CHAPTER 8~~7~~: MUNICIPAL SERVICES, ~~WATER, WASTEWATER,~~ UTILITIES, ~~AND~~ SOLID WASTE AND ENERGY

8~~7~~.0 INTRODUCTION

This Plan offers the opportunity to substantially reduce costs associated with constructing and operating infrastructure through directing growth to appropriate locations and anticipating future infrastructure requirements. —This allows all stakeholders in community building to develop plans for effective service delivery well in advance of when they will be needed. The resulting efficiencies can achieve savings which support a higher quality of life for residents of HRM. This Chapter lays out policies and programs in support of more effective service delivery relating to a broad spectrum of services including water supply, wastewater management, stormwater management, solid waste management, communications and energy.

8~~7~~.1 INFRASTRUCTURE CHARGES

The HRM Charter enables infrastructure charges to be imposed under two provisions. Charges may be imposed under a subdivision by-law to recover capital costs of streets, traffic signals, transit facilities or solid-waste facilities needed to service the subdivision. Alternatively, charges may be imposed under a separate by-law to pay for a wider range of infrastructure which may be applied for the entire Municipality or a defined area. This charge is applied when a building permit is sought for a new building or redevelopment on an existing property.

The Municipality has adopted both of these provisions in a two-pronged approach to facilitating growth without imposing an excessive financial burden on taxpayers. When undertaking secondary planning for greenfield areas, new infrastructure needed to accommodate the expected growth shall be considered and infrastructure charges shall be imposed within the Secondary Plan through the Regional Subdivision By-law.

~~To help facilitate planned growth without imposing an excessive financial burden on taxpayers, HRM intends to recover infrastructure related costs associated with new growth by using infrastructure charges in accordance with the provisions of the *Municipal Government Act*. Recovery of infrastructure charges will enable the Municipality to allocate the costs associated with new infrastructure to developers and subdividers deriving servicing benefits from the new infrastructure.~~

~~In 2002, HRM amended all secondary planning strategies and subdivision by-laws to provide for infrastructure charges, and also adopted the Capital Cost Contribution Best Practice Guide as the methodology for determining infrastructure charges. This methodology built upon a model already in place by the Halifax Regional Water Commission which directs costs to the beneficiary. Under this approach a Charge Area is defined where the developer's cost is based on the demand for new services that is created by new development within that area, and HRM's cost is based on the demand created by existing development.~~

SU-1 HRM shall establish provisions under Secondary Planning Strategies and the Regional Subdivision By-law to allow for imposition of infrastructure charges required to service new greenfield growth areas. The charge shall be determined separately for each charge area in accordance with the Capital Cost Contribution Best Practice Guide, adopted by administrative policy in 2002, as may be amended from time to time.

SU-2 HRM shall consider establishing by-laws to allow for the recovery of growth related costs both on a regional basis and on an area basis where growth related re-development is being contemplated through secondary planning provisions. In determining an appropriate charge, consideration shall be given to the recommendations of the HRM Infrastructure Charge Study: Final Report (SGE Acres, 2006).

~~SU-1 HRM shall, through the secondary planning process, determine the costs and charges associated with new infrastructure for new development and, through the Subdivision By-law, define Charge Areas relating to infrastructure charges.~~

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 Waters 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 agreement, Halifax Water became the first regulated water/ waste-water/ stormwater utility in Canada. Its jurisdiction applies to an area of HRM, as set out in the transfer agreement, broadly encompassing lands within the commutershed of the regional centre. Outside this area, ~~there are no publicly owned water or waste-water facilities and~~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 N.S. Utility and Review Board. The 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

~~Halifax Water~~ must also comply with all provincial and federal regulations established for the design and operation of municipal water, waste-water and stormwater systems.

Halifax Water is a wholly owned subsidiary of HRM but ~~is not under the supervision of its Council~~but 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 Regional Plan objective of managing development in a fair and cost effective manner is to be realized.

SU-3 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 Regional Plan, the Transfer Agreement and can satisfy policies and regulations of Halifax Water.

SU-~~6~~4 In the event that it is determined by the Utility and Review Board at any time that any of the services to be operated by Halifax Water pursuant to the Transfer Agreement ought to be paid for by rates or charges against persons, developments or properties determined by the Board to benefit from the service, HRM shall:

(a) seek approval of any provincial legislation recommended by the Board in order to effectively implement such a rate structure;

(b) consider approval of any by-laws, prepared by Halifax Water, that would be necessary or advantageous to implement such a rate structure; and

(c) collect and remit to Halifax Water such rates or charges as fully and effectively as is reasonably possible.

8.3~~7.2~~ WATER, WASTEWATER AND STORMWATER SERVICES: PLANNING FOR GROWTH IN ~~URBAN~~ SERVICED AREAS

This Plan seeks to focus development in areas where infrastructure ~~water distribution and wastewater systems~~ 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-~~4~~52 HRM shall establish an Urban Service Area under the Subdivision By-law to designate those areas within the Urban Settlement Designation and the Harbour Designation, or as otherwise determined under Policy IM-18, 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.

SU-~~5~~63 HRM shall seek to prevent the 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. ~~, through the applicable land use by-law, establish an Urban Settlement Zone to encompass lands that are within the Urban Settlement Designation but outside the Urban Service Area.~~ This zone shall permit public parks and playgrounds but restrict new development to ~~permit~~ single unit dwellings serviced with on-site sewage disposal systems and wells on two hectare lots on existing roads, ~~public parks and playgrounds~~.

