HALIFAX

Regional Municipal Planning Strategy

OCTOBER 2014

Regional Municipal Planning Strategy

I HEREBY CERTIFY that this is a true copy of the Regional Municipal Planning Strategy which was duly passed by a majority vote of the whole Regional Council of Halifax Regional Municipality held on the 25th day of June, 2014.

GIVEN UNDER THE HAND of the Municipal Clerk and under the corporate seal of the Municipality this ____ day of _____, 2014.

_____
Cathy Mellett
Municipal Clerk

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CHAPTER 1: INTRODUCTION

1.1 THE FIRST FIVE YEAR PLAN REVIEW

The Regional Plan, as adopted in 2006, emphasized a balanced approach to development and established targets for directing housing growth over the life of the Regional Plan (2006-2031). Twenty-five percent of the growth was to be directed to the Regional Centre (Peninsula Halifax and Dartmouth between the Circumferential Highway and Halifax Harbour); fifty percent directed to the urban communities (communities serviced with publicly managed water and wastewater services outside the Regional Centre) and the remaining twenty-five percent to the rural areas.

In preparing the first five year review of the Plan, the Stantec Quantifying Study[1] was commissioned to assess the public, private and social costs and benefits of various growth scenarios from 2011 to 2031. That Study also considered how these scenarios may impact our environment, health and social well-being and benchmarked HRM with other Canadian and US municipalities to assist in this evaluation. Significant conclusions reached by that Study were that:

- Adhering to the Regional Plan growth targets of 25% of new housing starts (growth) in the Regional Centre, 50% in the urban communities and 25% in the rural areas of HRM is estimated to save $670 million over the current pattern of development.
- Significant additional cost savings could be achieved by increasing growth in the Regional Centre.

The Regional Plan shall target at least 75% of new housing units to be located in the Regional Centre and urban communities with at least 25% of new housing units within the Regional Centre over the life of this Plan.

As a component of this review, an inventory of potentially developable lands within the urban communities, outside the Regional Centre, was undertaken in the fall of 2013. It was estimated that there was sufficient supply for at least 28 to 35 years based on a growth rate in urban communities of 1,200 households per year. The supply will be monitored on an on-going basis[2].

[1] Stantec, 2013. Quantifying the Costs and Benefits to HRM, Residents and the Environment of Alternate Growth Scenarios.

[2] According to Statistics Canada census data, the number of households in HRM grew by 10,015 from 2006 to 2011 – an average of 2,003 per year. If this growth rate was assumed to continue in the future and 50% of this growth was assigned to the urban communities (1,003 households per year), the available supply would be estimated to last 33 to 42 years without any consideration given to the potential for redevelopment, infilling or auxiliary dwelling units. Staff applied a more conservative estimate of 1,200 dwelling units per year in the urban communities based on a previous projection undertaken for HRM by Altus in 2009. Stantec (see Table 1) projects a significant increase in growth in dwelling units between 2016 and 2021.

Amendments introduced through this first five year Regional Plan review focus on the following themes and actions:

Sustainable Solutions:

- Introduce standards for low impact "green" development.
- Ensure that new development pays its fair share to protect the tax rate.
- Expand the use of tools that increase housing affordability, heritage protection, support for culture, control of overall resource and energy consumption, and reduction of greenhouse gas emissions.
- Enhance open space planning by introducing the concept of greenbelting to shape communities and build a network of connected natural and public spaces for future generations.

Enhance the Regional Centre:

- Prepare new land use policies, bylaws, and design guidelines that ensure high quality growth at an appropriate density and scale.
- Create incentives for growth through streamlined development approval processes, tax policies, density bonusing, capital investments and other strategies to attract new development to achieve the Regional Plan's urban growth targets.
- Create robust tools that protect neighbourhood character and scale.

Improve Urban and Rural Community Design:

- Introduce new design standards that create more attractive and sustainable ("green") communities and more beautiful, walkable and complete communities.
- Direct new growth to areas where infrastructure and services already exist.

Make Land Use and Transportation Planning Mutually Supportive:

- Direct growth to designated growth areas based on available infrastructure and services (i.e. growth centres and corridors).
- Support and reinforce growth areas by an appropriately designed transit service and active transportation network.
- Improve the experience of transit users, enhance transit service in appropriate areas, and increase ridership, while reducing single-occupant vehicle commuting. Investment in active transportation and car-sharing options will be supported wherever possible to help provide alternatives to vehicle ownership.

1.2 VISION AND PRINCIPLES

Vision

HRM's vision for the future is to enhance our quality of life by fostering the growth of healthy and vibrant communities, a strong and diverse economy, and sustainable environment.

Guiding Principle

This Plan will seek to address the needs and views of all sectors of HRM, recognizing the diversity of its citizens, community and geography.

Principles

This Plan:

- **Provides a framework which leads to predictable, fair, cost-effective and timely decision-making;**
- **Supports development patterns that promote a vigorous regional economy;**
- **Preserves and promote sustainability of cultural, historical and natural assets;**
- **Supports the Regional Centre as the focus for economic, cultural and residential activities;**
- **Manages development to make the most effective use of land, energy, infrastructure, public services and facilities, and foster healthy lifestyles;**
- **Ensures opportunities for the protection of open space, wilderness, natural beauty and sensitive environmental areas; and**
- **Develops integrated transportation systems in conjunction with the above principles.**

1.3 OBJECTIVES

Environment, Energy and Climate Change

1. Promote an approach to environmental management and economic development that supports a sustainable future through cooperation with other levels of government, government agencies, private landowners, and non-government organizations;

2. Foster a land management and community design approach which integrates preservation of lands of ecological, cultural and environmental significance; lands suited for renewable resource extraction; and lands suited for parks, trails and corridors which provide recreational and educational opportunities;

3. Adopt development practices that sustain air, land, water and groundwater resources and respond to climate change; and

4. Conserve energy and respond to climate change.

Settlement and Housing

1. Direct growth so as to balance property rights and life style opportunities with responsible fiscal and environmental management;

2. Focus new growth in centres where supporting services and infrastructure are already available;

3. Target at least 75% of new housing units to be located in the Regional Centre and urban communities with at least 25% of new housing units within the Regional Centre over the life of this Plan;

4. Design communities that:
   (a) are attractive, healthy places to live and have access to the goods, services and facilities needed by residents and support complete neighbourhoods as described in 6.2.2 (v) of this Plan;
   (b) are accessible to all mobility needs and are well connected with other communities;
   (c) protect neighbourhood stability and support neighbourhood revitalization;
   (d) preserve significant environmental and cultural features;
   (e) promote community food security**;**
   (f) provide housing opportunities for a range of social and economic needs and promote aging in place;

4. Maintain the integrity of rural communities;

5. Preserve agricultural and resource lands;

6. Provide opportunities to establish a network of interconnected greenbelts and open spaces; and

7. Support housing affordability.

Transportation

1. Implement a sustainable transportation strategy by providing a choice of integrated travel modes emphasizing public transit, active transportation, carpooling and other viable alternatives to the single occupant vehicle;

2. Promote land settlement patterns and urban design approaches that support fiscally and environmentally sustainable transportation modes;

3. Forecast HRM's need for mobility and provide service and infrastructure to meet this demand while influencing choices towards transportation sustainability; and

4. Design complete streets for all ages, abilities, and modes of travel.

Economy and Finance

1. Build a vibrant and attractive Regional Centre that attracts private investment and more residents;

2. Promote a business climate that drives and sustains growth by improving competitiveness and by leveraging our strengths;

3. Create a welcoming community where the world's talent can find great opportunities, engaged employers and resources for career advancement;

4. Create a unique, international brand for HRM;

5. Capitalize on our best opportunities for economic growth;

6. Ensure that there are sufficient lands available along the harbour and in business parks to provide economic opportunities;

7. Support and enhance our land, port and air transportation facilities;

8. Create an economic climate that enhances the viability of working lands and conserves natural lands; and

9. Prepare financial plans and strategies that support and encourage the outcomes of this Plan, including environmental conservation, housing affordability, economic competitiveness, revitalization of the Regional Centre and neighbourhood stability.

Regional Centre

1. Adopt a Regional Centre Plan which achieves the vision statement and guiding principles endorsed by Regional Council;

2. Adopt heritage plans and programs that further preserve and enhance the viability of heritage properties, streetscapes, and districts;

3. Prepare capital and operating expenditure programs that enhance development within the Regional Centre, with emphasis of resources on downtown Halifax and Dartmouth**,** and take advantage of opportunities to strategically leverage other public and private sector investments; and

4. Create financial and regulatory incentives to stimulate desired growth.

Cultural and Heritage Resources

1. Preserve and enhance the viability of cultural and heritage resources in HRM and develop policies, programs and regulations to protect and enhance them;

2. Promote cultural and heritage considerations in HRM's broader planning and municipal decision making processes;

3. Assist communities in identifying and celebrating cultural and heritage assets;

4. Support cultural and heritage tourism through investment in signature cultural and heritage attractions and events;

5. Broaden heritage protection through the identification and preservation of cultural landscapes; and

6. Increase opportunities for cultural activity and bolster the creative economy.

7. Recognize the importance of arts, including professional arts, to the creative economy and vitality of our region.

Municipal Water Services, Utilities and Solid Waste

1. Coordinate municipal initiatives with the Halifax Regional Water Commission (Halifax Water) to:

   (a) provide water, wastewater and stormwater services in a cost-effective manner;
   (b) recoup growth related costs from benefitting property owners; and
   (c) reduce degradation to the natural environment.

2. Manage growth to make the best use of existing water, wastewater and storm infrastructure and avoid unnecessary or premature expenditures;

3. Support environmentally sustainable practices for developments serviced with on-site water and wastewater services;

4. Reduce above grade electrical and telecommunication lines; and

5. Encourage the development of a comprehensive natural gas distribution system; and
6. Reduce the amount of solid waste generated and operate solid waste facilities in an environmentally responsible and cost-effective manner.

Governance and Implementation

1. Engage citizens in the development of policies, programs and services as the basis for building healthy, strong and inclusive communities;

2. Monitor the effectiveness of policies and programs of this Plan;

3. Undertake periodic reviews of this Plan to assess whether changes are needed; and

4. Ensure that HRM policies and programs are aligned to achieve the vision and objectives of this Plan.

1.4 HRM: FROM PAST TO PRESENT

1.4.1 Settlement in HRM

The earliest evidence of the Mi'kmaq culture in what is now known as HRM can be traced to 10,000 years ago. European settlement can be traced to the Portuguese, Basque, English and French fishermen. The French claimed Nova Scotia as part of Acadia in the 1600s but Halifax was established by the British in 1749 as a strategic military site. Culture is never static, and HRM's culture and heritage continues to change and be re-defined through the contribution and interaction of founding communities and the arrival of more recent immigrants.

