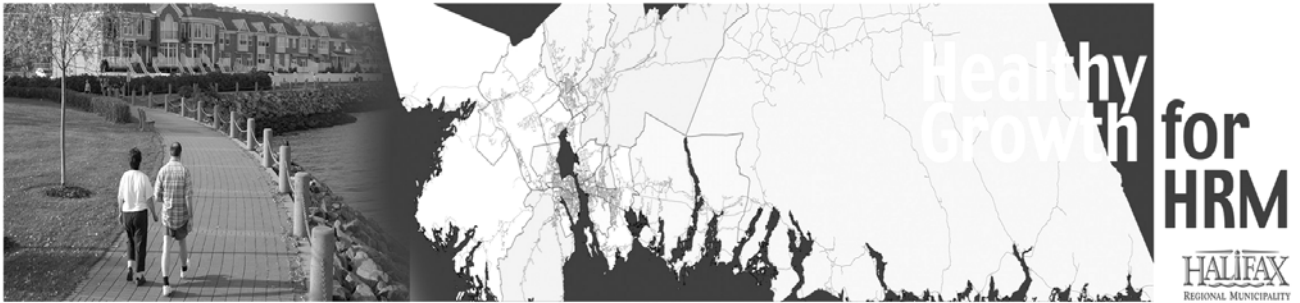


Regional Planning - Halifax Regional Municipality



Summary of Research

Prepared for
Regional Planning
Halifax Regional Municipality

DRAFT
May 2004

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Purpose

Research and data collection is a critical part of developing a Regional Plan. Research and analysis helps to identify new opportunities for accommodating and managing growth within the context of identified needs and community values.

Over the past year, numerous research studies and analyses have been completed. This document provides a summary of the primary findings and conclusions of this work to date. The summary will provide a framework, in addition to the Principles, Goals and Objectives, in formulating and evaluating Regional Planning Alternatives.

Summary of Research

The summary of research has been organized into the following format:

- **Purpose:** describes the primary purpose of each research study,
- **Need:** states why the study was needed within the context of Regional Planning,
- **Overall Conclusions:** summarize the general conclusions made by the study,
- **Findings:** describe key findings as they pertain to formulating and evaluating Regional Planning Alternatives, and
- **Supporting Goals:** identify the Regional Planning Goals that directly pertain to the research study summarized.

Purpose

To create a Geographical Information System (GIS) based inventory of land uses as well as biophysical and physical features of lands within HRM to assist in research, analysis and decision making for the HRM Regional Plan. A key element of GIS is its ability to link research data from a wide range of sources and display the results in a graphic and easily understandable digital map format. Environment Canada, Fisheries and Oceans Canada, the NS Department of Natural Resources and the NS Department of Environment and Labour have provided staff resources, GIS data and background research that have been critical to the success of this research effort.

Need

Regional planning requires the identification of lands suitable for future urbanization, as well as for conservation of cultural and heritage natural resources, preservation of ecological services and biological diversity, and the identification of hazard lands for public safety.

Overall Conclusions

Inventorying and mapping the region's environmental assets, hazard lands and temporal and spatial changes of land use has provided essential information for the regional planning process regarding the identification of lands suitable for residential and commercial development and lands that should be maintained in their natural state.

Findings

- Roughly half of the land in HRM is forest covered.
- HRM has a rich natural and cultural heritage, however the continued expansion of settlement areas could lead to the fragmentation of wildlife habitat areas and has the potential to negatively affect the quality of our freshwater and marine environments.
- Evidence of declining water quality in estuaries, lakes and rivers point to the impact of anthropogenic (human based activities), land-based sources of pollution.
- Some urbanizing coastal areas appear to have been affected by land based sources of pollution.
- Approximately 40% of HRM's shoreline is closed to shellfish harvesting due to elevated levels of fecal coliform.
- Research points to negative impacts on freshwater fish habitat when impervious surfaces exceed 10 percent of the overall area of a watershed.
- Road density (areas of roadway relative to area of land) appears to be a factor in the decline of large range species such as moose.
- The Shubenacadie cultural corridor contains several significant sites of cultural heritage.
- There are over 1,000 square kilometres of unprotected, private forestry land in HRM (18% of HRM's total land area). This land is at risk of being lost to development because it is currently unprotected by legislation or bylaw.
- There are only 76 sq. km. of fertile soil within HRM (approximately 1% of HRM's land area) suitable for agricultural uses. These lands, although zoned for

Road density appears to be a factor in the decline of large range species, such as moose.

agricultural uses, are at risk to development because residential and commercial uses are permitted.

- Almost 40% of HRM land is owned by the Province and reserved for forestry, recreation, provincial parks, mineral/aggregate extraction and wilderness protection areas.

Supporting Goals: 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.9, 1.10, 2.1, 2.2, 2.3, 4.4, 4.6, 4.7, 5.1, 5.2, 5.3, 5.7, 6.9, 7.4, 7.8.

Rural Community Form and Land Use Suitability

Purpose

To identify areas within existing rural communities that function as “service centres”; overlay these identified service centres with an analysis of land use suitability; and calculate land availability within proximity of the service centres for potential future growth.

Need

Large lot, low density subdivision in rural areas can cause fragmentation of natural areas and loss of habitat, consumption of resource lands, and degradation to water resources. Regional policy supporting rural development in and around service centres could provide greater opportunity for more compact village-like development a greater mix of land use to serve rural residents, enhanced rural services (i.e. centralized sewer/water and commuter transit), and reduced capital and operating costs.

Overall Conclusions

Land suitability provides a basis for determining the capacity for future growth. Community values provide the basis for determining whether development should occur where land is suitable.

