

BRAS D'OR LAKES DEVELOPMENT STANDARDS

Handbook

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Prepared for:

Bras d'Or Lakes Collaborative Environmental Planning Initiative

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ABOUT THIS HANDBOOK

EDM • Environmental Design and Management has prepared this handbook to summarize initiatives for water resource protection to be considered by the municipalities with jurisdiction over portions of the Bras d'Or Lakes Watershed. These initiatives are recommended in our report *Bras d'Or Lakes Development Standards* prepared for the Bras d'Or Lakes Collaborative Environmental Planning Initiative (CEPI). The report presents the results of our extensive study of Best Management Practices (BMPs) for water resource protection in the Bras d'Or Lakes.

The focus of our study was on approaches to protection of water resources that could be implemented at the local level through management and regulation of land development. The study concentrated on four key groups of initiatives:

- Suitability of Lands for Development (see p. 2, below)
- Watercourse Buffers (p. 3)
- Wastewater Management Districts (p. 6)
- Low Impact Development (p. 7).

The handbook summarizes recommendations related to each area. For each recommendation the handbook provides proposed municipal policy suitable for incorporation in a Municipal Planning Strategy (MPS) along with implementation approaches. MPS policy is most often implemented through a Land Use Bylaw (LUB) regulating land development and construction within a designated planning area.

Other devices and approaches are also available. Some policy initiatives can be implemented directly from policy; most notably, four additional categories discussed in our report:

- Amended and Additional Bylaws (p. 9)
- Public Education (p. 10)
- Municipal Practice (p. 11)
- Intergovernmental Cooperation. (p. 11).

Ultimately, water resource protection is in the hands of the community. The highest degree of success will be achieved when municipal employees, residents, businesses, and even visitors are aware of the importance of preserving and protecting watercourses, and fully committed to the achievement of water protection goals. The implementation of initiatives to protect water resources should therefore be as comprehensive as possible and supported by continuous efforts at public education.

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With respect to the former requirement, it is important to note that only limited areas of the Bras d'Or Watershed are currently subject to a MPS. Within the watershed, all of Cape Breton Regional Municipality, Baddeck in Victoria County, Whycocomagh in Inverness County, and Sporting Mountain and St. Peter's in Richmond County are subject to municipal plans and land use bylaws. The policy and bylaw amendments recommended following have been drafted for incorporation in these existing documents, using similar language and formatting. The majority of the area within the watershed, however, is outside these established planning areas. Although all four municipal units have subdivision bylaws, which are also an important implementation tool, and these bylaws apply to the entire municipality in all cases, they cannot incorporate restrictions less stringent than the Provincial Subdivision Regulations except pursuant to MPS policy.

Ultimately, CEPI is seeking to create an Integrated Watershed Management Plan (IWMP) for the Bras d'Or. Ideally, the following recommendations will eventually form a major portion of the content of a comprehensive document. A comprehensive Watershed Management Plan should, however, go beyond just land use controls. The IWMP should cover initiatives beyond land use controls and building regulations. It should address public education, community animation, and ongoing monitoring. To these ends, it must be created in consultation with other levels of government and a full range of stakeholders.

MUNICIPAL WATER RESOURCE PROTECTION INITIATIVES		
Objectives	Suggested Policy	Implementation Approaches
Suitability of Lands for Development		
<i>To identify lands that are marketable for development that also minimize government and societal costs, and impacts on valued environmental features.</i>	<p>Serviced Centres</p> <p>It shall be a policy of Council to encourage development to locate in areas within the Bras d'Or Watershed that are connected to or can feasibly be connected to existing water and sewer networks.</p>	<p><i>See: Bras d'Or Lakes Development Standards, Section 5.1.1, pp. 68-71</i></p> <p>Adopt additional policy in MPS documents applicable to serviced centres within the Watershed, identifying these areas as preferred growth centres. In these areas, permit higher density development and a wider variety of development types to encourage the creation of complete communities, and to enhance the financial viability of development.</p> <p>For the balance of the watershed, adopt policy to minimize the possible negative impacts of development and to preserve the rural character of those areas. This policy could be implemented in the LUB through requirements for restricted land use, larger lots,</p>

