

Integrated Coastal Management Plan

Grand Pré and Area



Sabrina Hood • Julia Reimer • Hailey Steiger • April 2009



PREFACE

In 2008, bec Consulting was approached by the Municipality of the County of Kings (Kings County) to prepare a coastal management strategy focusing on the effects of sea level rise and climate change as they relate to coastal erosion and flooding in Grand Pré and Area. This strategy will inform the Grand Pré and Area Community Plan being prepared by Kings County.

The goal of this plan is to provide policy that guides coastal development in Grand Pré and Area to adapt to climate change and sea level rise through planned retreated and accommodation.

The overarching goals of the written policy are:

1. To monitor changes at the coastline of Grand Pré and Area;
2. To engage with other organizations and levels of Government to protect the Grand Pré Dykes and Coastline;
3. To educate residents and visitors on coastal management issues specific to Grand Pré and Area; and,
4. To plan for a transition of land uses over time as the coastline changes, without necessarily accommodating growth.

The purpose of this Plan is to describe how development, land uses and activities on or near the coastline of Grand Pré and Area shall be managed within the municipal regulatory framework of Kings County, recognizing that coastal processes will require a transition of uses over time as the coastal environment changes. The Plan is intended to be used in conjunction with the Integrated Coastal Management Background Report.

This work is a senior student thesis project in partial fulfillment of the requirements of the Master of Planning programme at Dalhousie University, Halifax, Nova Scotia, 2009.



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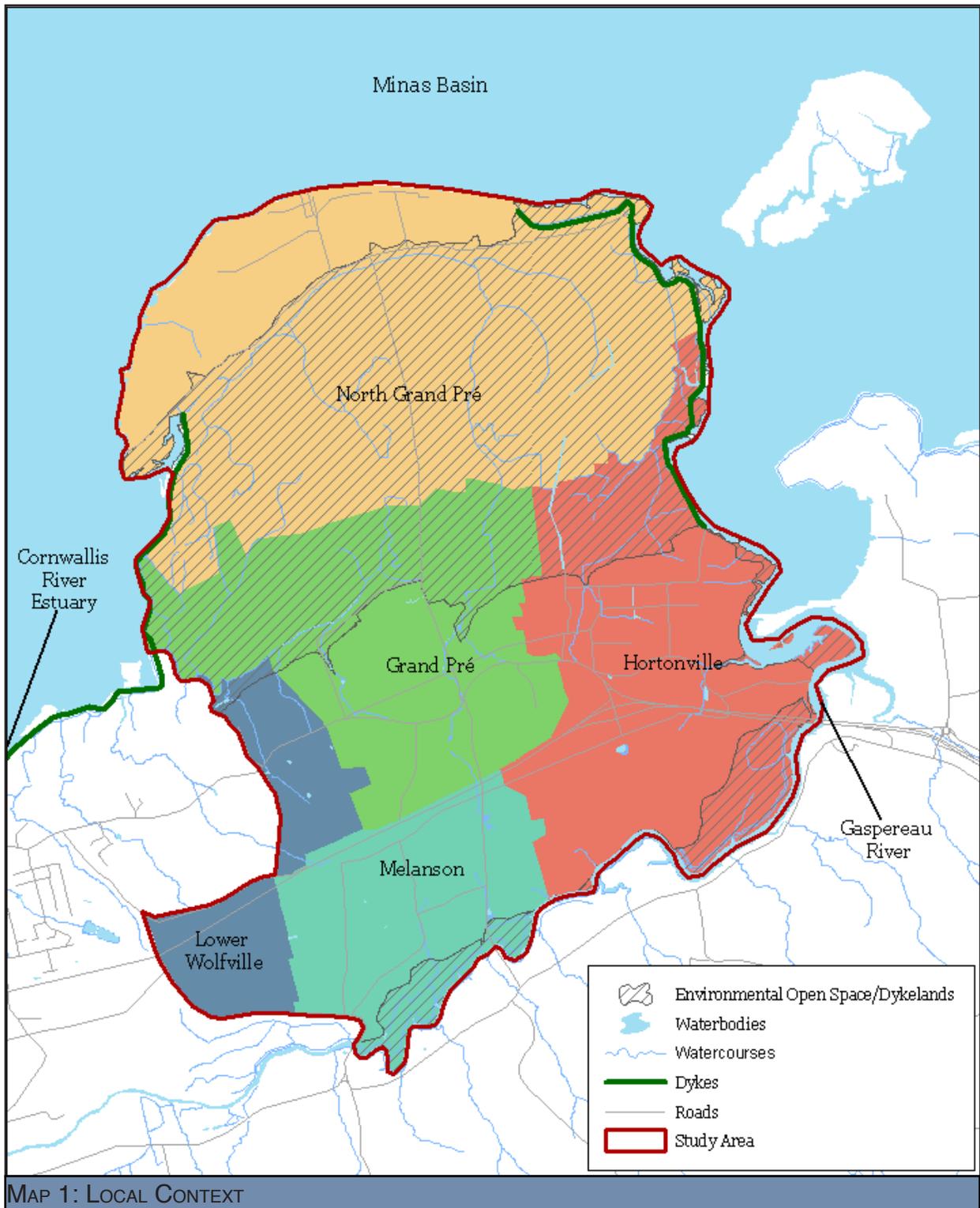


1.0 THE GRAND PRÉ AND AREA COASTAL MANAGEMENT CONTEXT

1.1 Community Features

Grand Pré and Area, a group of five communities that covers approximately 6300 acres, is located in Kings County, on the southern shore of the Minas Basin within the Bay of Fundy. The area is bounded on the east by the Gaspereau River and on the west by the Cornwallis River, and has approximately 22 kilometers of coastline on the Minas Basin. The Grand Pré and Area boundary is defined by the designated Federal Rural Historic District, which includes the communities of Grand Pré, North Grand Pré, Hortonville, Melanson, and part of Lower Wolfville (Map 1). These communities are home to approximately 600 residents altogether. The communities of Grand Pré and Area are rural in nature, dominated by agricultural uses, small clusters of residential development, and a significant seasonal residential development on Long Island.

The Minas Basin experiences the highest tides in the world, which flow in twice per day and can fluctuate up to 14 meters.¹ This high energy environment results in high levels of coastal erosion, and can create a coastal flooding risk, particularly during extreme weather events. While erosion and coastal flooding are natural processes, they become a real problem when they intersect with human-made structures and infrastructure. Because the 0.92 meters of sea level rise projected for the next century is expected to exacerbate the effects of erosion and coastal flooding, Grand Pré and Area is facing a growing challenge. Residents have observed alarming rates of erosion over the course of decades, which is rapidly eating away at properties and reducing public coastal access. Individuals' attempts to protect their own coastlines from erosion have disrupted natural sediment movements, resulting in increased erosion on neighbouring properties without shoreline protection. These factors demonstrate the increasing need for a coastal management plan in Grand Pré and Area to protect people, properties, and infrastructure from the effects of climate change and sea level rise. Currently, the implications of climate change and sea level rise are not addressed in the Kings County Municipal Planning Strategy, and there is little focus on managing development at the coast. As a result, Grand Pré and Area lacks clear direction from the municipality on how to adapt to the impacts of a changing coastline.



1.2 Coastal Environments

Coastal management in Grand Pré and Area must be tailored to the region's two distinct coastal environments (Map 2), each of which presents different management challenges. The northernmost section of the study area, called Long Island, contains a mix of agricultural, residential, and seasonal land uses. Prior to the construction of the dykes, Long Island was a true island, but is now connected to the mainland via the dykelands. The Long Island coastline is approximately 9.2 kilometers long and is largely privately owned. It is on this coastline where a cluster of seaside cottages are located. Long Island's coastline is composed of highly erodible sandstone that, within the high-energy environment of the Minas Basin, is quickly eroding at a rate of approximately 0.40 meters per year, presenting a risk to buildings and structures located on the coast.

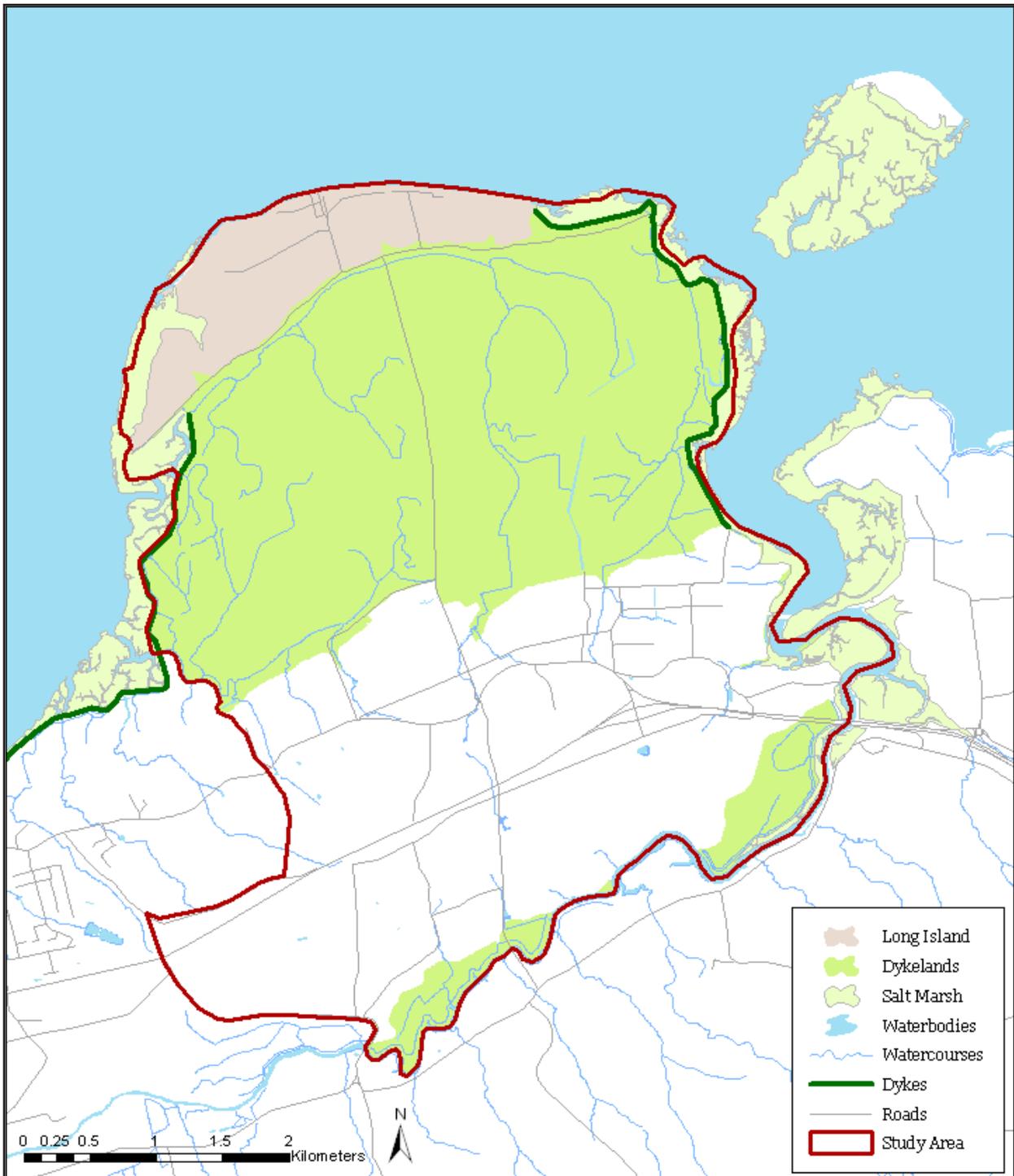
The second coastal environment is the dykes, which form the eastern and western



