
DEVELOPING A MUNICIPAL SOURCE WATER PROTECTION PLAN:
A GUIDE FOR WATER UTILITIES AND MUNICIPALITIES

DESIGNATION OF A PROTECTED WATER AREA

Designation of a Protected Water Area Part of **STEP 4** in Developing a Municipal Source Water Protection Plan

Designing Plans for Source Water Protection in Nova Scotia

Nova Scotia's multi-barrier approach to clean, safe drinking water has been in place since 2002. The first line of defence in this multiple-barrier approach is to keep clean water clean. An information series entitled *Developing a Municipal Source Water Protection Plan: A Guide for Water Utilities and Municipalities* describes how water utilities and municipalities can do that. The series guides you through the process of developing a source water protection plan for your municipal water supply.

To keep clean water clean, we must protect the source water supply area. **STEP 4** of the information series describes how to develop a source water protection plan, including six options for managing risks. One of these options is to request that the source water supply area be designated as a protected water area under the Environment Act. This guide describes what a water utility must do if it chooses to include this option in its source water protection plan.

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Introduction

Source water protection planning includes identifying options to manage, reduce or eliminate risks. Management strategies reinforce each other and form a cohesive plan that strives for the best achievable source water quality protection.

Every community is different with respect to its water supply, water users, and the types of industries and activities which characterize the landscape. Therefore, each water utility needs to evaluate how it might manage potential risks to its drinking water supply and implement specific strategies to protect it.

In some situations, a water utility may opt to have all or a portion of its source water supply area designated under the Environment Act to manage specific activities that are known to degrade water quality. Designating a protected water area is one of the six management options that may be included in a source water protection plan. This guide explains when designation is appropriate, and the process a water utility must follow if it chooses this option.

Review of Steps in the Source Water Protection Planning Process

STEPS 1 TO 3:

- an advisory committee is formed
- the source water protection area is delineated and characterized
- sources of contamination are identified and addressed
- source water issues currently being addressed have been defined
- source water issues that need to be addressed have been defined
- source water issues that will be addressed in the new management plan have been defined
- source water issues that need to be addressed in the long-term have been defined
- resources and funding have been thoroughly explored

STEP 4:

- management goals and objectives have been set

Next task: identify management options for issues identified in **STEP 3**

By now, you should have completed the first three steps and begun **STEP 4**- developing a source water protection management plan. You have set management goals and objectives for the plan, and you must now choose the right combination of management options for your source water supply area. There are six options:

- A - Acquisition of land in the source water supply area affords one of the highest levels of protection.
- B - By-laws (municipal) allow regulation of the land uses permitted in the source water supply area.
- B - Best management practices can be used to manage activities in the source water supply area.
- C - Contingency planning ensures the continued protection of public health in the event of contamination of a source water supply area.
- D - Designation of a protected water area with regulations under the Environment Act allows a water utility to oversee regulated activities that may impair water quality within a source water supply area.
- E - Education and awareness programs inform stakeholders about the need to protect source water supply areas, and the process for developing a source water protection plan.

This guide will help you determine if designating a protected water area is appropriate for your circumstances, and the process for achieving that designation.

Source Water Protection Planning Flow Chart

STEP ONE: Form Committee

STEP TWO: Delineate Boundary

STEP THREE: Assess Risks

STEP FOUR: Develop Management Plan

Set management goals and objectives

Identify management options for issues identified in **STEP THREE**

- A** - Acquisition of land
- B** - By-laws
- B** - Best management practices
- C** - Contingency planning
- D** - Designating a protected water area
- E** - Education and Awareness

Develop Contingency Plan

Solicit input from stakeholders and the public

Draft the Management Plan

Update information

- 1** Initiating the designation process with ECC
- 2** Defining the boundaries of the protected water area
- 3** Developing designation regulations
- 4** Consulting with stakeholders and the public
- 5** Submitting request to the Minister of Environment and Climate Change
- 6** Formalizing the designation
- 7** Notifying the public
- 8** Posting of the designation
- 9** Enforcing the regulations

STEP FIVE: Monitor Results and Evaluate Plan

What is a Designated Protected Water Area?