Findings

- Rural service centres exist today in the rural commutershed communities of Fall River, Porters Lake, Musquodoboit Harbour and Tantallon. The service centre of Hubbards lies partially outside the HRM boundary.
- In the rural areas of the region (east of the rural commutershed), service centres are in Middle Musquodoboit and Sheet Harbour.
- Areas most appropriate for future development must depend on the suitability of the land to support new development - i.e. suitability of soils for sewage disposal and avoidance of sensitive environmental areas and valued cultural features.
- A synthesis of land use, and biophysical and physical features layered over the existing rural service centres provides a tool to help determine the capacity for future growth.
- There are vacant lands close to all service centres, however, in most instances these lands are not suitable for sub-surface discharge of septic waste. Alternative wastewater servicing may provide other options.
- Preliminary calculations of suitable soils, close to the existing rural service centres, indicate some possible capacity for growth in Fall River, Musquodoboit Harbour and Sheet Harbour. Additionally, infill opportunities are present within the serviceable area (central water and sewer) of Middle Musquodoboit.

Areas most appropriate for future development must depend on the suitability of the land to support development.

Supporting Goals: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.1, 2.2, 4.6, 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 6.7, 6.8, 6.9, 6.10, 7.1

Purpose

To investigate the feasibility of developing serviced communities on ten greenfield sites around the metropolitan area. The study first provides a qualitative assessment of the opportunities and constraints for development of each site. Matters such as environmental constraints, the potential for sharing services with the surrounding community and the ability to integrate with regional transit services were among a number of matters considered.

The study also estimated the capital costs of upgrading infrastructure (transportation, water, sanitary sewer, and stormwater systems) needed to service each site under a number of development scenarios. Efforts were made to identify threshold costs where substantial infrastructure costs would be needed to service additional population.

Need

While the Municipality may seek opportunities to support infill development within existing communities as a cost-effective means of accommodating future growth, it is recognized that a certain level of development will need to be located on undeveloped lands or greenfield sites. This study attempts to address where this development might be best suited from the perspective of servicing costs, environmental sensitivities and sharing of services with neighbouring communities.

Overall Conclusions

- The ten greenfield sites could accommodate a substantially greater population than anticipated for the region by 2028. In fact, one site alone could potentially accommodate all anticipated suburban development over the next 25 years.
- Spreading development over all sites would require considerably more infrastructure investment than focusing development over a smaller number of sites.
- There are several sites that appear to have a clear cost advantage while others will need further consideration of municipal objectives before any commitments are made.

Key Findings

- Assuming a suburban development density of 6 to 8 dwelling units per acre, the ten greenfield locations were estimated to accommodate approximately 273,000 residents.
- The existing water treatment plants at Pockwock and Lake Major are able to serve an additional 143,000 people, and with expansions could serve over 405,000 new residents.
- The three new sewage treatment plants under the Harbour Solutions project will have sufficient capacity to accommodate projected population growth to 2021, with the capability of expansion to accommodate growth to 2041. However, the demands from all greenfield areas would exceed available treatment capacity and therefore allocation choices will have to be made.

Existing water treatment plants are able to serve an additional 143,000 people.

Substantial roadway expansion would be required if new development is spread equally among all ten Greenfield locations.

- Most of the ten areas include significant lakes, wetlands and watercourses, which may necessitate substantial stormwater management measures to address municipal and provincial environmental objectives.
- Substantial roadway expansion may be required just to accommodate the projected background traffic from residents living beyond the greenfield locations.
- Substantial roadway expansion would be required if new serviced development were to be spread equally among all ten greenfield locations.
- Increased investment in public transit is of critical importance to keep pace with new development and to maintain the existing share of trips made by bus and ferry. If not, the impacts of future growth on roadway demand would be even greater.
- The most significant transportation constraints to future growth occur at:
 - < Windmill Road
 - < Armdale Rotary
 - < Quinpool/Chebucto Roads
 - < Highway 102 terminus at Bayers Road
 - < The MacDonald and MacKay Bridges
- Primary constraints on the road network relate to the Halifax Peninsula and the bridges, pointing to a potential role for high-capacity transit such as bus rapid transit (BRT), rail and/or new fast ferry services.
- The analysis does not provide a clear indication of a need for a third harbour bridge. Such a bridge would address congestion issues that arise in only one direction for a very small portion of the day, at very high cost. At other times and in other directions, it would create excess capacity which would encourage additional traffic and possibly result in demands for other road improvements elsewhere.
- Several sites have substantial cost advantages in connecting to the regional transportation system and in integrating with a regional transit system.

Supporting Goals: 1.3, 4.2, 5.1, 5.3, 6.11, 7.1, 7.3, 7.7

Purpose

To assess the redevelopment opportunity vacant or underutilised commercial and industrial sites within the serviceable urban areas of HRM which have or are perceived to have contamination, and to determine the redevelopment impact redevelopment of these brownfield sites on future growth patterns in the suburban and rural areas of HRM.

Need

Underutilised brownfield sites are a major problem in Canadian cities, including HRM. Brownfield redevelopment may be a viable means for reducing the significant consumption of greenfield lands, while at the same time revitalizing neighbourhoods and using existing infrastructure.

Overall Conclusions

There is significant potential for developing existing brownfield sites in HRM to accommodate future growth. However, policies to encourage redevelopment as well as cooperation among government agencies are essential.

