

Cole Harbour-Lawrencetown Coastal Heritage Park System

Park Management Plan for
Rainbow Haven Beach and Lawrencetown Beach

DRAFT



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website: <http://novascotia.ca/natr/parks/management/>

Executive Summary

The Cole Harbour-Lawrencetown Coastal Park System is a large provincial park system made up of smaller provincial parks: Rainbow Haven Beach, Lawrencetown Beach, Conrods Beach, Stoney Beach, Terminal Beach, Cole Harbour Heritage Park, and portions of the provincially-owned former trail corridor which now serves as the Salt Marsh and Atlantic View trails. For Core Parks in the province; the development of Parks Management Plans has been stated as actions in the Our Parks and Protected Areas - A Plan for Nova Scotia (Government of Nova Scotia 2013). For the current Parks Management Plan (the Plan) for the Cole Harbour-Lawrencetown Coastal Park System; the Plan will focus on two smaller Provincial Parks (Rainbow Haven Beach and Lawrencetown Beach) within the larger Park System and provided in two separate sections as both Parks have different uses, impacts and needs. The Plan assists in the development of future work plans for Rainbow Haven Beach and Lawrencetown Beach; based on information gathered through previous studies and data (e.g. aerial imagery, Ecological Land Classification, etc.), and stakeholder engagement (e.g. public, special interest groups, etc.). Feedback from the various engagement sessions have been incorporated into this document.

Invitation to Comment

The Department of Natural Resources (DNR), Parks, Outreach and Service Delivery Division is preparing a management plan for Rainbow Haven Beach and Lawrencetown Beach as part of the planning process.

After careful consideration of related planning information and review of comments received thus far, this document outlines management policies for Rainbow Haven Beach and Lawrencetown Beach. Note this document contains *proposed* site objectives, policies and actions related to managing the park's natural, cultural, and recreational values.

Publication of this draft management plan provides an opportunity for public engagement and will help form the final Park Management Plan. You can get involved and submit your comments:

- Submit a written comment via email to parkplanning@novascotia.ca
- Submit a written comment via regular mail to:
Parks, Outreach & Service Delivery Division
Nova Scotia Department of Natural Resources
15 Arlington Place, Suite 7
Truro, NS
B2N 0G9

The deadline for comment submissions is July 4th, 2018.

To make your submission effective, list the topic(s) you wish to discuss and briefly state your reasons for agreeing or disagreeing with the proposed management direction. You may also make suggestions or comments on other topics important to you. Line numbers are provided on the left side of the document for review purposes. Please quote the line number when making comments to aid in the review process.

Thank you in advance for your interest and comments on the future management of Rainbow Haven Beach and Lawrencetown Beach.

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1.0 Introduction

Cole Harbour-Lawrencetown Coastal Heritage Park is a 747-hectare Natural Environment class park, located in Halifax County. This relatively large coastal park systems offer a range of outdoor recreation opportunities, including supervised swimming, surfing, hiking, and picnicking, and plays an important conservation role, encompassing a diversity of coastal landscapes and habitats.

The park system includes:

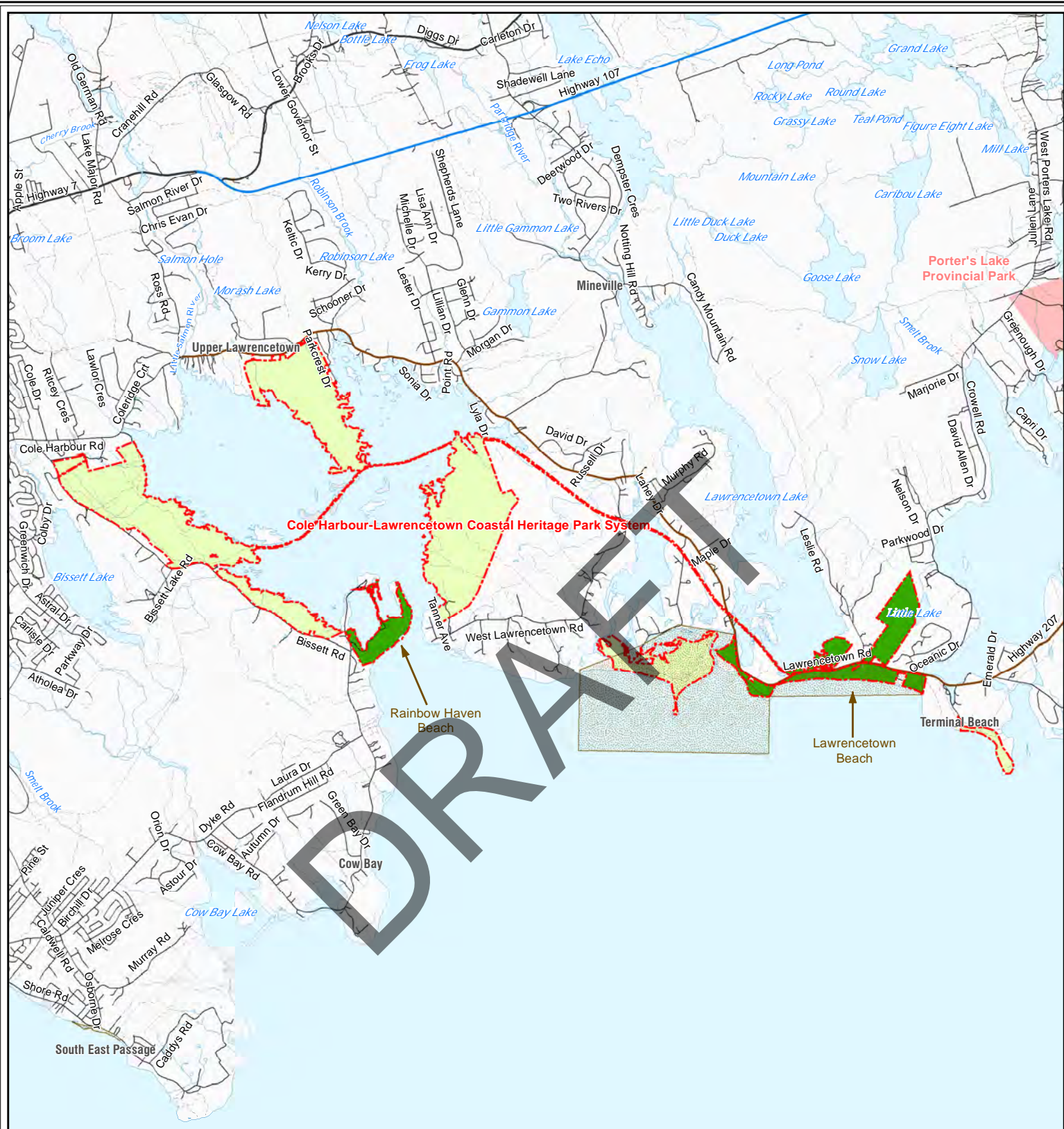
- Rainbow Haven Beach, * (See Section 2.0)
- Lawrencetown Beach, * (See Section 9.0)
- Conrods Beach,
- Stoney Beach,
- Terminal Beach,
- Cole Harbour Heritage Park, and Salt Marsh and Atlantic View trails.

The Government of Nova Scotia began acquiring property within the Cole Harbour – Lawrencetown area in 1975 for park purposes. In 1976, Lawrencetown Beach was protected under the *Beaches Act* (Government of Nova Scotia 1989a) (Conrod’s and Lawrencetown Protected Beach) and in 1983, the Cole-Harbour Coastal Heritage Park System was proposed. In 1987, Lawrencetown and Rainbow Haven were designated under the *Provincial Parks Act* (Government of Nova Scotia 1989b), and were re-designated in 1998 as part of the Cole Harbour-Lawrencetown Coastal Heritage Park System.

Rainbow Haven and Lawrencetown are very popular beach parks, attracting both locals and tourists alike. Rainbow Haven Beach is serviced by the Department of Natural Resources (DNR) district office in Waverley (central region) and Lawrencetown Beach is serviced by the DNR district office in Jeddore.

The purpose of the Cole Harbour – Lawrencetown Coastal Heritage Park System (Map 1– Regional Context) is to provide opportunities for a range of low-intensity day use recreation and natural and cultural heritage appreciation, while protecting the park’s outstanding landscape, biodiversity, and natural and cultural heritage. The purpose of a Park Management Plan as defined by the *Provincial Park Regulations* is to provide direction for the protection and management of a park and provision for visitor facilities and services (Government of Nova Scotia 1989c).

Currently, this management plan applies to Rainbow Haven Beach and Lawrencetown Beach. Management Plans for the other areas may be completed when needs arise. Feedback from the various engagement sessions have been incorporated into this document.



- Provincial Park
- Protected Beach
- Camping Park
- Day Use Park
- Lawrencetown Beach & Rainbow Haven Beach

Map 1 - Regional Context

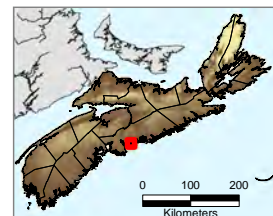
Lawrencetown Beach and Rainbow Haven Beach Cole Harbour-Lawrencetown Coastal Heritage Park System

0 0.5 1 2
Kilometers

6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Produced by: Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.



1.1 Planning Context

The park management plan has been prepared consistent with direction contained in:

- The Nova Scotia *Provincial Parks Act* (Government of Nova Scotia 1989b);
- The Nova Scotia *Beaches Act* (Government of Nova Scotia 1989a);
- The Path We Share: A Natural Resources Strategy for Nova Scotia 2011-2020 (NS DNR 2011); and
- Our Parks and Protected Areas: A Plan for Nova Scotia (Government of Nova Scotia 2013).

1.2 Park Classification and Zoning

Park Classification is a key element in determining the general policy basis for park management which in turn determines the type and extent of activities that may take place in a park.

Within the Provincial Park Systems; parks can be classified as one of seven classifications as defined under Provincial Park:

1. Wildland Park – *natural landscapes and suited to low-intensity recreational use;*
2. Natural Heritage Reserve – *protects natural features, sites, objects or landscapes of Provincial significance primarily for scientific and educational purposes;*
3. Historic Park – *preserves and protects distinctive historical resources in open settings and managed for interpretive and educational research purposes;*
4. Natural Environment Park – *incorporates representative natural landscapes in combination with outstanding recreational resources;*
5. Outdoor Recreation Park – *incorporates quality recreational resources capable of supporting a wide variety of outdoor activities and is established to meet the recreational needs of residents and visitors;*
6. Wayside Park – *provides specific recreational facilities and services adjacent to travel corridors or local communities and may be a roadside picnic area, scenic viewpoint, access point, boat launch, or small park area of local importance; or*
7. Wildlife Park – *provides opportunities for the public to view wildlife in controlled settings and to gain an understanding and appreciation of the characteristics and habitat requirements of wildlife populations in the wild.*

Cole Harbour – Lawrencetown Coastal Heritage Park System is classified as a Natural Environment Park.

A Natural Environment Park is a park that incorporates representative natural landscapes in combination with outstanding recreational resources (Government of Nova Scotia 1989c).

The Cole Harbour – Lawrencetown Coastal Heritage Provincial Park System is located in Halifax County, encompassing several properties spread between Cow Bay and Three Fathom Harbour.

- Rainbow Haven Beach is located approximately 14 km east of downtown Dartmouth. The civic address is 2248 Cow Bay Road (Hwy 322), Cow Bay (Section 6, Map 2: Park Boundary – Rainbow Haven Beach).
- Lawrencetown Beach is located approximately 22 km from downtown Dartmouth. The civic address is 4348 Lawrencetown Road, Lawrencetown (Section 13, Map 12: Park Boundary – Lawrencetown Beach).

Zoning is a tool that spatially delineates areas within a park that have common management objectives, intentions, values and/or uses. Policies provided in the section below; are applied in each zone to enable different management approaches that are appropriate for those areas; as outline in the *Provincial Park Regulations* (Government of Nova Scotia 1989c).

- Environmental Protection Zone (EP) includes areas of a park that is highly sensitive or contains significant natural or historic resources that require protection. These areas provide protection of habitat of flora and fauna.
- Resource Conservation Zone (RC) may also incorporate and protect small, scattered sites with highly sensitive or significant natural or historic sites and features. These sites and features may otherwise warrant inclusion within an Environmental Protection Zone but due to the limited landbase involved, have been incorporated into the Resource Conservation Zone. Planning for any activities or land uses within the Resource Conservation Zone must consider the full range of protections options as the priority.
- Recreation Development Zone (RD) includes an area of a park that can support the development of facilities and services associated with outdoor recreation activities and more intensive visitor use. This zone is used to focus park facilities and services, as well as public use, within the most appropriate park areas without compromising natural or cultural heritage values of the park.

Based on the zone classification, DNR will evaluate lands to determine if infrastructure will be allowed, if so, to what extent. The zones for Rainbow Haven Beach and Lawrencetown Beach were developed by internal staff using information and knowledge available at the time of review and delineation.

1.3 Park Objectives

Management of the Cole Harbour – Lawrencetown Coastal Heritage System shall meet the following objective and will be consistent with the mandates of Nova Scotia Provincial Parks, as outlined in the *Provincial Parks Act* (Government of Nova Scotia 1989b).

Provincial Parks Act Objectives:

- **Outdoor Recreation:** provide opportunities for a wide variety of outdoor recreational opportunities ranging from relatively high intensity near-urban facilities to low intensity wildland experiences.
- **Protection:** preserve unique, rare, representative or otherwise significant elements of the natural environment and historic resources of Nova Scotia.

- **Education:** provide opportunities for exploration, understanding and appreciation of Nova Scotia's natural and cultural heritage through interpretation, information and educational programs.
- **Tourism:** provide resident travelers and out-of-province visitors with opportunities to discover, experience and enjoy Nova Scotia's distinctive outdoor recreational and heritage resources.
- **Maintain the landbase of the park system:** assemble and maintain, within a system of provincial parks and park reserves, a land base adequate to meet present and future needs of Nova Scotians for outdoor recreation and heritage resource protection.

2.0 Rainbow Haven Beach Park Management Plan

Rainbow Haven Beach (Map 2 - Park Boundary) provides opportunities for beach activities, picnicking, and nature appreciation, for both Nova Scotians and visitors alike.

2.1 Existing Park

Rainbow Haven provide opportunities for day use recreation that includes: beach walking, supervised swimming, scenic and wildlife viewing, birdwatching, picnicking, relaxation, experiencing solitude, photography, nature appreciation, body surfing, stand up paddle boarding, kayaking, dog walking, and bicycling. (Map 3- Park Infrastructure).