While the city famously grew around the Citadel fortress on the Halifax Peninsula, settlement did not stay confined to the Peninsula for long. Much of the commercial and government employment, including the Royal Canadian Navy, was focused in Downtown Halifax, while Downtown Dartmouth became an important manufacturing centre. In the rural areas beyond, most people lived off the land or sea through farming, fishing, or both, and were spread relatively evenly along the shorelines and inland waterways. The railways brought new levels of mobility to areas beyond traditional coach roads or water transportation, allowing more population to be located at greater distances from economic centres.

1.4.2 Regional Growth

Since the 1950s, the trend has been strongly toward dispersion of residential population from the urban core. Although the residential areas of Peninsula Halifax and Downtown Dartmouth remain robust, economic and technological changes, cross-harbour bridges, the provincial freeway system, early regional planning efforts, and provincial land banking for new housing helped drive population away from the economic hub and clustering of employment (the urban core). These trends have been augmented by the variability of our topography, the impact of our irregular coastline and the presence of our deep harbour. Our harsh geology impacts the cost of construction in many areas, resulting in development that may be challenging to connect and service within the larger region[3].

Recent benchmarks, however, suggest a fairly encouraging picture of HRM's position with respect to population density when compared to six other Canadian municipalities. Although the region is growing more slowly than its comparators, it is fifth among the seven in terms of density of the Census Metropolitan Areas[4]. Among the benchmark regions, its Central Business District population density is second, following only Quebec City. HRM also ranks second to Regina in terms of the density of combined residents and employees in the CBD but has considerably more residents than Regina, suggesting a better integrated downtown area. Overall, HRM is seen to have a balanced pattern of development between its Regional Centre and other growth centres which is conducive to the use of transit and active modes of transportation[5].

[3] Stantec Study, 2013.
[4] Stantec, 2013 based on new 2011 data by which the Halifax CMA has a density of 71.0 persons per km^2
[5] Stantec, 2013 p. 2.10 citing Transportation Association of Canada

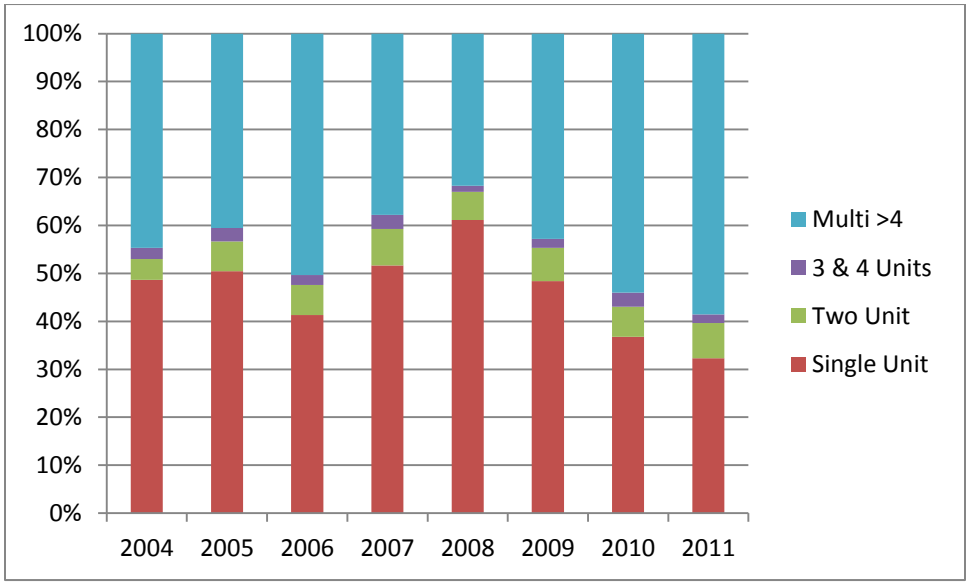
As the largest municipality in the Atlantic Canada, HRM also has a variety of roles to play. It is the capital of Nova Scotia. It is the primary point of international entry to, and exit from Atlantic Canada. It is an important centre of production and an even more important centre for the delivery and management of goods and services. It is also a major cultural centre that people outside of Atlantic Canada look upon as a reflection of the region, and to which people within the region look as a leader.

1.4.3 Development Trends

HRM's past population trend has resulted in a dispersed settlement pattern in many areas, where increasingly larger amounts of land are used by individual households. This in turn has led to higher infrastructure and delivery costs to service these areas. Since 2000, the population in the Regional Centre has stabilized, but the urban communities have continued to attract new residents, and rural commuter subdivisions have spread outwards. Conversely, another trend observed since 2006 is the continued population loss in HRM's more remote rural communities on the Eastern Shore.

One of the key trends in recent decades is the move towards higher density development largely explained by smaller household sizes and more difficult financing options. One-person households are currently the fastest growing category, increasing by 26% in the last decade[6].

Fig. 1-1: New Dwelling Units in HRM by type (2004-2011) Source: HRM



[6] Nova Scotia Community Counts, 2012. www.gov.ns.ca/finance/communitycounts

1.5 HRM: A SUSTAINABLE AND PROSPEROUS FUTURE

Future patterns of development in HRM will be influenced by trends in population, the strength of the economy and employment opportunities, public infrastructure, planning regulations, housing choices and affordability of housing. Projected trends from now until 2031 indicate that employment will continue to grow, albeit at lower levels than the 1996-2006 period. Meanwhile the number of available workers will decrease as the age distribution shifts towards a larger proportion of residents over the age of 65, with corresponding demand for higher density housing. Each of these projected patterns is discussed in more detail below.

1.5.1 Economy and Employment

Within Nova Scotia and the broader Atlantic regional economy, HRM has traditionally shown strong economic performance, and the conditions are set to continue to create relatively more employment than the rest of Atlantic Canada over the next 25 years. Actual growth in HRM will be affected by offshore oil and gas activity levels, as well as a continued restructuring in manufacturing, fishing and forestry industries. Some workers displaced from those industries will need time for retraining before they re-enter the workforce[7]. The short term will see a continuation of the slow-growth stability typical of the Halifax area.

In 2012 a major shipbuilding project was announced by the Government of Canada for HRM. The Conference Board of Canada has suggested that the project will generate an average of 8,500 Nova Scotia jobs over its lifetime to the year 2030, with a peak of 11,500 around the year 2021[8].

1.5.2 Population and Housing

HRM had relatively stable population growth over the last 25 years. In 1976, the population was less than 280,000, rising to approximately 384,778 by 2006 and to over 409,510 by 2011. This growth has not occurred uniformly across HRM, but has instead been focussed mainly in the urban communities and rural areas within commuting distance of the Regional Centre.

The population growth of HRM over the 25-year period between 2011 and 2031 is projected to be approximately 73,115 persons, using a base case scenario[9]. Two thirds of net migration is expected to come from international sources, while the remainder is expected from other parts of Canada[10]. HRM's population is indeed growing increasingly diverse, with over 11,000 new immigrants arriving in HRM since 2006, comprising 76% of provincial in-migration[11]. HRM is also becoming a magnet for foreign students, who numbered 3,000 in 2002 and 6,000 in 2011[12]. The Aboriginal and African Nova Scotian communities are also growing at a faster pace than the rest of the population, presenting significant economic and cultural opportunities.

[7] Altus Group. 2009. Employment, Population and Housing Projections Halifax Regional Municipality: An Update. p. 12
[8] Conference Board of Canada, cited in Stantec, Quantifying the Costs and Benefits of Alternative Growth Scenarios, (Halifax Regional Municipality, 2013
[9] Stantec, 2013, updated from Altus, 2009.
[10] Altus, 2009.
[11] CIC Facts and figures 2011 Canada – permanent residents in province or territory and urban area.

With respect to an aging population, by 2031 there will be more than twice the number of people over the age of 65 than in 2001 (163% increase), and the number of school aged children is expected to level off (see Fig. 1-2). This shift in age distribution will have significant implications on the demand for housing and types of services provided in HRM.

Potential household growth, and ultimately housing demand, is a function of the projected population by age and the number of people in each age group who are expected to head up a household. As indicated above, using the base case scenario over the period 2011 to 2031, HRM is now expecting a total of almost 39,160 new dwelling units (see Table 1-1)[13] and 42,239 new commuters.

Fig. 1-2: HRM Population Growth by Age (2001-2031) Base Case Scenario

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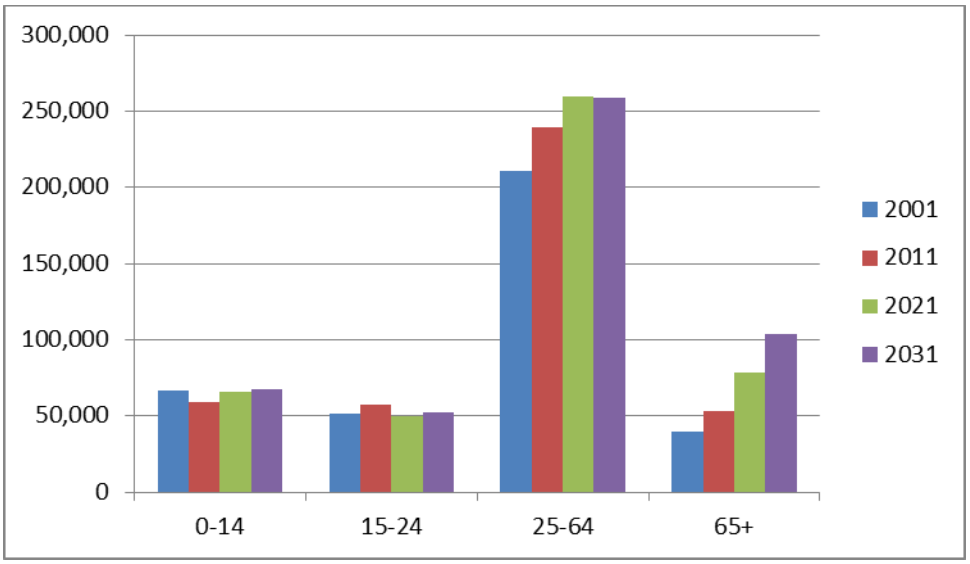

http://www.cic.gc.ca/english/resources/statistics/facts2011/permanent/11.asp

[12] CIC Facts and figures 2011 – Immigration overview: Permanent and temporary residents. Temporary residents Canada – Foreign students present on December 1st by province or territory and urban area. http://www.cic.gc.ca/english/resources/statistics/facts2011/temporary/16.asp