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	<p>Residential Land Suitability Assessment For subdivisions or development proposals of more than five lots, it shall be a policy of Council to assess the potential impact of the proposed development on the Bras d'Or Watershed taking into account such considerations as:</p> <ul style="list-style-type: none"> (a) topography, (b) soil type and thickness, (c) proximity to existing water, sewer, and road networks, (d) proximity to other services necessary to support and protect residential development such as police, fire, schools, libraries, parks, and recreation facilities, (e) the existence of water and sewer concerns, and (f) the impact of land development and occupation on the surrounding environment, particularly on the Bras d'Or Lakes and their tributary watercourses. 	<p>and higher yard and setback requirements. Prohibition of the construction of private roads except where associated with Open Space Design approaches (see below) would also assist toward this objective.</p> <p>Require developers through the Subdivision Bylaw to assess the probable impacts of larger proposals and identify measures to mitigate impacts.</p>
Watercourse Buffers		
	<p>20-Metre Watercourse Buffers It shall be a policy of Council to require the retention, through the land use bylaw, of a minimum 20-metre buffer area along all watercourses within the Bras d'Or Watershed to protect the chemical, physical and biological functions of marine and freshwater resources. The bylaw shall generally prohibit all development within the buffer but provisions shall be made to permit existing structures; decks attached to existing structures in the buffer or to legal structures abutting the</p>	<p><i>See: Bras d'Or Lakes Development Standards, Section 5.1.2, pp. 71-78</i></p> <p>Add the following in the General Provisions of the applicable LUB:</p> <p>Notwithstanding anything else in this Bylaw, all lots abutting a watercourse shall retain at least a 20-metre vegetated buffer next to such watercourse.</p> <p>Municipalities that have adopted this type of</p>
<p><i>To limit land use, and preserve natural features and vegetation in areas immediately abutting watercourses so as to maintain the natural filtering qualities of these lands, shade water edges, preserve aesthetic qualities, and protect against the effects of sea level rise, while facilitating controlled public</i></p>		

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<p><i>access.</i></p>	<p>buffer; boardwalks, walkways, and trails of limited width; fences, public road crossings, and driveway crossings; wastewater, storm and water infrastructure; marine dependent uses; fisheries uses; boat ramps; wharfs; conservation uses; parks on public lands; and historical sites and monuments within the buffer. In addition, no alteration of land levels or removal of vegetation in relation to development will be permitted.</p> <p>Watercourse Buffers Up to 75 Metres It shall be a policy of Council to consider the retention of additional watercourse buffer areas to a maximum of 75 metres in which the same or more limited restrictions on land use may be implemented through the land use bylaw, in consideration of the perceived sensitivity of receiving waters, potential for soil erosion, and/or potential inundation from flooding or sea level rise.</p>	<p>comprehensive watercourse buffer in Nova Scotia have not illustrated the requirement on their zoning maps.</p> <p>The applicable LUB may be amended in several ways to accomplish this. An overlay zone is one option. A zone similar to a floodway zone might be adopted in which construction could be appropriately restricted. Pursuant to the policy outlined, this zone could be applied on the banks or shores of any watercourse up to a distance of 75 metres.</p> <p>Restrictions might vary from the standards applicable within the 20-metre buffer areas. For example, it may be possible to allow the removal of vegetation if appropriate construction practices are employed, or to allow development provided sites are filled above the level of potential sea level rise and related storm surge.</p> <p>As this type of restriction would be implemented as a zone overlay, as opposed to a LUBprovision, its application will have to be illustrated on the Zoning Map or Maps.</p>

