

ALBERTA MUNICIPAL WETLAND GUIDE

Working with Wetlands



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The Alberta North American Waterfowl Management Plan (NAWMP) Partnership is composed of: Alberta Agriculture and Irrigation; Alberta Environment and Protected Areas; Ducks Unlimited Canada; Environment and Climate Change Canada; and Nature Conservancy of Canada. Since 1986, the Partnership has been working to conserve healthy prairie, parkland and boreal landscapes that support sustainable bird populations and provide ecological and economic benefits to society.

The Alberta NAWMP Partnership coordinated the development of this guide. We thank the many people who have provided technical information and/or review comments, including representatives from various Government of Alberta ministries, municipal governments, municipal associations, non-government conservation agencies, and other stakeholders.

For more information about the Alberta NAWMP Partnership, visit www.abnawmp.ca.

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CONTENTS

INTRODUCTION	2
MODULES	5
1 Understanding Wetland Definitions & Descriptions	6
2 Understanding Wetlands in the Watershed	12
3 Understanding Wetland Policy & Legislation	15
4 Roles of Municipalities in Provincial Wetland Mitigation	19
5 Developing a Wetland Vision & Objectives	22
6 Integrating Wetlands into Municipal Planning & Development	27
7 Communicating & Collaborating with Others	29
8 Promoting Wetland Stewardship	33
9 Measuring Progress	36
10 Finding Resources for Wetland Conservation	39
FINAL THOUGHTS	45



INTRODUCTION



Purpose

This guide aims to help Alberta municipalities in sustaining their wetland benefits. This guide's purpose is:

- to outline key information for Alberta municipalities about their roles, responsibilities and opportunities regarding wetland stewardship; and
- to point municipalities to sources of further information, tools and support.

The guide has 10 modules covering different aspects of working with wetlands at the municipal level, as well as case studies, examples, and links to other resources.

This guide was developed in response to the Alberta Wetland Policy. As the policy states:

“The Alberta Wetland Policy provides the strategic direction and tools required to make informed management decisions in the long-term interest of Albertans. The policy will minimize the loss and degradation of wetlands, while allowing for continued growth and economic development in the province.

The goal of the Alberta Wetland Policy is to conserve, restore, protect, and manage Alberta's wetlands to sustain the benefits they provide to the environment, society, and economy.”

The Government of Alberta, as legislator and regulator, has a key role in implementing the Wetland Policy. However, the policy's goal and outcomes can only be achieved if Alberta's municipalities also play their crucial part.



Did you know?

Researchers* have estimated that as of 2011, 68 per cent of the wetland area in settled areas of Alberta had been permanently lost – the hydrology no longer exists. And along with this loss of wetland area is the loss of the many ecosystem benefits those wetlands used to provide. Wetland losses continue to this day, with an estimated rate of loss in wetland area of 0.63 per cent per year in the period from 1993 to 2011.

* Serran, Jacqueline N., et al. Estimating rates of wetland loss using power-law functions. *Wetlands* 38 (2018): 109-120.

Wetlands and Why They Matter to Municipalities

Wetland Ecosystem Services to Municipalities

Wetlands naturally come in many shapes, sizes and types. Their appearance can also change dramatically over seasonal and longer-term wet and dry cycles. Many wetlands contain surface water for only part of the time.

Whether large or small, permanent or short-lived, wetlands provide a wide range of functions, or 'ecosystem services', to municipalities and their residents and visitors.

Examples of these ecosystem services include:

- reducing the risk of flood damage to a municipality's built infrastructure
- decreasing drought impacts
- recharging groundwater
- improving water quality
- providing wildlife habitat
- increasing local biodiversity, including pollinators
- enriching the culture of local communities
- providing recreational opportunities
- storing carbon in wetland plants and soils

Let's take a closer look at some of these economic, environmental and social benefits.

Wetlands are like nature's sponges, catching, storing and slowly releasing water. This function helps lower flood peaks, decreasing flood damage to buildings, culverts and roads. It also helps stabilize flow in streams and rivers, making rural water supplies more secure and reducing drought impacts. Slower water flow also reduces the ability of runoff to erode soil.

As nature's kidneys, wetlands help to remove impurities from runoff, which helps improve downstream water quality. For instance, eroded soil and other particles have time to settle out in a wetland. Also, wetland plants can take up nutrients like nitrogen and phosphorus carried in the runoff, reducing the risk of downstream water quality problems due to excessive nutrient levels. As well, some wetland plants are able to break down contaminants into harmless byproducts through natural processes.

Wetlands are vital for wildlife and biodiversity, since virtually all Prairie wildlife species rely on wetland habitat for at least some stage of their life cycle. Groundwater recharge is another valuable ecosystem service, especially given that one in five Albertans rely on groundwater.

CUMULATIVE EFFECTS

It is also important to remember that the more wetlands a municipality retains and restores, the greater the cumulative benefits, including enhanced effectiveness in reducing flood peaks, trapping eroded soil, keeping nutrients on the landscape, and providing habitat connectivity.

On the other hand, the cumulative impacts of losing more and more wetlands are substantial. Each additional wetland lost from a landscape can further raise the heights of flood peaks, which can have costly impacts on built infrastructure. Similarly, increased wetland losses can also increase water quality problems in the watershed.

Roughly two-thirds of wetlands in Alberta's settled area are estimated to have been drained and converted to other land uses. Wetland degradation and losses continue to this day, resulting in decreased wetland ecosystem services and in damages and costs for municipalities.

Alberta municipalities can play a very important part in maintaining wetland ecosystem services by working to retain and restore wetlands within and beyond their boundaries.



Municipalities and Wetlands in Alberta

Municipalities in Alberta are busy! They have a lot on their plates and may not be thinking specifically about wetlands and wetland conservation. However, there are many areas of everyday municipal business where wetlands may come into play.

Roles Related to Legislation and Policy

Municipalities are mandated through the Municipal Government Act to oversee orderly development within their jurisdictional boundaries and to foster the well-being of the environment. Thus, they can have a large impact on the landscape as they carry out their work. This can include: executing the direction set out in regional plans under Alberta’s Land Use Framework, in the context of their own municipality; developing and approving intermunicipal development plans, municipal development plans, area structure plans, subdivision plans, open space plans, and environmentally significant areas plans; and setting bylaws and using other tools (e.g., approvals, permits, reserves) to help achieve plan objectives.

For instance, a municipality can influence how development occurs around a wetland through the use of bylaws, assessments, permitting processes, and so on. Also, local governments are often the first point of contact for subdivision applicants, providing an opportunity to inform these audiences about the benefits of retaining wetlands as well as their legal obligations when undertaking works near water.

Municipalities have roles and responsibilities related to wetlands under the Alberta Wetland Policy and other policies and legislation. For example, wetlands may be a legal consideration if a municipality is a project proponent and/or permittee-responsible for building a road, providing utility infrastructure, or developing recreational opportunities that have the potential to affect a wetland.

Please Note:

In the event of a disagreement between this guide and legislation and/or regulations, the legislation and/or regulations prevail.

Wetlands and Local Needs

Municipalities can make wetlands part of the solution when dealing with issues such as protecting source water, treating drinking water, treating and releasing wastewater, managing runoff and stormwater, and mitigating floods and droughts. For example, municipalities can incorporate wetlands into their planning to protect municipal infrastructure, as shown in the Schilling Project case study in Module 1.

Wetlands might also be a consideration when planning open spaces, enhancing outdoor recreational opportunities, or adding aesthetic value to a housing project. Many municipalities also strive to protect environmentally significant areas as well as the biodiversity these areas provide, and wetland conservation can help meet biodiversity and other environmental goals.

Wetlands may be places of significance for Indigenous peoples as well. Local perspectives, knowledge and cultural practices can help identify historic and current values surrounding specific wetlands and wetland complexes.

Municipalities can also play an important role in promoting wetland conservation to their residents through public education and outreach.



Did you know?

What does this guide mean by ‘wetland conservation’?

This guide uses the term ‘wetland conservation’ in the broadest sense to include a variety of management actions such as wetland protection, retention, enhancement, mitigation (avoid, minimize, replace), and restoration.

The **Alberta Wetland Restoration Directive** (2016) identifies three types of wetland restorative replacement recognized by the Alberta Wetland Policy:

- **Wetland restoration** refers to the re-establishment of hydrology, vegetation and wetland processes within a previously drained wetland.
- **Wetland construction** refers to the creation of a new wetland on land that was previously upland, or that is designed into a portion of an artificial system such as a stormwater pond or excavation pit.
- **Wetland enhancement** refers to actions taken to increase the function and/or health of an existing, albeit degraded, wetland.

MODULES

How to Use this Guide

This guide is intended to be a handy, one-window access point to more information and resources available elsewhere, rather than a comprehensive document of all things wetlands. As more information about municipal wetland conservation becomes available, it will be posted on wetlandsalberta.ca.

Each module in this guide presents a topic area, briefly describes what may be required, outlines how a municipality might approach this work, and identifies resources to assist with this work. Relevant case studies are placed at the end of the individual modules.

This guide's aim is to bring awareness and understanding of a variety of actions that municipalities can take to improve and integrate wetland conservation efforts into their everyday business.

Although a municipality can review each module in the order presented in this guide, wetland conservation is a journey and there are no hard-and-fast rules! Some municipalities are brand new to wetland conservation, and some are old pros. Additionally, wetland conservation can be an iterative process where steps are revisited over time. It is up to each municipality to decide what actions are appropriate at any given time and when to move forward.

To help you do a quick self-assessment of where your municipality is in its wetland conservation journey and what modules might be of most interest to you, the following table briefly describes each module. After reviewing the table, simply go to the module that best suits your needs.

1	Understanding Wetland Definitions & Descriptions	An overview of wetland definitions, classes of natural wetlands in Alberta, and constructed wetlands.
2	Understanding Wetlands in the Watershed	A look at wetland inventories, maps and other information sources for understanding a municipality's wetland resources in the context of the whole watershed and changes over time.
3	Understanding Wetland Policy & Legislation	An overview of policies and legislation relevant to wetland conservation in Alberta including those for water and land use planning as they relate to wetlands.
4	Roles of Municipalities in Provincial Wetland Mitigation	Where municipal roles may intersect with the provincial process to mitigate wetland losses.
5	Developing a Wetland Vision & Objectives	Identifying a shared vision and values around wetlands and setting measurable objectives to protect these values.
6	Integrating Wetlands into Municipal Planning & Development	How wetland conservation can be incorporated into municipal planning.
7	Communicating & Collaborating with Others	Some options for communicating and collaborating with others to achieve shared wetland objectives.
8	Promoting Wetland Stewardship	Ideas on how municipalities can promote wetland stewardship through education and outreach, promoting beneficial management practices, and providing incentives.
9	Measuring Progress	A look at using performance metrics to measure if wetland objectives are being achieved.
10	Finding Resources for Wetland Conservation	Some ideas on where to look for funds and other capacity for undertaking wetland conservation.

Understanding Wetland Definitions & Descriptions

What Is Required?

How do you define a wetland? If you ask several people this question, you might be surprised at the variety of responses you get. For Alberta municipalities, a couple of key considerations are how wetlands are defined under the Alberta Wetland Policy and how wetlands are classified in Alberta.

It is also important to seek agreement on wetland definitions and descriptions among stakeholders in a municipality. And remember that wetlands are not isolated features; they are cross-connected elements of much larger watershed ecosystems.

How Might a Municipality Approach this Task?

The goal of the *Alberta Wetland Policy* is “to conserve, restore, protect and manage Alberta’s wetlands to sustain the benefits they provide to the environment, society and economy.” To achieve this goal, the policy focuses on four outcomes:

- Wetlands of the highest value are protected for the long-term benefit of Albertans
- Wetlands and their benefits are conserved and restored in areas where losses have been high

- Wetlands are managed by avoiding, minimizing and if necessary, replacing lost wetland value
- Wetland management considers regional context

The Wetland Policy defines wetlands as “land saturated with water long enough to promote formation of water altered soils, growth of water tolerant vegetation, and various kinds of biological activity that are adapted to the wet environment.”

In Alberta, all wetlands located on Crown lands are Crown owned. For wetlands on private lands, the water is managed by the Crown, and the bed and shore of the wetland may also be Crown owned; a determination by the Government’s Water Boundaries Unit may be required to establish if the bed and shore are Crown owned. The *Guide for Assessing Permanence of Wetland Basins* provides added description that a Crown wetland “must be permanent (or reasonably so). The wetland feature must have a persistent inundation period but need not be perpetually or continuously inundated. Wetlands normally respond to changes in annual climate through a well-defined cycle and may from time to time become dry during periods of low precipitation followed by another period of inundation. Their boundaries will vary over time as well.”

The Government of Alberta has described Alberta’s five classes of natural wetlands in the *Alberta Wetland Classification*



System. Alberta has both mineral wetlands (marshes, swamps and open water) and peat wetlands (bogs and fens). While all five classes can occur across the province, marshes tend to be more prevalent in the south and central Prairie and Parkland Ecoregions, while swamps, bogs and fens tend to be more prevalent in the northern Boreal Forest.

The five wetland classes can be further subdivided into forms based on vegetation (e.g., wooded bog or shrubby fen) and types based on water permanence (temporary to permanent), salinity (freshwater to saline) and acidity-alkalinity (poor to rich) gradients. The *Alberta Wetland Classification System Field Guide* is a helpful tool for people working with Alberta's classification system.

The ability to fully classify all wetlands to type requires specialized knowledge and equipment. However, generally understanding that water permanence can differ between marsh types, for example, is useful in communicating why wetlands may appear dry in the summer months or during drought years.

Depending on its geographic location in Alberta, a municipality can have anywhere from one to all five classes of wetlands. In addition, some urban municipalities may have both natural and constructed wetlands.

Natural Wetlands

Natural wetlands provide a broad range of ecosystem services that offer significant benefits to municipalities. These free and self-sustaining services include improving water quality, reducing erosion and sedimentation, retaining water to reduce drought impacts, lowering flood peaks, and conserving biodiverse living systems. They also offer 'living laboratories' as a teaching tool for youth and community groups.

