



Public Health and Land Use Planning: How Ten Public Health Units are Working to Create Healthy and Sustainable Communities



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Executive Summary

Introduction

This report examines the ways in which ten public health units in Ontario are working to influence land use and transportation planning processes to help create healthy and sustainable communities. It is intended as a tool for professionals in the public health sector.

The report is based on interviews that were conducted with staff in each of the ten public health units. Case studies were prepared from the interviews and from a review of the documents provided by each public health unit. The case studies do not describe all of the work that each health unit is doing on the built environment, but they do highlight the type and range of work that is being done by each to influence land use and transportation planning processes in their respective communities.

The background section of this report was prepared drawing extensively on the reports prepared by the ten public health units. It provides a brief overview of the health and social science evidence which links health to the built environment as mediated through six factors: physical activity, healthy eating, injuries, air quality, climate change and water quality. It also includes a brief discussion of the health inequities that are experienced by low income populations as they relate to the built environment. The discussion and recommendations were prepared in consultation with the Project Advisory Committee which included one representative from each of the ten participating public health units.

The ten participating public health units represent different regions of the province. Four report to autonomous Boards of Health, five are situated in regional municipalities, and one is situated in a single-tier municipality. Four are located in the Greater Toronto Area with well established urban centres, two are in regions characterized by an urban/rural mix of development, three are in rural areas, and one is in the north.

Discussion

The project was directed at understanding:

1. The interventions being sought by these ten public health units through the land use and transportation planning processes in their communities;
2. The interventions being sought that will improve the health of low income populations;
3. The strategies that these public health units are employing to directly and indirectly influence land use and transportation planning processes;
4. Where interventions being sought are complementary to one another and where they might be contradictory;
5. The health programs, disciplines and expertise these public health units are directing at land use and transportation planning processes;
6. The organizational structures these public health units are utilizing to address built environment and land use planning processes given their multi-disciplinary nature; and
7. The research, policies, tools and/or data that public health professionals believe they need to be more effective in this field.

Interventions Being Sought

All of the ten public health units examined are promoting development patterns, employment and population densities, land use mixes, and/or land use designs that support active modes of transportation such as cycling and walking, and/or alternative modes of transportation such as public transit. This work includes the promotion of bike lanes, trails, paved shoulders, and other infrastructure needed to support active transportation. Several of the health units are promoting policies to establish trails, parks and greenspace, that are equitably distributed across a community, to encourage recreational physical activity among all ages and income groups as well. A few public health units have attempted to fold food access issues into the land use planning processes. Two have also conducted research into the food systems within their communities to inform and support land use planning policies and municipal programs that support local farms with a community food security lens.

A few of these public health units have also worked to include new policies into regional official plans to address issues related to cumulative air quality impacts, the need for air studies, the compatibility of land use mixes from an air quality perspective, and/or separation distances from high-volume traffic corridors. Several health units have also been promoting official plan policies needed to mitigate and adapt to climate change such as those which support green roofs, shade structures, permeable paving, urban forestry and reflective surfaces. In addition, several public health units have been working through the land use planning processes to ensure that residents are protected from contaminated ground water and to protect ground water resources. One public health unit reviews land use planning documents using hydrogeological guidelines that have been appended to the regional official plan.

Interventions that Improve the Health of Low Income Populations

Almost all of the staff interviewed expressed the view that changes in the built environment that improve the walkability of communities, active transportation options, and/or the efficiency of public transit, were changes that would have disproportionate benefits for individuals who live on low incomes. Three public health units have been working to ensure that low income populations are consulted during the development of transit plans and/or pedestrian plans in recognition of the importance of these modes of transportation to low income populations.

Staff in several public health units have noted that their annual *Nutritional Food Basket* reports indicate that a substantial percentage of the population in their communities cannot afford to eat healthy foods. Several public health units have taken steps to increase access to healthy foods in low income neighbourhoods that are poorly serviced by food retail outlets by promoting community gardens and mobile fresh food markets.

Actions taken by three public health units to ensure adequate separation distances between sensitive land uses and high-volume traffic corridors are expected to create disproportionate health benefits for low income households that are more likely to reside in close proximity to high traffic corridors. At least one public health unit is taking steps to prioritize low income neighbourhoods for climate change adaptation measures such as tree-planting and cooling centres to protect those who are at increased risk from health impacts associated with heat waves.

Strategies Employed by Public Health Units

Most of the ten public health units examined have health promotion programs directed at the built environment. Several are also engaging communities more directly on land use planning issues. For example, several offer active transportation or *walkON* workshops for residents, municipal staff and/or councillors. Several public health units have made it a priority to work with their community partners

on land use planning processes. In some cases, they are developing comments on official plans, secondary plans and transportation plans with their community partners. In other cases, they and their partners are leading the development of active transportation plans or sustainable mobility plans that are being adopted by local councils and/or referenced in official plans.

All of the ten public health units are working to establish relationships with their counterparts in planning departments. The autonomous public health units are cultivating relationships with decision-makers and planners who work for organizations that are independent from theirs, while the other public health units are developing working relationships with another department within their regional and/or municipal organizations.

All of the ten public health units have conducted some research on issues related to the built environment but there is a wide range in the depth of research being conducted by different public health units. Research has included literature reviews, policy analyses, public surveys, analyses of health and population statistics, geographical analyses, air monitoring and airshed modelling. This research has been directed at a wide range of issues. Three public health units have done research and/or policy development to directly inform and support their regional official plans. Three are developing tools that can be used to assess health issues related to physical activity as part of the on-going land use planning process. Two are developing air monitoring and/or airshed modelling tools that can be used to inform land use planning processes. At least one is involved in the development of implementation guidelines for their regional official plan, while two have participated in processes to develop urban design guidelines for local municipalities in their districts.

All four of the autonomous public health units have provided comments on official plans when provided the opportunity. Three have done this directly while one has done so in collaboration with its community partners. Three have provided comments on secondary plans, subdivision plans and site plans when provided the opportunity. All five of the regional public health units have been directly involved in the development of their regional official plans. Three of these provide comments on local official plans and secondary plans as well. Three systematically review subdivision plans and site plans; two primarily for environmental health issues and one for issues related to active transportation as well as environmental health issues.

Almost all of the public health units interviewed will review background documents related to certificates of approval or environmental assessments when there is the potential for substantial impact on the health of the community or in response to requests from decision-makers. These documents are usually reviewed from the health protection perspective for environmental health impacts related to water quality, air quality, and/or toxics. A few public health units are using these opportunities to raise issues related to active transportation and climate change as well. One public health unit has conducted health impact assessments to inform land use planning policy issues.

Complementary & Contradictory Interventions

All of the staff interviewed recognize that much of the work that is being done by different staff on built environment and land use planning issues is complementary. For example, staff recognize that work on active transportation has the potential to increase physical activity, prevent injuries, reduce emissions of air pollutants and greenhouse gases, and increase access to services among low income populations. Staff in a few public health units have also identified a few situations where the policies directed at one risk factor can contradict the direction needed to protect health from another risk factor. They are working to identify and address these contradictions internally before responding to planning.

Program Areas, Functional Expertise & Roles

Among the ten public health units examined, some of the Chronic Disease and Injury Prevention teams have created specialized positions to allow staff to develop expertise and/or experience in research, policy development, and/or planning to increase their efficacy on land use and transportation planning issues. In addition, several of the Environmental Health teams have created specialized positions to allow staff to develop expertise and/or experience in research, policy development, toxicology, air quality, water quality, and/or health promotion to help them address issues related to the built environment such as air quality, climate change, pesticides, and toxic substances, where they have identified a need to supplement or move beyond their more traditional "health protection" role. In some cases, public health units have hired new staff with specialized training to fill these positions. A few of the public health units examined have created teams with specialized expertise that provide research, policy and/or surveillance support to both program areas on built environment issues.

Organizational Structures

Most of the staff interviewed indicated that there have been on-going discussions within their health units about how to organize staff to address built environment issues which involve risk factors and health conditions that cut across program areas and disciplines. In some health units, these organizational discussions have been part of a larger discussion related to the new Ontario Public Health Standards that were adopted in 2008. Others indicated that their health units are restructuring to ensure that the social determinants of health are folded into their research, policy development, health protection, and health promotion programs in a more holistic way.

Among the ten public health units interviewed, a variety of organizational approaches have been used to address the cross-cutting issues associated with the built environment and land use planning processes. A few have created multi-disciplinary teams with staff from chronic disease prevention, injury prevention, and environmental health working collaboratively in a formal way. A few have identified leads from the various program areas involved in land use planning processes who collaborate together on those processes. Several public health units indicated that, while they do not have multi-disciplinary teams or formal processes to ensure collaboration across the health unit, communication and collaboration between teams does happen effectively on an informal basis. Several public health units have created committees to encourage communication and collaboration on built environment issues. Another health unit requires staff from the chronic disease and environmental health program areas to collaborate on program planning for the built environment to encourage collaboration year round.

Several public health units have found it helpful to assign one staff person with responsibility for coordinating the health unit's involvement in land use planning processes for an extended period of time until relationships and/or processes with their planning and/or municipal counterparts solidified. One health unit has established a new Healthy Public Policy Directorate that will do research and policy work on built environment issues with all of the risk factors combined, including socio-economic risk factors.

Recommendations

It is recommended that:

1. The Ministry of Health Promotion and Sport continue to support public health units and not-for-profit organizations with their work on health and the built environment, particularly work directed at upstream policy interventions, with its Healthy Communities Fund;

2. The Ministry of Health and Long-Term Care establish a Healthy Communities Fund that will be used to fund public health units and/or non-governmental organizations that are doing research, policy development, and health promotion work directed at the built environment with a particular focus on air quality, climate change, and/or vulnerable populations including low income populations;
3. The Ministry of Health Promotion and Sport and the Ministry of Health and Long-Term Care:
 - a. Establish an inter-ministerial committee that can encourage collaboration across program areas on built environment issues among public health units and/or not-for profit organizations that receive funding from either Ministry;
 - b. Move to strengthen the requirements in the Ontario Public Health Standards that relate to work on health and the built environment;
 - c. Recognize the positive impact that the current Provincial Policy Statement has had on land use and transportation planning processes in the province, and advocate for stronger language respecting the protection and promotion of human health;
 - d. Through their Healthy Communities Funds, give priority to:
 - i. Social marketing projects that seek to educate the public about the many health, environmental, social and economic benefits associated with development patterns and built environment designs that support active transportation and public transit, both at the community level and on a province-wide basis;
 - ii. The development and application of health assessment tools that can be used to estimate the health impacts and health costs associated with land use and transportation decisions and policies from a physical activity, injury prevention and air quality perspective;
4. The Province establish a standing inter-ministerial committee on the built environment with the Ministries of Municipal Affairs and Housing, Transportation, Environment, Health and Long-Term Care, Health Promotion and Sport, and Education, which includes representatives from the Council of Medical Officers of Health, to coordinate work that impacts the land use and transportation planning processes;
5. The Ontario Agency for Health Protection and Promotion, in consultation with public health units and other stakeholders,:
 - a. Develop a Health Impact Assessment process and tool that can be applied to major projects that are currently subject to environmental assessments;
 - b. Develop a Healthy Communities Screening Tool that can be used to guide public health professionals in the review of planning documents; and
 - c. Identify, and facilitate access to, the health statistics data needed by public health units to support their work on the built environment and land use planning processes.

Glossary of Terms & Abbreviations

BOH	Board of Health
CAP	Clean Air Partnership
CDIP	Chronic Disease and Injury Prevention
CIHI	Canadian Institute of Health Information
CLASP	Coalition Linking Action and Science for Prevention
CO ₂	Carbon Dioxide
CofA	Certificate of Approval
EA	Environmental Assessment
EPO	Environmental Protection Office
GBHU	Grey Bruce Health Unit
GIS	Geographical Information Systems
GHG	Greenhouse gases
GTA	Greater Toronto Area
HKPR	Haliburton Kawartha Pine Ridge District Health Unit
HRHD	Halton Region Health Department
MOE	Ministry of the Environment
MOH	Medical Officer of Health
NO ₂	Nitrogen dioxide
NRPH	Niagara Region Public Health
OPHA	Ontario Public Health Association
PAC	Project Advisory Committee
PHU	Public Health Unit
PM _{2.5}	Fine Particulate Matter
PPH	Peel Public Health
PPM	Parts Per Million
PPS	Provincial Policy Statement
ROPA	Regional Official Plan Amendment
RWPH	Region of Waterloo Public Health
SDHU	Sudbury and District Health Unit
SMDHU	Simcoe Muskoka District Health Unit
TDM	Transportation Demand Management
TPH	Toronto Public Health
YRPHB	York Region Public Health Branch

Introduction

Purpose

This report describes the various ways in which ten public health units (**PHUs**) in Ontario are working to influence the land use and transportation planning processes to support the development of healthy and sustainable communities. It describes the research, policy development, health protection, and health promotion work being done by these PHUs on the built environment. It discusses how, when and why they are becoming involved in different stages of the land use and transportation planning processes within their communities. The report also discusses the organizational structures and/or processes that each PHU has established to facilitate communication and/or collaboration on built environment issues across their PHUs, with land use planners, and with their municipal partners.

The report is intended as a tool for professionals in the public health sector. We hope that it will support discussion and encourage innovation in the field of health and the built environment among public health professionals. We also hope that it will be used by professionals in other fields, such as land use planning, transportation demand management, sustainability, and environmental coordination, to appreciate why public health professionals are interested in the built environment and the many ways in which they can support land use and transportation planning issues.

This project was funded by the Ministry of Health Promotion and Sport to examine two health promotion areas, physical activity and healthy eating, and one priority population, low income populations. It was decided by the Project Advisory Committee however, that the scope of the project should be expanded to the fields of injury prevention, air quality, climate change, and water quality because of the importance of these issues to health and because of their relationship to built environment interventions associated with physical activity and healthy eating. It was also decided that the project should address interventions directed at the health of the general population within their communities, as well as those directed specifically at low income populations. This was done for practical and strategic reasons. In some cases, the interventions needed to improve the health of low income populations are those that improve the health of the whole community. In other cases, public health staff recognize that interventions that improve the health of low income populations can gain greater support among the general public and decision-makers when the benefits for the whole community are emphasized.

The ten PHUs selected to participate in this project are all directly and indirectly working to influence the land use planning processes in their communities. Most are active in the Ontario Public Health Association's (**OPHA**) newly created Health and Built Environment Workgroup, while the others were identified as "leaders in the field" by the members of the OPHA Health and Built Environment Workgroup. An attempt was made to ensure that there was representation from different regions in the province. One PHU is located in northern Ontario, one in eastern Ontario, three in western Ontario, and five in central Ontario. Four of the PHUs report to autonomous boards of health (**BOHs**), five are situated in regional municipalities, and one is situated in a single-tier municipality. Four of the PHUs are located in the Greater Toronto Area (**GTA**) with well established urban centres, two are in regions characterized by an urban/rural mix of development, three are in rural areas, and one is in the north.

Methodology

A Project Advisory Committee (**PAC**) was struck with one representative from each PHU that was participating in the project. The PAC also includes the Executive Director and Research Director from the Clean Air Partnership (**CAP**) and the a consultant with expertise in land use planning and health promotion. Several members of the PAC are also members of the OPHA Health and Built Environment Workgroup.

A set of interview questions were developed by the author in consultation with the PAC to guide interviews with each PHU (**see Appendix A**). Each PHU was asked to identify the staff who should be involved in the interviews and was encouraged to ensure that the staff involved could address activities associated with all aspects of the built environment. Interviews were conducted in person by the author with each PHU between September 15 and December 15, 2010. In eight PHUs, one group interview was conducted with each PHU which captured the views of all staff working on the built environment issue in that PHU. The number of staff participating in the group interviews ranged from three to thirteen people. In one PHU, the interview was conducted with two groups of staff; senior management in one group and front-line staff in the other. In another PHU, interviews were conducted individually with staff from different divisions. The group interviews took between two and four hours each while the individual interviews took up to one hour each.

Case studies for each PHU were prepared by the author from the interviews and with documents provided by each PHU. The case studies were sent to the staff in each PHU for review and feedback. Summaries for each PHU do not describe all of the work that each PHU is doing on the built environment. They do however highlight the type and range of work that is being done by each PHU in order to influence land use and transportation planning processes in their respective communities.

The background section of this report was prepared by the author drawing extensively on the reports prepared by the ten PHUs. The observations and recommendations were drafted by the author and then revised after discussion with the PAC.

Report Structure

This report is divided into three major sections. The first section is the background which provides a brief overview of the health and social science evidence which links health to the built environment as mediated through six factors - physical activity, healthy eating, injury prevention, air quality, climate change and water quality. This section includes a brief discussion of the health inequities that are experienced by low income populations as they relate to the built environment. It also includes a brief overview of: the structure of the public health sector within Ontario; the new Ontario Public Health Standards that relate to the built environment; and the 2005 *Provincial Policy Statement* which opened the door to greater involvement in land use planning processes by public health professionals.

The second section contains the case studies prepared for each of the ten PHUs examined. The case studies are structured to reflect the questions directed at health staff. They are structured around land use planning processes and public health functions (i.e. research, policy development, health promotion, health protection), rather than health program areas or risk factors, because of a desire to emphasize

the strategies being used to influence the built environment and the structures and processes being used to encourage collaboration across program areas and/or professional disciplines.

The third section contains a discussion and recommendations based on the interviews with the ten PHUs. No attempt has been made to evaluate the effectiveness of the various strategies being used by the different PHUs. The author and the PAC recognize that each of these ten PHUs operate under different circumstances shaped by the geography, demographics, health priorities, resources, administrative structures, and political realities of their respective organizations and communities. These circumstances can create opportunities or constraints for public health professionals who are working to influence land use planning processes and the built environment in their communities. The intent of this report is to showcase the many ways in which public health professionals are working to support the creation of healthy and sustainable communities in the hopes that other public health professionals will see strategies, projects, or ideas that might be appropriate to their circumstances. We hope that this report stimulates discussion, encourages innovation, and invites others to share their ideas and/or success stories.

II Background

Public Health Units

A public health unit (**PHU**) is an official health agency that provides community health programs under the Health Protection and Promotion Act. There are 36 PHUs in Ontario. Each one is governed by a Board of Health (**BOH**) and administered by a Medical Officer of Health (**MOH**) who reports to the local BOH. The BOH is largely made up of elected representatives from local municipal and/or regional councils. Approximately two-thirds of Ontario's BOHs are autonomous bodies created to provide public health services. Municipal or regional councils are the BOHs for the remaining third. Both forms have the same function within their communities. The Ministry of Health and Long-Term Care shares the costs of running PHUs with local municipalities (MOHLTC, 2011).

Ontario Public Health Standards

The Ontario Public Health Standards are guidelines for the programs and services that are mandated by the Ministry of Health and Long-term Care. They outline the expectations for BOHs, which are responsible for providing "public health programs and services that contribute to the physical, mental, emotional health, and well-being of all Ontarians" (Ontario, 2008).

"Addressing determinants of health and reducing health inequities are fundamental to the work of public health in Ontario" (Ontario, 2008).

The new Ontario Public Health Standards, which were brought forward in 2009, are based upon a recognition that the health of individuals and communities is "significantly influenced by complex interactions between social and economic factors, the physical environment, and individual behaviours and conditions.....known as the determinants of health". They further state: "Addressing determinants of health and reducing health inequities are fundamental to the work of public health in Ontario" (Ontario, 2008).

The Ontario Public Health Standards include five Program Standards and one Foundational Standard. The Foundational Standard guides the assessment of population health, surveillance research, knowledge exchange, and program evaluation. The five Program Standards cover:

- Infectious Diseases
- Environmental Health
- Emergency Preparedness
- Chronic Disease and Injuries and
- Family Health (Ontario, 2008).

Each of these Program Standards establish requirements for public health programs and services under four functional headings: assessment and surveillance; health promotion and policy development; disease and injury prevention; and health protection (Ontario, 2008).

Public Health Authority & the Built Environment

The public health interest in the built environment is expressed largely by professionals working under the Chronic Disease and Injuries Prevention program which is administered by the Ministry of Health Promotion and Sport and the Environmental Health program which is administered by the Ministry of Health and Long-term Care. The Ontario Public Health Standards explicitly instruct and authorize public health professionals who work in these two programs to support the development of healthy public policies in the field of the built environment.

The Chronic Disease Prevention subsection of the Chronic Disease and Injuries Program Standard states that:

"The board of health shall work with municipalities to support healthy public policies and the creation or enhancement of supportive environments in recreational settings and the built environment regarding the following topics: healthy eating; healthy weights; comprehensive tobacco control; physical activity; alcohol use; and exposure to ultraviolet radiation" (Ontario, 2008).

The Health Hazard Prevention and Management subsection of the Environment Health Program Standards states that:

"The board of health shall assist community partners to develop healthy policies related to reducing exposure to health hazards. Topics may include, but are not limited to: indoor air quality; outdoor air quality; extreme weather; and built environments" (Ontario, 2008).

Public Health Interest in the Built Environment

Over the last ten years, there has been a growing interest in land use planning processes among public health professionals in response to a growing body of health literature which demonstrates the substantial impact that the built environment can have on human health and well-being. The interest is not limited to one particular health condition, factor, or issue. The studies linking health to the built environment are coming out of a variety of fields simultaneously.

A broad array of health conditions, mediated through a variety of risk factors, have been linked to the built environment: chronic diseases and deaths that are associated with physical inactivity, obesity, and unhealthy eating patterns; injuries, hospital admissions, and deaths associated with falls and vehicle-related collisions; acute and chronic respiratory and cardiovascular conditions associated with poor air quality; infections and disease resulting from contaminated water; heat stress, water-borne infections, and insect-borne diseases associated with climate change; and mental health issues, stress and social isolation associated with built form and long commutes.

Health Inequities Experienced by Low Income Populations

Overlaying all of these interests is a growing understanding that some groups are particularly vulnerable to health impacts because of their socio-economic status. In June 2009, the Canadian Standing Senate

Committee on Social Affairs, Science and Technology released a report entitled "A Healthy and Productive Canada: A Determinant of Health Approach" which begins by stating that:

"We must change our way of thinking and recognize that good health comes from a variety of factors and influences, 75 percent of which are not related to the health care delivery system. Therefore we must become proactive and support communities, cities, provinces, territories and a country in producing citizens in good health, physical and mental well-being and productivity" (Senate, 2009).

Income is considered the most important social determinant of health because it affects so many other factors that impact health including living conditions, levels of stress, working conditions, health-related behaviour, the quality and quantity of food, the quality of housing, and the safety of neighbourhoods (Mikkonen and Raphael, 2010). Research has demonstrated that men living in the wealthiest 20 per cent of neighbourhoods in Canada, live four years longer than men living in the poorest 20 per cent of neighbourhoods. In addition, a large number of studies have demonstrated that Type II diabetes and heart attacks are far more common among low-income Canadians (Mikkonen and Raphael, 2010).

While many think of Canada as a wealthy country, there is substantial poverty in this country. In 2005, using the Low-Income Cut-Offs¹ measure, 10.3 per cent of all people in Ontario were living in poverty (SPC of Sudbury, 2008). Ontario has the highest rate of childhood poverty in the country with one in six children in Ontario living in poverty. More than half of those children live in single parent homes with their mothers and nearly half are the children of new immigrants (SPC of Sudbury, 2008).



The new Ontario Public Health Standards are built upon a Foundational Standard which acknowledges the impact of the determinants of health, and which encourages PHUs to strive to influence broader societal changes that reduce health disparities and inequities (Ontario, 2008).

Consequently, interest in the built environment is coming from many directions within the public health sector: from those who work to promote physical activity, healthy eating, and injury prevention; from those who work to improve air quality, address climate change, and protect water resources; and from those who seek to address the health inequities in our society.

¹ Low-Income Cut-Offs is the measure of poverty commonly used by Statistics Canada.

Provincial Policy Statement and Public Health

While there are a number of provincial planning documents that are of interest to public health, including the *Greater Golden Horseshoe Growth Plan*, the *2011 Growth Plan for Northern Ontario*, the *Greenbelt Plan*, the *Green Energy Act*, and the *Accessibility for Ontarians with Disabilities Act*, the one that has provided public health professionals with a clear opening into the land use planning process is the *2005 Provincial Policy Statement (PPS)*.

The PPS provides policy direction on matters of provincial interest related to land use planning and development. The current PPS opens with a commitment to "Building Strong Communities" which clearly articulates the link between land use development patterns, environmental health, economic well-being, and the notion of "livable and healthy communities":

"Ontario's long-term prosperity, environmental health and social well-being depend on wisely managing change and promoting efficient land use and development patterns. **Efficient land use and development patterns support strong, livable and healthy communities, protect the environment and public health and safety, and facilitate economic growth**" (PPS, 2005).

The PPS promotes development patterns which:

- Foster close **live-work arrangements** and access to public amenity space;
- Support the concept of complete communities by requiring a **mix of housing types** to meet a variety of lifestyles and incomes; and
- Direct new development to areas that have or are planned to have the necessary infrastructure (PPS, 2008).

It encourages planning authorities to **foster active communities** by:

- Planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, and facilitate pedestrian and non-motorized movement;
- Encouraging connectivity within and among transportation systems and modes; and
- Fostering a land use pattern, density, and mix of uses to minimize the length and number of trips and support the development of viable choices and plans for public transit and other alternative transportation modes, including commuter rail and bus (PPS, 2005).

The PPS indicates that **healthy, active communities** should be promoted by:

- Planning public streets, spaces and facilities to be safe, meet the needs of pedestrians.....cycling;
- Providing for a **full range and equitable distribution of publicly-accessible built and natural settings for recreation**, including facilities, parklands, open space areas, trails and where practical, water-based resources;
- Providing opportunities for public access to shorelines; and
- Considering the impacts of planning decisions on provincial parks, conservation reserves and conservation areas.

In addition, the PPS directs planning authorities to **support energy efficiency and improved air quality** through land use and development patterns which promote:

- Compact form;

- The use of public transit and other alternative transportation modes;
- The mix of employment and housing uses that shorten commute journeys and decrease transportation congestion; and
- Design and orientation which maximizes the use of alternative or renewable energy, such as solar and wind energy, and the mitigating effects of vegetation (PPS, 2005).

The PPS also directs planning authorities to **improve or restore the quality and quantity of** water by, among other things:

- Implementing necessary restrictions on development and site alteration to protect all drinking water supplies and designated vulnerable areas; and
- Promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality.

Lastly, the PPS encourages planning to be done so that **major facilities and sensitive land uses are appropriately designed, buffered and/or separated** *from each other* to prevent adverse effects from odour, noise and other contaminants, and to minimize risk to public health and safety (PPS, 2005).

By making a clear link between public health and land use planning policies, the PPS provides health professionals direction and legislative authority for addressing health concerns through the land use planning processes. With that said, the public health professionals interviewed feel that there is much more that the PPS could and should do to clarify the role and importance of health considerations in the land use planning processes.

