to protect, improve and restore.

The South Georgian Bay Lake Simcoe Source Protection Plan Land Use Planning Policy -12 (LUP-12) came into effect July 2015, requiring offsite compensation be used in situations when pre-development recharge cannot be maintained within the WHPA-Q2 area (i.e. York Region Groundwater Recharge Management Area), shown in Figure 1.

For development applications to meet the requirements outlined in both the Source Protection Plan and the Lake Simcoe Protection Plan, the LSRCA Water Balance Recharge Offsetting Policy was created for those areas where it is demonstrated that the post-development infiltration is unable to match the pre-development infiltration volume and an infiltration deficit remains in the post-development scenario.

The water balance review and compensation program has been developed to support Urban Watershed Restoration at Lake Simcoe Region Conservation Authority, as well as local and regional municipalities in the Lake Simcoe Watershed. This document has been developed to support implementation of the recharge policies within the Lake Simcoe Water along with providing information and direction to assist planning and technical staff on the following:

1. Source Protection Plan and Lake Simcoe Protection Plan policy requirements related to recharge.
2. Hydrogeological Assessment and Water balance study requirements.
3. Compensation process:
  - a. When recharge compensation would be required,
  - b. Process for implementation.



**Figure 1 – Water Balance Recharge Offsetting Policy Area**

### 3.0 Water Balance Recharge Offsetting Policy Requirements

As noted above, the Lake Simcoe Protection Plan (LSPP) was released in 2009. Both Policies 4.8-DP and 6.40-DP require the maintenance of pre-development recharge through a water balance assessment and/or a hydrogeological assessment for all planning applications for major development as defined by the LSPP (see Table 1).

Policy 4.8-DP requires the effects the development has on recharge reduction be minimized through various stormwater management methods. Implicit is the requirement for a climate-based water balance for the pre- and post-development scenarios and the use of BMP to minimize any infiltration deficit.

Policy 6.40-DP focuses specifically on Significant Groundwater Recharge Areas (SGRAs) and requires the demonstration that the quality and quantity of groundwater in these areas and the function of the recharge areas will be protected, improved or restored through the development. It should be noted that LSPP definition of SGRAs also includes areas delineated as Ecologically Significant Groundwater Recharge Areas (ESGRAs).

The definitions of a significant groundwater recharge areas, in accordance with LSPP policy 6.36-DP are as follows (Figure 1):

- a. Significant groundwater recharge area by any public body for the purposes of implementing the PPS,
- b. Significant groundwater recharge area (SGRA) in the Source Water Protection Assessment report required under the *Clean Water Act 2006 (CWA)*. Following the CWA definition, these are areas within which it is desirable to regulate or monitor drinking water threats that may affect the recharge of an aquifer, and
- c. An ecologically significant groundwater recharge area (ESGRA) is an area of land that is responsible for replenishing groundwater systems that directly support sensitive areas such as cold-water streams and wetlands.

The South Georgian Bay Lake Simcoe Source Protection Plan (SGBLS SPP) came into effect July 2015. Land Use Planning Policy – 12 (LUP-12), requires a hydrogeological assessment and water balance demonstrating no change to pre-development recharge through the use of best management practices. Where pre-development recharge cannot be maintained on-site, recharge compensation may be utilized.



**Table 1 – Legislation requirements for water balance assessments within the Lake Simcoe Protection Plan**

| Legislative Authority  | Policy Requirements  |
|--|--|
| South Georgian Bay Lake Simcoe Source Protection Plan – Land Use Policy 12 | Hydrogeological Assessment, pre- and post-development water balance required for all major development. Offsite compensation where pre-development recharge cannot be maintained.*   |
| Lake Simcoe Protection Plan – 4.8 Designated Policy                        | Pre- and post-development water balance required for all major development and show how such changes shall be minimized.**   |
| Lake Simcoe Protection Plan – 6.40 Designated Policy                       | Outside of the Oak Ridges Moraine area, an application for major development within a significant groundwater recharge area (SGRA) shall be accompanied by an environmental impact study that demonstrates that the quality and quantity of groundwater in these areas and the function of the recharge areas will be protected, improved or restored.** |

\*Policy applies to planning applications meeting the definition of major development under the South Georgian Bay Lake Simcoe Source Protection Plan (i.e. impervious area 500 m<sup>2</sup> or greater)

\*\* Policy applies to planning applications meeting the definition of major development under the Lake Simcoe Protection Plan (i.e. building(s) 500 m<sup>2</sup> or greater)

## 4.0 Maintenance of Recharge

As noted above, a hydrogeological assessment and water balance analysis is required to estimate the pre-development and post-development infiltration and runoff for most development applications within the Lake Simcoe Region Conservation Authority, as outlined in Table 1. The purpose of the water balance analysis is to reasonably estimate the current infiltration to the subsurface and to then determine how much this rate will change as a result of the proposed development.