There are currently three boardwalks and one trail that provide beach access, including one central accessible boardwalk. The central accessible boardwalk provides the main access point to the beach.

Camping and open campfires are not permitted at Rainbow Haven Beach or anywhere within the Cole Harbour-Lawrencetown Coastal Heritage Park System. Camping opportunities are provided nearby at Porters Lake Provincial Park. Swimming is a popular activity at Rainbow Haven Beach, and is supervised by the Nova Scotia Lifeguard Service (NSLS). The supervised swimming area is approximately 400 metres in width, and is marked by red and yellow flags. Rainbow Haven has a tidal channel, which is dangerous to swimmers due to strong currents that develop. The lifeguards try to direct swimmers away from this channel. During the 2016 summer season; Rainbow Haven beach saw over 34, 000 visitors with an average of 162 people per supervised swimming days (NSLS, n.d.a).

2.2 Landscape

Rainbow Haven Beach extends over 1km from the western park boundary and terminates at the saltmarsh leading into Cole Harbour and has varied geology and landscape development of the eastern shore beaches. The beach has an extensive dune ecosystem, which provides high biodiversity values and wildlife habitat.

The Rainbow Haven Beach area was formed overtime by coastline sedimentation through wave action, involves salt marshes and marine deposits as well as Stony Till Plain (Ground Moraine) which was flat to rolling with surface boulders (Government of Nova Scotia 2006) (Map 4 - Surficial Geology). Using the Ecological Land Classification (ELC) for Nova Scotia (NS DNR 2017). Rainbow Haven Beach is located within the Eastern Shore Ecodistrict. The area of the Eastern Shore Ecodistrict is a coastal system that consists of Salt Marsh (WWMS Ecoregion) communities (NS DNR 2017) as well as eroding drumlins, barrier beaches and estuaries as identified by the Eastern Shore Beaches Natural Landscape (NSE 2002) (Map 5 - Ecological Land Classification).

Rainbow Haven Beach area has no tree species or communities within the Park boundaries. Non-forested cover (Map 6 - Non-Forested, Map 7 - Small Patch Ecosystem) within Rainbow Haven Beach are categorized as beach and coastal habitat areas, this area is also identified as a small patch ecosystem-beach/dune. All of Rainbow Haven Beach and some of the surrounding areas have been identified as significant habitat for Species At Risk (SAR) and migratory birds (Map 8 - Significant Habitat). Much of the interior waters are considered salt marsh wetlands (Map 9 - Wetlands). The water table and drainages in the Rainbow Haven Beach area are identified in Map 10 - Drainage. Infrastructure development in these areas will require special design measures and mitigation based on what is present in these areas.

Although there are no registered archaeological sites located within the planning areas at Rainbow Haven, there are several historic (i.e. post-contact) registered archaeological sites in the nearby vicinity. The lack of registered archaeological sites within the park lands is likely more a function of lack of archaeological investigation in these areas rather than an indication that these areas do not have archaeological sites. For this reason, an archaeological resource impact assessment may be completed if any new park infrastructure requires significant ground disturbance (e.g. new park building).



Figure 1: 1954 (top) and 1974 (bottom) aerial images of Rainbow Haven Beach, showing the sedimentation of the western seaward shore. Early maps show that the original entrance channel into Cole Harbour passed through the historical dyke bridge, while the current entrance channel to the east is newly formed (Davies et al 2011).

2.3 Biodiversity

Rainbow Haven has been identified as a significant area for a variety of migratory birds and provides habitat for many invertebrates such as dragonflies and butterflies. One species of bird that has been observed in the Rainbow Haven Beach area is the Piping Plover (*Charadrius melodus*) which is listed as Endangered under Provincial and Federal Legislation (NS DNR 2000, COSEWIC 2013). Piping Plovers have not been recorded to nest at Rainbow Haven, but they have been spotted on the beach and may use the area as feeding habitat during migrations. The website eBird (2017a) provides an unofficial bird list that includes 159 species sighted at Rainbow Haven. No rare plants have been documented in the Rainbow Haven Beach area.

3.0 Rainbow Haven Beach Zoning

The zoning for Rainbow Haven Beach was determined using all available data sources, producing maps, and evaluating the information to make informed and educated decision.

Rainbow Haven Beach includes four zones, described below (Table 1 and Map 11 - Rainbow Haven Beach Zones).

Rainbow Haven Beach – Refer to Map 11

| Zone Name | Description | Management Intent | Planning Considerations |
|---|---|---|--|
| Environmental Protection Zone (EP) (8.5 hectares) | Sand dunes and saltmarsh areas on the eastern side of the park. | <ul style="list-style-type: none"> To protect highly sensitive natural resources. Only interpretive, educational or scientific activities will be permitted, where these activities do not conflict with the underlying protection objectives of the zone. No trails or infrastructure is permitted. | <ul style="list-style-type: none"> This Zone includes two sensitive ecosystems, the dune system and salt marsh. Currently, there is a network of unauthorized trails throughout the dune system, which is inconsistent with the intent of the zone, and is considered a non-conforming use. |
| Resource Conservation Zone 1 (RC1) (10.9 hectares) | Western portion of the sand dunes and a small area of white spruce forest. | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. There is currently a network of unauthorized trails throughout the dune system within this zone, which is inconsistent with the intent of the zone, and is considered a non-conforming use. | <ul style="list-style-type: none"> This Zone connects the core facility and Recreation Development Zone to the beach, and allows for limited beach access points and associated infrastructure (e.g. boardwalks). This Zone may also incorporate and protect small, scattered sites with highly sensitive or significant natural or historic sites and features. These sites and features may otherwise warrant inclusion within an Environmental Protection Zone but due to the limited landbase involved, have been incorporated into the Resource Conservation Zone. Planning for any activities or land uses within the Resource Conservation Zone must consider the full range of protection options as the priority. This Zone includes a large portion of the park's dune system, as well as infrastructure to support beach access and maintenance. |
| Resource Conservation Zone 2 (RC2) (3.4 hectares) | Sandy beach. | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This area is the focus of the park's recreational activities, yet also provides habitat to the endangered piping plover. Piping plovers have not nested at Rainbow Haven Beach for several years, they have been spotted on the beach and may use the area as feeding grounds during migrations. |
| Recreation Development Zone (RD) (10.9 hectares) | Eastern portion of the Drumlin physiographic unit and a small portion of the Beach. | <ul style="list-style-type: none"> To provide high quality day use recreation opportunities. | <ul style="list-style-type: none"> This Zone includes an area of a park that can support the development of facilities and services associated with outdoor recreation activities and more intensive visitor use. This Zone is used to focus park facilities and services, as well as public use, within the most appropriate park areas without compromising natural or cultural heritage values of the park. The Zone is limited to the park entry road, the existing development area, and areas for potential parking lot and facility expansion adjacent to the park entry road, small parking lot, and large parking lot. Potential development may include accessible boardwalks and trails, change houses, toilets, showers, parking areas, interpretive kiosks, picnic tables and/or benches, and maintenance infrastructure. |

4.0 Issues and Concerns

4.1 Natural

Rainbow Haven is susceptible to coastal processes (storm events with high tidal surges or wind driven waves) that cause site erosion, particularly along the dune faces. The rate of sea level rise in the Halifax area has remained constant over the last 100 years, a period over which there is good tide gauge data. There has been no decadal to multi-decadal acceleration in the rate of sea level rise in recent decades. However, the long-term rate of sea level rise may accelerate (Goddard et al 2015). Regardless, the present rate of sea level rise may threaten the dune system, biodiversity values, and park infrastructure. It may cause present beach systems to change as these are dynamic systems; this information is key to the planning process as Parks should consider the potential infrastructure design and impacts.

If sea level rise accelerates, the acceleration is not anticipated to be significant until the 2050's. Since global sea level rise is very region specific, with higher rates being realized in the western Pacific, it is quite uncertain how an acceleration in the global average will affect areas in Nova Scotia (Goddard et al 2015). Vegetation communities within Park systems can be impacted by the introduction of invasive flora and fauna species; where species are introduced to a system will be dealt with on a case-by-case basis.

4.2 Anthropogenic

The dune systems at Rainbow Haven are under threat from pedestrian traffic and dogs off leash, causing trampling and loss of marram grass, leading to dune erosion (Figures 2 and 3).



Figure 2: Unauthorized trails through the dunes at dunes Rainbow Haven Beach.



Figure 3: Unauthorized foot path through the dunes at Rainbow Haven Beach.

5.0 Mi'kmaq Consultation and Engagement

DNR will continue to support Mi'kmaq initiatives and activities at Rainbow Haven Beach. Discussions regarding Park Management Plans will be ongoing and potential for partnerships may be formed.

6.0 Public Engagement

Through public engagement sessions; valuable information was provided. Information provided from engagement sessions and emailed comments can be split into two groups for management plan purposes: Management Opportunities and Operational Opportunities. Management Opportunities include information that supports large development opportunities in the Park such as design considerations for core building and facilities, parking, large scale repairs to existing infrastructure, etc. Operation Opportunities can be identified as areas where needs are required that are deemed to be solved at an operational level such as staffing, garbage can placement, signage placement, general maintenance of existing infrastructure, etc. Management and Operation Opportunities were determined through current knowledge of the area, comments provided by stakeholders and public through engagement sessions held in September 2017.

7.0 Policies: Rainbow Haven Beach

This section provides site specific management and operational policies and any associated actions required to effectively manage Rainbow Haven Beach in accordance with applicable legislation and policies.

7.1 Protection Opportunities

Through the Zoning portion of the Park Management Plan, environmentally sensitive areas have been identified in Rainbow Haven Beach under the Environmental Protection Zone. The dune system is the most sensitive habitat and is facing threats from visitor disturbance, habitat destruction, and erosion. Anticipated threats include increased coastal erosion and sea level rise, due to climate change (over the course of several decades or centuries). Flora and fauna that inhabit these areas are also to be protected throughout the Park.

7.1.1 Management

Actions to address protection of environmentally sensitive areas may include:

- Restricting large Park Infrastructure to specific zones;
- Limiting Park developments to occur during specific activity window critical for species such as migratory birds;
- Encourage design of Park infrastructure to consider long term effects of erosion and storm events;
- Establish on-location educational programs or interpretative signage to increase awareness of various environmental topics; and
- Identify areas within the Park that may be viable options for restoration of native vegetation species. Planting of non-native species for aesthetic purposes is not permitted.
- Vegetation will be managed according to the Guidelines for Vegetation Management in Provincial Parks, Park Reserves, Protected Beaches, and Trails (NS DNR, 2002).
- An archaeological resource impact assessment may be completed if any new park infrastructure requires large ground disturbance (e.g. new park building).
- No activities will be permitted that may threaten or harm cultural heritage resources.

- There will be no enhancements to the beach itself (e.g., removing seaweed, raking sand, etc.), apart from removing potentially hazardous debris (e.g., lobster trap).

7.1.2 Operational

Actions to address protection of environmentally sensitive areas may include:

- Any trees, limbs, or branches that pose a risk to public safety or park operations will be removed. Removed vegetation should remain on-site to provide wildlife habitat and increase biodiversity, wherever possible. Park operations and maintenance may require the removal of trees and brush around buildings and structures. All activities will ensure Burn Safe and Wildfire protocols are followed.
- Unauthorized footpaths are considered a non-conforming use. DNR may erect interpretive signage to educate visitors and staff about the sensitivities of the dune ecosystem, and the importance of staying on authorized access points and the beach area;
- Work with Nova Scotia Environment (NSE) regarding enforcement within Provincial Parks (e.g. off leash dogs, impacts on dune systems, protection of Species At Risk (SAR);
- Increase education and awareness of wildlife values. Potential themes include interpretation of coastal processes, habitats, and cultural history. DNR will work with interested partners in developing interpretive opportunities; and
- Increase promotion of leave no trace principles.
- Any fire that may occur in the park will be actively suppressed. Insect, disease, or invasive species infestations will be managed on a case-by-case basis. Many disturbances are recognized as a component of the natural ecosystem and generally will be allowed to progress undisturbed. Where disturbances threaten natural values or human safety, a control program may be undertaken if appropriate.



Figure 4. Overflow parking lot is flooded.



Figure 5: Sand encroaching on boardwalk.

7.2 Public and Recreational Opportunities

7.2.1 Management

Actions to address public and recreational opportunities from a management planning perspective may include:

- There will be no enhancements to the beach itself (e.g., removing seaweed, raking sand, etc.), apart from removing potentially hazardous debris (e.g., lobster traps).
- Opportunities will be explored to enhance the accessibility of the park facilities throughout any future redevelopment (e.g., accessible change houses, washrooms, parking, and picnic facilities).
- If a new core facility is to be built it should provide change rooms, showers, toilets, and a staff and lifeguard office and supply room. It should be accessible by wheelchair and have nearby accessible parking.
- Accessible picnicking area, water taps, bicycle racks, outdoor shower towers and foot wash stations with hose attachments should be provided near or adjacent or near to the core facility.
- Designated parking spot near the core facility should be provided for emergency and enforcement vehicles.
- To accommodate a higher volume of visitors, detached accessible change houses and toilets could be provided.
- Redesign of the main parking lot to maximize parking capacity. Designated parking should include accessible, emergency and enforcement, and bus parking. As well as a designated drop-off / pick-up lane may be located near the proposed core facility.
- Redesign of the overflow parking lot to assist with maximizing parking capacity as this area is prone to flooding.
- Traffic control measures such as speed bumps may be installed.
- To help support active transportation and bike touring, bicycle racks should be installed near the parking lot.
- It is recognized that getting onto the beach from the boardwalk in a wheelchair is challenging due to the soft sand, and the dynamic nature of the changing beach (Figure 11). DNR may investigate options to better provide accessible access to the beach.
- Power hookups may be provided in a designated area within the parking lot to support food vendors; if permitted. DNR may pursue opportunities for partnerships involving other agencies and groups through formal partnership agreements. Partners will work with DNR to assist with the implementation of the approved Park Management Plan and will follow provincial park policies, standards, and regulations.

- DNR would support, in principle, adding property to the park, provided the proposed addition will enhance park values. If suitable lands adjacent or near the park become available for acquisition, they will be evaluated based on contribution to park objectives, willing seller/willing buyer, and available funding.