Pressures and Priorities Differ by Region

For PHUs interested in the built environment, development pressures and health priorities vary significantly depending upon whether their populations are growing or declining. Over the past 20 years, the population in Ontario has grown from 10 million to more than 12.5 million with growth concentrated in urban centres, particularly in the Greater Toronto Area (**GTA**), Waterloo, Hamilton, Niagara Region, and Ottawa. At present, almost 85 per cent of Ontario's population lives in urban centres with a continuing trend of migration from rural areas to urban centres. Overall, the population in the northern and central regions of the province are declining while the population in the southern region is growing (Statistics Canada 2002 as cited by Lemmen et al, 2008).

The population of Ontario is expected to grow by 31 per cent to 16.4 million by 2031. Sixty per cent of this growth is expected to occur in the GTA which is projected to grow from 5.8 million in 2005 to more than 8 million by 2031. The population in the rest of the southern Ontario is projected to grow from 6 million in 2005 to more than 7.5 million in 2031. Meanwhile, the population in the central and northern regions of Ontario are expected to decline by 7.4% from 810,000 in 2005 to below 750,000 in 2031 (MOF, 2006 as cited by Lemmen et al, 2008).

So, while some PHUs have been trying to influence planning processes and policies that will guide significant growth expected over the next two decades, others are struggling to bring attention to built environment issues in communities that are lacking development-related investments.

III Overview - Health & the Built Environment

A Physical Activity & the Built Environment

Physical Activity & Health

In 1996, the U.S. Surgeon General released a report on physical activity and health which concluded that "the evidence was sufficiently strong to draw a causal relationship between physical activity and health outcomes" including lower mortality rates for both older and younger adults, a lower risk for heart disease and stroke, a decreased risk of colon cancer, a lowered risk of Type 2 diabetes, lower weight and reduced body fat, and improvement in mood and relief from symptoms of depression and anxiety (US DHHS, 1996 as cited by SMDHU, 2007).

Physical inactivity poses a significant risk to human health and a significant burden to Canada's health care system. Katzmarzyk estimated that physical inactivity contributed to approximately 21,000 premature deaths in Canada in 1995 and cost Canadians about \$2.1 billion in health-related costs in 1999 (Katzmarzyk et al, 2000 as cited by SMDHU, 2007). A most recent estimate put the health-related costs of physical inactivity at \$5.3 billion per year (CFLRI, 2005 as cited by SMDHU, 2007).

Physical Inactivity costs Canadians about \$5.3 billion per year in health-related costs.

In 2003, the Public Health Agency of Canada concluded that physical activity:

- Can reduce the risk of colon cancer by as much as 50 percent;
- May protect women against breast cancer; can reduce the risk of developing Type 2 diabetes by as much as 50 percent;
- Undertaken in childhood and adolescence, can reduce the risk of osteoporosis in later life;
- Can maintain bone mass among adults;
- When conducted on a regular basis, improves function and relieves symptoms among people with osteoarthritis and rheumatoid arthritis (PHAC, 2003 as cited by HRHD, 2009a).

Despite the significant health benefits associated with physical activity, most Canadian adults and youth do not get the exercise recommended by the Canadian Guidelines for Physical Activity . A study recently published by Statistics Canada staff found that:

- 85 per cent of Canadian adults do not get the 150 minutes of moderate to vigorous physical activity per week recommended by the Canadian Guidelines for Physical Activity (Colley, 2011a; CSEP, 2011); and
- 91 per cent of boys (6 to 19 years in age) and 96% of girls do not get the 60 minutes of moderate to vigorous physical activity per day recommended by the Canadian Guidelines for Physical Activity (Colley, 2011b; CSEP, 2011).

Physical Activity & the Built Environment

Physical activity has declined significantly over the last 50 years as a result of changes in our workplaces, homes, schools and communities. Researchers have observed that over the last 50 years there has been an overall decline in the levels of physical activity required in our jobs, in the maintenance of our homes, and in our transportation to and from schools, jobs and services (Brownson et, 2005 as cited by SMDHU, 2007). Particularly noteworthy from a built environment perspective is the change in transportation patterns that have resulted from the North American commitment to suburban living. Between 1950 and 2000, the percentage of U.S. residents who live in the suburbs doubled. During that same period, the number of daily vehicle miles travelled per person increased by 0.4 miles per year so that today, on average, U.S. residents drive 29 miles per day or 55 minutes per day (Brownson et al, 2005 as cited by SMDHU, 2007). Statistics Canada found that, in 2005, Canadian commuters spent on average, 63 minutes per day, with 25% of workers spending 90 minutes or more each day commuting (Statistics Canada, 2006).

A growing body of literature has demonstrated that the built environment affects the levels of physical activity in the general population. For example, a review of 19 quantitative studies which assessed the relationship between physical activity and elements of the built environment found that environmental factors such as accessibility, opportunities, safety and aesthetics have consistent associations with levels of physical activity (Humpel et al, 2002 as cited by HRHD, 2007d).

Density, Diversity, Design & Active Transportation

Many studies have demonstrated that population and/or employment density, the diversity of land uses, and the connectivity of roads, bike paths, and sidewalks are the elements of the built environment that are most strongly associated with levels of physical activity. For example, one review which analysed studies of six communities found that, on average, residents in highly walkable neighbourhoods took twice as many walking trips as people in less walkable neighbourhoods. Each of the studies reviewed demonstrated associations between built environment variables such as density, land use mix, and connectivity, with walking and cycling (Saelens, Sallis, and Frank, 2003 as cited by HRHD, 2007d). Residents from communities deemed highly walkable, according to environmental characteristics, had higher rates of walking and cycling than residents from communities deemed low for walkability. These studies demonstrated that utilitarian or purposeful trips, such as shopping, were responsible for the overall differences in walking trips between neighbourhoods rated high and low for walkability. The researchers found that patterns related to "walking for exercise" did not differ between residents in neighbourhoods rated high and low for walkability (Saelens, Sallis, and Frank, 2003 as cited by HRHD, 2007d).

Studies indicate that between 70 and 83 per cent of all trips are short, for non-work purposes, and take place relatively close to home (Pulleyblank-Patrick et al., 2006 as cited by HRHD, 2009a). In addition, surveys indicate that there is a high degree of willingness among Canadians to walk or cycle instead of driving, with 82 percent willing to walk more, and 66 percent willing to cycle more, if there were safe and convenient facilities to use (Go for Green/EnviroNics, 1998 as cited by HRHD, 2009a).

Combined, these results suggest that policies which support active transportation can increase physical activity among groups who are difficult to influence with traditional health promotion programs, because active transportation allows people to walk or cycle for the dual purpose of exercise and transportation (Lee and Moudon, 2004 as cited by HRHD, 2007d).

Transit Use Increases Physical Activity

Studies have also demonstrated that transit use has the potential to increase physical activity levels in the community because people tend to walk or cycle to their transit connections. For example, a study by Besser and Dannenberg

(2005) found that participants who used transit spend on average, 19 minutes daily walking to and from transit, while 29 percent spend 30 minutes or more walking to and from transit. This suggests that transit use can support adults in achieving the 150 minutes of physical activity per week recommended in the Canadian physical activity guidelines (CSEP, 2011).

Research has also suggested that people who spend more time commuting to and from work in a car are less likely to be physically active and more likely to be overweight and obese (Frank, 2004a).



Proximity to Facilities & Physical Activity

A number of studies have also demonstrated that proximity to recreational and active transportation facilities influence behaviour related to physical activity. Lee and Moudon (2004) reviewed 20 studies and found that the presence of, and proximity to, facilities in a neighbourhood plays an important role in a person's level of physical activity. The facilities found to support and encourage leisure-time physical activity include public facilities such as footpaths, trails, parks, and open public spaces, as well as private facilities such as gyms and recreation centres (N. Humpel et al., 2002; Lee and Moudon, 2004 as cited by HRHD, 2007d).

Physical Activity, Built Environment & Vulnerable Populations

People who live on low incomes are more sensitive to the "walkability" of the built environment than the others in the general population. With the cost of a car estimated at about \$7,000 per year, many individuals who live on low incomes do not have access to vehicles because they direct a greater proportion of their monthly incomes to food and shelter (HRHD, 2007d; Frank et al., 2003). This means that they rely more on public transit, walking, and cycling than others in the general population. It also

means that they will have more difficulty reaching jobs, services, retail outlets and recreational facilities than more affluent individuals when the built environment does not support active transportation and/or an efficient transit system (Frank et al., 2003).

The elderly are also particularly sensitive to the "walkability" of their neighbourhoods. As a rule the elderly are more isolated and have greater mobility issues than the general population. For those who can no longer drive safely, there is a need for amenities and services to be nearby and easily walkable. Walking is also a prominent form of physical activity for older adults. The risk of falling is a major concern for the elderly because falls can be life threatening, so the design and condition of roads and sidewalks is critical to their mobility and independence (Loukaitou-Sideris, 2006 as cited by HRHD, 2007d).

The design of the built environment can greatly enhance or prevent a person with disabilities from being active, using transportation systems, and being socially integrated into their community as well. Persons in wheel chairs benefit from communities that have sidewalks and curb depressions (Bray et al., 2005).

B Healthy Eating & the Built Environment

Diet, Obesity & Health

In 2005, Ontario's then Chief Medical Officer of Health, Dr. Sheela Basrur, put obesity on the public health agenda when she described weight gain and obesity as "an epidemic" that is threatening Ontario's health. Her report noted that:

"In 2003, almost one out of every two adults in Ontario was overweight or obese. Between, 1981 and 1996, the number of obese children in Canada between the ages of seven and 13 tripled. This is contributing to a dramatic rise in illnesses such as Type 2 diabetes, heart disease, stroke, hypertension and some cancers" (Basrur, 2005).

It is estimated that, from 1985 to 2000, 57,000 deaths in Canada were associated with overweight and obesity, and that the direct health care costs of obesity in 1997 were over \$1.8 billion or 2.4% of total health care expenses in Canada (Katzmarzyk and Ardern, 2004; Birmingham et al, 1999).

Physical inactivity is not the only risk factor contributing to the "epidemic" of weight gain, obesity, and associated chronic diseases in North America. Poor nutrition and the consumption of low-nutrient "fast-foods" and processed foods are also to blame. Studies have found that the availability of low-cost processed foods, which are typically high in sodium, fat and/or refined carbohydrates, is a contributing factor to the rise in obesity among children and adults (Raine, 2005 and Drewnowski, 2003 as cited by RWPH, 2005a).

Healthy Foods & Income

The 2004 Canadian Community Health Survey found that almost 9.2 per cent of Canadian households, representing about 2.7 million individuals, were not able to afford the foods needed for a healthy, balanced diet at least once in the 12 months preceding the survey. It found a clear relationship between income level and household food security with severe to moderate food insecurity among those living

on the lowest income levels. The study found that certain groups experienced higher rates of food insecurity including: households living on social assistance, workers' compensation, and employment insurance benefits; off-reserve Aboriginal households; single parent households; and households with one or more children (Health Canada, 2007). (It should be noted that on-reserve Aboriginal households were not included in the survey.)

Food security impacts the quality of a household's diet and the health of those in the household. People who experience food insecurity are 80 per cent more likely to develop diabetes, 60 per cent more likely to develop high blood pressure, and 70 per cent more likely to develop food allergies than households with sufficient food (Mikkonen and Raphael, 2010). This is because people who experience food insecurity consume fewer servings of fruits and vegetables, milk products, and vitamins than those in food-secure households (Mikkonen and Raphael, 2010).

Food Access & the Built Environment

Studies have demonstrated that people are more likely to meet dietary guidelines when they have ready access to grocery stores with healthy and affordable foods, than those who only have access to food from nearby convenience stores that offer mostly packaged and processed foods (Morland, 2002 as cited by RWPH, 2005a). Access and availability to healthy foods can have a greater impact on low income households that have less mobility and fewer transportation options. Several studies have also demonstrated that the increased density of "fast-food" restaurants in lower-income neighbourhoods is a contributing factor to increased rates of obesity in some American cities (Block et al., 2004; Maddock, 2004; Reidpath et al, 2002 as cited by RWPH, 2005a).

Community Food Security

A number of PHUs in Ontario have taken a broader position on food security. The OPHA Food Security Workgroup has defined the concept of community food security as:

“...a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes self-reliance and social justice.”

This concept suggests that food security includes all the steps in the food production cycle, and the ability of communities to control and influence those steps to ensure their long-term health and well-being with respect to healthy, safe and nutritious foods. It is a concept that, in the built environment and land use planning context, raises questions about how to preserve local agricultural land, how to support local farmers, and how to support the local food industries in one's community.

Need to Preserve Agricultural Lands

Statistics Canada reports that: only about 5 per cent of Canada's land is free from severe constraints to crop production; about 15 per cent of Canada's Class 1, 2, and 3 agricultural land is in Ontario; about 56% of Canada's Class 1 agricultural land is in Ontario; and these lands are quickly disappearing. For example, Statistics Canada reports that there will be a 40 per cent reduction in the farmland in the GTA between 1976 and 2026 if current trends continue (Hoffman et al. as cited HRHD, 2007e).

The need to preserve prime agricultural land is amplified by future uncertainties. Peak oil (i.e. Declining petroleum supplies) and climate change are predicted to have a significant effect on agricultural production around the world.

Today's agricultural productivity is dependent on energy-intensive cultivation methods and material inputs. With declining petroleum and natural gas supplies and increasing energy costs, there is reason to believe that agricultural outputs around the world will be affected (Rees, 2004 as cited by HRHD, 2007e).

Also, at present, Canada imports about 40 per cent of its vegetables (excluding potatoes) and 80 per cent of its fruit, with most of the imports coming from the USA and Mexico (RWPH, 2005b). In Toronto between 50 to 60 per cent of all produce consumed is imported, mostly from Florida, California and Mexico (Toronto Food Policy Council, 1999). These are areas of the world where agricultural outputs are likely to be affected by climate change. The Inter-governmental Panel on Climate Change has predicted that climate change may: increase



droughts in the United States great plains and the Canadian Prairies; reduce citrus fruit yields in southern Florida and Texas because of excessive heat during the winter; and negatively impact Mexico's crop production because of changes in precipitation (IPCC, 2001 as cited by HRHD, 2007e). These predictions suggest that Canada's current sources of vegetables and fruit may not be as reliable or inexpensive in the future.

Local Food has Enhanced Nutritional Value

One of the reasons to emphasize the preservation of local farms and local food production is food quality. Fresh fruit and vegetables lose their nutritional value over time. As soon as produce is harvested, growth stops, but enzymes continue to act, altering nutrient content along with texture and taste (MacNair, 2004 as cited by HRHD, 2007e). The American Institute for Cancer Research (2006) recommends that consumers purchase locally grown produce since produce at its peak of ripeness contains the highest level of nutrients and it is much more likely that imported foods have been harvested days or weeks before purchase. As soon as produce is picked, vitamins and phytonutrient compounds begin to break down from exposure to heat, light, time, and natural processes (AICR, 2006 as cited by HRHD, 2007e). For example, studies have shown that tomatoes retain 0 to 22 per cent of their vitamin C after 5 to 9 days of storage at optimal temperatures, and spinach retains only 53 per cent of its folate after 8 days of storage at optimal storage temperature (George et al 2006).

Increased Ability to Ensure Food Safety

Another reason to preserve local farms and support local food production is food safety. Over the past decade, food safety has emerged as a consumer concern in response to outbreaks such as *E. coli* in

spinach from California and cyclosporiasis in raspberries from South America (HRHD, 2007e). According to the World Health Organization, the food production chain has become more complex, providing greater opportunities for contamination and growth of pathogens. Many outbreaks of foodborne diseases that were once contained within a small community may now take on global dimensions (WHO, 2002).

The Canadian Food Inspection Agency is responsible for the regulation of imported foods into Canada. It has procedures in place to regulate fruits and vegetables from other countries which address issues such as unwanted animal/insects pests, plant pests and chemical residues. However it is much easier to ensure food safety with food produced locally. The Canadian government, Ontario Ministries and local health units can use existing regulations to closely monitor food production practices to ensure foods are being produced in a sanitary manner using potable water (HRHD, 2007e). Outbreaks involving Ontario grown fresh fruit and vegetable have not been previously identified (Chapman, 2003). However, in the event of an outbreak, a local food system allows for more control over the farm-to-fork chain. If a problem occurs the effect is more localized and allows for enhanced traceability (HRHD, 2007e).

C Injuries & the Built Environment

Injuries, Hospital Admissions & Deaths

Unintentional and intentional injuries are the leading cause of death among Canadians between the ages of 1 and 44, and the fourth leading cause of death for Canadians of all ages (PHAC, 2011a). In 2003, 13,906 Canadians died and 226,436 Canadians were admitted to hospitals as a result of injuries (PHAC, 2011a). It has been estimated that injuries in Canada cost about \$19.8 billion in 2004 with \$10.7 billion in direct health care expenditures and \$9.1 billion in "costs" associated with reduced productivity, disability, and premature death (PHAC, 2011c).

"...falls and transportation-related incidents cost Canadians about \$6.2 billion and \$3.7 billion respectively annually in direct and indirect costs".

Falls are the most common cause of injury-related hospital admissions in Canada, accounting for two out of every three injury-related hospital admissions, while motor vehicle injuries are the second most common cause of injury-related hospital admissions accounting for 10 per cent of all injury-related hospital admissions (CIHI, 2011). SMARTRISK has estimated that falls and transportation-related incidents cost Canadians about \$6.2 billion and \$3.7 billion respectively annually in direct and indirect costs (PHAC, 2011c).

While far more drivers and passengers are injured or killed in motor vehicle collisions than pedestrian and cyclists, pedestrians and cyclists face higher risks of fatality or injury per kilometre travelled than people who travel by automobile, bus or rail. The fatality risk per kilometre travelled for pedestrians and cyclists in the United States is 23 and 12 times higher, respectively, than the risk for those who travel by car (Pucher and Dijkstra, 2003 as cited by the NCCEH, 2010). Evidence suggests however, that injury and fatality rates among pedestrians and cyclists decrease as active transportation increases (Elvik R, 2009 as cited by the NCCEH, 2010).

Injury Prevention Strategies

Injury prevention strategies include enhancing protective factors and decreasing risk factors through education, enforcement, and changes in the environment. Education is directed at individuals in the community; helping people to understand how injuries occur and how to prevent them. Enforcement involves the establishment and enforcement of laws and regulations that can protect people from unsafe products or situations or reduce the risk of injury. Regulations related to speed limits on traffic corridors, bicycle helmets, pool fencing, and smoke detectors fall into this category. Changes in the environment includes changes in workplaces, public spaces, schools and homes that can affect the risk of injuries. From a land use planning perspective, this would capture the existence, design and condition of roads, sidewalks, intersections, cycling facilities, and access routes to buildings (NRPH, 2010).

Density, Transit & Vehicle-Related Injuries/Deaths

Various environmental factors influence the rate of collisions, injuries and fatalities on roads. Studies have found that high density communities that are well served by public transit tend to have lower death rates from motor vehicle collisions. This phenomenon has been attributed to: reduced vehicle kilometres travelled by individuals living in high density communities that have efficient transit systems; lower average traffic speeds in higher density areas; and reduced driving by high risk motorists such as teenagers and impaired drivers because transit provides a viable alternative (Litman, 2005 as cited by TPH, 2006).



A number of studies have shown that traffic speeds and volume are strongly linked to the number and severity of collisions. Generally traffic volumes are associated with the frequency of collisions while traffic speed is associated with the severity of collisions (Frank, 2008). One study conducted in the United Kingdom found that pedestrians have a 45 per cent chance of being seriously injured or killed when struck by a car travelling 30 miles per hour (mph) (48 km/hour) and a 5 percent chance of serious harm or death when struck by a car traveling at 20 mph (32 km/hour) (Pilkington, 2000 as cited by TPH, 2006).

Street Design, Facilities & Injuries

Street design and facilities have been shown to affect the safety of pedestrians and cyclists in a number of studies as well. For example, cycling facilities such as bike lanes and off-road bike paths reduce collisions and injuries involving cyclists (Retting et al, 2003 as cited by NCCRH, 2010). Sidewalks, traffic circles and four way stops have been linked to lower pedestrian-vehicle collision rates. In addition,

street trees, landscaping, and on-street parking have been shown to lower the speed of vehicles on streets (Frank, 2008).

Injuries & Low Income Populations

Canadians who live on low incomes are more likely to be hospitalized for an injury than more affluent Canadians. When the Canadian Institute for Health Information (CIHI) examined hospitalizations related to injuries, it found that Canadians in the least affluent neighbourhoods were 30 per cent more likely to have an injury leading to hospitalization than people living in the most affluent neighbourhoods (CIHI, 2011). The CIHI study found that these disparities in injury hospitalization rates applied to most major types of unintentional injuries including falls, motor vehicle-related injuries, and injuries involving sharp objects or tools. The only exception was sports-related injuries where injury-related hospitalizations were greater among more affluent Canadians (CIHI, 2011).

The CIHI study found that:

- Older adults (age 45 to 64) who live in the least affluent neighbourhoods in Canada are 50 per cent more likely to be hospitalized from falls than Canadians from the most affluent neighbourhoods;
- Among all age groups, except adolescents (age 15 to 24), Canadians in the least affluent neighbourhoods are more likely to be hospitalized for a motor vehicle-related injury than their more affluent counterparts;
- Hospitalizations for assault related injuries, which represent 4.4 per cent of all injury hospitalizations, were three times higher among Canadian in the lowest income neighbourhoods than among those in the highest income neighbourhoods (CIHI, 2011).

D Air Quality & the Built Environment

Air Quality & Human Health

Hundreds of studies conducted in communities around the world have clearly demonstrated that short-term increases in the levels of the common air pollutants are associated with increases in a broad range of acute health effects (OMA, 2005; TPH, 2004; Stieb, 2005; WHO-Europe, 2004; US EPA 2004; CMA, 2008; Brook et al, 2010). A number of studies have also demonstrated that long-term exposure to air pollution contributes to the development of chronic heart and lung diseases among adults (US EPA, 2004; Krewski, 2000; Samet, 2000; Pope et al, 2002). After conducting a comprehensive review of the health studies directed at fine particulate matter (**PM_{2.5}**), the common air pollutant most strongly linked to chronic health effects, the American Heart Association concluded that:

- There is a causal relationship between exposure to PM_{2.5} and cardiovascular disease and death;
- Longer-term exposure (i.e. a few years) to elevated levels of PM_{2.5} increases the risk for cardiovascular mortality and reduces life expectancy; and
- Reductions in air levels of PM_{2.5} can decrease cardiovascular mortality within a few years (Brook et al, 2010).

The overall evidence from cohort studies demonstrates that, on average, for every 10 ug/m³ increase in long-term air levels of PM_{2.5}:

- Mortality from all causes increases by approximately 10 per cent; and
- Mortality from cardiovascular disease increases by 3 per cent to 76 per cent with some groups, such as women and obese individuals, having greater risks than members of the general population (Brook et al, 2010).

Long-term studies directed at children have demonstrated that air pollution can have a significant effect on the long-term health of children as well. For example, the Children's Health Study, a long-term study directed at about 6,000 children living in 12 communities in Southern California since 1993, has shown a three- to five-fold increase in decreased lung function among adolescents who grew up in communities with high levels of air pollution (Gauderman, 2000; Peters, 2004). It also found that physically active children living in high ozone communities are up to three times more likely to develop asthma than children living in low ozone communities (McConnell, 2002; Peters, 2004).

In Canada, in 2008, air pollution resulted in approximately:

- ***21,000 premature deaths***
- ***11,000 hospital admissions;***
- ***92,000 emergency room visits;***
- ***620,000 doctor's office visits;***
- ***Over 20 million minor illnesses (CMA, 2008).***

Over the last decade, a number of studies have suggested that air pollution also affects birth outcomes and reproduction. When a team of scientists reviewed these studies, they concluded that infants exposed to higher outdoor levels of airborne particulate matter (PM_{2.5/10}) are at increased risk of death from respiratory ailments. They also concluded that air pollution can increase the risk of infants being born with low birth weights (Sram, 2005).

Costs of Air Pollution-Related Health Impacts

Using the strongest air pollution health studies, air monitoring results, and health statistics, the Canadian Medical Association estimated that, across Canada in 2008, the seven common air pollutants contributed to approximately:

- 2,682 premature deaths occurring from short-term elevations in air pollution; 42 per cent of them related to cardiovascular disease and 11 per cent to respiratory conditions;
- 18,318 premature deaths from long-term exposure to air pollutants;
- 11,000 hospital admissions; 60 per cent related to cardiovascular conditions and 40 per cent due to respiratory conditions;
- 92,000 emergency room visits;
- 620,000 doctor's office visits; and
- Over 20 million minor illnesses (CMA, 2008).

Excluding chronic premature deaths and early childhood effects, the Canadian Medical Association valued the cost of these health effects at \$8 billion in 2008 (CMA, 2008). The Canadian Medical Association and the Ontario Medical Association estimated that air quality in Ontario resulted in 9,500 premature deaths in Ontario in 2008 with more than 1,000 of those deaths occurring during or immediately after periods of increased pollution, and 8,500 occurring from long-term exposure to air pollution (OMA, 2008).

Air Quality & Vulnerable Populations

Many studies have shown that air pollution increases the risk of death and illness due to heart disease, stroke, and respiratory disease through both short term and long term exposures. While everyone faces increased health risks due to air pollution, the risk is greater for:

- People with cardiovascular conditions such as angina, congestive heart failure, heart rhythm problems;
- Those who have suffered a previous heart attack;
- People with respiratory conditions such as asthma and chronic obstructive lung disease;
- People with diabetes;
- The elderly, pregnant women and young children; and
- Women and obese individuals (Brook et al, 2004; Brook et al, 2010).

A new study conducted by the Canadian Institute for Health Information has demonstrated that low income populations in Canada's urban regions are more likely to live within close proximity of air pollution sources than high income populations. This study found that:

- The lowest income populations in Toronto and Montreal were 3.5 and 2.8 times, respectively, more likely to live within 200 metres of a highway than the highest income populations; and
- Twenty-five per cent of people from the lowest income populations in Canada's urban regions live within one kilometre of a pollution-emitting facility while only seven per cent of people from the highest income populations do (CIHI, 2011a).



Walkable Communities & Air Quality

Land use planning and transportation decisions made by local and regional governments can have a substantial impact on local and regional air quality because of the way in which they influence travel patterns, modes of transportation, and energy use in buildings. Emission inventories indicate that the transportation sector is one of the most significant sources of air pollutants within Ontario. While a great deal of progress has been made to reduce emissions from vehicles, this progress has been offset by the increasing number of vehicles on the road and the increasing number of vehicle kilometres travelled by Canadians (Probe, 2004).