[13] Altus, Group Economic Consulting, 2009, cited in Stantec, 2013

Table 1-1 Key Growth Scenario Projection Parameters (2011-2031) Source: Stantec, 2013, Altus (2009)

Population, Housing and Labour Force Projections Based on Statistics Canada Estimates, 1996-2031									
	1996	2001	2006	2011	2016	2021	2026	2031	Change 2011-2031
Census Population*	342,975	359,195	372,858	390,328	406,305	425,060	438,125	N/A	
Population Estimates**	351,740	369,245	384,780	409,510	433,605	454,325	470,855	482,625	73,115
- Estimate as % of Census	102.6%	102.8%	103.2%	104.9%	106.7%	106.9%	107.5%	N/A	
- Change		17,505	15,535	24,730	24,095	20,720	16,530	11,770	
- % Change		5.0%	4.2%	6.4%	5.9%	4.8%	3.6%	2.5%	
Estimated Dwelling Units	134,880	148,475	160,105	173,255	183,448	195,754	205,435	212,415	39,160
- Change		13,595	11,630	13,150	10,193	12,307	9,680	6,981	
- % Change		10.1%	7.8%	8.2%	5.9%	6.7%	4.9%	3.4%	22.6%
- Singles & Semis	78,905	88,345	93,505	100,280	107,289	114,596	120,681	125,214	24,934
- Apartments & Other	55,975	60,130	66,600	72,975	76,159	81,158	84,754	87,201	14,226
- % Apartments	41.5%	40.5%	41.6%	42.1%	41.5%	41.5%	41.3%	41.1%	
DU Size	2.61	2.49	2.40	2.36	2.36	2.32	2.29	2.27	-0.09
Population 15 & over**	282,680	302,500	323,755	350,050	371,645	388,140	402,690	415,290	65,240
Estimated Labour Force***	190,240	212,015	224,675	246,085	260,152	272,086	282,286	291,118	45,033
Participation Rate***	67.3%	69.7%	68.9%	70.3%	70.0%	70.1%	70.1%	70.1%	-0.2%
Unemployment**	8.2%	7.1%	5.0%	6.0%	6.0%	6.2%	6.1%	6.2%	0.2%
Employed Labour Force**	174,640	196,960	213,440	231,320	244,540	255,215	265,065	273,070	41,750
- Change**		22,320	16,480	17,880	13,220	10,675	9,850	8,005	
- % Change		12.8%	8.4%	7.1%	5.7%	4.4%	3.9%	3.0%	
Outside Commuters		8,000	9,300	9,500	9,700	9,900	9,990	9,990	490
All Commuters		204,960	222,740	240,820	254,240	265,115	275,055	283,060	42,239

1.6 MUNICIPAL PLANNING STRUCTURE, IMPLEMENTATION AND INTERPRETATION

As of 2013, eighteen Municipal Planning Strategies (MPSs) and thirteen Secondary Planning Strategies had been adopted by HRM (or former municipalities) which serve to guide planning decisions at a community or neighbourhood level. These documents, listed in Appendix B, remain in effect and may be amended or repealed at the discretion of Regional Council.

With the adoption of this Plan, these community or neighbourhood plans and any future ones are deemed secondary planning strategies in accordance with the provisions of the HRM Charter. Over time, HRM will strive to ensure that secondary planning strategies are consistent with this Plan.

1.6.1 Implementation Tools

Implementation of the policies of this Plan and secondary planning strategies is achieved through various means. Five important implementation documents are:

(1) Land Use By-laws (LUBs) regulate the use of land through zoning and can establish a wide range of development standards such as allowable heights and densities to landscaping requirements. LUBs have significant influence on community design and form. Where an MPS has been adopted, there is a corresponding LUB. All lands in HRM have a governing MPS and LUB.

(2) The Regional Subdivision By-law establishes regulations for the subdivision of land throughout HRM. Included in this By-law is the Urban Service Area which establishes areas which may be developed with municipal water, wastewater and stormwater services. This By-law also establishes design standards for public streets, sidewalks and municipal parkland dedication.

(3) Development Agreements, Rezonings and Site Plan Approvals are regulatory tools which may be established by policy provisions under MPS and LUBs in accordance with the provisions of the *HRM Charter* to allow for discretionary approvals by Regional Council or Community Councils. These tools offer flexibility but statutory requirements are imposed on the approval process and appeals.

(4) Priorities Plans, as identified throughout this Plan, are intended as management plans with more detailed actions to be taken to carry out the policy directives of this Plan. These plans may include regulations, programs, facilities or partnerships and associated budgetary requirements. These Priorities/Functional Plans are not to be considered a legal part of this Plan and were originally referred to as Functional Plans in the original version of this Plan.

(5) The Heritage Property By-law, adopted pursuant to the Heritage Property Act of Nova Scotia, allows for the identification, preservation and protection of properties deemed of heritage value to HRM. The Act also allows for the establishment of heritage conservation districts and heritage protection by-law to preserve areas or communities of historic or architectural significance.

1.6.2 Interpretations

There are two frequently used terms found in various policy statements of this Plan– "shall" and "may". The word "shall" denotes a mandatory action; the word "may" denotes a permissive action.

The term "shall consider" appears in the context of policies respecting secondary planning strategies, priorities plans. This term denotes the mandatory consideration of these strategies and plans but does not commit HRM to any approval, adoption or implementation of these strategies or plans.

1.7 ORGANIZATION OF THIS PLAN

This Plan is organized into the following chapters:

Chapter 1 - Introduction: establishes the vision, principles, and objectives of this Plan and provides a brief history of HRM's past, present and projected trends in population, development, housing, economic and social sectors.

Chapter 2 – Environment, Energy and Climate Change: addresses the protection of land, water, and air. It includes such issues as riparian buffers, forest cover, and the natural network (wildlife corridors and species at risk). This chapter provides the framework for the implementation of the *Urban Forest Master Plan*, the *Climate Risk Management Strategy for HRM* and the *HRM Corporate Plan to Reduce Greenhouse Gas Emissions* and for the undertaking of the *Greenbelting and Public Open Space Priorities Plan*.

Chapter 3 - Settlement and Housing: establishes seven land use designations and the associated policies for each. This chapter includes community design guidelines for the centres, in addition to policies for residential infill, incentives for opportunity sites, and the public realm. Relative to housing, it focuses on how this Plan will encourage a variety of housing types to serve different stages of life, and will work towards affordable housing that is integrated into the overall community.

Chapter 4 – Transportation and Mobility: outlines the transportation strategies to be pursued through a series of functional/priorities plans.

Chapter 5 - Economy and Finance: identifies policies and a guiding economic strategy to support development of the Regional Centre, business and industrial parks and Halifax Harbour and long term financial planning.

Chapter 6 – The Regional Centre: provides direction for the preparation of the Regional Centre Plan.

Chapter 7 - Cultural and Heritage Resources: broadens the scope of the Regional Plan to include social heritage and cultural development policy alongside the protection of built heritage, cultural landscapes and archaeological resources and establishes new and revised policies that align with best practices in the culture and heritage field and with the urban design and place-making initiatives that have emerged.

Chapter 8 - Municipal Water Services, Utilities and Solid Waste: explains the role HRM will play in municipal water, wastewater and stormwater services since the 2007 transfer agreement with Halifax Water and how the activities of the two organizations are to be coordinated. Municipal policies towards on-site water and wastewater services, solid waste management, natural gas, communications towers and electrical and telecommunication lines are also outlined.

Chapter 9 – Governance and Implementation: outlines how HRM will engage with its citizens, monitor the effectiveness of this Plan and programs and activities that support this Plan, and how this Plan will be implemented and reviewed.

CHAPTER 2: ENVIRONMENT, ENERGY AND CLIMATE CHANGE

2.0 INTRODUCTION

Protection of water, land and air is a significant component of this Plan. The natural environment is one of the defining features of HRM, with its extensive coastline, lakes, rivers and vast forested areas. Citizens have indicated that anticipating the potential effects of climate change and protection of the natural environment are key priorities for preserving quality of life, community identity, and opportunities for outdoor recreation. The natural environment also provides many ecological and economic benefits to the residents of HRM. Environmental stewardship requires the collaboration of all levels of government and the community.

2.1 OBJECTIVES

1. **Promote an approach to environmental management and economic development that supports a sustainable future through cooperation with other levels of government, government agencies, residents, and non-governmental organizations;**

2. **Foster a land management and community design approach which integrates preservation of lands and aquatic systems of ecological, cultural and environmental significance; lands suited for renewable resource extraction; and lands suited for parks, trails and corridors which provide recreational and educational opportunities;**

3. **Adopt development practices that sustain air, land, water and groundwater resources; and**

4. **Conserve energy and respond to climate change.**

2.2 GREENBELTING: BUILDING AN OPEN SPACE NETWORK

HRM has a vast network of open space. While the conventional concept of open space may imply parks or untouched natural areas, the term “open space” is used here as a land use category to refer to several additional types of land uses with a wide range of functions. Open space is publicly or privately owned, undeveloped land or water, intended to be preserved for agricultural, forest, community form, ecological, historical, public safety, or recreational purposes. It consists of lands for natural resources, agriculture, recreation, environmentally sensitive areas, hazard prone lands, cultural landscapes, natural corridors and trails and preservation areas for potable water and waste/resource management as outlined in Table 2-1.