~~SU-4 HRM may monitor the amount of wastewater generated and discharged by new and existing development within the Urban Service Area to determine whether the capacity of any system is at risk of being exceeded. If monitoring indicates that capacity is at risk of being exceeded, HRM shall consider measures to address the situation, including restricting development. Capacity in this case means the capacity of the municipal services systems as established by the appropriate regulatory body in accordance with provincial or federal regulations.~~

In 2010, the Utility and Review Board directed Halifax Water, in consultation with stakeholders, to prepare a long term infrastructure plan that estimates 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-6 In the event that it is determined by the Utility and Review Board at any time that any of the services to be operated by Halifax Water pursuant to the Transfer Agreement ought to be paid for by rates or charges against persons, developments or properties determined by the Board to benefit from the service, HRM shall:~~

~~(d) seek approval of any provincial legislation recommended by the Board in order to effectively implement such a rate structure;~~

~~(e) consider approval of any by-laws, prepared by Halifax Water, that would be necessary or advantageous to implement such a rate structure; and~~

~~(f) collect and remit to Halifax Water such rates or charges as fully and effectively as is reasonably possible.~~

SU-7~~5~~ ~~Further to Policy IM-9, within the Urban Settlement designation, HRM shall consider requests to amend the Urban Service Area.~~ When considering any expansion of the Urban Service Area, HRM shall have regard to the following:

(a) that a ~~Community Visioning exercise has been undertaken in accordance with Policy G-11 and 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) that the lands are within a reasonable distance of existing infrastructure and sufficient capacity exists within the system;~~

~~(d) the impacts on natural heritage and availability of existing or committed infrastructure, impacts on density targets, and agricultural capability ;~~

~~(e) compliance with buffer and distance separation policies and regulations for natural resource activities within the Urban Settlement Designation;~~

~~(f) impacts on the natural environment and cultural features;~~

~~(g) existing or potential drainage or pollution problems;~~

~~(h) the interconnection of urban areas;~~

~~(i)~~(c) a watershed or sub-watershed study~~ies~~ has been ~~are~~ completed in accordance with ~~as per~~ Policy E-17;

(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; and

(e)~~(j)~~ an area charge needed to pay for growth related improvements to the water, wastewater ~~and~~or stormwater services has been approved by the Utility and Review Board or Halifax Water has advised that an area charge is not required.

~~that the lands are adjacent to an existing subdivision serviced with municipal wastewater and water distribution systems;~~

~~(k) that an infrastructure charge area is established, if appropriate; and~~

~~(l) the sufficiency of community services in the area and the ability to expand community services to meet future needs.~~

SU-8 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) an area by-law has been established or is proposed concurrently to pay for growth related municipal infrastructure or Council has determined that a by-law is not warranted; and

(b) an area charge needed to pay for growth related improvements to the water, wastewater ~~and~~or stormwater services has been approved by the Utility and Review Board or Halifax Water has advised that an area charge is not required.

~~Prior to the adoption of this Plan, HRM initiated planning studies to consider new communities serviced with municipal wastewater and water distribution systems. One community, known as Bedford West, encompasses lands on the west side of the Bicentennial Highway, in the vicinity of the Hammonds Plains and Kearney Lake Roads. A similar process has also been initiated for the community of Morris-Russell Lake. In the event that HRM approves secondary planning strategies for these communities, amendments to the Subdivision By-law will also be adopted to authorize the extension of municipal services.~~

~~SU-7 Notwithstanding Policies S-3 and SU-5, where secondary planning strategies have been adopted to allow for the development of the Bedford West or Morris-Russell Lake communities, the Subdivision By-law shall be amended to expand the Urban Service Area in accordance with a phasing plan adopted under the Secondary Planning Strategies, provided that an infrastructure charge area is established for those areas. Similarly, the zoning shall be amended as appropriate in accordance with the applicable Secondary Planning Strategy.~~

~~SU-8 Notwithstanding Policy SU-2, the portions of the Bedford West community under the Halifax Secondary Planning Strategy shall not be included within the Urban Service Area. The extension of services to these lands shall be considered in accordance with Policy SU-7. In the interim, to recognize the existing development rights of these lands, HRM shall through the Subdivision By-law and the Land Use By-law for the Halifax Mainland Area, provide for the subdivision and development of these lands in accordance~~

~~with the Two-Family Dwelling (R-2) Zone of the Land Use By-law for the Halifax Mainland Area.~~

~~The Sackville Trunk Sewer currently overflows to the Sackville River during periods of high rainfall and wet weather. Notwithstanding, it is anticipated that HRM will extend the trunk sewer along Sackville Drive to the Lively Subdivision in Middle Sackville in response to public health issues. The route of the proposed trunk sewer passes in front of the proposed Suburban Local Centre for Middle Sackville, but the land within the Centre is outside of the existing service boundary. Allowing undeveloped bulk lands on the west side of Sackville Drive to develop on services will minimize development along Sackville Drive with numerous single driveways, will provide more immediate funding for the trunk sewer in the form of local improvement charges, and will allow development to proceed in a manner that is more consistent with the intent of the Urban Settlement designation.~~

Due to constraints ~~the over flows that are currently experienced~~ in the Sackville wasterwater collection system ~~Trunk Sewer~~, 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 when ~~extensions to the service boundary must either have development rights that are contingent on available sewer capacity, or must be off-set by restricting an equivalent amount of development within the existing boundary. Lands within the boundary that are restricted from developing may eventually be developed if~~ capacity becomes available ~~in the sewer system~~.

SU-9 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. Consideration may be given to allow for the extension of municipal wastewater and water distribution services to these properties to allow for a residential subdivision if a development agreement has been entered into with HRM. In considering approval of a development agreement, HRM shall have regard to the following matters:

(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 surrounding neighbourhoods ~~community~~;

(b) Halifax Water has advised that the water, waste-water and stormwater systems are capable of servicing the proposed development and that, if required, an area charge needed to pay for growth related improvements to the water, wastewater ~~and~~or stormwater services has been approved by the Utility and Review Board ~~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) the provisions of Policies S-2 and SU-5;~~

~~(g) that 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 HRM, 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 other matter relating to the impact of the development upon surrounding uses or upon the general community, as contained in Policy IM-13 of the Sackville Planning Strategy~~5~~.

~~SU-10 Notwithstanding Policy IM-9, HRM shall include within the Urban Settlement Designation and Urban Service Area approximately 21 hectares of undeveloped land within PID No's. 40281479 and 40875346, located in Middle Sackville along the west side of Sackville Drive in Middle Sackville. In considering approval of a development agreement for these lands pursuant to Policy SU-9, HRM shall have regard to the criteria specified in Policy SU-9 with the exception of items (f), (g) and (h). Further, to recognize the existing development rights on the portion of these lands which abut Sackville Drive, HRM shall through the Land Use By-law for Sackville, provide for the development of these lands as shown on approved final plan of subdivision file no. 19980686-19-F in accordance with the Rural Residential (R-6) Zone of the Land Use By-law for Sackville.~~

~~Establishing new municipal wastewater systems may be an option in areas not located adjacent to an existing Urban Service Area. Consideration of such new systems should be given to those centres situated along the coast which have the potential to discharge into a marine environment, such as Hubbards, Porters Lake and Musquodoboit Harbour. In cases where a wastewater system is provided, a water distribution system should also be provided. It is also recognized that other centres may be faced with water supply problems, therefore in the future, even when wastewater systems are not required, water distribution systems may be considered provided a wastewater management program is established. Further study of these centres is required to determine the potential of wastewater and water systems and the associated costs to HRM and affected residents if provided.~~

~~SU-11 During a review of secondary planning strategies for Planning Districts 1 and 3 (St. Margarets Bay), Planning Districts 8 and 9 (Lake Echo/Porters Lake) and Eastern Shore West, HRM shall conduct further study into the potential of providing municipal~~

~~wastewater, stormwater, and water distribution systems within the Hubbards, Porter's Lake and Musquodoboit Harbour centres.~~

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 (reference Section 2.3 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 of runoff 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, a 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. 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.