Many studies have demonstrated that the built environment can have a significant impact on emissions from the transportation sector and local air quality by influencing the extent to which people depend upon automobiles and other modes of transportation. For example:

- The California Air Resources Board found that “complete” neighbourhoods (i.e. compact

neighbourhoods built around public transit with a variety of services within a five minute walk) can reduce vehicle-related air emissions by up to 20 per cent relative to more typical suburban neighbourhoods (CARB, 2005);

- In the Atlanta-based SMARTRAQ study, the people who lived in the most auto-oriented neighbourhoods drove an average of 39 miles per person each weekday or 30 percent more than those who lived in the most walkable neighbourhoods. The study found that each step up a five-part walkability scale was associated with a six percent reduction in emissions of nitrogen oxides (**NO_x**) and a 3.6 percent decrease in emissions of volatile organic compounds (Frank and Chapman, 2004b as cited by Frank, 2008).

One study has suggested however that, while compact neighbourhoods can reduce per capita vehicle-related emissions, they can also concentrate the emissions particularly if the neighbourhoods do not have a strong mix of land uses and an efficient public transit system (Marshall et al., 2009).

Alternative Modes of Transportation & Air Quality

Several studies have demonstrated the substantial impact that alternate modes of transportation can have on local air quality and/or human health. For example:

- In the City of Atlanta, researchers found that an alternative transportation strategy introduced during the 1996 summer Olympics, which shifted people from their vehicles on to public transit, reduced traffic counts by 22.5 per cent, peak ozone levels by almost 28 per cent, and asthma-related hospital admissions among children by 11 to 44 per cent during the Olympics (Friedman, 2001);
- Using air modelling and road count data, the City of Toronto has estimated that 190 premature deaths could be avoided, and \$900 million in health benefits could be realized, each year, if vehicle emissions in Toronto were reduced by 30 per cent by encouraging a shift to other modes of travel (TPH, 2007a).

Air Quality & Incompatible Land Uses

Air quality can vary substantially across a community as local emission sources, such as highways, industrial facilities, and truck depots, add to background levels of air pollution that include transboundary air pollution. In Ontario, the Ministry of the Environment (**MOE**) has responsibility for permitting industrial facilities and other emission sources with certificates of approval (**CofAs**) based on the emissions from a single facility or operation and, sometimes, on a single source within a facility. This approach does not take into consideration background levels of air pollution or the cumulative impacts of a variety of emission sources in a local area. Consequently, while the CofA process ensures that individual emission sources do not exceed air standards, it does not ensure that air levels within a community stay within health-based air standards (HRHD, 2009b).

Historically, these shortcomings in regulatory control have been mitigated, to some extent, by recommending separation distances to keep industrial facilities separate from sensitive land uses such as homes, daycares, schools and hospitals (HRHD, 2009b). However, separation distances between sensitive land uses and industrial point sources have not always been preserved as development

pressure on communities grows. In addition, in Ontario, high volume traffic corridors have not been included in the Land Use Compatibility Guidelines developed by the MOE (HRHD, 2009b).

Air Quality & Traffic Corridors

The principal source of variation in air quality within many communities is vehicle-related air pollution associated with high volume traffic corridors (HEI, 2010). A review of 15 different studies conducted by the World Health Organization found that concentrations of air pollutants along traffic corridors were 1.2 to 2.3 times higher than background levels in those urban areas (WHO 2005 as cited by BC MOE 2006).

"The most susceptible (and overlooked) population in the US subject to serious health effects from air pollution may be those who live near major regional transportation routes, especially highways...."

Health studies directed at high volume traffic corridors have demonstrated that these variations in air quality can have a significant impact on human health. After conducting a comprehensive review of the health literature, the Health Effects Institute Panel concluded that:

- The evidence demonstrates that traffic-related air pollution aggravates asthma; and
- The evidence suggests that traffic-related air pollution causes the onset of childhood asthma, non-asthma respiratory symptoms, impaired lung function, and increases total deaths, cardiovascular deaths, and cardiovascular disease in a community (HEI, 2010).

A number of organizations and health researchers have concluded that the evidence is sufficient to demand action to protect the public from air pollution associated with high volume traffic corridors. For example, an inter-disciplinary team from Tufts University that conducted a comprehensive review of the traffic corridor health literature concluded that:

"There is a need for more research, but also a need to begin to explore policy options that would protect the exposed population" (Brugge et al., 2007).

E Climate Change & the Built Environment

The Significance of Climate Change

Climate change is one of the most significant public health challenges of our generation. In 2006, Sir Nicholas Stern, former economist to the World Bank, led a study for the British Government which estimated that it would take about 1 per cent of the annual global Gross Domestic Product to fund the programs needed to stabilize greenhouse gas concentrations in the atmosphere below 550 parts per million (**ppm**) - the level required to limit global temperature increases between 2 and 3 degree Celsius. The study also found that failure to make this investment could result in climate change impacts that would result in a 5 to 20 per cent loss in the global Gross Domestic Product. The study concluded that these impacts could create economic and social disruptions on a scale similar to those experienced during the great wars or the depression (Stern, 2006 as cited by ICF, 2007).

Mitigation & Adaption Needed

In 2007, the Intergovernmental Panel on Climate Change issued a report in which it confirmed, with 90 per cent certainty, that the world's climate is warming and that warming is being caused by human activity. That report found that levels of carbon dioxide (**CO₂**) in the atmosphere have increased from 280 ppm in 1750 to 379 ppm in 2005; an astounding increase when one considers that CO₂ levels ranged between 180 and 300 ppm for the past 650,000 (IPCC, 2007a).

Climate change impacts could create economic and social disruptions on a similar scale to those experienced during the great wars or the depression.

Climate models demonstrate that atmospheric levels of CO₂ must be stabilized at 450 ppm if global temperature increases are to be limited at 2 degrees Celsius. The Stern study determined that this level would be reached within a decade unless immediate and aggressive reduction strategies are implemented. It also found that global greenhouse gas (**GHG**) emissions must be reduced by approximately 60 per cent by 2050 if atmospheric levels of CO₂ are to be stabilized at 450 to 550 ppm (Stern, 2006 as cited by ICF, 2007).

The Intergovernmental Panel on Climate Change has also concluded that, even if immediate and aggressive action were taken to freeze emissions at 2000 levels, a 2 degree Celsius increase in global temperatures is "locked in" for the next two decades because of "carbon feedback cycles" (IPCC, 2007a). These findings suggest that action must be taken to adapt to the climate change that is inevitable as well.

Climate Change - Global Health Impacts

Global climate change is expected to have profound impacts on the health of whole populations in regions spanning the globe. The Intergovernmental Panel on Climate Change has concluded that the projected climate change is likely to affect the health status of millions of people, particularly those who live in countries that have little adaptive capacity, through:

- Increases in malnutrition and related disorders;
- Increased deaths, disease and injury due to heat waves, floods, storms, fires and droughts;
- The increased burden of diarrheal disease;
- The increased frequency of cardio-respiratory diseases due to higher concentrations of ground-level ozone related to climate change; and
- The altered spatial distribution of some infectious disease vectors (IPCC, 2007b).

Africa is considered one of the most vulnerable continents because of multiple stresses and low adaptive capacity. Most continents are expected to experience decreases in fresh water supplies. Coastal areas around the world are at increased risk from flooding. Malaria is expected to shrink in range in some areas of the world in response to droughts, while cholera is expected to increase in others in response to increasing water temperatures. Europe and North America are projected to experience more flooding and more heat waves (IPCC, 2007b).

Climate Change - Ontario Health Impacts

In Ontario, climate change is expected to affect human health by:

- **Increasing the frequency and severity of heat waves;**

Kalkstein and Smoyer have predicted that, with a doubling of CO₂ concentration in the atmosphere, central Canada could experience a five-fold increase in air masses that bring smog episodes, high temperatures and high humidity. These projections suggest that heat-related death rates in the Toronto area could increase to between 9.63 and 33.65 per 100,000 (Kalkstein and Smoyer, 1993). Those living in urban areas are at greater risk during heat waves because of the "urban heat island effect" in which urban areas absorb and retain heat more than rural areas. One study suggests that suburban areas in North America may experience more frequent extreme heat events than compact urban centres because of factors such as the rapid loss of tree canopy (Stone et al, 2010). The poor can also be at greater risk from extreme heat because of substandard housing conditions, medical conditions that increase vulnerability to heat, or because they lack access to air conditioners, pools or cool recreational areas (McGeehin, 2001).

The Walkerton E. coli outbreak in 2000... was the result of an extraordinary rainfall... combined with improper water disinfectant treatment.

- **Increasing the frequency and severity of smog episodes;**

Climate change could increase the frequency of smog episodes from 4.7 per cent of summer days to 23.3 per cent of summer days in Ontario (Chiotti et al., 2002). This increase in smog episodes is expected to significantly increase the number of air pollution-related health impacts experienced in Ontario, particularly among those who live in southern Ontario (Lemmen et al, 2008).

- **Increasing the frequency of extreme weather events;**

Ontario is expected to experience an increase in extreme weather events including snow storms, flooding, and tornados. While extreme weather events have a greater impact on human health in poorer countries that do not have the social infrastructures needed to mitigate their impacts or to respond to them when they occur, Canada is not immune to the effects of extreme weather events. For example, the 1998 ice storm that affected eastern Ontario, resulted in 29 deaths, approximately 60,000 physical injuries, and potentially tens of thousands of post-traumatic stress disorders in Canada (Env Can, 1999; Kerry, 1999; and Chiotti 2002 as cited by Lemmen et al, 2008).

- **Increasing the risk of insect-borne diseases; and**

Projected temperature changes are expected to extend the range of insect- and tick-borne diseases such as West Nile virus, Lyme disease, and possibly malaria, in Ontario (TPH, 2001; Ogden, 2005 as cited by Lemmen 2008). While insect-borne diseases are highly dependent upon climatic conditions such as temperature, rainfall and humidity, they are also dependent upon living conditions (e.g. access to air conditioning and window screens), building materials, and social infrastructure. In wealthy nations such as Canada, it is expected that the impacts of these diseases can be minimized with a public investment in disease surveillance, education, habitat reduction and mosquito control (Gubler, 2001; TPH, 2001).

- **Increasing the risk of water-borne diseases (Lemmen et al, 2008).**

While water-borne diseases have a much greater impact on countries that lack Canada's water and waste water infrastructure, Canada's systems are vulnerable to the impacts of climate changes. The Walkerton *E. coli* outbreak in 2000, which resulted in seven deaths and 2,300 illnesses, was the result of an extraordinary rainfall, which facilitated the transportation of pathogens into the municipal water system through a shallow well, combined with improper water disinfection treatment (O'Connor, 2002 and Richards, 2005 as cited by Lemmen et al, 2008).

Climate Change Mitigation & the Built Environment

The transportation sector, responsible for 30 percent of Ontario's total GHG emissions, is the single largest source of GHG emissions in Ontario. As stated previously, while improvements in vehicle fuel efficiency and increased reliance on alternative fuels will reduce emissions of GHG from the transportation sector, research demonstrates that these improvements are likely to be offset by growth in the number of vehicle kilometres travelled (Ewing, 2008). Over the last three decades, the number of vehicle kilometres travelled has grown faster than the population in both Canada and the U.S. People are driving longer distances, taking more trips by vehicle, relying less on public transit, and walking less (Probe, 2004; Ewing et al., 2008).

The number of vehicle kilometres travelled is related to the way in which our communities are designed. They are affected by the distance between homes, jobs, schools and services (Ewing et al., 2008). Several studies have demonstrated that people who live in more compact, mixed-use communities, drive 20 to 40 percent less than those in lower density communities (Ewing, 2008; Frank 2008). This translates into a 20 to 40 per cent reduction in emissions of GHGs from the transportation sector in those communities (LFC, 2005a). These findings suggest that the creation of walkable and transit-supportive communities is a major step that must be taken to mitigate emissions of GHGs and slow climate change.

Several studies have demonstrated that people who live in more compact, mixed-use communities, drive 20 to 40 percent less than those in lower density communities.

Energy use in buildings, responsible for approximately 10 per cent of GHGs nationally, is another important source of GHGs in Ontario that can be influenced through the land use planning processes (ICF, 2007). Local and regional municipalities can encourage reductions in energy use in buildings by encouraging: new buildings to be designed and built to energy efficiency standards beyond those required by the Ontario Building Code; the use of green roofs, trees, and building orientation to reduce energy needs; and the application of alternative energy systems and technologies (ICF, 2007; HRHD, 2007a).

Climate Change Adaptation & the Built Environment

There are number of actions that can be taken through local and regional land use planning processes to prepare for, or adapt to, the climate change that is currently occurring as well. For example, municipalities can:

- Consider the future irrigation needs of farmers when managing ground water;
- Encourage electricity generating systems that are less vulnerable to extreme weather events;

- Encourage new and renovated buildings that are resilient to predicted extreme weather events;
- Ensure that storm water management addresses extreme weather events;
- Update flood plain mapping in light of climate change projections;
- Assess and address the vulnerability of their communities to heat stress;
- Encourage recharging of groundwater tables in urban centres (i.e. reduce paved surfaces; utilize permeable paving, downspout disconnects and bioswales);
- Encourage actions that reduce the urban heat island effect (e.g. preserve greenspace, encourage green roofs, street trees, and reflective surfaces);
- Encourage the development of buildings that conserve water, reduce energy use, and use alternative energy technologies and systems (Expert Panel, 2009; Stone et al, 2010).

F Water Quality & the Built Environment

Water Quality & Health

Clean, accessible fresh water is essential to life. Water used for drinking and other purposes is drawn from ground water or surface water. When it rains or snows, water either seeps into the soil where it is filtered by vegetation before it reaches groundwater or it runs along the surface of the ground and flows into streams, rivers and lakes (SMDHU, 2007). Water can be contaminated with biological organisms such as bacteria, parasites, viruses and chemical contaminants. Generally speaking, the biological organisms of concern in water originate from animal or human waste, while the chemical contaminants come from point sources such as industrial facilities or non-point sources such as landfills, parking lots, farms and golf courses (SMDHU, 2007).

Biological organisms can produce a variety of health conditions ranging from mild gastro-intestinal symptoms to meningitis, kidney failure, cholera, pneumonia and dysentery. Water-borne diseases affect about 4 billion people each year globally. In Canada, where water and wastewater are treated and regulated, large scale outbreaks of water-borne disease are relatively rare. Two notable exceptions in Canada are the Walkerton *E. Coli* outbreak in 2000 which claimed the lives of seven people and caused 2,300 people to become sick, and the North Battleford, Saskatchewan cryptosporidium outbreak in 2001 which resulted in 7000 infections (Frumkin et al., 2004 as cited by SMDHU, 2007). Water sampling data suggests that small-scale outbreaks occur quite frequently in Ontario. A study conducted for the Ministry of Health and Long-term Care in 2001 found that, on average, between 25 and 40 per cent of water samples from private wells in Ontario had significant Coliform counts, with about 20 per cent having *E. coli* contamination² (Krewski et al, 2001 as cited by GBHU, 2010).

Heavy rainfall and outbreaks of waterborne diseases have been shown to be closely linked. Research conducted by John Hopkins University has shown that extreme rainfall preceded more than 50 per cent of water-borne disease outbreaks reported in the United States between 1948 and 1994. This phenomenon has been attributed to increased levels of contaminants in streams and storm sewers from

² Coliforms indicate that organic matter is present; they can indicate the presence of decaying vegetation, but can also indicate the presence of animal or human faecal matter. *E. coli* indicates the presence of animal or human faecal matter (GBHU, 2010).

run-off and/or increased levels of sediment in water which reduces the effectiveness of chlorination processes used to disinfect water (Barwick, 2000; Lee, 2002 as cited by Frumkin et al., 2004 as cited by SHDHU, 2007).

While water-borne diseases can affect all members of the community, young children, pregnant women, the elderly, and people with pre-existing health conditions tend to be more susceptible to them than other members of the community (GBHU, 2010).

Water Quality & the Built Environment

Land use planning decisions can impact water quality in several ways. For those communities that rely on wells, the density of development can impact water quality as impervious surfaces reduce the water that is absorbed into the ground, which can reduce the quantity and quality of groundwater. In addition, as impervious surfaces cover the ground, run-off to surface waters can lead to soil erosion and increase the level of contaminants in surface water (Frumkin et al., 2004 as cited by SMDHU, 2007), which can present a health concern for those who use surface waters recreationally as well as for those who use surface waters as a source of drinking water. One study suggested that low density suburban areas produce 43 per cent more run-off when compared to higher density urban areas (Schmidt 1998 as cited by Bray et al, 2005). The greatest sources of water pollution in suburban areas are parking lots, wide roads, and lawn care products, with over-use of septic systems contributing to contamination in some cases (Frank et al, 2005; SMDHU, 2007).

Water resources can be protected by preserving greenspace, decreasing the area covered by impervious surfaces, encouraging green roofs, and encouraging materials and storm water systems that help to reduce and filter run-off (Frumkin et al 2004 as cited by SMDHU, 2007).

IV Public Health Units - Case Studies

A Public Health Unit - Northern Ontario

1. Sudbury and District Health Unit

Interview Participants

Health Promotion

Tracey Weatherbe, Manager, Nutrition and Physical Activity Team
Carol Craig, Public Health Nurse, Nutrition and Physical Activity Team
Tammy Cheguis, Public Health Dietitian, Nutrition and Physical Activity Team
Sara Santianni, Dietetic intern Nutrition and Physical Activity Team
Stephanie Lefebvre, Policy and Planning Specialist

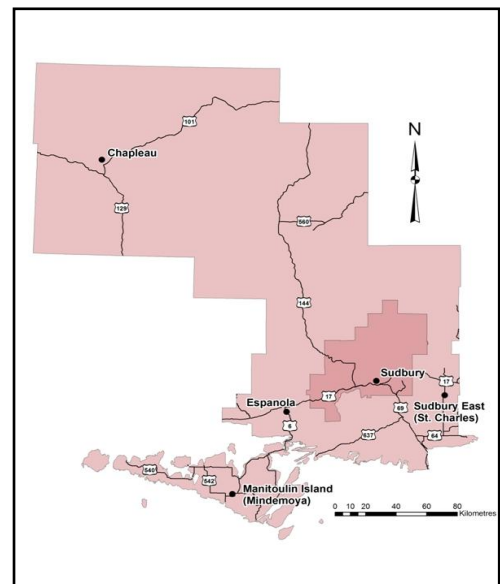
Environmental Health

Mary Ann Diosi, Manager
Burgess Hawkins, Manager
Ido Vettoretti, Community Environmental Health Specialist
Rachelle Arbour-Gagnon, Health Promoter

Background

The Sudbury and District Health Unit (**SDHU**) is a public health agency "committed to improving health and reducing social inequities in health through evidence-informed practice". With a main office in the City of Greater Sudbury and four branch offices in Chapleau, Espanola, Mindemoya, and St. Charles, the SDHU has 250 staff who deliver provincially legislated public health programs and services (SDHU Website, 2010).

The Sudbury and District Health Unit catchment area spans 46,475 square kilometres on the northern shore of Georgian Bay. This District varies in its nature. There is one recently amalgamated city, the City of Greater Sudbury with many outlying small towns ranging from 500 to 4,000 in population and very large tracks of forested private and crown land. Some of these areas are "unorganized territories" that do not have municipal governments so some provincial regulations, such as the Ontario Building Code, do not apply to them (SDHU, 2010).



The majority of the population in this District work in mining forestry, agriculture, health services, tourism, recreation and education. A number of people in this area live in villages or hamlets that are isolated or separated from other communities by huge distances. Their placement is due to nearby mining and or lumbering industries that have evolved over time and are characteristically affected by economic “boom and bust cycles”. Also, the population of many of these communities are "seasonally affected" by the large influx of people swelling the permanent resident population for a few months per year due to its tourism and cottage utilization (SDHU, 2010).

"In this District, we measure distance by the time it takes to reach a place. We will say, for example, that a community is six hours away" (SDHU, 2010).

There are a number of First Nations Communities within this District; six ceded reserves that are considered Federal responsibility; and one unceded reserve with a population of 3,500 that is self-governing. About one third of the people in this District speak French as their first language. Many First Nations residents live on reserves and work off reserves (SDHU, 2010).

The SDHU is governed by an autonomous BOH composed of eleven municipal members from neighbouring municipalities within the District and two appointed by the Lieutenant Governor in Council. The Health Unit has strong community and inter-agency partnerships with the Northern Ontario School of Medicine, Social Planning Council and Laurentian University (SDHU Website, 2010).

Health Priorities for Land Use Planning Processes

From a land use planning perspective, the health issues of priority are:

- **Air quality** - Working to improve local air quality and protecting residents from local and industrial emissions;
- **Water quality** - Ensuring that water in private wells is protected from septic systems and also from other natural or manmade toxic contaminants;
- **Housing** - Encouraging the provision of healthy housing conditions and promoting safe water for human consumption along with adequate sewage disposal systems;
- **Physical Activity** - Fostering physical activity by promoting active transportation, recreation trails, walkable communities, and supportive neighbourhoods;
- **Injury Prevention** - Working to reduce injuries in homes, schools, workplaces, as well as in the larger community;
- **Healthy Eating** – Access to affordable and culturally appropriate food;
- **Exposure to Ultra Violet Radiation** – Encouraging the provision of shade shelters (nature and human-made) for protection against the sun (SDHU, 2010).

Organizational Structures

Staff have developed informal relationships between divisions and teams to address built environment issues. However, these informal processes can be challenging because of different and developing

program priorities. Staff do collaborate, cooperate, and where possible, communicate with each other about their recent activities, barriers to progress, and about opportunities to influence the built environment (SDHU, 2010).

The Health Unit recently re-organized itself in response to the new Ontario Public Health Standards, which appear to be broadening the scope of certain responsibilities. The Health Unit has adopted a model that encourages the management of issues comprehensively across related programs. The Health Unit hopes to cover these responsibilities with existing staff with both broader and specialized expertise. One example is the research and evaluation specialists' team. Specialists have now been embedded into divisions across the health unit to link much needed technical expertise, research, education, evaluation and development needs between divisions. Specialists and health promoters continue to identify opportunities to coordinate and leverage work with local program and planning groups (SDHU, 2010).



Divisional program planning activities are aligned to the new standards now mandated by the Province under the Ontario Public Health Standards. The health unit has identified cross-cutting issues, such as the built environment, where there is a need for coordination between program areas and teams within the health unit. The built environment is explicitly mentioned under Chronic Disease Prevention within the Chronic Disease and Injuries program standards and under Health Hazard Prevention and Management within the Environmental Health Program Standards, but staff recognize that the built environment is important to other developing program areas such as injury prevention as well (SDHU, 2010).

Relationships with Municipalities & Planning

Within the City of Greater Sudbury, health unit staff are working with various municipal departments (planning, community development, economic development), recreation and sport committees, consortiums, task forces, industry and neighbourhood groups. Beyond the main office, participation by health unit staff for these types of programs in rural communities can be a challenge. The municipal contacts vary with each community, each issue, as well as with the priority given to an issue by local citizens (SDHU, 2010).

Community Partnerships

Partnerships have been very important to the health unit's work in the area of the built environment and land use planning. Within the City of Greater Sudbury, staff have partnered with local groups such as the Rainbow Routes Association, to raise issues that staff cannot raise. During the municipal election, community groups were successful at raising issues with candidates at debates while informing the public of issues that they may not have been aware of. Also, in many situations, elected

representatives will pay greater attention to positions and recommendations that are made by citizens than they will to positions offered by municipal staff or by the health unit (SDHU, 2010).

Health unit staff have identified that working in partnership with local groups assists both parties. Local groups benefit in various manners; knowledge exchange, increased capacity, and enhanced access to funding sources. The health unit also learns a great deal from citizens in these organizations. These citizens identify actions needed in their communities based on their experience and that of their neighbours (SDHU, 2010).

Community food security within the Sudbury and Manitoulin Districts has only been possible due to the many partnerships made to move forward on this work. Aside from municipal players, partners have included non-governmental organizations, schools, long-term care facilities, social service agencies, individuals, farmers, the business community, faith-based organizations, special interest groups, and many others (SDHU, 2010).

Issues Sparking Interest

Sustainable Mobility Plan

The health unit worked with the City of Greater Sudbury staff and a number of community groups to develop a Sustainable Mobility Plan for Greater Sudbury with funding from the Ontario Ministry of Health Promotion. The City's Official Plan contains progressive language regarding active transportation and the need to create a more balanced and accessible transportation system to meet the needs of pedestrians, cyclists, transit users and motorists. It was felt however, that the proposed Sustainable Mobility Plan was the impetus needed to make this aspect of the Official Plan vision a reality (SDHU, 2010).

Paved Shoulders on Provincial Highways

The branch office communities are affected in somewhat different ways with regards to the built environment. In many of these communities, there are many issues that inhibit the development of safe transportation routes including the absence of sidewalks and cycling lanes, lack of funding, wildlife concerns, and lack of support. However, communities with less bureaucracy can sometimes accomplish more when they work closely with active community groups. One of the smaller branch offices successfully worked with a community group to convince the Ministry of Transportation of Ontario to provide cycling lanes along Highway 6 on Manitoulin Island. This initiative has set a precedent for the work of the Member of Provincial Parliament, Norm Miller, on Bill 100, which proposes to amend the Public Transportation and Highway Improvement Act to require paved shoulders on prescribed highways (SDHU, 2010).

Food Charter

The Sudbury Food Connections Network's (**SFCN**) mandate is to aid in the implementation of activities from the City of Greater Sudbury Food Charter. At a recent City budget consultation session, the SFCN gained the support of several City Councillors on the topic of community gardens and their benefits to Sudbury's citizens and the built environment. The Food Charter is built on four planks; one directed at Health and Wellness; one directed at Community Development; one directed at Investment in the Local Food System; and one directed at Development of a Sustainable Food System. It has been adopted by

two other municipalities and one township in the district. The food charter offers many opportunities to address or link food to the built environment, which would benefit both the people and the natural environment in Sudbury (SDHU, 2010).

Research, Background Reports & Policy Papers

Physical Activity - Policy Scan

In 2004, the Northeastern Ontario Regional Provider Network for Cancer Prevention, Screening, and Early Detection Network partnered with CTV on a three-year social marketing campaign, *Let's Get Moving...for the Health of it!* The campaign was based on television ads through CTV, the only channel that broadcasts to the entire Region. The objective of the campaign was to "increase efforts towards building and creating environmental and policy supports for physical activity in Northeastern Ontario" (SDHU, 2010; CPSN, 2007).

One of the initiatives in the campaign was an environmental and policy scan that was completed by key informants from multiple sectors in each of the five health units across Northeastern Ontario. The scan was conducted before the television campaign to determine what environmental and policy supports existed before the campaign. A second scan was conducted after the three-year TV campaign to evaluate the initiative; to determine whether and how it contributed to changes in policies or environments that support physical activity. The environmental scans and evaluation were conducted by SDHU staff in the Public Health Research, Education and Development (**PHRED**) Program. This research and campaign set the stage for much of the work being done by Health Promotion on the built environment (SDHU, 2010; SDHU, PHRED, 2009).