7.2.2 Operational

Actions to address public and recreational opportunities from an operational planning perspective may include:

- The Regional Services Branch of DNR is responsible for creating and implementing a park operations plan for Rainbow Haven Beach. The park operations plan will address budget, staffing, maintenance schedules, waste management, and coordination of enforcement activities. Park operations and maintenance will be consistent with the Nova Scotia Provincial Parks Operating Standards.
- DNR is currently developing policy to enable more food and non-food concessions within provincial parks.
- Work with NSE regarding enforcement within Provincial Parks (e.g. off leash dogs, impacts on dune systems, protection of Species At Risk (SAR);
- DNR will continue to support the Nova Scotia Lifeguard Service to provide supervised swimming at Rainbow Haven Beach.
- Off-season access (mid-October to mid-May) is accommodated for by keeping the small parking lot open. During this time, people are welcome to use the park understanding that the park is not staffed nor maintained. DNR will continue to support off-season parking in the small parking lot.
- DNR is currently reviewing way-finding sign standards and may install new directional signs to Rainbow Haven Beach as resources become available.



Figure 6: Unauthorized trails through the dunes at Rainbow Haven Beach, causing site erosion.

Figure 7: Aerial image showing a network of Unauthorized trails throughout the dunes.

8.0 Next Steps – Rainbow Haven Beach

Prior to any work performed in Rainbow Haven Beach; the following studies may be required depending on location within the Park and the type of development:

- Prior to any development outside of the existing development footprint, a biological inventory and site assessment are recommended, especially if development is proposed in an Environmental Protection Zone.
- An archaeological resource impact assessment may be completed if any new park infrastructure requires large ground disturbance (e.g. new park building).
- No activities will be permitted that may threaten or harm cultural heritage resources.

9.0 Lawrencetown Beach Park Management Plan

Lawrencetown Beach (Map 12 – Park Boundary), as part of the larger Cole Harbour – Lawrencetown Coastal Heritage Park System, provides opportunities for beach activities such as surfing and swimming as well as nature appreciation, for both Nova Scotians and visitors alike.

9.1. Existing Park

Lawrencetown Beach provides opportunities for day use recreation that includes: beach walking, supervised swimming, scenic and wildlife viewing, birdwatching, picnicking, relaxation, experiencing solitude, photography, nature appreciation, body surfing, stand up paddle boarding, kayaking, dog walking, and bicycling (as a destination). Lawrencetown Beach is known as a surfing destination with consistent surf breaks suitable for both beginners and more advanced surfers.

Camping and open campfires are not permitted at Lawrencetown Beach or anywhere within the Cole Harbour-Lawrencetown Coastal Heritage Park System. Camping opportunities are provided nearby at Porters Lake Provincial Park. Lawrencetown Beach provides a Swimming is a popular activity at Lawrencetown Beach, and is supervised by the Nova Scotia Lifeguard Service. During the 2016 summer season; Lawrencetown beach saw over 18, 000 visitors with an average of 85 people per supervised swimming days. The supervised swimming area is approximately 200 metres in width, and is marked by red and yellow flags. The lifeguards regularly patrol the beach to keep swimmers away from rips or higher surf areas, and patrol Stoney Beach (NSLS, n.d.b). Due to dangerous currents and rips, supervised swimming and supporting infrastructure (e.g. toilets or change houses) are not supported at Stoney Beach. Visitors are encouraged to swim in the supervised area at Lawrencetown Beach (Map 13 – Park Infrastructure).

9.2 Landscape

Lawrencetown Beach has excellent examples of the varied geology and landscape development of the eastern shore beaches. Lawrencetown Beach is largely cobble stone with sand showing at low tides, and extends approximately 2km from the drumlin at Lawrencetown Head. The drumlin is comprised of red- brown

501 Lawrencetown Till (Nova Scotia Museum, 1994). Across HWY 207 is Lawrencetown Lake with 10.5 hectares of
 502 salt marsh that lie within the park boundary, providing important habitat for waterfowl and migratory birds. It
 503 has an extensive dune ecosystem, which provides high biodiversity values and wildlife habitat.

504 Portions of the Lawrencetown Beach area was formed through coastline sedimentation through wave action,
 505 involving salt marshes and marine deposits, other lands in the area are Stony Till Plain (Ground Moraine) which
 506 was flat to rolling with surface boulders and Silty Drumlin (Drumlin Facies) which were formed from large ice
 507 sheets depositing till (Map 14 - Surficial Geology). Using the Ecological Land Classification (ELC) for Nova Scotia
 508 (DNR2017). Lawrencetown Beach is located within the Eastern Shore Ecodistrict. The area of the Eastern Shore
 509 Ecodistrict is a coastal system that consists of coastal beach (XXCB Ecosection), inland water (XXWA Ecosection)
 510 and well drained, fine soil drumlins and flutes (WFDM Ecosection) communities (DNR 2017), as well as eroding
 511 drumlins, barrier beaches and estuaries as identified by the Eastern Shore Beaches Natural Landscape (NSE
 512 2002) (Map 15 – Ecological Land Classification).

513 The main beach area at Lawrencetown has no tree species or communities, away from the beach to the
 514 northeast contains softwood stands within the Park boundaries (Map 16 - Forest Cover). Non-forested cover
 515 (Map 17- Non-Forested) within Lawrencetown Beach are categorized as a coastal habitat area, wetlands, natural
 516 stands, old fields cliffs, dunes and coastal rock. A bit more detail is identified by the small patch ecosystems
 517 (Map 18 - Small Patch Ecosystem); ecosystems identified in the Lawrencetown Beach area include beach/ dune
 518 systems, erosional seabluff and coastal cliffs and barrens, as well as wetlands such as a coastal shrub fen, a
 519 coastal shrub bog and vernal pools. Nearby ecosystems include salt marshes and estuarine flats. Lawrencetown
 520 Beach and some of the surrounding areas have been identified as significant habitat for Species At Risk (SAR)
 521 and migratory birds (Map 19 – Significant Habitat). Much of the interior waters are considered salt marsh
 522 wetlands, as well as a treed swamp to the northeast within the Park Boundary (Map 20 - Wetlands). The water
 523 table and drainages in the Lawrencetown Beach area are identified in Map 21 - Drainage. Infrastructure
 524 development in these areas may require special design measures and mitigation based on what is present in
 525 these areas.

526 The main wildlife values within the park are associated with the dune system, beach, headlands, and
 527 saltmarshes. Of these, the dune system is the most sensitive habitat and is facing threats from visitor
 528 disturbance, habitat destruction, and erosion. Anticipated threats include increased coastal erosion and sea
 529 level rise, due to climate change (over the course of several decades or centuries).

530 Although, there are no registered archaeological sites located within the planning areas at Lawrencetown Beach,
 531 there are several historic (i.e. post-contact) registered archaeological sites in the nearby vicinity. The lack of
 532 registered archaeological sites within the park lands is likely more a function of lack of archaeological
 533 investigation in these areas rather than an indication that these areas do not have archaeological sites. For this
 534 reason, an archaeological resource impact assessment may be completed if any new park infrastructure requires
 535 large ground disturbance (e.g. new park building).

536 **9.3 Biodiversity**

537 Lawrencetown Beach has been identified as a significant area for a variety of migratory birds and provides
 538 habitat for many species of plants and invertebrates such as dragonflies and butterflies. Lawrencetown Beach
 539 provides habitat to one non-vascular plant species, one bird species and one small mammal species that are

540 classed as critically imperiled. In addition, two bird species were listed as imperiled and six more as vulnerable to
541 extirpation or extinction. The website eBird provides an unofficial bird list that includes 128 species sighted at
542 Lawrencetown Beach.

543 **10.0 Lawrencetown Beach Zoning**

544 The zoning for Lawrencetown Beach was determined using all available data sources, producing maps, and
545 evaluating the information to make informed and educated decisions.

546 Lawrencetown Beach includes nine zones, described below (Map 22- Park Zoning – Lawrencetown Beach).

547

548

Lawrencetown Beach – Refer to Map 22

| Zone Name | Description | Management Intent | Additional Information |
|--|--|---|--|
| Environmental Protection Zone 1 (EP1) (4.3 hectares) | Includes the sand dunes at Stoney Beach. | <ul style="list-style-type: none"> To protect highly sensitive natural resources. Only interpretive, educational or scientific activities will be permitted, where these activities do not conflict with the underlying protection objectives of the zone. No trails or infrastructure is permitted. | <ul style="list-style-type: none"> This Zone includes one sensitive ecosystem, the dune system at Stoney Beach. Currently, there is a network of unauthorized trails throughout the dune system, which is inconsistent with the intent of the zone, and is considered a non-conforming use. |
| Environmental Protection Zone 2 (EP2) (19.6 hectares) | Includes the sand dunes at Lawrencetown Beach. | <ul style="list-style-type: none"> To protect highly sensitive natural resources. Only interpretive, educational or scientific activities will be permitted, where these activities do not conflict with the underlying protection objectives of the zone. No trails or infrastructure is permitted. | <ul style="list-style-type: none"> This Zone includes one sensitive ecosystem, the dune system. Currently, there is a network of unauthorized trails throughout the dune system, which is inconsistent with the intent of the zone, and is considered a non-conforming use. |
| Resource Conservation Zone 1 (RC1) (9.1 hectares) | Includes the sand and cobble beach at Stoney Beach. | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This Zone includes the sandy and cobble beach area, and is the focus of the recreational activities at Stoney Beach. |
| Resource Conservation Zone 2 (RC2) (6.5 hectares) | Includes the drumlin area at Lawrencetown Head (surrounding the MacDonald House). | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This Zone includes the drumlin area at Lawrencetown Head between Lawrencetown Beach and Stoney Beach, and surrounds the MacDonald House. The drumlin is actively eroding, and no shoreline access will be provided here. |
| Resource Conservation Zone 3 (RC3) (3.9 hectares) | Includes the western portion of the sand dunes at Lawrencetown Beach. This area connects the core facility and Recreation Development Zone to the beach, and allows for limited beach access points and associated infrastructure (e.g. boardwalks). | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This Zone includes a portion of the park's dune system, as well as infrastructure to support beach access and maintenance. There is currently a network of unauthorized trails throughout the dune system within this zone, which is inconsistent with the intent of the zone, and is considered a non-conforming use. A portion of the Atlantic View Trail is located within this zone. A small viewing platform and lifeguarding infrastructure may be permitted within this zone. |

| Zone Name | Description | Management Intent | Additional Information |
|---|--|--|--|
| Resource Conservation Zone 4 (RC4) (17.7 hectares) | Includes the salt marsh and a portion of the Atlantic View Trail on the north side of HWY 207. | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This Zone includes a salt marsh, which provides important waterfowl, winter, and migratory bird habitat. The western side of this zone includes the Atlantic View Trail, which traverses a portion of the Lawrencetown Lake Salt Marsh. No other infrastructure will be permitted within this zone. |
| Resource Conservation Zone 5 (RC5) (40.7 hectares) | Includes a spruce forest north of HWY 207 leading to Little Lake. | <ul style="list-style-type: none"> To protect natural, cultural, and low-impact recreational features. Only activities that do not conflict with the inherent natural character and aesthetic qualities of the park resource base will be permitted. | <ul style="list-style-type: none"> This Zone includes a poorly-drained spruce forest that borders onto the southwestern side of Little Lake. There are no plans to develop this area. |
| Recreation Development Zone (RD1) (0.4 hectares) | Includes the parking lot area at Stoney Beach. | <ul style="list-style-type: none"> To provide high quality day use recreation opportunities. | <ul style="list-style-type: none"> This Zone is limited to the current development footprint at Stoney Beach, and includes the parking area and access to the beach. Potential development may include upgrading the parking lot, erecting vehicular barricades, better delineating beach access, and installing interpretive kiosks or panels. This area is prone to flooding and no other infrastructure will be provided within this zone. |
| Recreation Development Zone (RD2) (1.6 hectares) | Includes the existing parking lot area and core facility at Lawrencetown Beach. | <ul style="list-style-type: none"> To provide high quality day use recreation opportunities. | <ul style="list-style-type: none"> This Zone is limited to the park entry roads and the existing development area, which includes the parking lot area, core facility, pit toilets, and gravel pathway adjacent to the dune system. This area may be redeveloped with a new core facility and supporting infrastructure. Potential development may include change houses, toilets, showers, parking areas, interpretive kiosks or panels, picnic tables or benches, and infrastructure to support park maintenance, staff, and lifeguarding activities. |

11.0 Issues and Concerns

11.1 Natural

Lawrencetown is susceptible to coastal processes (storm events with high tidal surges or wind driven waves) that cause site erosion, particularly along the dune faces. The rate of sea level rise in the Halifax area has remained constant over the last 100 years, a period over which there is good tide gauge data. There has been no decadal to multi-decadal acceleration in the rate of sea level rise in recent decades. However, the long-term rate of sea level rise may accelerate (Goddard et al 2015). Regardless, the present rate of sea level rise may threaten the dune system, biodiversity values, and park infrastructure. It may cause present beach systems to change as these are dynamic systems; this information is key to the planning process as Parks should consider the potential infrastructure design and impacts.

If sea level rise accelerates, the acceleration is not anticipated to be significant until the 2050s. Since global sea level rise is very region specific, with higher rates being realized in the western Pacific, it is quite uncertain how an acceleration in the global average will affect areas in Nova Scotia (Goddard et al 2015).

Lawrencetown Beach is directly exposed to high wind-wave action and deep-sea swells approaching the beach face. In instances where storm conditions, including storm surge, occur during high tide there is increased potential for erosion of the dune systems (Figure 8). Although the presence of gravel and cobbles serves to counter high energy levels, there is potential of breach through the dune. Lawrencetown Beach has been facing a loss of sand over the years, which will eventually reduce the recreational value of the beach. The armour stone at the western end of the beach (near Surfers Parking Lot) is under threat from wave action and erosion (Figure 9).

The dune systems at Lawrencetown Beach is under threat from pedestrian traffic and dogs off leash, causing trampling and loss of marram grass, leading to dune erosion. Other impacts include garbage and animal waste. Vegetation communities within Park systems can be impacted by the introduction of invasive flora and fauna species; where species are introduced to a system will be dealt with on a case-by-case basis.



Figure 8: Erosion of the dunes at Lawrencetown Beach during winter storms.



Figure 9: The armour stone near Surfers Parking Lot is showing signs of failure.

11.2 Anthropogenic

The dune systems at Lawrencetown Beach are under threat from pedestrian traffic and dogs off leash, causing trampling and loss of marram grass and leading to dune erosion, and installation of protection infrastructure (Figure 10 and Figure 11).



Figure 10: Unauthorized trails through the dunes at Lawrencetown Beach.



Figure 11: Impacts to beach access infrastructure from winter storms.

12.0 Mi'kmaq Engagement

DNR will continue to support Mi'kmaq initiatives and activities at Lawrencetown Beach. Discussions regarding Park Management Plans will be ongoing and potential for partnerships may be formed.