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-10 HRM shall ~~consider~~ adopt~~ing~~ a stormwater management and erosion control by-law. With provisions made that may be area specific and may vary by type of development. When considering adoption or amendments to the by-law, the following matters are to be taken into account:

(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 studies undertaken pursuant to policy E-17 of this plan.

SU-11 HRM ~~may~~shall 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.

SU-12 HRM ~~may~~shall consider supporting retrofits to existing stormwater facilities where it has been determined that such retrofits could be expected mitigate flooding or to improve the quality of stormwater entering watercourses.

SU-13 Where public stormwater collection infrastructure must undergo significant repair or replacement, HRM may support funding for daylighting of the watercourse involved with consideration given to:

(a) the 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, Replacement of culverts with bridges or a three-sided culvert rather than straight pipe is preferred wherever possible; and
(b) the potential for legal and liability issues arising; and
(c) costs and the availability of funding.

SU-14 In the event that the Province 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-10 to be consistent with or complement standards adopted by the Province.

In a submission to the Utility and Review Board, Halifax Water proposed a rate structure which would create incentives for property owners to reduce the quantity of stormwater to the public system.

SU-15 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 shall consider any amendments to municipal by-laws which would assist in facilitating these efforts.

~~7.3~~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 radio-nuclides, base metals or contamination from former mining operations.

8.5.1~~7.3.1~~ Water Service Areas

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

Prior to amalgamation in 1996, the former Halifax County Municipality was allocated a portion of the Pockwock and Lake Major water supplies. HRM intends to recognize the existing Water Service Districts and refer to them as Water Service Areas under the Subdivision By-law. While the establishment of new Water Service Areas is important in supporting the settlement form established in this Plan, HRM should also endeavour to complete the installation of water services within the previously established Water Service Districts.

Water service boundaries were established to limit where water services would be permitted. The boundaries also served to respond to concerns that extending water distribution systems to rural areas would increase the pace of development thereby straining limited community services and possibly reducing the performance of the water distribution system to unsatisfactory levels.

[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.

These concerns remain and HRM will therefore only allow for further extensions in accordance with the policies which follow.

SU-162 ~~——————————~~In recognition of the existing Water Service Districts under the Halifax County Municipality Subdivision By-law, HRM shall, through the Subdivision By-law, establish Water Service Areas within which 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 ~~subdivisions~~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-173 ~~——————————~~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) 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;
(b) an Open Space Design development is proposed within a Rural Commuter, Rural Resource or Agricultural centre pursuant to Policy S-16;
(c) the lands are adjacent to an existing Water Service Area and an Open Space Design development is proposed within an Urban Reserve designation pursuant to Policies IM-18 and S-16; or
(d) a study has been prepared by a qualified person verifying that there is a water quality or quantity problem in an existing community that cannot reasonably be rectified by an alternative means; and
(e) an area charge needed to pay for growth related improvements to the water ~~and~~or stormwater services has been approved by the Utility and Review Board or Halifax Water has advised that an area charge is not required.~~.~~

SU-184 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 trunk water transmission main planned or constructed by the Halifax Water Commission 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; or
(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-20; and.
(d) an area charge needed to pay for growth related improvements to the water, andor stormwater services has been approved by the Utility and Review Board or Halifax Water has advised that an area charge is not required.

SU-195 Further to clause (a) of Policy SU-184, where the Halifax Water Commission has identified a need for trunk water mains, to enhance the reliability of existing water distribution systems, HRM shall consider amending the Water Service Area to include lands around the following mains upon determining their alignment and width:

(a) between Middle Sackville and Beaver Bank; and
(b) between Hammonds Plains Road and Sackville Drive east of Lucasville Road.

The Enfield and Dutch Settlement communities are not located near an existing Water Service Area owned by the Halifax Regional Water Commission. 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 the Halifax Regional Water Commission need to work with East Hants to investigate options for providing Enfield and Dutch Settlement with a water distribution system.

SU-2019 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-1713.

8.5.2~~7.3.2~~ On-site Sewage Disposal Systems

As stated in section 3.5.1, HRM is establishing a priority on the development of Open Space Design residential communities which will be serviced by communal on-site sewage disposal systems within those areas of the Rural Commuter, Rural Resource and Agricultural designations which are not serviced with municipal wastewater collection and water distribution systems. Provincial regulations allow for communal on-site sewage disposal systems, subject to approval of a management plan. A management plan must contain measures to ensure land owners are responsible for the maintenance of these systems.

Malfunctioning on-site sewage disposal systems 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 intends to request the Province to enforce its mandate to protect the environment by undertaking an on-site sewage disposal system inspection program[33] and to require homeowners to install devices which can extend the life of, or improve the performance of on-site systems.

SU-2~~1~~017 – HRM shall encourage, where appropriate soil conditions exist, the development of open space design developments serviced by communal on-site sewage disposal systems 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 ~~and Labour~~.

SU-2~~2~~118 – HRM shall, through secondary planning processes, consider the potential for establishing Wastewater Management Districts within Rural Commuter, Rural Resource and Agricultural Centres.

SU-2~~3~~219 – HRM may consider establishing Wastewater Management Districts in areas that have failing on-site sewage disposal systems that cannot be remediated on-site.

The risk of inadequate performance of on-site sewage disposal systems in areas which are serviced with a central water supply is of grave concern to HRM. 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.

[33] Dillon Consulting Ltd. 2002.

[34] Dillon Consulting Ltd. 2002. Ibid

Regular maintenance would reduce the risk of failure. This could ~~might~~ be achieved by adopting a by-law that requires regular system maintenance of private on-site sewage disposal systems or by establishing Wastewater Management Districts in which funds are collected from owners within the district for system maintenance. Financing for system maintenance could ~~might~~ also be included in the cost of providing central water.