Environmental Scan - Chronic Disease Policies

The SDHU was one of the health units that participated in the Ontario Heart Health Network (**OHHN**) Environmental Scan that was carried out in 2009. Conducted by consultants contracted by the OHHN, this Scan was directed at every school board, municipality, and hospital in Ontario. For each of these groups, it was determined whether particular policies related to chronic disease prevention were being sought. The policies/programs investigated were related to access to nutritious foods, access to recreation and physical activity, active transportation and the built environment, prevention of tobacco use and exposure, and prevention of alcohol misuse. Several of the policies sought were related directly to the built environment. The health unit, which was a partner in the OHHN (and is now a partner in the Healthy Communities Fund – Partnership Stream) has been using the data collected in that Scan, and staff hope to build on that work in the coming years (SDHU, 2010).

Traffic Calming Survey

The health unit worked with the City of Greater Sudbury on a Traffic Calming Study. The survey tool utilized measured attitudes and behaviour related to walking, biking, and social cohesion in a neighbourhood before and after traffic calming measures were implemented. The before survey, which was sent to 545 households before implementation, had a 24 per cent response rate. It asked residents:

- How long they had lived in the neighbourhood;

- If they felt it was a positive place to live;
- If they walked in their neighbourhood one day a week;
- If they cycled in or around their neighbourhood;
- How they travelled to work and school;
- About the factors that affect their decisions not to walk to work or school;
- Their perceptions of the safety of the new traffic calming layout; and
- Their perceptions of the impact of the new traffic calming layout on traffic speeds and traffic volume (SDHU, 2009).

The survey will be conducted once again after residents have lived with the traffic calming measures for a year to see if, and how, the measures have affected attitudes and/or behaviour of residents in this neighbourhood (SDHU, 2010; SDHU, 2009).

Board of Health Motions

Various departments have presented to the BOH over the past few years on topics related to land use planning (i.e. physical activity, built environment, etcetera). The presentations were accompanied by motions to the Board for approval. For example, in 2007, the Board was asked to endorse the City of Greater Sudbury Healthy Community Charter and to endorse the health unit's role as the lead in "championing" the Healthy Lifestyle/Active Living Pillar in the Healthy Community Strategy developed by the Healthy Community Cabinet for the Greater City of Sudbury (SDHU, 2007a). In June 2007, the Board was asked to endorse "a supportive environment approach to physical activity promotion" and to direct the Medical Officer of Health to "seek opportunities to enhance public health programming in this area" (SDHU, 2007b).

Use of Geospatial Tools

Currently, the health unit is assessing geospatial information and tools in a very basic manner. The Health Unit has contracted some geospatial work from the Social Planning Council through the Best Start Program to determine where community services should be located to reach the high risk neighbourhoods most in need of services (SDHU, 2010). It was identified that there is a need for support in this area to ensure that program initiatives are designed appropriately to address the needs of the community. It was also noted that there were some hopes that the Map for Success Geographic Information Systems Strategy developed in October 2009 by the Ministry of Health and Long Term Care would come to fruition in order to support the concept of evidence-based decision making (SDHU, 2010).

Growth Plans & Official Plans

The health unit provided various comments on the Official Plan for Sudbury in 2005/2006. Comments included a wide range of topics from trails and sidewalks to support physical activity to shade structures including trees to prevent skin cancer (SDHU, 2010). With the more rural and unorganized regions in the catchment area, health unit branch staff, who are well connected to the communities, identify the issues that need to be addressed in the Official Plans (SDHU, 2010). One example is the participation of the health unit's environmental staff in the development of the Manitoulin District Official Plan over

many years. With the increased land development and population density of local residents, cottage owners, small business and tourists, the lack of suitable sites for existing and new private septic systems was highlighted. The health unit strongly advocated for local municipalities such as Mindemoya, Kagawong and Manitouaning to provide municipal sewage and/or water systems for all its residents (SDHU, 2010)

In this district, where there are so many small communities at great distances from each other, staff in the branch offices work closely with citizens and grassroots organizations who know their communities and the needs of their communities. In these areas, staff rely less on health studies when commenting on land use planning documents and applications, and more on their knowledge of the communities and on the citizens who are active in their communities (SDHU, 2010).

Master Plans

Sustainable Mobility Plan

As indicated earlier, the health unit worked with the City of Greater Sudbury staff and a number of community groups to develop a Sustainable Mobility Plan for Greater Sudbury with funding from the Ontario Ministry of Health Promotion. The Sustainable Mobility Plan addresses the four pillars of the Healthy Community Strategy for the City of Greater Sudbury (Healthy Community Cabinet, 2010). It is envisioned that the Plan will foster numerous opportunities: economic growth by supporting the City's tourism industry; improve the natural environment by reducing emissions of greenhouse gases and air pollutants; promote active living and healthy lifestyles by increasing opportunities for active transportation; and encourage civic engagement and social interactions among citizens (Healthy Community Cabinet, 2010).



The Plan was built upon:

- A review of best practices in other cities in Canada and abroad;
- Consultation with the public through public input sessions, intercept surveys, on-line surveys, on-line bicycle route network map comments, general e-mails, and a Sustainable Mobility Plan Facebook group;
- Consultation with community stakeholders including the Mayor and Council's Roundtable for Children and Youth;
- Focus groups conducted with various low income marginalized populations;
- Consultation with City of Greater Sudbury staff; and
- The integration of this research and consultation results into a custom tailored Plan for the City of Greater Sudbury (Healthy Communities Cabinet, 2010).

The Plan identifies challenges, policies, infrastructure, and the education and awareness strategies that could be adopted and/or implemented to enable the City "to move towards becoming the most pedestrian friendly City in Ontario by 2015" (Healthy Communities Cabinet, 2010). The Plan was developed with the intent that it would be appended to the City's Official Plan. It has been adopted by City Council (SDHU, 2010).

Bicycling Master Plan

In the City of Greater Sudbury, the health unit has also participated in the Bicycle Advisory Committee that provided advice on the development of a Bicycling Master Plan. This Plan includes:

- The goals for the City's Bicycle Plan;
- A discussion of the needs of cyclists for safety, directness, comfort and practicability;
- A description of the different types of infrastructure needed to support cycling (e.g. dedicated bike lanes, paved shoulders with rumble strips, shared roadways, paved multi-use pathways, physically separated cycle tracks, bike parking, and "rack and roll" programs);
- A discussion of the other issues that affect cycling including traffic calming, traffic control systems, and bicycle route markers;
- Costing for the different types of cycling infrastructure;
- Nomenclature to be applied to different types of cycling corridors (e.g. arterial, local, and off-road); and
- Detailed recommendations for the infrastructure needed for different corridors throughout the City to be implemented on a short-term, medium-term, and long-term basis (City of Greater Sudbury Bicycle Advisory Panel, 2010).

This Plan was developed with the intention of being referenced by, and appended to, the City's Official Plan (SDHU, 2010).

Secondary Plans, Subdivision Plans & Site Plans

With subdivision plans and site plans, the Environmental Health team have made comments about the need for sidewalks and the connectivity of trails and bike paths. Often times, staff have not been able to raise issues that support current day health goals such as population density or mixed land uses because the applications were initiated many years ago under older Official Plans that contained no policies regarding issues such as active transportation, density or mixed land uses (SDHU, 2010).

Environmental Assessments & Certificates of Approval

The Health Unit has also provided feedback on a specific Planning, Design and Environmental Assessment Study for the "four-laning" of Highway 17. In this case, the Environmental Health team reviewed documents for issues related to sewage systems and water quality, air quality, and noise, and the Health Promotion teams reviewed documents for issues related to pedestrian access and safety, and the provision of active transportation routes. In one specific area of the study, a proposed cloverleaf was redesigned, at an additional cost to the Ministry of Transportation of Ontario, to ensure that residents could access the other side of the highway on foot or by bicycle in a safe manner. The re-

design resulted in the installation of a pedestrian culvert that allowed pedestrians to cross under the highway (SDHU, 2010).

Health Promotion & Public Awareness

In 2007, the health unit conducted a comprehensive three year social marketing campaign to raise public awareness about the relation between cancer and physical inactivity with an emphasis on policy development related to the built environment. The campaign, developed in collaboration between the Cancer Prevention and Screening Network (CPSN), the five PHUs in the Northeastern Ontario, and CTV was directed at five different sectors using TV advertisements that reached the entire Northeastern Ontario Region. TV advertisements, call back line questions, and key informant interviews were included in the campaign to ultimately address physical inactivity via policy development (SDHU, 2010; RPN 2007).

Complementary & Contradictory Interventions

For the most part, staff agreed that despite working in different areas of concentration, their feedback on built environment issues often complement each other. This is particularly true in the area of active transportation where recommendations to improve active transportation can be supported by a variety of teams because of their benefits for physical activity, air quality, climate change, injury prevention, accessibility, and health equity (SDHU, 2010).

However, there are some situations that have arisen where the teams have raised issues that have been contradictory to one another. For example, in one community, a concern about soil along a trail was identified as a health concern which led to the closure of a section of the trail. The trail was supported by another team as a great location for active transportation (SDHU, 2010).

Addressing the Health of Low Income Populations

The Health Unit is committed to bringing an equity-related focus to every issue. This means that for any particular policy or program, staff ask themselves: "Are there specific populations that would benefit more from this policy than others? Are there specific populations who would be harmed more by this than others?" (SDHU, 2010).

With much of the work being done to promote active transportation and injury prevention, it is expected that people on low incomes, and people who cannot drive vehicles because of age or ability, will benefit along with other members of the general population. However, staff have also been working on a number of projects that are more explicitly directed at reducing health inequities within the community. These projects are directed at:

- Increasing community food security among low income and/or high risk populations;
- Increasing the availability and quality of affordable housing;
- Increasing transit service to low income neighbourhoods; and
- Increasing the "walkability" and safety of low income neighbourhoods (SDHU, 2010).

Community Food Security

Health Unit staff have been working closely with a number of different community partners on a few innovative projects directed at increasing community food security. For example:

- They have been working with the Social Planning Council and the private sector on a proposal to construct a Solar Greenhouse that could be used to extend the growing season in the Sudbury area. They hope to develop this as a social enterprise project that provides educational opportunities for members of the community, while also producing healthy foods and potentially creating quality employment opportunities for people participating in the growing of food in the greenhouse (and the surrounding neighbourhood).
- They have also been working with many different community partners to develop community gardens in different areas within the community. For this project, Health Unit staff is working with a broad range of community agencies and individuals. One interesting partnership is with a Community Action Network (CAN) that has strong representation from the business community to support a community garden in one ward of the City.
- Another initiative is an urban farm run by youth interns that teaches growing, cooking, and many other related skills with a goal to entice youth to learn about where their food comes from and potentially attract young people to the farming profession.
- One community garden established in a high risk neighbourhood has sought to attract various high risk participants (e.g. mental health, street youth, addictions, physically challenged individuals, etc.) using a variety of social service agencies near (and distant) from this garden. Some of the partners involved with this garden project were successful in getting Trillium funding to hire a Community Garden/Good Food Box Coordinator to aid with these two project areas.
- More generally the SFCN has always sought out opportunities to advocate on behalf of high risk groups, as it relates to food and the built environment, by suggesting greater opportunities for urban agriculture, edible landscapes, greater use of rooftops for greening and food production, increased access to small fresh food markets in high risk neighbourhoods (perhaps run by individuals living in these areas), a non-profit grocery store, more Good Food Box drop sites, incubator kitchen facility, bake ovens attached to community gardens, etcetera (SDHU, 2010).

High Quality Affordable Housing

Housing is a real challenge in the Greater City of Sudbury. Sudbury is a "congregating point" for many homeless people in the north. When people lose their homes and/or jobs in the Northeastern Ontario Region, they will gravitate to Sudbury in the hopes of finding work, housing and/or social assistance. There are approximately 400 homeless people living in the City of Greater Sudbury and many more people who are living in sub-standard housing. There is a shortage of high quality affordable housing in the Sudbury area (SDHU, 2010).

The Environmental Health team within the health unit receives many complaints every year from tenants about potentially unhealthy living conditions. The complaints are associated with mould, sewage backups, bed bugs, noise, hoarding and rats. These complaints can be difficult to deal with. Many occur in houses that have been converted into apartments owned by absentee landlords. The Health Unit will often partner with the local municipalities, that have some authority to act under the

Property Standards Act, to address these issues. Other times, staff work with Community and Social Services to address situations that involve a mental health or social services component (SDHU, 2010).

Health Unit staff have also been working in collaboration with community groups through the Local Housing Network to work towards the creation of high quality affordable housing in the area (SDHU, 2010).

Transit Services and Walkability

The health unit conducted focus groups with a number of low income groups to identify issues of concern to them. Through that process, many transportation-related issues were identified. Walkability and accessibility are also issues that have been raised by people on low incomes.



The City of Sudbury is the only community in the health unit catchment area that has public transportation. Within Sudbury, that transit system is used almost exclusively by people who live on low incomes. In order to increase access to jobs, services, and recreational opportunities among low income populations, issues of connectivity of service to low income neighbourhoods and pricing must be addressed. These issues have been addressed in the Sustainable Mobility Plan (SDHU, 2010).

Single moms with strollers have identified safety issues and accessibility as issues for them. The absence of sidewalks, paved shoulders, potholes, and poor lighting can make it difficult and unsafe for them to access services in the community. These issues are also addressed under the Sustainable Mobility Plan (SDHU, 2010).

A Walkability Checklist was been developed to assess neighbourhoods and to initiate dialogue amongst community groups regarding active transportation. The checklist has been utilized as a community development tool with workplaces, schools, neighbourhoods and community groups to identify areas of concern and to increase capacity of the members related to advocacy and policy (SDHU, 2010).

Research and Advocacy on Social Determinants of Health

The Health Unit does research and advocacy on a broad range of social determinants of health in order to bring equity-focused health impacts to light. While this research benefits all members of the community by reducing health impacts that cost all members of the community, it is particularly beneficial to those who live on low incomes and experience greater health risks (SDHU, 2010).

Community Poverty Reduction Strategy

The health unit, along with many community partners, participated in the development of a Community Poverty Reduction Strategy that was led by the Social Planning Council of the City of Greater Sudbury. This Strategy is comprehensive with many different elements. Several elements in the Strategy are related to the built environment and include the provision of high quality, affordable housing, mixed housing, and public transit (SDHU, 2010; SPC, 2008).

Evaluation

The health unit evaluates the impact of specific projects. They acknowledge, however, that it is difficult to evaluate the overall impacts of their work because it takes time for policy changes to play out in the land use planning processes (SDHU, 2010).

"You can evaluate specific initiatives, but you cannot evaluate a movement. With work on the built environment, we are working to create a paradigm shift. That is difficult to evaluate" (SDHU, 2010).

Issues Not Adequately Addressed through Available Processes

There are a number of issues that impact the health of people in the north that are not being addressed through any processes currently in place or that are simply difficult to address. These include:

- The impact of climate change (i.e. increasing number of extreme weather days) on aging populations;
- The large number of people living in isolated or remote communities who do not have access to jobs or services that are needed;
- The lack of regulations for "unorganized territories";
- Competition for infrastructure resources (e.g. hard for people to focus on bike paths when roads are in such bad shape); and
- The culture of the north (e.g. "weekend warriors" driving snow mobiles, ATVs, boats, and vehicles, often under the influence of alcohol) (SDHU, 2010).

Organizational or Mandate Issues

The health unit has reorganized itself in order to respond to the 2008 Ontario Public Health Standards which expand the duties and responsibilities of the PHUs at a time when additional resources are not being provided to PHUs. Key staff have been placed within divisions to better support operations, in order to manage evolving technical challenges and maximize new opportunities (SDHU, 2010)

Staff from the Environmental Health and Health Promotion Divisions work closely on some issues related to land use planning and the built environment. This is done through informal relationships that are encouraged and supported by senior members of management. Staff acknowledge that this does not happen as much as it should and indicated that they are striving for greater collaboration on these issues (SDHU, 2010).

Program Planning has traditionally been done on the basis of mandates from the Ontario Public Health Standards. In the past this has created, and reinforced, silos between teams and Divisions. The health unit is taking deliberate steps to identify cross-cutting issues such as the built environment, in order to ensure that there is coordination between teams and Divisions at during Program Planning for those cross-cutting issues. It is hoped that this will encourage greater integration of work that has traditionally been directed at different risk factors or health issues. It is also hoped that this approach will allow staff to address the many demands on their time in a more efficient manner (SDHU, 2010).

Research, Policy & Resource Needs

Health Impact Assessments (HIAs)

Staff believe that it would be helpful if PHUs across the Province could be working together to advocate for the use of a common Health Impact Assessment tool to address a number of built environment issues. At present, the SDHU informally comments on equity-based proposals when assessing internal policies or when undertaking program planning. This means that they try to assess that many different ways in which any policy or practice can impact human health, particularly among different sub-populations. Health Unit staff consider an Health Impact Assessment tool as a much needed tool to evaluate community development proposals or policies that relate to land use planning and the built environment that may impact on community health (SDHU, 2010).

Role of Public Health

Staff see the need to educate local municipalities and other community partners about the role of the public health sector. This is something that could/should be done on a Regional and/or Provincial level as well. They find that people don't really understand what public health does or why public health staff are getting involved in land use planning processes (SDHU, 2010).

Coordination between Provincial Ministries

Staff also feel that it would be very helpful if there was more communication, collaboration and integration within and between different Ministries at a Provincial level. Many provincial staff are unaware of existing roles and requirements of other provincial agencies that could be assisted through the development of time limited inter-ministerial committees.

Greater Integration for the Built Environment

Health unit staff would like to see more integration on programs directed at the built environment within the Ministries of Health Promotion and Sport and Health and Long-term Care and within different non-governmental organizations. Health Unit staff know that the built environment has an impact on many different risk factors (e.g. physical activity, air quality, water quality, food security) and many different health conditions (e.g. heart disease, injuries, cancer, asthma, strokes) but their work is often split into the prevention of a particular disease or at a particular risk factor in isolation from others because of the mandates of the governmental and/or non-governmental agencies they are dealing with. They would like to see greater integration in this field so that work is directed at actions that impact on a number of risk factors and/or a number of health outcomes simultaneously (SDHU, 2010).

Health Promotion Resources for the North

While health promotion resources have been developed by the Province and by provincial organizations, these are often geared towards large urban centres and reflect the realities of southern Ontario. There is a need for health promotion resources that address northern realities (SDHU, 2010).

Injury Prevention and the Built Environment

With injury prevention, the focus has been on actions that can be taken by individuals or communities to prevent accidents and reduce harm. Public health staff with expertise in injury prevention are becoming more involved in issues related to the built environment (SDHU, 2010).

Sudbury and District Health Unit Resources

- Demographic Profile of Sudbury
http://www.sdhu.com/uploads/content/listings/DP2008_FullReport_2.pdf
- Demographic Profile of Branch offices
http://www.sdhu.com/uploads/content/listings/BDP2008_FullReport.pdf
- Sustainable Mobility Plan
<http://hosting.mysudbury.ca/hcgs/pdf/susplan.pdf>
- Community poverty strategy
<http://communities.mysudbury.ca/Sites/Social%20Planning%20Council%20of%20Sudbury/Research%20Reports/Community%20Poverty%20Reduction%20Strategy%20March%202008/Community%20Poverty%20Reduction%20Strategy%20English.pdf>
- Municipal Pedestrian Charter
<http://www.sdhu.com/uploads/content/listings/SudburyPedestrianCharter-Nov2006.pdf>
- City of Greater Sudbury Food Charter
<http://www.sdhu.com/content/search/doc.asp?doc=1161andq=food+charterandl=andlang=0>
- Executive Training for Research Application (EXTRA)
<http://www.sdhu.com/uploads/content/listings/FINALIPPRSDHUMay2010.pdf>

B Public Health Units - Rural Areas

1. Grey Bruce Health Unit

Interview Participants

Healthy Communities

Linda Bumstead, Program Manager
Andy Barton, Program Manager
Bob Hart, Program Manager
Jennifer Croft, Health Promoter
Jason Weppler, Health Promoter
Crystal Fergus, Health Promoter
Bob Graham, Environmental Health Planner
Bev Middleton, Public Health Inspector

Background

The Grey Bruce Health Unit (GBHU) serves the 17 municipalities of Bruce County and Grey County. The region encompasses 8,586 sq km of land and contains a population of approximately 157,760. The area is primarily rural, including a variety of smaller municipalities and townships with populations ranging from 6,000 to 10,000. The City of Owen Sound, with a population of 21,753, serves as a commercial centre for the region (GBHU, 2010).

Agriculture is the largest industry in the area. Tourism along the shoreline is also a major industry. The Town of the Blue Mountains has a population of approximately 6,825 permanent residents and a population of about 9,040 semi-permanent residents.

GBHU is an independent PHU that reports to a BOH that is composed of six elected representatives from Grey and Bruce Counties, two representatives appointed by the Province, and one independent non-voting member.

Health Priorities for Land Use Planning Processes

After analysing the population demographics and health indicators in their region, the Health Unit has concluded that, from a land use planning perspective, its highest priority is the promotion of development patterns and infrastructure that support active and alternative transportation. Staff members view action on this priority as a means to address a number of health indicators. For example, they believe that communities that support active and alternative transportation can:

Grey County:

*City of Owen Sound,
Municipality of Grey Highlands
Municipality of Meaford
Municipality of West Grey
Town of Hanover
The Blue Mountains
Township of Chatsworth
Township of Georgian Bluffs
Township of Southgate*

Bruce County:

*Municipality of Arran-Elderslie
Municipality of Brockton
Township of Huron-Kinloss
Municipality of Kincardine
Municipality of Northern Bruce Peninsula
Town of Saugeen Shores
Municipality of South Bruce
Town of South Bruce Peninsula*

- Increase physical activity among all age groups;
- Provide a transportation option to those who cannot drive vehicles because of age, ability or financial circumstances;
- Reduce injuries and deaths related to motor vehicle collisions by reducing the vehicle kilometres travelled by high risk drivers;
- Reduce social isolation among those who do not have access to a vehicle or who cannot drive; and
- Make services, jobs and recreational opportunities more accessible to all members of the community (GBHU, 2010).

Other priorities include those directed at:

- Protecting ground water quality;
- Reducing access to alcohol;
- Increasing access to healthy foods; and
- Reducing social inequities (GBHU, 2010).

Organizational Structures

Healthy Communities Team

The GBHU was re-structured over the past three years to more efficiently respond to the Ontario Public Health Standards that were updated in 2008. The health unit has been organized into two sets of teams with most staff belonging to two teams. One set of teams are organized geographically while the second set are organized centrally by an activity, priority or focus. One of the six centralized teams is a Healthy Communities team that is focused on building partnerships and working with community partners to develop policies and processes that support the development of healthy communities. This team, composed of public health professionals with an interest in healthy communities, includes an Environmental Health Planner, a Public Health Inspector, several Health Promoters with a chronic disease prevention focus, several Program Managers, Public Health Nurses and two Directors (GBHU, 2010).

Working collaboratively, this team provides comments on planning documents, sustainability plans, land use

Health Indicators - Grey Bruce Health Unit:

- *46% of the population lives in urban areas while 54% live in rural areas; This contrasts with the province's 85% urban/15% rural split;*
- *The population is older with a median age of 45 compared to Ontario's median of 39;*
- *Less than 50% of the population has post-secondary degrees;*
- *6% of the population is living on low incomes with 23% of those spending 30% or more of their total income on shelter;*
- *54% of adults report heavy drinking;*
- *62% of residents are overweight/obese*
- *Almost 50% of residents are physically inactive;*
- *The rate of falls are 70% higher than the Ontario average;*
- *79% of youth deaths are the result of motor vehicle collisions;*
- *Rural and recreational areas are serviced primarily by private sewage disposal systems and drinking wells which are generally aging and deteriorating;*
- *18 to 22% of private water samples were unacceptable.*

(GBHU, 2009; GBHU 2010c).

planning applications, and environmental assessments. The team also conducts education to increase awareness about the link between health and the built environment among staff in the local municipalities, elected representatives, and citizens (GBHU, 2010).

This team also draws upon the experience and knowledge of the inter-disciplinary teams within each geographic area by circulating land use planning applications to the interdisciplinary teams familiar with a particular geographic area. They also consult with staff with other areas of expertise when needed. For example, they will consult with a Public Health Nurse who has a focus on alcohol consumption, a health promoter who has a focus on falls prevention, and with Public Health Nurses and Public Health Inspectors who focus on child and family health, infectious diseases, health hazards, environmental health, and emergency preparedness (GBHU, 2010).

Lessons Learned

When the health unit reorganized itself into geographic and centralized teams, it was helpful because it broke down the silos between disciplines. Staff now work in a multi-disciplinary way that allows them to consider issues from a number of perspectives when commenting.

Relationships with Municipalities & Planning

With two Counties and 17 municipalities within their district, staff members at GBHU have different working relationships with each municipality and County. Each geographic team within the health unit works with the municipalities within their geographic areas. The issues and contacts in each of these areas vary.

Historical

Some municipalities in Grey Bruce ask the health unit to review planning applications while others do not. This relationship between local municipalities and the health unit started with the health unit's involvement in the approval of private sewage systems. At one time, the health unit was responsible for the review of all sewage system approvals under the Environmental Protection Act. That responsibility was transferred to the Ontario Ministry of the Municipal Affairs and Housing in April 1998, and then downloaded to the local municipalities through the Building Code Act and the Ontario Building Code. The Act is written to allow municipalities the option to administer the regulations themselves or to have BOHs or Conservation Authorities administer the regulations for them. The health unit is involved in the administration of Part 8 of the Ontario Building Code (sewage systems) through formal agreements with partnering municipalities (GBHU, 2010).

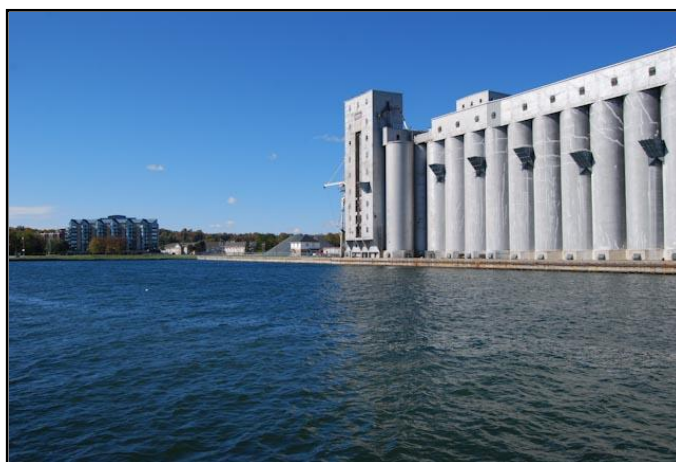
The GBHU has expanded its involvement in the land use planning processes as public health management and staff have become more aware of the impact of the built environment on physical activity and other determinants of health (GBHU, 2010; GBHU, 2009).