Table 2-1: Open Space Typology

Open Space Type	Open Space/Land-Use Function	Land-Use Form
Natural Resource	• provision of minerals, timber, fibre • provision of fish, shell fish, aqua-plants • protection and enhancement of air quality and reduction of greenhouse gases • provision of water supply for human consumption	• Commercial forest pulp & paper • Commercial mineral and aggregate lands • Commercial fisheries • Watershed Lands and reservoirs
Agriculture	• provision of livestock grazing or field crop production	• Private and commercial farm lands
Aquaculture	• provision of food • provision of fertilizer	• Commercial aqua farms- land or water
Recreation and Leisure	• presentation of historical, and cultural value • provision of public recreation, leisure and social opportunities • provision of public access to unique natural features • provision of human mobility linkages between neighbourhoods and communities • protection of natural systems and habitats for public appreciation and experience	• Federal, Provincial, and Municipal Parks providing active and passive recreation opportunity including: Urban parks and civic spaces, amenity greenspace, nature-oriented areas with scenic, recreation and aesthetic values, formal gardens, commons and schoolyards, community gardens, community plazas, playgrounds and open play areas, outdoor sports facilities, cemeteries, burial grounds and memorials, waterfronts • Lakes, rivers and other waterways for water-based recreation • Beaches • Corridors o Greenways o Bikeways & pathways o Riparian buffers Streets
Heritage and Culture	• Conservation, management, and display of historical natural habitat (natural influence) • conservation, management, and display of important historical cultural legacies (human	• Cultural and scenic landscapes • Federal, Provincial, Municipal Parks • Archeological and built heritage sites

Open Space Type	Open Space/Land-Use Function	Land-Use Form
	influenced)	
Hazard & Conservation Lands & Waters	• Protection of human settlement from natural environment forces such as flooding, severe erosion, and tidal surging • Protection of natural areas and ecological systems from human impact	• Floodplains • Coastal zones • Steep slopes • Riparian buffers • Forested areas & natural corridors • Waterways & watersheds
Utility Lands	• Provision of energy, telecommunication, water and sewer services for human consumption	• Corridors o Transmission lines o Natural gas transmission lines o Telecommunication transmission lines • reservoirs • Telecommunication stations
Transportation	• Provision of multi-use transportation routes for walking, bicycling and other means of linking various parts of the community or open space system • Provision of mobility options and linear connections	• Corridors o Greenways o Bikeways & pathways o Rivers o Streets o Road rights of way • Public Transit Lands o Transit stations o Ferry terminals o Bus stops
Community Form	Separation, shaping and definition of urban communities and rural settlements	• Scenic and natural buffers • Landscaped and natural areas • Urban Forest

Greenbelting provides a framework for protecting and preserving connectivity between natural areas and open space lands, for enabling their integration into sustainable community design, defining communities, benefiting the Municipality's economy and the physical health of its people. Greenbelting can reflect and support the overall purposes of this Plan.

A *Greenbelting and Public Open Space Priorities Plan* will determine an economically and environmentally sustainable strategy for the maintenance and distribution of parks and open space throughout HRM. It will consider lands of ecological, cultural and environmental significance; lands suited for renewable resource extraction; and lands suited for parks, trails and corridors which provide recreational and educational opportunities. The Plan will complement growth strategies for urban and rural areas through environmental and cultural research, delineation of natural corridors, community design principles, real property planning and community partnerships. It will guide decision making for public lands planning in pursuit of HRM's open space objectives.

In the short term, increased protection of riparian buffers will be introduced. The strategy will also be used as a foundational work for community planning and regional open space planning. The initial phase of work will focus on open space planning for the Regional Centre and the comprehensive planning of the new community of Port Wallace.

2.2.1 Natural Networks

Growth and development throughout HRM has been shaped by a natural network of open space, covering the interior of the Municipality, which is generally inaccessible by public road. It consists mainly of provincial Crown lands as well as lands owned by private companies for forest production and harvesting.

The open space network consists of regional parks, natural corridors and trail systems that have been developed by government agencies, non-governmental organizations and private land owners. The trail systems have become the backbone of a system of interconnected open space and provide opportunity for activities such as back country hiking, biking, portaging and nature appreciation. The natural corridors interconnect natural areas and provide opportunity for wildlife to migrate between habitat patches and maintain natural ecological functions.

Within HRM, this network of open space serves many functions. It shapes settlement form and provides natural resources that support the economy and preserve our culture and heritage. It provides opportunity for outdoor recreation and aesthetic enjoyment. It also provides habitat for wildlife and performs important environmental services such as the retention of flood waters, uptake of nutrients, abatement of pollution and moderation of climate. It is, therefore, important to strengthen the connection between natural areas, parks and communities to conserve biodiversity, provide opportunities for outdoor recreation, retain HRM's natural and cultural heritage, support the retention of important environmental systems and preserve HRM's quality of life.

E-1 HRM shall establish an Open Space and Natural Resource Designation, shown on the Generalized Future Land Use Map (Map 2), as the area encompassing a natural network of open space in the interior of HRM. The Open Space and Natural Resource Designation shall apply to government-owned and private resource sector lands and generally include the following:

(a) federal parks;
(b) habitat protected by federal and provincial legislation;

(c) regional parks;
(d) trail and greenway networks;
(e) provincially designated parks;
(f) provincial parks reserves;
(g) provincially designated wilderness areas and nature reserves;
(h) provincial Crown lands classified C1(resource) and C2 (resource and recreation) under the *Integrated Resource Management Plan* by the Province[7];
(i) private conservation areas;
(j) all municipal conservation areas;
(k) wetlands;
(l) salt marshes;
(m) beaches;
(n) commercial forestry, agriculture and fishery lands;
(o) environmentally sensitive areas;
(p) natural corridors; and
(q) cultural landscapes.

E-2 To preserve the interconnected system of open space and minimize fragmentation within the Open Space and Natural Resource Designation, HRM shall, through the *Subdivision By-law*, prohibit residential development on new roads.

Due to the inability to create frontage through the construction of new public roads, it is appropriate to create an alternative mechanism to enable limited subdivision, which has traditionally been used for kinship purposes. The *Subdivision By-law* contains provisions which are designed in part to ease the development constraints of lands with minimal road frontage. Those provisions permit the creation of an additional lot which does not meet the minimum road frontage requirements, provided the area of land being divided was in existence prior to August 1, 1987. Many properties have been created since that date so, to be equitable to all landowners within the Open Space and Natural Resource Designation, it is appropriate to adjust this date forward to coincide with the effective date of this Plan.

E-3 HRM shall, through the *Subdivision By-law*, provide for the creation of one additional lot from any area of land that is within the Open Space and Natural Resources Designation provided that:

(a) the area of land was in existence prior to April 29, 2006; and
(b) the one additional lot does not meet minimum road frontage requirements.

[7] NS Department of Natural Resources (DNR). *Integrated Resource Management - Introduction*. http://www.gov.ns.ca/natr/irm/introduction.html Accessed Aug. 15, 2005

2.2.2 Park Classifications

Table 2-2 contains a description of HRM's Park Classification System which consists of Neighbourhood Parks, Community Parks, District Parks, and Regional Parks which together provide a diversity of recreational opportunities and experiences. The classification system provides descriptions of the function and design features of the park type, and the number of households served by park type. With the exception of the Regional Park, classification which includes federal and provincial parks, all other park classifications refer to municipally-owned parks. The parks serve the recreation needs of a growing population and the trail system, which is developing throughout HRM, provides linkages between communities and these outstanding natural and historical features which shape HRM's identity.

Table 2-2: Parks Classification System

Park Type	Park Function
Neighbourhood Parks	Neighbourhood Parks are primarily designed to provide unorganized play activities for children, quiet seating or rest areas and/or linear linkages between other municipal parks or open spaces. These parks typically provide centrally located recreational services for neighbourhoods of 80 - 120 households.
Community Parks	These parks may be designed for organized youth and recreational adult level sports but may also include facilities for play by children. These areas may also be designed for passive recreation and left in a predominantly natural state. Community Parks are primarily intended to serve the recreation needs of a community comprised of three or four neighbourhoods with a population in the range of 1200 persons.
District Parks	District Parks are primarily intended to serve the recreation needs of several communities with a population in the range of 10 000 persons. District Park facilities may provide a range of recreational uses including, but not limited to, walking and cycling trails, sports fields, picnic areas, supervised beaches, and play facilities for children and areas intended for passive recreation uses that are left in a predominantly natural state.
Regional Parks	The primary objective of a Regional Park is to preserve and protect significant natural or cultural resources. The essential feature of a Regional Park may include, but not be limited to, open space, wilderness, scenic beauty, flora, fauna, and recreational, archaeological, historical, cultural and/or geological resources. A Regional Park will have sufficient land area to support outdoor recreational opportunities for the enjoyment and education of the public. The size of a Regional Park must be sufficient to ensure that its significant resources can be managed so as to be protected and enjoyed. Regional Parks may be federal, provincial or municipal properties and are intended to serve the educational, cultural and recreation needs of the population of the entire region as well as for visitors to HRM.

2.2.3 Regional Parks

The Regional Parks system consists of public lands administered by federal, provincial and municipal agencies that have been recognized as regional parks based on their open space, wilderness, scenic beauty, flora, fauna, recreational, archaeological, historic or geological resources. The system also includes areas designated as Provincial Parks, Non-designated Provincial Parks and Provincial Park Reserves by the NS Department of Natural Resources. Some municipal parks meeting the regional park criteria (Table 2-2) such as Point Pleasant, Western Common, and Admiral's Cove have also been included in this system. Further planning for regional parks in conjunction with the *Greenbelting and Public Open Space Priorities Plan* could include more municipally-owned parks that meet the regional park criteria.

The *1975 Halifax Dartmouth Regional Development Plan*, repealed in 1998, contained policies and Regional Park designations supporting a Regional Parks and Trail System. The objectives were to preserve natural landscapes of outstanding value and to establish interconnected trail system between them. Over the years, the Province and former municipalities acquired lands to create the present Regional Park system. However, the full scope of the plan was not completed. This, coupled with future population growth contemplated at higher densities for urban communities, requires additional areas to be preserved for future Regional Park development.

HRM intends to create additional Regional Parks at various locations throughout HRM including the Blue Mountain - Birch Cove Lakes, Feely Lake, Jacks Lake, Second Lake, and Porters Lake. These additional Regional Parks and responsible agencies are identified in Table 2-3 and Map 4.

Table 2-3: Regional Parks

Additional Regional Parks	Responsible Agency
Blue Mountain-Birch Cove Lakes Park	DNR/HRM
Feely Lake	DNR
Jacks Lake Park	HRM
Porters Lake Park	DNR
Second Lake Provincial Park	DNR

Further analysis is necessary to determine appropriate geographic boundaries for the Western Common, Porters Lake and Blue Mountain-Birch Cove Lakes parks. Lands within the Western Common and Porters Lake parks are publically owned and the park boundaries will be determined through the *Greenbelting and Public Open Space Priorities Plan*. Once the appropriate boundaries are established, the lands will be zoned Regional Park.

Lands within the Blue Mountain-Birch Cove Lakes Park are both privately and publically owned and a study[8] has been completed to determine appropriate boundaries for the park. A conceptual geographic area for the park is shown on Map 11. It is the intention that, over time, the necessary private lands within the park be acquired for public use. Methods of acquisition range from provincial and municipal partnerships, as financial resources permit, land trades and conservation easements. Once acquired, public lands within the park will be re-designated as Open Space and Natural Resource and zoned Regional Park. Lands outside the park will be designated and zoned for development as appropriate.

