

Subject: Groundwater Recharge Compensation Fund

Department: Infrastructure Services

Division: Planning

Report #: INS-2021-016

Meeting Date: 2021-03-22

Recommendations

That report INS-2021-016, Groundwater Recharge Compensation Fund, be received;

And that staff be directed to establish a reserve fund for the purposes of administering a groundwater recharge compensation program for developments that are unable to meet on-site groundwater recharge requirements under the Credit Valley, Toronto and Region, Central Lake Ontario (CTC) Source Protection Plan;

And that Council provides direction to staff to set up a Discretionary Reserve Fund for Groundwater Recharge Compensation.

Background and Analysis

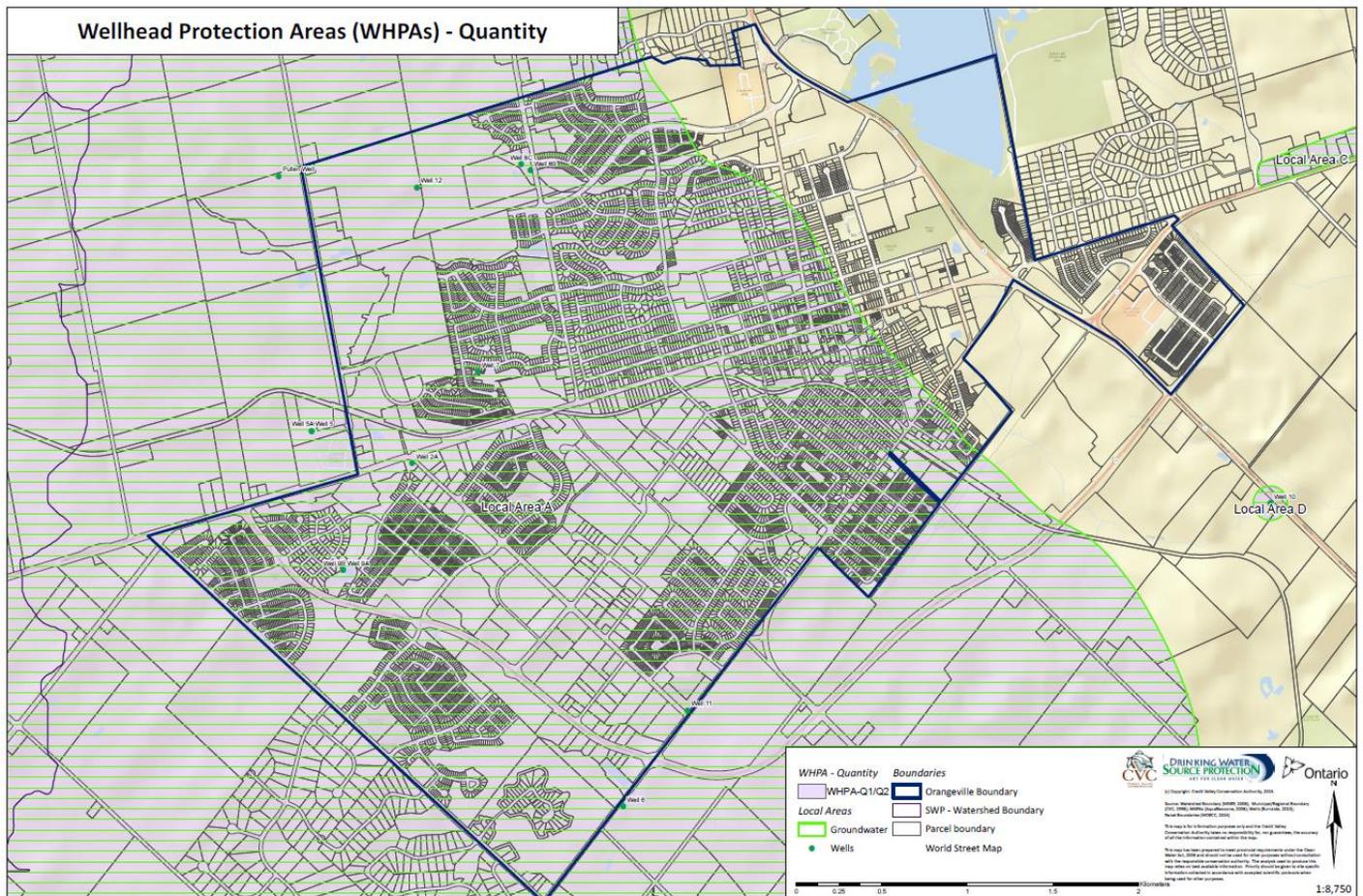
The Clean Water Act (Act) was ratified in 2006 following recommendations of Justice O’Conner and the Walkerton Inquiry and forms part of a multi-barrier approach to protecting municipal drinking water supplies in Ontario. The Act sets out a framework to protect the quality and quantity of municipal drinking water sources from activities identified as drinking water threats. The legislation aims to ensure the long-term sustainability of abundant and safe drinking water through the development and implementation of policy documents called Source Protection Plans. Policies in the Source Protection Plans set out the actions that must be implemented in order to protect municipal drinking water supplies. The Town of Orangeville is located within the Credit Valley Source Protection Area and is subject to the source protection plan developed for the Credit Valley – Toronto and Region – Central Lake Ontario (CTC) Source Protection Region. Section 39(1) of the Clean Water Act requires all municipal planning decisions under the Planning Act to conform with significant threat policies; and have regard to all other policies of the CTC Source Protection Plan.