Pilot Project - Owen Sound

The GBHU has a particularly strong relationship with the City of Owen Sound. A pilot project, developed in 2007, and implemented in 2008, placed one of the health unit's Health Promoters at the

offices of the City of Owen Sound office to act as a liaison between different departments within the City and health unit staff serving the geographic area of Owen Sound.

The goal of this project was "to promote collaboration, coordination and resource development for healthy community development between the health unit and the City". One of the project's objectives was "to incorporate health and wellness into municipal planning and operations" (Owen Sound & GBHU, 2008; GBHU, 2010).



Several programs and policies surfaced from the partnership, such as the implementation of a policy for smoke-free outdoor recreation spaces, partnership on a trail mapping initiative, participation in the development of a Transportation Master Plan, and support for a library lending program for bicycle helmets. The partnership with the City has continued with a Health Promoter attending City Hall on a weekly basis. Lessons and outcomes from the project with the City of Owen Sound have informed the development of partnerships with other municipalities (GBHU, 2010).

Healthy Communities Conference

In 2010, staff in the health unit, in consultation with several Planners from the area, organized a conference on healthy communities to increase awareness about the link between health and the built environment and to cultivate relationships between health unit staff and community leaders, including staff within local municipalities, schools and community organizations. This conference was well attended, with about 180 participants, which included Councillors, Planners, Recreation Directors and other staff from a number of the municipalities in Grey and Bruce Counties (GBHU, 2010).

Evolving Relationships

The relationship between health unit staff and Planners is evolving; spreading to other issues and venues. This year, for example:

- The Health Unit staff collaborated with Planners from a number of local municipalities, to prepare comments on the Provincial Policy Statement (PPS);
- Grey County Planning Department approached the health unit about forming a partnership to support awareness building among secondary school students with respect to healthy community development for World Town Planning Day in November; and
- Health unit staff were also asked to participate as a community partner in the development of The Town of The Blue Mountain's Sustainability Plan and the City of Owen Sound's Transportation Master Plan (GBHU, 2010).

Community Partnerships

The health unit has a strong history of working in partnership with many community agencies. The health unit led the Ontario Heart Health Project and the FOCUS Project from the late 1990s to 2009. Both projects were based on broad participation from community partners to plan, implement and evaluate community programs and policies that improved health.

Staff in the health unit consider staff in the local municipalities to be their primary partners on land use planning issues. The health unit did partner with Planners from a number of local municipalities on the organization of the Healthy Communities Conference. The result was a well attended conference and stronger relationships with a number of Planners.

Planners within some local municipalities have indicated that it would be really helpful if the health unit could educate the public on the health benefits associated with some land use planning decisions, such as those related to trails and bike lanes. Planners hope that this education will reduce public resistance to certain projects and decisions (GBHU, 2010).



There are times, however, when staff in local municipalities cannot join with the health unit in a public campaign. For example, with campaigns that are directed at municipal elections in particular, municipal staff have to take care with the messaging (GBHU, 2010).

Currently, the health unit is working with municipal Planners to determine the best ways to influence health through the land use planning realm. The health unit has not decided how it will expand its partnerships in municipalities beyond Planners. Staff recognize that other community agencies and residents are key stakeholders, but have to find the process that will work best to influence health and the built form. With the creation of the Ontario Ministry of Health Promotion and Sport's Healthy Communities Fund, the health unit hopes to engage community partners in changing the built environment in the many communities in Grey and Bruce Counties (GBHU, 2010).

Issues Sparking Interest

Healthy Communities Perspective

The healthy communities perspective has really sparked interest with local municipalities. Over 180 people attended the Healthy Communities Conference, including politicians and staff from all of the local municipalities. Additionally, several Planners participated in the committee to organize the conference. The Planners in local municipalities are starting to approach the health unit about issues, such as language for healthy communities, in their Official Plans and Zoning Bylaws. Some are beginning

to view health unit staff as allies in the land use planning processes who can bring health evidence to the table to support positions that Planners and health staff hold in common (GBHU, 2010).

Protection of Ground Water in Limestone Aquifers

Through the review of a subdivision plan, the health unit raised a concern about the fact that sewage systems on areas of the Bruce Peninsula may not be properly addressed by the Ontario Building Code in its current regulatory framework. The health unit has conducted a literature review which demonstrated that limestone aquifers are susceptible to bacterial contamination where overburden is thin. Staff have identified that the minimum requirements under the Ontario Building Code for private septic systems may not fully ensure the safety and security of ground and surface waters over the long-term. The health unit has raised concerns on site specific planning applications related to this issue. The health unit position may have implications for development in vulnerable areas of Grey Bruce Counties (GBHU, 2010c; GBHU, 2010).

Research, Background Reports & Policy Papers

Literature Review - Built Environment and Human Health

In 2008, the GBHU contracted the services of a consultant to conduct a literature review on health evidence related to health and the built environment. This document, which was prepared for internal purposes, provides health evidence that has been used by staff to inform and support comments offered on land use planning documents and applications (GBHU, 2010).

Position Statement re: Built Environment

In 2009, staff within the GBHU prepared a position statement, "Building Health Communities Together: Active and alternative transportation to support healthy living in Grey Bruce", which summarizes the various health arguments which support the priority given to the promotion of active and alternative transportation within Grey and Bruce Counties. This statement, which touches on physical activity, safety, motor vehicle dependence, mental health, accessibility, air quality and water quality, includes recommendations for actions to be sought through the land use planning processes. It has been used by the GBHU to guide their comments, ensure consistency in approaches across the health unit, and to educate their partners and decision-makers in local municipalities about the reasons for their comments (GBHU, 2009)

Resolution re: Active and Alternative Transportation

In 2010, building on its 2009 statement, the GBHU prepared a resolution, "Building Healthy Communities Together: Active and Alternative Transportation to Support Healthy Living in Grey Bruce", for adoption by the BOH. Once adopted, the resolution was sent to the Councils and planning departments for the Grey and Bruce Counties and to all of the local municipalities within Grey Bruce, as well as to local Members of Provincial Parliament and several Provincial Ministers. This resolution identifies the priorities and focus of the health unit in terms of the land use planning processes, and provides authority to the comments provided by staff to County and local municipalities (GBHU, 2010).

This Resolution includes a broad statement of support for the incorporation of healthy public policies into official plans, master plans, by-laws and land use planning approvals which support active and alternative transportation. It identifies a number of specific policy directions that should be sought in support of this broad goal. And it indicates that policy directions should be made with special attention paid to "creating access and equity for all residents, especially children, youth, and older adults, people with low incomes, and others who may normally be at a disadvantage" (GBHU, 2010a).

Comments on Provincial Policy Statement

In consultation with several Planners in Grey Bruce municipalities, health unit staff have prepared comments on the Provincial Policy Statement (PPS) which is currently undergoing its five-year review. GBHU staff have focused their comments on transportation, infrastructure and social considerations which are not currently well addressed by the PPS. They would like to see the PPS improved to give Planners and public health staff in rural areas more authority to address health issues when processing development applications. For example, they have suggested that:

- *...language in the PPS could be strengthened to encourage the development of healthy, complete, sustainable and liveable communities (versus strong communities) from a holistic perspective including physical, social and natural environments;*
- *Specifically, wording throughout the PPS should replace the phrase "protect public health and safety" with "protect and promote the overall health, well-being and safety of the population";*
- *The PPS should encourage development and land use patterns that would support active and multi-modal means of transportation, including pedestrian and cycling infrastructure with safe, convenient access to daily amenities and services;*
- *Trails should be supported as transportation infrastructure for utilitarian uses;*
- *The PPS requires revision to permit greater partial servicing options in rural areas that are highly susceptible and/or vulnerable to surface and ground water contamination. These areas include, but are not limited to, areas with limited overburden, fractured bedrock and karst topography³;*
- *The creation of urban design guidelines and standards could provide a comprehensive reference regarding the essential elements of a healthy community (GBHU, 2010b).*

Use of Geospatial Tools

The GBHU has used geospatial tools in the past to map West Nile Virus information and adverse waters, but has not been using these tools in a consistent way. Training on geospatial tools is being done. For

³ The 2006 Water Well Sustainability In Ontario, Expert Panel Report, prepared for the Ontario Ministry of the Environment reports that approximately one-third of rural wells in Ontario are bacteriologically contaminated. A policy supporting increased use of municipal communal water systems, which are subject to monitoring, will serve to remove the home owner from operation and maintenance requirements of private wells, increase water treatment, and may lessen the public health burden related to the human consumption of water from contaminated private well water supplies.

example, staff will be trained on the use ArcPad in 2010 so they can begin collecting data on the location of wells and sewage systems in Grey and Bruce Counties. There are plans to train staff in the Healthy Communities team as well so it can be used for indicators such as access to recreational facilities or access to healthy foods (GBHU, 2010).

Growth Plans & Official Plans

The GBHU has participated in the review of two Official Plans; one for Owen Sound and one for Grey County. Most of that work occurred early in the health unit's involvement in the issue so staff comments were fairly generic; staff have asked for broad commitments to healthy communities, active transportation and walkability (GBHU, 2010).

Over the next few years, a number of municipalities in the area will have their official plans coming up for their 5-year reviews. GBHU unit staff hope to bring a more comprehensive approach to those reviews. For example, they hope to include issues such as access to healthy foods and social equity in their comments. With the support of local evidence, they hope to adopt municipally approved policies that will permit sewage system and well design enhancements that exceed the current minimum regulatory standards in efforts to protect the public's health (GBHU, 2010).



Master Plans

The GBHU staff participated in the development of the Owen Sound Transportation Plan both as a member on the advisory committee and by participating in public meetings. In this process, health unit staff have advocated for equity and access in terms of public transit across the city. They have also promoted policy language that would commit the City to ensuring that pedestrian and cycling networks are connected, well maintained, cleared and aesthetically pleasing to foster active transportation (GBHU, 2010).

The Health Unit has also participated in, or been consulted on, the development of:

- The City of Owen Sound's Trails Strategy;
- The Sustainability Plan for the new Town of the Blue Mountain;
- The Grey Bruce Trails Network to ensure that there is a well connected recreational trails network throughout the Region; and
- The Recreation Masters Plan for Brockton, Walkerton and other areas.

In these processes, staff try to ensure that trails are included in the Plans and that different demographic groups, such as teens and children, are considered and/or consulted (GBHU, 2010).

Secondary Plans, Subdivision Plans & Site Plans

The GBHU Healthy Communities teams provide comments on secondary plans, subdivision plans, and site plans quite frequently. The comments offered related to issues such as:

- Provision of sidewalks, connectivity of sidewalks, and provision of bike paths;
- Alternative modes of transportation;
- The extension of bus routes in Owen Sound;
- The safety of pedestrians (e.g. lighting for seniors, crosswalks, signage);
- The provisions of bicycle racks for cyclists and benches for pedestrians;
- The provision of community parks to improve mental health and social cohesion;
- Housing for aging population, more small units or multi-family dwellings, and mixed housing;
- Moving away from impervious materials to reduce run-off and replenish ground water;
- Green roofs to reduce energy use and urban heat island effect;
- The maintenance of trees to provide shade to reduce urban heat island effect and provide protection from the sun (GBHU, 2010).

GBHU would like to develop a Checklist for Developers that could be used by local municipalities during the pre-consultation stage in the land use planning process; to raise health-related comments at an earlier stage in the process before proposals are solidifying. Staff feel that they need to do more research on health evidence related to rural areas (GBHU, 2010).

Comments re: Ground Water Protection on the Escarpment

The GBHU staff have prepared detailed comments that explain why the health unit has concerns regarding a subdivision application on the Bruce Peninsula. These detailed comments: articulate the legislative authority that the health unit has to comment on issues related to private wells and septic systems; provide local water quality data and outbreak data which suggests that water contamination is a concern in Grey-Bruce Counties (i.e. geographically depicts the number of adverse water samples collected across the area); provide background research which indicates that bacterial contamination of water supplies can occur with limestone aquifers that have little overburden; and propose the use of Point of Entry water treatment within individual dwellings. These detailed comments have been used to positively effect improvements to the original plan of the subdivision application (GBHU, 2010; GBHU, 2010c).

Environmental Assessments & Certificates of Approval

GBHU staff have been involved in a number of environmental assessments associated with municipal water and municipal sewage around hazard areas (i.e. undersized lots with cottages). They have, on occasion, been involved in the review of environmental assessment documents associated with the Bruce Nuclear Plant (i.e. for issues related to air emissions, water emissions, and transportation of hazardous materials), highway expansions (i.e. for the protection of agricultural land), and the expansion of garbage dumps (i.e. for the protection of water quality) (GBHU, 2010).

On December 1, 2008, small drinking water systems (SDWS) were transferred from the Ministry of the Environment to the Ministry of Health and Long-term Care. This program is peripherally involved with land use planning, as are programs related to recreational water and air quality program.

Health Promotion & Public Awareness

The GBHU have been doing health promotion on healthy communities messages related to obesity and active transportation, alcohol use, and local food choices. The health unit has been using a radio campaign, newspaper ads, message cards, and ads in local community facilities. It has been raising issues about healthy communities in a generic way to get residents thinking about the link between their health, their communities, and the actions that their municipalities take.



Staff are finding that they have to be careful about how they approach public campaigns. They want to draw the link to specific issues in the communities in Grey Bruce but they want to do so without alienating the staff and decision-makers in the local municipalities who are their partners (GBHU, 2010).

Complementary & Contradictory Interventions

Complementary - For the most part, comments offered by different disciplines within the health unit on land use planning documents complement one another. For example, when making comments in support of active transportation, staff can point to the health benefits associated with an increase in physical activity, a reduction in social inequities, and a reduction in emissions that contribute to climate change. The same can be said with the health unit's promotion of local foods which encourages healthy eating, supports local agricultural jobs, and supports efforts to protect agricultural land in Grey Bruce Counties (GBHU, 2010).

Contradictory - Estate Development - Comments from different disciplines within the health unit can be contradictory when dealing with "estate subdivisions". In these situations, health staff could be urging greater land use densities to support active transportation, the preservation of agricultural land, and reductions in greenhouse gases, while other health staff have to support the decreased densities associated with estate subdivisions to ensure that setbacks and lot sizes protect water in private wells from private sewage systems. Health unit staff have indicated that they could all agree upon higher densities for these subdivisions if community water systems could be recommended and provided. Unfortunately, there is great resistance to the provision of communal water systems among local municipalities that cannot afford to service and maintain them. Partial servicing could be an acceptable solution but it is not currently supported by the PPS⁴ (GBHU, 2010).

⁴ Partial servicing is where a lot is serviced by municipal water but private sewage (septic tank and tilebed) or municipal sewer system but a private water supply.

Estate subdivisions create contradictory positions within the local municipalities as well. Existing residents may not like how estate subdivisions can change the character of their communities. Staff within local municipalities may not like how these subdivisions consume valuable land. But local municipalities often accept these developments because they bring in tax dollars that support badly needed community services and facilities (GBHU, 2010).



Addressing the Health of Low Income Populations

Staff in the GBHU have a mandate, as reflected in the Active Transportation Resolution, to bring a social equity lens, to all issues related to healthy communities. They also note that the GBHU's focus on active transportation is driven, in large part, by the desire to address social inequities that can be the basis for health inequities. With populations widely dispersed in the rural area and the absence of transit or bus systems beyond Owen Sound, there are many people in Grey and Bruce Counties who cannot access jobs, services, or recreational facilities without the use of private vehicles. However, with the high cost of vehicle ownerships (e.g. about \$7,000 per year), it is expected that many people living on low incomes in this area have limited or no access to jobs, services or recreational facilities (GBHU, 2010).

Staff are also looking at policies that can be promoted to address health inequities that are particular to those living on low incomes. For example, they hope to promote by-laws that ensure access to healthy foods in all communities. They are also trying to look at by-laws or policies that can be used to limit access to alcohol in small communities. Once again, however, staff feel that they need to have more rural case studies to draw upon to know how to address these issues in rural communities (GBHU, 2010). Staff also hope to advocate for more housing for people on low incomes and for more mixed housing that allows people to stay in their neighbourhoods during different stages in their lives (GBHU, 2010).

Issues Not Adequately Addressed through Available Processes

Transportation is a real problem in Grey Bruce Counties. The health unit raises this issue at every level in the land use and transportation planning processes but it appears to be a problem that cannot be resolved by individual communities. It is practically difficult and there does not seem to be a way to address the problem in a comprehensive way.

Organizational or Mandate Issues

Human resources are a huge issue for the health unit. It is a big job to be involved in the land use planning processes for so many communities. The health unit does not have the human resources to keep up with the work that could/should be done. The health unit could really use access to library services and to staff who could do literature reviews, research, and policy analyses to support the work of the healthy community team (GBHU, 2010).

Research, Policy & Resource Needs

Health staff would find it helpful to:

- Have access to library resources;
- Have a rural network of health units that could share information on healthy communities and land use planning issues as they relate to rural areas;
- Have more resources to do research on local issues to add to the body of research on rural issues;
- Have more human resources to: review development applications; conduct on-site inspections; review permits and site plans; and conduct sanitary surveys and septic system re-inspection programs; and
- Have stronger language in the PPS on issues related to rural issues (GBHU, 2010).

Grey Bruce Health Unit Resources

- Built Environment see www.publichealthgreybruce.on.ca/Healthy_Communities/Built_Environment.htm
- Grey Bruce Partners in Health see www.publichealthgreybruce.on.ca/GBPiH/
- Healthy Communities Conference see www.healthycommunitiesconference.com/Presentations/

B Public Health Units - Rural Areas

2. Haliburton Kawartha Pine Ridge

Interview Participants

Health Promotion

Heather Grundy, Health Promoter
Sue Shikaze, Health Promoter
Lisa Kaldeway, Health Promoter
Jennifer Val Camp, Health Promoter

Background

The Haliburton Kawartha Pine Ridge District Health Unit (**HKPR**) covers Haliburton County and its four local municipalities with a population of approximately 16,000, Northumberland County and its seven local municipalities with a population of approximately 81,000, and the City of Kawartha Lakes that was created in 2000 from all of the municipalities in the former Victoria County with a population of about 74,000. The area is mostly rural with a few urban centres such as Lindsay in the City of Kawartha Lakes and Port Hope and Cobourg in Northumberland County (HKPR, 2010).

The HKPR-DHU reports to an independent BOH that is composed of several elected officials who represent municipalities covered by the Health Unit and a few local residents appointed by the Province (HKPR, 2010).

City of Kawartha Lakes

Northumberland County

- *Township of Alnwick/Haldimand*
- *Municipality of Brighton*
- *Town of Cobourg*
- *Township of Cramahe*
- *Township of Hamilton*
- *Municipality of Port Hope*
- *Municipality of Trent Hills*

Haliburton County

- *Township of Algonquin Highlands*
- *Municipality of Dysart et al.*
- *Municipality of Highlands East*
- *Township of Minden Hills*

Health Priorities for Land Use Planning Processes

In HKPR, the team working on land use planning issues has been the "Physical Activity Team"; a team of Health Promoters focused primarily on increasing physical activity to prevent or reduce chronic diseases. The work of this team has also met some injury prevention goals and outcomes (HKPR, 2010).

Organizational Structure

Historically - Historically, it has been the Physical Activity Health Promotion team within HKPR that has been working on issues related to the built environment and land use planning processes. There is a team of four Health Promoters, all of whom report to one Manager, who have been doing this work. They each focus on different geographical areas within the District so the work can vary from one area to the next but the focus has been physical activity and the built environment (HKPR, 2010).

This team works closely with the staff who do chronic disease prevention and injury prevention but it does not work with other divisions such as the environmental health teams. While the environmental health team are involved in the approval of water and sewage systems, to date, they have not been involved in the built environment or land use planning processes in a broader way (HKPR, 2010).

Restructuring - The organization was recently restructured internally to better align with the new Ontario Public Health Standards. In the near future, some members of the Physical Activity Health Promotion team will become part of the Healthy Communities Team. This team will work to influence policies that affect the built environment and a broader array of health issues.

Three of the four people on the current Physical Activity Health Promotion team will be working on that team while the fourth will be working on a Priority Populations team that focuses on health promotion and skill building for people who are 10 to 24 years in age (HKPR, 2010).

Lessons Learned

Health staff recognize that they need to educate local municipalities and decision-makers about the full role of the Health Unit. People have a fairly limited understanding of what the Health Unit does; they may not see it having a role beyond the inspection of restaurants and septic systems.

"One of the greatest lessons in this process has been to take advantage of opportunities that present themselves".

One of the greatest lessons in this process has been to take advantage of opportunities that present themselves. For example, when staff had the opportunity to get involved with the development of Cobourg's Urban Design Guidelines, they committed themselves to that process and were able to have quite an impact on them.

Another lesson has been the importance of understanding how local politics can affect issues as they develop; to be aware of those politics when communicating ideas (HKPR, 2010).

Relationships with Municipalities & Planning

The working relationship with each municipality is different. In some of these situations, staff in the counties and municipalities are approaching public health staff and asking them to provide comments or advice. In these cases, the verbal or written comments are provided to the staff who have requested them. In other cases, the health unit is initiating involvement in a process; offering comments to staff where they are welcomed, and through more formal channels where municipal staff are less receptive to Health Unit comments or involvement. In some situations, the team works very closely with staff in the municipalities

In some of the municipalities in their District, there are no planners, so health unit staff communicate directly with Clerks or CAO's. In the larger municipalities, such as the City of Kawartha Lakes (CKL), health unit staff communicate or work with staff in planning, public works, parks and recreation, tourism and/or economic development (HKPR, 2010).

To a large extent, the work with these municipalities and counties is opportunistic; health unit staff become involved in a process such as the review of an official plan, when they see the opportunity to

influence the built environment. Staff have also provided input on funding applications with respect to health and the built environment, and in one case (Haliburton County) worked jointly with the county on a comprehensive *Share the Road* campaign.

By working with municipalities in a variety of ways, Health Unit staff have positioned themselves and their partners as credible resources. Over time, this has resulted in municipalities looking to the Health Unit for input on a broad range of municipal projects (e.g. official plan reviews, funding applications, master plans, trail development strategies).

Issues Sparking Interest

Different issues tend to spark interest from different agencies and municipalities, but active transportation, cycling, and trails appear to be issues of special interest for individuals in different municipalities that the Health Unit deals with.

Cobourg

In Cobourg, there was a particular interest in developing Urban Design Guidelines to ensure that future development is done in a way that supports walkability. The Health Unit worked closely with staff in Cobourg as their Planners developed policy statements and implementation guidelines on Urban Design for Cobourg's Official Plan (HKPR, 2010).

In Brighton, residents, Councillors and the Mayor became very excited when the Health Unit organized a presentation by Gil Penalosa on walkable and bikeable communities. Out of the interest sparked by this presentation, the Health Unit worked with interested community members, councillors, municipal staff and developers to form a Walkable and Bikeable Community Committee. This Committee gave rise to the development of a designated bike route (HKPR, 2010).

Haliburton County

In Haliburton County, there is growing interest in, and awareness among, Councillors in creating walkable and bikeable communities. This interest has evolved over the past five years that the Health Unit and its partners have been engaged in this work, and has resulted in increased investment in infrastructure projects through supportive policies (HKPR, 2010). For example, in the Township of Minden Hills, Council has completed the Riverwalk, a trail in the Village of Minden, including installation of a pedestrian bridge over the Gull River. In Haliburton, Council has developed a Streetscape Plan which aims to make the village more pedestrian friendly that is currently being implemented. This plan has grown out of the health promotion efforts of the health unit and its partners.

City of Kawartha Lakes

In the City of Kawartha Lakes, there is strong support from staff in Planning, and among a number of residents, for the idea of creating a walkable and bikeable community, but there is resistance from some Councillors who represent small rural communities within the area (HKPR, 2010).

Community Partnerships

Health Unit staff work closely with a range of community partners in order to achieve objectives around land use planning, policy and the built environment. This has proven to be a key to the success of the

various initiatives that the health unit has been involved with. Community partners bring a range of skills, expertise and experience to enhance the work of staff. Community partners include representatives from cycling clubs, trail organizations, tourism, police, recreation facilities, and health care organizations as well as numerous community volunteers. Staff also work closely with staff from counties and municipalities who have the ear of decision-makers within their communities (HKPR, 2010).

Cobourg

In Cobourg, the health unit has worked closely with organizations such as Sustainable Cobourg to get messages out to the public and to decision-makers on common goals.

Brighton

In Brighton, health unit staff have worked with citizens, developers, planning staff and Councillors on the Walkable and Bikeable Steering Committee (HKPR, 2010).

Haliburton County

A number of focus groups and forums were held in the development of the Active Transportation Plans for Minden and Haliburton. This helped to build awareness in the community about what makes an active community and why it is important.

In partnership with the Communities in Action Committee, staff organized a *Park the Car*

and *Get Moving* campaign a few years ago that encouraged people to park their cars and walk around town once they got there. This included the creation of maps that identified walking routes and possible destinations. Maps are posted in the community and distributed on paper.

The Communities in Action Committee, in partnership with the health unit, recently received a grant from the MHPS to raise public awareness about how to create active healthy communities. This project will increase awareness about all of the different ways that active communities can be encouraged and who is doing work locally to contribute to this outcome. The health unit was also the primary partner working with the County of Haliburton on an extensive *Share the Road* campaign last year to increase awareness about the benefits of active modes of transportation such as cycling (HKPR, 2010). This project was awarded a 2010 Sustainable Communities Award from the Federation of Canadian Municipalities.



Photo: Karen Pettinella

City of Kawartha Lakes

A lot of the health promotion work in the City of Kawartha Lakes has been directed at educating decision-makers about what makes a walkable and bikeable community. Staff in the health unit have worked closely with the Health for Life partnership, the local cycling club, and local trail organizations to ensure that decision-makers are hearing the same message about what makes an active healthy community from different quarters.

Staff have not done as much work to educate the public about what makes a healthy community. They have been collaborating with their public health counterparts across the Central East Regional Physical Activity Network to create resources that can be used to increase awareness among residents about how to create healthy communities, and why that is important. They have recently collaborated on the creation of a brochure designed to create awareness about the importance of walkable communities. This is a first step in building consistent messaging across the Central East Region (HKPR, 2010).

Research, Background Reports & Policy Papers

Urban Design Checklist

In 2007, using funds provided by the Ontario Ministry of Health Promotion Communities in Action Fund, staff collaborated with their partners in the community coalition, Health for Life, to create a checklist tool that could be used when designing to property development to encourage levels of physical activity among future residents.

This project included several phases: a review of the literature pertaining to the built environment and levels of physical activity; key informant interview with six individuals in the Town of Cobourg (i.e. two planning staff, two public works staff, a developer, and the Mayor); and a survey of residents living in the community of Parkview Hills to identify how the design of their neighbourhood affected their levels of physical activity.

A series of recommendations came out of this project; several directed at PHUs, several directed at municipalities, several directed at Planners, and several at joint social marketing strategies. The project's findings and recommendations are recorded in the report, "Designing Active Communities Together Project", which is posted on the Health Unit's website (HKPR and Health for Life, 2007).

