

**PROJECT NAME**

GULL LAKE INTERMUNICIPAL DEVELOPMENT PLAN

**PREPARED FOR**

LACOMBE COUNTY  
PONOKA COUNTY  
SUMMER VILLAGE OF GULL LAKE  
SUMMER VILLAGE OF PARKLAND BEACH

**PREPARED BY**

WILLIAMS ENGINEERING CANADA INC.

**DATE PREPARED**

JULY, 2010

WE File No. 21735.00





- 6.1.3 ***Protect groundwater recharge:*** Area structure plans and outline plans should identify groundwater recharge areas, and either designate them and environmental reserve, or offer to protect them through conservation easements.
- 6.1.4 ***Protect groundwater inflow to the lake:*** Piped water systems must normally use deep aquifers in order to leave the shallower groundwater for individual wells and to supply the springs which feed the lake. These deep aquifers have been identified in a study commissioned by Ponoka County by Hydrogeological Consultants Ltd and noted in the bibliography.
- 6.1.5 ***Encourage water conservation:*** The rate structure of any new municipal water system must use full cost recovery in order to encourage water conservation.

**Goal 2:           Maintain and if possible improve the quality of the water in the lake**

People come to Gull Lake for fishing, swimming, boating, and to enjoy a clean natural environment. To preserve those qualities, we must maintain and if possible improve the quality of water in the lake.

Patricia Mitchell's 2003 study of water quality, noted in the bibliography, showed that, by most measures, the quality of water in Gull Lake has not diminished since the mid-1980s. Using the most common measures of water quality (algae, phosphorus, chlorophyll-a, and transparency) Gull Lake showed no decline in water quality for the 19 years for which data were available (Mitchell, p9). Updates by the Alberta Lake Management Society confirm this view. However, three things are worrying.

The first is the amount of phosphorus entering the lake from tributary streams, and probably also from overland flows. In most lakes, nutrients are flushed out over time, but at the present lake level there is no surface outflow from Gull Lake, so whatever comes in to the lake stays there. Over time, phosphorus levels could build up and cause large scale plant and algae growth.



6.2.13 **Alternative treatment:** As an alternative to piped systems in new developments, the municipalities may consider individual, self-contained systems which can be shown by independent studies to have no harmful effect on the quality of lake or ground water. This policy is not intended to allow the use of traditional septic tanks and fields, or allow the trucking of effluent offsite, but rather it is intended to allow for emerging onsite wastewater treatment technologies which can prove that effluent released is in accordance with regulatory standards.

The municipalities will apply the following policies to other land uses.

6.2.14 **Require scientific study:** Before allowing recreational or residential development within 100 metres of a wetland, or of a stream which flows into the lake, the municipalities will require the developer to provide a study of the effect of development on the wetland or stream.

6.2.15 **Protect watercourses:** Wherever possible, creeks and watercourses will be taken into municipal ownership. They may be taken as reserves, or made subject to an environmental reserve or a conservation easement. Alternatively, they may be purchased, using money paid in place of reserves on other land. Subject to appropriate safeguards, the municipalities may also allow creek valleys to be put into the common property of a bare land condominium.

6.2.16 **Hold back flood waters:** The municipalities encourage projects by third party organizations which impound water for slow release.

6.2.17 **Reduce household use of fertilizers:** The municipalities will aim to eliminate the use of lawn fertilizer on lakeshore property. Lawn fertilizer is high in phosphorus, and runoff into the lake can stimulate the growth of algae and water plants. Municipalities will start with an education program to point out the deleterious effects when fertilizer leaches into the lake. If this does not have any effect, they may use land use and other bylaws to outlaw the use of fertilizer on lawns. In addition, residents will be encouraged to plant ground cover which does not need fertilizing or irrigation.