Policies outlined in the CTC Source Protection Plan apply in vulnerable areas around municipal wells known as Wellhead Protection Areas. Wellhead Protection Areas

delineate the area where activities occurring on the ground can impact the quality and quantity of water at a municipal well. There are two types of wellhead protection areas delineated under the program, including Wellhead Protection Areas for Quality and Wellhead Protection Areas for Quantity.

The Wellhead Protection Area for Quantity (WHPA-Q1/Q2) is established to protect the quantity of water required by the Town to meet current and future water supply needs. The Town’s WHPA-Q1/Q2 is comprised of land around municipal water wells, where changes in groundwater recharge due to land use development could affect the quantity of water available at the well. Figure 1 illustrates the extent of the Wellhead Protection Area for Quantity (WHPA-Q1/Q2) within the Town of Orangeville:

Figure 1: Wellhead Protection Area for Quantity (WHPA-Q1/Q2)



Analysis

Source Protection Plan policies to protect water quantity apply to properties located within the WHPA-Q1/Q2. The objective of the water quantity policies is to ensure that land is developed in such a way that maintains the recharge and replenishment of groundwater aquifers is maintained. This in turn, ensures that municipal water supplies

are sustainable in the future. Specifically, the policies require new development projects located within the WHPA-Q1/Q2 to maintain pre-development groundwater recharge volumes through the implementation of best management practices such as “Low Impact Development” techniques. Low Impact Development (LID) techniques include landscaping and design strategies that mimic the natural movement of water to manage and infiltrate stormwater runoff. While conventional methods of stormwater management collect and convey stormwater directly into the storm sewer system, LID techniques collect and infiltrate run-off on site. This decreases the volume of runoff entering the storm sewer and ensures that groundwater supplies are replenished. Staff enforce water quantity policies through the review of development applications under the Planning Act, which ensures that new development approvals are not granted unless it is demonstrated that the applicable CTC Source Protection Plan policies are met.

While the primary intent of the water quantity policies is to maintain pre-development recharge on the proposed development site whenever possible, the policies also recognize that certain conditions may exist that make this difficult to achieve. Specific conditions that would limit the ability to enhance infiltration within a development site for the purpose of maintaining pre-development infiltration volumes may include:

- High groundwater table conditions that may preclude the use of LID infiltration techniques; most infiltration systems are constructed at ground surface and below, and require the bottom of the LID facility to be vertically separated from the high water table by at least one (1) m;
- High bedrock elevations that preclude the use of LID infiltration techniques;
- Very low infiltration capacity of on-site soils, and;
- Water quality issues, such as the existence of historical contamination

Where pre-development recharge cannot be maintained on a development site due to any of the limiting conditions described above, municipalities are required by the CTC Source Protection Plan to establish an off-site compensation strategy. Off-site compensation allows the infiltration volumes that would be reduced by development on that site, to be accommodated on another more suitable property within the WHPA-Q1/Q2 boundary. Essentially, where a development must provide LID infiltration measures to maintain pre-development infiltration rates, but are unable to do so because of site constraints, this strategy would allow the Town to collect funds from the development in lieu of providing the infiltration features on-site. The funds collected through this program would be used to subsidise infiltration features to be incorporated in Town projects elsewhere, in locations where conditions are more accommodating of infiltration features. This approach is similar to the cash-in-lieu of parkland dedication provisions under the Planning Act, where new developments are required to provide a certain amount of parkland as part of their development. However, many developments are not conducive to parkland within their site and this tool allows for their share of parkland to be contributed as a cash equivalent, to be used to fund parkland elsewhere.