The "Designing Active Communities" project provided background information that was used to develop Implementation Guidelines for Urban Design that were appended to the Official Plan for the Town of Cobourg (HKPR, 2010).

Guidance for the Review of Official Plans

The Health Unit team developed a 9-page document, "Health Guidelines for Reviewing Official Plans" based on their experience in the City of Kawartha Lakes. This is an internal document that is used by their team to guide them when reviewing Official Plans. It introduces the reader to the land use planning process, identifies a few useful resources, provides key words and phrases that should be looked for, and provides a list of questions for the reader to ask him/herself when reviewing the Official Plan. Staff have posted the document on the website for use by other health units. These "Health Guidelines" are supported by a 3-page document, "A Case for Healthy, Active Communities", which

explains to decision makers why it is important to create an active community and how they can support this through policy decisions.(HKPR, 2008; HKPR, 2010).

Comments on Provincial Policy Statement

The HKPR, in partnership with the Communities in Action Committee in Haliburton County, has prepared comments on the Provincial Policy Statement (**PPS**) which is currently under review. These comments emphasize the important impact that the built environment can have on human health, and encourage the Province to expand the notion of "public health and safety" that is referenced throughout the PPS, from one related primarily to exposure to hazards or health protection, to one based on healthy living, which promotes health and prevents injury and disease. These comments propose, among other things, that the Province add a paragraph to Part IV: Vision for Ontario's Land Use Planning System, that says:

"The Province values the health and well-being of its residents, and holds a broad vision of health that recognizes balanced economic, environmental and social development to enhance human health. Areas such as (but not limited to) transportation, planning, recreation and economic development are influenced by and influence the creation of healthy, active, age-friendly communities. The Province recognizes that health is an important element in building economically viable, social vibrant and environmentally sustainable communities" (HKPR and Communities in Action - Haliburton County, 2010; HKPR, 2010).

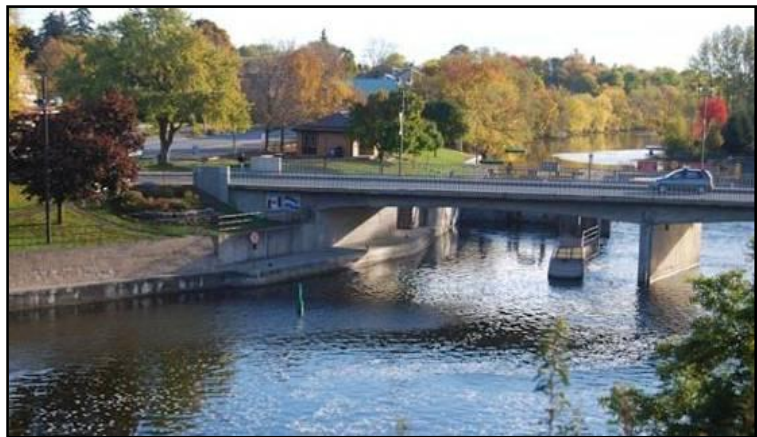
Use of Geospatial Tools

Haliburton and Minden

The Health Unit also hired a student to geo-code public infrastructure that supports active living e.g. sidewalks, benches, and playgrounds so they could be accurately indicated on the Walk, Bike and Be Active Maps that the Health Unit distributes (HKPR, 2010).

City of Kawartha Lakes

The Pathways to Health Committee, that works on active transportation and trails, hired the consultant who created the digitized maps for the City of Kawartha Lakes to use that data to accurately map all of the trails in the City. The resulting digitized maps of the trails are accessible on the committee's trails for health website – www.trailsforhealth.ca . The City's Tourism Department actually refers people to the trails for health website to find information on trails in the area as the City does not have it's own trails website (HKPR, 2010).



The Trans Canada Trail goes through this area and the health unit has representation on the board for the Kawartha Trans Canada Trail. This board has worked with the Geomatics Department at Sir Sandford Fleming College in Lindsay to not only accurately map the trail through CKL, but also identify amenities within a several km radius off the Trail to promote tourism and local businesses (HKPR, 2010).

Growth Plans & Official Plans

The HKPR team has not provided comments on the Growth Plan, which applies to a few of the communities within the District, because the Growth Plan presents a number of complications when applied to rural communities. However, the team has provided comments on official plans on a number of occasions. In these situations, the comments have been based on the Guidelines that were developed by the health unit to promote physical activity, healthy eating and injury prevention

Haliburton County Official Plan

The health unit staff, in collaboration with its community partners, developed comments on the Official Plan for Haliburton County. These comments revolved primarily around active transportation, the creation of pedestrian-friendly environments, and safety and accessibility, particularly for older people who make up a particularly high percentage of the population in this District. The comments recommended, among other things, that:

"Trails are important because they are recreational facilities that are available to everyone with no cost to the user" (HKPR, 2010).

- The Official Plan include an **Over-Arching Commitment** to the creation of *"healthy and sustainable communities"* with reference to language from the Provincial Policy Statement;
- The **Settlement Patterns** section of the Official Plan include:
 - A commitment to encourage *"mixed use and compact urban form"* in urban serviced areas;
 - A recognition that urban serviced areas are *"community hubs"* that should *"facilitate pedestrian mobility and other modes of non-motorized travel"*;
 - A commitment to encourage *"pedestrian and cycling linkages"* between urban unserved areas such as hamlets and villages, and urban service areas;
- The **Policies and Actions** section indicate that the County and local governments will:
 - *...plan to meet the accessibility and mobility needs of children, youth, people with disabilities and seniors;*
 - *...establish minimum targets for affordable housing;*
- The **General Policies** section of the OP indicates that the County will:
 - *...manage the Rail Trail in a manner that is in keeping with the county visions for a sustainable natural environment, and high quality of life for families and individuals;*
 - *....make provisions for a full range and equitable distribution of publicly-accessible built and natural settings for recreation, including facilities, parkland, open space areas, trails, and where practical, water-based resources;*

- ...include paved shoulders in upgrades of county roads where feasible recognizing the country road network as key multi-modal transportation infrastructure;
- Treat the Cycling Master Plan as a "resource for reference".
- **Appendix A** add the "implementation of Haliburton County Cycling Master Plan to the list of implementation projects";
- **Definitions** be added for concepts such as "accessibility", "collaboration", "health", "infrastructure", "mobility", and "multi-modal transportation", and "quality of life" (HKPR, 2009a).

The **new Official Plan for Haliburton County**, that was adopted in January 2010, reflects many of the recommendations made by the Health Unit and its community partners. For example:

- The section on **Land Use Objectives** indicate that: *The County Official Plan promotes sustainable development that achieves efficient land use patterns, supports economic growth, and enables healthy, livable and safe communities....*
- The section on **Settlement Areas** indicates that: *...A mix of housing, employment, parks, open spaces and transportation options will be promoted...*
- The section on **Policies and Actions** indicates that: *Land use patterns and development should promote energy efficiency, improved air quality, and allow for compact development that is designed in such a way to support and encourage active transportation as well as the establishment of future transit. Development will allow for a mix of employment and residential to provide the opportunity for shortened commute times.*
- The section on **Transportation** indicates that: *The County recognizes that recreational trails are important and will encourage the maintenance of existing recreational trails and the establishment of new recreational trails within the context of a year-round recreational community, in a manner consistent with the preservation of the natural environment.*
- This section also acknowledges the **Cycling Master Plan**. It indicates that:
 - "A Cycling Master Plan (July 2008), completed by the Haliburton Highlands Cycling Coalition, sets out a 20-year vision for promoting safe and enjoyable cycling in Haliburton County. The local official plans are encouraged to have regard for the objectives in the Cycling Master Plan and promote the implementation of the recommendations made in the Cycling Master Plan, where economically feasible...." (Haliburton, 2010).

Health staff felt that it was important to have the Cycling Master Plan, that was created outside of the municipal structure, acknowledged in the County's Official Plan to ensure that lower tier governments are encouraged to reference it in their planning processes and to implement it (HKPR, 2010).

Official Plans for Local Municipalities within Haliburton County

The health unit staff in collaboration with their community partners also submitted comments on Official Plans for the local Municipalities of Dysart et al. and Algonquin Highlands that are within Haliburton County. In all of these cases, the Health Unit staff have prepared the detailed comments on the Official Plans in collaboration with their community partners. In each case, the comments have had a substantial impact on the final language in the Official Plans approved by the local municipalities (HKPR, 2010).

Official Plan for Dysart et al.

In Dysart et al., where 23 per cent of the residents are age 65 and older, the Health Unit and its partners recommended the addition of an objective that promotes the development of "healthy, active, age-friendly communities". The comments also identify opportunities in the Official Plan to affirm the municipality's commitment to:

- *mixed use, compact development that meets a range of transportation options;*
- *"...the provision of active transportation infrastructure...*
- *...communicate with the County regarding county road projects as they related to local priorities regarding walking and cycling";*
- *...have regard for the recommendations in the Haliburton Active Transportation Plan and the Haliburton County Cycling Master Plan;*
- *...the provisions for a full range and equitable distribution of publicly-accessible built and natural settings for recreation, including facilities, parklands, open space areas, trails, and where practical, water-based resources (HKPR, 2009b).*

The current draft of the Official Plan for the Municipality of Dysart et al. reflects the comments offered by the health unit and its community partners. For example, the **Basis and Objectives** sections refer to the Cycling Master Plan and the Active Transportation Plan developed by the health unit and its community partners:

....The Municipality recognizes the value of projects undertaken by community groups and where appropriate, incorporates policy to support these initiatives. The Built Form Guidelines, the Haliburton County Cycling Master Plan, and An Active Transportation Plan for the Village of Haliburton provide additional background and context for the policies of this Plan (Dysart, 2010).



Photo: Sue Shikaze

The Dysart Official Plan has an entirely new policy section entitled **Active Transportation and Recreation Trails**. This policy makes mention of the Active Communities Charter as "*a framework for planning and decision making*". It also speaks to the **Active Transportation and Cycling Master** plans as "*resources to help inform future infrastructure planning, especially regarding road maintenance and development*".

Official Plan for Algonquin Highlands

Similar comments were submitted by health unit staff in collaboration with their community partners on the Official Plan for **Algonquin Highlands**. In this case, comments were also offered to encourage the development of a broader range of housing options within the community. For examples, for the section on **Settlement Areas**, it was recommended that the following policy be added: *The following housing types will be permitted in settlement areas: single unit, two unit, semi-detached, and multi-unit.*

The Planning Consultant for the Township has responded positively to many of the comments and recommendations offered by the health unit and its community partners. Most of the comments regarding healthy, active communities, active transportation infrastructure, planning for pedestrians and cycling have been adopted. The revised Official Plan also includes a section in the **Vision** that speaks to the health and well-being of its residents:

The Township values the health and well-being of its residents, and holds a broad vision of health that recognizes balanced economic, environmental and social development to enhance human health. It is further recognized that health is an important element in building an economically viable, socially vibrant and environmentally sustainable community (Algonquin Highlands, 2010).

Official Plan for City of Kawartha Lakes

The City of Kawartha Lakes just completed its growth conformity exercise and approved its new Official Plan. Staff in the health unit are very excited about some of the language that they were able to get included in the new Official Plan. The Heart Health Committee, that is chaired by the staff in the health unit, contracted the services of a planning consultant to propose "healthy community" language that could be incorporated into the City of Kawartha Lakes Official Plan. Funding for this work came from the Ministry of Health Promotion Heart Health project funds.



Working from the City's existing Official Plan, the consultant proposed policies and language throughout the entire document. The proposed changes were based on a review of the policies in the existing or draft Official Plans for 18 municipalities in Ontario. The proposed changes address issues related to the creation of an active, healthy community including active transportation infrastructure and development patterns that support active transportation. For example, it was recommended that:

- The Official Plan include a **Vision Statement** that commits the City to:
 -ensure the development of a healthy and sustainable community for the present and future residents of the City...
 -ensure and promote active transportation, connectivity through the linear park network, through servicing and transportation planning that support pedestrian and cycling movements...
- The section on **Housing**:
 - Promote development at density levels which would support pedestrian and cycling as forms of transportation and support transit use;
 - Promote residential development that is designed and planned for encouraging walking and enhancing connectivity for safe and convenient access between community facilities, schools, parks, trails, recreational and institutional facilities; and

- *Promote high quality, well-linked public open spaces in residential areas;*
- The section on **Community Facilities** indicates that:
 - *When considering secondary plans and development applications, the City shall pursue the connection of trails among local communities and beyond City boundaries;*
 - *In cooperation with local communities and adjoining municipalities and trail associations, the City will identify sections of the City Road system for which trails and connecting trails can be developed;*
 - *With cooperation and support from the local communities, shall develop an **Active Transportation Plan** which should include, as a minimum, include:*
 - *An active transportation system map identifying existing/proposed sidewalks, multi-use trails, and associated facilities, including proposed connection to the City Trail System;*
 - *Policies requiring the provision of sidewalks and/or multi-use trails through all new development areas;*
 - *Policies outlining the requirements and conditions related to the dedication of lands in new development areas to complete future trail/sidewalk connections identified in the Trails Master Plan;*
 - *Policies and plans that identify where new sidewalks and/or trails should be provided through existing built up areas;*
 - *Policies requiring the provision of secure bicycle racks/shelters, showers and change rooms, and sidewalk connections between buildings and municipal sidewalks for all new community centres, schools and other public use buildings, meeting halls, and major employment land uses that meet a minimum floor space threshold.*
- The section on **Transportation** commits the City:
 - *"To develop a balanced transportation systems that integrates all travel modes: walking, cycling, public transit and the private vehicle..."*
 - *"To promote land use patterns and densities that foster strong live-work relationships and can easily be accessed by cycling and walking";*
- The section on **Municipal Roads** indicate that:
 - *"Sidewalks shall generally be required on both sides of any road";*
 - *"Wider sidewalks will be encouraged in the road allowance on major roads"; and*
 - *"Street furniture including sitting areas, lighting, low level plantings, will be encouraged to create a vibrant pedestrian environment" (Cumming, 2009).*

The proposed changes, submitted to the Planning Department, were largely adopted in whole by the City of Kawartha Lakes (HKPR, 2010).

Master Plans

The HKPR team has commented on Transportation Master Plans, Trail Master Plans, Active Transportation Plans. In each case, the comments are based on the Guidelines developed by the team or on new research in the field.

Haliburton County - Active Transportation Plans

In Haliburton County, where local municipalities do not have the resources to develop Active Transportation or Cycling Master Plans, the health unit and its community partners found the funding and hired consultants to help them develop these plans, which were then presented to the local municipalities. This is a great example of how the public health unit and its partners can enhance the capacity of municipalities in rural areas where staff and financial resources are often limited.

Villages of Haliburton and Minden - Active Transportation Plans

Active Transportation Plans were developed for Haliburton and Minden. These Active Transportation Plans include:

- Background arguments such as health arguments that support the need to develop active transportation in communities;
- A summary of the requirements in the Planning Act and the Provincial Policy Statement that related to active transportation;
- A summary of the other activities, commitments, and plans in the community that are related to active transportation;
- The identification of the primary barriers to active transportation in the particular community based on community engagement;
- The identification of "hotspots" from surveys and focus groups;
- A demographic profile of the community;
- Alternative design concepts prepared for each of the hotspots identified; and
- Recommendations and Implementation Strategies (CIA, 2008; CIA and Dysart, 2009).

Each of these Active Transportation Plans contains a number of recommendations related to education, public awareness, infrastructure and policies. The recommendations reflect community-based research. In both Dysart and Minden Hills, the Active Transportation Plans have been adopted as resources by the local municipalities for which they were developed (HKPR, 2010).

Haliburton County - Cycling Plan

The Health Unit collaborated with the local Cycling Coalition to develop a Cycling Plan for Haliburton County as well. Funding was secured and a consultant was hired to develop a Cycling Master Plan for the entire County. Once developed, the Plan was presented to the County, which has identified it as a resource for planning in their recently amended Official Plan. (HKPR, 2010).

Haliburton County - Streetscape Plan

In Dysart, the adoption of the Active Transportation Plan for the Village of Haliburton gave rise to the development of a Streetscape Plan for York and Main Streets in the centre of the Village of Haliburton.

The local municipality has secured funding for the implementation of the first phase of this Plan, which is directed at York Street. York Street was identified in the Active Transportation Plan as a "hot spot" because of the high volume of traffic and pedestrians. It was a street with poor lighting, no curbs, and discontinuous sidewalks where the parking bled into the street. Under the Streetscape Plan, it is being rejuvenated into a street with curbs, continuous sidewalks, and new lighting to become safe, accessible, and inviting for pedestrians (HKPR, 2010).



Photos: Sue Shikaze

Brighton - Recreation, Trails and Greenspace Master Plan

In Brighton, health unit staff commented on the draft Official Plan and introduced the Active Communities Charter. Health Unit staff were then invited to participate in the Steering Committee that provided advice on the development of the Recreation, Trails and Green Space Master Plan. In this process, public health unit staff introduced the "wellness concept" to the process (HKPR, 2010).

City of Kawartha Lakes

Land use planning processes are a little more formal in the City of Kawartha Lakes. Plans are developed by consultants for the City, but are not always approved once completed because of contradictory views held by the elected representatives.

Secondary Plans, Subdivision Plans & Site Plans

Cobourg

While change is slow in coming to Cobourg, there have been some concrete examples of gains. For example, in Cobourg, there is one community that was built to the new Urban Design Guidelines that has garages at the back of houses, a walkable design, and a fruit market within walking distance (HKPR, 2010).

Haliburton County

There are not any secondary plans in Haliburton County. There have been a few opportunities to comment on site plans for commercial developments where issues related to pedestrian access and safety have been raised by health staff (HKPR, 2010).

City of Kawartha Lakes

Now that the Official Plan has been finalized, secondary plans will be developed for the four urban centres - Lindsay, Fenelon Falls, Bobcaygeon and Omemee in the City of Kawartha Lakes. (The City has been amalgamated from 16 communities.)

Subdivision Plans and Site Plans

The health unit does have the opportunity to comment on subdivision plans and site plans. Because the Province's Growth Plan applies to the City, the developers, some of whom are from the GTA, understand that they have to bring forward subdivisions that have fairly good densities, mixed land uses, mixed housing, and sidewalks. When the health unit does comment, the comments are related more to connectivity for sidewalks and trails. Staff find that densities, housing mixes, and land use mixes are different for rural areas than for urban centres.

Staff have also had the opportunity to comment on a few site plans for commercial developments. In these cases, staff offer comments about the need for safe and easy access to doors, about the need for sidewalks, and about the need to provide bike stands to support active transportation (HKPR, 2010).

Environmental Assessments & Certificates of Approval

As a result of advocacy by the health unit, community partners, and residents, the County of Haliburton has begun to include paved highway shoulders when they re-surface County roads. This effort initially came about when an Environmental Assessment (EA) was conducted on the re-surfacing of one stretch of highway. In this case, an EA was conducted because the stretch of highway went through an environmentally sensitive area such as a wetland or marsh. This effort was successful in part due to the work that the health unit and its community partners had done to educate the community about the need for paved shoulders in the years leading up to this situation (HKPR, 2010).

Addressing the Health of Low Income Populations

Walkability

Health unit staff believe that any work done to improve the walkability of communities or to create opportunities for walking within communities is work that can have a positive impact on the health of low income populations (HKPR, 2010).

Join In Campaign

In Northumberland County, the health unit has been working on the *Join In Northumberland* social marketing campaign. This campaign, which has been underway for about two years, seeks to make physical activities free and accessible to all people in the community regardless of income. Tools have been developed that can be used by grassroots organizations to make themselves "access friendly". These tools help organizations to identify when policies or practices might be preventing people from engaging in activities because of financial limitations. The tools help organizations to develop policies and practices that can be used to address these limitations (HKPR, 2010).

The *Join In campaign* is now being developed for the City of Kawartha Lakes as well. The point is to ensure that all children and adults have access to recreation, whether that is facilities or programming that meets their needs. It focuses on the education of municipal staff and organizers to see "recreation" as a health imperative, not simply a service that is available to those who can afford it and access it. Part of the program is also letting citizens know what recreational opportunities are available and the programs that might make them more affordable or accessible to people. The link to the built environment has to do with getting citizens and local municipal staff to think about making recreational opportunities accessible to all citizens and communities (HKPR, 2010).

Health Promotion & Public Awareness

The HKPR team has developed a whole Toolkit of materials that can be used by grassroots organizations to promote active living and safe and walkable communities. The Toolkit, which is posted on the health unit website, provides community groups with resources that can be used to advocate for change within their communities such as an Active Communities Charter (HKPR, 2010).

The Active Communities Charter was developed by staff, in consultation with their community partners, to guide their work and that of their community partners on the issue of creating healthy, active communities. It was endorsed by the BOH, which gives it added authority. The Charter has been used as a foundational piece for educating community organizations, to help them understand their role in the process. Health Unit staff and their community partners have also been taking the Charter to the local municipalities and asking them to endorse it or to develop a commitment similar to it. To date, two local municipalities within the District have adopted it, and one has referred to it in its official plan (Dysart et al)(HKPR, 2010).

Complementary & Contradictory Health Messages

Because the Physical Activity team in HKPR has not coordinated its work with the Environmental Health team on issues related to the built environment, staff cannot identify any situations where the health priorities or messages might be contradictory or complementary. Between the Physical Activity and Injury Prevention team, there are many instances where the health evidence and messaging are complementary and supportive of one another in terms of the built environment (HKPR, Oct 2010).

Issues Not Adequately Addressed through Available Processes

Lack of Transit

There is no transit in any of the communities in this District except in Lindsay, which has two bus routes. There is a real need for transit to serve the outlying communities but there is no approved plan to provide it. This is a tough issue to address given how dispersed the population is for much of the District.

There are shuttle buses in a few communities such as Trent Hills and Cramahe. In these cases, funding has been secured from Community Care to transport residents from outlying communities that have limited services to larger centres for medical appointments and/or shopping.



Photo: Sue Shikaze

In Haliburton County, the health unit has been advocating, with some success, for paved shoulders on County Roads to encourage more cycling and provide an alternative means of transportation between communities for those who cannot drive or who do not have vehicles (HKPR, 2010).

There are not enough people in rural neighbourhoods to support public transit or bus services, but there are many people living in rural neighbourhoods who do not have transportation to services, jobs and recreational facilities. It is difficult for Health staff to know how to address this problem. Often times, people live in rural areas because housing is affordable or because they plan to retire there, but once they are out there, they may not be able to afford vehicles or to drive vehicles that provide them with access to the services they need. So, at some level, this issue is tied to the need for more affordable housing in town, particularly for retirees (HKPR, 2010).

Evaluation

The Health Unit always evaluates projects that are funded, but it is very difficult to evaluate the impact of this work because of the long time that it takes to see the results of policy changes and health promotion on the built environment and public attitudes and behaviour (HKPR, 2010).

Organizational or Mandate Issues

The new Ontario Public Health Standards make it clear that health staff should be working on built environment issues with partners in the local municipalities. With the re-organization of the Physical Activity team in HKPR to a Healthy Communities stream with a policy focus, staff will have the opportunity to extend their work on the built environment to other health issues such as injury prevention and access to healthy foods. It will also allow staff to fold in some of the work that they have

been doing to create age-friendly communities. It may also provide them with a greater opportunity to address the built environment as it relates to social cohesion and mental health (HKPR, 2010).

Research, Policy & Resource Needs

It would be helpful to have better language in the Provincial Policy Statement that supports the link between health and the built environment. Staff in HKPR feel that efforts need to be focused more on advocacy for improved provincial legislation rather than on the creation of new resources. Some great resources have been produced. For example, the report prepared by the Ontario Ministry of Municipal Affairs and Housing (MMAH) and the Ontario Professional Planners Institute (OPPI), "Planning by Design - A Healthy Communities Handbook" and the Simcoe Muskoka District Health Unit report, "Policy Statements for Official Plans" (HKPR, 2010).

Haliburton Kawartha Pine Ridge District Health Unit Resources

- For reports and health promotion resources see: Active Communities Toolkit:
<http://www.hkpr.on.ca/healthy-lifestyles-master.asp?id=3270> www.communitiesinaction.ca
- www.cyclehaliburton.ca
- <http://www.hkpr.on.ca/healthy-lifestyles-master.asp?id=3270> (link to the Healthy active communities toolkit)

B Public Health Units - Rural Areas

3. Simcoe Muskoka District Health Unit

Interview Participants

Corporate Service

Dr. Charles Gardner, Medical Officer of Health
Megan Williams, Health Promotion Specialist

Healthy Living Service

Sherry Diaz, Public Health Nurse, Chronic Disease Prevention
Erika Haney, Public Health Nurse, Chronic Disease Prevention
Doug Ironside, Public Health Nurse, Injury and Substance Misuse Prevention

Health Protection Service

Marina Whelan, Manager, Health Hazard Prevention and Management
Brian Milligan, Public Health Promoter, Health Hazards

Background

The Simcoe Muskoka District Health Unit (**SMDHU**) covers a geographic area of 8,731 square kilometres. It captures two separated Cities, two regional governments, the County of Simcoe and the District of Muskoka, and 22 local municipalities. This healthy unit covers a population of approximately 479,800, with the majority living in Simcoe County (approximately 422,200) and about 12 per cent living in the District of Muskoka (approximately 57,500). The communities in this health unit are mostly rural with a few urban centres such as Barrie and Orillia which include suburban areas (SMDHU, 2010).

The SMDHU is an independent PHU; it does not belong to a regional government or a separated city. It reports to a BOH that includes nine elected representatives; four from Simcoe County, two from the District of Muskoka, two from the City of Barrie, and one from the City of Orillia. The BOH also includes up to five citizens appointed by the Lieutenant Governor in Council through the Provincial Appointments Secretariat (SMDHU, 2010).

Separated Cities

- City of Barrie
- City of Orillia

Simcoe County

- Bradford-West Gwillimbury
- Clearview
- Tiny
- Wasaga Beach
- Innisfil
- Essa
- New Tecumseh
- Oro-Medonte
- Collingwood
- Midland
- Adjala-Tosorontio
- Penetanguishene
- Ramara
- Severn
- Springwater
- Tay

District of Muskoka

- Bracebridge
- Huntsville
- Gravenhurst
- Lake of Bays
- Muskoka Lakes
- Georgian Bay

Health Priorities for Land Use Planning Processes

The following priorities drive the health unit's work on the built environment and land use planning processes:

- Chronic disease and obesity related to a lack of physical activity;
- Chronic disease and obesity related to poor nutrition and poor access to healthy and affordable food;
- Illness and chronic disease related to poor air and water quality;
- Vehicle-related injuries and deaths for vehicle occupants, pedestrians and cyclists;
- Poor mental health related to isolation and social exclusion; and
- Illness and chronic disease related to second-hand smoke (SMDHU).