Findings

- The growth occurring in HRM's suburban areas is primarily low density, single detached housing resulting in a significant amount of land consumption.
- In an effort to promote fiscally responsible growth, cities across North America have begun to focus on brownfield redevelopment projects as a means of reducing the amount of growth areas not previously developed.
- Brownfield redevelopment has gained considerable attention given the quantifiable social, environmental and economic benefits.
- The exact supply of brownfield sites in HRM is unknown. HRM staff estimate the quantity to be approximately 2,000 acres (including 1,400 acres at Shearwater).
- Continued underutilisation of brownfield sites will result in significant losses in property tax revenue to HRM.
- Brownfield redevelopment opportunities would increase tax revenues, reduce development pressures in the rural commutershed areas, provide alternative housing and location choices, reduce the overall consumption of raw land, and reduce the extension of costly piped services.
- Brownfields are typically much cheaper to acquire and to develop given the presence of existing infrastructure and other services than greenfield sites.
- Despite the ability to acquire brownfield sites cheaply, many private developers avoid them due to perceived levels of contamination, and the potential for costly remediation. Moreover, an overly complicated regulatory process and non-supportive finance and insurance industries have generally discouraged private investment.
- Typically, heavily contaminated sites that exhibit low to medium marketability, have required some form of public subsidy to facilitate their redevelopment.
- Several of HRM's highly contaminated sites, especially those located outside of the Halifax Peninsula, have remained underutilised, or abandoned for many years.

Abandoned and underutilised Brownfield sites represent significant losses in property tax revenue.

- The redevelopment trend is to convert sites from industrial or commercial uses to residential uses. However, the greatest public benefits come from redevelopment back to commercial or industrial uses.
- The lack of site specific information regarding the number and condition of the brownfields sites makes it difficult to effectively promote redevelopment.
- If all of HRM's brownfield sites were redeveloped, almost 9,000 acres in greenfield land could remain undeveloped.

Supporting Goals: 1.3, 5.2, 5.3., 5.4, 7.1

Purpose

To determine how much land is potentially available for residential development in the urban core (Halifax Peninsula and Dartmouth within the Circumferential Hwy).

Need

Assessing existing land capacities for accommodating new residential development in the urban core will provide background for developing future settlement patterns.

Overall Conclusions

Within the urban core, at least 10,000 new housing units could be accommodated on vacant lands, suspected brownfield sites and other locations without changes to existing planning policies. Depending on density of new development, potentially up to 40,000 new housing units could be accommodated in the urban core. However, a number of factors need to be considered first, including how to maintain neighbourhood character, the capacity of the existing infrastructure, and market demand for new housing, and open space and park needs.

Findings

- The study measured the total area of vacant lands, potential brownfield sites and commercial properties with significant declines in assessment to determine how much land might be available for residential development.
- Vacant lands within the urban core can now accommodate over 6,000 units, without changes to existing planning policy.
- Brownfield sites, underutilised or former commercial or industrial lands, could accommodate 5,000 to 30,000 units depending on the density of the redevelopment.
- Increasing densities or changing existing planning policy on both vacant lands and brownfield sites could yield approximately 40,000 units.
- Realization of those opportunities requires sensitivity to the character of the surrounding neighbourhood, the capacity of infrastructure to handle the population increase and future commercial or industrial needs.
- In the urban core, at least 2,000 units are under construction, in approval stages or proposed.
- Cooperation among government owners of brownfield sites is required to fulfill the development potential of these sites and ensure the appropriate type of development takes place.
- Other opportunities for accommodating additional housing in the urban core, such as allowing secondary suites or redeveloping existing housing, were not examined in this study.

Vacant lands and Brownfield sites could accommodate 10,000 to 40,000 new housing units in the urban core.

Supporting Goals: 1.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 6.1, 7.1, 7.3, 7.8

Purpose

To forecast the relative future demand for various housing types and the demographic age groups likely to occupy those types.

Need

Population growth creates a demand for new housing. Different age groups, first time home buyers, retiring seniors, and households with growing families, tend to demand different types of housing. Forecasting future population by age group will help determine housing type needs.

Overall Conclusions

The study concluded that significant changes in population growth are related to the health of the economy. High economic activity encourages immigration, both from outside and within the country, causing high population growth. The number of people over 65 will more than double in the next 25 years, leading to changes in the type of housing needed in HRM.

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Findings

- An aging population will accelerate demand for lower maintenance housing options, including apartments and condominiums.
- A gradual increase in demand for medium and high density housing will occur over the next 25 years.
- Trends toward residential intensification of the downtown core is becoming more common through North America, including HRM's Capital District.
- Low density housing will continue to account for the majority of new housing, although the proportion relative to all housing types will decline slightly.
- There will continue to be a demand for rural large lot properties.

Note: Study will be complete in June 2004.

Supporting Goals: 5.3, 5.6, 7.1

Municipal Land Use Policy and Housing Affordability Study

Purpose

To identify key housing affordability issues in HRM, assess the regulatory environment affecting the supply of affordable housing, and assess and recommend the most promising and applicable regulatory, financial and planning measures for HRM, on the basis of experience in other jurisdictions and consideration of local economic, legislative and administrative issues.

Need

Over 20% of all HRM households pay more than 30% of their income on shelter. In recent years, increases in housing prices have outpaced increases in income levels. The development and maintenance of affordable and diverse forms of housing can support the development of healthy communities, increase personal health and safety, reduce the need for commuting, and attract a qualified workforce.

Overall Conclusions

A comprehensive affordable housing strategy for HRM would support a thorough assessment of key housing needs and introduce policies that would offset any potential impacts of growth management measures, while helping to realize synergies with other regional planning goals.

Findings

- Definition of Affordable Housing
 - < Affordable housing must be suitable (enough bedrooms for the size and make up of the household) and adequate (does not require major repairs) and consume no more than 30 per cent of pre-tax household income. Various targets and means tests may be developed.
- The Need for Affordable Housing in HRM
 - < Housing and rental price have been increasing, while vacancy rates have been on the decline. In 2001, 44% of rental households paid more than 30% of their income on shelter, one of the highest percentages in the country.
 - < The withdrawal of federal and provincial funding in the 1990s from the construction of new social housing means that virtually no new social units have been built in HRM since 1986 and many are in need of major repairs.
- Barriers to Affordable Housing
 - < *Factors that increase the cost of housing* include planning standards, engineering standards, parking requirements, municipal charges and taxes, land and labour costs, building materials, property taxes, the permit approval process, settlement forms and financing.
 - < *Factors that limit the supply of affordable housing* include the lack of land zoned for multi-family and small-lot housing, zoning restrictions on manufactured and mobile housing, group homes, secondary suites and rooming houses, planning policies that prevent change towards higher density urban forms, the liquidation of public lands, inadequate funding for non-profit housing, citizen opposition to affordable housing in their neighbourhoods, the lack of information about innovative design and planning practices that integrate affordable housing into surrounding neighbourhoods.