The Jacks Lake lands are under HRM ownership except for approximately 20 hectares (exact boundaries to be determined) in the ownership of the Province of Nova Scotia. HRM intends to carry out a study to determine appropriate boundaries for the Jacks Lake Park. Through the secondary planning process for the Sandy Lake Urban Settlement area, the remainder lands, including the lands owned by the Province, will be examined for re-designation to permit development, as appropriate.

E-4 Within all designations, HRM shall establish a Regional Park Zone under the land use by-law. This Zone shall generally be applied to all existing Federal Parks, Provincial Parks, Provincial Park reserves, non-designated Provincial Parks and Regional Park lands owned by HRM. This Zone shall permit recreation uses, park uses and other uses as provided by the existing secondary planning strategies for these areas. The Zone shall be applied to future lands acquired by HRM, the Province or the Federal Government for a Regional Park, upon delineation of the park boundaries.

E-5 The *Western Common Master Plan*, endorsed by HRM on June 15, 2010, shall provide guidance for the development and management of the Western Common.

2.2.4 Municipal Parks

There are increasing expectations concerning the quality and quantity of municipally-owned public spaces dedicated to recreation and leisure pursuits. HRM is predicted to experience steady growth in residential development during the life of this Plan. Given the higher densities desired for growth centres within HRM, there will be additional requirements for more open space and parks to serve the recreation and leisure needs of local residents. Therefore, the dedication of land through the subdivision process is to be increased to 10% with limited exceptions.

E-6 HRM shall, through the *Subdivision By-law*, establish a requirement for a minimum of 10% park dedication for new subdivisions except that the dedication shall be reduced to 5% for:

(a) existing residential subdivisions outside of the Interim Growth Management Area;
(b) Classic Conservation Design Developments as provided for under Section 3.4.1 of this Plan; and

[8] Halifax Regional Municipality (HRM), N.S. Department of Natural Resources (DNR), NS Department of Transportation and Public Works (TPW). 2006. *Blue Mountain/Birch Cove Lakes Assessment Study*. Prepared for HRM, DNR, and TPW by Environmental Design Management (EDM) Ltd. March 2006.

(c) the first three lots subdivided from any parcel of land in existence on June 16, 2007.

2.2.5 Natural Areas and Natural Corridors

Natural areas include significant ecological features within the regional landscape. They play a vital role in protecting vegetation, fish and wildlife which are significant to the biodiversity, beauty and character of HRM. Within HRM are five designated wilderness areas and a portion of a sixth is designated under the *Special Places Protection Act*. HRM and non-governmental conservation organizations have acquired and permanently protected other environmentally sensitive areas throughout HRM.

Protection of isolated blocks of habitat will not adequately protect wildlife in HRM. The size and continuity of natural corridors contribute to the overall connectivity of natural landscapes, which are in turn critical to reducing the loss of native species of flora and fauna caused by development practices. The length and width of wilderness networks are determined by the requirements of desired wildlife species as well as other desired uses within the network. For example, it may not be possible to protect wide corridors and thereby accommodate larger species in all areas within the Urban Settlement Designation. Secondary networks address some of the problems of habitat fragmentation for smaller species within the Urban Settlement Designation.

There are 14 Natural Corridors which are significant to the on-going connectivity and conservation of HRM's natural network as shown on the Parks and Natural Corridors Map (Map 4). Potential linkages are identified on this map. The primary function of these corridors and policies that support them is to conserve wildlife habitat and, in some cases, also conserve riparian, recreational and cultural lands. Through development of HRM's *Greenbelting and Public Open Space Priorities Plan*, it is the intention of HRM to work cooperatively with provincial and federal agencies, non-governmental organizations and land owners to achieve an interconnected system of open space as shown on the Trails and Natural Networks Map (Map 3) and the Parks and Natural Corridors Map (Map 4).

E-7 HRM shall, through the applicable land use by-law, establish a Protected Area Zone. This Zone shall be applied to wilderness areas which have been designated under the *Wilderness Areas Protection Act*, nature reserves designated under the *Special Places Protection Act*, and conservation-related properties owned by government or private conservation organizations. The Zone shall only permit scientific study and education, trails and similar public, conservation and recreational uses.

E-8 Further to Policy E-7, HRM shall encourage the Province of Nova Scotia to evaluate the potential for the designation of additional lands for protection under the *Wilderness Areas Protection Act*.

E-9 Where HRM is considering approval of new secondary planning strategies or amendments to existing secondary planning strategies to allow new developments, natural corridors shall first be delineated, consistent with the *Greenbelting and Public Open Space Priorities Plan* approach, to identify areas to be retained for natural areas and natural corridors.

2.2.6 Urban Forests

The *Urban Forest Master Plan* provides a comprehensive urban forest neighbourhood approach to maximizing the urban forest in the Urban Settlement Designation to ensure a sustainable future for our urban forest.

E-10 The recommendations of the *Urban Forest Master Plan*, adopted in principle by HRM in September 2012, shall be considered in planning, programming and regulatory activities related to managing and enhancing the urban forest cover in HRM.

2.2.7 Greenbelting and Public Open Space Priorities Plan

A comprehensive *Greenbelting and Public Open Space Priorities Plan* is necessary to help determine an economically and environmentally sustainable strategy for the equitable maintenance and distribution of parks and natural open space throughout HRM and to provide guidance for community planning. To guide the development of this Priorities Plan, the Open Space Typology and Park Classification System outlined in Tables 2-1 and 2-2 shall be used.

E-11 A *Greenbelting and Public Open Space Priorities Plan* may consider:

(a) coordinating and managing a program to research, identify and designate potential natural areas, systems and distinct landscapes, natural corridors and critical ecosystem linkages, and significant natural habitats to guide future development (see Map 5, Significant Habitats and Endangered Species and Appendix C: Species at Risk in HRM 2013);

(b) coordinating and managing a program to research and identify potential public open space parks and corridors for the provision of quality open space for recreational and social development, restoration of natural corridor and urban ecosystem function, greenway networks to connect communities and provide mobility options and significant natural habitats to guide considerations of future development;

(c) establishing selection criteria, investment and management guidelines for public open space lands, infrastructure and sustainable natural open space management strategies;

(d) examining criteria for classifying and developing HRM parks including comprehensive criteria for designating regional parks;

(e) assessing opportunities to further the development and establishment of management plans for the 1975 Regional Park System, the new Regional Parks proposed under this Plan, and other areas identified for their potential as regional parks;

(f) developing an evaluation methodology and criteria for determining land capability and functionality in meeting standards for the delivery of public open space services, open space conservation, community development and growth management;

(g) developing a system of interconnected public and natural undisturbed open spaces throughout HRM to include HRM parks, coastal areas and watercourse shorelines, water route and land-based greenways as illustrated on the Trails and Natural Network Map (Map 3), multi-functional streets, environmental and cultural conservation areas, schools, natural corridors, habitats as well as other public and community facilities;

(h) establishing a green-way network that includes a variety of corridors such as linear parks, hiking trails, nature trails and scenic loops;

(i) including a comprehensive planning approach for the retention of coastal and freshwater lake access and incentives for the protection of watercourse buffers;

(j) developing an operational framework to include community partners, federal and provincial departments, non-profit groups and private sector companies; and

(k) identifying, in cooperation with the Federal and Provincial government, species-at-risk habitats and annually review the Significant Habitats and Endangered Species Map (Map 5) and Appendix C: Species at Risk in HRM, 2013 contained in this Plan.

E-12 HRM shall prepare a *Greenbelting and Public Open Space Priorities Plan* to protect and preserve connectivity between natural areas and open space lands, to enable their integration into sustainable community design, to help define communities, to benefit the Municipality's economy and the physical health of its people, and to reflect and support the overall purposes of this Plan.

2.3 WATER RESOURCES

Water, a limited and precious resource, is one of HRM's most highly valued environmental assets. Protection of this resource for potable water supply, wildlife habitat, recreational enjoyment, and aesthetic value is crucial for HRM. HRM's strategy aims to protect this resource through land use control and retention of those features that regulate water flow, mitigate flooding, reduce water pollution and protect ecological functions.

2.3.1 Potable Water Supply

Water extraction and treatment facilities have been established on various surface waters and well heads which supply piped potable water to communities throughout the region. The water supplies owned and operated by Halifax Regional Water Commission (Halifax Water) as of 2013 are illustrated on Map 12.

With the exception of the Grand Lake and Lake Thomas watersheds, land use activities are currently regulated under existing land use by-laws leading to a wide variation in the range of permitted land uses within each community. HRM will continue to allow for a variety of land uses provided that these uses do not threaten the municipal water supply and a consistent policy and regulatory approach is achieved throughout each watershed.

Activities and practices within the provincially designated watersheds (Pockwock Lake, Lake Major and Bennery Lake) are subject to regulations prescribed under the *Environment Act*. Watershed Advisory Boards have been established as a liaison between the Province and communities in developing regulations within each watershed.

The remaining water supply watersheds and well head areas are not designated water supplies. Consideration may need to be given to adopting municipal measures to protect these waters supplies and future water supplies.

E-13 HRM shall, through the applicable land use by-law, establish a Protected Water Supply Zone which shall be applied to all publicly owned lands which serve as a water supply watershed, including emergency water supply watersheds and well head protection areas. This Zone may also be applied to private lands within these watersheds deemed necessary to protect the public water supply. The Zone shall permit water distribution and purification facilities, passive parks and trails, conservation related uses, and other uses as provided by the existing secondary planning strategies for these areas. The zone shall establish a minimum 30.5 metre riparian buffer around water supply sources.

E-14 For any lands within a watershed or ground water supply area where a public water supply system has been established or is proposed, Council shall consider amendments to land use by-laws deemed necessary to:

(a) protect the water supply;
(b) ensure that a consistent regulatory approach within each watershed; or
(c) conform with any Statement of Provincial Interest Regarding Drinking Water.

2.3.2 Wetlands Protection

Wetlands and other watercourses are vital components of the hydrological cycle and affect the quality and quantity of groundwater. They are natural filters for removing sediment, contaminants and excessive nutrients which are drawn up by the vegetation and settle out naturally before entering groundwater. They absorb peak stormwater flows, reducing the risk of flooding downstream while offsetting groundwater extraction to reduce the risk of wells running dry. Wetlands also provide habitat for fish and wildlife and provide opportunities for education and research. Moreover, while enhancing the overall aesthetics of a community, wetlands are unsuitable for development as they pose a hazard for the stability of structures. It is essential that wetlands are protected.