To look more closely at one of these services, the ability of wetlands to hold and slowly release water makes them a valuable tool for flood mitigation. This is particularly important in the face of increasing severe rainfall events. Floods impact Albertans' quality of life but can also disrupt municipal service delivery and drive up maintenance costs. Roads and drainage infrastructure take up a large portion of municipal budgets.

Case study examples can help municipal staff understand the value of natural wetlands in flood mitigation, such as examples in *Parkland County*, Alberta, and *Smith Creek, Saskatchewan*, and the Schilling Project at the end of this Module. In addition, the *Natural Assets Initiative* has more case studies of municipalities incorporating the value of wetlands for service delivery on their website.

Municipalities across Canada and in Alberta are starting to pay attention to the role of wetlands in flood mitigation. Strategically restoring wetlands in priority areas can reduce the impact of floods. Restoring and retaining natural wetlands can also reduce the need for alternative engineered and built infrastructure, thus avoiding the cost required for building of so-called grey infrastructure.



Did you know?

Ephemeral Water Bodies

The **Alberta Wetland Classification System** defines an ephemeral water body as: "A shallow water body that temporarily contains water after spring snowmelt or a heavy rainfall and typically dries up within a matter of days to weeks." The **Alberta Wetland Classification System Field Guide** describes ephemeral water bodies as: "Often occurring at the interface between wetland and upland habitat, these features lack the soil, vegetation and hydrology indicators that are defined in the Alberta Wetland Identification and Delineation Directive to designate them as wetlands."

Although ephemeral water bodies hold water for only a brief time, many animals – including some mammals, birds, reptiles, insects and especially amphibians – rely on these water bodies for parts of their life cycles. They also play significant roles in several other important ecosystem services including flood mitigation.

Ephemeral water bodies are subject to Alberta's Water Act but not to the Wetland Policy's wetland replacement requirements:

- Under the **Water Act**, regulatory approval is required for drainage or any other impact to any type of water body, including ephemerals.
- Under the **Wetland Policy**, any proposed project that requires a **Water Act** authorization and may impact a wetland has to follow the **Wetland Policy's** avoid/minimize/replace mitigation system. This system emphasizes avoiding wetland impacts. If avoidance is not possible, the project must minimize impacts. As a last resort, where avoidance and minimization efforts are not feasible or prove ineffective, the people proposing the project must pay a wetland replacement fee to the Government of Alberta or undertake a wetland replacement project to replace the lost wetland value and area.

Although there are no mitigation requirements for ephemeral water bodies, avoidance and minimization of impacts are still encouraged.

For more information about wetland-related policies and legislation, see Module 3.

Natural wetlands and constructed wetlands together are sometimes referred to as examples of ‘green infrastructure.’ **However, remember that constructed wetlands cannot replace all the ecosystem services performed by natural wetlands. Also, the ecosystem services provided by restoring previously drained natural wetlands become established more quickly and reliably compared to constructed wetlands.**

To maintain the ecosystem services of natural wetlands, retaining these assets should be a first priority in policy, bylaws and procedures. Several cost-benefit studies have shown that retaining existing wetlands is the most cost-effective way to gain ecosystem service delivery. Once lost, it can be difficult to restore the services. Planning for natural infrastructure in order of priority is: keep what you have, restore what you have lost, and build what you must (*Moudrak and Feltnate, 2020*).

Natural Wetland Classes

PEATLANDS

- Bogs: peat-accumulating wetlands where, due to poor drainage and the slow decay of plant material, the surface water is strongly acidic and low in nutrients. Although they are dominated by sphagnum mosses and shrubs, bogs may support trees. There are also shrubby and wooded bog forms.
- Fens: peat-accumulating wetlands that are influenced by a flow of groundwater. They tend to be basic (rather than acidic) and are more productive than a bog. Although fens are dominated by sedges, they may also contain shrubs and trees. There are also shrubby and wooded fen forms.

NON-PEATLANDS

- Shallow open water wetlands: wetlands that include potholes and other ponds less than 2 metres deep, as well as water along rivers and lakeshore areas. They are usually relatively small bodies of standing or slowly flowing water commonly representing the stage between lakes and marshes.
- Marshes: wetlands that are periodically or permanently covered by standing or slowly moving water. Marshes are rich in nutrients and have reeds, rushes, cattails and sedges; water remains within the root zone of these plants for most of the growing season.
- Swamps: wetlands that are dominated by shrubs or trees and can be flooded seasonally or for long periods of time. Swamps are nutrient rich and productive. Swamps can be peatlands or non-peatlands.

BOG



FENS



SHALLOW OPEN WATER WETLANDS



CONSTRUCTED WETLAND—TOWN OF COALDALE



Constructed Wetlands

Constructed wetlands, also known as stormwater ponds, are engineered facilities created where a natural wetland does not exist. They are designed, built and operated to retain surface water and manage stormwater runoff and may improve water quality once established. Constructed wetlands mimic some functions of natural wetlands, but cannot replace all the functions of natural wetlands.

Constructed wetland designs are typically a combination of shallow depressions connecting deep pools with undulating shorelines constructed by excavation, backfilling and grading, often with flow structures to mimic dynamic seasonal flow. The replacement or import of native wetland soils and extensive planting of native wetland species result in water quality treatment.

As in natural wetlands, wetland plants help to slow water flow, allowing particles to settle out. The microbial action surrounding the plant life and its soils can break down pollutants such as phosphorus, nitrogen and bacteria from stormwater runoff. The vegetation buffers surrounding constructed wetlands are an integral part of the treatment process, and minimal mow widths should be considered to maximize bank stability and nutrient uptake. Wetland plants, trees, shrubs and tall native grasses can also discourage resident goose populations.

Constructed wetlands may be built to provide mitigation for natural areas lost to development and to minimize point source and non-point source pollution prior to entry into receiving waters (streams, natural wetlands, etc.).

Constructed wetlands are suitable for large drainage areas, for residential, commercial and industrial lands. Unless designed specifically for industrial waste treatment, the runoff must not contain high levels of toxic pollutants that may harm native vegetation. Constructed wetlands should be designed specifically for water quantity storage and water quality treatment, not simply to mimic a natural feature for aesthetic purposes. Some municipalities prefer these more complex wetland systems to manicured stormwater ponds for improved water quality, buffers from private landscapes, biodiversity, wildlife habitat and enhanced watershed management.

Several municipalities (e.g., Strathcona County, City of Edmonton) have design and construction standards for constructed wetlands.



Did you know?

Alberta Guide to Wetland Construction in Stormwater Management Facilities provides guidance on how to construct wetland habitat within a stormwater management facility.



What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Alberta Wetland Classification System (Government of Alberta)	https://open.alberta.ca/publications/9781460122587
	Alberta Wetland Classification System Field Guide (Ducks Unlimited Canada)	https://www.ducks.ca/resources/industry/alberta-wetland-classification-guide/
	Alberta Wetland Policy (Government of Alberta)	https://open.alberta.ca/publications/9781460112878
	Water Act (Government of Alberta)	https://open.alberta.ca/publications/w03
	Guide for Assessing Permanence of Wetland Basins (Government of Alberta)	https://open.alberta.ca/publications/guide-for-assessing-permanence-of-wetland-basins
	Wetlands Alberta: What is a wetland? (Alberta NAWMP Partnership)	https://wetlandsalberta.ca/what-is-a-wetland/
	Landowner Guide to the Alberta Wetland Policy (Alberta NAWMP Partnership)	https://abnawmp.ca/2023/04/03/wetland-landowners-guide/
	Wetland Atlas of Alberta (Alberta Biodiversity Monitoring Institute)	https://wetland-report.abmi.ca/atlas-home
	A Field Guide to Common Riparian Plants of Alberta (Cows and Fish)	https://cowsandfish.org/product/a-field-guide-to-common-riparian-plants-of-alberta/
Wetlands 101: An Introduction to Boreal Wetlands - Online (Ducks Unlimited Canada)	https://boreal.ducks.ca/solutions/wetland-stewardship-training/?gclid=EAIaIQobChMImJXq_t2p_QIVq3xvBB2j6gWTEAAYASAAEgKqOPD_BwE	





Case Study

Schilling Project Case Study: How restoration of a natural wetland aids a municipality

Background

Wetland restoration can be an effective way to prevent flooding and destruction of municipal infrastructure by providing natural flood control mechanisms. Wetlands act as sponges, absorbing and storing excess water during heavy precipitation events, including rainfall and spring runoff. Additionally, the construction of ditch plugs and dams can help reduce flooding downstream by providing a physical barrier that can temporarily store or redirect floodwaters, thereby reducing the volume and speed of water entering streams and rivers.

Ditch plugs are structures that are built across discharge outlets or drainage ditches restore the natural hydrology of a drained wetland. During heavy precipitation, the restored wetland can store excess water, reducing the volume and speed of water entering downstream areas. This can help to protect downstream municipal infrastructure (e.g., roads, culverts, bridges) by delaying the arrival of peak floodwaters and spreading them out over a longer time.

What was the issue?

The Schilling Project in Paintearth County provides an example of how wetland restoration can reduce

flooding and protect infrastructure. In the past, a natural marsh on this property was drained using a ditch channel. However, over time, a corrugated steel pipe culvert installed across a range road experienced flooding. During heavy rainfall events, the flooding led to road obstruction, erosion, excessive sedimentation, and significant repair costs.

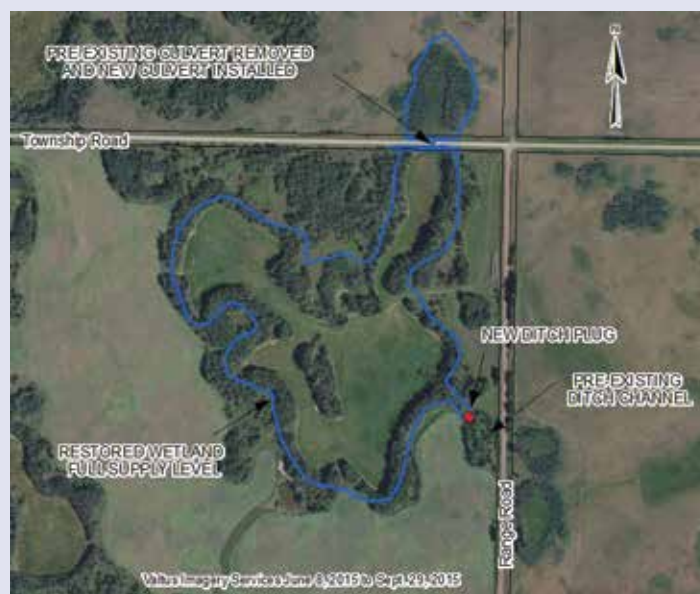
What was done?

In 2016, Ducks Unlimited Canada (DUC), Paintearth County, and the landowner reached an agreement to restore the marsh by constructing a ditch plug with an emergency spillway across the ditch channel. DUC covered all costs and paid the landowner fair market value for the restored wetland area under its Wetland Restoration Lease Program. Additionally, a larger corrugated steel pipe culvert located across the adjacent township road was modified and installed at a higher elevation.

What was the result?

These modifications increased the marsh's capacity by about 45,000 cubic metres, bringing it closer to its natural capacity with an average depth of 0.3 metres. As a result, downstream flooding was significantly reduced, effectively safeguarding the road and culvert.

This successful wetland restoration project demonstrates the efficacy of such measures in protecting municipal infrastructure.

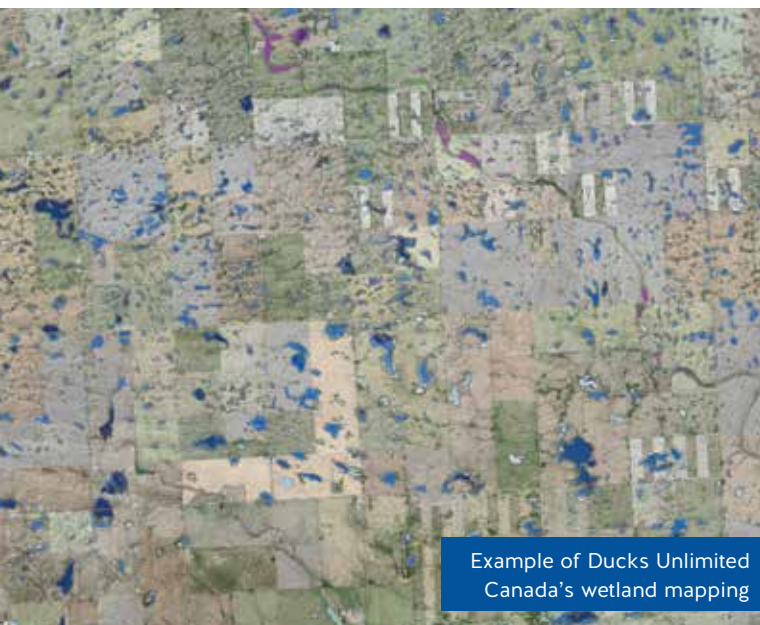


Understanding Wetlands in the Watershed

What Is Required?

Before a municipality starts to look at how to manage wetlands within its boundaries, it might first ensure a good understanding of this resource in a local context. This work can include looking at: current and historical wetland distribution within the municipality, including drained or altered wetlands; the types of wetlands present; and the functions the wetlands provide, such as lowering flood peaks, maintaining water quality, providing wildlife habitat, offering recreational opportunities, and so on.

In particular, wetlands are an important component of watersheds and can be valuable tools for water management. Municipalities can gain capacity for wetland conservation by collaborating with watershed initiatives undertaken by their Watershed Planning and Advisory Councils (WPACs) and Watershed Stewardship Groups (WSGs). Taking a watershed approach may also lead to stronger collaboration with neighbouring jurisdictions and the Indigenous community, which can benefit all parties.



Example of Ducks Unlimited Canada's wetland mapping

How Might a Municipality Approach this Task?

Several tools are available to help municipalities understand the wetlands within their jurisdiction and their watershed. As mentioned in Module 1, municipalities can start by getting familiar with the five classes of wetlands in Alberta.