SU-24320 ~~————————~~To protect public health and the environment, HRM shall investigate a means to ensure that on-site sewage disposal systems are maintained. Without limiting the generality of the foregoing, consideration shall be given to adopting a maintenance by-law, establishing Wastewater Management Districts and establishing a ~~funding~~ mechanism(s) for funding ~~with the Water Commission~~ and administration~~ering~~. ~~a waste water management fee as approved by HRM.~~

8.57.3.3 ~~————————~~Private Wells

The Municipality seeks to ensure that development in rural areas has an adequate and sustainable water supply. ~~Until the mid 1980's, the Province required h~~Hydrogeological studies can address this objective through testing ~~assessments~~ to ~~be conducted before recommending subdivision approval but this requirement was later relaxed to mandate that well drillers conduct a pump test on individual lots after subdivision approval had been granted. This test does not~~ assess long-term sustainable yield of ~~a~~ 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

~~Hydrogeological studies can address these broader issues and whether the groundwater conforms with health standards, such as those established under the Canadian Drinking Water Guidelines. Currently there is no legislative authority for as-of-right subdivisions under the *Municipal Government Act* to allow municipalities~~ to require ~~a~~ hydrogeological studies ~~assessment~~ as a condition of ~~to granting~~ subdivision approval.

SU-25421 ~~————————~~HRM shall ~~request that the Nova Scotia Provincial Government amend the *Municipal Government Act* to grant HRM the authority to~~ require a hydrogeological assessment for lots serviced with well water as a condition for granting ~~as-of-right~~ subdivision approval under ~~. If such amendment is enacted, HRM shall consider amending~~ the Subdivision By-law ~~to require hydrogeological assessments as a condition of subdivision approval~~.

8.6 UTILITIES

8.6.1~~7.5.3~~ Electrical and Telecommunication Lines~~Underground Utilities Functional Plan~~

Underground electrical and telecommunications utilities are not in widespread use in HRM. Utility companies instead have invested in overhead lines that have a lower capital cost and use management programs to protect the overhead lines from damage. This approach often interferes with HRM's objectives relating to aesthetics, the urban forest canopy, and reliability.

Street trees are highly valued in HRM for their aesthetics. Trees also promote healthy communities by improving air quality, creating cooler micro-climates, reducing stormwater runoff and providing wildlife habitat. Street trees, however, often interfere with the operation of overhead power lines, resulting in pruning or removal of trees from the urban landscape. In more extreme storm events, fallen trees have caused extensive damage to power 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 wide-spread in HRM.

HRM has commissioned various studies ~~In 2004, HRM commissioned the *Underground Utilities Feasibility Study*~~[38] to examine the costs and benefits of underground utilities in terms of cost, reliability, and aesthetics. A survey of 24 cities in Canada found that 22 require undergrounding of overhead utilities for new residential subdivisions. The most common model is for developers to assume the cost and pass that cost on to the property purchasers.~~The study determined that a joint trench standard was required for HRM to make underground services feasible in new developments and determined that noticeable improvements in reliability would not occur until underground services were completed in an area that contained approximately 500 homes. The study also identified the potential for significant costs to the eventual home purchaser. Costs should be kept to a reasonable level to avoid undue pressure on new housing prices.~~

SU-2~~6~~5 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 Capital District Sub-Designation, as shown on Map 2, and then projects within the remainder of the Regional Centre.

[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.

SU-2~~7~~6 HRM shall consider amendments to the Downtown Halifax Municipal Planning Strategy and Land Use By-law to create incentives for the underground placement of electrical and communication lines by private developments and to make provision for cost-sharing with HRM where funds are available and additional areas can benefit.

SU-2~~8~~7 HRM shall require, under the Subdivision By-law, the underground placement of electrical and communication lines for ~~proposed greenfield developments~~subdivision applications within the Urban Service Area of the By-law in which new streets are proposed.

SU-2~~9~~8 Consideration shall be given to the underground placement of electrical and communication lines for any open space design subdivision applications made pursuant to policies S-15 of S-16 of this plan.

~~The Underground Utilities Functional Plan should consider:~~

~~1. the development, in conjunction with Nova Scotia Power Inc. and telecommunication utilities, a joint trench standard that defines the management and ownership responsibilities of the underground electrical and telecommunication system;~~
~~2. requiring underground electrical and telecommunication systems in all new developments as a condition of subdivision approval in the Urban Settlement Designation; and~~
~~3. supporting the installation of underground electrical and telecommunication systems throughout the Capital District.~~

~~SU-29 HRM shall, in consultation with Nova Scotia Power Inc. and telecommunication utilities, prepare an Underground Utilities Functional Plan with recommendations to consider for adoption under the Subdivision By-law and the Municipal Service Systems Specification document.~~

8.6.2 Communication Towers and Antenna

Communication facilities are regulated by Industry Canada which has recognized that municipalities may have an interest in the siting of these facilities, particularly with regard to aesthetic impacts on the built form and landscapes. A federal policy has therefore been established that encourages consultation between proponents and local governments before a decision is made whether to grant a license. The means of consultation is not specified but left for the Municipality to decide upon.

SU-~~30~~29 HRM shall, in cooperation with Industry Canada and industry stakeholders, work to create an effective consultation approach for the siting of telecommunication towers and antenna.

8.6.3 Accessory Buildings and Structures

Utilities require that certain accessory buildings and structures be located at strategic locations to operate properly. Provisions will therefore be made under HRM regulations to allow for these uses wherever needed.

SU-30 Provisions shall be made under all HRM land use by-laws to permit accessory buildings and structures required for the operation of utilities to be permitted in all zones.

8.7~~7.4~~ SOLID WASTE/RESOURCE MANAGEMENT

8.7~~7.4~~.1 ~~———————~~The Integrated Resource Management Strategy

In 1996 Regional Council approved the ~~Prior to amalgamation, an~~ Integrated Resource Management Strategy[35] (IR~~W~~MS) and adopted an IRMS Implementation Plan ~~was adopted by all four municipal units~~. The Strategy is based on source separation ~~established an objective of diverting 88% of solid~~ waste the objective of diverting ~~generated in HRM from the solid~~ waste from the landfill ~~management facility at Otter Lake and guides HRM in its management of solid waste issues. The Strategy is comprised of a number of components which must be implemented including~~ by reducing waste, recycling, reusing waste materials, composting and administering the diversion of ~~managing~~ construction and demolition waste. ~~In 1996 Regional Council approved the IWMS as adopted by the four municipal units, and adopted a IWMS Implementation Plan~~ A Provincial ~~with the~~ objective was established to divert ~~of~~ 60% ~~diversion~~ of solid waste generated in Nova Scotia from landfilling ~~the HRM~~.