6.2.18 **Minimize the effect of golf courses:** Golf courses are valuable addition to a recreational area, but the use of fertilizers may add large quantities of nutrients to the lake. This is of most concern when the golf course is close to the lake or a watercourse. As part of their development application, developers will be asked to provide a nutrient budget, prepared by a professional agrologist, and a storm water management plan which ensures that runoff water will not damage the lake.



- 6.3.9 **Help maintain lake levels:** Declining lake levels are bad for the fishery, so the municipalities will work with Alberta Environment to continue pumping water into Gull Lake from the Blindman River.

#### **Goal 4: Improve the condition of creeks flowing in to the lake**

When they are in good condition, creeks and streams provide many benefits to the lake. They are prime habitat for many valued wildlife species; some streams are used by fish as spawning areas; all are welcome parts of the landscape. Unfortunately, many of the creeks and streams which flow into Gull Lake have been damaged by agriculture and other forms of development, and no longer provide those benefits. However, good land use policies can often bring them back to their original condition.

- 6.4.1 **Identify sources of water pollution:** When a source of pollution is identified, the municipalities will work with the landowner to reduce contamination. The Agricultural Service Boards will undertake this work.
- 6.4.2 **Scientific study required:** Area structure plans must identify all watercourses and wetlands on the property proposed for development, and must include a study of the effect of development on the watercourse or wetland.
- 6.4.3 **Protect creek valleys:** When land crossed by a creek is subdivided, the municipalities will take the valley as environmental reserve or municipal reserve, or will register an environmental reserve easement or conservation easement. This will guarantee that the land remains undeveloped and natural vegetation is re-established.
- 6.4.4 **Protect sloughs:** Other wetlands such as sloughs will be protected using the same mechanisms. The size of the protected area will set in the area structure plan for that land.
- 6.4.5 **Alternative locations for reserves:** If land being subdivided does not contain any natural features requiring protection, the municipality may allow a developer to dedicate the required amount of municipal reserves off-site. They may do this by purchasing creek valleys or wetlands elsewhere, and dedicating them as reserve, or registering an easement protecting the natural conditions, in place of dedicating reserve on the land being subdivided.

- 6.4.6 **Technical support for valley remediation:** The municipalities will support efforts by third parties to remediate creek valleys and bring them back to a natural condition. They may provide technical advice, support funding requests to senior governments, or contribute money which was taken in place of reserves.
- 6.4.7 **New legal mechanisms:** The municipalities will explore the voluntary mechanisms under the Alberta Land Stewardship Act to protect and remediate creek valleys.
- 6.4.8 **Scrubbing contaminated water:** Where a creek contains unacceptably high levels of nutrients, and it is not possible to reduce the input at source, the municipalities may consider diverting the flow through an artificial marsh where nutrients can be taken up by plant growth.

#### **Goal 5: Preserve tree cover**

There are many reasons to preserve tree cover in the Gull Lake drainage basin. Wooded land moderates run-off from snow melt and summer storms; it is important habitat for many valued species of birds and animals; and it is an important part of the landscape which recreationists seek. Runoff from wooded land also contributes less nutrients per unit area than does cleared land. For all those reasons, the municipalities will adopt land use policies that encourage landowners to maintain tree cover.

- 6.5.1 **No blanket ban on tree clearance:** The counties will not forbid clearance of tree covered land zoned Agricultural. However, clearance will probably cease once the owners realize that the land is worth more if the trees are retained and the land is used for recreational purposes.
- 6.5.2 **Make tree cover worth keeping:** The counties may follow the example of the County of Wetaskiwin at Battle Lake and allow owners to subdivide tree covered land into parcels which are large enough to accommodate a residence while leaving most of the area in trees. Experience in Wetaskiwin suggests 20 acres as a minimum lot size; of that, only two acres may be cleared. Restrictions on tree cutting may also be enforced by conservation easements.
- 6.5.3 **No net loss of trees in new developments:** Area structure plans must show minimal loss of tree cover. Where loss is inevitable, developers should plan to plant trees, or allow degraded woodland to regenerate, so there is no net loss of tree cover. The