Next, they can look at the online *Alberta Merged Wetland Inventory* to get a sense of the types and distribution of wetlands in their area from a desktop viewpoint. Note, however, that further ground-truthing may be required to verify this digital inventory. Getting out on the land and talking with landowners is a great way to learn about the current landscape from those living on it, as well as to verify in-house inventories.

Wetland information might also be available within existing municipal documents such as previous planning reviews (developer application submissions, area structure plans, subdivision plans, etc.) or from previous mapping exercises (surface and groundwater sources, floodplains, riparian areas, land cover, wildlife habitat corridors, etc.).

A number of municipalities (e.g., Parkland County, Leduc County, Strathcona County, and Mountain View County) have developed comprehensive environmentally significant areas reports that can be looked to as examples. Some municipalities, such as Wheatland County, even have a specific wetland inventory. Land use managers involved in surveying, road building and other such activities may be able to provide information. A municipality can greatly benefit by having a GIS-based file system in which all information gathered goes into a shared digital repository.

Both current and historical information can be useful, especially when evaluating wetland changes and losses over time. Historical information might be gleaned from old air photos, old reports or other archival materials.

In addition, wetland information might be available from other organizations. Municipalities should check with their regional WPAC to see if a 'state of the watershed' report has been completed and if it includes wetland

information. WPACs are also a good first point of contact to help municipalities find other sources of expertise such as consulting firms. Municipalities might also check with Ducks Unlimited Canada (DUC) to see if it has any wetland inventory data available for the area.

Finally, a municipality may want to undertake its own inventory of wetlands within its boundaries. Before starting, it is important to determine what additional mapping, if any, is required to develop a good baseline to measure

future progress. It is also important to know beforehand how data will be stored, shared, updated and managed. Any inventories should be designed to merge with Government of Alberta (GOA) *Wetland Mapping Standards and Guidelines*. Inventories can benefit others, and municipalities should look to collaborate with other users such as WPACs, surrounding municipalities, or provincial government departments or agencies that may be able to help resource the collection of shared information.

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Alberta Merged Wetland Inventory (GOA)	https://geodiscover.alberta.ca/geoportal/rest/metadata/item/bfa8b3fdf0df4ec19f7f648689237969/html
	Canadian Wetland Inventory (DUC)	https://www.ducks.ca/initiatives/canadian-wetland-inventory/?gclid=EAJaIQobChMIwdaj7fr3_wlVexSzAB0UvgGmEAAYASAAEgKTIFD_BwE
	Watershed Resiliency and Restoration Program (WRRP) Flood, Drought and Water Quality Risk maps (GOA)	https://open.alberta.ca/publications/watershed-resiliency-and-restoration-program-priority-areas-maps
	Alberta Vegetation Inventory (GOA)	https://geodiscover.alberta.ca/geoportal/#searchPanel
	Alberta Flood Hazard Mapping (GOA)	https://www.alberta.ca/final-flood-maps.aspx
	Water Act Essentials for Landowners in Alberta (Farmers' Advocate Office)	https://open.alberta.ca/publications/water-act-essentials-for-landowners-in-alberta
	Areal Extent of Wetlands in the Agricultural Area of Alberta (GOA)	https://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/ba3468a2a8681f69872569d60073fde1/0b43ae4ad-40b5a9887257098006d4fa9/\$FILE/pg_12_areal_extent.pdf
	WRRP's Riparian areas and wetland municipal engagement needs assessment survey summary (GOA)	https://open.alberta.ca/publications/riparian-areas-and-wetlands-municipal-engagement-needs-assessment-survey-summary
	Wetland Atlas of Alberta (Alberta Biodiversity Monitoring Institute)	https://wetland-report.abmi.ca/atlas-home
CONTACTS	Cows and Fish, information and tools for riparian management	https://cowsandfish.org
	Natural Assets Initiative	https://mnai.ca
	Your regional WPAC	https://www.alberta.ca/watershed-planning-and-advisory-councils.aspx
	Beaver Hills Biosphere Reserve Association	https://www.beaverhills.ca/about/the-association
	Miistakis Institute	https://www.rockies.ca/
	DUC	https://www.ducks.ca/



Case Study

Town of Okotoks Case Study: An example of a municipal natural asset inventory

What was done?

The Town of Okotoks is an early adopter in developing a natural asset inventory. The inventory, completed in 2020, includes both natural and semi-natural assets and a valuation of the ecosystem services provided by these assets.

What are the benefits?

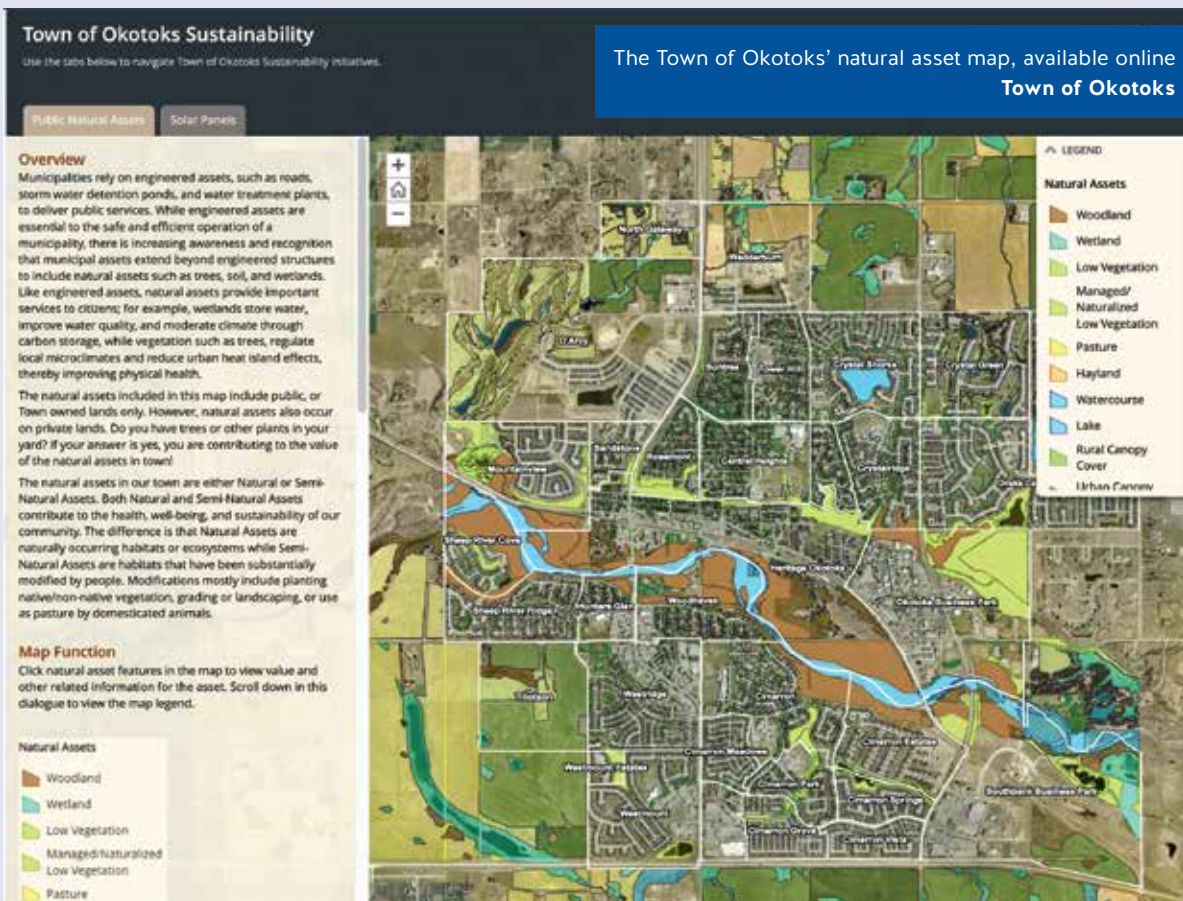
Having a natural asset inventory allows the town to incorporate natural assets, such as forests, creeks and wetlands, into planning and development. Specifically, a valuation of ecosystem services of undeveloped land helps in determining the true value of the area before development. In addition, the municipality uses the data to reduce its ecological footprint and to improve operating costs and efficiencies. Natural assets such as wetlands can often deliver municipal services such as

water quality improvement or flood mitigation at lower costs than engineered or grey infrastructure.

The inventory includes wetlands, allowing the municipality to better protect them through, for example, determination of adequate setbacks and identification of areas for enhancement or restoration. Even with a limited number of wetlands given the smaller land area of the urban municipality, the inventory identifies the remaining wetland services in the millions of dollars. Wetland ecosystem services valued include water quality control, water flow regulation, soil erosion prevention, habitat for wildlife, and climate regulation.

What are the next steps?

Since development of the inventory, the town has completed a wetland condition review to ensure high priority wetlands are not impacted by development. Additional mapping exercises were completed to improve accuracy in wetland inventory. Okotoks is developing a wetland policy to create further municipal direction on wetlands.



The Town of Okotoks' natural asset map, available online
Town of Okotoks

Understanding Wetland Policy & Legislation

What Is Required?

Municipal wetland conservation efforts need to be consistent with provincial policy and legislation. Hence, municipalities, including elected officials and staff, need to have a firm understanding of the applicable documents governing wetland and water management in Alberta. The Government of Alberta (GOA) acknowledges the role of municipalities in achieving the goals of the Alberta Wetland Policy and provides funding for municipalities to undertake wetland replacement activities (see Module 10). Both levels of government need to be clear on who is responsible to do what.

As wetland conservation is heavily influenced by human activities on the landscape, it is also important for municipalities to be aware of policies and legislation affecting land use in the province. And as municipalities have a strong mandate for local land use planning, it is again important that both levels of government understand each other's roles and responsibilities in planning and regulating land use on public and private lands.

Municipalities also benefit from working with each other and from aligning priorities related to wetland conservation through Watershed Planning and Advisory Councils (WPACs) and other mechanisms.

The table on page 17 lists some of the players involved in wetland conservation in Alberta and their roles.

How Might a Municipality Approach this Task?

Municipalities can ensure they have a good understanding of provincial policy relating to wetlands by first having their elected officials and staff review the *Alberta Wetland Policy*. To reinforce the Wetland Policy's key concepts (see Module 1), they could invite a GOA representative to do a presentation, or they could join a webinar or other event hosted by the GOA, a municipal organization such as Alberta Municipalities, Alberta Summer Villages Association and Rural Municipalities of Alberta, or the WPAC for their region.

Legislation related to the Wetland Policy

The key pieces of legislation used to implement the Wetland Policy are the Water Act, the Public Lands Act and to some degree, the Environmental Protection and Enhancement Act.

WATER ACT

Under the *Water Act*, the Crown has the right to make decisions about the diversion and disturbance of water in wetland areas. However, bear in mind that Water Act decisions are based in part on what the municipality has identified as important to it on the landscape and what supporting policies are in place in the municipality's municipal development plan, land use bylaws, and so on.

The act states that parties carrying out any activity that could affect water and the aquatic environment are required to seek GOA approval. These activities include taking water from wetlands, constructing within a wetlands area, and draining or filling any wetland, regardless of class or features.

PUBLIC LANDS ACT

The GOA's control over wetlands is reinforced by the *Public Lands Act*, which gives the province ownership of the bed and shore of all permanent and naturally occurring wetlands, unless ownership has been specifically granted to another party. Permanent basin wetlands that qualify for Crown ownership include semi-permanent and permanent systems and may include sites that have been previously drained.

Please Note:

In the event of a disagreement between this guide and legislation and/or regulations, the legislation and/or regulations prevail.

ENVIRONMENTAL PROTECTION AND ENHANCEMENT ACT

Protection of wetlands is also regulated under the *Environmental Protection and Enhancement Act*, which supports and promotes the protection, enhancement and use of the environment. The act’s regulations cover a wide range of activities relevant to wetlands, including environmental assessment, reclamation, wastewater and storm drainage, and substance release.

Land Use Planning Legislation, Policies and Tools

To understand how the Wetland Policy and wetland conservation fit with land use in the province, municipalities need to understand the current land use planning context in Alberta. Wetland conservation can be an important consideration throughout all levels of regional, intermunicipal and local planning.

ALBERTA LAND STEWARDSHIP ACT

Alberta has a land use policy called the Land Use Framework. This policy sets out the task of developing seven regional plans that, when completed, will be cabinet-approved regulations under the *Alberta Land Stewardship Act (ALSA)*. Two of these regional plans have been completed so far. In time, municipalities must align their planning with the regional plans. They will have to align their plans with adjacent municipalities through intermunicipal collaboration frameworks (ICFs).

MUNICIPAL GOVERNMENT ACT

Once a municipality is familiar with the provincial policy and legislation under the ALSA plan for their region, they can begin to align their governing documents, including plans with adjacent municipalities such as ICFs and intermunicipal development plans (IDPs), as well as their municipal development plans (MDPs), land use bylaws (LUBs), area structure plans, subdivision plans, etc. (See more on setting wetland objectives in Module 5.)

The *Municipal Government Act (MGA)* enables municipalities to conserve wetlands through tools such as LUBs, environmental reserves and conservation reserves. However, there are limitations as to when these sections can be enacted and how they can be applied.

The MGA amendments supporting collaboration and planning aim to improve municipal relationships, planning processes and local decision-making for growth.

MGA amendments that have come into force since 2016 may influence municipal approaches to wetland conservation. Several of these changes include:

1. The purpose of a municipality was expanded to include “foster the well-being of the environment.”
2. The MGA has created a reserve status called “Conservation Reserve” which is any area that the municipality has deemed to have “environmentally significant features” and would not otherwise fall under the definition of an environmental reserve. The purpose of making a conservation reserve is to enable the municipality to protect and conserve land consistent with the municipality’s MDP and area structure plan.
3. Generally, municipalities are mandated to complete IDPs as part of their ICFs, and the IDP must address environmental matters either generally or specifically within the area of the IDP. Note that IDPs are not mandatory if the municipalities involved mutually agree that they do not require an IDP.
4. For the purposes of the MGA, the definition of “bed and shore” is now the meaning found in the *Surveys Act*. The Act specifies how to determine the bank between a water body or watercourse and the surrounding land.