The implementation plan has included:

- adoption ~~To facilitate the safe production, distribution and use of compost material,~~ of guidelines ~~have been adopted for establishing and~~ for the ~~–~~operation~~ng~~ of ~~commercial, municipal, and industrial~~ composting facilities and amendments to community planning strategies and land use by-laws to accommodate new waste processing facilities and source separation for waste stream management; ~~the testing and classifying of the finished compost product. All composting facilities, except for personal composting operations, are required to obtain a composting permit from the Province and each facility must satisfy the requirements of the composting guidelines.~~

~~To support the waste management strategy, composting operations are permitted in a number of zones throughout HRM, under secondary planning strategies and land use by-laws, subject to locational criteria contained within the applicable land use by-laws and compliance with provincial guidelines.~~

[35] Community Stakeholder Committee (CSC). *An Integrated ~~Waste~~ Resource Management Strategy for Halifax County/Halifax/Dartmouth/Bedford*. Adopted in Principle, March 25, 1995

- Adoption of a c~~C~~onstruction and demolition (C&D) waste ~~is another key component of the IWMS. In 1998 HRM adopted objectives for a C&D Waste~~ m~~M~~anagement s~~S~~trategy; a -C&D Materials Recycling and Disposal License By-law (By-law L-200) to regulate C&D disposal operations; and amendments to community planning strategies and land use by-laws to accommodate new facilities and provide for community monitoring of operations. ~~that supports the following objectives of the IWMS: to maximize recycling of C&D waste, increase economic activity and value added processing, provide for proper disposal of C&D waste that cannot be recycled, and minimize impacts from C&D transfer, processing and disposal operations.~~

~~In 2001, HRM adopted the C&D Materials Recycling and Disposal License By-law (By-law L-200) to regulate C&D disposal operations. At the same time all secondary plans and land use by-laws were amended to recognize the unique land use requirements of the C&D industry, and require a rezoning process for C&D operations and site plan approval process for disposal sites. All secondary plans also include the identical provisions for a Community Liaison Committee around disposal sites.~~

~~SU-22 HRM shall, through a public consultation process as defined by Council, consider all options for a new regional waste processing and disposal facility, including siting a new facility, extending the life of the existing facility, and exploring waste diversion initiatives.~~

The strategy has had many successes including an overall diversion rate estimated at over 60% by 2012. However, new challenges have arisen including legislative changes to composting regulations; escalating costs per tonne for processing residual waste and the need to plan future land fill operations with the original strategy commitment for a programmed closure of the Otter Lake facility in 2024.

In response to these challenges, HRM has undertaken a comprehensive holistic strategy review of all components of the waste management system to complete a three phased assessment;

A) Assess system performance based on original strategy objectives;

B) Conduct industry bench mark analysis and comparative best practice assessments; and

C) Identify options and recommendations to enhance system effectiveness and efficiency.

The recommendations will then be discussed in a community engagement process, endorsed by council, to obtain feedback from residents and stakeholders on identified ways to improve the existing system to meet regulatory requirements, and enable enhancement of the fiscal sustainability of the service long-term. A staff report outlining the findings and recommendations, and feedback from the community engagement process envisioned for early in

2013 is intended to support FY 13/14 budget deliberations and decisions for future program capital investment requirements.

SU-31~~1~~ HRM may consider any amendments to community planning strategies and land use by-laws or any other HRM by-laws deemed necessary to implement any of the recommendations of the solid waste strategy review.

~~SU-2332 Where new waste resource recovery and waste diversion activities have been identified, HRM shall consider amendments to the land use by-laws to permit such activities and shall consider establishing appropriate zone standards.~~

8.7~~7.4~~.2 Remediation of the Decomissioned Highway~~wy~~ 101 Landfill

A landfill site adjacent to Highway 101 in Upper Sackville was decommissioned in 1996 and contains approximately three million tonnes of solid waste. To reduce the risk of environmental impact, the site has been capped, a leachate treatment plant constructed and a groundwater monitoring program established. HRM has also partnered with Highland Energy Limited to capture and ~~The potential for using~~ utilize methane gas ~~generated by the landfill~~ to produce ~~generate~~ 'green" electricity at the site~~is being investigated with potential operation in the near future~~.

Monitoring and treatment of effluent will continue until decomposition of waste is complete. During this time, use of, and access to the site, will be restricted. Eventually a long-term plan will explore opportunities for redevelopment of the site.

SU-33~~224~~ HRM shall continue to monitor the Highway 101 Landfill and undertake remedial action where appropriate. ~~Uses of the site shall be restricted to reduce potential hazards to public health and safety.~~

SU-34~~325~~ HRM shall develop a long-term plan for the redevelopment of the Highway 101 Landfill, once the site is stabilized, which shall consider opportunities to provide public benefits from the reuse of the site.

8.8 COMMUNITY ENERGY

8.8.1~~7.5.4~~ The Community Energy ~~Functional~~ Plan

A Community Energy Plan (CBCL & Associates, November 2007) was endorsed by Regional Council 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 action plans were recommended to achieve these goals and progress reports have been prepared.

SU-354 The Community Energy Plan (CBCL & Associates, November 2007) will continue to guide HRM actions and programs with updates and revisions considered from time to time. Among the revisions to be considered are:

(a) Clarification of municipal roles, authorities, and responsibilities;

(b) Alignment with approved provincial energy policy;

(c) Identification of roles of community stakeholders;

(d) An updated strategy to reduce corporate energy consumption

SU-365 Where deemed advisable to implement or further an action or program of the Community Energy Plan, HRM shall consider amendments to Community Planning Strategies and Land Use By-laws or any other by-laws of the Municipality.