The alteration of wetlands falls under provincial jurisdiction. Wetlands less than 2 hectares in area are assessed under the *Nova Scotia Wetland Conservation Policy* and those more than 2 hectares in area require an environmental impact assessment reviewed under the *Environmental Assessment Act*. Through this Plan, it is HRM's intent to prohibit the development of wetlands until such time as they are made suitable for development in accordance with provincial requirements.

E-15 HRM shall, through the applicable land use by-law, establish a Wetlands Schedule to be used as a reference in determining the presence of wetlands 2000 m² or greater in area. On all applications for development approval, the by-law shall require the proponent to verify the existence and extent of any wetland shown on the schedule. The by-law shall prohibit development within any such wetland except as required to allow for public infrastructure. HRM may consider amending the restrictions made under the land use by-laws from time to time to conform to any guidelines or Statement of Provincial Interest adopted by the Province.

2.3.3 Riparian Buffers

Retaining riparian buffers around watercourses and along the coastline is important for the protection of water quality, wildlife and the protection of property from the natural hazards of flooding. In addition to the functions of flood regulation, riparian buffers reduce the impacts of sedimentation, erosion and nutrient loading on watercourses, regulate the temperature of adjacent watercourses, provide important wildlife habitat and add aesthetic value to HRM.

The *Water Resource Management Study*[9] recommends the adoption of riparian buffers as established by the Department of Natural Resources. These setbacks are considered adequate for stream bank stability, water temperature regulation and aesthetic value. They also provide minimal protection of wildlife, flood mitigation and partial benefits for sediment removal. They will be used as general riparian buffer protection for the whole of HRM until buffers that meet the specific needs of each watershed can be determined through the watershed studies and implemented through secondary planning processes.

To maximize the protection benefits of riparian buffers, the trees, shrubs, ground cover vegetation and soils must be protected. Retaining native vegetation and native soils enhances runoff storage capacity, infiltration, and nutrient recycling. The canopy should also be retained over watercourses, soil erosion should be prevented, and activities or land uses which introduce nutrients or contaminants into watercourses need to be excluded. In some cases it may also be determined that HRM should consider the ownership of riparian buffers to protect public interest and public access.

[9] Dillon Consulting Ltd. *HRM Water Resource Management Study*. Dec. 2002. Halifax.

E-16 HRM shall, through the applicable land use by-law, require the retention of a minimum 20 metre wide riparian buffer along all watercourses throughout HRM to protect the chemical, physical and biological functions of marine and freshwater resources. Through a secondary planning process, the width of the riparian buffer may be increased. Lands designated Halifax Harbour on the Generalized Future Land Use Map (Map 2), industrial lands within the port of Sheet Harbour and lands within the Waterfront Residential (R-1C) Zone under the Shubenacadie Lakes Secondary Planning Strategy shall be exempted from the buffer requirement.

Development within the riparian buffer shall generally be prohibited but provisions may be made to permit water control structures, boardwalks, walkways and trails of limited width, fences, public road crossings, driveway crossings, wastewater, storm and water infrastructure, marine dependent uses, fisheries uses, boat ramps, wharfs, small-scale accessory buildings or structures and attached decks, conservation uses, parks on public lands and historical sites and monuments within the buffer. In addition, no alteration of land levels or the removal of vegetation in relation to development will be permitted.

E-17 Further to policy E-16, where a development may be considered by development agreement, HRM shall consider the acquisition of riparian buffers as public open space.

E-18 HRM shall, through the applicable land use by-law, relax the riparian buffer requirement for lots in existence on August 26, 2006, where otherwise development would be prohibitive. No relaxation to the buffer shall be permitted for lots created after August 26, 2006.

E-19 HRM shall consider a by-law to protect existing trees and to manage the retention and the removal of existing trees within riparian buffer zones.

HRM recognizes that development and water lots that have been infilled may result in undesirable impacts on the marine environment and the aesthetic character of the surrounding environment.

E-20 HRM may, through secondary planning strategies and land use by-laws, consider measures to regulate development of water lots that have been infilled, including establishing setbacks of buildings and structures from the water.

2.3.4 Floodplains

Land adjacent to rivers and streams which are subject to flooding (floodplains) are unsuitable for development. Development or alteration of a floodplain can restrict normal water drainage patterns and cause significant damage to property and infrastructure and risk to life. Limiting development on these lands reduces the need for costly flood control infrastructure such as channels, reservoirs and dykes, and protects the public from property damage and the loss of life. In the early 1980s, floodplain mapping for the Sackville and Little Sackville Rivers was prepared under the Canada-Nova Scotia Flood Damage Reduction Program and policies and regulations have been adopted under the Sackville planning documents to reduce the risk to property and the need for flood control measures.

To minimize effects upon natural stormwater flows, HRM will exercise control over the placement and stabilization of fill necessary for the flood proofing of structures permitted within a floodplain designation of a Secondary Planning Strategy. Through the review of subdivision applications, any roadways proposed within a floodplain designation will need to meet HRM's stormwater requirements. The following policy is intended to mitigate the consequences of flooding along major rivers and emphasize the environmental importance of rivers in regulating and draining water flows through watersheds.

E-21 HRM shall restrict development and prohibit the placement of fill or alteration of grades in association with development that restricts the capacity of flow or increases flood levels within the 1 in 100 year and 1 in 20 year floodplains for designated watercourses, under secondary planning strategies and land use by-laws. Water control structures, boardwalks and walkways, conservation uses, historic sites and monuments and wastewater, stormwater and water infrastructure shall be permitted within floodplains. Within the 1 in 20 year floodplain, treatment facilities for wastewater, storm water and water shall be limited to facilities that were in existence on or before June 25, 2014. Within the 1 in 100 year floodplain, HRM may, through secondary planning strategies and land use by-laws, permit development which has been adequately flood-proofed.

2.3.5 Coastal Inundation

Sea level has slowly risen along the Atlantic Coast due to coastal subsidence and accelerated by global warming. An additional concern is the anticipated increases in the frequency and severity of storm events related to climate change. Rising sea levels and storm surges can result in increased damage to coastal communities and have significant impacts on coastal infrastructure, environmental assets, utilities, properties and community economic development. The following measures mitigate the potential impact that coastal inundation and storm surge events could have on human safety. Special provisions for the Downtown Halifax Secondary Plan Area were approved by HRM in 2013.

E-22 HRM shall, through the applicable land use by-law, prohibit all residential development on the coast within a 3.8 metre elevation above Canadian Geodetic Vertical Datum (CGVD 28). Provisions shall be made within the by-law to permit residential accessory structures, marine dependant uses, open space uses, parking lots and temporary uses within the 3.8 metre elevation. Consideration may be given to amending the by-law requirements where an updated system of measurement has been adopted or studies have been undertaken which recommend that such amendments are deemed prudent to provide a reasonable level of safety or to conform with guidelines or statements of interest adopted by the Province.

2.4 WATERSHED PLANNING

The *Water Resources Management Study*[10], which forms the basis of the policies contained in this Chapter, recognizes that watersheds are the fundamental unit for understanding water resources and undertaking watershed planning. Environmental features such as water, soils, vegetation, and habitat are all interconnected, and land use activities in one part of a watershed can adversely affect the quality and quantity of water in another.

Planning on a watershed basis will therefore be undertaken in greater detail during the creation of secondary planning strategies and upon completion of watershed studies. This Plan will seek to achieve public health standards for body contact recreation and to maintain the existing trophic status of our lakes and waterways to the extent possible.

E-23 HRM shall undertake watershed or sub-watershed studies concerning natural watercourses prior to undertaking secondary planning strategies in areas where new or additional development could adversely affect watercourses within the watershed. The studies, where appropriate, shall be designed to:

(a) recommend measures to protect and manage quantity and quality of groundwater resources;
(b) recommend water quality objectives for key receiving watercourses in the study area;
(c) determine the amount of development and maximum inputs that receiving lakes and rivers can assimilate without exceeding the water quality objectives recommended for the lakes and rivers within the watershed;
(d) determine the parameters to be attained or retained to achieve marine water quality objectives;
(e) identify sources of contamination within the watershed;
(f) identify remedial measures to improve fresh and marine water quality;
(g) identify any areas around watercourses where increased flow from development could cause flood damage to properties or environmental damage and estimate the maximum increase in flow from the area to be developed that would not cause damage to the areas identified;
(h) recommend strategies to adapt HRM's stormwater management guidelines to achieve the water quality objectives set out under the watershed study;
(i) recommend methods to reduce and mitigate loss of permeable surfaces, native plants and native soils, groundwater recharge areas, and other important environmental functions within the watershed[11] and create methods to reduce cut and fill and overall grading of development sites;
(j) identify and recommend measures to protect and manage natural corridors and critical habitats for terrestrial and aquatic species, including species at risk;
(k) identify appropriate riparian buffers for the watershed;
(l) identify areas that are suitable and not suitable for development within the watershed;

[10] Dillon Consulting Ltd. Dec. 2002. Ibid

[11] Gibbon, J. *Addressing Imperviousness In Plans, Site Design and Land Use Regulations, Non-Point Education for Municipal Officials*. 1998. Technical Paper Number 1, University of Connecticut.

(m) recommend potential regulatory controls and management strategies to achieve the desired objectives; and
(n) recommend a monitoring plan to assess if the specific water quality objectives for the watershed are being met.

E-24 HRM may consider preparing a water quality monitoring protocol to provide guidance for water quality monitoring plans accepted by HRM under clause (n) of policy E-23 and any other monitoring programs to be undertaken for HRM by landowners.

2.5 ENERGY, EMISSIONS AND CLIMATE CHANGE

2.5.1 Climate Change

As a permanent feature of Gas Tax Funding, all municipalities in Nova Scotia are required to complete a Municipal Climate Change Action Plan. The Regional Municipal Planning Strategy complies with this requirement.

E-25 The recommendations of the *Climate Risk Management Strategy for Halifax Regional Municipality*, approved in principle by HRM in 2008, shall provide guidance for corporate priority actions to manage the risks associated with climate change.