To meet source protection policy requirements, staff are proposing to create a groundwater recharge compensation reserve fund. Establishing this reserve fund would allow development proponents that are unable to maintain pre-development recharge to pay a recharge compensation fee. The collection of the compensation fee would be administered through the planning approvals process and would be based on the volume of infiltration lost on the proposed development property (also referred to as the infiltration deficit). Essentially this allows a developer to pay funds to the Town for the costs they would normally incur to design and construct the necessary infiltration features on their site.

Implementation

The funds collected in the groundwater recharge compensation fund would be kept in a reserve fund to be used exclusively to subsidize future LID features on municipal properties located within the WHPA-Q1/Q2 boundary. Municipal road reconstruction projects, parking lot retrofits, and parks and recreation properties all provide excellent opportunities for the implementation of LIDs. Based on the reserve funds available, staff would evaluate appropriate LID opportunities on an annual basis and work with relevant municipal departments to incorporate LID practices into project specifications.

It is important to note that as per the intent of the source protection policy, the off-site compensation option is to be offered as a last resort and only under limited conditions. The maintenance of on-site infiltration is the primary objective. As a result, staff do not expect to regularly employ the off-site compensation strategy.

The recharge compensation fee structure that Staff intend to implement will be based on a similar fee structure developed by the Lake Simcoe Region Conservation Authority (LSRCA). The LSRCA implements a similar recharge compensation program on behalf of the Regional Municipality of York. LSRCA's fee structure was developed based a detailed costing analysis which considered the construction and administrative costs of common LID features. The current compensation fee is set at \$44.00 per cubic meter (m³) of infiltration deficit, plus a 15% administration fee. Fees will be regularly evaluated against market costs and adjusted as necessary.

As part of an application for site plan approval for a development proposal within the WHPA Q1/Q2 area, proponents must submit a water balance assessment and low impact development design document. These reports analyze the site, in terms of pre and post-development infiltration rates and provide recommendations for measures to offset any loss of infiltration that would result from the development (i.e. hard surface areas, such as rooftops, parking and driveway areas, etc.). The type and extent of Infiltration measures may be recommended based on the development proposal, extent of infiltration required and subsurface conditions. If, through the submission and review of this material, it is confirmed that infiltration measures cannot be accommodated on site and the off-site compensation approach is to be applied, staff would calculate the recharge compensation fee required, based on the fee structure described above. This fee would be collected prior to issuance of a building permit and would be implemented

through an obligation of a site plan agreement executed with the development proponent upon the approval of the site plan application. This approach is consistent with the means in which other financial obligations (i.e. cash-in-lieu of parkland, development charges, etc.) are met for a site development.

Strategic Alignment

Orangeville Forward – Strategic Plan

Priority Area: Sustainable Infrastructure

Objective: Plan for Growth, Maintain Current Assets

Sustainable Neighbourhood Action Plan

Theme: Land Use and Planning, Natural Resources and the Environment

Strategy: Co-ordinate land use and infrastructure planning to promote healthy, liveable and safe communities; Protect, improve or restore the quality and quantity of water resources

Notice Provisions

None applicable.

Financial Impact

The funds collected in the groundwater recharge compensation fund would be kept in a Discretionary Reserve Fund. Reserve funds are used to account for transactions that, for legal or other reasons, require that monies specifically earmarked for a particular project or activity be physically segregated and spent only on that project or activity. Which means that funds received under certain conditions can then only be used to fund specific expenditures. Reserve Funds balances must be invested per the Municipal Act to generate interest revenues which then are allocated back to the funds on an annual basis.

Respectfully submitted

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Attachment(s): None