~~HRM has demonstrated leadership in environmental management through energy conservation measures and use of alternative fuels. Over the next 25 years there will be significant changes in the way energy is obtained and used. HRM seeks to identify and use clean, efficient and renewable supplies of energy and to reduce consumption.~~

~~HRM recognizes that wind turbines may play an important role in satisfying electrical power needs in a sustainable manner. Wind turbines often have heights comparable to twenty storey~~

~~buildings which can adversely impact community aesthetics and scenic landscapes and the rotating blades may cause excessive noise to neighbouring residents.~~

~~The design of the buildings and neighbourhoods which make up a community are another important opportunity for reducing energy consumption. Buildings which do not consider the environmental context in which they are located and rely heavily on the consumption natural resources can become unsustainable. HRM should examine ways to support the implementation of green building design within the Municipality to reduce energy consumption and impact on the natural environment.~~

~~HRM is committed to developing a Community Energy Functional Plan which will analyse the community's future from a systems perspective and plan for issues and opportunities arising from energy security, supply and demand. The goal will be to improve the well-being of the community's future through the understanding and management of energy supply and demand. The plan will consider the supply and use of energy within the community's planning process, using a holistic approach and assessing the full environmental, social and economic costs of energy choices.~~

~~The Community Energy Functional Plan should consider:~~

1. ~~programs and measures for HRM to use cleaner energy which may include using co-generation and district energy infrastructure development as well as natural gas distribution networks;~~
2. ~~energy efficiency measures that HRM could employ in its buildings, utilities and vehicle fleet;~~
3. ~~the viability of using renewable energy sources, including biomass, methane, wind, photovoltaics and solar;~~
4. ~~a program to educate citizens to encourage energy efficiency in the design of buildings, site plans, subdivisions and communities; and~~
5. ~~in cooperation with the Province, citizens and industry stakeholders, appropriate measures, including the provision of a formal public consultation process, for the siting of wind turbines.~~

~~SU-30 HRM shall prepare a Community Energy Functional Plan to identify clean, efficient and renewable supplies of energy and to reduce consumption. Consideration shall be given to implementing the recommendations through HRM's operational and administrative programs and land use policies and regulations.~~

7.5 FUNCTIONAL PLANS

7.5.1 Wastewater Management Functional Plan

HRM owns and maintains wastewater systems of various ages and conditions. In older parts of Halifax and Dartmouth, the systems are combined to collect wastewater and stormwater and, in many other areas, the wastewater systems experience high inflow and infiltration rates which often results in overflows and discharge into the environment without treatment. Expected increases in the frequency and severity of wet weather flows related to climate change is a concern. High inflow and infiltration rates are very costly to HRM and reduce the ability to accommodate new development. Expenditures may also be needed to rectify situations where overflows are occurring.

Reduced water consumption through conservation measures can help preserve the capacity of the municipal wastewater system which would be financially beneficial to HRM. Conservation measures are undertaken by municipalities throughout North America to preserve the capacity of its wastewater infrastructure. Conservation measures include the use of low-flow, high-efficiency fixtures, landscaping practices that require less frequent watering, and changing behaviour practices, such as repairing leaky faucets, pooling water for food washing, and turning off water when brushing teeth and shaving.

HRM seeks to provide a service level which meets with the expectations of its citizens, avoids unplanned expenditures and conforms with provincial regulatory standards. To accomplish this, Wastewater Management Functional Plans shall be prepared on a sewershed basis.
The Wastewater Management Functional Plan should consider:

1. means to improve the performance of the wastewater system in terms of public safety, rehabilitation, regulatory compliance, system capacity (both existing and future), physical condition, system reliability and optimization;
2. means to improve wastewater treatment plant performance with consideration given to wet weather overflows, odour control, inflow/infiltration remediation, back up power systems, optimizing system performance and making maximum use of available capacity;
3. the criteria for siting any new facilities providing centralized wastewater treatment;
4. incentive and education programs to reduce water consumption and if required, identify legislative amendments to implement such programs;
5. a prioritized list of actions for implementation, having particular regard for environmental, health and safety concerns;
6. where combined wastewater and stormwater systems exist, the feasibility of separating the systems; and
7. the above recommendations within the context of existing standards, procedures, regulations and compliance requirements, projects, initiatives and priorities, including any adopted under this Plan.

SU-26 HRM shall prepare Wastewater Management Functional Plans on a sewershed basis. The recommendations of such plans shall be considered for implementation within the context of municipal priorities and the Economic Development Strategy.

SU-27 When siting new facilities providing centralized wastewater treatment, HRM shall be consistent with the siting criteria for treatment plants and outfalls developed by the Halifax Harbour Solutions Advisory Committee in March 1998.

7.5.2 Stormwater Management Functional Plan

HRM intends to plan future development on a watershed basis over time. In the interim, a review of municipal stormwater management practices will be undertaken as stormwater runoff can be a significant contributor to environmental degradation of water resources. Common stormwater management problems include increased volume and velocity of watercourses in developed areas, decreased base flows in receiving waters, and contaminants being carried into watercourses.

The HRM *Water Resource Management Study*[36] noted that even in moderately developed watersheds, stormwater impacts have included loading of toxic substances such as heavy metals and hydrocarbons, increased nutrient loading from fertilizers and organic debris, increased levels of bacteria from animal waste, increased sedimentation, increased salinity from road salt, lower levels of dissolved oxygen, increased stream temperature and reduced biodiversity. An expected increase in the frequency and severity of wet weather flows related to climate change is an additional concern.

Although the Nova Scotia Provincial Government has the primary responsibility for protecting water resources, HRM acknowledges that it plays a role in protecting water resources through the application of the Municipal Service Systems Specification document which contain objectives, design guidelines and standards for storm water management systems which are applied to subdivision applications and building permits submitted for approval. A review of the design guidelines and standards could lead to improved stormwater management practices from the perspective of environmental protection.

The Stormwater Management Functional Plan should consider:

1. 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;
2. incorporating natural watercourses as a component of a stormwater management strategy;

[36] Dillon Consulting Ltd. 2002.

3. reducing site disturbance and impervious surfaces in new developments;
4. employing naturally occurring soils and native plant species in stormwater management plans;
5. methods of reducing sediments and contaminants being discharged into watercourses;
6. applying emerging technologies to improve the performance of stormwater management systems; and
7. establishing best management practices and criteria for the quantity and quality of stormwater discharge.

SU-28 HRM shall, in consultation with the Nova Scotia Provincial Government, prepare a Stormwater Management Functional Plan with recommendations to be considered for adoption under the Municipal Service Systems Specification document[37] or HRM's operational and administrative programs and land use policies and regulations.