Did you know?

Before the Alberta Wetland Policy was released in 2013, the Alberta Urban Municipalities Association worked with its members to develop its **Municipal Water Policy on Wetlands**. Objectives outlined in this document provide insight into wetland conservation priorities from a municipal perspective.



Some key players in wetland conservation in Alberta and their roles

ENTITY	ROLES AND RESPONSIBILITIES
GOA	Set policy direction and legislation for wetlands, water and land use.
GOA	Govern municipal processes via the Municipal Government Act and the Safety Codes Act (regarding construction of sewage infrastructure and private sewage regulation).
Municipal associations (e.g., Alberta Municipalities, Alberta Summer Villages Association, Rural Municipalities of Alberta)	Provide support and guidance to rural and urban municipalities in local activities such as wetland conservation.
Individual municipalities	Use local land use planning and tools such as setbacks and environmental reserves to conserve wetlands within their boundaries.
Regulators: GOA, Alberta Energy Regulator, Environmental Appeals Board	Review and approve Water Act and Public Lands Act applications as they relate to wetland mitigation.
Applicants (municipalities, developers, road-builders, landowners, etc.)	In contemplating works affecting a wetland, are aware of and follow all water and wetland-related legislation, regulations, standards, best practices, etc.
Wetland professionals and professional accreditation groups	Set standards and practices to certify qualified professionals who identify, classify, delineate, assess wetland function and benefits, assess impacts, and recommend actions consistent with policy and regulation.
Ducks Unlimited Canada	Active in wetland restoration; support role in helping municipalities to increase their efforts in wetland management and wetland conservation through updating of policies and procedures such as municipal development plans and land use bylaws
Other wetland restoration agencies	Active in wetland restoration.
Other non-government conservation organizations	Support activities like wetland literacy education and outreach, wetland and riparian mapping and inventories, etc.
Watershed Planning and Advisory Councils (WPACs) and Watershed Stewardship Groups (WSGs)	Bring a multi-sector approach to activities like wetland inventories, education and outreach, state-of-the-watershed assessments, watershed planning, etc.



Summary of municipal reserve and easement tools for conserving wetlands

TYPE	MUNICIPALITY TAKES OWNERSHIP OF LAND	LANDOWNER CAN MAINTAIN OWNERSHIP OF LAND
Landowner is compensated	Conservation Reserve <ul style="list-style-type: none"> • Tool: Municipal Government Act • Used at the time of a subdivision of the land 	Conservation Easement <ul style="list-style-type: none"> • Tool: Alberta Land Stewardship Act • Can be used at any time
Landowner is not compensated	Environmental Reserve <ul style="list-style-type: none"> • Tool: Municipal Government Act • Used at the time of a subdivision of the land 	Environmental Reserve Easement <ul style="list-style-type: none"> • Tool: Municipal Government Act • Used at the time of a subdivision of the land

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Alberta's Wetlands: A Law and Policy Guide (Environmental Law Centre)	https://www.erwp.org/documents/5c88ca4759094a7bb9325ff18753ad73/about
	Wetlands Alberta website (Alberta NAWMP Partnership)	https://wetlandsalberta.ca/
	Watershed Management (Alberta Municipalities)	https://www.abmunis.ca/advocacy-resources/environment/water-management/watershed-management
	ASPB Wetlands 101 video (Alberta Society of Professional Biologists)	https://www.youtube.com/watch?v=V5SEWgYTWy8
	Alberta Wetland Identification and Delineation Directive (GOA)	https://open.alberta.ca/publications/9781460123638
	Appealing an Approval or Licence to the Environmental Appeals Board (Environmental Law Centre)	https://elc.ab.ca/Content_Files/Files/PartII-ProcessGuide.pdf
	Municipal Water Policy on Wetlands (Alberta Urban Municipalities Association)	https://www.abmunis.ca/sites/default/files/Advocacy/Programs_Initiatives/Water/2013_wetlands_resolution_and_policy_paper.pdf



Roles of Municipalities in Provincial Wetland Mitigation

What Is Required?

The Government of Alberta (GOA) has developed a process to mitigate wetland losses for proponents contemplating a project that may affect a wetland. The process helps the proponents comply with the Alberta Wetland Policy and uses the policy's avoid/minimize/replace hierarchy (see Module 1). Note that, in general, avoiding impacts to a wetland should be paramount, with municipal policies and procedures prioritizing this.

There are many points in this process that intersect with municipal processes for land use planning and development. For example, while the GOA is the provincial regulator, the municipality may be a local regulator with local rules and regulations in addition to the provincial requirements. Alternatively, the municipality could be the proponent, undertaking road building, construction or other works potentially affecting a wetland. Finally, the municipality may play an active role in wetland replacement in advising the GOA on targeting locations for possible wetland replacement projects and/or in undertaking wetland replacement activities.

Under any of the above scenarios, it is important that both the GOA and the municipalities understand each other's roles and responsibilities, as well as each other's planning and regulatory processes, to ensure alignment and achievement of shared policy goals and objectives.

How Might a Municipality Approach this Task?

Municipalities should be aware of the provincial mitigation process. They can start building awareness by reviewing *Alberta Wetland Policy Implementation*, which includes links to the policy and directives related to the policy.

In setting a wetland vision and management objectives, municipalities may have already engaged the services of an authenticating professional under the Wetland Policy or, ideally, have on staff a planner with this designation. An authenticating professional can assist a municipality with understanding wetland ownership (see the *Guide for Assessing Permanence of Wetland Basins*), delineation (see the *Alberta Wetland Identification and Delineation Directive*) and the relative values assigned to wetlands within its boundaries by the province (see the relative wetland value map in the directive). The process to qualify as an authenticating professional is described in *Professional Responsibilities in Completion and Assurance of Wetland Science, Design and Engineering Work in Alberta*.

In cases where wetland replacement is necessary, municipalities have the opportunity to influence where such replacement occurs (i.e., close to the location of wetland impact). This requires previous targeting to identify areas of high historic wetland loss. This information can be generated by working with partners,



such as Ducks Unlimited Canada (DUC), or hiring consultants who are authenticating professionals. Various wetland replacement options exist beyond the typical in-lieu fee approach. These should be explored and considered as creative means to satisfy process requirements and address local municipal needs.

Municipalities can also directly undertake wetland replacement projects as a recognized Permittee-Responsible (see *Directive for Permittee-Responsible Wetland Construction in Alberta*). Municipalities and non-profit organizations that are committed to identifying and undertaking wetland replacement projects within priority watersheds are eligible to participate in the GOA's *Wetland Replacement Program (WRP)*. A WRP case study is provided at the end of Module 10. If a municipality does not have the capacity to undertake wetland replacement activities, it can work with partners like DUC or other wetland replacement organizations who have the capacity and expertise required.

A municipality can also be an intermediary between proponents and the regulator and can facilitate compliance with developers and landowners. Municipalities and the GOA should work together closely to ensure information provided to proponents is consistent, and in turn, decision-making supports both local and provincial objectives.

A municipality may also be a proponent within the mitigation process. In this case, a municipality, like all

proponents, must follow the mitigation process. There are several tools to guide proponents such as the Alberta Wetland Assessment and Impact Report (WAIR) Directive, Alberta Wetland Rapid Evaluation Tool (AWRET-A), Electronic disposition system, and Water Act Application. All these documents and directives can be found on the *Alberta Wetland Policy Implementation* page.



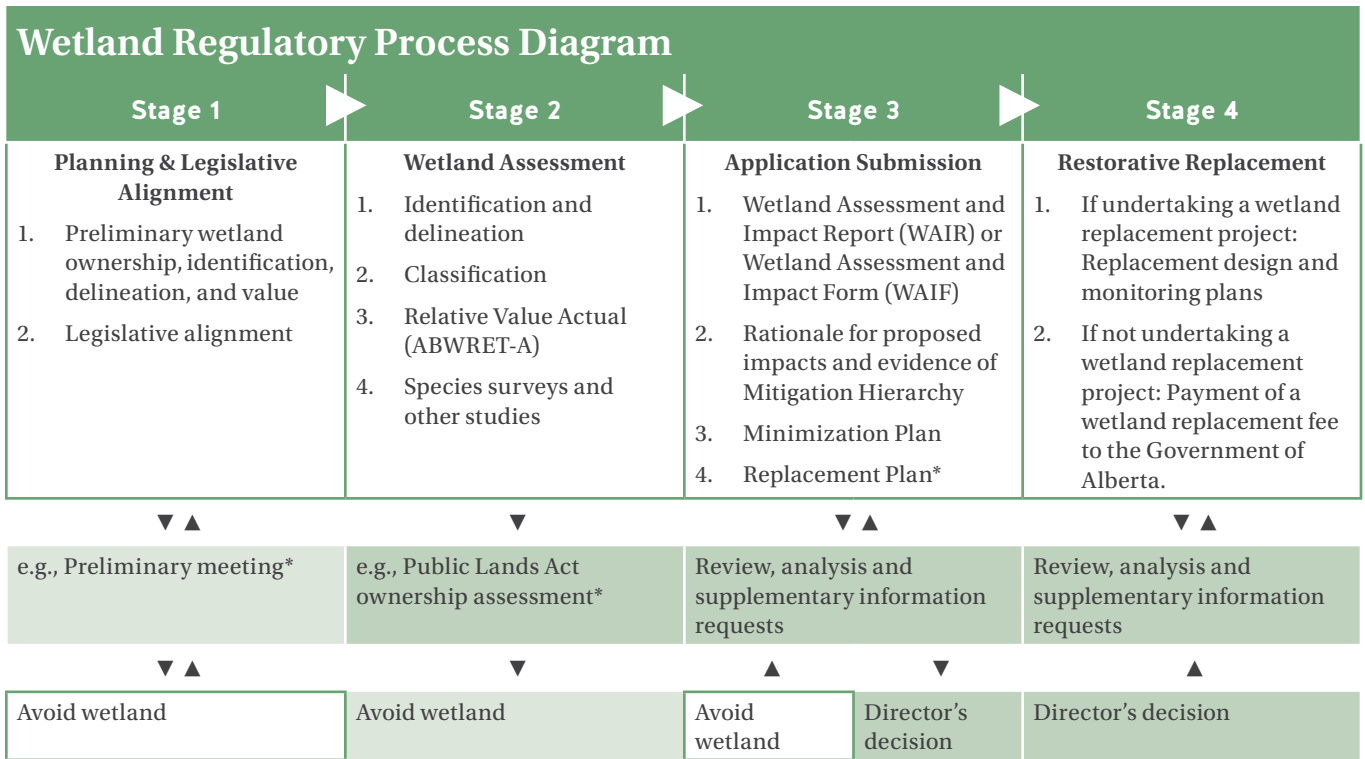
Did you know?

Wetland replacement fees

Under Alberta's Wetland Policy, if a project approved under the Water Act cannot avoid or minimize wetland impacts, then the project's proponent must replace the lost wetland value by undertaking a wetland replacement project or paying a fee to the Government of Alberta (GOA). The GOA allocates those fees to wetland replacement projects under the Wetland Replacement Program (WRP). Municipalities and non-profit organizations can apply for WRP project funding.

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Alberta Wetland Policy Implementation (GOA)	https://www.alberta.ca/alberta-wetland-policy-implementation.aspx
	Alberta Transportation's Guidelines for Conducting Wetland Assessments to Meet Water Act Application Requirements (GOA)	http://www.transportation.alberta.ca/Content/docType29/production/ATG_fCWA_tMWA_AR.pdf
	Wetland Replacement Program (GOA)	https://www.alberta.ca/wetland-replacement-program.aspx
	Professional Responsibilities in Completion and Assurance of Wetland Science, Design and Engineering Work in Alberta (GOA)	https://open.alberta.ca/publications/professional-responsibilities-in-completion-and-assurance-of-wetland-science-design-and-engineering
	Wetland Delineation, Classification, and Assessment course (University of Alberta)	https://coned.ualberta.ca/search/publicCourseSearchDetails.do?method=load&courseId=1042120#:~:text=Course%20Description,Other%20topics%20to%20...
	Professional wetland courses are sometimes offered in Alberta	Search online for current opportunities
CONTACTS	Water Act Approvals staff (GOA)	https://www.alberta.ca/contact-government, or call 310-0000



□ Applicant, ■ Regulatory Body, ■ Action
 * If applicable



Did you know?

When is a municipality considered 'directly affected'?

When may a municipality be considered 'directly affected' to appeal the issuance of a water license or other statutory authorization under the Water Act or the Environmental Protection and Enhancement Act? It is true that to appeal, a municipality, like any other entity, must establish that it is directly affected by the authorization, and in some cases this can be difficult. Nevertheless, municipalities have successfully done this.

The Capstone case is one example. Here is the paragraph that describes the Alberta Environmental Appeals Board (AEAB) decision that the City of Red Deer was directly affected regarding the issuance of water licenses:

From the Capstone case: Preliminary Motions: Mountain View Regional Water Services Commission et al. v. Director, Central Region, Regional Services, Alberta Environment re: Capstone Energy (11 February 2004), Appeal Nos. 03-116 and 03-118-123- ID1 (A.E.A.B.).

[45] Similarly, the City of Red Deer represents the concerns of the residents within the City. The Board

notes that the City of Red Deer has four licenses or approvals downstream of the Dickson Dam. Three of these projects, located at SE 20-38-27 W5M, are in relation to urban activities and have priority dates from 1905 to 1980. The fourth project, with a priority date of 1976, is for recreational purposes and is located at NW 17-38-27-40. The City is in the position to present evidence as to how its populace will be affected by the proposed diversion and how it, as a holder of four water licenses in the area, will be affected. The City of Red Deer is directly affected.

In addition, the AEAB has the power to permit persons other than those who are technically directly affected to make representations on a matter that has been appealed to the Board. Section 95 of the Environmental Protection and Enhancement Act states: "Subject to subsections (4) and (5), the Board shall, consistent with the principles of natural justice, give the opportunity to make representations on the matter before the Board to any persons who the Board considers should be allowed to make representations."