Designation of a protected water area is one possible management option available to water utilities to protect or manage potential risks to the source water supply area. The Environment Act empowers the Minister responsible for the Department of Environment and Climate Change (ECC) to designate an area surrounding a source of drinking water as a protected water area, if requested by a water utility. Corresponding regulations are also approved by the Minister as part of the designation.

Designation differs from other approaches to managing risks to drinking water because it uses a regulatory approach to prohibit or restrict activities that can impair water quality. It is important to recognize that protected water area regulations can only be developed in the context of Section 106 of the Environment Act. They are meant to be applied under specific circumstances and can only apply to activities that are known to or have the potential to impair water quality.

ECC works with the advisory committee to develop protected water area regulations as part of the designation process. Since these regulations must be followed by people living or working within the source water supply area, they must be developed with stakeholder input so that any issues or concerns are addressed.

Once the designation has been approved, it is the responsibility of the water utility to post signs and protect the area, including enforcing the regulations.

Designation is NOT land use zoning

Although it may seem like protected water area designation regulations are similar to land use zoning by-laws, there are important differences.

First, designation falls under the Environment Act and it does not regulate types of land use, whereas land use planning is governed by the Municipal Government Act.

Second, land use or zoning by-laws mainly regulate the “development” of land, principally the location and use of buildings and structures, while designation mainly regulates “activities” on the land or water with the potential to impair water quality. However, in some cases, designation may regulate certain activities associated with development. For example, construction activities causing erosion and sedimentation can be controlled through protected water area regulations.

The third main difference is that the enforcement of protected water area regulations is the responsibility of the water utility whereas land use by-laws are enforced by the municipality in which the source water supply area is located. If drinking water supplies cross political boundaries, municipalities should work together to help manage the source water supply area.

Designation is NOT expropriation

To expropriate land means to take land without an owner's consent and is governed by the Expropriation Act. When an area is designated as a protected water area, an individual's property is not taken from them. It is a requirement of the Environment Act for the water utility or municipality to engage in fair and open public consultation as part of the protected water area designation process.

Designation is NOT a source water protection plan

Designation has been used by a number of water utilities and municipalities as an option in helping protect their source water supply areas by regulating many activities. Designation is not a "stand-alone" management strategy, rather it forms part of the broader management approach of source water protection planning.

The overall source water protection planning process is flexible and adaptable, and can address a broad range of issues with various management options based on the types of risks identified in the source water supply area. Through the course of developing a source water protection plan, a Source Water Protection Advisory Committee may determine that a protected water area designation, for part or all of the source water supply area, is an appropriate complimentary option for managing specific identified risks.

Before contemplating designation, **STEPS 1** through **3** of the source water protection planning process must be completed and **STEP 4** must be underway.

The Designation Process

There are a number of steps in the designation process to be completed by the water utility and its advisory committee. First, the advisory committee must agree that designation is an appropriate and feasible tool to manage specific risks identified in the source water protection plan. Second, the area to be designated must be defined and delineated. Next, regulations are developed by ECC in collaboration with the water utility to address risks previously identified during **STEP 3** of the source water protection planning process. After proposed regulations are reviewed and drafted, the water utility and its advisory committee consult with stakeholders and the public. If the community supports the designation, a request is submitted to the Minister to approve, file and publish the designation and regulations. The last steps are notifying people of the designation and ongoing enforcement of the approved regulations by the water utility.

Designation Process

- Consult with the Department to initiate the designation process
- Define the protected water area boundary
- Identify activities (risks) to be managed
- Draft designation regulations with ECC
- Consult with stakeholders and the public
- Submit request to the Minister of ECC
- Formalize the designation
- Notify public of designation
- Post protected water area designation
- Enforce regulations

Legislation Enabling Designation

The following is Section 106 of the Environment Act, Chapter 1, S.N.S., 1994-95 which enables the Minister of Environment and Climate Change to designate a protected water area:

DESIGNATION OF A PROTECTED WATER AREA

- (1) The Minister, when requested by an operator of a water works or proposed water works, may designate an area surrounding any source or future source of water supply for a water works as a protected water area.
- (2) The operator of a water works or proposed water works named in a designation made pursuant to subsection (1) shall
 - (a) give notice of the designation of the area as a protected water area by publishing the notice in a newspaper having circulation in the county or counties in which the area is located and in the Royal Gazette;
 - (b) have the notice of designation recorded at the registry of deeds in the county or counties in which the area is located; and
 - (c) post signs in the area indicating that it has been designated a protected water area.
- (3) The operator of a water works or proposed water works is responsible for taking all measures to protect the area designated, and the enforcement of any regulations made pursuant to subsection (6).
- (4) When requested by an operator of a water works or proposed water works, the Minister may cancel a designation made pursuant to this section, in whole or in part.
- (5) Any protected water area designated pursuant to the Water Act, prior to the coming into force of this act remains so designated.
- (6) At the request of the operator of the water works or proposed water works, the Minister may make regulations to prohibit, regulate or require the doing of any act or acts in a protected water area that may impair or prevent the impairment, as the case may be, of the quality of the water in the protected water area.
- (7) Before designating a protected water area, the Minister shall ensure that the operator of the water works or proposed water works has provided opportunities for public consultation.
- (8) No claim of injurious affection lies against any person as the result of a designation of a protected water area.
- (9) The exercise by the Minister of the authority contained in subsection (6) is regulations within the meaning of the Regulations Act.

Initiating the process

Early consultation with ECC representatives will help the municipality/ water utility navigate through the designation process. It is important for the utility to understand its roles and responsibilities, as well as the Minister's authority under the Environment Act.

Defining the boundaries of the protected water area

A designated protected water area must have a distinct boundary that can be clearly indicated and interpreted on a map. A topographic map at a scale of 1:10,000 is a common base for plotting the boundary. The boundary may or may not be the same as the boundary defined in **STEP 2** of the source water protection planning process because of enforcement or other administrative reasons. In the past, surveyors generated a legal boundary description of straight lines having distances and bearings. However, protected water area boundaries may also be described using topographic, political, or property boundaries. Whatever approach is used to define the boundary, it is important to consider that the public as well as those who will enforce the protected water area regulations must be able to determine where the boundary is on the ground. Therefore, public highways and other landmarks can be incorporated where practical.

Some protected water area boundaries have deviated from the source water protection plan area boundary because the designation applied only to the area of greatest risk rather than the natural watershed or groundwater recharge area. Future designations could also deviate from the source water protection plan area boundary, such as where the activities to be regulated only apply to specific portions of the source water supply area.

A very simple example of this situation would be the need to regulate motorized vessels or vehicles on a water supply lake, either on open water or when ice covered. The protected water area designation in this case would apply only to the lake and the lake shore. Other options, such as acquisition of land, best management practices, contingencies, and education would be used to protect areas outside the designation.

STEP 2: Delineate a Source Water Protection Area Boundary

SURFACE WATER SUPPLIES:

The boundary delineation of a surface water supply can be generated in several ways. Topographic maps can be used to manually connect the high elevation points around the surface water body to delineate the watershed boundary. The boundary can be generated by computer from a series of GPS points which are gathered in the field and plotted using geographic information systems (GIS). The boundary can also be generated on a computer through a process called digital elevation modelling, created from light detection and ranging (LiDAR) data.

GROUNDWATER SUPPLIES:

The boundary of a groundwater supply is commonly determined through computer-based groundwater modelling. The recharge areas to be managed around groundwater sources are called wellhead protection zones. These zones are based on the time it takes for different types of contaminants to reach the well. Usually three zones are established that denote specific time of travel distances. For example, Zone 1 might represent the time it takes contaminants to reach the well within two years. Zone 2 would be the travel time from two to five years, and Zone 3 would be the five to 25-year travel time.

For more information see the ECC informational guide "**STEP 2** Developing a Municipal Source Water Protection Plan - Delineate a Source Water Protection Area Boundary".

Developing proposed restrictions and controls for the protected water area

After the protected water area boundary has been defined, proposed restrictions must be developed that reflect an appropriate response to the potential risks identified in **STEP 3** of the source water protection planning process. Regulations reflecting proposed restrictions will be drafted as a collaborative effort led by ECC's solicitor and the municipality or utility.