FIGURE 1: THE TOPS OF THE DYKES ARE POPULAR FOR RECREATION

coastlines of Grand Pré and Area. The dykes are coastal features of great cultural and historic significance to the area. They are a testament to the original Acadian colonists who constructed them and established the area's rural character, and to the Planters who colonized the area after the Acadian deportation. The dykes make up approximately 13 kilometers of coastline in Grand Pré and Area, and are managed by the Nova Scotia Department of Agriculture. As such, the dykes fall within provincial jurisdiction.

The protected dykelands make up approximately 3200 acres of Grand Pré and Area and lie below sea level. The predicted 0.92 meters in sea level rise poses a considerable flooding risk to the agricultural land protected by the dykes, especially considering that the dykes can only protect against an additional 1.0-1.3 meters of water, and much less during the highest spring tides.² Recognizing the dykelands as flood-prone, Kings County has strong policy in place that prohibits permanent development on the dykelands. Nevertheless, if the dykes breach, as they have within the past three years, salt water can render the protected agricultural lands unusable for at least one growing season.



MAP 2: COASTAL MANAGEMENT CONTEXT OF GRAND PRÉ AND AREA

Each of these coastal environments present distinct issues in regards to climate change and sea level rise: the Long Island coastline is highly susceptible to coastal erosion, while the dykes run the risk of overtopping, making them particularly vulnerable to sea level rise and flooding. Many of the community's cultural, economic, and environmental resources are tied to the history of the area, the rural and cultural landscapes, and the fertile agricultural land. However, the protection of these resources depends on the maintenance and protection of the dykes, as well as effective management of the Long Island coastline. Therefore, different management strategies are required for each of these coastal environments.

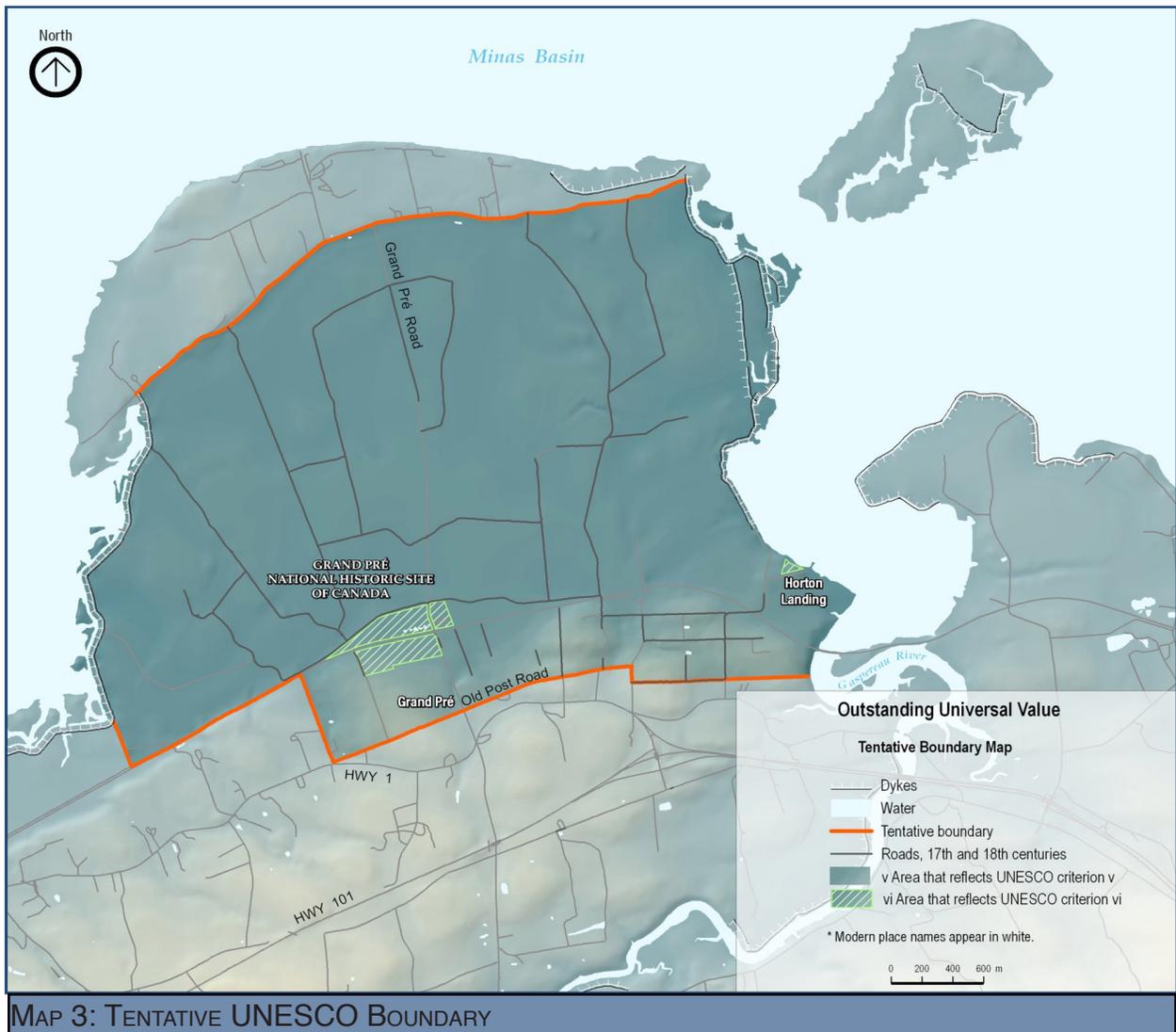


FIGURE 2: MUDFLATS AND WATERS OF THE MINAS BASIN

1.3 Additional Considerations

In addition to the threat of sea level rise, the Bay of Fundy is expected to experience an abnormally high tide in 2012 – 2013 called a saros tide. The saros occurs on an 18-year cycle due to a combination of astronomical influences. During a saros tide, the tidal range could be as high as 16 meters, which would be more than enough to breach the dykes in Grand Pré and Area.³ The probability of these incredibly high saros tides coinciding with an astronomically high spring tide is predicted at approximately 3%.⁴ If a storm surge was to occur during this time, the effects could be devastating to the local community.

Grand Pré and Area is seeking designation as a UNESCO (United Nations Educational, Scientific, and Cultural Organization) World Heritage Site to celebrate its rich history and culturally significant landscapes, in particular, the dykes, dykelands, and the Grand Pré National Historic Site. These resources are directly at risk to damage or inundation in the event that the dykes are breached, which reinforces the relevancy of a coastal management strategy for Grand Pré and Area.





2.0 THE SIGNIFICANCE OF THE COAST

The Grand Pré and Area coastline is highly significant, with important environments, habitats, and land use activities. In addition to its inherent natural values, the coastline contains areas of cultural and recreational significance. This makes it a valuable asset to the community and further demonstrates the need for integrated coastal management.

In Grand Pré and Area, salt marshes have developed along the dykes and in sheltered areas all along the coast. Salt marshes are among the most productive ecosystems in the world, providing essential habitat for shorebirds and marine plants and animals.⁵ For human activities and land uses on the coast, salt marshes also provide a natural



FIGURE 3: EVANGELINE BEACH

coastal buffer, diminishing wave energy and reducing coastal erosion. Because of this buffering, salt marshes are important coastal features as they decrease the risk to humans and water damage to property and infrastructure found behind the coastline.⁶

The red mudflats throughout the Bay of Fundy are a prominent coastal feature in Grand Pré and Area. Perhaps one of the most important ecological functions of the mudflats is that they provide essential feeding grounds for the semipalmated sandpiper, a bird protected under the Migratory Bird Convention Act.⁷ 75-95% of the world population of these birds feed on the Fundy mudflats during their winter migration from Canada's low Arctic to the northern coast of South America.⁸ Because of the importance of the salt marshes and mudflats in the area, a section of Long Island is designated as a Federal Migratory Bird Sanctuary.