For more on policies and legislation affecting wetlands, see **Alberta's Wetlands: A Law and Policy Guide** by Arlene J. Kwasniak, Professor Emerita of Law, Adjunct, Faculty of Environmental Design, University of Calgary.

Developing a Wetland Vision & Objectives

What Is Required?

What is your municipality's vision for the future of the wetlands within its boundaries? How will the municipality achieve that vision? Developing a shared vision and values on wetlands can act as a catalyst for setting of measurable objectives (i.e., where are you today, where do you want to be in the future, and how will you get there) and then identifying targeted actions to achieve those objectives.

These components – a strong vision, shared values and clear objectives – need to be developed and then incorporated accordingly into a variety of plans (see Module 6) and, if helpful, prepared as a separate wetland policy or plan. These components can serve as an effective guide for staff actions related to wetlands. And they can be important for garnering support from others. For instance, when a municipality looks at developing a wetland-related activity, the vision, values and objectives could help residents to better understand the reasoning behind municipal actions. They can also help when working with the Government of Alberta (GOA) on wetland projects, when building relationships with potential partners on wetland-related activities, and when developing project proposals for funding agencies.



Did you know?

A **vision** is an aspirational description of what an organization would like to achieve in the mid-term or long-term future. It is intended to serve as a clear guide for choosing current and future courses of action.

Objectives define strategies or implementation steps to attain a vision. Objectives are specific and measurable, and have a defined completion date. They outline the who, what, when, where, and how of reaching the vision.

How Might a Municipality Approach this Task?

Once a reasonable amount of wetland inventory information is gained, a municipality might use this information to identify the values wetlands provide (e.g., water filtration, flood retention, wildlife habitat) within their jurisdiction and throughout the watershed. It is also beneficial to be aware of any landscape level issues the municipality or watershed is facing that may be addressed via wetland conservation (e.g., water quality, flooding, drought, aesthetics, pollutant/nutrient loading/drained wetlands). However, you do not have to wait until you know everything before proceeding. The process is iterative and adaptive.

Although the GOA's wetland vision is reflected in the Alberta Wetland Policy, local governments may choose to develop their own vision shaped by their local context. Municipal vision statements can reference wetland or environmental values, but they cannot conflict with provincial policy or legislation.

A municipality can work with staff, elected officials, residents and industry to identify what values are important to them within their jurisdiction and in alignment with adjacent jurisdictions and the province. Looking into the future and assessing benefits to establish a system of values could be accomplished via council meetings, workshops, surveys, open houses, etc.

Working collaboratively, a municipality can develop a wetland vision statement and corresponding wetland management objectives to achieve the vision. The vision and objectives should provide a roadmap for future decision-making and align with and possibly enhance achievement of other municipal goals and objectives (e.g., biodiversity, healthy ecosystems, ecosystem services, climate change mitigation, recreational opportunities). A fuller cross-evaluation of wetland influences on other aspects of planning may also be beneficial (e.g., competing reserve priorities, taxation and assessment, property values and housing affordability).

Note that wetland management objectives should be SMART (specific, measurable, achievable, reliable and timely). The objectives must also align with the Alberta Wetland Policy, the Land Use Framework regional plan (if available for the municipality’s region), and the intermunicipal collaboration framework if the municipality is part of such a collaboration.

The objectives might include changes or improvements in processes, behaviours, the number and extent of wetlands, and wetland functions (e.g., no net loss, some loss, status quo, maintain functional watersheds, etc.) or in values such as biodiversity, recreation, and so on. Objectives might also identify priority areas for further management or priority wetlands of importance.

Note that some municipalities may identify important priority wetlands through their environmentally significant areas research and reporting. Specifically, municipal development plans can reference things such as setbacks, integration of wetlands into environmentally significant areas, and that the municipality will work to restore (corridors) of wetlands.

The Alberta Water Council developed *performance measures* for the Alberta Wetland Policy that can be looked at for reference. These measures include:

- “Area, number, and class of wetlands with a protective designation - wetlands with a legal protective designation (e.g., wetlands in provincial parks, environmental reserves, conservation easements, other protective measures).
- “Area, number, and class of wetlands lost - wetlands permanently lost since policy implementation because of development.
- “Area, number, and class of wetlands replaced - wetlands added to the landscape through wetland restoration or construction.
- “Wetland replacement funds collected and spent - funds to restore and replace lost wetland area and value in the Green and White areas, with the average cost per hectare of replaced wetlands and allocation by replaced wetland.

- “Timelines for regulatory review - turnaround time from application to final decision”

Test your draft wetland vision and objectives with stakeholders to ensure relevance and value to all. Understand how the vision and objectives will affect all and how stakeholders can contribute to achieving the objectives. If required, use a neutral facilitator to help guide development of the vision and objectives.

Communicate! Champion your vision and objectives to everyone and find others who will also champion the vision and objectives within their sectors. Not only will this improve understanding, it may lead to opportunities for implementation of objectives. At the end of such exercises, the resulting vision, values and objectives can inform future municipal planning activities.



What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Guide to Creating Mission & Vision Statements (Topnonprofits.com)	https://topnonprofits.com/mission-vision-statements/
	Alberta Water Council Wetland Policy Implementation Review	https://www.awchome.ca/uploads/source/AWC_AB_Wetland_Policy_Review_Final.pdf
	Beyond Conservation: A Toolkit for Respectful Collaboration with Indigenous Peoples (IPCA Knowledge Basket)	https://ipcaknowledgebasket.ca/resources/beyond-conservation-a-toolkit-for-respectful-collaboration-with-indigenous-people

Examples of municipal wetland policy and planning documents

NAME, DESCRIPTION	LEAD AGENCY	WEBSITE
<p>Airdrie Wetland Policy (2019) sets out a thorough process for wetland conservation with four goals to:</p> <ol style="list-style-type: none"> 1. Conserve high-value wetlands 2. Manage wetlands to preserve their ecological functions 3. Integrate wetlands into the planning and development process 4. Support citizen stewardship and education of wetlands. 	City of Airdrie	https://www.airdrie.ca/getDocument.cfm?ID=9466
<p>Calgary Wetland Conservation Plan: The City of Calgary became one of the first municipalities in Canada to adopt a wetland conservation policy that provides procedures for the protection of priority urban wetlands with the passing of their Wetland Conservation Plan in 2004.</p>	City of Calgary	https://www.calgary.ca/parks/wildlife/wetlands-conservation.html
<p>Environmental Conservation Master Plan: This Parkland County plan defines and classifies a series of environmentally sensitive areas in the county's boundaries, several of which include wetlands. Creating such an inventory of sensitive areas can assist municipalities in passing zoning bylaws or plans, or utilizing other tools to protect wetlands.</p>	Parkland County	https://www.parklandcounty.com/en/county-government/Reports,-Studies-and-Plans/Environmental-Conservation-Master-Plan.pdf
<p>Wetlands and Riparian Areas Conservation & Management Plan for the Town of Cochrane, Alberta (2013): A comprehensive management plan for wetlands and riparian areas that provides a background on the subject, and outlines planning and development requirements in the municipality. The town's strategic plan also states the town will investigate, monitor and implement environmental standards and codes of practice for wetland and watershed management.</p>	Town of Cochrane	https://www.cochrane.ca/media/619
<p>Wetland Conservation Policy: Strathcona County has created a Wetland Conservation Policy that aims for no net loss of wetlands within the county's urban and rural areas. The no net loss policy's function is to balance the loss of wetlands through the rehabilitation of former degraded wetlands or enhancement of healthy, functioning wetlands. The policy requires proponents of developments to work through a strict series of mitigation activities set out by legislation in Alberta.</p>	Strathcona County	https://www.strathcona.ca/files/files/lis-mph-ser-009-036d-wetland-conservation.pdf

Examples of municipal wetland policy and planning documents

NAME, DESCRIPTION	LEAD AGENCY	WEBSITE
<p>Including wetlands in long range, strategic planning, Minburn County in its updated Municipal Development Plan sets out to improve inventory of wetlands, collaborate with government and non-government stakeholders on wetland conservation, and promote a development approach which results in a no net loss of wetlands.</p>	<p>County of Minburn</p>	<p>https://minburn2023.municipalwebsites.ca/ckfinder/connector?command=Proxy&lang=en&type=Files&currentFolder=%2F&hash=c-245c263ce0eced480effe66bbede6b4d46c15ae&fileName=MDP%201339-23%20-%20website.pdf</p>
<p>Wetland Policy and Bylaw: The City of Chestermere passed a wetland policy in 2013 to conserve, manage and maintain wetlands as well as promote wetland awareness and stewardship. It also includes an inventory of wetlands in the community and their current state. Developing a wetland inventory is a useful exercise to guide future planning and policy making with a full understanding of local wetlands.</p>	<p>City of Chestermere</p>	<p>https://thecityofchestermere.ca/wp-content/uploads/sites/10/2023/04/Chestermere-Wetland-Policy-2013.pdf</p>
<p>Wetland Strategy: A comprehensive wetland strategy that outlines overarching commitments that guide the City of Edmonton’s wetland conservation practices, and describes tools that can be used by the city to conserve wetlands. The strategy has three goals: Secure Edmonton’s Wetlands as part of the city’s ecological network; Manage Edmonton’s wetlands to maximize their ecological function; Engage Edmontonians to support wetland conservation.</p>	<p>City of Edmonton</p>	<p>http://www.edmonton.ca/city_government/documents/FINAL_Wetland_Strategy_low_res.pdf</p>
<p>A number of municipalities in the Edmonton region collaborate in a regional plan which includes a focus on wetlands. Under the Natural Living Systems policy area, the plan formulates Key Performance Indicators on a) wetland loss and b) wetlands saved/restored. The plan sets out to adapt to climate change and variability by supporting ecosystem based adaptation including wetland solutions.</p>	<p>Edmonton Region Metropolitan Board</p>	<p>https://www.emrb.ca/growth-strategy/natural-assets/#:~:text=Clean%20water%20and%20healthy%20watersheds</p>





Case Study

Strathcona County Case Study: Implementing a wetland direction through a Municipal Wetland Conservation Directive

Where did we begin?

Planning and land use triggers supported the development of the county’s initial Wetland Conservation Policy prior to the provincial Wetland Policy. The policy goal aligned assessments and mitigation reports to ensure efficient decision-making and avoid duplication between municipal and provincial processes. The target result would be no net loss of wetland form and function within the county’s jurisdiction, including ephemeral wetlands.

What was the impact?

Integrating wetland awareness and conservation action into the planning and operational process resulted in the county leading by example. For the 10 years following the introduction of the Wetland Conservation Policy, approximately 204 hectares have been impacted by development. Avoidance, minimization and compensation measures have all been used. All developments met or exceeded the 3:1 mitigation ratio. Compensation included 59 hectares of naturalized stormwater management facilities, \$2.4 million paid by the county for wetland replacement fees, and 15 per cent directly applied to wetland restoration projects in the Beaver Hills.

What did we set out to do?

The success of the policy has also been reflected in the incorporation of policy statements and goals within the Municipal Development Plan. With that statutory foundation, the policy was updated in 2019

and reclassified as a directive, to focus implementation on the process that has been integrated into municipal procedures. The county has now partnered with the province in participating in the Wetland Replacement Program to re-establish wetlands on the landscape. Two projects have restored approximately 3.3 hectares of wetland area.

Policy summary:

Strathcona County values wetlands for current and future generations and therefore recognizes wetlands as important components of municipal infrastructures. The goal of No Net Loss is to balance the loss of wetland functions through rehabilitation of previously degraded wetlands or enhancement of healthy, functioning wetlands. As a last resort, compensation for lost functions will be sought through creation of wetlands where there was none before. Strathcona County will minimize or reverse wetland loss, conserve existing wetland resources, convey the importance of wetlands to developers, industry, and the public through education initiatives, and restore watershed function through wetland restoration projects.

What was the key learning of this initiative?

Relationships with provincial regulators are key in successful and coordinated implementation. Formal meetings regarding compliance issues, formal meetings regarding specific applications and informal discussions on process and decisions are imperative in reaching any municipal or provincial conservation goals. Committed municipal administrators from the planning and operations realm are the foundation for successful policy integration.



One of Strathcona County’s Wetland Replacement Program projects during the first growing season after construction.
Strathcona County

Integrating Wetlands into Municipal Planning & Development

What Is Required?

A municipality can give its approved vision and objectives statutory backing and authority by embedding them in municipal policy and planning documents such as an intermunicipal development plan, municipal development plan (MDP), area structure plan, subdivision plan, etc. Objectives can then be achieved through a number of statutory and non-statutory development tools and processes such as bylaws, setbacks, reserves, guidance documents for new developments, assessments, and ongoing maintenance of existing infrastructure.

How Might a Municipality Approach this Task?

Once a municipality has a wetland vision and objectives, there are many opportunities to incorporate these into everyday planning and development activities through both statutory and non-statutory tools. Though not exhaustive, some examples are listed below:

- Include the wetland vision and objectives in an MDP to inform subsequent planning and future development activities.
- Reflect on the wetland vision and how you can achieve its objectives when developing land use (zoning) bylaws. Alternatively, consider the type, location and density of development being proposed in each zone category and how it will affect the achievement of wetland and watershed objectives.
- Where possible, integrate existing wetlands into programmed open space design, greenbelt planning, environmentally significant areas, etc.
- Work with the Government of Alberta (GOA) to ensure that municipal wetland goals and objectives are consistent with principles and procedures under the Water Act, Public Lands Act or Environmental Protection and Enhancement Act.
- Consider engaging the services of an authenticating professional as a consultant or having on staff a planner with this designation for wetland-related planning and development tasks (see Module 4 for more information).
- Encourage both urban developers and municipal planners to incorporate beneficial management practices in the development design, planning review and construction stages such as:
 - Design plans and projects from the start so they minimize overall footprint and wetland disturbance and maximize buffers around all water bodies.
 - Review plans and project proposals to ensure reserves and easements are used to protect buffers, flood zones and riparian edges around wetlands and other water bodies. Implement low impact development surface water systems.
 - During construction, enforce regulations for erosion and sediment control, as well as noxious and invasive species control around wetlands and other water bodies.