In 2001, 44% of rental households paid more than 30% of their income on shelter, one of the highest percentages in the country.

Growth management manages projected growth needs to achieve broad public goals. Growth controls limit overall growth, using quotas and deflect growth to other jurisdictions.

- Growth Management and Housing Affordability:
 - < Growth management is a system of integrated planning, regulatory and fiscal measures that allow local and provincial authorities to influence the patterns of growth and development. Unlike growth control measures, which limit overall growth by implementing quotas or caps and which deflect growth to other jurisdictions, growth management accommodates projected growth needs to achieve broad public goals. Thus, overall growth is not restricted, only the location and type of growth is affected by growth management policies.
 - < A study by Philips and Goldstein (2000) regarding the affect of Urban Growth Boundaries (UGBs) on housing affordability in Portland, Oregon concluded:
 - The large price increases in the 1990s were most likely the result of economic recovery, increased demand for housing, and speculation caused by the surge in demand, due to low interest rates.
 - < An *integrated approach* to growth management involves combining a UGB with policies that would favour:
 - the emergence of higher density communities within the boundary;
 - the setting aside of urban growth reserves for future development,
 - the extensive or exclusive use of mixed use zoning to ensure a healthy jobs/housing balance, and
 - encouraging infill brownfield development.
 - < *Affordability, intensification and density targets* can also be used. The Ontario provincial government developed such targets in the early 1990s for the Greater Toronto Area. These targets were used as a basis for land budgeting and revisions to municipal plans. Municipalities were directed to accommodate at least 10% of all new growth through intensification, to achieve a minimum of seven units per acre gross density in greenfield projects, and to create a range of housing types of which at least 25% would have to be affordable to 60% of the population. More recently, Calgary set a target of achieving densities of six units per gross acre in new housing developments, a significant increase over historic trends.
 - < An integrated approach also requires a close link between land use and transportation planning strategies. A strong transit policy can reduce both direct and indirect housing costs by increasing the supply of housing, reducing the need for commuting and the reliance on private automobiles.
- Affordable Housing Measures:

The options available to promote, encourage and implement affordable housing include:

 - < *Regulatory standards:* alternative planning, engineering and parking standards.
 - < *Regulatory restrictions:* reduced restrictions on manufactured and mobile homes, encouraging and maintaining single room occupancies and rooming houses, facilitating lot splitting and subdivision.
 - < *Financial measures:* density bonuses, establishing a reserve fund and levy program, providing financial incentives and assistance in the form of land, tax and fee exemptions. The provision of incentives to the private sector will require changes to the *Municipal Government Act*.

- < *Planning policies*: inclusionary planning, encouragement of brownfield development.
- < *Planning processes*: streamlining municipal approval process, addressing local resistance to affordable housing, appointing a municipal housing facilitator.
- < *Other measures*: developing a community land trust, employing transfer of development rights, permitting secondary suites as of right, preserving existing housing stock.

Effectiveness of Measures by Development Pattern

Measure	Urban	Suburban	Rural
Regulatory Standards			
o Adopt alternative planning standards	Low	High	Low
o Adopt alternative engineering standards	Low	Medium	High
o Reduce parking standards	High	Medium	Low
o Reduce restrictions on manufactured/mobile homes	Low	High	Medium
Financial Measures			
o Employ density bonusing	High	Medium	Low
o Establish a housing reserve fund and levy program	High	High	High
o Financial incentives/assistance	Medium	High	Medium
Planning Policies			
o Introduce inclusionary planning	High	Medium	Low
o Adopt strategies to encourage brownfield redevelopment	High	High	High
Planning Processes			
o Streamline municipal approval process	High	High	Low
o Address local resistance to affordable housing projects	High	High	High
o Appoint a municipal housing facilitator	High	High	High

Supporting Goals: 1.3, 1.4, 1.7, 2.1, 2.6, 3.3, 4.3, 5.1, 5.2, 5.3, 5.4, 5.6, 5.8, 6.3, 7.1, 7.6, 7.9

Cost of Servicing Analysis

Purpose

To determine the relative costs of basic services such as roads, transit, sewer and water, waste management, schools recreational facilities, and emergency services under different development patterns. These costs will be a critical part of the evaluation of Alternatives.

Need

Infrastructure costs are highly influenced by settlement pattern. As HRM grows, efficient investment of infrastructure becomes more difficult. Specifically, conventional low-density neighbourhoods, the provision of water, sewer, road and other municipal services will cost more as these services are extended over a much broader area to reach the same number of households. Moreover, when new neighbourhoods rapidly expand, spending is heavy on new school buildings, roads, water and sewer services. As a result, existing schools in the urban core often languish, while roads in the urban area forego improvements. The same is true for libraries, recreation facilities, sidewalks and parks.

Overall Conclusions

Study not yet complete. The final information package will be provided in the *Residential Pattern Book and a Costing Summary Report*. The pattern book will provide municipal servicing costs for roads, transit, water, sewer, solid waste and fire for eight types of residential development patterns.

Findings

Study not yet complete.

Supporting Goals: 7.1, 7.2, 7.3

Transit and Land Use Form

Purpose

To summarize extensive research studies regarding the influence of land use form, such as density, mix and design of transit ridership.

Need

Increased traffic congestion, environmental degradation and limited financial resources require the implementation of more viable transportation options to improve air quality, reduce land consumption, preserve open space and retain the economic integrity of major employment centres, such as the Capital District.