13.0 Public Engagement

Through public engagement sessions; valuable information was provided. Information provided at engagement sessions and emailed comments have been divided into opportunities: Protection; and Public and Recreational Opportunities. Under each opportunity; actions will be divided into two types of Action Areas: Management; and Operational. Management Actions include information that supports large development opportunities in the Park such as design considerations for core building and facilities, parking, large scale repairs to existing infrastructure, etc. Operation Actions can be identified as areas where needs are required that are deemed to be solved at an operational level such as staffing, garbage can placement, signage placement, general maintenance of existing infrastructure, etc.

14.0 Policies: Lawrencetown Beach

This section provides site specific management and operational policies and any associated actions required to effectively manage Rainbow Haven Beach in accordance with applicable legislation and policies.

14.1 Protection Opportunities

Through the Zoning portion of the Park Management Plan, environmentally sensitive areas have been identified in Lawrencetown Beach under the Environmental Protection Zone. The dune system is the most sensitive habitat and is facing threats from visitor disturbance, habitat destruction, and erosion. Anticipated threats include increased coastal erosion and sea level rise, due to climate change (over the course of several decades or centuries). Flora and fauna that inhabit these areas are also to be protected throughout the Park. Lands identified as Resource Conservation Zones in Lawrencetown Beach are areas where lands will be evaluated and may allow some infrastructure.

14.1.1 Management

Actions to address protection of environmentally sensitive areas may include:

- Restricting large Park Infrastructure to specific zones;
- Limiting Park developments to occur during specific activity window critical for species such as migratory birds;
- Encourage design of Park infrastructure to consider long term effects of erosion and storm events;
- Establish on-location educational programs or interpretative signage to increase awareness of various environmental topics. Consider interpretive kiosk or panels may be built to help visitors gain an

understanding of the park and its resources. Potential themes include interpretation of coastal processes, habitats, and cultural history. DNR may work with interested partners in developing interpretive opportunities.

- Identify areas within the Park that may be viable options (e.g. non-conforming trails, etc.) for restoration of native vegetation species. Planting of non-native species for aesthetic purposes is not permitted.
- Vegetation will be managed according to the Guidelines for Vegetation Management in Provincial Parks, Park Reserves, Protected Beaches, and Trails (DNR, 2002).
- An archaeological resource impact assessment may be completed if any new park infrastructure requires large ground disturbance (e.g. new park building).
- No activities may be permitted that may threaten or harm cultural heritage resources.
- There will be no enhancements to the beach itself (e.g., removing seaweed, raking sand, etc.), apart from removing potentially hazardous debris (e.g., lobster traps).
- DNR would support, in principle, adding property to the park, provided the proposed addition will enhance park values. If suitable lands adjacent or near the park become available for acquisition, they will be evaluated based on contribution to park objectives, willing seller/willing buyer, and available funding.

14.1.2 Operational

Actions to address protection of environmentally sensitive areas may include:

- Any trees, limbs, or branches that pose a risk to public safety or park operations will be removed. Removed vegetation should remain on-site to provide wildlife habitat and increase biodiversity, wherever possible.
- Unauthorized footpaths are considered a non-conforming use. DNR may erect interpretive signage to educate visitors and staff about the sensitivities of the dune ecosystem, and the importance of staying on authorized access points and the beach area;
- Work with NSE regarding enforcement within Provincial Parks (e.g. off leash dogs, impacts on dune systems, protection of Species At Risk (SAR);
- Increase education and awareness of wildlife values. Potential themes include interpretation of coastal processes, habitats, and cultural history. DNR will work with interested partners in developing interpretive opportunities; and
- Increase promotion of leave no trace principles.
- Any fire that may occur in the park will be actively suppressed. Insect, disease, or invasive species infestations will be managed on a case-by-case basis. Many disturbances are recognized as a component

of the natural ecosystem and generally will be allowed to progress undisturbed. Where disturbances threaten natural values or human safety, a control program may be undertaken if appropriate. The Guidelines for Vegetation Management provides further direction on insect and disease management.



Figure 12: Winter storm damage to Surfer's Beach Parking Lot at Lawrencetown Beach.



Figure 13: Winter storm damage to Park infrastructure at Lawrencetown Beach.

14.2 Public and Recreational Opportunities

This section provides site specific management and operational policies and any associated actions required to effectively manage Lawrencetown Beach in accordance with applicable legislation and policies.

14.2.1 Management

Actions to address public and recreational opportunities from a management planning perspective may include:

- There will be no enhancements to the beach itself (e.g., removing seaweed, raking sand, etc.), apart from removing potentially hazardous debris (e.g., lobster traps).
- Opportunities will be explored to enhance the accessibility of the park facilities throughout any future redevelopment (e.g., accessible change houses, washrooms, parking, and picnic facilities).
- The core facility at Lawrencetown has reached the end of its lifespan and needs to be replaced (Figure 14). If a new core facility is to be built it should provide change rooms, showers, toilets, and a staff and lifeguard office and supply room. It should be accessible by wheelchair and have nearby accessible parking.
- Accessible picnicking area, water taps, bicycle and surf board racks, outdoor shower towers and foot wash stations with hose attachments should be provided near or adjacent or near to the core facility.
- Designated parking spot near the core facility should be provided for emergency and enforcement vehicles.
- Redesign of the main parking lot to maximize parking capacity. Designated parking should include accessible, emergency and enforcement, and bus parking. As well as a designated drop-off / pick-up lane will be located near the proposed core facility.

- Traffic control measures such as speed bumps may be installed.
- Additional parking may be considered if deemed necessary and is subject to ecological and archeological review, and other necessary approvals.
- To help support active transportation and bike touring, bicycle racks should be installed near the parking lot.
- Picnic areas incorporated in the new facility design and adjacent green spaces should be considered and incorporate accessibility options for park users.
- It is recognized that getting onto the beach from the boardwalk in a wheelchair is challenging due to the cobblestone and sand, and the dynamic nature of the changing beach (Figure 13). DNR may investigate options to better provide accessible access to the beach. Boardwalks and trails should consider the impacts and risks to the Park System, erosion potential of the dunes and other environmental considerations, safety concerns and long-term viability of structures.
- Power hookups may be provided in a designated area within the parking lot to support food vendors; if permitted.
- DNR may designate an area within the parking lot and provide racks for displaying gear and surfboards to help support surf rental and surf lesson businesses. Options may be considered for non-permanent viewing structures for surfing spectators.
- DNR may pursue opportunities for partnerships involving other agencies and groups through formal partnership agreements. Partners will work with DNR to assist with the implementation of the approved Park Management Plan and will follow provincial park policies, standards, and regulations.
- Any new facilities may be integrated with the existing Atlantic View Trail (Figures 16 and 17). The Atlantic View Trail; managed under an agreement with the Atlantic View Trails Association runs through Lawrencetown Beach and is part of the Great Trail (formerly known as the Trans Canada Trail).



Figure 14: The existing core facility at Lawrencetown Beach.



Figure 15: Lawrencetown Beach access showing signage for the supervised swimming area.



Figure 16: Atlantic View Trail leading east of the Lawrencetown parking lot.



Figure 17: Cobble stones washed up the steep beach face and onto existing boardwalk access.

14.2.2 Operational

Actions to address public and recreational opportunities from an operational planning perspective may include:

- Due to dangerous currents and rips, supervised swimming and supporting infrastructure (e.g. toilets or change houses) are not supported at Stoney Beach. Visitors are encouraged to swim in the supervised area at Lawrencetown Beach. DNR will continue to support the Nova Scotia Lifeguard Service to provide supervised swimming at Lawrencetown Beach.
- The Regional Services Branch of DNR is responsible for creating and implementing a park operations plan for Lawrence Beach. The park operations plan will address budget, staffing, maintenance schedules, waste management, and coordination of enforcement activities. Park operations and maintenance will be consistent with the Nova Scotia Provincial Parks Operating Standards.
- DNR is currently developing policy to enable more food and non-food concessions within provincial parks.
- Work with NSE regarding enforcement within Provincial Parks (e.g. off leash dogs, impacts on dune systems, protection of Species At Risk (SAR); Off-season access (mid-October to mid-May) is accommodated for by keeping the small parking lot open. During this time, people are welcome to use the park understanding that the park is not staffed nor maintained. Options for enhancing off-season access may be explored.
- Repairs and upgrades to current infrastructure may be evaluated and replaced as needed.
- Surfers Parking Lot - The small parking lot of the western end of Lawrencetown Beach is frequently used by surfers as it is in close proximity to a popular surf break (known as The Point). This parking lot is under threat from coastal erosion and the rock armour currently in place is showing signs of failure. Department of Transportation and Infrastructure (TI) and DNR are considering options for this area due to the risks, issues and high priority protection of Highway 207.

15.0 Next Steps – Lawrencetown Beach

Prior to any work performed in Lawrencetown Beach; the following studies may be required depending on location within the Park and the type of development:

- Prior to any development outside of the existing development footprint, a biological inventory and site assessment are recommended, especially if development is proposed in an Environmental Protection Zone.
- An archaeological resource impact assessment may be completed if any new park infrastructure requires large ground disturbance (e.g. new park building).

16.0 Conclusion - Rainbow Haven Beach and Lawrencetown Beach

The Management Plan for Rainbow Haven Beach and Lawrencetown Beach will be reviewed after it has been in place for 10 years to determine whether it is still relevant, effective, and current or if adjustments are needed. In circumstances where the Plan is not providing sufficient direction to protect the values or address existing or emerging threats, the Plan can be reviewed prior to the next scheduled review.

External requests for amendments to address specific requests or needs may be considered.

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822 **Appendix 1: Rainbow Haven Beach Maps**
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824 Map 2: Park Boundary

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826 Map 3: Park Infrastructure

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828 Map 4: Surficial Geology

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830 Map 5: Ecological Land Classification

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832 Map 6: Non-Forested

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834 Map 7: Small Patch Ecosystem

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836 Map 8: Significant Habitat

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838 Map 9: Wetlands

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840 Map 10: Drainage

841 Map 11: Park Zoning

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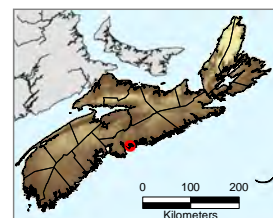
 Provincial Park

Map 2 - Park Boundary

Rainbow Haven Beach Cole Harbour-Lawrencetown Coastal Heritage Park System

0 50 100 200
Meters

6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.



Produced by: Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

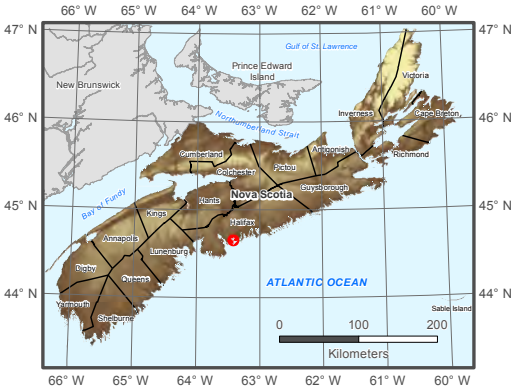
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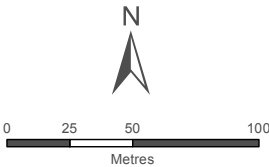
Map 3 - Park Infrastructure

Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- Park Boundary
- Trail
- Boardwalk

- accessible parking
- beach access
- bench
- bike rack
- building
- charcoal pit
- Core Facility
- flagpole
- garbage
- garbage refundables recyclables paper
- garbage storage
- parking
- picnic shelter
- picnic table
- shower
- sign
- vault toilet mens accessible
- vault toilet womens accessible



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Topographic Database (NSTDB), Nova Scotia Road Network (NSRN):
Nova Scotia Geomatics Centre

Provincial Parks and Park Reserves: Nova Scotia Department of Natural Resources

Digital Orthophotography: Nova Scotia Department of Natural Resources (2017)

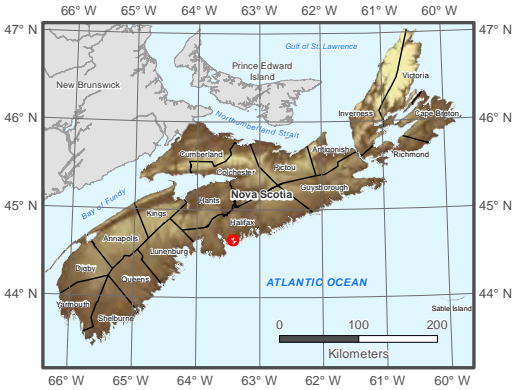


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Date of map is not indicative of data currency.

Map 4 - Surficial Geology

Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary

Trans Canada

Arterial Highway

Trunk Highway

Collector Highway

Road (Other)

Track (2m & wider)

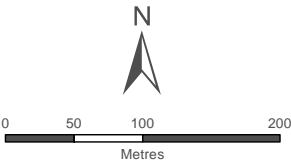
Trail / Footpath
- Park Boundary

Surficial Geological Units

Bedrock

Marine Deposits

Stony Till Plain (Ground Moraine)