The coast is not only environmentally significant, but also provides residents and

visitors with many recreational opportunities, including swimming, walking, picnicking, and fishing. From the coastline of Grand Pré and Area, particularly in the north, there are significant views of Cape Blomidon and the Minas Basin. The dykes also provide the necessary function of protecting the agricultural land of the dykelands. The top of the dykes are also enjoyed by many for recreational walking and biking. Recreational use of the dykes is a contentious issue because they are private property, and walking and riding bicycles or all-terrain vehicles on the dykes can cause damage and destabilization.



3.0 COASTAL MANAGEMENT POLICY

3.1 Plan Goals and Supportive Policy

In response to these issues, this Plan sets out coastal management policies for Grand Pré and Area. The policies describe how development, land uses, and activities on or near the coastline shall be managed within the municipal regulatory framework of Kings County, recognizing that coastal processes will require a transition of uses over time as the coastal environment changes.

This section details the policies that can assist in implementing coastal management for Grand Pré and Area. The policies are intended to provide specific direction and guidance to decision-makers, and are linked to the information and issues addressed in the Integrated Coastal Management Background Report. These policies are organized around four main coastal goals:

1. To monitor changes at the coastline of Grand Pré and Area;
2. To engage with other organizations and levels of Government to protect the Grand Pré Dykes and Coastline;
3. To educate residents and visitors on coastal management issues specific to Grand Pré and Area; and,
4. To plan for a transition of land uses over time as the coastline changes, without necessarily accommodating growth.

The coastal management policies in this section are geographically-based, to account for the distinct coastal environments and coastal management issues in Grand Pré and Area. In Section 4.0 - Implementation, the supportive Land Use Bylaw amendments are outlined.

Coastal Goal 1.0 TO MONITOR CHANGES AT THE COASTLINE OF GRAND PRÉ AND AREA

Objectives

- To evaluate the impacts of sea level rise and coastal erosion over time
- To pursue funding opportunities for research to increase understanding of coastal processes and management options in Grand Pré and Area
- To initiate a coastal monitoring program that increases understanding of coastal management issues, that will inform future coastal management decisions

The municipality has a vested interest in the status of the Grand Pré and Area coastline, and the impacts over time of wave action, storm events, and erosion on coastal infrastructure and property. Through the establishment of a coastal monitoring program, important information will be collected throughout the summer on coastal conditions and changes. Information collected through the coastal monitoring program will include, but is not limited to, accurate coastline mapping, coastal classification, imagery of the coast, tide marks, state of erosion, and the location of erosion control structures. The purpose of the coastal monitoring program is to ensure that the municipality is well informed on the status of the Grand Pré and Area coastline, and to provide an information base so that coastal management policies and actions can respond to coastal issues as they emerge.

Policy 1.1 It is the intention of Council to develop and support an ongoing coastal monitoring program to build up an information database on the conditions of the Grand Pré and Area coastline.

Policy 1.2 Council shall review information collected from the coastal monitoring program on an annual basis to inform and update coastal management policies over time.

Policy 1.3 It is the intention of Council to use information collected on erosion rates to inform coastal shoreline setbacks, and to adjust setbacks as the coastline changes.

Council recognizes that the coastal monitoring program can provide excellent learning opportunities and work experiences for students. Through partnering with local academic institutions, the coastal monitoring program can provide local work opportunities for students.

Policy 1.4 It is the intention of Council to engage in co-operative partnerships with local

academic institutions to provide an opportunity for student participation in the coastal monitoring program.

Council has a vested interest in ensuring that the dykes of Grand Pré and Area are maintained and managed in order to protect municipal land, and recognizes that the municipal role in dyke management is limited due to jurisdictional boundaries. Through the coastal monitoring program, Council intends to include a program for observing and surveying dyke conditions. This information will be provided to the Department of Agriculture to support ongoing dyke management efforts.

Policy 1.5 Council shall work with the Department of Agriculture to exchange information collected through the coastal monitoring program, in order to focus provincial dyke management efforts where they are most needed.

Additionally, Council recognizes the importance of communicating with those whose livelihoods and properties are directly affected by coastal processes in Grand Pré and Area. No one knows the coastline better than those who use it as their homes, livelihoods, or recreation. For this reason, the municipality will undertake public consultation on a regular basis to ensure local concerns and knowledge on coastal issues are heard and addressed.

Policy 1.6 Council shall engage in public consultation to gather local knowledge about the coast and concerns on coastal issues.

The Nova Scotia provincial government is actively developing climate change and coastal initiatives that recognize the role of municipal land use planning in the response to a changing climate. As a result, opportunities such as the Department of Environment Climate Change Adaptation Fund are emerging for municipalities to pursue funding for research and development into local climate change impacts and adaptive strategies.

Policy 1.7 It shall be the intention of Council to pursue external funding opportunities for further coastal research and development on the local impacts of climate change and sea level rise at the coast in Grand Pré and Area.

Coastal Goal 2.0 TO ENGAGE WITH OTHER ORGANIZATIONS AND LEVELS OF GOVERNMENT TO PROTECT THE GRAND PRÉ DYKES AND COASTLINE

Objectives

- To establish partnerships and collaborative relationships with other levels of government to protect the culturally and economically significant resources of the dykes and dykelands
- To ensure adequate information exchange between key dykeland stakeholders

Portions of the Grand Pré and Area coastline are bordered by salt marshes, which reduce wave energy as it approaches the land, providing a natural buffer. Council recognizes that these salt marshes play a vital role in protecting the dykes in Grand Pré and Area against erosion. This not only benefits the dykes themselves, but also the thousands of acres of dykeland that they protect. Department of Agriculture has the power to dyke salt marshes in order to develop them for farmland, and has done so in the past. Understanding this, Council shall encourage the preservation of the size and function of the existing salt marshes.

Policy 2.1 Council shall encourage the province to protect the existing marshlands along the Grand Pré and Area coastline, as shown in Map - Significant Marshlands.

Dyke management is a responsibility of the Grand Pré Marsh Body and the provincial Department of Agriculture. As a result, the municipality is largely disconnected from information on dyke conditions and management. With increased understanding of the impacts of climate change on sea level rise and rates of coastal erosion, keeping the dykes and dykelands protected from the rising seas will be a continual challenge over time. Council recognizes the need for open communication and information sharing between the Department of Agriculture, Grand Pré Marsh Body, and the municipality, so that land use planning and coastal management can continue to provide support to dyke managers. Likewise, many aspects of coastal management fall under the jurisdiction of other provincial departments. Information sharing and collaboration between these groups is necessary in order to effectively manage the coast.

Policy 2.2 It is the intention of Council to create a Coastal Management Working Group, with members from the municipality, the Province, the Grand Pré Marsh

Body, and representatives from other departments and organizations, in order to facilitate communication and information sharing between these bodies and to direct dyke and coastline management where it is most needed.

The Grand Pré National Historic Site has been celebrating the history and culture of Grand Pré and Area since 1961. It is both culturally and economically important to the region, drawing in thousands of visitors per year to learn about the community's rich history and to enjoy the surrounding rural and coastal landscapes. Map B - Flood Risk, shows that due to its low-lying elevation, the Grand Pré National Historic Site is at risk to flooding if the dykes are breached or overtopped. To address this risk, Council will work with Parks Canada, which is responsible for co-managing the Site with the non-profit group Société Promotion Grand Pré, to develop a strategy to protect the Grand Pré National Historic Site. In doing so, Council will enable future generations to celebrate the history of the Grand Pré National Historic Site for years to come.

Policy 2.3 Understanding the flood risk posed to the Grand Pré National Historic Site, Council will collaborate with Parks Canada and the Société Promotion Grand Pré to develop measures to protect and preserve the site in the event of a flood.

Coastal Goal 3.0 TO EDUCATE RESIDENTS AND VISITORS ON COASTAL MANAGEMENT ISSUES SPECIFIC TO GRAND PRÉ AND AREA

Objectives

- To increase understanding of the impacts of human activities on sensitive coastal landscapes
- To further support dyke management efforts by the Department of Agriculture and Grand Pré Marsh Body
- To improve public access to the coast of Long Island
- To inform residents about the adaptive responses of the municipality to erosion and sea level rise

Perhaps the most important stakeholders in coastal management are those who live, work, and play on or near the coast. As Council pursues coastal management initiatives, it is important that landowners and other users of the coast understand the effects of climate change and sea level rise on the coastal landscape, and the coastal management measures that the municipality is taking in response. In addition, public education can inform residents and visitors of the individual actions they can take to participate in and support effective and sustainable coastal management. An example of a public education brochure is found in Appendix 1 – Public Education Example.

Policy 3.1 Council shall create and distribute educational materials on the topic of coastal processes, which will include but shall not be limited to, information on:

- a) Natural coastal processes and functions;
- b) Coastal impacts of climate change and sea level rise;
- c) Impacts of erosion control measures;
- d) Explanation of adaptive approach of municipality;
- e) Coastal sensitivities; and
- f) Voluntary easements to improve public access.

The Grand Pré and Area coastline offers residents and visitors the opportunity to engage in recreational activities such as walking, swimming, and picnicking. These activities are encouraged in appropriate coastal areas, such as Evangeline Beach. The dykes are another popular coastal feature in Grand Pré and Area, where people walk, bike, and use off-road vehicles along the paths on top of the dykes. Unfortunately, these

activities can cause damage to the dykes, making them less effective. Too much human activity on the tops of the dykes makes them more susceptible to erosion and structural failure.

Policy 3.2 It is the intention of Council to erect informative signs to discourage the use of the dykes for recreational purposes. These signs may include but shall not be limited to information on:

- a) Traditional agricultural uses of the dykelands;
- b) Protective function of the dykes; and,
- c) Negative impacts of human activities on the dykes.

Coastal Goal 4.0 TO PLAN FOR A TRANSITION OF LAND USES OVER TIME AS THE COASTLINE CHANGES, WITHOUT NECESSARILY ACCOMMODATING GROWTH

Objectives

- To strengthen land use controls to restrict development in areas at high risk to coastal erosion and flooding.
- To base policies on long-range predictions of sea level rise and coastal erosion

It is recommended that the following set of policies are integrated into the Municipal Planning Strategy of Kings County, potentially as a new section, Section 3.9, entitled “Coastal Management District.”