Overall Conclusions

Integrated land uses and facilities along with well-timed, reliable transit service are essential to creating a viable option to the automobile.

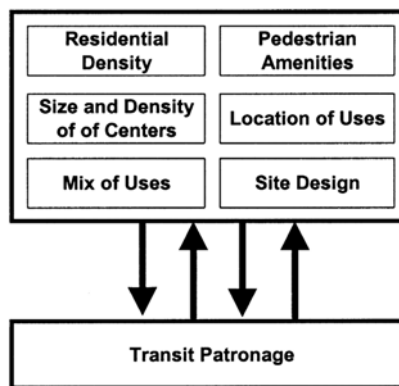
Findings

- The following attributes support higher transit patronage:
 - < Compact land use form
 - < A reduction in the number of significant employment centres in the region
 - < Employment and residential uses in corridors serviced by high capacity transit
 - < A greater mix of land uses in transit corridors
- Central Business District (CBD) workers are five times more likely to use transit than workers in other activity centres.
- The cost of parking at the work site strongly influences transportation choice.
- The probability of using transit increases significantly if both trip origins and destinations are located in close proximity to transit stations or services.
- Transit ridership potential is highest within a half mile (0.8 km) of a transit station.
- Factors that influence walk distances to transit stations include:
 - < The quality, location and price of parking near transit
 - < The characteristics of the transit service, including the frequency and quality of service
 - < The characteristics and location of land uses near transit corridors and stations.
- Residential density increases from very low to moderate densities (e.g., 4 units per acre to 10-15 units per acre) provide the greatest increases in transit ridership.
- Mixed land uses can provide a number of transportation benefits:
 - < The more that complimentary land uses are mixed (i.e., offices, shops, restaurants, banks) the more likely people are to walk and less likely they are to drive.
 - < Trips have more potential to spread out throughout the day and week, instead of clumped during the morning and evening peak periods.
 - < Mixed-use development generates opportunities for resource sharing, such as parking.
- Suburban activity centres with some on-site housing average between three to five percent more commute trips via walking, cycling and transit than centres without housing.

Mixed land uses can provide a number of transportation benefits.

- Multi-use communities improve transit ridership and efficiency by generating back-haul (trips during peak periods, but in non-peak directions) and off-peak (trips during midday or evenings) usage.
- The presence of mixed land uses and urban design features at work sites can increase transit mode trips by three to four percent.
- Land use density increases accessibility by shortening average trip lengths for all travel modes.
- Land use mix increases accessibility by increasing the number of nearby destinations available for a given trip purpose.
- Good design increases accessibility by enhancing directness, safety and attractiveness of travel.

Supporting Goals: 6.6, 6.7, 6.8, 6.9, 6.10



Transit Oriented Development (TOD) & High Capacity Transit (HCT) Opportunities Analysis

Purpose

To identify the transit mode technologies that would work best within several transportation corridors in the region within the context of existing and future land use patterns and right-of-way opportunities.

Need

Higher capacity transit modes will have a place in HRMs future. The potential role of fast ferry, rail and improved rapid bus services needs to be assessed within the 25 year Regional Planning horizon.

Overall Conclusions

Study not yet complete.

Findings

- Current travel patterns are of major interest when examining the potential for increasing transit ridership.
- Corridors that are candidates for high capacity transit service are dictated by:
 - Existing, relatively high ridership routes.
 - A large proportion of work trip destinations are on the Halifax Peninsula
 - Combinations of major peak period origins and destinations.
 - Physical (e.g. roadway space) opportunities for increasing service frequencies and decreasing travel times.
 - Opportunities for the introduction of alternative technologies,
 - Potential for new development.
- High capacity transit service works best where a mix of land uses, including compact residential development, retail and services, are clustered around existing or future transit stations using pedestrian-supportive design.
- Existing highway-oriented commercial development and park-and-ride lots can be gradually reconfigured, to create residential and commercial clusters that support high-capacity transit stations.

Note: Study will be complete in August 2004.

Supporting Goals: 5.3, 6.1, 6.4, 6.7, 6.8, 6.9

Transportation Demand Management (TDM) Options

Purpose

To summarize transportation demand management (TDM) programs designed to reduce single-occupant vehicle trips and promote the use of alternative forms of transportation, while making the existing transportation system work more efficiently.

Need

Due to increasing levels of congestion, a program which encompasses various forms of transportation demand management, such as car pools, bicycling, walking, telecommuting, flexible work hours, and neo-traditional, cluster and mixed used land use forms, is required to improve the efficiency of the transportation system and reduce the number of single occupant vehicles on roads.

Overall Conclusions

A review of the information available outlining TDM programs, policies and regulations indicates that successful TDM programs are comprehensive, inter-related and integrated with transportation and land use plans.

Findings

- Comprehensive policies that connect land use to non-motorized forms of transportation are required to discourage commuters from driving alone in their cars.
- Corporate policies that encourage flexible working hours, compressed work weeks and telecommuting (working at home) all result in fewer cars on the road and an overall healthier environment.
- Telecommuting can reduce automobile trips during peak travel times by one to two percent.
- The provision of high occupancy vehicle lanes and designation of rideshare parking areas also reduces the reliance upon the single occupancy vehicle for commuting purposes. Van and car pools can help eliminate pollution and lower congestion levels.
- Charging commuters for the privilege of using certain roads or for entering certain areas, has proven to reduce the amount of traffic during the peak travel periods. Congestion pricing in London, England has resulted in an increase in transit use, pedestrian activity and other alternate forms of transportation. The road use pricing fees are primarily dedicated to transit.
- Congestion pricing is only effective where there is a public transportation system that can accommodate the increase in ridership demand.

Successful TDM programs are comprehensive, inter-related, and integrated with transportation and land use plans.