Restrictions and controls are appropriate in situations where certain activities cannot be managed through other strategies to reduce the potential degradation of the source water. For example, the refueling of vehicles may require a specific regulation which dictates a standard setback from watercourses within the source water supply area to mitigate the risk of fuel spilling and entering the watercourse.

As mentioned above, regulations can also be applied to just a portion of the source water supply area, such as a particular water body. In these circumstances, regulations can be used to prohibit motor boats, swimming, or the release of substances into the water.

Although regulations made under Section 106 (6) of the Environment Act cannot directly control types of land uses, they can be used to control impacts associated with development. For example, they may require erosion and sediment control plans during building or road construction that may occur within the source water supply area.

Protected water area regulations should complement the overall source water protection plan and address the specific risks that cannot be addressed through other management options. They may be restrictive and prohibitive in nature, or they may be more flexible requiring an approval or notification from the water utility to undertake specific activities.

Types of activities not acceptable for protected water area regulation

It is important to note that regulations are appropriate in situations where certain activities cannot be managed through other strategies to reduce the potential degradation of the source water, or where there are no existing regulatory controls already in place. The following principles must be considered when developing proposed controls and restrictions for consideration of regulation development, by the Minister:

- Do not repeat existing regulations already in place or reference existing regulations verbatim
- Do not prohibit or restrict an activity that is regulated by statute and regulation that is subject to a review and approval process
- Do not include activities outside the scope of the water utility's enforcement jurisdiction, such as those regulated under other provincial or federal legislation

Approvals and Notifications

APPROVALS

Some activities regulated by the designation process may be subject to approval by the water utility. The granting of an approval is based on a set of criteria that are specific to the activity being regulated and apply to how or when the activity is conducted.

In most instances approvals require that further mitigative measures be taken. For example, sediment and erosion control plans may be required for approval to be granted for road construction within a designated protected water area.

NOTIFICATIONS

There may be designation regulations that require notification be provided to the water utility for specific activities. As a result, the water utility has a greater awareness of when and where activities within the designated protected water area are taking place.

Consulting with stakeholders and the public

Section 106 (7) of the Environment Act requires public consultation before a protected water area can be designated by the Minister. Public consultation is a mandatory element of the designation process because it ensures that people affected by the process are given an opportunity to express any concerns they might have. A fair, open and transparent consultation usually includes public meetings or public information sessions to explain to stakeholders how the utility and advisory committee prepared the proposal for the designation.

The water utility is required to develop a consultation plan to be reviewed by ECC prior to commencing. The plan must outline the proposed methods of consultation, the stakeholders involved, timelines, and the process for how feedback will be addressed. The plan should involve landowners, the municipality and community in which the proposed designated area is located, and any other applicable stakeholder, such as industries operating within the proposed boundary.

It is important to ensure stakeholder consultation includes information about how the protected water area is required to be recorded with the included property titles at the registry of deeds by the water utility, as noted in the Environment Act. Stakeholders who are not active members of the advisory committee can request that the committee provide additional supporting information and copies of minutes taken during the meetings. Water utilities may also choose to provide information about the designation process on their websites/ social media.

Once public consultation has concluded, a summary of findings are to be provided to the Department for review.

Submitting request to the Minister of Environment and Climate Change

After the protected water area boundaries and proposed limitations of activities have been developed and public consultation has occurred, a final submission must be made to the Minister for final approval. This set of documents includes:

- A formal letter from the water utility
- a legal description and map of the area as required in Section 106 (1) of the Environment Act
- a set of proposed restrictions and controls and
- documentation on the completed public consultation as required in Section 106 (7) of the Environment Act

ECC's solicitor and staff will be involved throughout the designation process and will ensure proper form and authority of the proposed regulations.

Formalizing the designation

Following the Minister's decision, and if approved, ECC will file the protected water area designation and regulations with the Department of Justice's Registry of Regulations. Certification of filing and subsequent publishing in the Royal Gazette brings the regulations into force in accordance with the Regulations Act.