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	<p>High Risk Land Uses It shall be the policy of Council to include provisions in appropriate zones to ensure adequate separation from all watercourses of land uses in which there may be a reasonable expectation of the storage or handling of materials that may be detrimental to water quality if released to such watercourses such as services stations, specific industrial uses, manure storage facilities, and salt storage sheds.</p> <p>Sea Level Elevation It shall be a policy of Council to restrict, through the land use bylaw, all development on the shores of the Bras d'Or Lakes within a 1.25-metre elevation above the ordinary high water mark.</p> <p>Dedication of Waterfront Lands It shall be the policy of Council to require the dedication of up to 10 per cent of any lands approved for subdivision within the Bras d'Or Watershed for the protection of watercourses. Where any such subdivision may abut a watercourse, Council shall assume ownership of all lands within at least 20 metres immediately abutting the watercourse. Where lands more than 20 metres from a watercourse are deemed not to be of interest to protect the watercourse or to provide access to such watercourse, it shall be the policy of Council to accept cash-in-lieu to be accumulated in a municipal fund for the strategic</p>	<p>Amend applicable sections of the LUB. The most likely amendments will be additional buffer distance in zones permitting land uses of concern. For example, a Highway Commercial Zone might be amended to require that services stations and automobile dealerships be located at least 75 metres from any watercourse.</p> <p>Add the following in the General Provisions of the applicable LUB:</p> <p>Notwithstanding anything else in this Bylaw, no building shall be constructed on the shores of the Bras d'Or Lakes within a 1.25-metre elevation above the ordinary high water mark.</p> <p>This provision does not have to be illustrated on the Zoning Map.</p> <p>Add the following in the applicable Subdivision Bylaw:</p> <p>Before receiving approval of a final plan of subdivision, the subdivider of any property within the Bras d'Or Watershed having frontage on a watercourse shall provide a park dedication to the Municipality which:</p> <p>(a) if in the form of land, shall include all lands within the proposed subdivision within 20</p>

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	acquisition of waterfront lands, particularly on the shores of the Bras d'Or Lakes.	metres of the watercourse, provided such lands do not exceed 10 per cent of all newly created lots, including any proposed parkland, but excluding proposed public streets or highways, private roads, walkways and the remainder of land owned by the subdivider; and (b) if in the form of equivalent value, shall be equal to 10 per cent of the estimated assessed market value of all newly created lots, excluding public streets or highways, private roads, and walkways and the remainder of land owned by the subdivider.
Wastewater Management Districts <i>See: Bras d'Or Lakes Development Standards, Section 5.1.3, pp. 78-81</i>		
<i>To establish a framework or frameworks to address pollution control challenges through the establishment of community-based approaches to managing onsite systems, or small-scale collection and treatment systems.</i>	<p>Wastewater Management Districts for Existing Development Where conditions of sewage disposal in existing areas of development within the Bras d'Or Watershed may threaten the welfare of residents and/or the quality of water resources within the area, it shall be a policy of Council to consider the establishment of a Wastewater Management District to manage and monitor sewage collection and treatment facilities and, where necessary, establish charges for such management and monitoring.</p> <p>Wastewater Management Districts for Proposed Development Where development of more than 20 residential units is contemplated through a single project or where a proposal involving 5 or more units will result in a density of development in excess of one unit per acre, it shall be a policy of Council to consider the establishment of a Wastewater</p>	<p>A Wastewater Management District Bylaw is required for each WMD established. Creation of a model WMD Bylaw would be beneficial but each bylaw must recognize the boundaries of the particular district, the waste disposal technology to be employed, the related management approach, and the specific regime for allocating WMD costs to users.</p> <p>See Wastewater Management Districts for Existing Development preceding</p>

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	Management District to manage and monitor sewage collection and treatment facilities and, where necessary, establish charges for such management and monitoring.	
Low Impact Design <i>See: Bras d'Or Lakes Development Standards, Section 5.1.4, pp. 81-88</i>		
<p><i>To establish policy and adjust regulations as necessary to permit and encourage approaches to land development, site planning, and building design that will manage stormwater runoff directed to watercourses and/or to enhance the quality of such runoff.</i></p>	<p>Open Space Development It shall be the policy of Council to permit, by way of site plan approval and/or development agreement, the clustering of residential development within a property of five or more acres provided that through such clustering the number of dwelling units shall not exceed the number of units that would otherwise be allowed under the applicable zone using conventional development. In considering approval of such development agreements, Council shall consider the following:</p> <ul style="list-style-type: none"> (a) the lot frontages and yards required to minimize the extent of road development, to cluster building sites on the parcel and provide for appropriate fire safety separations; (b) that the building sites for residential units, including all structures, driveways and private lawns, do not exceed approximately 50% of the lot area; (c) that approximately 50% of the land to be subdivided is retained as a non-disturbance area (no alteration of grades, except for the placement of a well or onsite sewage disposal system in the non-disturbance area shall be permitted and provision shall be made for the selective cutting of vegetation to maintain the health of the forest); (d) where the development is to be serviced by groundwater, that there is an adequate supply of groundwater to service the development and that the proposed development will not adversely affect groundwater supply in adjacent 	<p>The municipality should decide which of site plan approval or the development agreement process suits its purposes. The decision should largely be based on the degree of control Council wishes to exercise, recognizing that additional control through a Development Agreement process, may discourage employment of the open space approach. Council may use both regulatory techniques, reserving development agreements for larger developments or for developments requiring adaptations beyond set guidelines.</p> <p>Site plan approval or development agreement procedures must be provided in zones in which Open Space Development will be considered. Normally, these will be rural residential zones in which standard development would require onsite services on larger lots. Specifications for Open Space Development in these zones should address lot size, frontage, and yard requirements, as well as the percentage of land required to be set aside for sewage disposal and treatment, water supply, and land conservation. They may provide latitude for consideration of other LID measures such as permeable paving surfaces,</p>