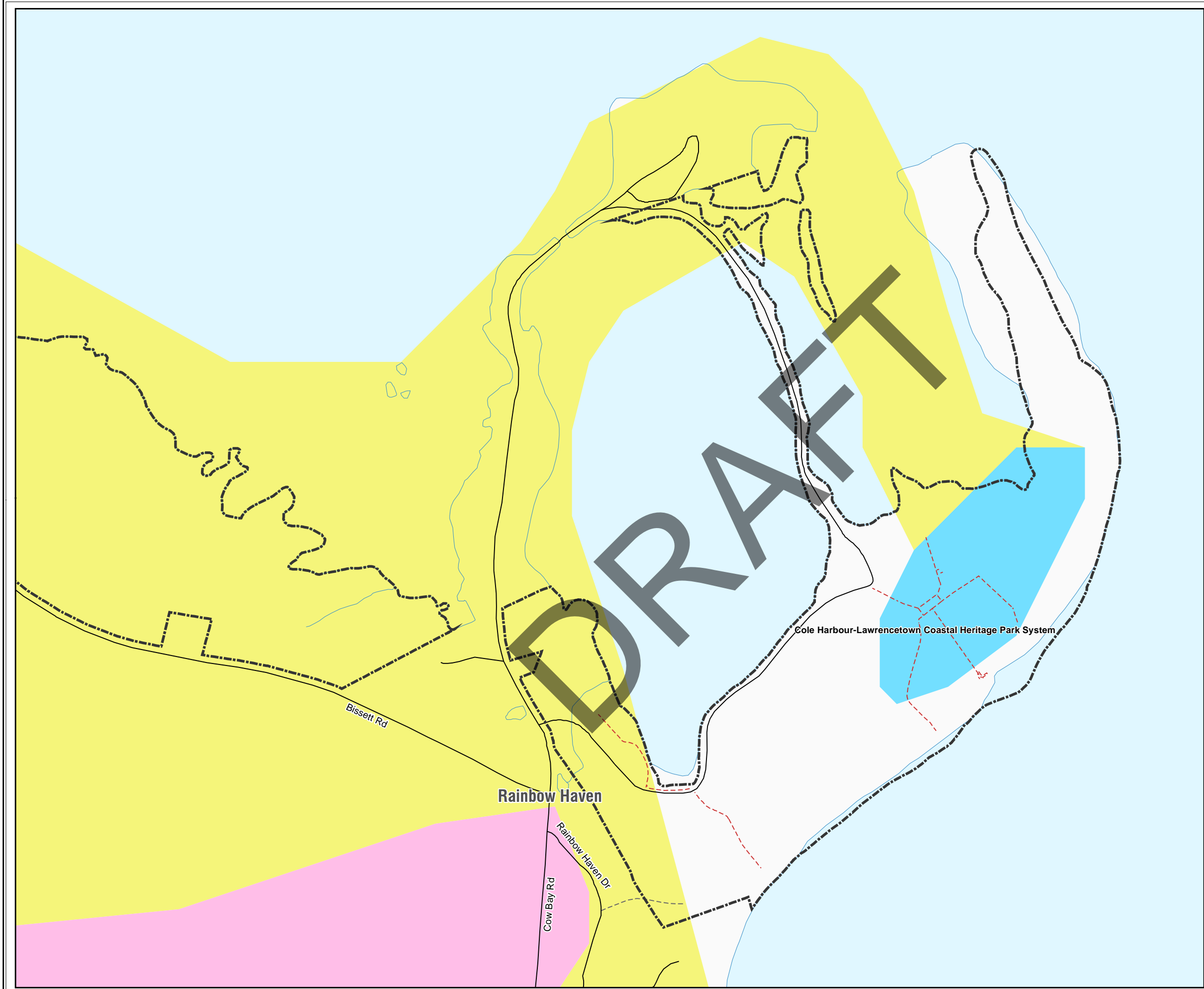
6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

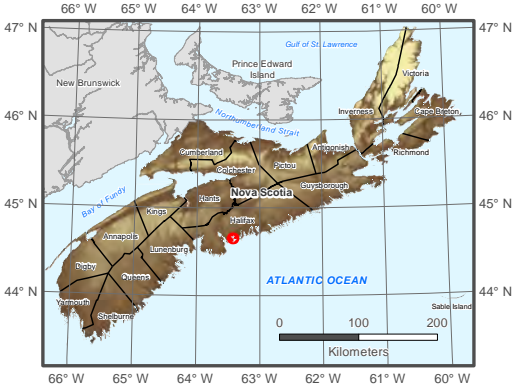
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Surficial Geology (1:500,000): Nova Scotia Department of Natural Resources



Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
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Date of map is not indicative of data currency.



Map 5 - Ecological Land Classification
Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary

Trans Canada

Arterial Highway

Trunk Highway

Collector Highway

Road (Other)

Track (2m & wider)

Trail / Footpath
- Park Boundary

Ecosection

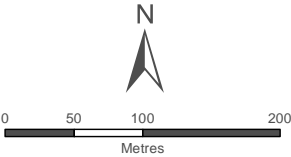
WMRD

XXMS

XXWA

Ecosection Classification

WMRD Well drained, medium textured soil on ridged topography
XXMS Salt marsh
XXWA Inland water



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

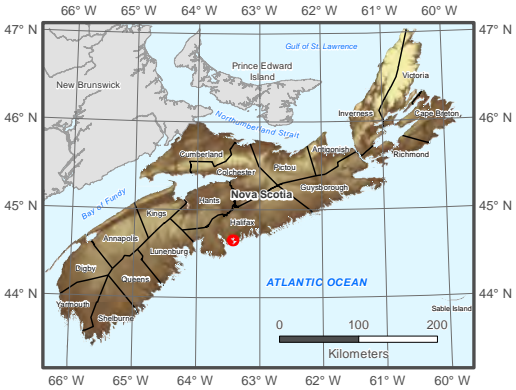
Ecological Land Classification:
Nova Scotia Department of Natural Resources. Updated: August 11, 2017



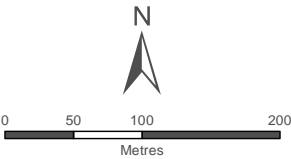
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Date of map is not indicative of data currency.

Map 6 - Non-Forested

Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- | | | | |
|--|--------------------|--|-----------------------|
| | County Boundary | | Park Boundary |
| | Trans Canada | | Natural stand |
| | Arterial Highway | | Wind throw |
| | Trunk Highway | | Wetlands general |
| | Collector Highway | | Coastal habitat areas |
| | Road (Other) | | Inland water |
| | Track (2m & wider) | | Ocean |
| | Trail / Footpath | | Rock barren |
| | | | Barren |
| | | | Urban |
| | | | Beach |
| | | | Road corridor |



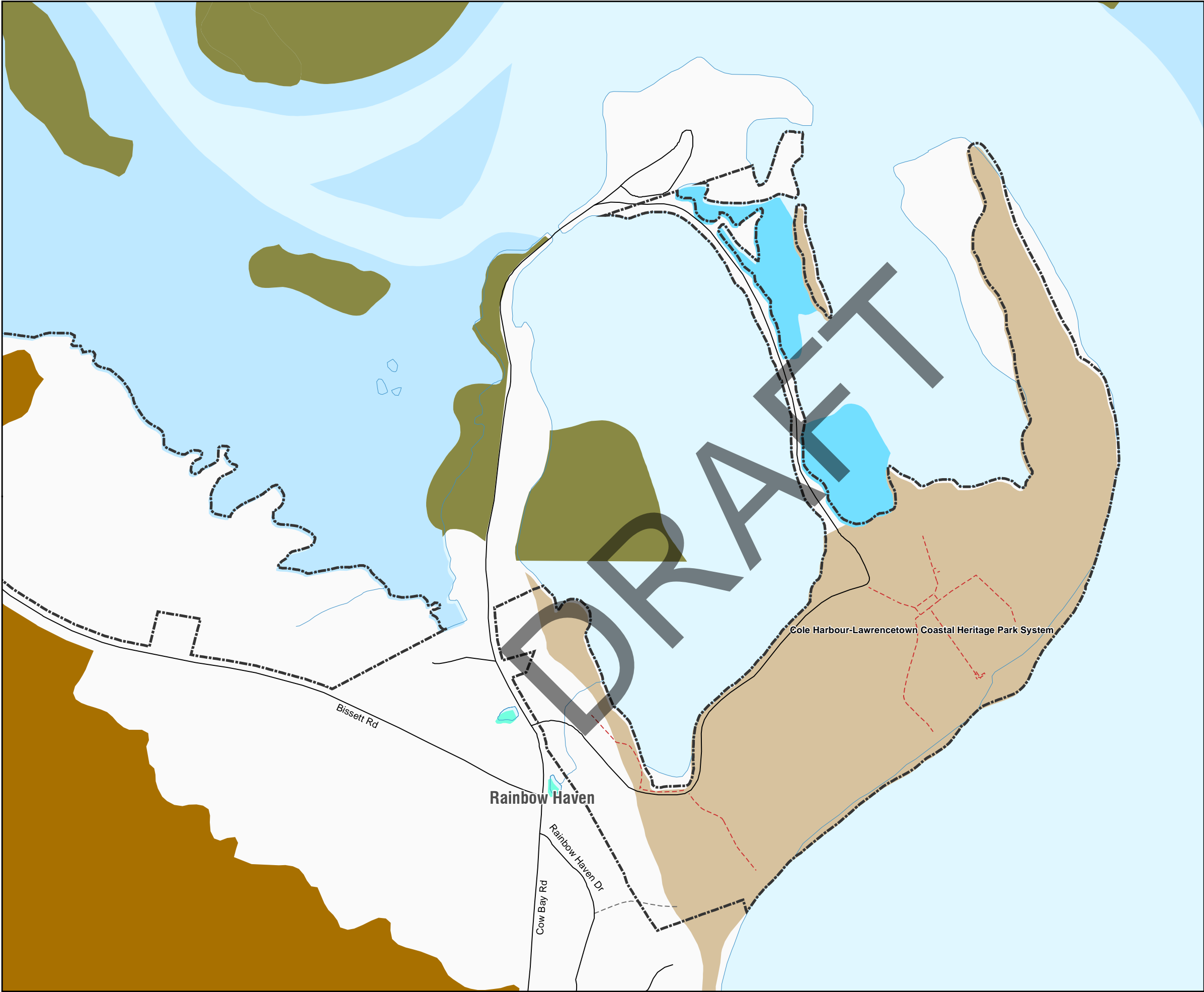
6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

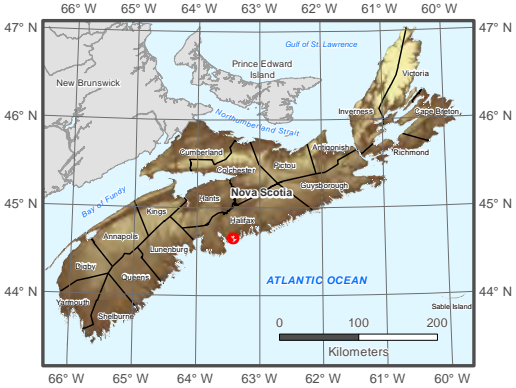
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Forest Inventory 1995-present (Cycle 2 and 3 with Additional Updates): Nova Scotia Department
of Natural Resources



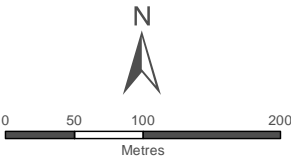
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.



Map 7 - Small Patch Ecosystems
Rainbow Haven Beach
Cole Harbour-Lawrencetown Coastal Heritage Park System



- | | |
|--------------------|-------------------------------|
| County Boundary | Park Boundary |
| Trans Canada | Small Patch Ecosystems |
| Arterial Highway | Beach/dune |
| Trunk Highway | Coastal barren |
| Collector Highway | Estuarine flat |
| Road (Other) | Lagoon |
| Track (2m & wider) | Salt Marsh |
| Trail / Footpath | Vernal pond |



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Small Patch Ecosystems: Nova Scotia Department of Environment

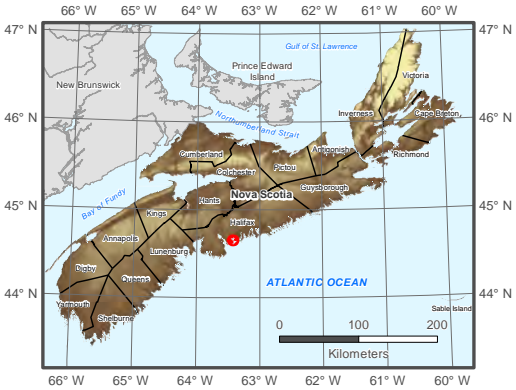


Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

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Date of map is not indicative of data currency.

Map 8 - Significant Habitat

Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary

Trans Canada

Arterial Highway

Trunk Highway

Collector Highway

Road (Other)

Track (2m & wider)

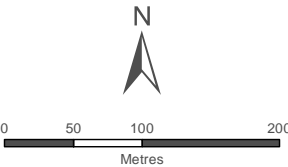
Trail / Footpath
- Park Boundary

Significant Habitat

Migratory Bird

Species at Risk

Species of Concern



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

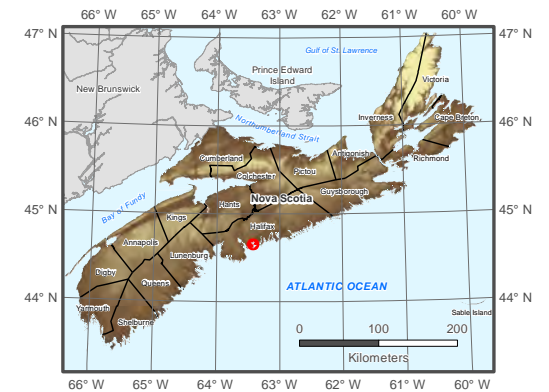
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Significant Species and Habitats Databases: Nova Scotia Department of Natural Resources



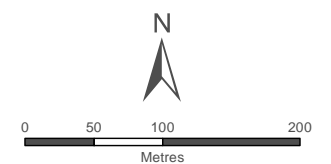
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.

Map 9 - Wetlands

Rainbow Haven Beach Cole Harbour-Lawrencetown Coastal Heritage Park System



- | | | | |
|--|--------------------|--|---------------|
| | County Boundary | | Park Boundary |
| | Trans Canada | | Wetlands |
| | Arterial Highway | | Salt Marsh |
| | Trunk Highway | | |
| | Collector Highway | | |
| | Road (Other) | | |
| | Track (2m & wider) | | |
| | Trail / Footpath | | |



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Wetland Vegetation and Classification: Nova Scotia Department of Natural Resources

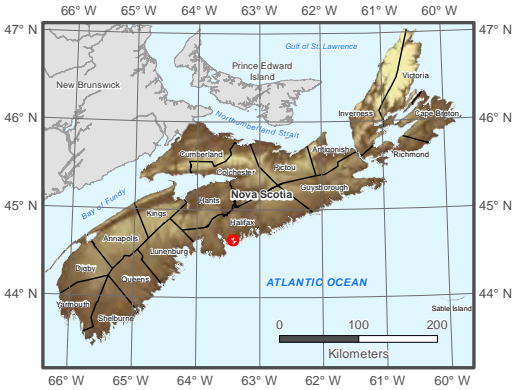


Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

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Date of map is not indicative of data currency.