Notifying the public

The water utility is required to record the designation at the Registry of Deeds in the county or counties in which the protected water area is located as per the Environment Act. This means recording the designation within each parcel of land within the boundary of the protected water area.

Burdens associated with protected water area designation and regulations are attached to property titles in different ways depending on if the property has been migrated to the new Land Registration System under Nova Scotia's Land Registration Act. Determination of property migration status is the responsibility of the utility or their legal counsel.

The water utility is also required by the Environment Act to give public notice of the designation in a newspaper with circulation in the county or counties in which the area is located. It is not necessary to publish the entire designation in the newspaper, but the notice should provide a sufficient amount of detail and how to get further information. All those who own land within the protected water area should receive a letter from the water utility with information about the designation, regulations, and the overall source water protection plan.

Posting of the designation

The water utility must post and maintain signs along all public roads which access the protected water area and in other appropriate places visible to the public. Signs must clearly indicate that the area is a protected water area and that regulations apply. The sign may also indicate the types of prohibited or restricted activities. The name and phone number of the water utility should be visible to inform the public as to how to get further information, or to report any observations of potentially questionable activities or adverse conditions.

Enforcing the regulations

The water utility has the responsibility of enforcing the protected water area regulations per Section 106 (3) of the Environment Act. To do this, the water utility can appoint one of its employees to become a peace officer or special constable through provisions in the Police Act. When the employee is established as a special constable, they are able to issue Summary Offence Tickets for protected water area regulatory infractions within the designated area. Failure to comply with protected water area regulations under section 106 of the Environment Act can result in a fine.

Monitoring and Evaluation

As part of the source water protection plan, the water utility should undertake a water quality monitoring program. It should include regular evaluation of the source water protection plan, including the effectiveness of the designation. Change should be made as necessary to ensure the plan and the designation are effectively managing risks.

For more information see “**STEP 5:** Developing a Municipal Source Water Protection Plan - Develop a Monitoring Program to Evaluate the Effectiveness of a Source Water Plan”.

Amending or Cancelling a Designation

Amending a designation

The water utility may request the Minister of ECC to amend either the boundaries or the regulations for a protected water area.

For example, a boundary line could be moved in response to a request from a landowner whose property is partly within the designated area. Over time, the property owner may feel that the designation encumbers the way they manage the entire property. If the property is located at the extremity of the designated area, far from the water supply intake, the water utility may grant the request to exclude the entire property from the protected water area.

Boundaries have also been amended in the past to coincide with municipal land use zoning boundaries, in order to avoid public confusion arising from two sets of boundary lines.

Reasons for amending regulations may vary from simply updating the text or definitions to provide clarity or consistency, to adding a new regulation to address a new risk to water quality. A regulation may also be deleted if it is no longer relevant.

Prior to requesting an amendment, the water utility and its advisory committee would take the same steps as required for initial designation, including defining new boundaries and/or regulations, public consultation, and preparation of legal documents; including an updated map if boundaries are altered. Once approved, the water utility must file the new designation and regulations pursuant to the Regulations Act, and meet the other public notification requirements. Posted signs would be relocated if the protected water area boundaries were amended. Any boundary or associated regulatory adjustments are subsequently required to be updated and recorded at the Registry of Deeds by the water utility, for the properties involved.

Cancelling a designation

The water utility may request that the Minister of ECC cancel a designation, in whole or in part. There are various reasons why a cancellation may be sought. For example, the area may be well managed by other components of the source water protection plan, updated technical information may indicate that the area is not contributing to the source of the water supply, or the supply is no longer required.

Regardless of the reason, the water utility should conduct a similar level of consultation as required for an initial designation and submit the request for cancellation to the Minister. Once the designation is cancelled, a notice is to be published in the Royal Gazette. The water utility must notify the public in the same manner as is required for initial designations. Any posted signs must be taken down or modified to indicate the current protected water area designation. Subsequently, the water utility is required to ensure any boundary or associated regulatory adjustments are updated and recorded via the Registry of Deeds, for the properties involved.

For More Information

Nova Scotia Environment and Climate Change can provide input into the development of management practices and will review the final source water protection plan.

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2026