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	<p>developments, as determined through a hydrogeological assessment conducted by a qualified professional;</p> <p>(e) whether soil conditions and other relevant criteria to support onsite sewage disposal systems can be met or that alternative systems for sewage collection and treatment acceptable to the municipality can be provided;</p> <p>(f) that the development is designed to retain the non-disturbance areas and to maintain connectivity with any open space on adjacent parcels;</p> <p>(g) connectivity of open space is given priority over road connections if the development can be sited on the parcel without jeopardizing safety standards;</p> <p>(h) existing parks, trails, natural networks, and natural corridors are delineated on site and preserved;</p> <p>(i) that the proposed roads and building sites do not significantly impact on any primary conservation area, including riparian buffers, wetlands, 1 in 100 year floodplains, rock outcroppings, slopes in excess of 30%, agricultural soils and archaeological sites;</p> <p>(j) that the proposed road and building sites do not encroach on or are designed to retain features such as any significant habitat, scenic vistas, historic buildings, pastoral landscapes, military installations, mature forest, stone walls, and other design features that capture elements of rural character;</p> <p>(k) that views of the open space elements are maximized throughout the development;</p> <p>(l) that opportunities are taken to orient development to maximize the capture of solar energy;</p> <p>(m) that the proposed development will not significantly impact any natural resource use and that there is sufficient</p>	<p>cisterns, or green roofs, which could justify reduction of the area of conserved land to the extent that they might reduce stormwater flow.</p> <p>Consideration of Open Space Development will probably raise a wider range of concerns for the public than the potential impact of such development on stormwater management, watercourses, and other aspects of the natural environment. Provisions (d) through (n) of the suggested policy address considerations of this type and would be taken into account by the Development Officer in the case of site plan approval, and by Council in the case of an appeal of a site plan approval decision or consideration of a Development Agreement application. These specifications would also be a primary guide for the Nova Scotia Utilities and Review Board when hearing an appeal of a Development Agreement decision by Council.</p> <p>Often, MPSs include "Implementation Policies" that provide further context for the consideration of LUB amendments and Development Agreements. These policies typically invoke consideration by Council of such matters as the adequacy of public infrastructure and the financial capacity of the municipality, and land use and environmental impacts (e.g., noise, traffic, views). These provisions will also bear on consideration of</p>

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	<p>buffering between any existing resource use and the proposed development to mitigate future community concerns;</p> <p>(n) that private roads , and water, sewer and stormwater infrastructure required to service the development can be appropriately managed by future residents of the development;</p> <p>(o) that consideration be given to any other matter relating to the impact of the development on surrounding uses or on the general community.</p> <p>Stormwater Control Measures It shall be the policy of Council to encourage consideration of alternative methods to manage stormwater flows such as:</p> <p>(a) the use vegetated swales, landscaping, and properly designed ditch and culvert systems;</p> <p>(b) pervious surfacing of driveways, walkways; and</p> <p>(c) employment of cisterns, rain barrels, and green roof technology.</p>	<p>Open Space Subdivisions through Development Agreement. Where the combination of existing provisions is considered insufficient further amendment may be required.</p> <p>Additional bylaws or bylaw amendments may be required. For example, amendments may be required to the Subdivision Bylaw to permit alternative street standards, or a development requiring a shared sewage treatment system might require the creation of a WMD with an associated WMD Bylaw.</p> <p>Amend the Subdivision Bylaw and Building Bylaws as necessary to permit the use of alternative technologies.</p>
<p>Amended and Additional Bylaws See: Bras d'Or Lakes Development Standards, Section 5.2.1, pp. 88-91</p>		
<p><i>To explore additional regulatory measures that may have benefits in watercourse protection.</i></p>	<p>Amended and Additional Bylaws for Watercourse Protection It shall be the policy of Council to consider the amendment or adoption of bylaws to improve the handling and disposal of animal waste; manage and control pesticide use; control the grading and removal of topsoil; or other measures that may be beneficial to the protection of watercourses and preservation of water quality.</p>	<p>Consider adoption of one or more of the following:</p> <ul style="list-style-type: none"> • Pesticide Control • Animal Control • Lot grading

