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SHANNON LAKE WELLHEAD PROTECTION AREA

MUNICIPAL PLANNING STRATEGY

Section 1: Introduction

A Municipal Planning Strategy and Land Use By-law are documents which enable municipalities to assume the primary authority for planning within their jurisdictions, consistent with their urban or rural character. These documents must be consistent with the policies and regulations of the Province and also work with the Subdivision By-law of the jurisdiction and are developed through consultation with the community and where necessary other expert agencies.

April 1, 1999 the Provincial Government enacted a number of *Statements of Provincial Interest*, of which the first one relates to “Drinking Water”. The *Municipal Government Act* stipulates that where a Municipality is preparing or amending a Municipal Planning Strategy such documents must be reasonably consistent with these Provincial Statements of Interest in that reasonable steps are taken to apply the relevant statements to the local situation. With respect to the Provincial Statements of interest related to Drinking water the Louisdale, Evanston and Whiteside area water supply is specifically mentioned as a system to which these statements apply. Therefore, while the Province does not require a Municipal Planning process be undertaken, where such is undertaken it is to be reasonably consistent with Provincial interests. In this instance the Provincial Interest is to, “Protect the quality of drinking water within municipal water supply watersheds.” Planning documents therefore must identify the municipal water supply watersheds, and address the protection of drinking water in the municipal water supply watersheds.

The goal of the Shannon Lake Wellhead Protection Plan is to protect the wells which supply water to the Louisdale, Evanston and Whiteside area from any threat of contamination, thus lengthening the viability of the wells. These well are located on about 20 acres of land bisected by Whiteside Road owned by the Municipality of the County of Richmond about 1km west of Louisdale ([see Map 1, Location Map](#)). From 1968 until 1998, the water supply for Louisdale, Evanston and Whiteside area was obtained from Shannon Lake. In 1993 it was decided that other sources of water should be investigated. In May 1993 the first well, now known as PW3, was drilled and shown to have a yield of 340 litres per minute (lpm). In October 1997 two more wells were drilled: PW1 with a yield of 610 lpm and PW2 with a yield of 1195 lpm. These wells were connected to the existing infrastructure in 1998 replacing PW3.

In the past, properties adjacent to the wells have been used for a number of dumpsites including a Municipal dump and oily waste and PCB contaminated materials dumped on Department of Natural Resources lands. The sites have been long abandoned. A 1999 study by Jacques Whitford details some of the environmental concerns with these former sites as well other threats to the water quality. In completing their study extensive testing and sampling was completed. The results of these tests are available in the final report (*Aquifer Protection Plan for Municipality of Richmond County Louisdale, Nova Scotia Project No. 14273*, Jacques Whitford, October 26, 1999).

The Jacques Whitford report recommended that Wellhead Protection zones be established to control land use in the area surrounding the wellheads and thus “reduc[ing] the risk of contamination to the well’s groundwater supply” (Jacques Whitford, 27). Therefore, this Municipal Planning Strategy serves to limit the development of land use activities such as storage of petroleum and chemical and related products and industrial activities but does not limit other types of development.

As a follow up to the Jacques Whitford study the Municipality contracted with Dillon Consulting to better delineate the boundaries of the draw down area for the production wells. Jacques Whitford had difficulty calibrating a model to determine this boundary because of a lack of geodetic survey data and water level data and as a result recommended further study in this area. Because of these calibration concerns the Jacques Whitford study had a mean absolute error of 2.5 m. The Dillon study (*Groundwater Protection Study Louisdale Wellfield – Louisdale, Nova Scotia*, Dillon Consulting Ltd., March 2001) was able to reduce this to less than 0.9 m. (Porter Dillon , 8).

This document therefore makes use of two significant boundaries in prescribing land use controls, the Groundwater draw down area as defined by Dillon Consultants and the Watershed area for Shannon Lake ([See Map 2.](#)) These two boundaries are important in the protection of any water supply protection plan because of the surface water - ground water interface. Finally because of the potential variability of the groundwater draw down area and because of the preference of using property boundaries as planning area boundaries a third boundary is used to delineate an area based on the outer boundaries of properties which are in both the watershed and the draw down area.

Section 2: Land Use Policies

While the Municipal Government Act allows Municipalities to designate a “Protected Water Supply Area” the Act (Section 180) only allows a Council to designate lands owned by the municipality, therefore there is a need for a more comprehensive designation.