Map 10 - Drainage

Rainbow Haven Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary

Trans Canada

Arterial Highway

Trunk Highway

Collector Highway

Road (Other)

Track (2m & wider)

Trail / Footpath
- Park Boundary

Drainage Direction

Depth to water table

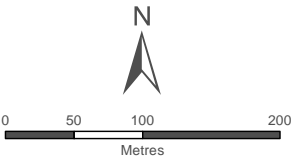
0 - 0.1m

0.11 - 0.5m

0.51 - 2m

2.01 - 10m

> 10m



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

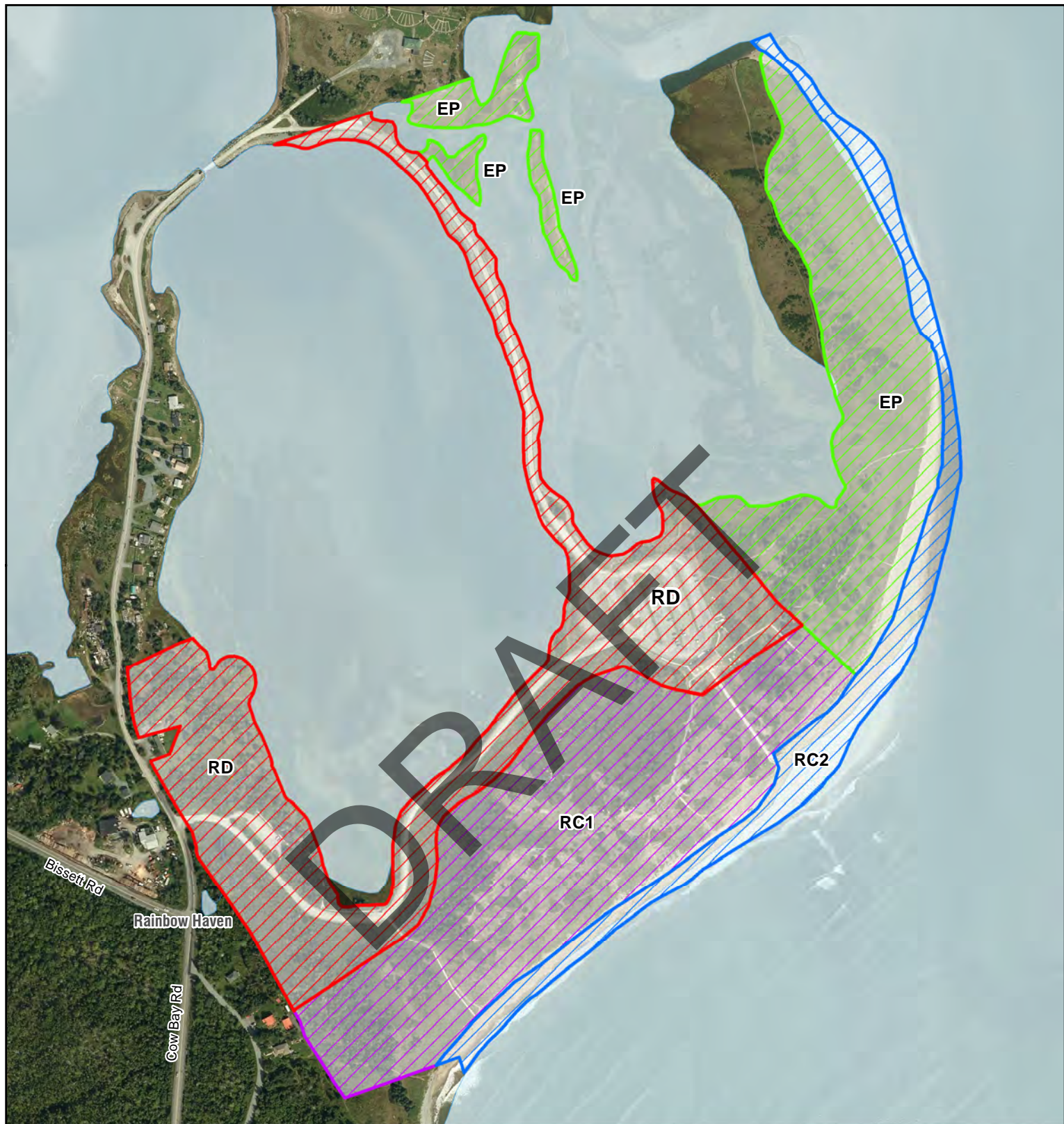
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Wet Areas Mapping: Nova Scotia Department of Natural Resources



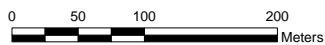
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.

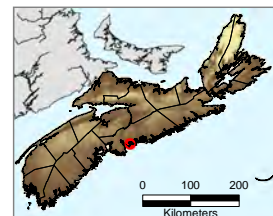


-  Environmental Protection Zone (EP)
-  Resource Conservation Zone 1 (RC1)
-  Resource Conservation Zone 2 (RC2)
-  Recreation Development Zone (RD)

Map 11 - Zoning
Rainbow Haven Beach
 Cole Harbour-Lawrencetown
 Coastal Heritage Park System



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
 Central Meridian 63°00' West, North American Datum (NAD) 1983.



Produced by: Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
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 Date of map is not indicative of data currency.



854 **Appendix 2: Lawrencetown Beach Maps**

855

856 Map 12: Park Boundary

857

858 Map 13: Park Infrastructure

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860 Map 14: Surficial Geology

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862 Map 15: Ecological Land Classification

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864 Map 16: Forested Cover

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866 Map 7: Non-Forested Cover

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868 Map 18: Small Patch Ecosystem

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870 Map 19: Significant Habitat

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872 Map 20: Wetlands

873

874 Map 21: Drainage

875

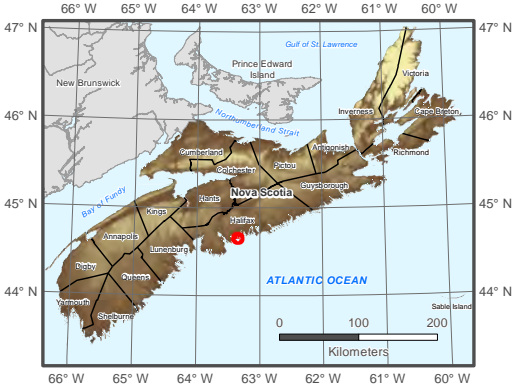
876 Map 22: Park Zoning

877

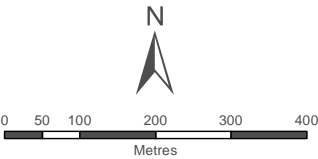


Map 12 - Park Boundary

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary
- Provincial Park
- Trans Canada
- Arterial Highway
- Trunk Highway
- Collector Highway
- Road (Other)
- Track (2m & wider)
- Trail / Footpath
- Railway
- Abandoned Railway



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Topographic Database (NSTDB), Nova Scotia Road Network (NSRN):
Nova Scotia Geomatics Centre
Provincial Parks and Park Reserves: Nova Scotia Department of Natural Resources
Digital Orthophotography: Nova Scotia Department of Natural Resources (2017)



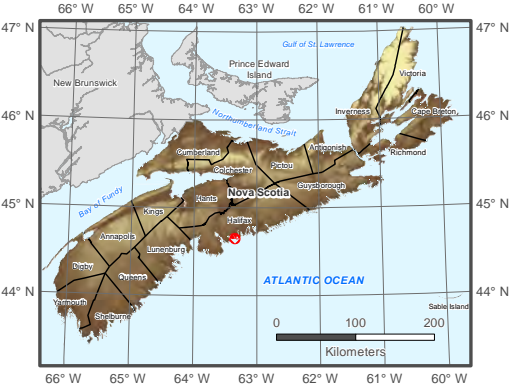
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
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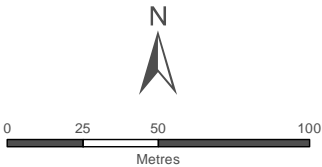
- accessible parking
- beach access
- Core Facility
- flagpole
- gate
- interpretive panel
- park sign
- parking
- shower
- trailhead
- vault toilet mens accessible
- vault toilet womens accessible
- washroom mens
- washroom womens

Map 13 - Park Infrastructure

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- Park Boundary
- Trail
- Boardwalk



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

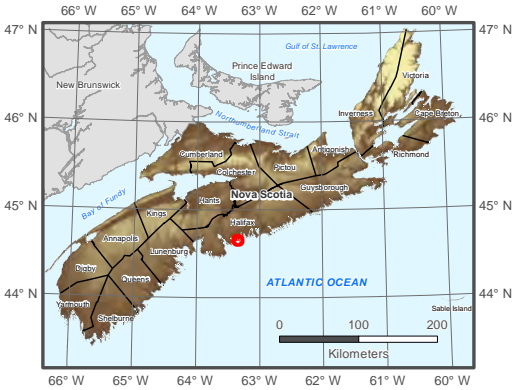
Nova Scotia Topographic Database (NSTDB), Nova Scotia Road Network (NSRN):
Nova Scotia Geomatics Centre
Provincial Parks and Park Reserves: Nova Scotia Department of Natural Resources
Digital Orthophotography: Nova Scotia Department of Natural Resources (2017)



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Date of map is not indicative of data currency.

Map 14 - Surficial Geology

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary

Trans Canada

Arterial Highway

Trunk Highway

Collector Highway

Road (Other)

Track (2m & wider)

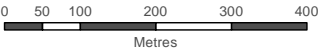
Trail / Footpath
- Park Boundary

Surficial Geological Units

Marine Deposits

Silty Drumlin (Drumlin Facies)

Stony Till Plain (Ground Moraine)



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

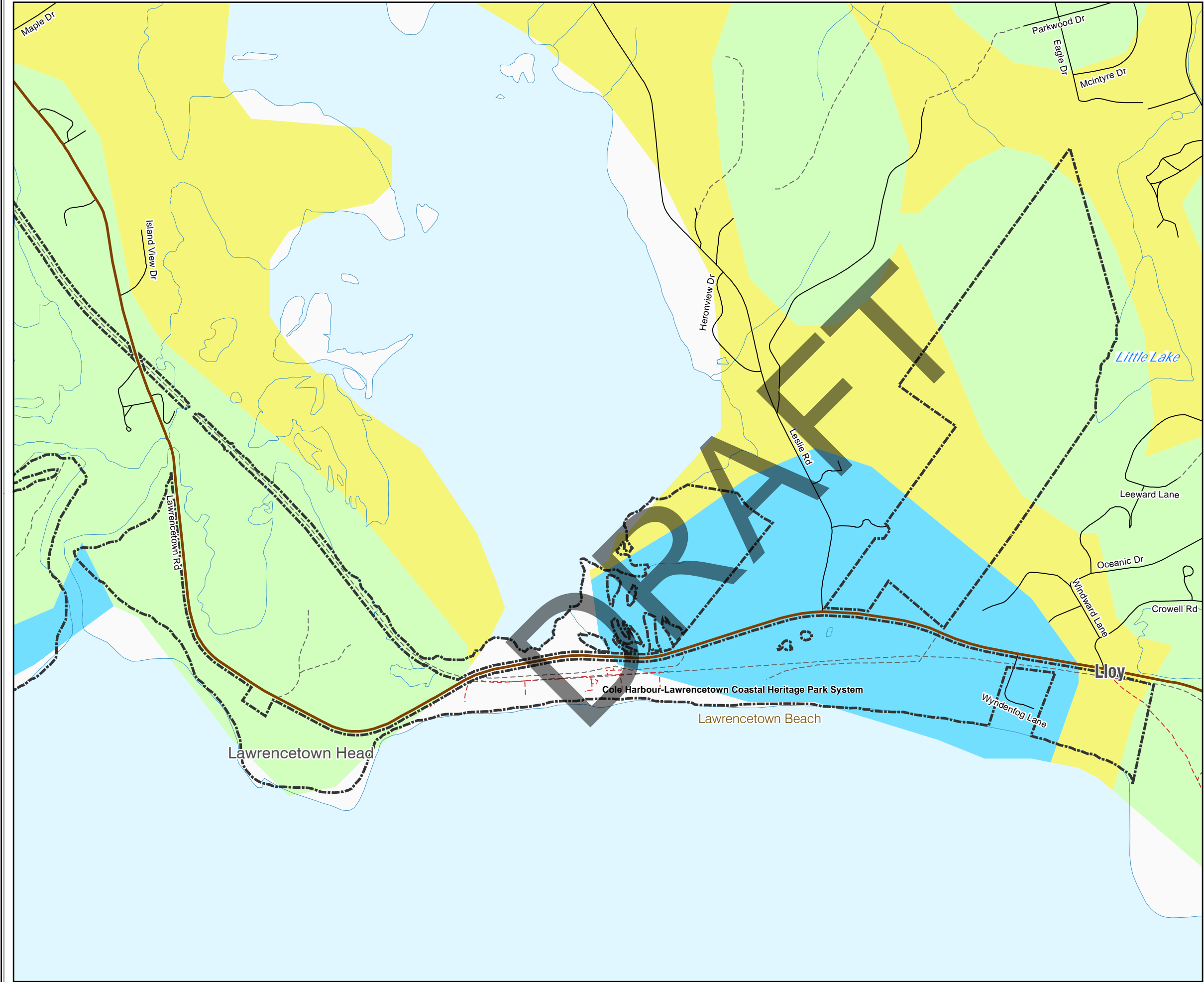
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

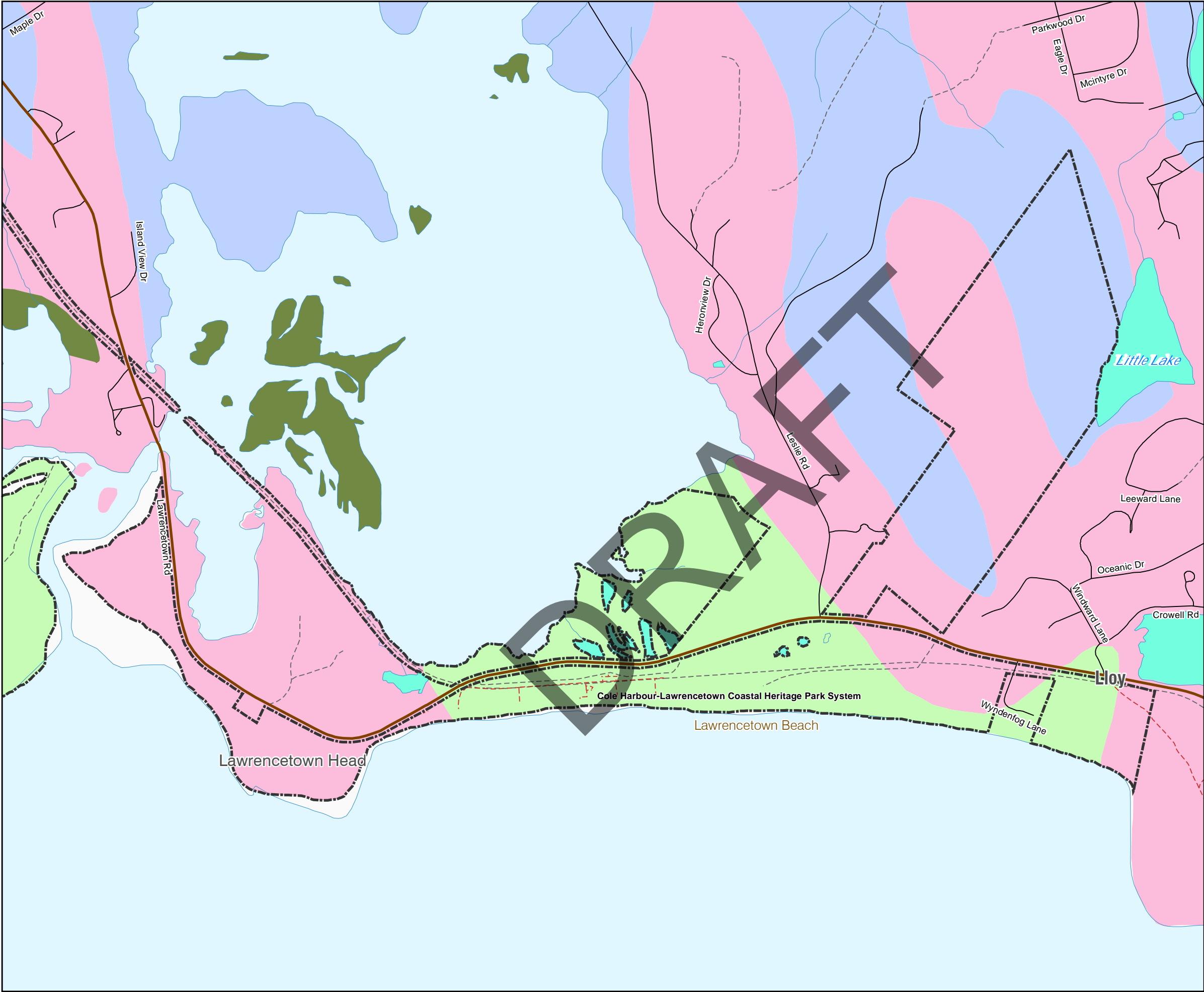
Surficial Geology (1:500,000): Nova Scotia Department of Natural Resources