- Work with landowners and land trusts to protect significant wetlands using conservation easements or reserve funds to directly purchase wetlands (e.g., City of Edmonton’s Natural Areas Reserve Fund, Strathcona County’s *Legacy Land Program*).
- Work with Ducks Unlimited Canada (DUC) or another wetland restoration organization to restore drained wetlands.
- Work with operations departments (parks and recreation, utilities, transportation and agriculture) to incorporate beneficial management practices in the long-term operation of open spaces.
- Promote municipal wetland vision and objectives in public education documents. Consider and promote the tourism/recreational benefits of wetlands (e.g., birding, hiking) to developers, homeowners, etc.

There are many more examples of how a municipality can embed wetland values and objectives into everyday business. Consider asking other municipalities in the province that have already undertaken a significant amount of wetland conservation work. A few phone calls can likely provide some valuable advice and practical experience that can benefit your wetland efforts. WPACs and DUC have expertise on how to integrate wetland conservation into municipal planning, policies and procedures as they have been involved in various conservation activities. They can be contacted to act as a resource throughout the various planning steps.

Finally, when embedding your wetland objectives into your planning and development processes, make sure you

understand other policies and planning processes that may affect your municipality (e.g., Land Use Framework regional plans, watershed, tributary and lake management plans, other resource plans, transportation/utility corridor plans, climate change adaptation plans, flood mitigation plans, etc.). Both the province and each municipality need to communicate their wetland objectives such that regional and municipal plans come into alignment with one another and both inform other planning and regulatory processes.



Did you know?

Using setbacks to protect wetlands

In 2007, Lac La Biche County, in cooperation with Aquality Environmental Consulting Ltd., completed the Riparian Setback Matrix Model (RSMM) to address the growing need to protect the riparian areas around wetlands and other water bodies within the county. The RSMM creates unique, scientifically defensible development setbacks based on slope, height of bank, depth to groundwater and vegetation. The RSMM was made policy (PS-033) and adopted into the MDP (Bylaw #07-006) on July 10, 2007. For more information, see [Lac La Biche Watershed Management Plan](#) and [Lac La Biche Watershed Management Plan Appendices](#).

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Calgary Environmental Reserve Setback Policy (City of Calgary)	https://www.calgary.ca/planning/publications.html
	Stepping Back from the Water Guide (GOA)	https://open.alberta.ca/publications/stepping-back-from-the-water-a-beneficial-management-practices-guide-for-new-development
	Riparian Web Portal	https://riparian.info/
	Riparian Setback Matrix Model	https://www.parklandcounty.com/en/business-and-development/resources/PLANit-Forms/Parkland-County---RSMM.pdf
	Landowner Guide to the Alberta Wetland Policy (Alberta NAWMP Partnership)	https://abnawmp.ca/2023/04/03/wetland-landowners-guide/
CONTACTS	Your regional WPAC	https://www.alberta.ca/watershed-planning-and-advisory-councils.aspx
	DUC	1-866-479-3825 (DUCK) du_edmonton@ducks.ca

Communicating & Collaborating with Others

What Is Required?

Wetland conservation is often more successful if it involves understanding everyone's values, discussing trade-offs, setting shared goals and directions, and resourcing actions. To be effective, municipalities need to engage others, internally (e.g., elected officials, staff, etc.) and externally (e.g., stakeholders, partners, public, etc.). To leverage communication resources, municipalities can build on existing communication channels and relationships to implement wetland conservation. In some cases, new communication channels and relationships may need to be built.

Municipalities also need to be aware of what is occurring around them in surrounding jurisdictions, in Indigenous communities, in their larger watershed, and in the province including how this may affect their own jurisdiction. Being involved in Watershed Planning and Advisory Councils (WPACs) and Watershed Stewardship Groups (WSGs), monitoring newsletters and articles, attending forums, and working with surrounding municipalities can benefit individual efforts to manage wetlands.

Where necessary, municipalities are encouraged to engage with local Indigenous communities (up-to-date consultation contacts are available at [Proponent-led Indigenous consultations](#)). Information sharing with community members, elders and other Indigenous knowledge sources can often be linked directly to municipal interests. Every Indigenous community is unique, and local capacity can come in a variety of forms. Values that may not have been identified by other organizations, or differing expertise and knowledge, can deliver mutual benefits for all parties.

How Might a Municipality Approach this Task?

Municipalities can share their learnings with others regardless of what stage of wetland management they are in. They can do this through various education and communication tools such as websites and other social media, brochures, newsletters, maps, reports and other

print materials, and workshops and conferences for rural municipalities, WPACs and others. As wetland information is learned, it can be included in regular municipal reporting documents (council reports, status reports, etc.). More interactive forums, such as council meetings, public hearings, webinars, and wetland tours, can also be beneficial.

When setting policy direction and management goals, municipalities may want to engage and consult with the public, landowners, industry and other stakeholders. Consultation processes, such as surveys, open houses, and workshops, may be used to raise awareness, build knowledge, share values and attitudes, provide skills and encourage stewardship actions and behaviour change. Having a communications plan in place can ensure the right stakeholders are consulted with appropriately.

It is particularly important that municipalities have a strong connection with Water Act and Public Lands Act approval bodies. To achieve this, municipalities should know who the appropriate Government of Alberta (GOA) Water Act contact is for their area. They can also invite approvals staff out annually to discuss/review how things are going (challenges, successes, level of understanding, etc.).





Did you know?

Wetland Adventure Day in the County of Vermilion River

In 2017, the Vermilion River ALUS program joined forces with the County of Vermilion River Agriculture Department to create wetland focused, family friendly educational programming. Since then, Wetland Adventure Day has become an annual favorite with local residents and a great opportunity to reach out to the community. Kids can't resist bug-dipping and if they ever get their fill, there's a scavenger hunt, a wetland workbook, games and activities, and free hot dogs. The event has moved to various locations across the county and has worked with partner organizations including Alberta Parks and the North Saskatchewan Watershed Alliance.

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Wetlands Alberta website (Alberta NAWMP Partnership)	https://www.wetlandsalberta.ca/
	Alberta NAWMP Partnership videos (wetland values, roles and responsibilities, etc.)	https://abnawmp.ca/resource_room/#Videos
	Citizen Engagement Toolkit (Alberta Municipalities)	https://www.abmunis.ca/sites/default/files/Advocacy/Programs_Initiatives/citizen_engagement/final_auma_aamdc_cet_2015.pdf
	International Association for Public Participation resources	https://www.iap2.org/
	Landowner Guide to the Alberta Wetland Policy (Alberta NAWMP Partnership)	https://abnawmp.ca/wp-content/uploads/2023/03/Wetland-Landowners-Guide.pdf
	Building Community Partnerships: A Guide for Creating Effective Land and Water Stewardship (GOA)	https://www1.agric.gov.ab.ca/\$department/deptdocs.nsf/all/aesa3354/\$FILE/stewardship_1.pdf
	Agri-Environmental Partnership of Alberta resources	https://www.agpartners.ca/aepa/ResourcesPublications/InformationSheets/tabid/107/ItemId/594/Default.aspx
CONTACTS	GOA Water Act Approvals staff	Toll-free from anywhere in Alberta 310-0000; or http://www.alberta.ca/staff-directory.cfm (enter "Regional Approvals" to get a list of approvals staff including Water Act Approvals; or submit an email via https://www.alberta.ca/contact-government-asking-them-to-identify-the-regional-Water-Act-Approvals-staff-person-nearest-to-your-location .)
	Your regional WPAC	https://www.alberta.ca/watershed-planning-and-advisory-councils.aspx





Case Study

Beaver Hills Biosphere Case Study: A learning place for sustainable development



Situated approximately 20 minutes east of Edmonton, the Beaver Hills/Cooking Lake moraine is a distinct landscape feature that encompasses approximately 1,600 square kilometres (618 square miles). Representing an island of boreal mixed wood forest, the hummocky “knob and kettle” terrain of the moraine forms a patchwork of depressional areas, many of which support wetlands, small lakes and streams. The geographical and biodiversity uniqueness, combined with the cultural history of this area, makes it a region unlike others.

The early days

In 2002, representatives from five neighboring municipalities (Strathcona, Lamont, Beaver, Camrose and Leduc) came together with representatives from the federal and provincial governments, Indigenous communities and organizations, academia, non-government organizations, and industry to explore a bioregional approach to conservation planning in the moraine. This cross-functional approach, which incorporated social, environmental, economic and cultural elements, resulted in the formation of the Beaver Hills Initiative (BHI) which continued for more than a decade. Over that period, BHI members worked on a variety of shared initiatives and coordinated actions with a focus on consensus and science to support sustainable development within the region.

The evolution

In 2016, the Beaver Hills was designated as a biosphere by the United Nations Educational, Scientific and Cultural Organization (UNESCO). This is a global recognition of a collective commitment by the communities within the region to celebrate and advance knowledge, culture, nature, and economy together. As a UNESCO-designated biosphere, the Beaver Hills Biosphere is focused on providing local solutions to global challenges while ensuring the region remains a place in which people live and work in harmony with nature. As one of 19 biospheres in Canada and 738 worldwide, the Beaver Hills Biosphere places a high priority and focus on:

- Conservation of biodiversity and cultural diversity.
- Economic development that is culturally and environmentally sustainable.
- Logistic support, underpinning development through research, monitoring, education and training.

The purpose

The Beaver Hills Biosphere (BHB) is a learning place for sustainable development. It is a distinct geographic area and a resilient landscape in which people across multiple disciplines—federal and provincial governments, Indigenous communities and organizations, academia, non-government organizations and industry—work together to contribute to the environmental, social, economic, and cultural well-being of the Beaver Hills region.

The biosphere was founded on open collaboration among partners and stakeholders and it is sustained by establishing a ‘sense of place’ through the four core principles of user experience including learning, understanding, experiencing and taking action. Organizationally, the BHB is a voluntary, community-based initiative that is not bound by governmental or regulatory mandates or authorities and that does not intrude on property rights, the Rights of Indigenous Peoples, jurisdictional and administrative authorities or on the responsibilities of elected bodies.

The biosphere is that place where partners and stakeholders with compatible and mutual goals and objectives come together to support the biosphere mandate while exploring opportunities to incorporate (where appropriate) core biosphere outcomes into their respective regional policies, plans and actions. The partners embrace this role and strive to contribute to the environmental, social, economic and cultural wellbeing of the Beaver Hills in their initiatives while supporting conservation, sustainable development practices, and encouraging positive experiences between people and nature.

As guests and neighbors on the traditional lands and territories of Indigenous Nations, the BHB acknowledges, respects and invites the knowledges, values and teachings from Indigenous Nations to be part of its ongoing efforts of living and working in harmony with nature and to inspire a positive future in this distinct and important place.

Knowing the Beaver Hills holds significant importance to Indigenous Nations, the biosphere is committed to building reciprocal relations with them, especially those with historical and contemporary connections to the region as it lies within the shared lands of Treaty 6 territory and Métis homelands.

Collaboration is the cornerstone of and key to success of the biosphere. Continued efforts to engage and collaborate with partners and stakeholders will ensure that knowledge, perspectives and the diversity of teachings of Indigenous Nations are respectfully included through community participation, education, active engagement and information sharing.

The strength of the organization is directly attributed to the diversity and capabilities of the Board of Directors, technical advisory committees, partners and stakeholders, communities of practice and dedicated volunteers who are committed to the biosphere’s mission. By fostering this collaborative network, the BHB serves as a forum to share ideas, information, and expertise, discuss emerging opportunities and challenges, and recommend best practices that support and enhance the biosphere.

Key outcomes

The biosphere is committed to the responsible stewardship of a growing repository of institutional knowledge, resources, data, tools and expertise that supports the conservation of biodiversity and cultural diversity, and economic development that is culturally and environmentally sustainable. The sharing of this knowledge among partners and stakeholders to support local decision making and drive the development and implementation of various programs and initiatives is also central to the biosphere’s success. Key initiatives include:

- Completion of a Regional FireSmart Plan
- Completion of Climate Resiliency Modeling with particular focus on surface water management

- Establishment of the Biosphere ArcGIS Database for partners
- Establishment of the Invasive Plant and Surface Water Communities of Practice
- Ongoing research understanding the relationship between Human/Wildlife Co-Existence
- Launch of the Beaver Hills Biosphere interactive Tourism Directory

The path forward

Looking ahead, the biosphere will focus attention on the UNESCO 10-year Periodic Review scheduled for 2026. This review is an opportunity to collate our accomplishments over the past 10 years and look towards the next chapter in the work of the BHB. This process will help us align strategic and work plans with priorities put forward by our partners and communities. It affords us time to reflect on the intent of the initial plans put forward during the UNESCO nomination process and ensure the work planned for the next 10 years continues to meet the needs of our partners and community members who are living and working in harmony with nature in the Beaver Hills to inspire a positive future.

Learn more at <https://www.beaverhills.ca/>.



Promoting Wetland Stewardship

What Is Required?

Municipalities, watershed partnerships and conservation organizations are working to foster wetland stewardship among all Albertans. Municipalities can promote a stewardship ethic to their residents by: providing wetland education and outreach materials and activities; promoting beneficial management practices to acreage and agricultural landowners; and providing incentives.

How Might a Municipality Approach this Task?

Many municipalities provide education and outreach to the public through print material and programming. Some tips to think about when designing such initiatives include:

- Make it personally relevant to your audience (“Why should I care?”)
- Provide early and life-long hands-on educational opportunities for all ages.
- Use innovative tools like photos, videos, storytelling, and webcams.
- Provide homeowner programs such as how to reduce pesticide and fertilizer use, using xeriscaping, etc.

- Consider promoting citizen science programs like eBird Canada, iNaturalist or Call of the Wetland.