7.5.3 Underground Utilities Functional Plan

Underground electrical and telecommunications utilities are not in widespread use in HRM. Utility companies instead have invested in overhead lines that have a lower capital cost and use management programs to protect the overhead lines from damage. This approach often interferes with HRM's objectives relating to aesthetics, the urban forest canopy, and reliability.

Street trees are highly valued in HRM for their aesthetics. Trees also promote healthy communities by improving air quality, creating cooler micro-climates, reducing stormwater runoff and providing wildlife habitat. Street trees, however, often interfere with the operation of overhead power lines, resulting in pruning or removal of trees from the urban landscape. In more extreme storm events, fallen trees have caused extensive damage to power 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 wide spread in HRM.

In 2004, HRM commissioned the *Underground Utilities Feasibility Study*[38] to examine the costs and benefits of underground utilities in terms of cost, reliability, and aesthetics. The study determined that a joint trench standard was required for HRM to make underground services feasible in new developments and determined that noticeable improvements in reliability would not occur until underground services were completed in an area that contained approximately

[37] HRM. *Municipal Service Systems*. (Halifax: Public Works and Transportation, 2002)

[38] Kinetrics Inc. *HRM Underground Utilities Feasibility Study*. 2005. Halifax.

500 homes. The study also identified the potential for significant costs to the eventual home purchaser. Costs should be kept to a reasonable level to avoid undue pressure on new housing prices.

The Underground Utilities Functional Plan should consider:

1. the development, in conjunction with Nova Scotia Power Inc. and telecommunication utilities, a joint trench standard that defines the management and ownership responsibilities of the underground electrical and telecommunication system;
2. requiring underground electrical and telecommunication systems in all new developments as a condition of subdivision approval in the Urban Settlement Designation; and
3. supporting the installation of underground electrical and telecommunication systems throughout the Capital District.

SU-29 HRM shall, in consultation with Nova Scotia Power Inc. and telecommunication utilities, prepare an Underground Utilities Functional Plan with recommendations to consider for adoption under the Subdivision By-law and the Municipal Service Systems Specification document.

7.5.4 Community Energy Functional Plan

HRM has demonstrated leadership in environmental management through energy conservation measures and use of alternative fuels. Over the next 25 years there will be significant changes in the way energy is obtained and used. HRM seeks to identify and use clean, efficient and renewable supplies of energy and to reduce consumption.

HRM recognizes that wind turbines may play an important role in satisfying electrical power needs in a sustainable manner. Wind turbines often have heights comparable to twenty storey buildings which can adversely impact community aesthetics and scenic landscapes and the rotating blades may cause excessive noise to neighbouring residents.
The design of the buildings and neighbourhoods which make up a community are another important opportunity for reducing energy consumption. Buildings which do not consider the environmental context in which they are located and rely heavily on the consumption natural resources can become unsustainable. HRM should examine ways to support the implementation of green building design within the Municipality to reduce energy consumption and impact on the natural environment.

HRM is committed to developing a Community Energy Functional Plan which will analyse the community's future from a systems perspective and plan for issues and opportunities arising from energy security, supply and demand. The goal will be to improve the well-being of the community's future through the understanding and management of energy supply and demand. The plan will consider the supply and use of energy within the community's planning process,

using a holistic approach and assessing the full environmental, social and economic costs of energy choices.

The Community Energy Functional Plan should consider:

1. programs and measures for HRM to use cleaner energy which may include using co-generation and district energy infrastructure development as well as natural gas distribution networks;
2. energy efficiency measures that HRM could employ in its buildings, utilities and vehicle fleet;
3. the viability of using renewable energy sources, including biomass, methane, wind, photovoltaics and solar;
4. a program to educate citizens to encourage energy efficiency in the design of buildings, site plans, subdivisions and communities; and
5. in cooperation with the Province, citizens and industry stakeholders, appropriate measures, including the provision of a formal public consultation process, for the siting of wind turbines.

SU-30 HRM shall prepare a Community Energy Functional Plan to identify clean, efficient and renewable supplies of energy and to reduce consumption. Consideration shall be given to implementing the recommendations through HRM's operational and administrative programs and land use policies and regulations.

7.5.5 Communication Tower/ Antenna Functional Plan

Communication facilities are regulated by Industry Canada which has recognized that municipalities may have an interest in the siting of these facilities, particularly with regard to aesthetic impacts on the built form and landscapes. A federal policy has therefore been established that encourages consultation between proponents and local governments before a decision is made whether to grant a license. The means of consultation is not specified but left for the Municipality to decide upon.

The Communication Tower/Antenna Functional Plan should consider:

1. making recommendations regarding an appropriate formal public consultation process;
2. preparing siting and design guidelines for the various types of structures.

SU-31 HRM shall, in cooperation with Industry Canada and industry stakeholders, prepare a Communication Tower/Antenna Functional Plan, to address community concerns regarding aesthetic and environmental impacts of telecommunication structures and facilities.

8.8.2~~7.6~~ ~~———~~Wind Energy ~~(RC-Aug 16/11;E-Oct 29/11)~~

~~WIND ENERGY IN NOVA SCOTIA~~

Demand for wind energy in Canada is growing at a rapid pace. Nova Scotia has one of the best documented wind resources in Canada. Wind energy is considered an abundant, renewable and nonpolluting energy resource in Nova Scotia. The use of wind turbines or wind energy facilities is considered by many to be a sustainable conversion of kinetic energy into electricity. The conversion of wind energy to electricity may reduce dependence on non-renewable energy sources and decrease the air and water pollution that results from the use of conventional energy sources. Wind energy is considered an important alternative source of sustainable and secure energy that has the potential to replace a measure of dependence on fossil fuels.

With the passage of The Electricity Act (May 2010), Nova Scotia has adopted aggressive renewable energy targets setting out a requirement that 25% of its total electrical power must be achieved through renewable energy technology by the year 2015. This is likely to be achieved in large part through the use of wind energy.

8.8.2.1 Wind~~IND~~ Energy~~NERGY IN HRM~~ Facilities

~~Wind Energy Facilities~~

Through the adoption of the Regional Plan and the Community Energy Functional Plan, HRM has recognized the need for alternative sustainable energy and more specifically, the creation of new policies for the siting of wind energy facilities in HRM. Wind energy facilities (otherwise known as wind turbines) can be of various heights and blade lengths (rotor diameters). These machines can be interconnected with other machines to form a wind farm, may be single stand-alone machines, or may also be of roof mounted design. Due to the various heights and scales wind energy facilities should be regulated to reflect these differences.