Supporting Goals: 6.1, 6.6, 6.7, 6.8, 6.9, 6.12, 6.14

Parking Supply Management Strategies

Purpose

To summarize available strategies that manage the quantity of parking within an area in order to maximize the efficient use of existing parking facilities and off-street spaces, and to encourage transit use.

Need

Managing the supply and duration of parking can help reduce land consumption, while retaining the economic integrity of major employment and commercial centres, such as the Capital District.

Overall Conclusions

Policies that limit parking supply within a given area work best when:

- current parking is well utilized,
- transit, bicycle, pedestrian and ridesharing facilities and programs exist to provide travellers with transportation options, and
- there is no parking capacity in surrounding neighbourhoods or on vacant land to absorb “spillover” parking.

Findings

- A single parking space requires 350 square feet of land when accounting for the space and circulation area.
- The cost of a single parking space on a surface lot can range from \$25,000 to \$50,000 depending on location and land values.
- High parking standards and costs can prohibitively restrict the provision of affordable housing for residential and mixed-use developments and even the overall financial viability of development.
- Many studies have found that both parking availability and price are the most important determinants for travellers in choosing a transportation option.
- Where parking is free and readily available, people are more likely to drive.
- Where parking is expensive and transit service provides a good alternative, people are more likely to use transit.

Supporting Goals: 6.11, 6.12, 6.14

Water Resources Management Study

Purpose

To develop a set of policy recommendations for water resource management. Water resources generally include rivers, lakes, ponds, streams, wetlands, and the ocean shoreline.

Need

Water resource policies affect where and how development occurs, and reflect the values that a community places on public health matters such as water quality and flood protection. In addition, HRM's natural heritage areas are closely linked to water resources. A set of regional water resource policies will guide Regional Planning and other municipal programs and services.

Overall Conclusions

Effective water resource management requires an integrated approach that consists of development controls, policies, by-laws, program and service delivery, and performance monitoring of discharges and watercourses.

Findings

Key policy recommendations:

- Watercourse, Wetland and Coastline Protection
 - < Riparian (edges of natural water courses) buffers remain undeveloped
 - < Re-instate watercourses that have been channelized or in-filled
- Service Boundaries
 - < Use development boundaries to define urban areas with full municipal services
 - < Use detailed boundaries to define rural settlement areas and rural service centres
 - < Use a hierarchy approach to determine method of servicing rural settlement/service centres
 - < Use individual on-site services for rural resource areas
- Wastewater Management
 - < Rural - Establish a hierarchy approach for wastewater management in rural settlement/service centres, rural resource areas and for remediating failed on-site systems; Implement wastewater management tools, wastewater management districts, public education and water conservation devices
 - < Urban - Prioritize infiltration and inflow on a watershed basis; Conduct flow studies to evaluate benefits of separating sewers and reducing combined sewer overflows
- Stormwater Management
 - < Develop stormwater management guidelines and recommend specific requirements
 - < Use watershed-based management for sensitive watersheds
 - < Use public education for source control programs
 - < Apply erosion and sediment control to all development and construction approvals
 - < Prepare flood zone mapping on a priority listing of watersheds, and apply development restrictions within flood zones
- Performance Measurement

- < Use performance monitoring in all development agreements
- < Use a performance monitoring program in areas impacted by development

Supporting Goals: 1.1,1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 4.7, 5.1, 5.2, 5.4, 5.7, 7.1, 7.2

Options for On-site & Small Scale Wastewater Management

Purpose

To assess the decentralized wastewater technological options for achieving greater land use efficiencies in rural settlement areas of HRM; to identify and evaluate the management options for the on-going maintenance of these systems; and to recommend a cost-effective management structure for small scale wastewater, communal/cluster and individual on-site septic systems.

Need

Recent studies indicate that there are technologies for the treatment of sanitary sewage in rural areas that are more effective than methods currently in use. The management of these technologies and their application to the landscape of HRM must be assessed to determine whether these alternative technologies will enable residential development that consumes less land, and that provides a greater level of protection to water resources.

Overall Conclusions

Study not yet complete.

Findings

- Soils: There are large areas of good slope and soil conditions that are suitable for on-site septic systems throughout the region. The largest area of low suitability soil is through the Musquodoboit Valley, due to the dominance of Wolfville and Queens soils.
- Groundwater: All areas in HRM have anticipated restrictions to groundwater quality and/or quantity. For example, mitigation may be required in areas southwest of Halifax. Northeast of the urban core/suburban areas has potentially good conditions for groundwater, especially through the Musquodoboit Valley, central areas, and many coastal areas.
- Surface Waters: Only a limited number of rivers are capable of supporting a small scale sewage treatment plants, and those suitable areas are generally restricted to the lower reaches of rivers, except along the Musquodoboit River and East River Ship Harbour.

Note: Study will be complete in June 2004.

Supporting Goals: 1.1, 1.2, 1.3, 1.6, 2.1, 5.2, 7.1, 7.3

Purpose

To describe and quantify HRM's key economic sectors, identify potential new growth industries, provide forecasts for economic growth potential and suggest locational criteria and infrastructure requirements to support such growth.

Need

To ensure that a sufficient supply of land is maintained in suitable locations, along with the provision of supporting infrastructure systems (municipal services, telecommunications, road, rail, air).

Overall Conclusions

The study is not yet complete, but will provide recommendations on guidance in allocating appropriate land (amount and location) and infrastructure to support continued economic growth in the region, integrated with future settlement patterns and transportation systems.