The erodible sandstone coastline of Grand Pré and Area requires special management; in many areas, the coastal erosion is occurring at concerning levels, and with the effects of climate change and sea level rise, coastal flooding is becoming an issue. In Grand Pré and Area, Council has designated a Coastal Management District, as shown in the Map C - Coastal Management District, to provide for seasonal residential and agricultural land uses that continue to allow human use of the coast while recognizing the limits imposed by natural coastal systems and processes. This approach to coastal management involves establishing setbacks for seasonal and permanent dwellings based on predicted 100-year erosion and flood risk areas, and restricting new permanent dwellings in recognition that coastal processes will require a transition of uses over time as the coastline changes.

Policy 4.1 Council shall establish a “Coastal Management District” (CM) designation. This designation will apply to areas that are recognized as particularly vulnerable to erosion and/or flooding. The district is intended primarily for seasonal residential and agricultural land uses in recognition that coastal processes will require a transition of uses over time as the coastline changes. Land along the Bay of Fundy and Minas Basin coast may be designated as Coastal Management District.

Policy 4.2 Within the Coastal Management District designation, Council may consider rezoning where development of these lands may be hazardous to development as Environmental Open Space (O1).

Policy 4.3 Council shall establish two zones in the Land Use Bylaw for application exclusively within the Coastal Management District:

(a) Coastal Management Seasonal Residential (CM1) Zone

(b) Coastal Management Coastal Agriculture (CM2) Zone

Policy 4.3.1 Pursuant to subsection 4.3(a), the Coastal Management Seasonal Residential Zone will be delineated and labeled “CM1”, as shown in Map D - Coastal Management Zones.

Uses permitted in the CM1 Zone shall include new seasonal dwellings, mobile homes, mini homes, existing agriculture, seasonal tourist business, and campgrounds. These uses will be permitted on private and public roads. Zone requirements pertaining to coastline setbacks and site plan approvals are intended to ensure a degree of caution when developing near coastlines subject to the impacts of sea level rise and coastal erosion.

Policy 4.3.2 Pursuant to subsection 4.3(b), the Coastal Management Coastal Agriculture Zone will be delineated and labeled “CM2”, as shown in the Coastal Management Zones Map.

Uses permitted in the CM2 Zone shall include agricultural uses as part of farm operations, farm supportive uses, greenhouses and nurseries, existing dwellings and new farm dwellings. Zone requirements pertaining to shoreline setbacks and site plan approvals are intended to ensure a degree of caution when developing near changing coastlines subject to the impacts of sea level rise and erosion.

Policy 4.4 The full range of public services will not be available for development on private roads in the CM District. It is Council’s intent that prospective new property owners will be advised that public services will be limited on private roads, at the time any new lot is created or development application is submitted, with an appropriate information note stamped on every approved plan of subdivision.



4.0 IMPLEMENTATION

In order to implement the Integrated Coastal Management Plan, recommendations to the Municipal Planning Strategy and Land Use Bylaw of Kings County are as follows.

4.1 Title and Definitions

It is recommended that definitions of “coast”, “permanent residential dwelling” and “seasonal residential dwelling” are added to “Section 1 - Title and Definitions” within the Land Use Bylaw, to provide more strengthen the language used for coastal policy and to support zoning requirements in the Coastal Management (CM1 and CM2) Zones. When a municipality distinguishes between permanent and seasonal residential dwellings, it indicates that the municipality will not be providing services year round. The recommended additions to the Kings County Land Use Bylaw are (numbering in accordance with Kings County Land Use Bylaw):

- 1.160 Coast means the shore of an ocean or sea, as measured from the ordinary high water mark.
- 1.161 Permanent Residential Dwelling means a housing unit for occupancy for the largest part of the calendar year, that is the householder’s usual or primary residence. This would be a year-round housing unit, excluding migratory and seasonal units.
- 1.162 Seasonal Residential Dwelling means a housing unit for occupancy for less than half of the calendar year. Seasonal residential dwellings include units intended only for recreational use, such as beach cottages, and are not suitable for occupation for more than half of the year. If a seasonal unit were occupied for half of the year or more by the householder, that unit would be considered the primary residence.

4.2 General Provisions

As the purpose of the Integrated Coastal Management Plan is to protect people,

property, and infrastructure from the impacts of coastal flooding and sea level rise, it is recommended that development occurring on land abutting flood-prone areas incorporates this risk of flooding. For this reason, a general provision should be amended into the MPS (numbering in accordance with Kings County Land Use Bylaw).

3.16 Setback from Environmental Open Space (O1) Zoning

Applicants submitting an application for a development permit in all zones that abut an Environmental Open Space (O1) Zone recognized as flood-prone, for a building or structure sited less than 1.5 meters in elevation from the flood-prone area, must take into consideration flooding hazards in the placement of dwellings, accessory structures and driveways. All new dwellings sited less than 1.5 meters in elevation from the flood-prone area must ensure that all entrances to the structure are raised at least 1.5 meters in elevation from the flood-prone area, which must be indicated in a site plan. It is required that applicants seek assistance from a professional engineer on accepted flood proofing measures.

4.3 Zoning

In accordance to policy 4.4, the Land Use Bylaw of Kings County must be amended to reflect these new zones. The two zones, Coastal Seasonal Residential (CM1) and Coastal Management Agricultural (CM2) are intended to strengthen land use controls in areas vulnerable to coastal hazards, allowing for a transition of land uses over time in the Coastal Management District. The new bylaws written for these zones ultimately reflect the need to protect people, property and infrastructure in the Coastal Management District from the long term impacts sea level rise, coastal erosion, and flooding.

4.3.1 CM1 Zone Overview

As shown through a comparison of Map D and Map E in Appendix A, the Coastal Seasonal Residential Zone (CM1) has been redrawn out of the former Coastal Shoreland (CS1) Zone. The CM1 Zone now encompasses a smaller area, and better reflects the existing seasonal settlement, while removing areas currently being used for agriculture. The zone allows existing uses that were once a part of the Coastal Shoreland, reducing the number of non-conforming buildings and structures.

Similar to the Coastal Shoreland Zone, the CM1 Zone still allows for human use of the coastline, but its provisions are shaped to address the coastal impacts imposed by a changing climate. The zone does not allow for new permanent residential dwellings (as defined in Section 1.161) or commercial, but allows seasonal (as defined in Section 1.162) dwellings, mobile homes, mini homes, and campgrounds. These uses focus on both temporary and transitional development and activities, in order to adapt to long-term changes in the coastline. The CM1 Zone requires that all new development conform to either a horizontal (65 foot) or vertical (1.5 meters) setbacks, whichever is largest for the particular lot. This hybrid setback allows for development restrictions based on the topography of the land, rather than horizontal distance from the water alone. These setbacks, also applied in the Coastal Agricultural Zone (CM2), are illustrated in Figures 4 and 5.

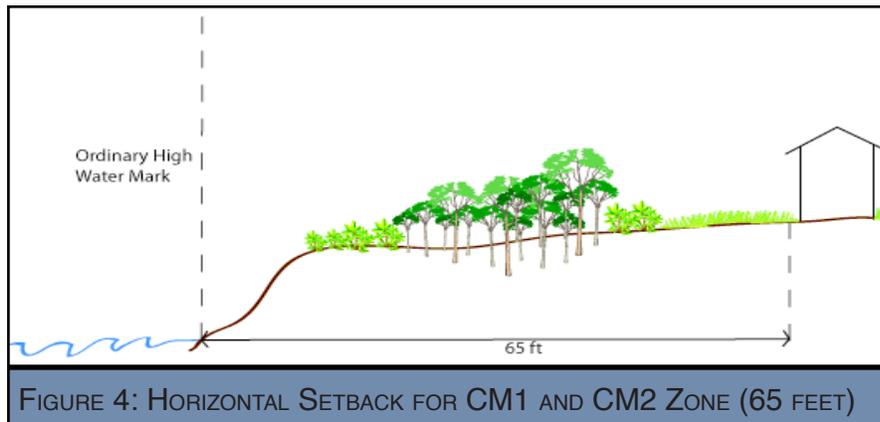


FIGURE 4: HORIZONTAL SETBACK FOR CM1 AND CM2 ZONE (65 FEET)

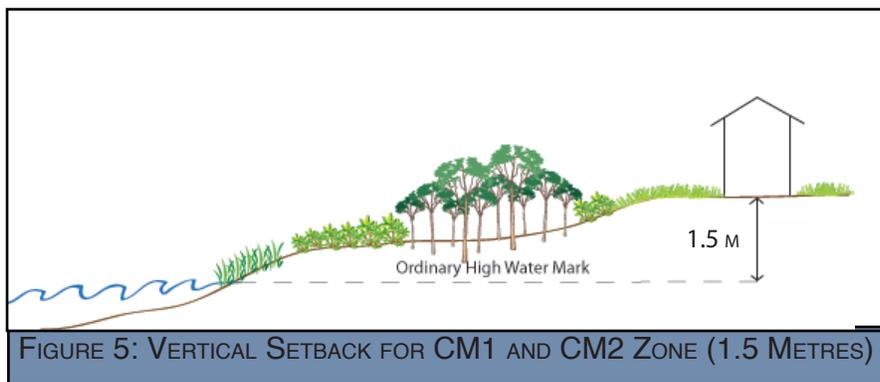


FIGURE 5: VERTICAL SETBACK FOR CM1 AND CM2 ZONE (1.5 METRES)

If a new development cannot meet the coastal shoreline setback due to other setback requirements such as the road setback or side yard requirements, than the latter shall be waived to ensure adequate setback from the coast.

The CM1 zone also requires that new development maintain a vegetated buffer within the setback, and prohibits applicants from disturbing the soil mantle or clearing vegetation except for the purposes of a pedestrian path to the water. Maintaining the vegetation stabilizes the soil, which can slow down coastal erosion, especially on steeper slopes.