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		Any other potential bylaw, regulation, or guideline that may further the objective of protecting and enhancing water resources.
Public Education		See: Bras d'Or Lakes Development Standards, Section 5.2.2, pp. 91-92
<i>To raise public awareness of water quality issues and the means to preserve and protect water quality.</i>	<p>Environmental Education</p> <p>It shall be the policy of Council to use all economical means at its disposal to raise public awareness of water quality issues and the means to preserve and protect water quality. To these ends, Council shall provide information and technical materials to the public, and sponsor events that inform the public of water resource issues and/or involve the public in activities intended to enhance water resources or the related environment.</p>	<p>Promote water resource awareness through all available, cost-effective means. Provide continuing education courses through recreation departments and organize events to involve the community in clean-up and other improvements.</p> <p>Add information on Water Resource protection to municipal Web sites. All of the municipal units on Cape Breton provide general information on a variety of matters. Information on water resource protection will simply augment this useful material. It should be prominently accessible as, for example, a component of the Community Information pages of the CBRM site.</p> <p>Municipal Web sites should link to appropriate pages in other Web sites offering pertinent information such as Environment Canada, Nova Scotia Environment and Labour, the Un'amaki Institute, and CEPI. These agencies are also potential sources of printed information that may be distributed to the interested public.</p>

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Objectives	Suggested Policy	Implementation Approaches
Municipal Practice <i>See: Bras d'Or Lakes Development Standards, Section 5.2.3, p. 92</i>		
<i>To ensure municipal operations are conducted with conscientious concern for the environment.</i>	<p>Municipal Guidelines It shall be the policy of Council to encourage municipal staff to review all practices that may have a detrimental effect on water resources or may be improved in a manner that may enhance water resources or provide an example to the public of means to enhance water resources. Where appropriate, Council shall encourage staff to develop or revise operational guidelines to achieve these ends, with particular attention to road clearing and cleaning, management of municipal buildings and grounds, and handling of potentially hazardous materials by municipal staff.</p>	Prepare a municipal operations manual or amend existing operational guidelines in consideration of water resource protection priorities covering typical municipal functions such as buildings, parks, and grounds maintenance; road construction and maintenance, including salt application and storage; and fleet operation and maintenance.
Coordinated Action <i>See: Bras d'Or Lakes Development Standards, Section 5.2.4, pp. 93-92</i>		
<i>To maximize cooperation among local governments, interested stakeholders and senior governments toward the protection of water resources.</i>	<p>Inter municipal Cooperation It shall be the policy of Council to continue to cooperate with other municipal units in Cape Breton on the protection and preservation of water resources within the Bras d'Or Watershed.</p> <p>Intergovernmental Cooperation It shall be the policy of Council to coordinate efforts to protect and preserve water resources within the Bras d'Or Watershed with senior governments. To this end, Council shall encourage municipal staff to access technical support and funding from senior governments to support watershed planning, assess alternative approaches to water and wastewater management, and upgrade infrastructure relevant to the preservation and enhancement of water quality.</p>	<p>All municipal units in the Bras d'Or Watershed should continue to cooperate with CEPI and other agencies committed to watershed protection and enhancement leading, ultimately, to the creation and mutual endorsement of an Intermunicipal Watershed Management Plan for the Bras d'Or.</p> <p>Local governments and associations should continue to work with Provincial and Federal authorities to protect water resources. Senior governments are a key source of funding support. They also provide information that local authorities can assist to disseminate and guidelines to which local authorities should attempt to conform. Where necessary local governments should encourage or even</p>

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		pressure senior governments to fulfill their responsibilities for water resource protection in such areas as monitoring water quality and controlling discharge from marine vessels.