Some municipalities, particularly those with a large acreage or agricultural base, may have wetland stewardship activities specifically targeted to their rural citizens. These activities might include:

- Promoting a stewardship ethic (we all are responsible to take care of the land for future generations).
- Encouraging the use of best or beneficial management practices (BMPs) to reduce our impact on the landscape.
- Assisting community stewardship groups to adopt a wetland or other environmentally significant area.
- Collaborating with land trusts (e.g., Nature Conservancy of Canada, Ducks Unlimited Canada (DUC), etc.) to protect wetlands and other significant areas.
- Providing incentives such as recognition or financial benefits to undertake certain actions.

There are many more ways to encourage wetland stewardship. Before you create anything new, you might look around to see what materials already exist. You might also see if other entities are interested in bringing wetland programming to your municipality.





Did you know?

Walking with Moose school field trips

The Walking with Moose program allows grade 5 students in their wetland ecosystem unit to further their education about the ecosystem of Moose Lake/ Cold Lake by learning about biodiversity, healthy shorelines and forest ecology. The first part of the day is spent at the lake collecting and identifying animals and organisms in and around the lake and learning about water quality, wetlands and the larger animals that call these areas home such as shorebirds and fish. The second half of the day is spent on a guided hike through the forest learning about wildlife signs, tracks and vegetation as well as potential threats to the ecosystem such as human impacts.

This annual program is a joint effort of the Lakeland Agricultural Research Association, Moose Lake Watershed Society, Beaver River Watershed Alliance, and the Municipal District of Bonnyville. About 400 students participate in the program every year.



What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Environmental Farm Plan Program	https://www.albertaefp.com/
	DUC conservation programs (Wetland Restoration Lease Program, Revolving Land Conservation Program, Forage Program, etc.)	https://www.ducks.ca/resources/
	Landowner Guide to the Alberta Wetland Policy (Alberta NAWMP Partnership)	https://abnawmp.ca/2023/04/03/wetland-landowners-guide/
	Green Acreages Guide (Land Stewardship Centre)	http://www.landstewardship.org/green-acreages-guide/
	Agri-Environmental Partnership of Alberta has produced a list of landowner wetland conservation incentive programs.	http://www.agpartners.ca/aepa/ResourcesPublications/InformationSheets/tabid/107/ItemId/594/Default.aspx
	Water for Life (GOA)	https://www.alberta.ca/water-for-life-strategy.aspx
	Arctic Grayling - Swimming upstream in the Swan River (Example of collaboration on stream crossing and aquatic habitat, including industry, a First Nation community, and Lesser Slave Watershed Council) (Let's Go Outdoors video)	https://www.youtube.com/watch?v=pehkJpJw34E

What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Wetlands: webbed feet not required, a teaching resource kit for Grade 5 students (GOA)	https://open.alberta.ca/publications/0778539989
	Wetlands Alberta Stewardship page (Alberta NAWMP Partnership)	http://www.wetlandsalberta.ca/stewardship/
	Community Conserve: Environment and Conservation Research for Alberta Municipalities (Miistakis Institute)	https://www.communityconserve.ca
	Inside Education school programs	https://www.insideeducation.ca/classroom-field-trips/wetland-field-trips/
	Bow Habitat Station school programs	https://bowhabitat.alberta.ca/programs/school-programs.aspx
	Wetlands and the West school program (Heritage Park)	https://heritagepark.ca/programs/wetlands-and-the-west/
	Wetland Detectives school program (Heritage Park)	https://heritagepark.ca/programs/wetland-detectives/
	School & Youth Programs at a Glance (Waskasoo Environmental Education Society)	https://www.waskasoopark.ca/application/files/3716/8194/3845/School_Youth_Programs_At_A_Glance.pdf
	Aquatic Field Study youth program (Canadian Parks and Wilderness Society)	https://cpaws-southernalberta.org/education-program/aquatic-field-study-youth/
CONTACTS	Watershed Resiliency and Restoration Program (GOA)	https://www.alberta.ca/watershed-resiliency-and-restoration-program
	Cows and Fish	https://cowsandfish.org/
	Your regional WPAC	https://www.alberta.ca/watershed-planning-and-advisory-councils.aspx



Did you know?

Strategies for coexisting with beavers

Coexisting with beavers is worthwhile because of the valuable benefits they can provide to watersheds. According to **Working with Beavers**:

“It is well understood that beaver attenuate flood peaks, store water during droughts, support later

season release of flows and dramatically improve water quality and quantity by slowing water and trapping sediment. Beavers help stabilize the landscape against the increased variability of drought and flood conditions. They also create critical habitat for both wildlife and fish populations.”

The Working with Beavers website, developed by the Miistakis Institute and Cows and Fish, offers factsheets, videos and many other resources about coexisting with beavers.

Measuring Progress

What Is Required?

To know if they are being successful and achieving wetland management objectives, municipalities should monitor their progress. Monitoring will help to identify what is working well and where changes might be needed to improve progress. Monitoring may use administrative (e.g., number of actions completed) as well as biophysical (e.g., number of restored wetlands) metrics.

Similarly, the Government of Alberta (GOA) measures the progress of Wetland Policy implementation across the province. Under the *Wetland Mitigation Directive*, the province also ensures replacement wetlands are monitored by the proponent for a period of time to ensure they are truly replacing the functions and values that were originally lost.

How Might a Municipality Approach this Task?

A municipality may develop its own metrics and its own monitoring, assessment and reporting process. Alternatively, it might collaborate with other data collection and monitoring agencies (GOA, Watershed Planning and Advisory Councils (WPACs), Ducks Unlimited Canada (DUC), etc.).

WPACs, in particular, are mandated to conduct periodic status reports for their watersheds. These snapshots in time can include wetland health, as well as other watershed components such as water quality, flow, riparian health, and biodiversity.

The case study at the end of this module looks at a collaborative strategy to improve wetland management that includes a component on monitoring and measuring wetland status in the watershed.



Did you know?

Provincial Wetland Policy Performance Assessment

The Alberta Wetland Policy states:

“The Alberta Wetland Policy, its administration, and its effectiveness will be evaluated and reported on periodically to ensure that the goal and outcomes are being met. Performance measures will be developed and used to evaluate progress towards achieving the policy goal and outcomes. The policy and its implementation will be reviewed regularly to reflect the status of the province’s wetlands, and to ensure that advances in wetland science are incorporated. The system will be highly focused on key aspects of policy evaluation and adaptive management.”



What resources are available to help with this module?

	NAME, DESCRIPTION	LINK
RESOURCES	Standard Monitoring Protocols for Evaluating Wetland Performance for Constructed 'Habitat' Wetlands	https://open.alberta.ca/publications/standard-monitoring-protocols-for-evaluating-wetland-performance-for-constructed-habitat-wetlands
	Alberta Biodiversity Monitoring Institute (ABMI) Wetland Field Data Collection Protocols	https://www.abmi.ca/home/publications/501-550/510
	An Assessment of Wetland Health and Values in Alberta's Industrial Heartland	https://www.researchgate.net/publication/283711464_An_Assessment_of_Wetland_Health_and_Values_in_Alberta's_Industrial_Heartland
	Alberta Water Council Wetland Policy Implementation Review	https://www.awchome.ca/projects/wetland-policy-implementation-review-27/



Case Study

NSWA Case Study: A collaborative strategy to improve wetland management in the North Saskatchewan River Watershed

Who was involved?

The North Saskatchewan Watershed Alliance (NSWA) is one of 11 Watershed Planning and Advisory Councils in Alberta, mandated to partner in fulfilling the goals of the province's Water for Life Strategy (2003): Safe, secure drinking water supply; Healthy aquatic ecosystems; and Reliable, quality water supplies for a sustainable economy. The NSWA coordinates watershed planning for the North Saskatchewan River watershed in Alberta. It does so through partnerships and collaborative projects, education and outreach, and reporting on baseline watershed health measures.

The NSWA has assembled structured, regional, multisectoral partnerships of local stakeholders, including municipalities, provincial and federal government representatives, non-government organizations, academics, and others into subwatershed alliances. These alliances meet regularly to encourage greater responsibility in watershed management, recognizing that coordinating actions will improve the watershed for everyone. The NSWA



has provided a platform for discussions to take place, empowering the alliances to act in a coordinated fashion.

Representatives of Technical Advisory Committees (TAC) from the Sturgeon River Watershed Alliance, the Headwaters Alliance, and the Vermilion River Watershed Alliance worked with NSWA staff through several workshops to develop a basin-wide *Strategy to Improve Wetland Management in the North Saskatchewan River Watershed*. Facilitated discussions focused on developing the vision statement and setting goals, based on existing gaps in knowledge, capacity, tools, monitoring, and policy, as well as developing partnerships, policy alignment, and the need to set strategic targets for conservation and restoration of wetlands in the future.

What did we set out to do?

The NSWA, in hearing from members of subwatershed alliances, recognized the need to develop a basin-wide strategy towards wetland management that focused on collaboration across a wide variety of sectors and organizations. Operating in silos, despite having similar goals, many organizations struggle to make real change when it comes to protecting and restoring wetlands.

This strategy intends to identify opportunities to build better wetland management capacity across the watershed through alignment of organizations, ongoing efforts, and capacity. The strategy strives for no further net loss of wetland area in the North Saskatchewan River Watershed (NSRW). Furthermore, through the process of developing the strategy in a collaborative manner, the NSWA hopes that implementation of the strategy will be better supported and more effective

in achieving the goals. Implementation planning for the strategy will be an ongoing, collaborative effort between the subwatershed alliances, NSWA, and other partner organizations. Monitoring wetland status is important to keeping the strategy's implementation on track and is aligned with the NSWA's overall monitoring and reporting on watershed health.

What contacts were instrumental to our work?

While all members of the subwatershed alliances were crucial to developing the strategy, the NSWA recognized that current provincial funding programs for restoring and constructing new wetlands are primarily targeted towards municipalities. Therefore, the NSWA engaged with municipal staff and councillors within the watershed to determine where municipalities experienced capacity gaps and other barriers in utilizing provincial programs and funding. That way additional capacity could be built through collaboration, joint funding proposals, and other opportunities. This also meant that the NSWA engaged with other partners, such as DUC and Alberta NAWMP, who also provide information, funding and other opportunities to improve wetland management.

What was the end result?

The 10-year *Strategy to Improve Wetland Management in the NSRW* contains four strategic approaches and 34 goals to address a multitude of capacity gaps that currently exist. The four approaches are to:

- Collaborate and Take Action: Set and then achieve wetland restoration targets for the NSRW through multi-sector collaborative action.
- Build and Mobilize Knowledge: Inform progressive wetland management in the NSRW through targeted research, mobilizing relevant knowledge, and augmenting management tools.
- Optimize Planning, Policy and Financial Programs: Align and enhance planning, policy, finance and compliance actions across municipal and provincial partners.

- Implement Wetland Monitoring: Track and measure wetland status and restoration across the watershed, while expanding opportunities for wetland monitoring by citizens.

Through actions identified within each goal, the strategy aims to address municipally identified gaps related to financial, human resources, institutional, social and technical capacities that affect a municipality's ability to effectively protect and restore wetlands. In turn, this strategy can help address similar capacity gaps that many other partners experience.

What was the key learning?

A key learning from this initiative is that, when designing solutions and programs, it is imperative to recognize challenges that people and organizations face to meet bottom lines and deliver essential goods and services, and how this may lead to environmental outcomes being viewed as secondary. And it is critical to design solutions that strike an effective balance between the economic realities of individuals, communities and organizations, and environmental stewardship, such as the conservation and restoration of wetlands.

Due to a history of provincial and federal policy that encouraged the drainage of wetlands to enable colonial settlement, there are longstanding perceptions and biases towards wetlands that contribute to the conservation and restoration of wetlands being a very political and polarizing topic. It is important to recognize and understand the societal structures and histories that contributed to these inherent biases in order to establish common ground and values from which to move forward. Additionally, talking to people from "both sides of the fence" can often lead to innovative, effective solutions that may not develop were all perspectives not considered.



Finding Resources for Wetland Conservation

What Is Required?

Throughout the journey of conserving wetlands, municipalities may need to access resources (financial, labour, technical, etc.) for a variety of tasks from developing policy, conducting technical inventories and GIS mapping, and consulting and collecting stakeholder and public input, to restoring wetlands on the ground.

As an example, let's look at wetland restoration. To have an idea of what resources are required for restoring wetlands, it can be useful to get a high-level understanding of the steps involved. As a start, there is proactive targeting of opportunities. This usually involves using inventories to identify drained wetlands. After identifying an opportunity, landowners need to be contacted and negotiated with. Upon approval, actual assessments of the site including surveying can be carried out. If there is potential, certain agreements and contracts (e.g., third-party approvals) need to be drafted. With agreements in place, engineering design, government approvals and construction are carried out. When this work is completed, there are requirements around monitoring and maintenance of the wetland and enforcement of agreements.

Financial resources for wetland conservation activities could come from existing operating budgets or from grants and partner contributions. In addition, non-financial support can be gained through, for example, staff secondments, sharing of technical staff, collaborative opportunities between municipalities and regional partnerships. Manpower and technical expertise can also be found in WPACs, internships, summer students, municipal partners and associations, etc.

How Might a Municipality Approach this Task?

Developing a wetland conservation workplan is a good place to start. A workplan can identify which steps are required, which are priorities and which can wait. A workplan can identify leads as well as potential partners. It can also identify sources of funding, including potential grants that might be applied for before work is initiated.

However, a wetland conservation workplan may not need its own budget or separate resources. There are always benefits to aligning multiple priorities or objectives when



facing resource constraints. For instance, a municipality can include wetland conservation activities as part of its source water protection or flood mitigation workplans.

Whichever approach is taken, various resources and collaborative initiatives are available to assist with this work.

Both the Government of Alberta (GOA) and some non-government groups in Alberta have been experimenting with new tools for funding wetland conservation. One possible example is the use of development credits and payments to landowners for ecological goods and services. These and other such initiatives may provide insight into how municipalities can sustainably fund wetland conservation in the future.

The *Alberta Wetland Replacement Program (WRP)* and the *Watershed Resiliency and Restoration Program (WRRP)* are two key GOA wetland programs. They have complementary focuses:

- **WRP:** This program is specifically for bringing back wetlands that were lost, with a particular focus on restoration in areas with high levels of historical wetland loss. Funds from this program come from fees paid by project proponents to the GOA for impacting existing wetlands. A WRP case study is provided at the end of this module.