It should be noted that the terms ‘infiltration’ and ‘recharge’ are commonly used interchangeably in development application supporting documents. Infiltration is determined through the water balance assessment and relates to the capacity for the soil to allow water to enter the subsurface. Some of this infiltration results in lateral movement in the shallow unsaturated zone where interflow may predominate and some of the infiltration is directed downward to the deeper aquifer system. Whereas recharge is considered to be primarily water



that reaches the saturated zone of the aquifer and becomes part of the regional groundwater flow system. The maintenance of infiltration rates is essential to the sustainability of the groundwater flow system which may support local significant ecological features. In addition, infiltration may move to a regional deeper flow system that may be important at a regional scale from either an ecological or water supply perspective.

The maintenance of recharge should be focused on the infiltration target (i.e. loss) identified through the water balance assessment. Infiltration Low Impact Development (LIDs) measures may reduce or eliminate the infiltration loss from a proposed development but can also pose an additional risk to groundwater quality if not designed correctly. Infiltration LIDs should consider the source of runoff being infiltrated, the receiving groundwater receiver and any additional policies that may apply to the stormwater management design of a site (e.g. municipal policies, source protection plan policies, stormwater management criteria).

A hydrogeological assessment, authored by a qualified person (i.e., P.Geol or exempted P.Eng as per *Professional Geoscientists Act (2000)*), including a detailed climate based water balance as outlined in the Hydrogeological Assessment Submissions, Conservation Authority Guidelines for Development Applications, 2013 should accompany all planning applications for major development. During the review process for the application the hydrogeological assessment should be reviewed by a qualified person.

## **5.0 Implementation**

This Water Balance Recharge Offsetting Policy is applicable to all lands subject to Lake Simcoe Protection Plan 4.8-DP, 6.40-DP and the Source Protection Plan LUP-12.

This Water Balance Recharge Offsetting Policy will be primarily implemented through Ontario's land use planning process under the *Planning Act*. A detailed climate based water balance (pre- and post-development will be required as part of the hydrogeological review). This water balance is to be assessed by a QP as defined under the *Professional Geoscientists Act*.

The Water Balance Recharge Offsetting Policy will be applied to the following applications under the *Planning Act*, the *Condominium Act* and the *Conservation Authorities Act*:

- Plans of subdivision,
- Plans of condominium,
- Site plans involving major development, and
- Consent applications

For the purposes of this Policy, major development is as defined in Section 0 above.



## 5.1 Transition Provisions for Applications under the *Planning Act*

This policy applies to applications under the *Planning Act* that are received and deemed complete by the municipal approval authority after July 1, 2015, for developments within the WHPA-Q2 area and after 1st January, 2019 for the rest of the watershed. To be consistent with section 3 of the *Planning Act*, the required compensation / offsetting will be in accordance with the current approved Water Balance Recharge Offsetting Policy on the date of the approval under the *Planning Act*. It is noted that the Authority will honour any previous offsetting strategies or compensation which have been agreed to and approved prior to the Board of Directors approval of the current version of this policy.

This policy is tied to the Lake Simcoe Protection Plan which came into effect in 2009. At present, any development application which was approved prior to 2009 is evaluated on a “best efforts” basis. Designated policies 4.8 and 6.40 of the Lake Simcoe Protection Plan require the submission of a Hydrogeological Assessment / Water Balance, accordingly, any application for major development submitted 2009 or later will have considered the water balance requirements and as such we will apply this policy in full when requested for updated conditions of approval for developments seeking an extension of approval under the *Planning Act*.

## 5.2 Exemptions

Applications under the *Planning Act* that facilitate permitted agricultural uses or the construction of an accessory structure (e.g., garage or barn and non-commercial structures) or a single-detached dwelling on an existing lot of record will not be subject to the recharge offsetting requirements.

## 6.0 Water Balance Recharge Offsetting Program

The preferred resolution is always for the post-development infiltration deficit to be mitigated during the development process by the proponent. However, it is recognized that this is not always possible such as in circumstances where the water table is high or the soils have low permeability (e.g., clay). In such circumstances and only after all reasonable efforts have been made to meet the infiltration deficit then cash compensation will be considered. In instances where the quantity of impervious area is an issue rather than high water table/impermeable soils options such as a redesign are to be considered (e.g., decrease in density).



## 6.1 Off-Site Compensation Process

Off-site compensation would be considered for development applications if they have met the following requirements:

1. All the required technical studies have been completed, and
2. It has been identified that one or more of the constraints previously mentioned make it difficult to maintain pre-development infiltration rates.