Within the applicable Regional Plan policy designations, three new energy overlay zones have been created to reflect how wind energy facilities should be treated differently between the urban and rural areas of HRM. The new energy zones in the urban and rural areas permit a range of wind energy facilities including micro, small, medium and large scale machines which have been classified based on different heights and levels of power generation. These range from large wind farms to smaller machines used as supplemental power sources for businesses and residences.

8.8.2.2 Urban HRM

Wind energy facilities are regulated differently between urban and rural locations. Sensitive land uses such as dwelling units and hospitals and other buildings where people sleep should be

sufficiently separated to mitigate impacts from wind energy facilities. Accordingly in the Urban HRM area, wind energy facilities will be restricted to selected areas only. These areas include designated business parks and commercial campuses, and some marine industrial locations. These areas are considered suitable for wind energy facilities based on the ability to provide adequate separation distance from the machines to more sensitive land uses such as residences and hospitals, and other places where persons sleep. In these designated areas, micro, small, and medium wind energy facilities are permitted. Large Utility scale wind energy facilities will not be permitted in the Urban HRM area, due primarily to the proximity of densely populated residential neighbourhood.

8.8.2.3 Rural HRM

Unlike urban HRM where wind energy facilities are permitted only in selected locations, wind energy facilities in rural HRM have the potential to locate in many areas provided that the facility is not proposed to be sited in the Restriction (R) Zone. In addition, the wind energy facility must meet distance requirements and all Provincial and Federal regulations were applicable. Areas within the Restricted (R) Zone that have been identified as environmentally sensitive and are therefore excluded from wind energy facility development include: provincially protected wilderness areas, Regional and Provincial Parks, and the Western Commons.

These machines can be highly visible and are considered controversial, generating conflicting opinion and strong points of view. The Municipality recognizes that a large portion of the public are predisposed to considering wind energy facilities in a negative light given the obtrusive nature of the technology. However the regulatory tools such as a Development Agreement and Site Plan approval, tools currently used extensively for other forms of development, cannot be utilized adequately to address issues of visual and sound impact mitigation. Accordingly wind energy facilities will be processed on an as of right basis.

~~Policy~~ SU-37~~62~~ Within all Regional Plan Designations, HRM shall establish three overlay zones including an Urban Wind (UW-1) Zone, a Rural Wind (RW-2) Zone and a Restricted (R) Zone within the Land Use By-law to regulate wind energy facilities. These regulations will be implemented through the community land use by-laws. The Urban Wind (UW-1) Zone and the Rural Wind (RW-2) Zone shall be applied to those areas where various categories of wind energy facilities shall be permitted in urban and rural areas. The Restricted (R) Wind Zone shall be applied to the those areas where wind energy faculties shall be prohibited including Regional Parks, Conservation Areas, Protected Areas and the Western Commons and areas within Urban HRM not suitable for wind energy facilities.

~~Within all Regional Plan Designations, HRM shall establish three overlay zones including an Urban Wind (UW-1) Zone, a Rural Wind (RW-2) Zone and a Restricted (R) Zone within the Land Use By-law to regulate wind energy facilities. These regulations will be implemented~~

~~through the community land use by-laws. The Urban Wind (UW-1) Zone and the Rural Wind (RW-2) Zone shall be applied to those areas where various categories of wind energy facilities shall be permitted in urban and rural areas. The Restricted (R) Wind Zone shall be applied to the those areas where wind energy faculties shall be prohibited including Regional Parks, Conservation Areas, Protected Areas and the Western Commons and areas within Urban HRM not suitable for wind energy facilities.~~

~~Policy~~

SU-3~~8~~3 HRM shall establish application requirements within the applicable Land Use By-laws wind energy performance standards and regulations to control height, scale, access, setback and separation distances of such facilities in order to adequately address operational needs, safety concerns and the mitigation of impacts to adjacent properties.

~~HRM shall establish application requirements within the applicable Land Use By-laws wind energy performance standards and regulations to control height, scale, access, setback and separation distances of such facilities in order to adequately address operational needs, safety concerns and the mitigation of impacts to adjacent properties.~~

8.8.2.5 Expansion of Wind Energy Facilities

Wind turbines should be permitted in HRM without placing a limit on the number of wind turbines within a particular location provided that distance separation requirements can be met. However where a property abuts another or where a number of properties are contiguous and are intended to be used to connect into the same large wind energy facility, the setback requirement from the property boundary may be waived where the adjoining property forms part of the same wind farm.

~~Policy~~ ~~SU-34~~

SU-39~~8~~ HRM seeks to encourage the development of large scale wind energy facilities in rural areas by permitting the expansion of wind farms in suitable locations. Accordingly, where a large scale wind turbine is proposed to connect to a wind energy facility on an adjacent lot, the setback requirement from the property boundary may be waived where the adjoining property forms part of the same wind farm.

8.8.2.6 Future Amendments

At present, a wind energy facility producing 2 Megawatts of power or more is required to undergo a Provincial Environmental Assessment in Nova Scotia. The Municipality recognizes that municipal regulations duplicating Provincial and/or Federal requirements should be minimized so as not to unduly hinder wind energy development.

The Municipality further recognizes that the Provincial Environmental Assessment process guidelines may change over time which could necessitate changes to municipal regulations in order to remain both consistent and complimentary. Accordingly, the Municipality may seek to amend the municipal regulations to ensure that future requirements are adequate to regulate wind energy facilities in HRM.

~~Policy SU-35~~

SU-~~-39~~40 HRM shall seek to ensure that Federal and Provincial processes comply with municipal requirements for large scale wind energy facility development. Where Federal and Provincial regulations have been amended, HRM may also amend municipal land use by-law regulations to remain consistent with these changes.

A similar rationale is used for the rapid advancement of wind energy technology. Such advancements could necessitate an amendment to the municipal regulations. If it is deemed appropriate the Municipality may seek to amend the municipal regulations to ensure that requirements are adequate to regulate wind energy facilities in HRM.

~~Policy SU-36~~

SU-41~~40~~ HRM shall seek to recognize advances in wind energy technology and wind energy standards and may amend wind turbine municipal land use by-law regulations to reflect these changes.