POLICY 1.0 It shall be the policy of Council to encourage the Province through the use of Section 106 of the *Environment Act* to designate the lands located around the wellhead for the municipal water supply for the communities of Louisdale, Evanston and Whiteside area as a “Protected Water Supply Area” specifically lands which encompass the groundwater draw down area for Production Well #1 (PW1) and Production Well #2 (PW2) as delineated by Dillon Consultants and the watershed for Shannon Lake.

POLICY 1.1 It shall be the Policy of Council to encourage the Province when designating the lands located around the wellhead for the municipal water supply for the communities of Louisdale, Evanston and Whiteside area as a “Protected Water Supply Area” in accordance with Policy 1.0 that they give consideration to the

wording proposed as Appendix “A” to this Municipal Planning Strategy.

POLICY 1.2 It shall be the policy of Council to designate the lands located around the wellhead for the municipal water supply for the communities of Louisdale, Evanston and Whiteside area as “Drinking Water Protection” as identified in the [Generalized Future Land Use Map \(GFLUM\), Map 3](#). These lands will encompass the groundwater draw down area for Production Well #1 (PW1) and Production Well #2 (PW2) as delineated by Dillon Consultants, the watershed for Shannon Lake as well as all properties either within or partially within the watershed and groundwater supply areas.

The 1999 Jacques Whitford Aquifer Protection Plan defined three wellhead protection zones. The first zone was defined as a circle with a radius of between fifteen to twenty metres around each production well. The second zone was defined based on a “100 Day Radius of Influence”. Finally the third zone was defined by the recharge area around each well. In the Dillon Consulting report these three zones were re-calibrated but no evaluation of the suitability of the defined zones for an aquifer protection plan were made. In New Brunswick under the *Wellfield Protected Area Designation Order - Clean Water Act*, a “250 Day Radius of Influence” is used to delineate areas of highest risk from contamination. Therefore in designating a primary area for application of a wellhead protection zone this document designates not just the 100 Day Radius of Influence but also the complete area of all Municipal properties which have any portion of this 100 Day Radius.

POLICY 1.3 It shall be the policy of Council to establish in the Land Use By-law a Wellhead Protection (WHP) Zone which *will apply to Municipally owned lands and portions of privately owned lands and will* in part implement the “Drinking Water Protection” designation based on calculations completed by Dillon Consultants for a 100 day time of travel zone. Within the Wellhead Protection (WHP) Zone the following and similar types of uses shall be permitted: Only developments related to water supply and waterworks and implementation by the Municipality of any component of the groundwater management plan and protection strategy, including facilities for display and interpretation of the waterworks and its groundwater management plan and protection strategy.

POLICY 1.4 It shall be the policy of Council to have a policy to acquire all lands which are either partially or completely located within 100 day time of travel zone based on calculations completed by Dillon Consultants.

POLICY 1.5 It shall be the policy of Council to rezone any parcels acquired in accordance with Policy 1.4 to the Wellhead Protection (WHP) zone.

Dillon Consultants delineated a ground water draw down area by assuming that both PW1 and PW2 were **simultaneously** pumping at either the applicable safe yields for the well or the maximum current demand on the water system. The pumping rates were set at 876 m³/day for PW1 and 952 m³/day for PW2. Presently the Communities of Louisdale and Evanston use a total average of 681 m³/day and have used a maximum of 946 m³/day. PW2 can presently provide the water requirements for these communities with PW1 only used as a backup source. Therefore, while the Dillon Study applies rates which produce a larger wellhead protection zone than is utilized under typical water supply conditions, it also takes into consideration potential growth in these communities without having to re-calculate the well head protection zone.

Directly related to groundwater recharge areas is the watershed for Shannon Lake. Typically there is a direct surface water - ground water interface which links ground water and surface water supplies.

In this case the primary interface between the two systems is provided by Shannon Lake and its watershed. Therefore it is necessary to also protect the watershed for Shannon Lake along with the ground water recharge areas for PW1 and PW2.