There are two processes in which off-site compensation may be achieved:

1. The developer may have an alternate site to make up the difference; or working with the developers of another property the infiltration deficit (for both properties) may be infiltrated in part or in full on the alternate property. The requirement for the timing of the facility to be constructed by the developer on an alternate site will be addressed through a Development Agreement. It is preferred that the compensating facility be constructed prior to the subject development causing the recharge deficit, and
2. Provide a Recharge Offsetting Fee to LSRCA, thereby allowing LSRCA to implement restoration projects (Examples: Stormwater pond retrofits, Low Impact Development) that address stormwater and achieve recharge. See Appendix A – Implementation Guidelines for Water Balance Recharge – Cash-in-Lieu.

## 6.2 Recharge Compensation Cost

Should the pre-development infiltration not be maintained in post-development conditions through best management practices, a recharge compensation fee will be calculated based on the infiltration deficit ( $m^3$ ) determined from the annual pre- and post-development water balance assessments. This would exclude very low infiltration deficits of  $100 m^3$  or less.

In the case the Lake Simcoe Phosphorus Compensation Policy also applies to an application, it is the greater of the two offsetting requirements which will be applied.

While recharge offsetting fees were originally determined based on low impact development project costs estimated from the TRCA LID Life Cycle tool (2015), compensation costs have since been updated based on LID restoration projects undertaken by the conservation authority.

Please see the attached (Appendix A) fee schedule for updated costs. Offsetting fees need to be adjusted annually to account for the increased cost of the offsetting work. Values are reviewed annually and may be subject to adjustment to account for inflation or fluctuations in service and/or material costs. Adjustments for inflation are based on the annual consumer price index, updated in March, as provided by Statistics Canada:

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000413>



## Appendix A – Recharge Offsetting Cost

|                          |                             |
|--------------------------|-----------------------------|
| Recharge Offsetting Fee: | \$100.00 per m <sup>3</sup> |
| Administrative Fee:      | 15%                         |
| Approved Date:           | Board Approved May 26, 2023 |

## **Appendix B – Implementation Guidelines for Recharge Offsetting – Cash – In – Lieu**

### **Water Balance Recharge Committee**

The following sections outline the implementation guidelines for LSRCA’s Cash-in-Lieu

Offsetting: Implementation Committee, Project Selection Criteria, Project Funding, Project Execution, Interest on Cash-in-lieu Funds and Project Reporting.

### **Implementation Committee**

An Implementation Committee (Committee) will be established to assist in implementation through informed decision making. The members will be responsible for:

- Reviewing potential Stormwater Restoration projects for funding utilizing the Recharge Offsetting revenue.
- Ensuring that the projects meet Recharge Offsetting Implementation Criteria and either approving or denying projects.
- Reviewing and recommending which approved projects need to be monitored for water quality/quantity efficacy.
- Reviewing the annual reports and ensuring that desired outcomes are being achieved.
- Providing advice and direction on ways to improve the program. The Implementation Committee will establish and follow a Terms of Reference and will be comprised of members from the following service areas: Corporate Services, Planning & Development, and Watershed Restoration Services.

### **Project Funding**

Recharge funding will be used to fund the project costs approved by the review committee. A review of the project funds, including the administration fee, will be completed annually to ensure the amount is appropriate.



### **Project Execution**

Projects will be executed by LSRCA. Exceptions may be made at the discretion of the Committee and a grant agreement and/or MOU must be signed by the executing party.

LSRCA's Board of Directors have provided governance for the internal review committee to procure consultants and contractors and to issue grants to agencies, partners and participants in accordance with the current LSRCA Purchasing Policy.

### **Financial Controls**

Offsetting funds will be tracked within a sub-watershed grouping account. Once a project has been approved the budget will be transferred to the project account. Internal monthly reporting on project budget versus actual will be prepared and reviewed at each Committee meeting.

### **Interest on Water Balance Recharge Policy Revenue**

Due to timing difference between recharge offsetting revenue and project expenditures, LSRCA staff will segregate the idle recharge offsetting money and invest under the strict provisions of the LSRCA Investment Policy. Interest revenue earned will be allocated with 15% going to Program and Operational costs and 85% to Project costs. All interest attributed to Project Costs will be returned to the General Pool.

### **Reconciliation of Projects (Project close out)**

At the conclusion of the project, any remaining funds from the project would be returned to a General Pool of recharge funding for redeployment towards other projects at the general discretion of the Committee and approved by the Board as necessary.

### **Reporting**

Project reporting will be done internally monthly and be reported as part of the quarterly reporting (typically only done at the end of quarter 2,3 and 4). Available sub-watershed grouping balances, revenue received less committed expenditures, will be available for each Committee meeting. Annual audited balances (by sub-watershed or aggregate) will be available at year end or (unaudited) will be available upon request of the Committee or Board.