The CM1 zone also requires that applicants for a development permit submit a site plan, to ensure that development accounts for the hazards of steep slopes, eroding coastlines, and flood-prone areas, and that it complies with zoning requirements. The site plan must include information on the property line, building envelope, grading, wetlands, steep slopes, accessory structures, shoreline setback and vegetative buffer.

4.3.2 CM2 Zone Overview

As shown through a comparison of Map D and Map E in Appendix A, the Coastal Agricultural Zone (CM2) has been expanded from the former Agricultural Zone (A1). This zone now includes land that is currently being used for agriculture but is zoned Coastal Shoreland. There are many similarities between the CM2 Zone and A1 Zone, with a few adjustments to provide for the risks associated with development in the Coastal Management District. The CM2 zone permits existing uses to remain; however, certain uses are now prohibited. For example residential care facilities and homes for special care are no longer permitted in this zone because of the potential risk of flooding. New non-farm dwellings are also prohibited in this zone to protect existing productive agricultural land and to limit the amount of permanent development occurring in hazardous areas.

Within the CM2 Zone, seasonal residential is permitted, with the special conditions that dwellings can only be built on land classified as class 4 or higher, which are not suitable for agricultural use. Applicants seeking to build a seasonal dwelling must also submit a site plan depicting the same details as are required for site plan approval in the CM1 zone. The site plan approval allows the municipality to ensure that development happens in a way that accounts for the steep slopes, coastal hazards and bylaw requirements.

The setback requirements for farm buildings and structures in this zone are considerably larger than what is required in the CM1 Zone. This is to account for the longevity of permanent dwellings, and is based on 100-year projections for coastal erosion and sea level rise. Development permits shall not be issued for farm dwellings on lots abutting the coast within a horizontal 130 foot setback or a vertical 1.5 meter elevation contour above the ordinary high water mark. The setbacks for seasonal dwellings are the same as in the CM1 zone. Further, seasonal dwellings and farm dwellings must maintain a vegetative buffer within their setback, preserving existing vegetation to protect against erosion. Seasonal residential dwellings in the CM2 zone is required to submit a site plan.

4.3.3 Coastal Seasonal Residential Zone (CM1)

(numbering in accordance with Kings County Land Use Bylaw)

20.1.1 Purpose

The purpose of the Coastal Management Seasonal Residential (CM1) Zone is to provide for human use of the coastline in a way that respects the limits placed on development by natural coastal systems and processes. Recognizing that coastal erosion and flooding are threats within this zone, permanent residential and commercial development is not permitted.

20.1.2 Permitted Uses

No Development Permit shall be issued in a Coastal Management Seasonal Residential (CM1) Zone except for one or more of the following uses and subject to the following requirements:

Seasonal Dwellings

Non-Permanent Dwellings, including mobile homes, double wide mobile homes, and mini homes

Existing Agricultural Uses

Seasonal Tourist Businesses, including mobile canteens

Campgrounds

Non-Profit Camps

Parks and Recreational Uses

Fish Sheds

Boat Houses

Small-Scale Wind Turbines conditional to same height and setback requirements as main building

20.1.2.1 Notwithstanding the provisions in Section 20.1.2, existing single-detached dwellings and uses accessory thereto shall be permitted within the CM1 zone.

20.1.3 General Provisions

20.1.3.1 Part 3 of this Bylaw contains provisions which apply to all zones in the Municipality and includes requirements for watercourse setbacks, swimming pools, signs, and accessory buildings

20.1.3.2 Pursuant to Part 3.2.11 Non-Conforming Uses of this Bylaw, all buildings or uses of land lawfully in existence at the date of the first publication of notice of intention to pass this Bylaw and which do not conform to it may continue to exist subject to the provisions of the Nova Scotia Municipal Government Act or Section 3.7.10 of the Municipal Planning Strategy

20.1.4 Frontage on a Public Road

A development permit may be issued for a seasonal dwelling or non-permanent dwelling to be located on a lot that does not front on a public road.

20.1.5 Coastline Setback

Applicants who are eligible for permits for seasonal residential or non-permanent dwellings on waterfront lots shall adhere to the following restrictions:

20.1.5.1 Clear-cutting and removal of native plant species within the coastline setback is prohibited with the exception of trees and underbrush necessary to permit a pedestrian path to the coastline.

20.1.5.1.1 Notwithstanding subsection 20.1.5.1, this bylaw shall not prohibit the removal of windblown, diseased or dead trees within the coastline setback that are deemed to be hazardous or unsafe.

20.1.5.1.2 Notwithstanding subsection 20.1.5.1, the selective removal of vegetation to manage the overall health of the buffer may be approved by the Development Officer where a management plan is submitted by a qualified arborist, landscape architect, forester, or forestry technician.

20.1.5.2 The soil mantle within the coastline setback should not be altered by cutting, filling, or recontouring of the natural grades or otherwise to every extent possible.

20.1.5.3 No development permit shall be issued for any seasonal residential or non-permanent dwelling on a lot abutting the coast within a 1.5 m elevation contour above the ordinary high water mark, or within 65 ft of the ordinary high water mark, whichever is largest.

20.1.5.3.1 Notwithstanding subsection 20.1.5.3, any existing structure located within the required setback distance may be expanded, renovated or repaired provided that the work does not further reduce the existing setback.

20.1.5.3.2 In the event of damage or destruction to a nonconforming structure in excess of 75% of its market value above the foundation, the nonconforming use will be permitted to continue provided the structure is rebuilt in conformance with the setback requirement in Section 20.1.5.3.

20.1.5.3.3 In the event that the minimum setback from the coast any other setback cannot both be obtained, Council shall permit the reduction of the minimum road setback or minimum side yard to allow conformance with the minimum setback from the coast.

20.1.6 Development Requiring Site Plan Approval

New seasonal or non-permanent dwellings on lots abutting the coast are subject to site plan approval.

20.1.7 Site Plan Content and Criteria

20.1.7.1 No development permit shall be issued unless a clear and accurately scaled plan showing the location and size of development on the property as well as elevations, contours, and required grading, is provided. A site plan shall accurately show the following features:

- a. Property Boundary and any shoreline
- b. Any watercourses, steep slopes and wetlands
- c. Driveway
- d. Building Envelope
- e. Any boathouse or fixed or floating dock
- f. Area that may contain lawns, landscaping and accessory structures
- g. Area to be maintained as natural vegetation
- h. Grading or alteration in elevation or contour of the land
- i. Location of easements
- j. Area within the shoreline setback that may be partially cleared of some vegetation in order to provide for a pedestrian path to the coast
- k. Accurate measurements showing the locations of the above features on the property.

20.1.7.2 Proposed development shown in the site plan shall be in conformance with the following criteria:

- a. Lot requirements contained in section 20.1.8
- b. Shoreline setback requirements contained in Section 20.1.5
- c. Any steep slopes or wetlands are maintained in a naturally vegetated state
- d. Any accessory structures, excluding boathouses or fish sheds, are located within the area identified as lawn or landscaping.

20.1.8 Zone Requirements

Any permitted use in the Coastal Management Seasonal Residential (CM1) Zone must comply with the following regulations:

Coastal Management Seasonal Residential (CM1) Zone	Permitted CM1 Zone Uses
Minimum Lot Area	50,000 sq. ft.
Minimum Lot Frontage	200 ft.
Minimum Front or Flankage Yard	45 ft.
Minimum Building Setback From: a) Road b) Coastline	45 ft. 65 ft. horizontally or 1.5 m vertically, whichever is larger
Minimum Rear Yard a) General b) Accessory Building	40 ft. 20 ft.
Minimum Side Yard a) General b) Accessory Building	20 ft. 10 ft.
Maximum Height of Main Building	35 ft.
Maximum Number of Dwellings Per Lot	1

4.3.4 Coastal Management Agricultural Zone (CM2)

20.2.1 Purpose

The purpose of the Coastal Management Agricultural (CM2) Zone is to provide for agriculture as a dominant use, which is to have priority over all uses, within the limits placed on land use by natural coastal systems and processes. In order to provide for a transition of land uses at the coast over time while respecting the importance of agriculture to economic livelihood, new farm dwellings will be permitted but all non-farm dwellings will be prohibited.

20.2.2 Permitted Uses

No development permit shall be issued in a Coastal Management Agricultural (CM2) Zone except for one or more of the following uses and subject to the following requirements:

- Agricultural Uses as part of the farm operations
- Existing Dwellings, including single detached homes, multi-sectional modular homes, mobile homes, double wide mobile homes, and mini homes
- Farm Dwellings

Farm Supportive Uses, including agricultural warehousing, processing, sorting, grading, packaging and transport facilities tied to the farm operation and located on the farm property.

Fishing Uses

Greenhouses and Nurseries

Parks and recreational uses

Small-Scale Wind Turbines

Wildlife Rescue and Rehabilitation Centre

20.2.3 Uses Subject to Conditions

Bed and Breakfast Operations

Churches

Commercial Livestock Operations

Farm Dwellings

Farm Museums

Farm Tenement and Bunkhouse Accommodations

Farm Market Outlets

Home Day Care

Home Occupations

Seasonal Residential Dwellings

Wineries

20.2.4 General Provisions

20.2.4.1 Part 3 of this Bylaw contains provisions which apply to all zones in the Municipality of the County of Kings, including sign regulations, swimming pools and other uses.

20.2.4.2 Regulations for rural home occupations, bed and breakfast operations and home day care, cemeteries and churches, and storage of dangerous goods are set out in Section 10.1 of this Bylaw.