POLICY 1.6 It shall be the policy of Council to establish in the Land Use By-law a Watershed Protection (WSP) Zone which will in part implement the “Drinking Water Protection” designation. The Watershed Protection Zone will encompass the area outside of the Wellhead Protection (WHP) zone taking in the recharge area for PW1 and PW2 as defined by Dillon Consultants and the physical watershed for Shannon Lake. Within the Watershed Protection (WSP) Zone the following and similar types of uses shall be permitted: Uses permitted in the WHP Zone, agriculture and forestry uses excluding buildings or structures, existing seasonal dwellings, single unit dwellings and passive recreation uses excluding buildings or structures.

The Watershed Protection Zone is approximately 4.69 square kilometers in size and extends across Highway 104 in the North and across the Whiteside Road in the South and from Shannon Lake in the East, West approximately 2.6 Kilometers. As both a portion of both Highway 104 and the Whiteside Road are located within the draw down area for these production wells the use of road salt is a concern with respect to water quality. Also located within the Watershed Protection Zone are two gravel pits.

POLICY 1.7 It shall be the policy of Council to encourage the Province to evaluate the possibility and or necessity of using alternatives to road salt on the portions of the Whiteside Road and Highway 104 which go through the Watershed Protection Zone.

POLICY 1.8 It shall be the policy of Council to encourage and co-operate with the Departments of Transportation and Public Works, and Environment and Labour to establish emergency response controls — on Highway 104 and Whiteside Road with specific attention paid to the brooks which are crossed by the 104 as shown on the Zoning Map — which address concerns over possible contaminant spills, which include but are not limited to signage, guard rails and removable dams.

POLICY 1.9 It shall be the policy of Council to encourage that the Department of Environment and Labour ensures the operation of any gravel pits (specifically but not limited to any blasting) within the planning area takes into consideration the watershed protection area and applies good management practices to the operation recognizing the importance of water supply protection and that where ever possible the Province not permit the storage of petroleum based products within the gravel pit.

Section 3: General Policies

Public and Private Utilities

It is not uncommon to have various public and private utilities located throughout a Plan Area. These utilities provide an essential service (i.e. those in transportation, communication, water, gas, or electrical sector) and are often faced with having to locate equipment or transmission lines in all

sections of a Plan Area. Council does not wish to place undue hardships on these utilities; therefore, these uses will be permitted in any zone within the Plan Area.

POLICY G-1.1 It shall be the policy of Council to permit public and private utilities in all zones within the Plan Area, and to require a development permit to be issued for each use.

Temporary Uses

Throughout any Plan Area there are activities which are associated with new development or construction projects. There is often a need for small construction sheds, offices and storage facilities associated with this development. These uses are considered normal components of construction activity and Council does not intend to restrict their use in the Plan Area. However, Council will require that a temporary use (structure) be removed from the site shortly after construction work is completed.

POLICY G-2.1 It shall be the policy of Council to allow for temporary uses and structures used in conjunction with a development, construction or subdivision project, including offices, equipment and material storage buildings, scaffolding, or signs in the Plan Area. Council will require that such temporary use or structure be removed within a specified time. A Development Permit shall be required for a temporary use.

Section 4: Implementation

General

The Municipal Planning Strategy for the Wellhead Protection Plan Area is the prime policy document providing the framework by which the future growth and development of the Plan Area shall be encouraged, controlled, and coordinated. The policies of the Strategy will be implemented through a variety of means, but generally through the powers of Council as provided by the *Municipal Government Act* and other statutes as may apply.

POLICY A-1.1 In addition to employing specific implementation measures, it shall be the policy of Council to maintain a program of ongoing planning through its Planning Advisory Committee and Area Advisory Committee. Such a program may include aspects of public information and participation, and various further studies respecting such matters as the drafting or revision of Municipal By-laws which deal with planning issues, and any other issues which Council may suggest.

POLICY A-1.2 In order that Development Control decisions may be based on expert advice beyond that which the Planning Advisory Committee is able to supply, it shall be the policy of Council to circulate applications for amendment of the Land Use By-law to provincial government agencies such as the Departments of Health, Transportation and Communications and Environment for their information and comment as may be required.

The Generalized Future Land Use Map shows the desired future land use within the Plan Area which has been recommended by the Strategy. In this case only one designation has been applied to the whole of the Plan Area. The Drinking Water Protection Designation permits uses which are generally not considered to be a risk to water supplies.

Land Use By-law

The principal mechanism by which land use policies are implemented is the Land Use By-law. The Land Use By-law will set out zones, permitted uses, and development standards within the zones and in so doing shall reflect the policies of the Municipal Planning Strategy (as required by the *Municipal Government Act*).