2.5.2 The Community Energy Plan

A Community Energy Plan (November 2007) was endorsed by HRM in 2007 with the following vision statement adopted:

> *In partnership with other agencies, HRM intends to achieve the most significant improvement to energy sustainability, security, renewable technology, and environmental emissions among similar sized cities in Canada over the next 10 years.*

The Plan established eight main goals:

- Improve the energy efficiency of buildings;
- Increase transportation choice and efficiency;
- Increase industrial energy efficiency;
- Encourage energy efficient land use planning and neighbourhood site planning;
- Increase efficiency of infrastructure;
- Increase energy security and diversify energy supply;
- Educate and engage residents and businesses; and
- Demonstrate local government leadership.

Various actions were recommended to achieve these goals and progress reports have been prepared.

CHAPTER 8: MUNICIPAL WATER SERVICES, UTILITIES AND SOLID WASTE

8.0 INTRODUCTION

This Chapter lays out policies and programs in support of effective service delivery relating to water supply, wastewater management, stormwater management, solid waste management and communications facilities.

8.1 OBJECTIVES

1. **Coordinate municipal initiatives with the Halifax Regional Water Commission (Halifax Water) to:**

   (a) provide water, wastewater and stormwater services in a cost-effective manner;
   (b) recoup growth related costs from benefitting property owners; and
   (c) reduce degradation to the natural environment.

2. **Manage growth to make the best use of existing water, wastewater and stormwater infrastructure and avoid unnecessary or premature expenditures;**

3. **Support environmentally sustainable practices for developments serviced with on-site water and wastewater services;**

4. **Reduce above grade electrical and telecommunication lines;**

5. **Encourage the development of an comprehensive natural gas distribution system; and**

6. **Reduce the amount of solid waste generated and operate solid waste facilities in an environmentally responsible and cost-effective manner.**

8.2 THE TRANSFER AGREEMENT

In 2007, HRM entered into an agreement with Halifax Regional Water Commission (Halifax Water) for the following purposes:

(a) to transfer municipal waste-water facilities and municipal stormwater facilities and their operation and administration to Halifax Water from HRM to better serve the public interest;
(b) to have such facilities operated as a public utility integrated with Halifax Water's existing water utility facilities to the extent deemed appropriate by the Utility and Review Board;
(c) to evolve the operation and administration of municipal wastewater services and municipal stormwater services towards a system whereby the general taxpayer of HRM does not subsidize the utility rate payer of Halifax Water and the utility rate payer of Halifax Water does not subsidize the general tax payer of HRM; and
(d) to have HRM pay a fee for service on full cost recovery basis for waste-water and stormwater services made necessary by the operation of other municipal services, including, but not restricted to, solid waste management services, and parks and recreation services.

Upon execution of the Transfer Agreement, Halifax Water became the first regulated water/ waste-water/ stormwater utility in Canada. Its jurisdiction applies to a core area, as set out in the transfer agreement, which broadly encompasses lands within the commutershed of the Regional Centre. Outside this area, the public stormwater facilities – comprised primarily of ditches and culverts within road right-of-ways – are owned and maintained by HRM or the N.S. Department of Transportation and Infrastructure Renewal.

Halifax Water has been established pursuant to the *Halifax Regional Water Commission Act* and is regulated by the Nova Scotia Utility and Review Board (the Review Board). The *Public Utilities* Act applies to Halifax Water and any water, wastewater or stormwater facility or system owned, operated, managed or controlled by Halifax Water is deemed to be a public utility. The Review Board establishes policies, rules and regulations governing the operations of Halifax Water which includes approvals for operating and capital budgets, user fees and charges that can be levied for new connections to its facilities.

Halifax Water is expected to finance its operations through the user fees and charges it levies. It must also comply with all provincial and federal regulations established for the design and operation of municipal water, wastewater and stormwater systems.

Halifax Water is a separate corporate body and reports to a Board of Directors. This governance model will require close co-operation between the planning and operational activities of HRM and Halifax Water if the objective of this Plan to manage development in a fair and cost effective manner is to be realized.

SU-1 HRM shall work with Halifax Water to coordinate municipal land use planning and development initiatives with the planning and development of municipal water, waste-water and stormwater facilities in a manner that is consistent with the objectives of this Plan, the Transfer Agreement and can satisfy policies and regulations of Halifax Water and the Review Board.

8.3 WATER, WASTEWATER AND STORMWATER SERVICES: PLANNING FOR GROWTH IN SERVICED AREAS

This Plan seeks to focus development in areas where infrastructure can be provided in a cost-effective manner with consideration given to both capital and operating costs. HRM also seeks to support a competitive housing market by maintaining a 15 year supply of serviced lands. A primary tool for achieving these objectives will be directing the supply and location of lands to be serviced with wastewater and water services.

SU-2 HRM shall establish an Urban Service Area under the Regional Subdivision By-law to designate those areas within the Urban Settlement Designation and the Harbour Designation where municipal wastewater collection and water distribution systems are to be provided. The Area shall initially include all lands within existing service boundaries established under secondary planning strategies at the time of adoption of this Plan. Lands within the Urban Service Area shall only be developed with municipal wastewater collection and water distribution systems. Any service boundary established under existing secondary planning strategies shall be replaced by the Urban Service Area boundary in the Regional Subdivision By-law.

SU-3 HRM shall seek to prevent premature development with on-site services on lands designated Urban Settlement but not yet within the Urban Service Area by establishing an Urban Settlement Zone over these lands under the applicable land use by-law. This zone shall permit public parks and playgrounds but restrict new development to single unit dwellings serviced with on-site sewage disposal systems and wells on two hectare lots on existing roads.

In 2010, the Review Board directed Halifax Water, in consultation with stakeholders, to prepare a long term infrastructure plan estimating capital expenditure requirements for municipal water, waste-water and stormwater infrastructure. Key drivers in developing this Integrated Resource Plan (IRP) are regulatory compliance, asset renewal and growth related costs.

The IRP (Genivar/XCG/Halcrow, October 2012) outlines a 30 year capital program for Halifax Water. The growth related cost estimates are proposed to be used for the development of a regional development charge that will replace the existing charges. Halifax Water also anticipates that area charges will be sought, as required, to pay for service upgrades associated with planned municipal growth through the adoption of secondary planning strategies.

SU-4 When considering any expansion of the Urban Service Area, HRM shall have regard to the following:

(a) that a Secondary Planning Strategy for the lands to be included within the Urban Service Area has been adopted by HRM except that this requirement may be waived where, in the opinion of HRM, the proposed extension represents a minor adjustment to the Area;
(b) the financial ability of HRM to absorb any costs relating to the extension;

(c) if required, a watershed or sub-watershed study has been completed in accordance with Policy E-23;
(d) that, if required to pay for growth-related municipal infrastructure costs, a municipal infrastructure charge area has been established or is adopted concurrently with the boundary amendment;
(e) the need to oversize the water, wastewater or stormwater systems to allow for future development within an Urban Settlement or Urban Reserve designation; and
(f) a charge needed to pay for growth related improvements to the water, wastewater or stormwater systems has, where required, been approved by the Review Board.

SU-5 Within the Urban Service Area, where a new Secondary Planning Strategy or an amendment to an existing Secondary Planning Strategy is proposed to accommodate future growth, no approval shall be granted unless:

(a) a by-law has been established or is proposed concurrently to pay for growth related municipal infrastructure or HRM has determined that a by-law is not warranted; and
(b) a charge needed to pay for growth related improvements to the water, wastewater or stormwater services has been, where required, been approved by the Review Board.

Due to constraints in the Sackville wastewater collection system, there are properties in Middle Sackville which are within the Urban Service Area but cannot be developed until capacity becomes available. Special provisions shall be made to allow for development of these properties if capacity becomes available.

SU-6 HRM shall, through the Sackville Land Use By-law, establish a CDD (Comprehensive Development District) Zone over a portion of PID No. 41071069 and the whole of PID No's. 40281479, 40875346, 41093733, 40695504, 41089012 and 41089004 located in Middle Sackville. HRM shall consider the extension of municipal wastewater and water distribution services to these properties to allow for a residential subdivision by development agreement subject to the following criteria:

(a) the types of land uses to be included in the development and that, where the development provides for a mix of housing types, it does not detract from the general residential character of the community;
(b) that adequate and useable lands for community facilities are provided;
(c) any specific land use elements which characterize the development;
(d) the general phasing of the development relative to the distribution of specific housing types or other uses;
(e) that the development is capable of utilizing existing municipal trunk sewer and water services without exceeding capacity of these systems;
(f) for any lands outside the Urban Settlement Designation, as shown on Map 2 of this Plan, or outside the Urban Service Area of the Regional Subdivision By-law, the requirements of Policies S-1 and SU-4;
(g) that, if required by Halifax Water, a sewage flow monitoring program is established for the development and that provisions are made for its phasing in relation to achieving sewage flow targets;

(h) that the sewage flow monitoring program proposed by the developer for implementation under clause (g) addresses, in a form acceptable to Halifax Water, target sewage flows to be achieved in relation to development phasing and the method, duration, frequency and location of monitoring needed to verify that target sewage flows have been achieved;
(i) provisions for the proper handling of stormwater and general drainage within and from the development; and
(j) any applicable matter as set out in Policy G-14 of this Plan.

8.4 STORMWATER MANAGEMENT: A MUNICIPAL ROLE

Although the Transfer Agreement delegates responsibility for the operation and administration of publicly owned stormwater facilities to Halifax Water within the core boundary, HRM can play an important role in stormwater management. On a broadest level, a commitment has been made to undertake watershed studies where new growth areas are being considered (Section 2.4 of this Plan). An appropriate stormwater management strategy is to be included in the recommendations.

A study prepared for HRM identified source control measures that could reduce the quantity and improve the quality of runoff being directed to public stormwater systems and watercourses. One of the recommended implementation tools is a stormwater management and erosion control by-law whereby control of lot grading could be among the stormwater management measures. Other regulatory and operational measures were also identified as components of a more comprehensive approach that could be considered.

With varying levels of development throughout HRM and watersheds with differing sensitivities, a standardized approach to the application of these tools would not be appropriate. Similarly, the municipal approach will evolve with experience and as new technologies become available.

In developed areas, retrofitting existing stormwater systems may be a viable option to reduce the quantity and improve the quality of stormwater entering a watercourse. However, unless required for regulatory compliance with provincial environmental standards, it is unlikely that Halifax Water will be in a position to expend resources to do this. The Province does not currently have any stormwater quality standards but has stated that these may be considered in the future. In the interim, HRM may consider paying for retrofits to improve water quality in receiving watercourses, particularly in urbanized watersheds, if justified and affordable.