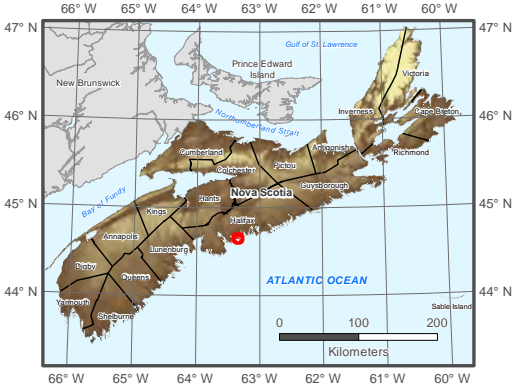
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

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Date of map is not indicative of data currency.





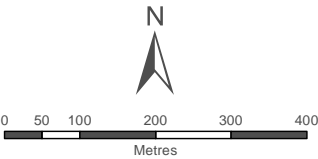
Map 15 - Ecological Land Classification
Lawrencetown Beach
Cole Harbour-Lawrencetown Coastal Heritage Park System



- | | |
|--------------------|-------------------|
| County Boundary | Park Boundary |
| Trans Canada | Ecosection |
| Arterial Highway | IMHO |
| Trunk Highway | WFDM |
| Collector Highway | XXCB |
| Road (Other) | XXMS |
| Track (2m & wider) | XXWA |
| Trail / Footpath | |

Ecosection Classification

IMHO Imperfectly drained, medium textured soils on hummocky terrain
WFDM Well drained, fine textured soil on drumlins or flutes
XXCB Coastal beach
XXMS Salt marsh
XXWA Inland water



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

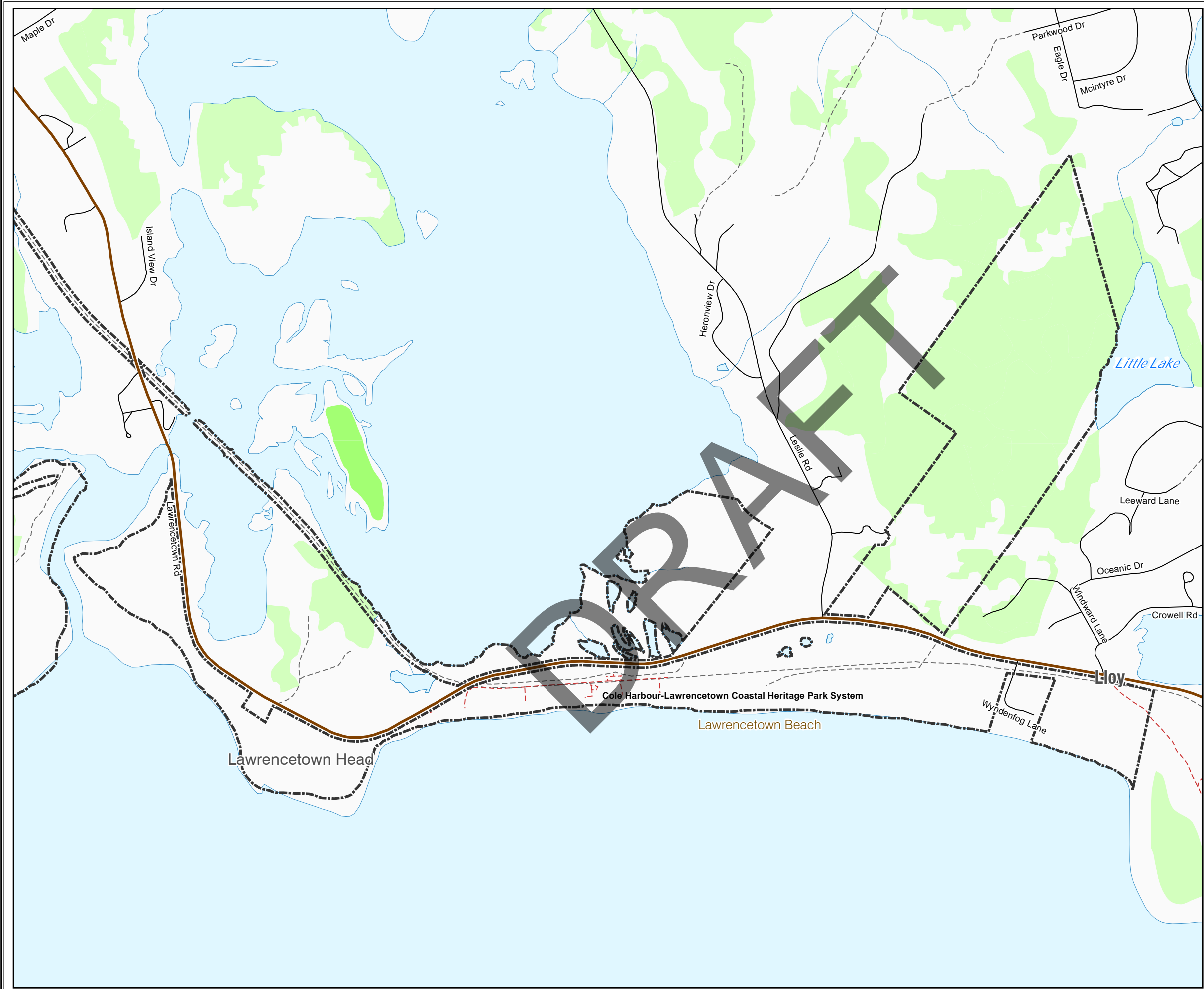
Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Ecological Land Classification:
Nova Scotia Department of Natural Resources. Updated: August 11, 2017

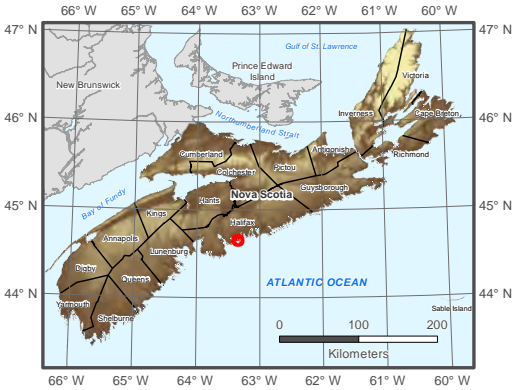


Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.

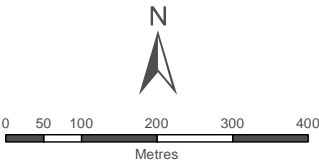


Map 16 - Forest Cover-type

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- | | |
|--------------------|--------------------------|
| County Boundary | Park Boundary |
| Trans Canada | Forest Cover-type |
| Arterial Highway | Softwood |
| Trunk Highway | Mixedwood |
| Collector Highway | |
| Road (Other) | |
| Track (2m & wider) | |
| Trail / Footpath | |



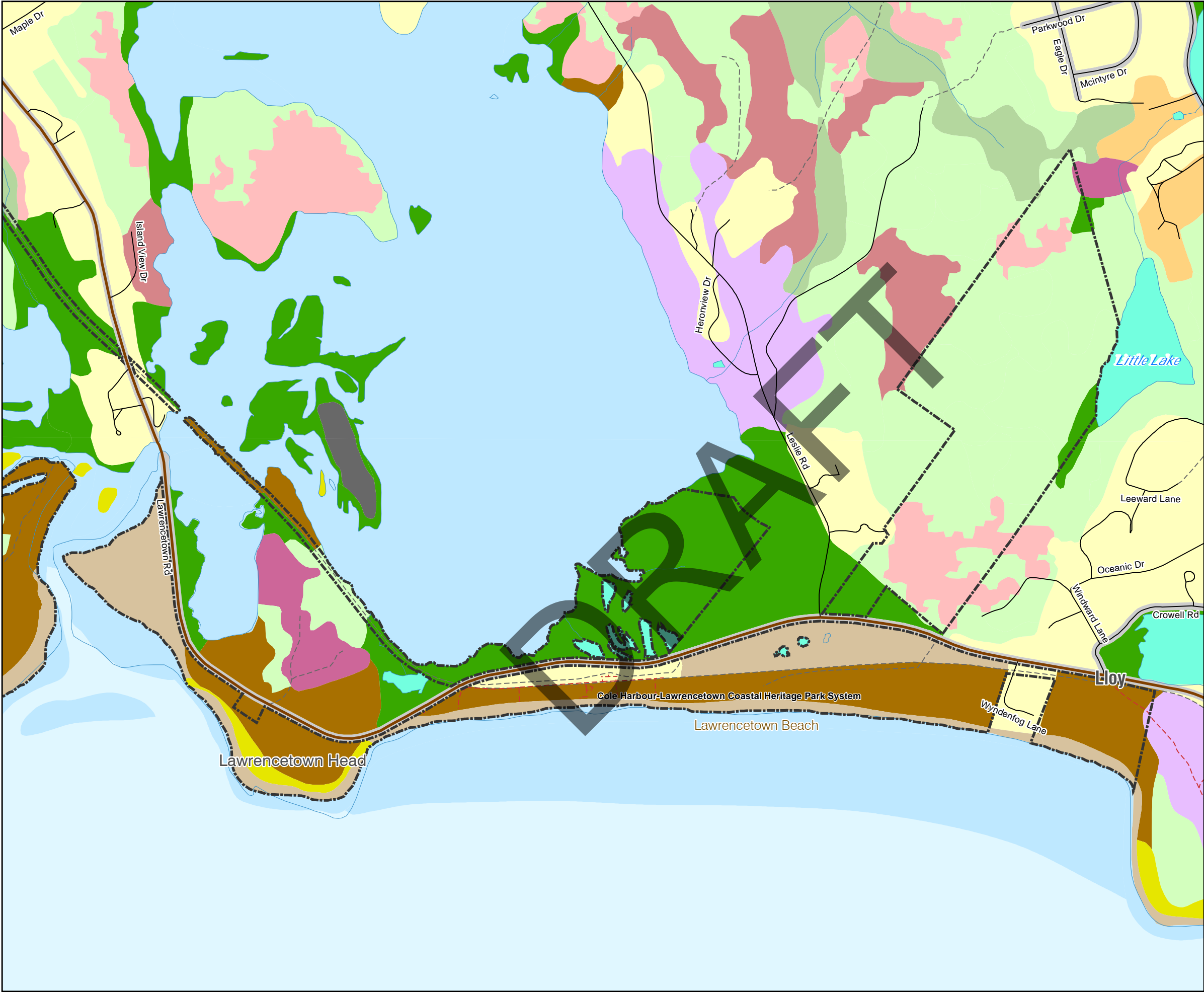
6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Forest Inventory 1995-present (Cycle 2 and 3 with Additional Updates): Nova Scotia Department
of Natural Resources

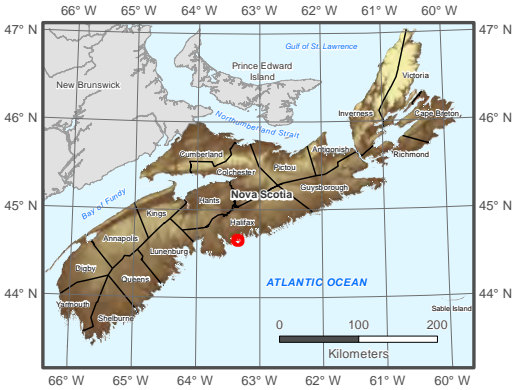


Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
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Date of map is not indicative of data currency.

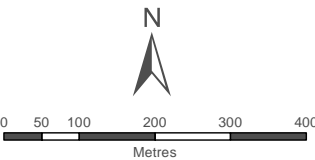


Map 17 - Non-Forested

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- | | |
|--------------------|------------------------------|
| County Boundary | Park Boundary |
| Trans Canada | Non-Forested |
| Arterial Highway | Natural stand |
| Trunk Highway | Old field |
| Collector Highway | Wind throw |
| Road (Other) | Dead (<25% live) |
| Track (2m & wider) | Clear cut |
| Trail / Footpath | Wetlands general |
| | Treed bogs |
| | Coastal habitat areas |
| | Cliffs, dunes, coastal rocks |
| | Inland water |
| | Ocean |
| | Barren |
| | Agriculture |
| | Urban |
| | Beach |
| | Gravel pit |
| | Road corridor |



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

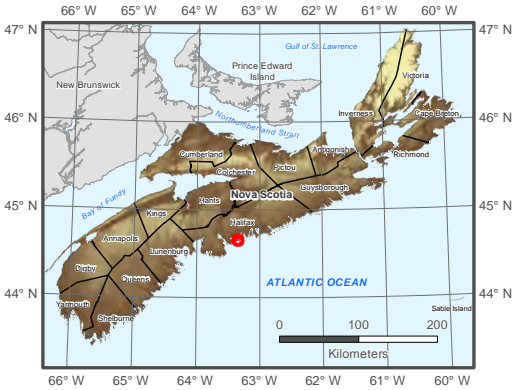
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Forest Inventory 1995-present (Cycle 2 and 3 with Additional Updates): Nova Scotia Department
of Natural Resources



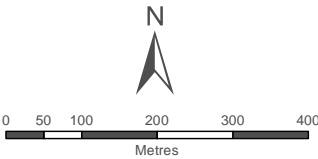
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
The Province of Nova Scotia accepts no liability for any errors, deficiencies, or faults on this map.
Date of map is not indicative of data currency.