Organizational Structures

Building Healthy Communities Specialist

Staff in the health unit agree that the temporary creation of a Building Healthy Communities (BHC) Specialist position was pivotal to their evolving success on issues related to the built environment. Several years ago, work on the built environment was incorporated as a priority initiative in the health unit's Strategic Plan 2007-2010. It had been identified as a priority by several teams within the health unit but it was felt that the issue needed to be integrated into the work of the entire health unit and coordinated across the agency. So, the health unit created a BHC Specialist position to guide the process of coordination and integration over an 18-month period in 2008 and 2009 (SMDHU, 2010).

"The built environment is the issue of our day; it is the issue by which future generations will judge us." Dr. Gardner, MOH, SMDHU.

This BHC Specialist had the task of coordinating program planning related to healthy communities across teams within the health unit. She became the contact person for all of the local and regional municipalities with which the health unit works. She also conducted research work to support and inform the work of the health unit (SHDHU, 2010).

Building Healthy Communities Committee

The health unit formed a Building Healthy Communities (BHC) Committee in 2006 upon the identification of the need for the agency to further explore the links between health and the built environment and to determine what role the agency could play in creating healthier built environments. The BHC Committee provided direction and advice to the Building Healthy Communities Specialist during her 18 month term. This Committee included the Medical Officer of Health, the Directors of the Health Protection Service and the Healthy Living Service, three Managers, two Health Promotion Specialists, and one staff person from Clinical Services. The Committee developed Operational Plans to address the built environment and a Sustainability Plan that identified how the work would be sustained over time (SMDHU, 2010).

In-Service Training

One element of the Operational Plan was in-service training to ensure that all staff in the health unit understand how the built environment can affect the health of citizens. In 2008 the agency's Staff Education Days were devoted to health and the built environment. There was also a built environment component to the 2009 Staff Education Days. Service areas also devoted some of their in-service training time to this topic. For example, during a Healthy Living Service in-service session, staff were encouraged to think about the ways in which they could integrate built environment considerations into all aspects of the health unit's work and operation. This training included workshops with speakers and a bus trip to Orillia where they were shown examples of built environment concepts that had been discussed such as brownfields, infill development and infrastructure that impacts on active transportation, injuries, air quality and water quality (SMH DU, 2010).

Lead by Example

The Health Unit has taken the position that every team within the Health Unit must consider the impact of the built environment on health even if it is only to ensure that its services are accessible to all members of the community (e.g. clinics are being sited in the community at sites serviced by transit) (SMDHU, 2010).

On-Going Healthy Communities Structure

Today, built environment work is integrated into the operational plans of several program areas. The MOH is still involved at the agency level addressing broad policy and relationship-building initiatives. The Director of Health Protection is the Executive lead in charge of implementing the Sustainability Plan. The Managers of Chronic Disease Prevention and Health Hazards, along with the Health Promotion Specialist, coordinate official plan reviews.



The BHC Specialist, who has returned to her previous position as Health Promotion Specialist for Corporate Service, coordinates many of the agency's broad initiatives related to the built environment. Many staff are involved in a variety of program activities related to built environment work. Policy issues are taken to the BOH for support, direction and advice. Each team within the health unit has priority areas for which they are responsible:

- The Chronic Disease Manager and her team address issues associated with physical activity, active transportation, walkability, food access, sun safety and tobacco;
- The Health Hazard Manager and her team address issues associated with air quality, water quality, protection of greenspace, environmental sustainability, protection of trees/forest, and

energy conservation. Many of these "issues" relate to the mitigation of, or adaptation to, climate change;

- The Injury and Substance Misuse Prevention team address road safety and design, injury prevention, and personal safety; and
- All teams address, where possible, issues related to social cohesion, mental health and well-being, equity and the social determinants of health (i.e. housing, employment).

When it comes to the review of official plans and other planning documents that have the potential to be "cross-cutting", review teams are struck with staff from Health Hazard, Chronic Disease Prevention and Injury Prevention. These teams get direction and advice from three advisors, the Health Promotion Specialist for Corporate Services, the Manager of Health Hazards, and the Manager of Chronic Disease Prevention. The Health Promotion Specialist for Corporate Services continues to support and guide coordination on all issues related to the built environment (SMDHU, 2010).

Relationships with Municipalities & Planning

Through the Strategic Planning process, the health unit identified the need to develop relationships with planning staff in the two cities, two regional governments, and 22 local municipalities within its district. Staff within the health unit have utilized a number of different strategies for doing so. For example, they:

- Co-hosted a World Town Planning Day with the Ontario Professional Planners Institute in Orillia in 2007 to engage Planners and decision-makers from different municipalities across their region in a discussion of healthy communities;
- Conducted workshops on healthy communities with municipal staff in the Cities of Barrie and Orillia;
- Have used the BOH meetings as an opportunity to engage elected representatives from regional and local municipalities on the issue of health and land use planning; and
- Provided copies of their "Policy Statements for Official Plans" document to planning staff and elected representatives in the local and regional municipalities in their district (SMDHU, 2010).

The relationship with local municipalities is evolving so that staff in municipalities are now approaching the health unit with requests for its participation in processes. For example, the health unit has been asked by the Manager of Planning in Barrie to participate in the review of a secondary plan for an area that will house 70,000 residents where there is a desire to develop "an award winning subdivision" (SMDHU, 2010).

Lessons Learned

Health unit staff noted that is essential to have the health research and policy documents to support their work in this field. Activities in this field can bring staff into adversarial situations and/or legal processes such as appeals to the Ontario Municipal Board where it is essential that they are "armed" with well documented health evidence and best practices (SMDHU, 2010).

It can be very helpful to bring the MOH into the land use planning processes at pivotal decision points (e.g. Council consideration of Urban Design Standards Manual). In small communities, where

Councillors may be facing a great deal of pressure from those whose financial interests may be impacted by changes in planning policies, it is helpful to have the authority of the MOH to reinforce the recommendations made by staff (SMDHU, 2010).

Health unit staff indicated that policy changes and community engagement must go hand in hand. They have seen communities invest in trails and buses that are not used by the public because they were introduced without a community engagement process, and they have seen communities such as Collingwood introduce buses that are heavily used by the public because the service was introduced with a strong community engagement program (SMDHU, 2010).

Issues Sparking Interest

There are a number of issues where local or regional governments would like the health unit to become involved. In each case, the health unit considers the value of getting involved in terms of its Strategic Plan and long-term goals. There are a number of local issues where the health unit will not get involved because of the resources that could be involved. The health unit is trying to direct its resources "upstream" at policy solutions and actions that will provide the maximum impact with its limited resources (SMDHU, 2010).

Research, Background Reports & Policy Papers

Simcoe County Child Health Survey

In 2003, the health unit conducted a survey in Simcoe County that was directed at children's health. The survey was directed at children in collaboration with two school boards in Simcoe County. It was conducted with an awareness for the health studies that have demonstrated a link between children's lifestyles and: an increase in the incidence of childhood overweight, obesity and Type 2 diabetes; and the potential for earlier onset of other chronic diseases such as cardiovascular disease and some cancers. A representative sample of grade 1 children was targeted. Teachers were interviewed in person. Parents were interviewed by telephone. Measurements of height, weight and Body Mass Index were conducted on children (SMDHU, 2004a).

The study found that, outside of school, only one half of children were getting the total physical activity recommended by Canada's Physical Guide for Children (i.e. 90 minutes each day including 30 minutes of aerobic activity), and during school hours, only 20 per cent of children met the target for organized physical activity of 30 minutes per day. The survey found that the levels of physical activity were positively correlated with access to supportive environments such as neighbourhood parks and negatively correlated with time spent in front of the television, video games and computers (SMDHU, 2004a).

The study also found the majority of children were not meeting the minimum recommendations in Canada's Food Guide to Healthy Eating. The study found that many children eat snacks or meals in front of the television, only half of the families eat dinner together, and one third eat ready-to-eat meals, and more than one half eat one or more meals in restaurants each week (SMDHU, 2004a).

The study found that 25 per cent of the children were at risk of becoming overweight or obese. This percentage was significantly higher than the Centres for Disease Control and Prevention reference for children of a comparable age (SMDHU, 2004a).

Literature Review on Health and the Built Environment

This 135 page literature review examined the health literature related to the built environment, using reviews conducted by other agencies, with a focus on physical activity, injury prevention, air quality, water quality, mental health and social capital (SMDHU, 2007).

Originally, this report was prepared to support the health unit's involvement in the review process for the Growth Plan for the Simcoe County. The County invited the MOH to participate in the process so the review was prepared to support that process. It has since been used to inform and support the health unit's work in this field (SMDHU, 2010). It has also been used by other health units in Ontario that are active in this field. For example, staff in HKPR use this literature review to inform and support their comments (HKPR, 2010).

Policy Document - Policy Statements for Official Plans

This 26 page document has been prepared in response to a needs assessment that indicated that public health staff and local municipality staff needed a resource that identified the policies that could/should be incorporated into official plans to support the creation of healthy and sustainable communities (SMDHU, 2010).

The document was prepared by health unit staff with support from a planning consultant. It reflects health unit staff experience from reviewing official plans and health literature, and the input of external partners. It is organized into five sections: environment; injury and safety; physical activity and sun safety; food access; and social cohesion and well-being. Each section includes objectives, planning policies, and implementation activities for the short-term, medium-term and long-term (SMDHU, 2010a).



This document is used internally by staff to assist them with the review of official plans. It has also been shared with all of the local and regional municipalities in the region to inform them about the types of policies that the health unit is looking for in order to address its health priorities. It has also been shared more broadly with other health units and organizations across Ontario (SMDHU, 2010).

WalkON Survey

In 2008, the Health Unit conducted a survey in Simcoe Muskoka to understand the awareness, attitudes and practices of residents with regard to walking and cycling. The *walkON* survey, developed collaboratively by staff from six PHUs in the Central West region of the Province, was used for the survey. It was conducted on 400 respondents who were randomly selected from across the district. Every township and municipality in the district was represented among the respondents who seemed to represent the district well in terms of age patterns and urban/rural mix (SMDHU, 2010; SMDHU, 2008).

The survey found that:

- When making the decision of where to live, the vast majority of respondents thought that it was very important or somewhat important to live in a neighbourhood with little or no traffic (90%), a big yard or garden (86%) and a sense of belonging (86%);
- Over 85 per cent of survey respondents felt their ability to be physically active was impacted by having roads, sidewalks, and pathways that were in good condition, connected to each other, and well-lit at night, as well as having parks within a 5-10 minute walk from their neighbourhood;
- Just under half of the survey respondents valued being within a 5-10 minute walk of stores and restaurants, about one third valued being a 5-10 minute walk from schools and public transportation, and about one third valued being within walking or cycling distance from work (SMDHU, 2008).

The health unit staff concluded that the survey identified the need for:

- A community engagement campaign that increases awareness and knowledge about the term and concept of “walkable communities”;
- Showing the public images of desirable neighbourhood characteristics of walkable communities in real settings; and
- Programming efforts that work towards action on creating walkable communities (SMDHU 2010; SMDHU, 2008).

Use of Geospatial Tools

The health unit has not had the opportunity to use geospatial tools for its work on the built environment although it is eager to do so. Staff at the health unit are working with the Association for Public Health Epidemiologists of Ontario to develop indicators that can be used as surveillance tools for public health. The three indicators that have been developed to date for the built environment all require the use of geographical information systems (GIS) (SMDHU, 2010).

Growth Plans & Official Plans

Official Plan Review Process

Over the last few years, health unit staff have provided comments on official plans for Barrie, Orillia, Wasaga Beach, Essa, Bradford West Gwillimbury and the County of Simcoe. (The Health Unit has also

reviewed the County's Growth Plan and Huntsville's Unity Plan, as well as several other master transportation plans). There are 20 more municipalities for which they intend to do the same in the coming years. As indicated earlier, when staff review official plans, they do so as a team with the three program areas represented; Chronic Disease Prevention, Injury Prevention, and Health Hazard Prevention and Management. In each case, one team member is the lead responsible for pulling together the comments offered by all three. In each case, staff have been seeking opportunities to address issues associated with active transportation, air quality, protection and conservation of water, sun safety, smoke-free places, injury prevention, social cohesion, food security and food access (SMDHU, 2010).

When working on the first four official plans, staff comments were informed and supported by the literature review conducted by the health unit. Since working on these official plans, the health unit has produced the "Policy Statements" document discussed earlier. This document has made it easier for staff to review official plans because they have a document to guide them both in their review and in their comments. It has been used by health unit staff in their review of the four municipal official plans. Staff have recently learned that, in some cases, many of the comments they have offered have been adopted. The policy statements document has also been used by professional planners in their district (SMDHU, 2010).

Comments Linked to Legislative Authority and Health Evidence

When comments are prepared by the health unit, they are submitted with a letter from the MOH which identifies the legislative authority and health evidence reviews which support the comments being provided. For example, in the letter to the City of Barrie on its Official Plan, it is noted that:

"Our feedback is in keeping with the direction and spirit of the Places to Grow plan and legislation, the Ontario Provincial Policy Statement (2005) and The Ontario Planning Act (2006), all of which direct land use and growth planning toward building strong, safe and healthy communities. Our comments also reflect the evidence outlined in our recently published report: The Impact of the Built Environment on the Health of the Population: A Review of the Review Literature (available at: www.simcoemuskokahealth.org)".

A recent report produced for the BC Provincial Health Services Authority, Creating a Healthier Built Environment in British Columbia (Frank and Raine 2007), confirms the connections between health and the built environment and the influence the built environment has on obesity, physical activity, nutrition and its contribution to injury rates and air pollution....." (Frank and Raine, p.5)(SMDHU, 2010c).

Barrie Official Plan

Health Unit staff noted that there can be significant differences in the official plans for various municipalities. The former Official Plan for Barrie contained very little language respecting the creation of active transportation or healthy communities. This meant that there was a tremendous opportunity for health unit staff to influence the new Official Plan. For example, the health unit staff recommended:

- The addition of an **entire section on active transportation** under the Transportation section of Barrie's Official Plan:

"Active transportation, which includes all forms of human powered, non-motorized transportation, is an important element of Barrie's transportation strategy. The City recognizes Active Transportation as a responsible alternative to motorized transportation that will enhance health and lead to economic and environmental sustainability. The presence of sidewalks and bike lanes in many parts of the City; the existence of bike paths and walking trails along the waterfront; and a functional public transit system, all support active modes of transportation. Active transportation helps keep people healthy and plays an important role in the City's economic development and tourism efforts. The City will continue to support the enhancement of Active Transportation infrastructure and facilities, and through planning policies will strive to incorporate pedestrian/cycling connectivity throughout the community."

- A new policy under the **General Policies** section: *...provision to readily accessible sources of healthful foods, such as grocery stores, community gardens and farmers' markets.*
- A new policy under the **Cultural Heritage** section: *The character of cultural heritage areas will be protected by controlling the number and density of fast food and other formula restaurants.*
- A new policy under the **Business Park** section: *Lands designated Business Park shall support alternative transportation options for the purposes of safely getting to work, including adequate public transit service and active transportation infrastructure such as bike paths, sidewalks, bike parking and lighting.*
- A new policy under the **Community Facilities** section: *Their location should provide safe and accessible routes for pedestrians and cyclists that include sidewalks, bike paths/lanes, signage, traffic signals, speed limits, lighting street furniture and shade structures. Locations should be accessible to pedestrians and cyclists and should reinforce their role as a vital part of the community and minimize the hazards associated with children crossing major roads or rail lines (SMDHU, 2010; SMDHU, 2009a).*

Orillia Official Plan

Health unit staff noted that, with Orillia, the existing official plan contained a great deal of progressive language. In this case, health unit staff offered subtler comments directed at "tweaking" existing language to clarify, broaden or strengthen existing policies. In this case, health unit staff expressed support for the positive elements in the official plan and offered the a number of revisions and/or additions to policies in the existing official plan. For example, they offered the italicized revisions below:

- Under the **Transportation** section: To provide a highly interconnected, efficient and safe system of routes for pedestrians and cyclists *that includes features such as benches, garbage bins, bike racks, crosswalks, lighting and shade.*
- Under **Road Design**: Street furniture shall be coordinated to ensure a consistent and unified streetscape and *shall be strategically placed to provide resting places and shade spots for pedestrians.*
- Under the **Tree** section: *Trees help to clean our air and are also an important natural shade feature that can offer cooling effects and decrease exposure to ultra-violet radiation..*
- Under the **Buildings** section: A pedestrian weather *and sun* protection system...

- Under the **Built Form** section, add: *Affordable housing will be encouraged to locate in close proximity to shopping (including grocery stores, farmers markets or community food gardens), community facilities, and existing or potential public transit routes and active transportation facilities.*
- Under the **Child Care Centres** section add: *...must include an outdoor play area that includes natural or built shade structures...*
- Under the **Elementary and Secondary Schools** section revise the policy to read: *...not be located near major roads or highways. To provide for optimized pedestrian access, elementary schools shall be located to provide for a maximum number of students living within 1500 metres and located within 3000 metres on a transit route for secondary schools.*
- Under **Community Commercial Designation** section, add a policy:
"Commercial sites shall be pedestrian and cyclist-oriented and supported by public transit. Commercial areas will be accessible for pedestrians and will include safety features that will facilitate walking, such as lighting, sidewalks, traffic calming measures, benches and shade."
- Under the **Major Institutional Buildings** section, consider the implementation of a "green roof" policy that would apply to new and existing buildings that meet the green roof policy criteria;
- Under the **Roads** section add:
"... Where possible, cycling lanes will be considered for inclusion on local roads where they would create convenient or key linkages to the cycling network." (SMDHU, 2010: SMDHU, 2010b).

Urban Design Standards - Manual for the Town of Collingwood

The health unit had the opportunity to be involved in the development of an implementation guideline - an Urban Design Guideline - for the Town of Collingwood. This Town experiences a lot of development pressure because it is a winter and summer tourist destination. On a number of occasions, the Town has ended up at the Ontario Municipal Board (**OMB**) when a developer has appealed its decision to deny an application for development. This has been expensive for the taxpayers of the Town and frustrating for the Council because a number of its decisions have been overturned by the OMB.



Consequently, the Town decided to develop a comprehensive Urban Design Standards Manual which is referenced in its Official Plan. This manual, which is about 200 pages in length, includes detailed specifications about the form and design of neighbourhoods. It is hoped that it will put the Town in a

stronger position with developers and the OMB when reviewing development applications (SMDHU, 2010).

Health unit staff advocated for a "seat at the focus tables" when this manual was being developed. Developers involved in the process objected to the involvement of health unit staff, but the Town's Planner, citizens and community organizations supported participation by the health unit. Through this process, the health staff had the opportunity to present health evidence to others involved in the focus groups which supports community designs that foster and support active transportation, public transit, access to healthy foods, and other health priorities. The health unit staff also submitted detailed comments on the draft manual with a covering letter from the MOH which highlighted the many positive elements in the manual (SMDHU, 2010c).

The detailed comments are captured in 10 pages appended to the letter from the MOH. The following are a few examples which demonstrate the breadth and detail that can be captured in an implementation guideline to an official plan. It was recommended that:

- The section on **Residential Standards**, include a statement such as: *"Create residential developments that have minimal ecological footprints where residential green technologies are encouraged"*.
- The section on **Site Layout** include:
 - ...a requirement for hard yet pervious surfacing in these lots to minimize water flow off-site;
 - ...rooftop gardens;
 - ...encouraging LED lights which conserve energy.
- The section on **Buildings** encourage:
 - ... green roofs....
 - ... the capturing of rainwater from downspouts...
 - ...new development [be] required to install collection systems for the purposes of water being used for lawn watering as an example.
- A sub-section on **Road Design Safety Features** be added:
 - Where active transportation networks intersect or adjoin the vehicle network, attention shall be paid to signage, lighting, and street upgrades (i.e. crosswalks, 4-way stops, traffic lights) where necessary, to ensure cyclist and pedestrian safety....
 - Traffic calming will be a street-design priority for residential streets that adjoin a school zone, with traffic-calming amenities such as mid-block speed bumps and four-way stops where appropriate.
 - Guidelines for street width should be addressed, relative to arterial, collector and neighbourhood streets, where in general, priority is given to narrower widths where possible, to provide for traffic calming, especially where roads intersect and adjoin cycling and/or pedestrian networks.
- The section on **Site Character and Content** include: *more opportunities for urban agriculture and access to healthy food such as: space for Farmers' Markets, roof top gardens, placement of small to medium size food retail outlets to ensure access to healthy food in every neighbourhood and expanding the possibilities for community gardens.*

- The section on **Subdivisions** include:
 - *shelter from the sun;*
 - *...the provision of shade structures or features (SMDHU, 2010c).*

When the Urban Design Guideline Manual was presented to the Town Council for approval, health unit staff also made a deputation in support of it. It was approved by Town Council in July 2010 (SMDHU, 2010).

Master Plans, Strategies & Programs

Sustainability Plan

Health unit staff participated in stakeholder meetings and focus groups to assist in the development of the Severn Sound Sustainability Plan. This plan provides sustainability goals and objectives for nine municipalities in north Simcoe and Muskoka. The Councils for the nine municipalities have all endorsed and supported the Sustainability Plan. Community wellbeing, economic prosperity and environmental protection are the three pillars upon which the Plan is based. The Health Hazard Prevention and Management Manager is a member of the implementation steering committee for this Plan.

Secondary Plans, Subdivision Plans & Site Plans

The health unit has made a strategic decision not to review secondary plans, subdivision plans, and site plans because of the resources that would be required to do so when it has so many municipal partners to work with. It has chosen instead to focus staff resources on the review of official plans, research when needed, and health promotion (SMDHU, 2010).

Environmental Assessments & Certificates of Approval

The health unit does not routinely comment on, or become involved in, the review of documents for environmental assessments and certificates of approval. However, in some situations, or by request, the health unit may participate in the review of an environmental assessment in a consultation or advisory role. The health unit may also, if appropriate, review documents and reports that support the environmental assessment, and provide comments as needed (SMDHU, 2010).

Health Promotion & Public Awareness

Built Environment Awareness Campaign

The health unit developed a multi-faceted educational campaign on health and the built environment which includes: five factsheets directed at active transportation, road safety, air quality, food access, and healthy communities; a “Healthy Places” section on the SMDHU website; radio spots and ads in local newspapers; and articles in newsletters (SMDHU, 2010).

Call to Action on Physical Activity

The SMDHU prepared a document entitled, "Simcoe County Healthy Living Strategy - A Call to Action", in November 2004. Drawing on statistics from the Simcoe County Child Health Survey, this document lays out the health unit's Healthy Living Strategy in a concise and accessible format. It then includes five two-page sections directed at five different audiences within the community: community organizations and businesses; health professionals; parents; school communities; and workplaces. Using the strategies recommended by the Ottawa Charter for Health Promotion, each section of the report identifies a number of steps that can be taken by the targeted audience to: develop awareness about the need to increase physical activity and healthy eating; make it easy for people to eat healthy and be active; be involved in their communities to support healthy lifestyles; and advocate for changes that will make their communities healthier (SMDHU, 2004b). This document was the springboard for much of the health unit's work on built environment that has followed (SMDHU, 2010).

Letters to Candidates

During federal, provincial and municipal elections, the health unit has sent packages to candidates to educate them about the importance of the built environment on human health and the role that governments can play. The packages include a letter from the MOH and the five built environment factsheets. For example, for the 2010 municipal elections, the letter sent included the following statements:

"As you engage in the 2010 municipal election process, it is important that you are informed of the impacts that the built environment and land use planning have on health.....These factsheets are being made available to all municipal candidates in Simcoe Muskoka and to the public to provide information about how citizens can help to create healthier communities and how municipalities can provide leadership in making those health enhancing changes...." (SMDHU, 2010; SMDHU, 2010b).

Paved Shoulders

The Injury and Substance Misuse Prevention Team has prepared a briefing note for the BOH on Bill 100, a private member's bill that would require the Province to pave one metre shoulders on all secondary highways. The proposal is intended to make cycling between communities a safe and viable option.

In November 2010, the BOH endorsed the briefing note and a letter of support for the Bill, which included two suggested



changes to the Bill. The packaged was sent to the provincial government and to local members of provincial parliament on behalf of the BOH (SMDHU, 2010).

Active Transportation Workshops

The Chronic Disease Prevention team has been organizing Active Transportation workshops with local municipalities. The local municipalities usually organize the event while the health unit brings resources and information to support the workshop. These community engagement workshops are directed at councillors, staff in the local municipalities, and citizens in the communities targeted. To date, workshops have been conducted in three local municipalities and six more are being organized (SMDHU, 2010).

***I Can Walk* Campaign**

The Chronic Disease Prevention team has also been conducting an *I Can Walk* social marketing campaign that aims to encourage walking among all members of the community. This campaign includes radio ads, public announcements in the schools of some communities, and a walkability checklist that is promoted to citizens, community groups, and municipalities. The checklist allows people to evaluate their neighbourhoods and communities for "walkability" and can be used as an educational or advocacy tool (SMDHU, 2010).

Idling Reduction Campaign

The Health Hazard team conducted an Idling Reduction Campaign for a year. This campaign included a toolkit with examples of Idling Reduction By-laws and Idling Reduction Corporate Policies that could be adopted by local and regional municipalities and other organizations within the community. The campaign also included radio ads and employee education. The explicit goal of the campaign is to reduce emissions of greenhouse gases and air pollutants associated with idling vehicles. The implicit goal is to make people think about the contribution of vehicles to poor air quality and climate change (SMDHU, 2010).

Complementary & Contradictory Interventions

As a rule, the health messages of different teams within the health unit support and complement one another. However, there are occasions when positions of one team may create concerns about health impacts or health messages for another team. For example, while the Injury Prevention team has been advocating for paved shoulders on secondary highways to increase safe travelling for cyclists, this activity does raise some concerns about increased exposure to air pollutants among those who are familiar with the health literature along high volume traffic corridors (SMDHU, 2010).

Addressing the Health of Low Income Populations

The health needs of low income populations is one of the priorities identified in the health unit's current Strategic Plan. The health unit is firmly committed to reducing health inequities in the community and believes that most of its work on the built environment can have great benefits for the health of those

who live on low incomes. For example, the following built environment priorities are seen as strategies that can reduce health inequities:

- Mixed use neighbourhoods that support active modes of transportation;
- Public transit that make jobs, services and other opportunities accessible to people on low incomes;
- Greenspace and parks that provide recreational opportunities for free; and
- High quality affordable housing.

When advocating for these priorities, the health unit emphasizes the benefits for all members of the community, because they believe that is an approach that is more likely to gain support and acceptance from the public and decision-makers (SMDHU, 2010).

Organizational or Mandate Issues

Provincial Ministries

Health unit staff indicated that it can be difficult working on issues such as schools, trails or bike lanes that involve staff from different provincial Ministries who are not aware of each other's policies. At times, it appears that the provincial Ministries are working at cross-purposes and this can frustrate efforts on the built environment. It would be useful if there was some mechanism for addressing cross-cutting issues with all of the provincial Ministries in the room (SMDHU, 2010).