Findings

- Employment increased by 20% in HRM between 1993 and 2003, slightly below the national average, but double the rate of Nova Scotia.
- Per capita income in HRM exceeds the Canadian average and is 28% higher than Nova Scotia.
- Approximately 83% of HRM's economy is service-based, compared to 76% for Nova Scotia and 69% for Canada.
- Conservative estimates for HRM's employment growth are for an annual average increase of 1,570 jobs, a total increase of 39,250 jobs between 2001-2026.
- The six key economic drivers of HRM's economy are: universities, military, health (hospitals), public administration, tourism and finance/insurance/real estate. All of these economic drivers are located within or adjacent to the Capital District and the Halifax Harbour.
- Industries considered to be significant are: port/shipping, air transportation, rail/truck transportation, professional services and administrative and support services.
- Industry sectors expected to experience moderate to strong growth are: wholesale and retail trade, transportation and warehousing, information/recreation and culture, finance/insurance/real estate, professional services, health and accommodation and food service.
- The trend toward office relocation to suburban locations is likely to continue, with implications for geographic distribution and the Capital District.
- The sustainability and expansion of the key economic drivers reinforces the need for improved transit service to the Capital District.
- Sufficient and appropriate lands on the Halifax Harbour need to be reserved for future growth of marine industrial uses and other harbour-dependent uses.

All of HRM's key economic drivers are located within or adjacent to the Capital District and the Halifax Harbour.

Note: Study will be complete in June 2004.

Supporting Goals: 4.1, 4.2, 4.4, 4.5, 4.6, 4.7

Purpose

To develop a package of urban design tools to guide streetscape and public realm improvements in the Capital District and to consider appropriate urban design tools for property development.

Key study components include:

- Urban design guidelines for streetscapes
- Streetscape Improvement plans for five main commercial arteries
- Identity and wayfinding plan for visitors
- Public amenities plan
- Urban design best practices from other cities

Need

Good urban design is critical to reinforcing the Capital District as the region's primary centre for cultural, business, entertainment, and governance activities. Allocating a high level of public amenities and pedestrian infrastructure is key to creating public spaces where people can enjoy all that the Capital District has to offer. An urban design strategy is needed to guide streetscape improvements and the provision of public amenities to ensure that investment is based on a larger vision for the Capital District.

Overall Conclusions

Good urban design will enhance the quality of life in communities and benefit the entire region economically, socially, and culturally.

Cooperation is essential among all HRM departments and agencies who have an impact on urban design through a range of service delivery.

Urban design guidelines for public spaces and private properties are key to enhancing design quality and community identity.

The best model of urban design for HRM will be a combination of regulatory, voluntary, and awareness initiatives.

Findings

- The unique identity of the Capital District and its business districts can be reinforced through streetscape improvements, marketing, and focussed capital investment.
- Pedestrian accessibility and safety should be a priority downtown with better linkages between business districts and key public spaces.
- A high level of maintenance is essential to the vitality of city streets.
- Narrow sidewalks and competing interests for right-of-way space is a growing challenge.
- Sidewalks should be designed to minimize obstructions to pedestrians, while maintaining easy access to key amenities and opportunities for beautification of streetscapes.
- A high calibre of design for street furniture, sidewalk paving, landscaping, and other amenities can lead to a more positive image for the Capital District.

Good urban design is critical to reinforcing the Capital District as the region's primary centre for culture, business, entertainment and governance activities.

- Investment in trees is key to maintaining the character and identity of the Capital District.
- HRM should begin to implement a focussed streetscape improvement strategy with priority on:
 - < street trees and landscaping
 - < replacement of dangerous brick walking surfaces
 - < pedestrian-scale lighting
 - < identity and directional signage for visitors
 - < small parks and seating areas that encourage pedestrian activity
 - < additional street furniture, clustered for comfort and accessibility
- HRM should consider longer-term investment in:
 - < widening sidewalks on key commercial arteries
 - < burying electrical wires on Spring Garden Road, Quinpool Road and Gottingen Street
- Best practices in urban design from across North America should be used to develop a comprehensive urban design approach for HRM, including design guidelines for buildings and sites and design recognition and awareness programs.

Supporting Goals: 1.10, 3.1, 3.2, 3.4, 5.5, 6.7

Purpose

To identify and prepare a list of existing and potential cultural heritage sites and spaces. Review existing legislation and practices for cultural heritage protections within HRM, Ontario, Alberta and British Columbia.

Need

The definition of cultural heritage protection needs to be expanded to include cultural landscapes, view planes, social heritage and cultural diversity. To accomplish this, data sets need to be compiled, in consultation with community groups, to identify potential heritage sites, and cultural/social heritage spaces. In addition, a comprehensive approach is required for municipal cultural heritage resource protection.

Overall Conclusions

A comprehensive approach and strategic management plan is needed that includes the identification of heritage districts, cultural landscapes, historic communities, social heritage, cultural diversity and open space planning. This needs to include the coordination and participation of residents and interest groups in identifying these aspects of cultural heritage that best reflect their unique community. In addition, an integration of heritage, culture and open space planning are essential to creating a comprehensive strategic management plan.

Findings

- The Heritage By-law establishes a Heritage Advisory Committee and a civic registry of heritage properties. Fifteen of the nineteen Municipal Planning Strategies have varying degrees of reference to heritage protection.
- HRM initiated a Heritage Tourism Strategy in 2000 and currently has a comprehensive set of tools that can be used to assist in heritage protection. A few of these are as follows:
 - < Direct grants, professional research, density bonus/ new uses, heritage compensation, heritage permits, heritage agreements, heritage areas, temporary protection, heritage designation, heritage covenant, special building codes, tax exemptions, and non- monetary assistance. These tools and strategies need to be implemented in a more comprehensive manner.
- HRM has initiated the establishment of a cultural policy for HRM that includes: “arts, heritage, design, cultural industries and community cultural engagement.” This is to ensure that communities within HRM are healthy, facilitate artistic and heritage development, creativity, community cultural involvement and the diversity that is inherent in each.
- The following provincial legislation supports heritage protection:
 - < Heritage Property Act
 - < NS Museum Act
 - < Cemeteries Protection Act
 - < Special Places Protection Act
- The Province has recently initiated plans to create a provincial heritage strategy. They have also completed their Resource Land Valuation Model for Tourism Values in Nova Scotia project. The project are also in digital format and includes HRM.