Consideration should also have to be given to the potential impacts of climate change on stormwater management systems. The *Climate Risk Management Strategy for HRM* (see Section 2.5.1) projected that HRM could experience an increase of up to 12% in total precipitation accompanied with increased rainfall intensity over the next 80 years.

Support for day lighting of streams and rivers will also be considered where doing so would enhance the aesthetics of the area or further restoration of a heritage resource.

SU-7 HRM shall consider adopting a stormwater management and erosion control by-law with provisions made that may be area specific and may vary by type of development and, where required, be subject to approval by the Review Board. When considering adoption or amendments to the by-law, the following matters may be considered:

(a) the cost and effectiveness of methods to reduce increased stormwater flows caused by development with consideration given to problems associated with downstream flooding, stream bank erosion, groundwater contamination and inflow and infiltrations into wastewater systems;
(b) the potential for employing naturally occurring soils and native plant species in stormwater management plans;
(c) means to reduce site disturbance and impervious surfaces in new developments;
(d) methods of reducing sediments, nutrients and contaminants being discharged into watercourses; and
(e) the recommendations contained in a watershed study undertaken pursuant to policy E-23 of this Plan.

SU-8 HRM may consider regulatory and operational measures to reduce the quantity and improve the quality of stormwater entering public stormwater facilities and watercourses including, but not limited to, public education programs, animal waste control, spill prevention plans, removing illegal connections, enhanced street sweeping, reduction in road salts, land use restrictions and revisions of development standards. Any such measures may apply in whole or in part of HRM and may require approval of the Review Board.

SU-9 HRM may consider supporting retrofits to existing stormwater facilities where it has been determined that such retrofits could be expected to mitigate flooding or to improve the quality of stormwater entering watercourses.

SU-10 Where public stormwater collection infrastructure must undergo significant repair or replacement, HRM may consider supporting funding for daylighting of the watercourse involved with consideration given to:

(a) feasibility in relation to the surrounding environment, land use and ownership, adequacy of space, drainage and potential flooding issues, safety and other practical or engineering considerations as appropriate.
(b) replacement of culverts with bridges or a three-sided culvert rather than straight pipe is preferred wherever possible;
(c) the potential for legal and liability issues arising; and
(d) costs and the availability of funding.

SU-11 In the event that the Province of Nova Scotia considers imposing standards on the quality of stormwater entering watercourses, HRM shall participate in consultations and shall consider amending any stormwater management by-law approved pursuant to Policy SU-7 to be consistent with or complement standards adopted by the Province of Nova Scotia.

SU-12 HRM shall support efforts by Halifax Water to create a rate structure for stormwater management services that provides incentives for the retention of on-site stormwater and may consider any amendments to municipal by-laws which would assist in facilitating these efforts.

8.5 RURAL SERVICES

The capability of the land to support rural settlement throughout the Rural Commuter, Rural Resource, and Agricultural Designations (refer to Chapter 3) is constrained to varying degrees by soil, surface water, and groundwater conditions for development. The *Options for On-site and Small Scale Wastewater Management Study*[32] concluded that there are very few inland communities where a municipal wastewater system can be developed. This is due to low flows in river systems during the summer months and provincial requirements for both the dilution of treated wastewater as well as the removal of phosphorous from wastewater that rely on land-based effluent dispersal. However, alternative treatment technologies may be feasible for servicing the levels of wastewater expected from the centres, including those inland from the coast.

Similarly, there are areas with varying degrees of groundwater quality because of the predominant geology. Most areas of HRM require some mitigation of groundwater quality. Others have a higher risk for groundwater quality problems due to the presence of radionuclides, base metals or contamination from former mining operations.

8.5.1 Water Service Areas

Although this Plan encourages a more compact urban form in which development is serviced with wastewater and water distribution systems, it recognizes that developments already exist that are serviced with a water distribution system and on-site sewage disposal systems.

However, the risk of inadequate performance of on-site sewage disposal systems in areas which are serviced with a central water supply is of concern. According to the Dillon Consulting HRM *Water Resource Management Study* [34], there is a higher degree of risk of on-site sewage disposal system failure in areas serviced with central water because the unlimited source of water can cause hydraulic overloading.

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[32] Land Design Services, Ekistics Planning and Design, John Zuck and Associates and Spatial Metrics Atlantic. *Halifax Regional Municipality Options for On-site and Small Scale Wastewater Management.* 2004. Halifax.

[34] Dillon Consulting Ltd. 2002. Ibid

HRM intends to recognize the established Water Service Districts and allow for consideration of further extensions in accordance with the following policies:

SU-13 In recognition of the Water Service Districts established under the former Halifax County Municipality Subdivision By-law, HRM shall, through the Regional Subdivision By-law, establish Water Service Areas where development shall be permitted which is serviced by a public water distribution system but without a municipal wastewater system. Within these areas, a water distribution system shall be required to service all new developments located adjacent to an existing water distribution system where a new or extended public street or highway is proposed. Further, no water distribution system shall be permitted to extend outside of a Water Service Area.

SU-14 HRM may consider establishing new Water Service Areas, subject to the financial ability of HRM to absorb any related costs, provided a wastewater management plan is also considered in accordance with Policy SU-20, if:

(a) (i) the area is within a Rural Commuter, Rural Resource or Agricultural centre and it has been determined through a secondary planning process that new growth is to be encouraged in this area; or
(ii) the lands are adjacent to an existing Water Service Area and a Classic Conservation Design development is proposed; or
(iii) the lands are adjacent to an existing Water Service Area and a Classic Conservation Design development is proposed within an Urban Reserve designation, subject to the provisions of clause (d) of policy G-16; and
(b) the new service area and a charge needed to pay for growth related improvements to the water or stormwater services has, where required, been approved by the Review Board.

SU-15 HRM may consider expanding existing Water Service Areas to existing communities, subject to the financial ability of HRM to absorb any costs related to the expansion, if:

(a) the lands are in proximity to a water transmission main planned or constructed by Halifax Water to improve the performance of the water distribution system;
(b) a study has been prepared by a qualified person verifying that there is a water quality or quantity problem that cannot reasonably be rectified by an alternative means;
(c) there are environmental concerns related to the long-term integrity of on-site sewage disposal systems and a wastewater management plan is also considered in accordance with Policy SU-19; and
(d) an area charge needed to pay for growth related improvements to the water, or stormwater services has been approved by the Review Board or Halifax Water has advised that an area charge is not required.

The Enfield and Dutch Settlement communities are not located near an existing Water Service Area owned by Halifax Water. However, both communities are close to a water distribution system that is owned and maintained by the Municipality of East Hants. Some residents of these areas experience poor water quality and quantity and are now on a private water distribution system. To address these concerns and the uniqueness of the situation, HRM and Halifax Water need to work with East Hants to investigate options for providing Enfield and Dutch Settlement with a water distribution system.

SU-16 HRM shall, through the secondary planning process, investigate options to extend a water distribution system to the Dutch Settlement and Enfield communities. In doing so, HRM shall seek the cooperation of the Municipality of East Hants. No water distribution system shall be extended to these communities unless a Water Service Area has been established in accordance with Policy SU-15.

8.5.2 Private On-site Sewage Disposal Systems and Wastewater Facilities

Malfunctioning on-site sewage disposal systems may cause bacteria and other contaminants to enter groundwater and surface water which may pose health risks and cause environmental degradation. Contamination has resulted in closures to swimming and shellfish harvesting and has increased the eutrophication process of lakes and estuaries. HRM may seek measures to reduce the risk of these occurrences.

SU-17 HRM shall encourage, where appropriate soil conditions exist, the development of conservation design developments serviced by private wastewater facilities on lands within the Rural Commuter, Rural Resource and Agricultural Designations, provided that the systems comply with the requirements of the Nova Scotia Department of Environment.

SU-18 HRM shall, through secondary planning processes, consider the potential for establishing Wastewater Management Districts within Rural Commuter, Rural Resource and Agricultural Centres.

SU-19 HRM may consider establishing Wastewater Management Districts in areas that have failing on-site sewage disposal systems that cannot be remediated by private on-site sewage disposal systems.

SU-20 To protect public health and the environment, HRM shall investigate a means to ensure that private on-site sewage disposal systems are maintained. Without limiting the generality of the foregoing, consideration shall be given to adopting a private on-site sewage disposal system by-law, establishing Wastewater Management Districts and establishing a mechanism for funding and administration.

8.5.3 Ground Water Supplies

The Municipality seeks to ensure that development in rural areas has an adequate and sustainable water supply. Hydrogeological studies can address this objective through testing to assess long-term sustainable yield of larger subdivisions with many lots or any potential impact on existing wells in adjacent subdivisions. By an amendment to the Charter, the Province has enabled HRM to require hydrogeological studies as a condition of subdivision approval.

SU-21 HRM shall require a hydrogeological assessment for all subdivision applications to be serviced with on-site wells where the number of dwelling units consists of ten or more. Subdivision approval will only be granted where the study determines that the quantity and quality of the groundwater source is sufficient to service the proposed development without adversely affecting groundwater supply in adjacent developments.

SU-22 HRM shall request that the Province of Nova Scotia establish a network of groundwater observation wells to monitor the effects of development on the groundwater table and natural groundwater flows.

8.6 UTILITIES

8.6.1 Electrical and Telecommunication Lines

Various initiatives have been undertaken in the past to provide underground utilities, primarily in urban and commercial centres. Some areas in Downtown Dartmouth and Halifax have underground services. Underground lines may be installed in new subdivision developments at the request of the developer, who pays a capital cost contribution to help off-set future replacement costs. This practice is not widespread in HRM.

HRM has commissioned various studies [38] to examine the costs and benefits of underground utilities in terms of cost, reliability, and aesthetics and has decided on a two phased approach to implementation in new subdivision developments. Initially, undergrounding will be required from the pole to the home and then, after further consultation with the development community, consideration may be given to total undergrounding within the street right-of-way.

SU-23 When planning streetscape improvement projects for commercial areas or heritage districts within HRM, consideration shall be given to the underground placement of electrical and communication lines. Highest priority shall be given to projects within the Regional Centre. HRM shall work with utilities that have overhead wiring infrastructure to develop a design standard for underground retrofitting and a policy respecting ownership of underground wiring under the municipal right of ways.

[38] Kinetrics Inc. *HRM Underground Utilities Feasibility Study*. 2005. Halifax. Marbec; Economic Implications of Buried Electric Utililites.2007; Stantec. Engineering Study of Joint Gas, Power, and Communication Trench. 2007; Dillon. Underground Utilities Funding/Management Best Practices Review. 2010.