- **WRRP:** For activities focused on enhancement of wetlands or on education, data or research related to wetlands, organizations can apply to the WRRP.

Resources can also be sourced externally. For instance, Ducks Unlimited Canada (DUC) provides a suite of programs related to wetlands including the *Wetland Restoration Lease Program (WRLP)*. Under the WRLP, DUC provides compensation to landowners for restoring a historically drained wetland. Under a 10-year agreement, DUC covers all the wetland restoration costs and process steps, and pays the landowner a fair market value for the restored wetland area. Following restoration, the wetland is subject to the Water Act and Alberta Wetland Policy.

Another example of an external funding source is the *Natural Assets Initiative (NAI)*. The NAI is changing the way municipalities deliver everyday services, increasing the quality and resilience of infrastructure at lower costs and reduced risk. The NAI team provides scientific, economic and municipal expertise to support and guide local governments in identifying, valuing and accounting for natural assets in their financial planning and asset management programs, and in developing leading-edge, sustainable and climate resilient infrastructure.

What resources are available to help with this module?

	NAME	DESCRIPTION	LINK
RESOURCES	A Practical Guide to Transfer Development Credits in Alberta (Miistakis Institute)	Explains what development credits are available for Alberta communities and how they can be used for conservation.	http://www.tdc-alberta.ca/
	Environmental Goods & Services Payment Programs (ALUS)	ALUS is a voluntary program that allows for community-led, farmer-delivered conservation initiatives.	https://alus.ca/home/communities/#alberta
	DUC landowner programs	DUC provides a suite of landowner and agricultural programs that reward landowners for provision of ecosystem services and help protect land and water. They include financial incentives and land management advice.	https://www.ducks.ca/resources/landowners/
	Wetland Restoration Lease Program (DUC)	Through DUC-Alberta’s Wetland Restoration Lease Program, landowners are compensated based on current fair market value for restoring previously drained wetlands, under a 10-year lease.	https://ag.ducks.ca/program/restoring-wetlands/
	Alberta Ecotrust	This organization uses a collaborative model to mobilize action on the environment. Funds projects that deliver nature-based solutions and that further climate resilient communities.	https://albertaecotrust.com/what-we-offer

What resources are available to help with this module?

	NAME	DESCRIPTION	LINK
RESOURCES	Green Infrastructure Fund (Government of Canada)	Supports greener communities by contributing to climate change preparedness, reducing greenhouse gas emissions, including water infrastructure.	https://www.infrastructure.gc.ca/plan/gi-iv-eng.html
	Watershed Resiliency and Restoration Program grant (GOA)	Increases the natural ability of the province's watersheds to reduce the intensity, magnitude, duration, and effects of flooding and drought through watershed mitigation measures. Municipalities and non-profit organizations can apply.	https://www.alberta.ca/watershed-resiliency-and-restoration-program
	Wildlife Habitat Canada grant	Supports habitat conservation, restoration and/or enhancement or stewardship projects with a focus on wetlands, waterfowl and migratory game birds.	https://whc.org/grants/
	Sustainable Canadian Agricultural Partnership in Alberta	Grant programs that generate sustainable economic growth in the agricultural and agri-food sector	https://www.alberta.ca/sustainable-cap/
	Emissions Reduction Alberta funding (Climate Change and Emissions Management Corporation)	Funds innovative technology projects, as well as infrastructure upgrades for businesses	https://www.eralberta.ca/apply-for-funding/
	Natural Assets Initiative	Provides scientific, economic and municipal expertise to support and guide local governments in identifying, valuing and accounting for natural assets in their financial planning and asset management programs, and in developing leading-edge, sustainable and climate resilient infrastructure.	https://mnai.ca
	Resilient Agricultural Landscape Program (GOA)	Supports producers to conserve and enhance the environmental resiliency of their agricultural landscapes.	https://www.alberta.ca/resilient-agricultural-landscape-program
	Alberta Wetland Policy implementation	Sets the strategic direction to conserve, restore, protect and manage Alberta's wetlands.	https://www.alberta.ca/alberta-wetland-policy-implementation.aspx
	Alberta Wetland Replacement Program (GOA)	Aims to re-establish wetlands in partnership with Albertans by providing resources for collaborative restoration projects across the province.	https://www.alberta.ca/wetland-replacement-program.aspx

What resources are available to help with this module?

	NAME	DESCRIPTION	LINK
CONTACTS	Land Stewardship Centre	Improves people’s understanding of healthy ecosystems, supports grass-roots community stewardship efforts, and encourages the development of practices and policies that support sustainable resource use.	https://www.landstewardship.org
	Environment Funders Canada (granting foundations)	A national network of philanthropic foundations and other organizations that support efforts to transition towards a more sustainable world. Works with non-profits and communities on environmental programs.	https://environmentfunders.ca



Case Study

Edgar North Pond Case Study: A City of Red Deer WRP project to retrofit a stormwater pond as a wetland

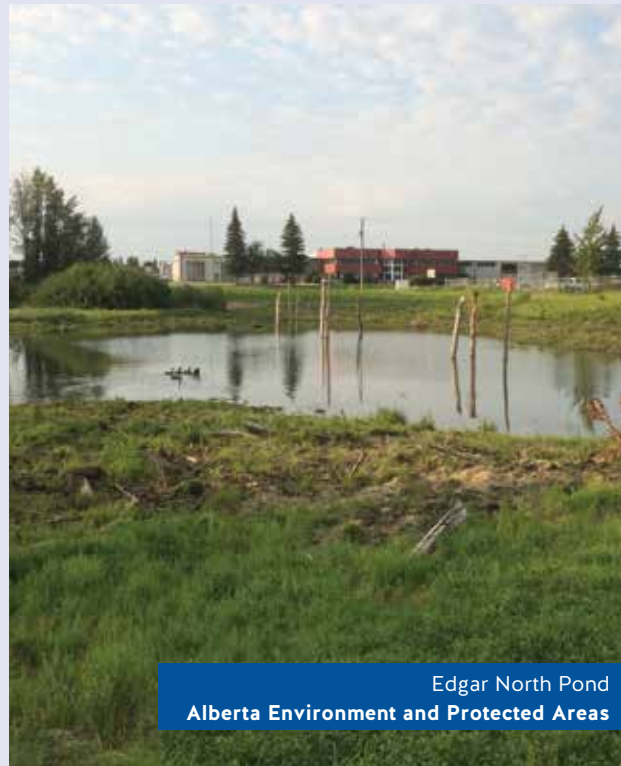
Background

The Wetland Replacement Program (WRP) aims to re-establish wetlands in partnership with municipalities and non-profit organizations by providing resources for collaborative replacement projects across Alberta. A priority of the Alberta Wetland Policy and WRP is to replace wetlands within watersheds that have had the highest amount of wetland loss. Wetland replacement includes creating wetlands through wetland restoration or wetland construction projects. From 2020 to 2024, WRP partners restored 446 hectares of wetland habitat, with almost 16.5 million dollars of WRP funding.

What was done?

The City of Red Deer is a current participant of the WRP and has completed a wetland construction project within the city by retrofitting the Edgar North Pond. The pond was originally designed as a dry pond for stormwater management and has been modified to establish wetland habitat by deepening parts of the basin, providing additional storage capacity, reducing flow velocities and improving water quality, creating 1.3 hectares of wetland area.

The wetland project was constructed in fall of 2022, and monitoring will continue for four years to ensure wetland functions are being established. The total cost of the construction and monitoring of this project is around \$300,000, with all costs being reimbursed to the city by the WRP.



Edgar North Pond
Alberta Environment and Protected Areas



Case Study

County of Grande Prairie Case Study: A journey to becoming a partner with the province to replace wetland losses under the WRP

Summary

Before the Wetland Replacement Program (WRP) was launched, the County of Grande Prairie had been paying fees to replace wetland losses due to impacts from road construction and other activities. However, from the county’s perspective, those fees were too often used for wetland projects in other parts of Alberta. So, the county helped in developing the WRP into a program in which such locally paid fees could be used for local wetland replacement projects.

The Alberta Wetland Policy, released in 2013, was the first step in making that possible. By 2018, the Government of Alberta (GOA) had put in place several directives and processes for implementing the policy, such as establishing wetland loss mitigation requirements and taking over disbursement of wetland replacement fees. However, the GOA still had not finalized the WRP details.

So, in 2019, the county and its wetland specialist consultant met with the GOA to discuss ideas for how such a program might work. Given their positive working relationship with the GOA, they were able to provide some practical input that helped the GOA

create the WRP as it is today. As part of that 2019 effort, the county and its wetland specialist developed a proposal for a WRP pilot project, making the county the first municipality to participate in the program, which was officially launched in 2020.

As of early 2024, the county has constructed five WRP projects.

The WRP process from the county’s viewpoint

Municipalities and non-profit organizations such as Ducks Unlimited Canada and watershed groups can apply to participate in the WRP. The first step for a municipality or other organization is to sign a memorandum of understanding (MOU) to partner with the province. This MOU is a three-year commitment. It allows participants to submit proposals for wetland replacement projects, aiming to complete one project each year. WRP projects are funded by the GOA through wetland replacement fees collected under the Water Act via the Wetland Policy when wetland loss is unavoidable.

One suggestion made by the county and its wetland specialist in 2019 was to use a stepwise approach in the application process for WRP projects. That way the proponent can eliminate inappropriate sites early in the process and focus on developing comprehensive proposals for projects that have a reasonable chance of going forward. The WRP process now uses such a stepwise approach.



One of the county’s wetland construction projects.
County of Grande Prairie, Transportation and Utilities Department

In February of each year, the GOA's Environment and Protected Areas (EPA) staff meet with each participating organization to discuss possible WRP sites the participant is considering for the coming year. The County of Grande Prairie also chats with EPA staff about potential locations of interest on a more informal basis.

Next, the county prepares a letter of intent for each project that it wants to undertake that year. This letter includes estimates of the number of wetland hectares that would result, the likely value of those wetland acres, and the likely costs of the project based on the county's wetland specialist's knowledge of constructing wetlands with equipment, manpower, and hours needed for a generic hectare of wetland.

If the GOA approves the letter of intent, then the county prepares a detailed proposal. If the GOA approves the proposal, then it becomes the contract between the GOA and the county for the project. Each project has its own five-year contract, including one year of construction and four years of monitoring and maintenance.

So far, all the county's WRP projects have been with landowners who had approached the county for help with a problem such as flooding or erosion and were open to the possibility of wetlands, or landowners who had heard about the WRP and were interested in wetlands on their property to enhance water quality and/or wildlife habitat.

Under the WRP, landowners have the option to request a one-time payment to compensate them, for example, for farmland lost due to the creation of a wetland. To date, none of the county's participating landowners with completed projects have requested such a payment, as they see the wetlands on their property as having value to them.

Results so far and next steps

- The County of Grande Prairie has a WRP project process that is working well for the participating landowners, the county, the GOA, and the environment.

- So far, all the county's projects are on private land, but the WRP project manager is on the lookout for the possibility of a large project on the county's land that could showcase WRP benefits.

A few tips for other municipalities interested in the WRP

- For projects with landowners, always keep in mind that it's their land. You need to work with them to develop a project plan that meets their needs, while also meeting the WRP requirements.
- On-the-ground municipal field staff, like road construction foremen and rural extension officers, can be very helpful in directing interested landowners to the municipality's WRP project manager.
- Get a good understanding of what is eligible and not eligible for WRP funding.
- WRP projects must involve wetland specialists known as authenticating professionals. Some municipalities have an authenticating professional on staff, while others hire consultants on a per project basis or on retainer.
- Each WRP project requires a contract between the landowner and the municipality or non-profit organization. That agreement includes a statement that the constructed/restored wetland is subject to the Water Act and the Wetland Policy, and that fact is placed on the land's title.
- Although having a conservation easement on the title is not mandatory for a WRP project, that might be an option if the area is at risk of disturbance or if the landowner wants the federal tax credit for the easement.
- Municipalities and non-profit organizations interested in the WRP can contact the GOA at: aep.wetlandreplacement@gov.ab.ca.

FINAL THOUGHTS

Municipalities play a pivotal role in achieving the goals of the Alberta Wetland Policy through land use planning, local regulations, and collaboration with provincial agencies and non-governmental organizations. Specific actions like developing wetland inventories, setting measurable objectives, and leveraging partnerships ensure that wetlands are not only conserved but also integrated into broader municipal goals.

As municipalities navigate the complex landscape of development and conservation, wetlands serve as a reminder of the power of natural systems to address local challenges and deliver lasting value to Albertans. Integrating wetlands into municipal policies is both a practical necessity and an opportunity to foster resilient communities. Increasing weather wild cards are negatively impacting roads, bridges and utilities. On top of that, municipalities face a growing infrastructure deficit. By turning to the invaluable ecosystem services of wetlands, from mitigating flood and drought impacts to improving water quality and supporting biodiversity, communities can harness a cost-effective method to address these challenges.

Next Steps

This Municipal Wetland Guide aims to assist your municipality and others across Alberta to work collaboratively with other stakeholders to conserve, protect

and restore wetlands through informed management decisions and planning, for the benefit of us all. The guide includes current information, examples, case studies and links to help you in this work. However, wetland conservation in Alberta continues to evolve.

As new resources become available, they will be posted on wetlandsalberta.ca, and efforts will be made to update this guide from time to time. However, any municipality initiating a wetland project might start with an Internet search to see if someone has already done something similar. They might also talk with nearby municipalities and their municipal association (e.g., Alberta Municipalities, Rural Municipalities of Alberta) to see what wetland activities their neighbours are doing. They might also visit the Government of Alberta's Wetland Policy and wetlands pages to see what products are being developed or updated. As well, they could connect with their regional Watershed Planning and Advisory Council or conservation organizations like Ducks Unlimited Canada, ALUS or the Natural Assets Initiative about programs for municipalities.

Best wishes on your municipality's wetland conservation journey!



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