- There are some information gaps that still need to be addressed. These include:
 - < identifying additional view planes, cultural landscapes, cultural spaces, cultural trails, and urban heritage trails that combine elements of a greenway, public and community art, and heritage interpretation. These features need to be identified in consultation with communities;
 - < continuing to identify both cultural/social heritage and the natural heritage of HRMs diverse communities and coordinating the database of existing and potential cultural historic sites, civic spaces and activities; and
 - < assisting rural communities in identifying and protecting cultural heritage places, events, activities, important civic spaces and cultural diversity.
- Based on a review of recent changes made in Ontario, British Columbia and Alberta, current tools and civic legislation need to be improved.
 - < The shift from "heritage" to "heritage and cultural resource management" is taking place in Canada today. HRM needs to be a part of this shift and hold discussions with property stake holders regarding this direction. Cultural Resource Management includes natural space management and social/cultural heritage.
- Municipal planning strategies should be amended by building on the existing heritage protection policies, in particular the Halifax Peninsula Municipal Planning Strategy and by including more comprehensive and implementable policies
- Cultural heritage, cultural/social, and open space planning needs to be integrated.

Supporting Goals: 1.3, 1.7, 1.8, 1.9, 2.1, 2.2, 2.3, 3.1, 3.2

Purpose

To summarize extensive research regarding the use of Halifax Harbour, adjacent land use, the environment, regulatory jurisdiction, and related matters, and to describe preliminary issues and opportunities, to be used as a basis for formulating a long term development strategy for Halifax Harbour.

Need

With a finite amount of harbour front land available, and many competing interests, like port-related industries, tourism, recreation, residential and environmental protection/restoration, it is important to produce a plan that maximizes the benefits of existing and future uses of the Harbour.

Overall Conclusions

Determining the appropriate balance among the various existing and potential future land uses is the key element of a Harbour Plan. A well integrated land use plan and management plan that addresses the needs for economic growth, cultural preservation and enhancement, expanded social amenities and environmental integrity, will ensure that Halifax Harbour remains and develops as one of our region's greatest assets.

Findings

There is a finite amount of harbour front land available with growing competition for space.

- Halifax Harbour is a world class seaport and is a vital economic driver of the region's economy.
 - < Almost 14 million tonnes of cargo are shipped through the port each year.
 - < There are approximately 7,000 direct and indirect jobs in port-related activities within HRM.
 - < Harbour-dependent industries/employers include container shipping and general cargo, ship building and repair, offshore energy servicing and supply, oil refinery, power generation, national defence (Navy) and Coast Guard, and research (BIO).
 - < Suitable sites for expanding or create new port related activities need to be identified, along with associated infrastructure requirements. Existing and potential community impacts need to be mitigated.
 - < Cargo movement (truck and rail), particularly in south-end Halifax, requires improvement. Security issues may mean restricted public access.
 - < The Harbour has great potential as a transit corridor for expanded ferry service/new high speed ferries.
- Halifax Harbour has seen tremendous growth in the tourism industry in recent years.
 - < Tourism adds approximately \$700 million to HRM's economy each year. The waterfronts of Halifax, Dartmouth and Bedford are destination points for residents and tourists alike, for walking, and viewing historic and cultural amenities and special events.
 - < The cruise ship industry has grown significantly with 87 visits in 2002 and more than 100 anticipated for 2004. Passengers spend an average of \$100 while in port.
 - < Halifax Harbour offers great potential to expand tourist related activities and facilities.

- Halifax Harbour is well served by parks, open spaces and trails, including Fisherman's Cove, Dartmouth Waterfront Trail, Admiral Cove, Seaview Park, Point Pleasant Park, Horseshoe Island, Sir Sanford Fleming/Dingle Park, York Redoubt and Chebucto Head.
 - < Many opportunities for further trail and park development exist, including McNabs and Lawlor's Islands, George's Island, Dartmouth waterfront, Shannon Park area, Bedford waterfront, Birch Cove, Fairview Cove, Halifax waterfront north to MacDonald Bridge, Northwest Arm and Chebucto Peninsula.
- Halifax Harbour is becoming increasingly popular as a location for residential development.
 - < Residential growth is anticipated for the Downtown Dartmouth, the Bedford Waterfront and Halifax Waterfront, and many other locations have residential development potential
 - < Residential development can encroach on marine-dependent uses, public access to the shoreline and trail development. These issues need to be addressed.
- Halifax Harbour is a natural estuary system that supports a variety of plant and animal marine life, yet is highly contaminated in many locations.
 - < The Harbour Solutions project is now underway, which will introduce advanced primary treatment of all sewage, plus a pollution prevention (source control) strategy.
 - < Opportunities exist for improving the environmental integrity of the Harbour, including improved infill practices, environmental restoration/remediation projects and improved pollution control within the entire harbour watershed.
 - < The impacts of global warming on the Harbour ecosystem and store fronts requires study and preventative/mitigative implementation measures.
- A number of opportunity parcels have been identified to date, some of which include the former Ultramar Refinery site, Nova Scotia Hospital lands, Coast Guard site, Dartmouth Cove, Dartmouth Waterfront, Shannon Park lands, Wallis Heights/Wrights Cove, Bedford Waterfront, Fairview Cove, Halifax Waterfront, plus Georges, McNabs and Lawlors Islands.
- There is a need to develop an integrated management structure for Halifax Harbour in order to coordinate and administer the implementation of the harbour plan. This requires cooperative action among regulatory and management agencies, landowner interests and public interests.

Supporting Goals: 1.1, 1.2,1.6, 1.8, 3.1, 3.2, 4.3, 4.4, 5.7, 6.2, 6.3, 6.4, 6.5, 6.8, 7.4, 7.8