20.2.4.3 Pursuant to Part 3.2.11 Non-Conforming Uses of this Bylaw, all buildings or uses of land lawfully in existence at the date of the first publication of notice of intention to pass this Bylaw and which do not conform to it may continue to exist subject to the provisions of the Nova Scotia Municipal Government Act or

Section 3.7.10 of the Municipal Planning Strategy

20.2.4 Special Requirements

20.2.4.1 Farm Dwellings are permitted provided they are accessory to a bona fide farm.

20.2.4.2 Farmers who do not qualify as bona fide farmers because they re new farmers or are moving from another jurisdiction to a farm in Kings County, may qualify as a bona fide farmer if they meet the following criteria:

- a. The submission of a professional business plan for the farm operation, which demonstrates the intention to farm.
- b. Demonstration of the intent to farm by showing proof of farm financing or investment in farm related infrastructure (machinery, construction of barns, purchase of livestock or plants/trees/seeds, etc.).
- c. When moving a farm operation to Kings County from another jurisdiction, a demonstrated history of farming in another area of Canada, Nova Scotia, or internationally, where farming constituted the majority of income.
- d. Be registered with the Province of Nova Scotia under the Farm Registration Act as a registered farm.
- e. The farm operation must be at least 20 acres in size and 15 of the 20 acres must be assessed as resource, except in the cases of livestock operations where it may be less.
- f. Other information as required by the Development Officer.

Anyone who qualifies under the above provisions must enter into a development agreement before seeking a development and building permit for a farm dwelling.

20.2.6 Special Requirements: Farm Museums

Accessory uses to a farm museum may include:

- a. The retail sale of crafts and gifts within facilities or spaces that, combined, are no greater than 750 square feet in size.
- b. Food service such as a restaurant or tea room that, combined, are no greater than 750 square feet in size.

20.2.7 Special Requirements: Farm Tenement and Bunkhouse Accommodations

Farm tenement buildings and bunkhouse accommodations are permitted on a farm provided:

20.2.7.1 The buildings are located on a farm property and not on a separate lot severed from the farm.

20.2.7.2 The general requirement of a maximum location of one dwelling per lot shall be waived.

20.2.8 Special Requirements: Seasonal Residential Dwellings

Seasonal dwellings shall not be permitted:

20.2.8.1 On class 2 or 3 soils as identified on the 2001 Generalized Soil Capability Map for Kings County or on active class 4 agricultural land as identified on the Agricultural Land Use Information Map compiled in 2007, except where one or more of the following conditions apply and are subject to the site plan provisions in 20.2.8.3:

- a. such uses were in existence as of May 2, 1992; or
- b. the use is to be located in an abandoned resource extraction site shown as gravel and borrow pits and quarries on the Sand and Gravel Occurrence Map Series produced by the Nova Scotia Department of Energy or a site for which a permit for extraction has been issued by the Nova Scotia Department of Environment and Labour; or
- c. the use is to be located on a lot created prior to August 1, 1994. Proof of

deed registration, or final subdivision approval in accordance with the Kings County Subdivision Bylaw, is required; or

- d. the lands to be developed are comprised of inactive class 4 or lower capability soils as determined by an Agricultural Suitability Report. The report is subject to the requirements contained in 20.2.8.3

20.2.8.2 Agricultural Suitability Reports shall conform to the following criteria:

- a. The professional preparing the report must have a demonstrated expertise in the area of soil science, agricultural suitability and agriculture land assessments, such as an Agrologist. The Development Officer shall require documentation showing educational history, work history and any other relevant information to demonstrate expertise.
- b. The report shall include the following:
 - i. A map detailing the current soil classification, according to the Generalized Soil Map adopted by the Municipality, and another map showing the findings of the professional with regard to the agricultural capability on the parcel in question.
 - ii. Analysis of the Canada Land Inventory (CLI) criteria and other relevant factors, such as but not limited to those criteria below, to demonstrate why the lot in question should not be considered class 2, 3 or 4 soils. The report must use accepted and scientifically defensible approaches:
 - Climate
 - Drainage and salinity
 - Land use history
 - Location of adjacent farming activities and type
 - Other issues as required
 - Slope
 - Soil Classification
 - Soil test pits, if deemed necessary
 - Stoniness
- c. In the opinion of the Development Officer, if the report submitted

by the professional is incomplete or inconclusive, the Development Officer may require the report to be reviewed by another professional, at the expense of the applicant.

- d. The Development Officer will circulate the report to the Nova Scotia Department of Agriculture and the Kings County Federation of Agriculture for comment and input.
- e. A seasonal residential dwelling may be constructed if the report demonstrates to the satisfaction of the Development Officer that 60% of the lot is not class 2, 3 or active class 4.
- f. The dwelling must conform to the lot requirements contained in Section 20.3.20.

20.2.8.3 Any seasonal residential dwelling permitted under Part 20.2.8.1 shall be permitted by site plan approval in accordance with the following criteria:

- a. Dwellings are encouraged to locate as close to the front lot line as possible and shall be within 100 feet of the front lot line, unless restricted by topography or it is shown that the impact on agricultural lands is greater than if the dwelling was placed elsewhere.
- b. The lot, or the portion of the lot, that is to be used for a seasonal residential use shall have, where necessary, vegetative buffering between it and surrounding croplands to minimize the spread of fertilizer, pesticides and other sprays, and to provide a visual and sound buffer. This shall be a consideration even where there is a common ownership of the lot in question and surrounding properties.
- c. Lots abutting the coastline that are to be used for seasonal residential use shall be subject to the coastline setback requirements outlined in Section 20.2.9.
- d. Lots abutting the coastline that are to be used for farm dwelling use

shall be subject to the coastline setback requirements outlined in Section 20.2.10.

20.2.9 Seasonal Residential Coastline Setback

Applicants who are eligible for permits for seasonal residential dwellings on waterfront lots shall adhere to the following restrictions:

20.2.9.1 Clear-cutting and removal of native plant species within the coastline setback is prohibited with the exception of trees and underbrush necessary to permit a pedestrian path to the coastline.

20.2.9.1.1 Notwithstanding subsection 20.1.5.1, this bylaw shall not prohibit the removal of windblown, diseased or dead trees within the coastline setback that are deemed to be hazardous or unsafe.

20.2.9.1.2 Notwithstanding subsection 20.1.5.1, the selective removal of vegetation to manage the overall health of the buffer may be approved by the Development Officer where a management plan is submitted by a qualified arborist, landscape architect, forester, or forestry technician.

20.2.9.2 The soil mantle within the coastline setback should not be altered by cutting, filling, or recontouring of the natural grades or otherwise to every extent possible.

20.2.9.3 No development permit shall be issued for any seasonal residential dwelling on a lot abutting the coast within 65 ft. of the ordinary high water mark, or within a 1.5 m elevation contour above the ordinary high water mark, whichever is largest.

20.2.9.3.1 Notwithstanding subsection 20.1.5.3, any existing structure located within the required setback distance may be expanded, renovated or repaired provided that the work does not further reduce the existing setback.

20.2.9.3.2 In the event of damage or destruction to a nonconforming

structure in excess of 75% of its market value above the foundation but the structure may be rebuilt for the same use provided it conforms with the setback requirement in section 20.1.5.3.

20.2.9.3.3 In the event that the minimum setback from the coast any other setback cannot both be obtained, Council shall permit the reduction of the minimum road setback or minimum side yard to allow conformance with the minimum setback from the coast.

20.2.10 Farm Dwelling Coastal Setback

Applicants who are eligible for permits for farm dwellings on waterfront lots shall adhere to the following restrictions:

20.2.10.1 Clear-cutting and removal of native plant species within 65 ft. of the ordinary high water mark is prohibited with the exception of trees and underbrush necessary to permit a pedestrian path to the coastline.

20.2.10.1.1 Notwithstanding subsection 20.1.5.1, this bylaw shall not prohibit the removal of windblown, diseased or dead trees within 65 ft. of the ordinary high water mark that are deemed to be hazardous or unsafe.

20.2.10.1.2 Notwithstanding subsection 20.1.5.1, the selective removal of vegetation to manage the overall health of the vegetated buffer may be approved by the Development Officer where a management plan is submitted by a qualified arborist, landscape architect, forester, or forestry technician.

20.2.10.2 The soil mantle within the coastline setback should not be altered by cutting, filling, or recontouring of the natural grades or otherwise to every extent possible.

20.2.10.3 No development permit shall be issued for any farm dwelling on a lot abutting the coast within a 130 ft. of the ordinary high water mark, or within a 1.5 m elevation contour above the ordinary high water mark, whichever is largest.

20.2.10.3.1 Notwithstanding subsection 20.1.5.3, any existing structure located within the required setback distance may be expanded, renovated or repaired provided that the work does not further reduce the existing setback.

20.2.10.3.2 In the event of damage or destruction to a nonconforming structure in excess of 75% of its market value above the foundation, the structure may be rebuilt for the same use provided it conforms with the setback requirement in section 20.1.5.3.

20.2.10.3.3 In the event that the minimum setback from the coast any other setback cannot both be obtained, Council shall permit the reduction of the minimum road setback or minimum side yard to allow conformance with the minimum setback from the coast, provided this reduction does not have an impact on surrounding agricultural uses or increase spread of fertilizer, pesticides and other sprays.

20.2.11 Special Requirements: Commercial Livestock Operations

Commercial Livestock Operations must comply with the following conditions:

20.2.11.1 New livestock buildings shall not be located within one thousand (1,000) feet of a hamlet (excepting Grand Pré) or a growth centre where abutting lands are zoned for residential or institutional use.

20.2.11.2 New buildings, including manure storage facilities, shall be located a minimum distance of three hundred (300) feet from a well, watercourse, coastline, or dwelling on an adjacent property.

20.2.11.3 Livestock operations located within the separation distance specified in Section 20.2.11.1 shall be conforming provided they were in existence prior to May 2, 1988. Such operations shall be permitted to expand or rebuild. Permitted expansions of existing livestock operations shall include barn or other facility additions, new barn construction, and changes from one form of livestock to another. In no case shall the livestock operation expansion encroach more than twenty (20%) of the existing distance between the nearest wall of the livestock

operation and the affected growth centre, hamlet, or seasonal residential dwelling.