Map 18 - Small Patch Ecosystems
Lawrencetown Beach
Cole Harbour-Lawrencetown Coastal Heritage Park System



- | | |
|--------------------|-------------------------------|
| County Boundary | Park Boundary |
| Trans Canada | Small Patch Ecosystems |
| Arterial Highway | Beach/dune |
| Trunk Highway | Coastal barren |
| Collector Highway | Coastal cliff |
| Road (Other) | Coastal shrub bog |
| Track (2m & wider) | Coastal shrub fen |
| Trail / Footpath | Coastal treed bog |
| | Coastal treed fen |
| | Erosional seabluff |
| | Estuarine flat |
| | Lagoon |
| | Offshore Island |
| | Salt Marsh |
| | Vernal pond |



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

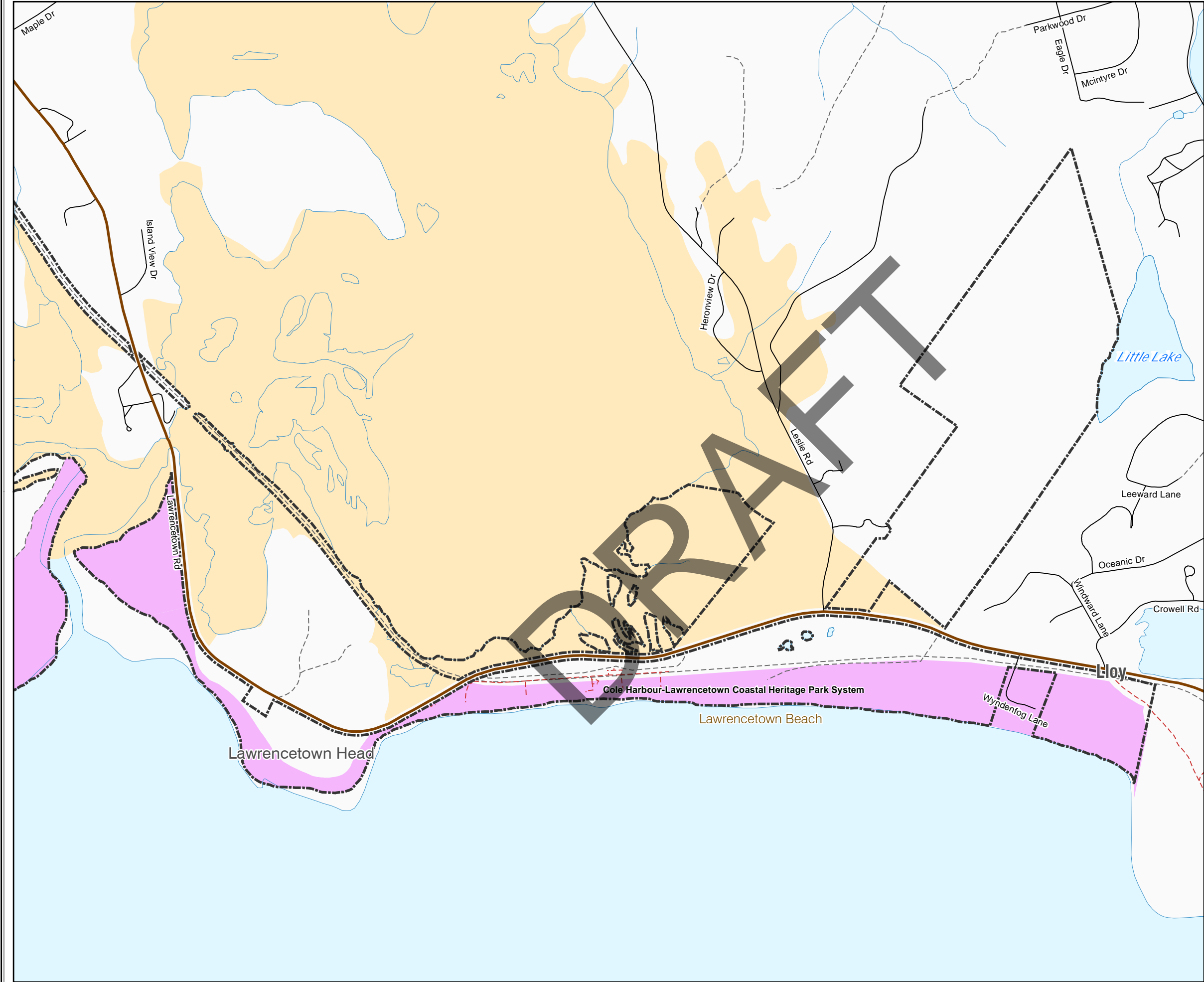
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Small Patch Ecosystems: Nova Scotia Department of Environment



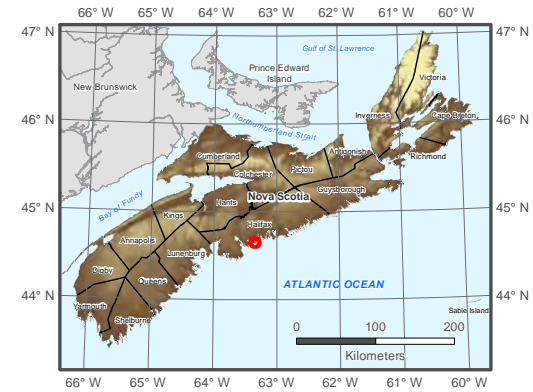
Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.

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Date of map is not indicative of data currency.

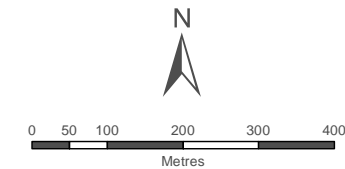


Map 19 - Significant Habitat

Lawrencetown Beach Cole Harbour-Lawrencetown Coastal Heritage Park System



- | | | | |
|--|--------------------|--|-----------------|
| | County Boundary | | Park Boundary |
| | Trans Canada | | Migratory Bird |
| | Arterial Highway | | Species at Risk |
| | Trunk Highway | | |
| | Collector Highway | | |
| | Road (Other) | | |
| | Track (2m & wider) | | |
| | Trail / Footpath | | |



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:
Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Significant Species and Habitats Databases: Nova Scotia Department of Natural Resources

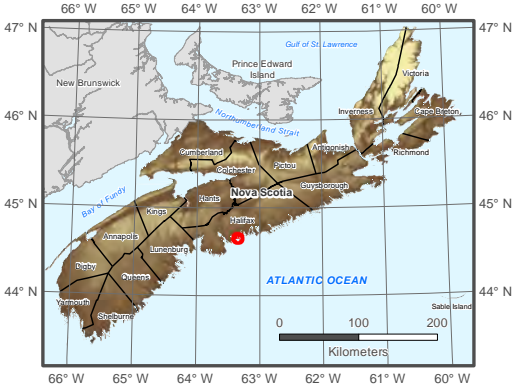


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Date of map is not indicative of data currency.

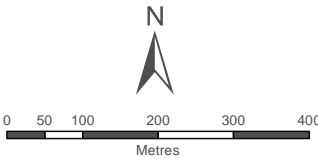


Map 20 - Wetlands

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- | | |
|--------------------|-----------------|
| County Boundary | Park Boundary |
| Trans Canada | Wetlands |
| Arterial Highway | Marsh |
| Trunk Highway | Salt Marsh |
| Collector Highway | Swamp |
| Road (Other) | |
| Track (2m & wider) | |
| Trail / Footpath | |



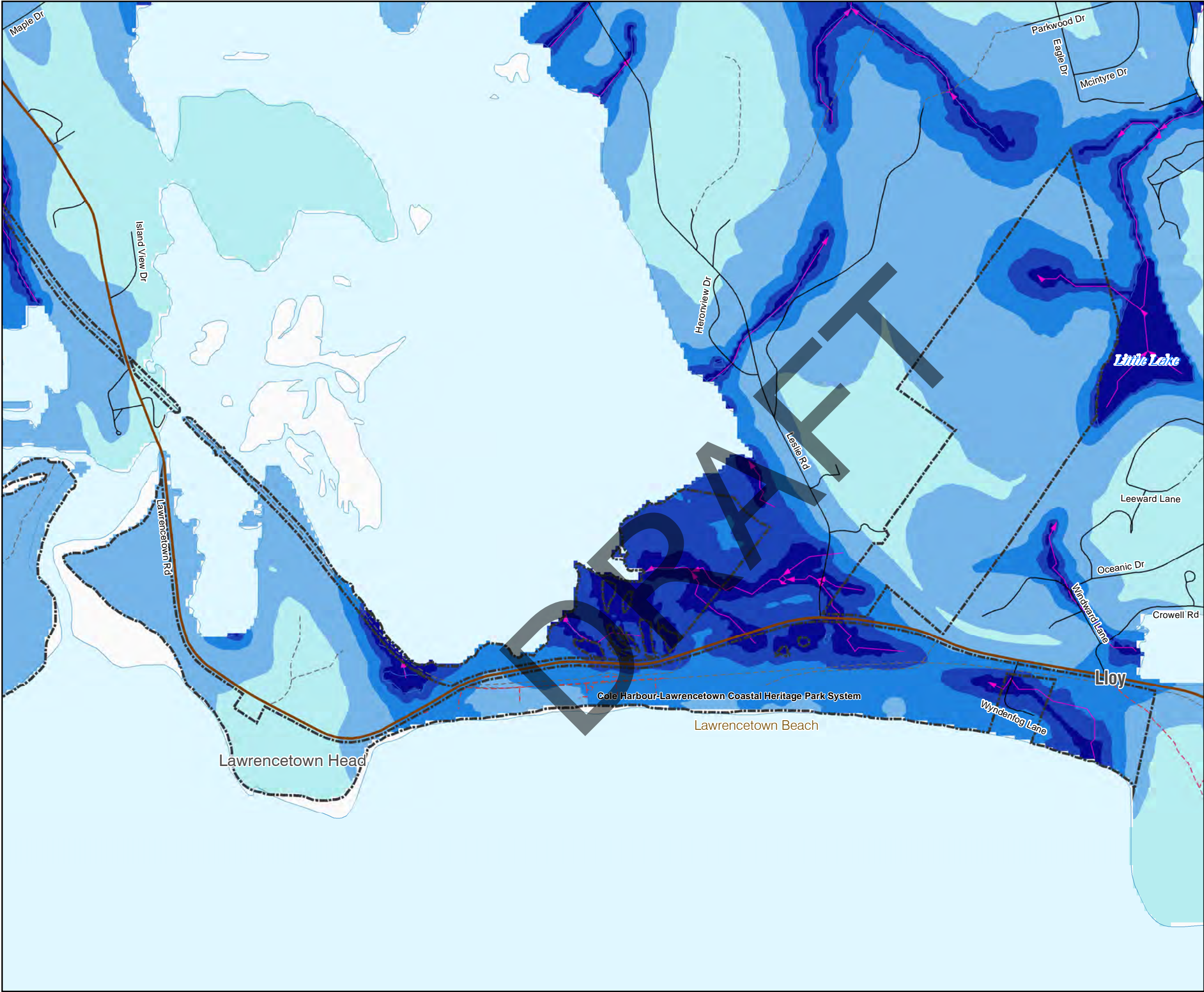
6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations
Wetland Vegetation and Classification: Nova Scotia Department of Natural Resources

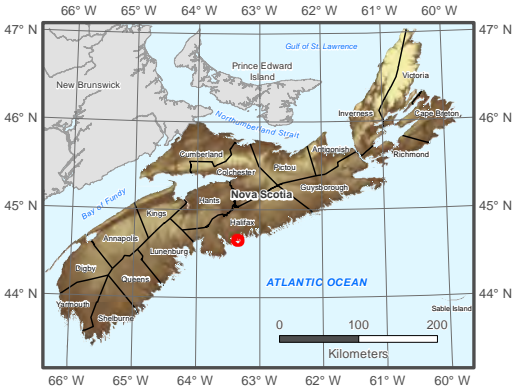


Produced by: NS Department of Natural Resources - Parks, Outreach, and Service Delivery, 2018.
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Date of map is not indicative of data currency.

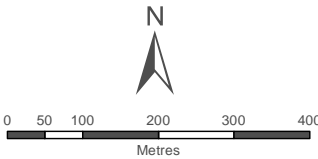


Map 21 - Drainage

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- County Boundary
- Trans Canada
- Arterial Highway
- Trunk Highway
- Collector Highway
- Road (Other)
- Track (2m & wider)
- Trail / Footpath
- Park Boundary
- Drainage Direction
- Depth to water table
 - 0 - 0.10m
 - 0.11 - 0.5m
 - 0.51 - 2m
 - 2.01 - 10m
 - > 10m



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations

Wet Areas Mapping: Nova Scotia Department of Natural Resources



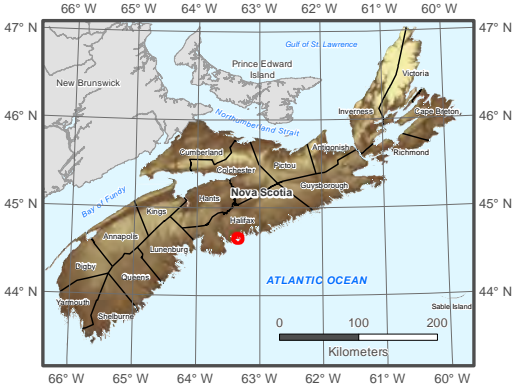
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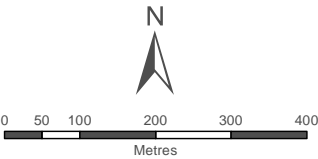


Map 22 - Zoning

Lawrencetown Beach
Cole Harbour-Lawrencetown
Coastal Heritage Park System



- Environmental Protection Zone 2 (EP2)
- Resource Conservation Zone 1 (RC1)
- Resource Conservation Zone 2 (RC2)
- Resource Conservation Zone 3 (RC3)
- Resource Conservation Zone 4 (RC4)
- Resource Conservation Zone 5 (RC5)
- Recreation Development Zone 1 (RD1)
- Recreation Development Zone 2 (RD2)



6° Universal Transverse Mercator (UTM) Projection, Zone 20,
Central Meridian 63°00' West, North American Datum (NAD) 1983.

Data Sources:

Nova Scotia Road Network, Nova Scotia Topographic Database:
Service Nova Scotia and Municipal Relations



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