Amending the Land Use By-law

The Shannon Lake Wellhead Protection Area Land Use By-law is designed to implement this Municipal Planning Strategy, and is expected that it will be amended from time to time, although in conformity with the Strategy. Examples of situations which might create a need to amend the Land Use By-law include:

a request by an individual to have the By-law amended (e.g. map amendment or text amendment);

a motion by a member of Council to amend the By-law; or

a change in the Strategy.

Should Council consider amending the Land Use By-law, it must fully examine the implications of the change and the amendment must comply with all other legal requirements as set out in the *Municipal Government Act*.

POLICY A-2 In considering amendments to the Land Use By-law, in addition to all other criteria as set out in various policies of this strategy, Council shall have appropriate regard to the following:

- a) that the proposal is in conformity with the intent of this strategy and with the requirements of all other municipal By-laws and regulations.
- b) that the proposal is not premature or inappropriate by reason of:
 - i) the financial capability of the Municipality to absorb any costs relating to the development;
 - ii) the adequacy of sewer and water services;
 - iii) the adequacy of road networks leading or adjacent to, or within the development.
- c) that the development meets the specific zone requirements related to the following:
 - i) type of use;

- ii) height, bulk and lot coverage of any proposed building;
 - iii) traffic generation, access to and egress from the site, and parking;
 - iv) open storage and outdoor display;
 - v) signs; and
 - vi) any other relevant matter of planning concern.
- d) that the proposed site is suitable in terms of steepness of grade, soil and geological conditions, location of watercourses, potable water supplies, marshes or bogs and susceptibility to flooding.

POLICY A-3 Further to Policy A-2 it shall be the policy of Municipal Council that where any development shall require amendment to the Land-Use By-law, no amendment shall be adopted by Council unless the application is for a specific development proposal.

Development Officer

POLICY A-4 In accordance with the *Municipal Government Act* it shall be the policy of Council to establish the services of a Development Officer who shall administer the Land Use By-law and shall, where appropriate, grant development permits.

Minor Variances

POLICY A-5 In addition to the general powers granted in the *Municipal Government Act*, The Act also empowers the Development Officer to grant “minor variances” from the Land Use By-law. Specifically, the Development Officer may vary the percentage of land that may be built on, the sizes of yards, courts and other open spaces, lot frontage, and lot area. When granting a minor variance notice must be served of this action in accordance with the *Municipal Government Act*, and this action may be appealed to Council by anyone served with such notice.

Subdivision Control

Subdivision in the Municipality of the County of Richmond is presently controlled by the Provincial Subdivision By-law adopted by the Minister of Housing and Municipal Affairs the fall of 1999. The By-law applies to all subdivision of land within the County.

POLICY A-6 It shall be the policy of Council through the municipal development officer to administer the Subdivision By-law.

Other Municipal By-laws

POLICY A-7 It shall be the policy of Council to review from time to time and, when necessary, amend its Municipal Building By-law and Unsightly Premises By-law. The Building By-law regulates the structural requirements for new buildings and the Unsightly Premises By-law prevents property from becoming unsightly.

Building Inspector

POLICY A-8 It shall be the policy of Council to continue the services of the Building Inspector whose duty it will be to enforce the Municipal Building By-law, the Minimum Standards By-law and the Unsightly Premises By-law.

Strategy Amendments

POLICY A-9 This Strategy and all associated maps constitute the official Municipal Planning Strategy for the Wellhead Protection Plan Area.

An amendment to this Strategy shall be required:

- a) where any policy intent is to be changed;
- b) where a desired zoning map amendment does not conform to the Generalized Future Land Use Map and can be shown through studies to be desirable;
- c) where detailed area or functional strategies are desired to be incorporated into this Strategy.

POLICY A-10 Strategy amendments shall require the approval of the Minister of Municipal Affairs and shall be carried out in accordance with the provisions of the *Municipal Government Act*.

Strategy Review

In accordance with the *Municipal Government Act*, this Strategy may be reviewed when either the Minister of Municipal Affairs or Council deems it necessary, but in any case, the review shall be commenced within five years from the date of the coming into force of the Planning Strategy or the date of the last review.

[Appendix "A"](#)

Proposed “Protected Water Supply Area” Wording

Policy 1.1

[HOME](#)