20.2.11.4 Any new livestock operation or expansion to an existing livestock operation after January 1, 2003 must have a manure disposal plan approved by the Province of Nova Scotia.

20.2.12 Special Requirements: Farm Market Outlets and Wineries

Farm market outlets and wineries must comply with the following conditions:

20.2.12.1 The building shall be located on the farm property or on a lot adjacent to the farm operation.

20.2.12.2 Produce, wine or other agricultural products from the farm must comprise a minimum of sixty per cent (60%) of the annual marketed goods.

20.2.12.3 Parking must be provided on the site at a ratio of one (1) parking space for each sixty (60) square feet of floor area.

20.2.13 Soil Capability Mapping

20.2.13.1 Where soil classification within the Agricultural Coastal Management (CM2) Zone has changed in accordance with Section 4.2.5 of this Land Use Bylaw from Class 4 or poorer quality soils on any soils map previously adopted as part of the Plan to Class 2 or 3 on the 2001 Generalized Soil Capability Map for Kings County, uses legally in existence at the effective date of the latter continue to be permitted uses.

20.3.14 Soil Map Interpretation

Where the 2001 Generalized Soil Capability Map for Kings County indicates that a parcel or lot of land has a dual soil classification the following procedure shall be followed:

20.3.14.1 Where, within the parcel or lot of land, the soil map indicates that the proportion of one soil class is greater than another (i.e. the amount of Class 3 is greater than Class 4) the entire parcel or lot of land will be interpreted as being

the same as the dominant class, e.g. Class 3.

20.3.14.2 Where, within the parcel or lot of land, the soil map indicates the amount of one soil class is equal to another soil class (i.e. Class 3 = Class 4) the parcel or lot of land will be interpreted as being the soil class with the higher number, i.e. 4.

20.3.15 Uses Not Requiring a Permit

Agricultural uses may occur without a development permit but any structure required with the use shall not be erected without the issuance of a development permit.

20.3.16 Minimum Rear Yards

The minimum rear yard regulation shall be waived for boat houses and fish sheds where the rear lot line abuts a body of water.

20.3.17 Fronting on Public Street

A development permit may be used for an agricultural use to be located on a lot which does not front on a public street provided such use does not include a dwelling.

20.3.18 Accessory Building in Front Yards

Accessory buildings are permitted to be located in the front yard or flankage yard of a lot but in no case shall be built closer to the front lot line or flankage lot line than the minimum distance required by this Bylaw for the main building on the lot.

20.3.19 Topsoil Removal

Topsoil removal for commercial sale is prohibited, other than removal that is incidental to sod farming, the sale of plants by nurseries and greenhouses, peat moss extraction, and excavation associated with the construction of buildings and infrastructure such as roads.

20.3.20 Zone Requirements

Any permitted use in any Agricultural Coastal Management (CM2) Zone must comply with the following regulations:

Agricultural Coastal Management (CM1) Zone	Farm Dwellings, Wineries, Churches, Farm Museums	Farm Buildings (except Commercial Livestock Buildings), Farm Market Outlets, Greenhouses, and Nurseries	Seasonal Residential Dwellings
Minimum Lot Area: a) General b) Cottages within 75 ft. of shoreline c) Semi-detached dwelling	20,000 sq. ft. 40,000 sq. ft. 10,000 sq. ft.	20,000 sq. ft.	50,000 sq. ft.
Minimum Lot Frontage a) General b) Semi-detached dwellings	100 ft. 50 ft.	—	200 ft.
Minimum Front or Flankage Yard	45 ft.	120 ft.	45 ft.
Minimum Side Yard a) General b) Semi-detached dwellings -common side lot line - other side c) Accessory Buildings	20 ft. 0 ft. 20 ft.	40 ft. 40 ft.	20 ft. 10 ft.
Minimum Setback from Coastline	130 ft.	65 ft. horizontally or 1.5 m vertically, whichever is larger	65. ft horizontally or 1.5 m vertically, whichever is larger
Maximum Height of Main Building	35 ft.	55 ft.	35 ft.
Maximum Height of Accessory Building	20 ft.	55 ft.	20 ft.



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Figure 1: <http://www.flickr.com/photos/jhalbrook/841598138/>

Figure 2: <http://www.flickr.com>

Figure 3: <http://www.knightswoodbandb.ca/images/Evangeline%20Beach%20view.jpg>

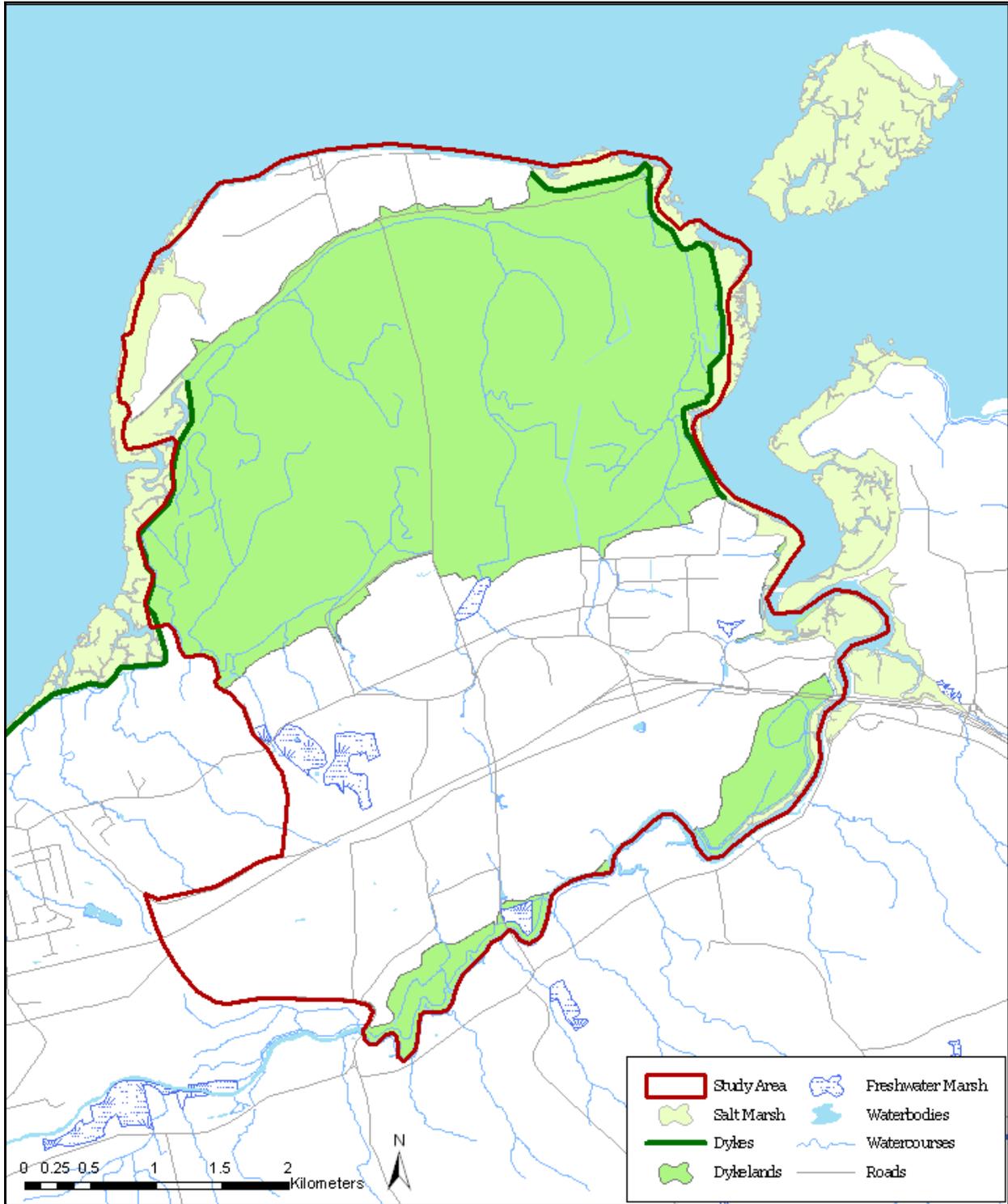
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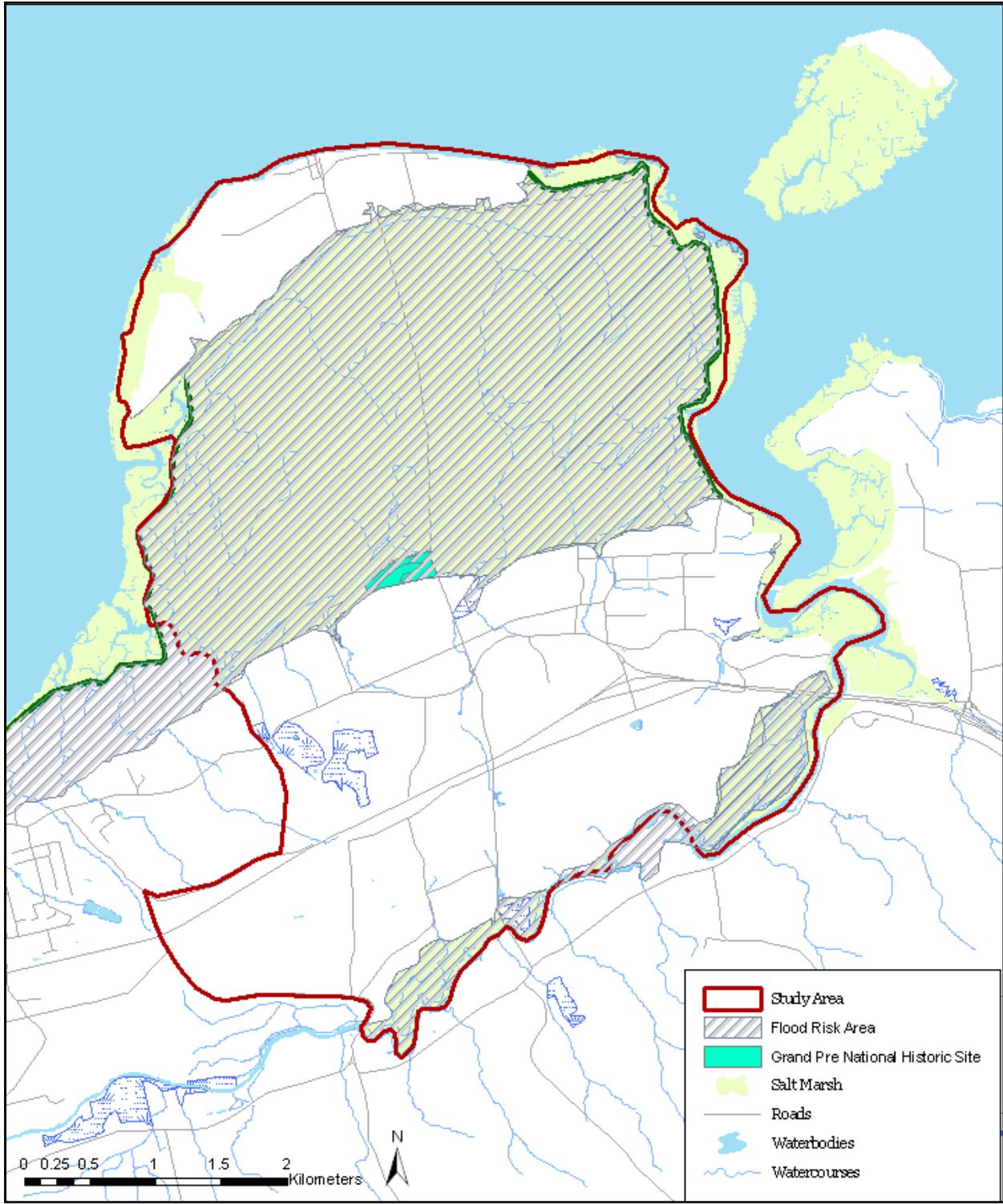
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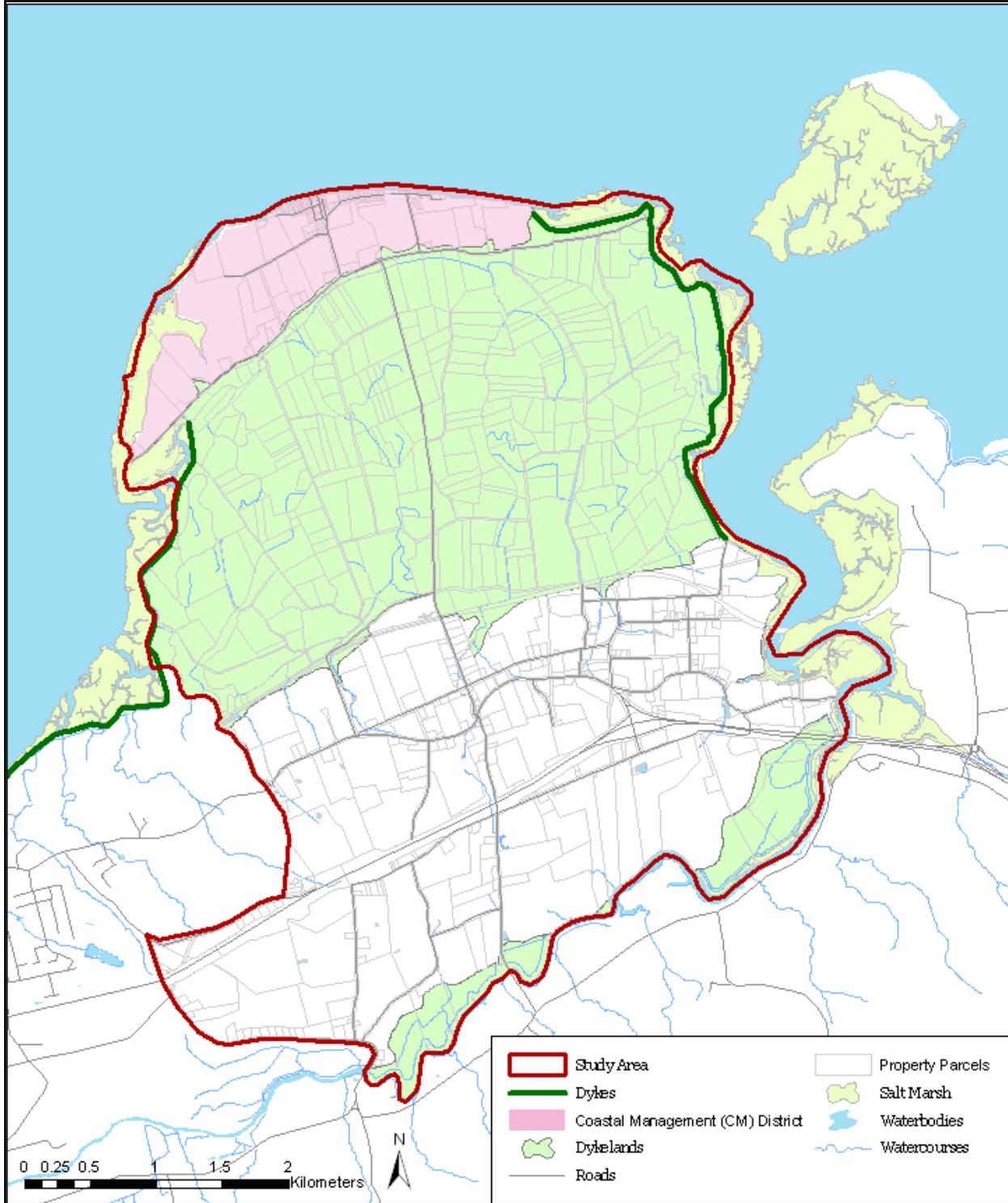
APPENDIX A - MAPS



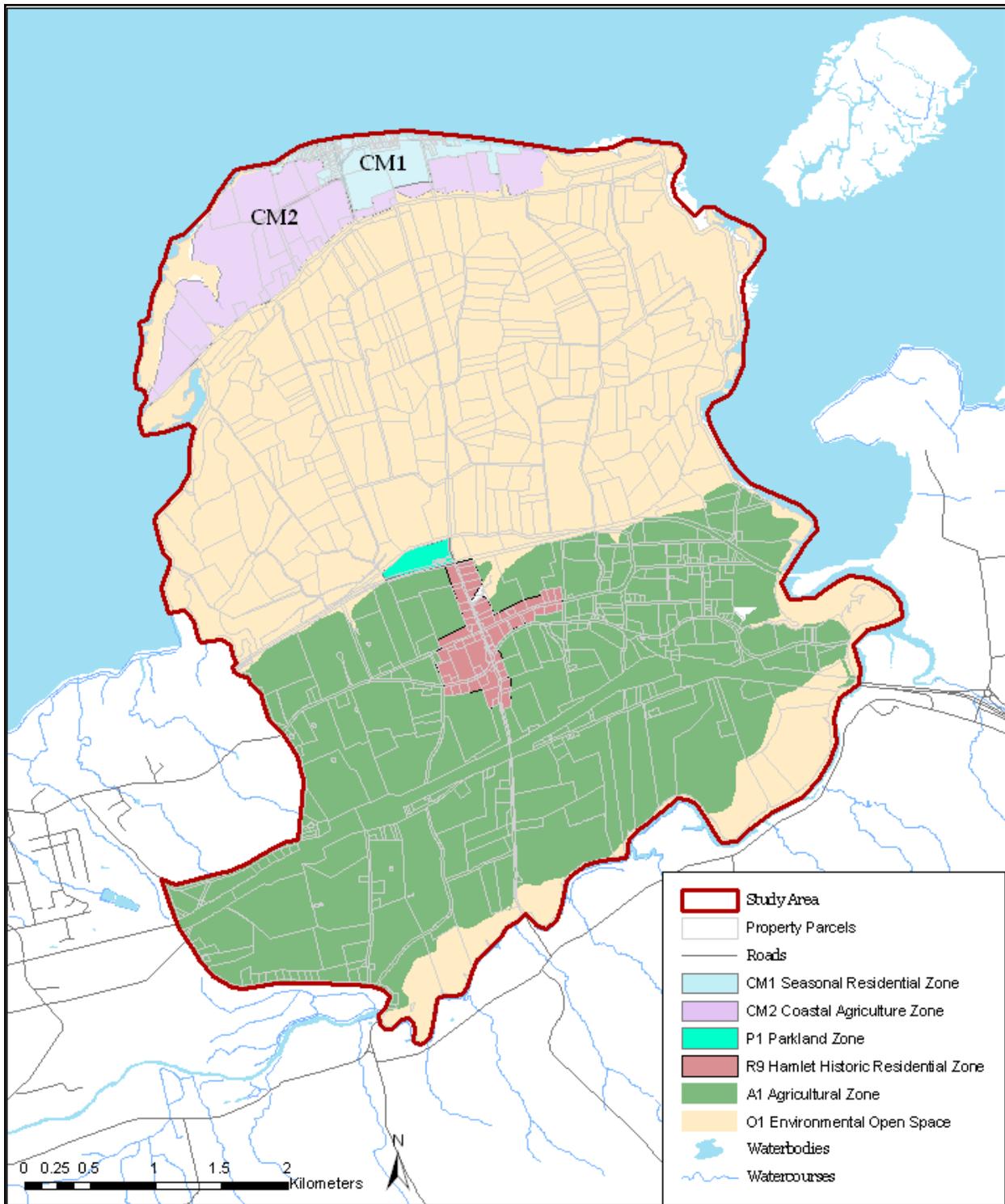
Map A: Significant Marshlands



Map B: Flood Risk



Map C: Coastal Management District



Map D: Coastal Management Zones

APPENDIX B - PUBLIC EDUCATION MATERIAL