Resource Issues

Staff feel that they do not have the time needed to effectively address the built environment because of other demands on their time. They believe that there could be many health benefits associated with greater involvement in the built environment from the injury prevention and environmental health perspective if they had the time and resources to dedicate to the issue (SMDHU, 2010).

Dedicated Team

Health unit staff feel that it takes a fair amount of time to become familiar with the health evidence and best practices in the field of the built environment. They also feel that it takes time on an on-going basis to stay abreast of the research, review planning documents, engage in land use planning processes, and collaborate with community partners. Often times, staff feel that they are trying to juggle this work around other existing responsibilities, which makes it difficult to do the work well and effectively. They also feel that this work requires certain training and skills (i.e. research, policy analysis, health promotion, community engagement) that are not universal to all disciplines within PHUs. They feel that it may be helpful to have a "dedicated multi-disciplinary team" that has the time to become proficient in the field, the opportunity to get training and experience in the skills that are unfamiliar to their disciplines, and the ability to focus on activities that often require large amounts of time over an extended period (SMDHU, 2010).

Research, Policy & Resource Needs

Health Unit staff indicated that it would be helpful to have:

- A document on planning and public health that could be used to raise awareness about the link between health and land use planning among both planners and public health staff, particularly if it helped each sector to understand the interest of the other;
- A resource that identifies the best practices for the design and development of schools (i.e. that encourages safe access to schools and active modes of transportation);
- Easy access to local and provincial statistics respecting built environment indicators such as obesity rates, levels of physical activity, the burden of illness associated with air pollution;
- Costs associated with different types of infrastructure (e.g. highways, roads, bike lanes, benches, bike racks, paved shoulders) and facilities (e.g. arenas, trails, parks) readily available to assist staff who are trying to shift public opinion; and
- Health care cost estimates associated with various interventions to support health promotion and policy development work (SMDHU, 2010).

Simcoe Muskoka District Health Unit Resources

- Healthy Communities Resources see www.simcoemuskokahealth.org/JFY/OurCommunity/healthyplaces.aspx

C Public Health Units - Urban/Rural Mix

1. Niagara Region Public Health

Interview Participants

Integrated Community Planning Department

Dianne Coppola, Strategic Lead - Public Health Initiatives (Secondment)
(Base Position - Manager, CDIP division)

Chronic Disease & Injury Prevention Division (CDIP)

Tami McCallum, Manager
Jackie Gervais, Health Promoter
Lisa Gallant, Healthy Living Niagara Coordinator

Environmental Health Division

Bill Hunter, Manager

Central Support & Surveillance Division

Deborah Moore, Senior Epidemiologist

Niagara Region

Grimsby
Lincoln
West Lincoln
Wainfleet
St. Catharines
Pelham
Welland
Port Colborne
Niagara-on-the-Lake
Niagara Falls
Fort Erie
Thorold

Background

Niagara Region Public Health (**NRPH**) covers an area of 1,854 square kilometres. It is bounded by the City of Hamilton and Haldimand County to the west, the United States to the east, Lake Ontario to the north, and Lake Erie to the South. This area is governed by a two tier system with the Regional Municipality of Niagara as the upper tier and twelve local municipalities in the lower tier. Niagara Region has a population of approximately 427,421 (2006) with the largest populations in St. Catharines (i.e. 131,989) and Niagara Falls (i.e. 82,184). The rest of the local municipalities in this region have populations ranging from 6,000 to 50,000 (NRPH, 2010).

NRPH is a department within the Regional Municipality of Niagara, a regional government system. Under this system, NRPH's Board of Health is Regional Council, comprising of one Regional Chair and 30 elected Regional Councillors from the 12 municipalities (NRPH, 2010).

Health Priorities for Land Use Planning Processes

NRPH's initial involvement with land use planning issues resulted from having responsibility for the safe operations of private wells and sewage disposal systems in non-serviced areas of the region. Comments were originally provided directly to the local municipality which had requested feedback; currently, comments are coordinated by the Regional Planning staff in effort to streamline the process and provide a comprehensive regional response. NRPH has expanded its focus to include a broader range of health priorities including:

- Improved access to healthy foods; improved air quality;
- The reduction of greenhouse gases;
- Increasing physical activity through active transportation; and
- Pedestrian and cyclist safety and reduced rate of on-road motor vehicle collisions (NRPH, 2011).

Organizational Structures

Niagara Region has three departments with an interest and mandate in Land Use Planning issues: Public Health, Public Works, and Integrated Community Planning (formerly Planning & Development). Each of these areas plays a distinctive role.

Integrated Community Planning Department

In May 2008, Regional Council approved the creation of a new department to streamline community planning efforts which previously had been placed across different corporate departments. In this new department, staff work collaboratively on many of the strategic objectives outlined in the current Council Business Plan 2007-2011 with a strong focus on the development of policy and regional strategies. Integrated Community Planning was formed in January 2009 and is comprised of five divisions:

- Regional Policy Planning (Land Use);
- Corporate & Community Planning;
- Regional Emergency Planning;
- Corporate Communications; and
- The Clerk's Office (NRPH, 2011).



Photo: William Millar, St. Catharines

Niagara Region Public Health has collaborated with this department to provide subject matter expertise and support through a two-year secondment agreement. This collaboration has resulted in a health lens being incorporated into various long-range planning initiatives and documents including:

- Sustainable Communities Policies (Regional Policy Plan Amendment 2-2009);
- Several municipal official plans;
- The transportation demand management framework and policies (Niagara Region);
- The Niagara Falls Sustainable Transportation Master Plan;
- The Healthy Communities Report to Regional Council (ICP 30-2010);
- The Sustainable Niagara planning process;
- The Niagara Sports Commission – Facilities Inventory/Asset Mapping initiatives;
- The Model Bicycle Transportation Policies; and

- Various site plan applications and amendments to municipal secondary plans and zoning by-laws (NRPH, 2011).

Within Niagara Region Public Health

Within Niagara Region Public Health, there are three divisions that address built environment issues with different projects and responsibilities. There is no formal structure to ensure communication and consultation between the three divisions, but there is an informal system built on personal relations that works very well. The following are some of the responsibilities for health and the built environment for each division.

The **Chronic Disease & Injury Prevention (CDIP) Division** has responsibility for:

- Coordinating and supporting the Healthy Living Niagara partnership which is funded through the MHPS Healthy Communities Fund;
- A comprehensive health promotion strategy on active transportation which addresses a number of health priorities; and
- Supporting policy development work as noted in the Ontario Public Health Standards through partnerships such as the OPHA Built Environment Workgroup, citizens groups, and other organizations such as the Clean Air Partnership (NRPH, 2010).

The **Environmental Health Division** has responsibility for:

- Responding to the community on matters related to air quality, water quality, contaminated soil, and "disease clusters";
- Reviewing environmental reports for environmental assessments, certificates of approval, subdivision plans, and site plan applications for issues related to air quality, ground water quality, contaminated soil and noise; and
- Education on issues related to environmental health such as air quality and climate change (NRPH, 2010).

The **Central Support & Surveillance Division**:

- Conducts research and data analyses to support the work of other divisions;
- Investigates "disease clusters" identified by the community; and
- Develops and monitors indicators for the built environment to support the department in this field (NRPH, 2010).

Relationships with Municipalities & Planning

Staff from Niagara Region Public Health connect with Planning and Public Works at the regional level as well as liaise with those departments at the municipal level. Comments on land use planning documents such as official plans for the local municipalities are addressed by the regional planners. NRPH staff have worked with the planners to promote a health lens when looking at official plans (NRPH, 2010).

Community Partnerships

Healthy Living Niagara

Since 1998, NRPH has been the host agency for the Ontario Heart Health Program, now referred to as Healthy Community Partnership, commonly known as Healthy Living Niagara. Healthy Living Niagara is a partnership of 35 community groups and volunteers that have been working together to promote health in the Region. NRPH supports the coordinator position for this partnership which is housed in the CDIP division. The partnership receives in-kind support from the partners and other staff in NRPH (NRPH, 2010).

Active Transportation Committees & Regional Network

Currently, six of the 12 municipalities in Niagara Region have Active Transportation Committees in various stages of development. Three are Committees of Council and three are community-based partnerships. While they all have different names and were created to address different concerns (i.e. increase levels of physical activity among residents or address climate change and air quality) they all have an interest in advocating for policies and infrastructure that support and foster active transportation. There is also a regional network for active transportation, called Active Transportation Niagara Network, which is supported by the CDIP division through the Healthy Living Niagara partnership (NRPH, 2010).

School Travel Planning Pilot Project

Staff from the CDIP division participate in a School Travel Planning Pilot Project along with Healthy Living Niagara, the Active Transportation Niagara Network, the District School Board of Niagara, Niagara Student Transportation Systems, Niagara Regional Police Services, Climate Action Niagara, the Towns of Pelham, Fort Erie, and Grimsby, the City of St. Catharines, and Bridges Community Health Centre. Coordinated and supported by Green Communities Canada, this project will look at ways to increase the number of children who use active transportation to school (NRPH, 2010; NRICPD, 2010).



Photo: Healthy Living Niagara

OPHA Built Environment Workgroup

A CDIP staff person also participates in the OPHA Health and Built Environment Workgroup. This workgroup, which includes public health representatives from across the province, will be doing information sharing and advocacy on issues related to the built environment. For example, the

workgroup submitted comprehensive comments on the Provincial Policy Statement which is currently under review by the Ministry of Municipal Affairs and Housing (NRPH, 2010).

APHEO Core Indicators Project (Built Environment Working Group)

The NRPH Senior Epidemiologist has been participating in the APHEO Built Environment Working Group. APHEO secured funding (2007-2009) from the Public Health Agency of Canada (PHAC) to help develop resources to standardize the reporting of public health indicators across all health units in Ontario. NRPH staff has also provided feedback on the draft indicators (NRPH, 2010).

Brock University

NRPH works with researchers at Brock University on different projects related to issues such as physical activity and environmental health. This relationship is informal and mutually beneficial. Sometimes the NRPH approaches researchers at the university and other times, researchers approach NRPH. For example, the Environmental Health division worked with researchers from Brock to secure federal funding for the development of an early warning system for new and emerging vector-borne diseases in urban areas as a result of climate change. The Environmental Health division is also formally engaged with Brock, local industry, and community leaders to develop a community-based climate change program (NRPH, 2010).

Research, Background Reports & Policy Papers

***walkON* Survkkey**

The walkON survey was developed by the Central West walkON Coordinating Committee. It was developed to understand the levels of awareness about "walkability", and the attitudes and behaviour of residents in the Central West Region towards walking and community design. It has been used to develop *walkON*'s social marketing strategy and will be used as the baseline to evaluate the success of programs offered in Niagara Region (NRPH, 2010).

The survey was conducted by the University of Waterloo's Survey Research Centre for five months in 2007 in seven geographic regions including Niagara Region. The final survey tool, which included 59 questions, was divided into four sections including:

- Knowledge of walkable communities;
- Attitudes towards walkable communities;
- Knowledge of how the built environment impacts health; and
- Barriers to creating walkable communities (CW walkON, 2009).

The survey found that the three components of a walkable community that were most important to people when making a decision about where to live were:

- Having a sense of belonging (87%);
- Having sidewalks and pathways connected to each other (86%); and
- Living within a 5-10 minute walk of parks (80%).

Respondents also indicated that it was important to live in a neighbourhood with little or no traffic (87%) and to have a big yard or garden (78%) (CW walkON, 2009).

For urban respondents, the components of a walkable community most likely to affect their levels of physical activity were:

- Having sidewalks and pathways connected to each other (73%);
- Having roads, sidewalks, and pathways that are in good condition (71%); and
- Having well-lit roads, sidewalks, and pathways at night (62%).

For rural respondents, the components of a walkable community most likely to impact their physical activity were:

- Having trails or pathways within a 5-10 minute walk (47%) or cycling distance of their homes;
- Having paved shoulders on both sides of the road (31%).

Comparisons by gender, age, location, having children under the age of 18 living at home, education, housing type, and income showed that these demographics can impact knowledge, attitudes and perceived barriers to creating walkable communities (CW walkON, 2009).



Photo: Celine Parent, St. Catharines

Environmental Scan - The Active Transportation – THE SHAPE PROJECT

In 2009, an environmental scan was conducted by consultants for the Active Transportation Niagara Network as part of the SHAPE (Safe, Healthy, Active, People Everywhere) Project. This work was made possible through a grant provided by the Government of Ontario's Healthy Communities Fund. This scan included:

- A review of reports, websites and toolkits related to active transportation;
- A review of initiatives directed at active transportation across Niagara Region and central west Ontario by members of the Active Transportation Niagara Network and Regional staff;
- Eighteen key informant interviews with community groups and individuals identified as being knowledgeable about active transportation issues; and
- Five key informant interviews with respondents identified in Phase 1 as having knowledge and perspective on how citizens' groups can best contribute to public policy around active transportation and work with elected officials (ATNNa, 2010).

The environmental scan found that:

- There is a general lack of awareness about active transportation and about how the built environment can support it;
- There is a need for effective communication to educate the public and build awareness of the opportunities for, and created by, active transportation;

- Citizens' groups need to educate themselves about the roles and responsibilities of the Region and local municipalities on issues related to land use planning, as well as, on how to influence decision-making;
- It is essential that citizens' groups develop a coordinated approach to build a critical mass of support for active transportation (ATNN, 2010a; ATNN 2010b).

The scan and literature search led to the development of a toolkit, "Supporting Active Transportation in Niagara: A practical guide for citizens' groups" (ATNN. 2010c).

Injury Prevention Background Paper

NRPH produced a background paper on injury prevention in response to the new Ontario Public Health Standards which indicates that NRPH should address road safety and falls prevention. Prepared over a two year period, the background paper includes local health statistics related to injuries and deaths and an environmental scan of the services that are being offered in communities within Niagara Region for different injuries and/or populations. The report found that in Niagara Region:

- One person seeks emergency medical assistance every 10 minutes because of an injury;
- One person dies every three days because of an injury;
- 69.9 per cent of injury-related deaths are due to suicide, car crashes, and falls; and
- Injury-related deaths among younger residents result primarily from suicide, car crashes, and poisoning (NRPH, 2010b).

The report concluded that falls prevention is the highest priority for action from public health for children under 14 and adults over 60, while on-road motor vehicle collisions are the highest priority for action for residents who are 15 to 59 years in age. This report has been used internally to help NRPH establish priorities for resources and action. It has also been sent to the Public Health and Community Services Committee (NRPH, 2010).

Model Municipal Bicycle Transportation Policies

NRPH has a long history of providing support to the Regional Niagara Bicycling Committee, alongside staff from Public Works and Integrated Community Planning. Historically, NRPH support focused predominantly on education and awareness activities linked to the promotion of physical activity. More recently, the focus has shifted to policy development issues and signage/way-finding (NRPH, 2011). The Policy Task Force recently developed a Model Municipal Bicycle Transportation Policies that local area municipalities could incorporate, in whole or in part, into their Official Plans, Transportation Master Plans, or other planning documents. The model policies were based on a review of the best practices in Ontario and beyond, internal consultation with Regional staff, consultation with staff in local municipalities, and external consultation with community groups. This consultation process included several meetings with the planners



from local municipalities in Niagara Region. The policies, which are grouped into core policies and supplementary policies, have been organized under three main themes:

- Land use and transportation planning;
- Network and facilities; and
- Implementation (NRICP, 2010b; NRPH, 2011).

The Model Municipal Bicycle Transportation Policies were endorsed by the Regional Niagara Bicycling Committee in August 2010 and approved by Regional Council in September 2010. The document was then circulated to local area municipalities with a cover letter that encouraged planning staff to include appropriate policies within their revised official plans (NRPH, 2011).

Growth Plans & Official Plans

Integrated Community Planning Department

Integrated Community Planning provides detailed written comments on a number of planning documents and amendments at both the regional and municipal level. These comments were initially focused on active transportation issues (both policy and infrastructure) but have expanded to include food access, injury prevention (through traffic calming, parking lot considerations and pedestrian streetscapes), sun safety (shade provisions) and social cohesion/well-being concerns (public realm and accessibility issues). Issues pertaining to environmental health were redirected back to staff in the Environmental Health division for comment (NRPH, 2011).

Healthy Living Niagara

Niagara Region Public Health has collaborated with their partners in the community through the Healthy Living Niagara partnership in the preparation of comments on the official plans for the local municipalities. Healthy Living Niagara has enlisted the services of an external consultant with a planning and health promotion background to assist with the review and development of comments on all of the local official plans in Niagara Region (NRPH, 2010). The official plans were examined by the partners using the 3-D approach (i.e. density, diversity and design) that was developed in the San Francisco Bay Area. This approach has been produced to ensure that communities have the population density, the mixed land uses, and the aesthetic design needed to foster active modes of transportation and public transit (HLN, 2010b).

When comments are submitted by Healthy Living Niagara, each comment is accompanied by initials to identify the health benefits associated with the comment offered; 'I' for Injury Prevention, 'P' for Physical Activity, 'M' for Mental Health and Social Cohesion, and 'N' for Nutrition & Food Security. The following are some examples of the comments offered by Healthy Living Niagara on one Official Plan:

- *Under General Commercial:*
 - *Add a policy regarding the location of schools, i.e. "Where possible schools should be located near concentrations of residential uses to minimize travel distance and support walking, cycling and transit use";*
- *Under Environmental Corridors and Linkages:*

- *Include a policy to permit cycling and walking trails on Open Space Corridors (where appropriate), to compliment any existing networks used for both recreation and everyday travel for shopping, school, etcetera;*
- *Integrate Linkages and Corridors within an Active Transportation strategy to create a comprehensive network of trails for both recreational and everyday transportation needs;*
- *Under Streets and Blocks:*
 - *"... should be designed with treed boulevard and sidewalks on both sides and with cycling facilities in keeping with the volume and speed of the street";*
- *Under Neighbourhood Commercial:*
 - *Include features to support accessibility, walking and cycling including amenities such as bicycle parking, lighting, and street-related entries;*
 - *Add a policy to discourage drive-throughs;*
- *Under Design Guidelines for Highway Commercial*
 - *Include provisions for slowing highway traffic in areas where commercial uses exist or are proposed (i.e. gateway features & urban design);*
 - *Include policies to accommodate transit and non-motorized travel to and in the highway commercial area;*
- *Under Greenfield Area where density targets of 50 people and jobs per gross hectare are identified:*
 - *Consider raising the density targets in order to support a higher level of transit service (HLN, 2010b).*

Master Plans, Strategies & Programs

Niagara Region does not currently have a Transportation Master Plan but does have a Transportation Strategy document. Public Works staff at the Region are currently updating this strategy document which may, over time, evolve into the creation of a Transportation Master Plan. Integrated Community Planning are currently involved on the Technical Advisory Committee for a local municipality that is developing a Sustainable Transportation Master Plan. This involvement included attending Public Information Centres and commenting on draft documents and frameworks (NRPH, 2010).

Active Transportation Plans

From 2007 to 2009, Healthy Living Niagara convened workshops in five municipalities in the Niagara Region. These workshops, which were facilitated by a planner contracted by the partnership, were directed at the drafting of active transportation plans with municipal staff, elected officials and concerned citizens (NRPH, 2010).

Local Food Action Plan

Niagara's Local Food Action Plan was developed in consultation with key stakeholders starting in 2008. The final report outlines actions that will help Niagara's food industry grow and promotes:

- Potential solutions to many problems that farmers are facing through the creation of stable and reliable markets for Niagara producers;
- Safe and secure food supply for consumers;
- Economic development through local markets; and
- Opportunities to enhance wine and culinary tourism in the region (NRPH, 2011).

The Local Food Action Plan outlines a number of actions, grouped under the following categories:

- Information Resources and Research - Researching, compiling and providing information from various sources;
- Local Food Network and Infrastructure - Developing and strengthening relationships between farmers and retailers;
- Education and Awareness Raising - Educating and informing consumers about local food options;
- Supportive Policy and Funding - Reviewing policies and procedures from other levels of governments and organizations to streamline procedures and develop best practices (NRPH, 2011).

Niagara Region Public Health staff was engaged in the consultation process and continue to promote community action through various networks and linkages with community organizations (NRPH, 2011).

Secondary Plans, Subdivision Plans & Site Plans

The Environmental Health division reviews subdivision plans or site plans if potential environmental health concerns are identified. For example, they have gotten involved:

- In the review of a subdivision that was planned on a contaminated site; and
- In the review of a proposal to develop a petroleum refinery near an existing subdivision.

The issues addressed in these circumstances vary depending upon the situation and the proposal but can include air quality concerns, water quality issues, contaminated soil and noise (NRPH, 2010).

Environmental Assessments & Certificates of Approval

The Environmental Health division is also involved in the review of reports prepared for environmental assessments and certificates of approval. For example, NRPH has addressed issues associated with:

- PCBs in the sediment of Lake Gibson;
- Concerns over ultra-low frequency sound from a proposed wind farm;
- Petroleum by-products in Lyon's Creek;
- Contamination on a former industrial site being developed as a four-pad ice rink; and
- Noise and air quality for a proposal to develop a Nascar-style Raceway (NRPH, 2010).

Usually, in these situations, the Environmental Health division's role is two-fold. It has a health protection role, and where appropriate will "rule" on these situations using its authority under the Health Protection and Promotion Act and various regulations and standards. However, the division also conducts assessments and reviews of technical reports pertaining to existing concerns or proposed developments and provides support and expertise to agencies such as MOE and local municipalities as

well as community representatives. Niagara Region Public Health has a toxicologist on retainer who assists with the review of human health risk assessments as needed (NRPH, 2010).

Use of Geospatial Tools

Within Niagara Region, GIS services are provided centrally by Corporate Services. A GIS analyst from that team has been assigned to the NRPH and is physically located with the epidemiologist. The GIS staff member works with the department's epidemiologists to collect, analyze and map the information that is important to public health. NRPH is currently collaborating with others departments within the region to geocode facilities and assets such as trails, ice pads, community centres, schools, playgrounds (NRPH, 2010).

While NRPH does have access to many layers of data that belong to the region and/or local municipalities, it does not have access to some health data at a neighbourhood level. Health statistics data such as obesity rates are only available at a census division. For Niagara Region, this means that most of the health statistics are available at the regional level only. This means that the health statistics are not available at the scale that would be needed to understand how health varies across neighbourhoods or in response to changes in the built environment. Some health statistics can be analysed down to a neighbourhood scale but NRPH would have to aggregate years in order to report numbers (since actual counts of people would be too low to report). When dealing with demographic data, NRPH would have to work with Statistics Canada to develop the data for the neighbourhood level. This is expensive and time-consuming work (NRPH, 2010).

Health Promotion & Public Awareness

International Charter for Walking

In 2008, the CDIP division with Healthy Living Niagara began to encourage municipalities and the region to sign the International Charter for Walking. Six municipalities have signed the Charter. For details, please refer to <http://www.walk21.com/charter/default.asp>.

walkON

The *walkON* social marketing campaign is a multi-faceted program developed with five other PHUs in the Central West Region of the province. NRPH and Healthy Living Niagara have been running elements of this program for about six years now. It includes:

- A web-based toolkit with factsheets and resources;
- A walkability checklist; and
- Active transportation workshops.

The resources are available through the website and its community partners. It also provides support and resources to community groups that organize workshops on active transportation. Residents are also encouraged to fill out the walkability checklist for their neighbourhoods and to submit them to the Healthy Living Niagara. Healthy Living Niagara analyses the results submitted on an annual basis and

provides them to various municipalities, councillors and community groups. The results help councillors understand how residents see their neighbourhoods from a "walkability perspective". They can also be used by community groups for education and advocacy work (NRPH, 2010; Healthy Living Niagara, 2010a).

Addressing the Health of Low Income Populations

Regional staff and Healthy Living Niagara are alert to opportunities to encourage and support programs or policies that are directed at the needs of low income populations. For example, it supports the work of two municipalities that work with grants and community partnerships to deliver the Good Food Box Program which is designed to get fresh fruits and vegetables to families that might not be able to afford them. Through the official plans, there is opportunity to support working for affordable housing and access to healthy foods. Community groups are encouraged to emphasize the need for public transit and pedestrian infrastructure in low income neighbourhoods where there is a greater need for active and alternative modes of transportation (NRPH, 2010).

Complementary & Contradictory Health Interventions

Staff working on built environment issues across the department, have varied priorities depending on the division they work in, however each priority is interconnected and is complementary to the overall work in this area. For example, they see their work on active transportation supporting:

- Increased levels of physical activity;
- Decreased injuries among drivers, cyclists and pedestrians;
- Decreased emissions of air pollutants and greenhouse gases; and
- Increased access for all members of the community to jobs and services (NRPH, 2010).

With that said, staff indicated that there have been a few situations where the messaging on different health issues had the potential to confuse the public. For example:

- While the CDIP division encourages physical activity outdoors whenever possible, the Environment Health division encourages people to "take it easy" and "stay indoors" during smog advisories and heat alerts; and
- While the CDIP division encourages people in Niagara Region to eat locally grown food, the Environmental Health division has identified potential concerns about the safety of foods prepared by local cottage industries that may be operating without proper regulatory processes.

In these cases, staff resolve the different positions and messages with good communication between teams (NRPH, 2010).

NRPH staff work to ensure that health messages are consistent with the priorities of the Regional Municipality of Niagara as a whole such as in the Regional Official Plan and with Regional Council Business Plans (NRPH, 2010).

Evaluation

NRPH uses several methods for evaluation. One method is a results-based accountability framework that evaluates projects and strategies against their priorities and objectives, rather than their outputs. In Niagara Region, Public Health values the strength, sustainability, and effectiveness of partnerships and collaboratives. As such, partnership engagement is important to their evaluation processes (NRPH, 2010).

Research, Policy & Resource Needs

Niagara Region Public Health staff indicated that it would be very helpful to have:

- Good provincial and local data related to active transportation (e.g. levels of physical activity, number of people who commute on bicycles, numbers of bike lanes and sidewalks);
- Solid provincial and local data on health care cost savings associated with various active transportation interventions (e.g. how many cases of heart disease would be avoided if the kilometres of interconnected bike trails doubled);
- An environmental scan conducted on the research and projects that are being done, and by whom, across the province;
- Good health research to address issues such as:
 - Health impacts among those exposed to air pollution along high volume traffic corridors; and
 - Impacts on the levels of physical activity as the number and variety of retail outlets increases within close proximity to residential neighbourhoods;
- Health statistics made available at a local scale; and
- An inventory of best practices in the built environment for use by public health (NRPH, 2010)

Resources for Niagara Region Public Health

- Healthy Living Niagara see <http://healthylivingniagara.com/default.aspx>
- walkON see <http://www.walkon.ca/welcome.com>
- Canada Walks see: http://www.canadawalks.ca/downloads/Walkolution_News-Fall_2010-E.pdf
- iCANwalk see: <http://www.icanwalk.ca/en/what-can-i-do/international-charter>

C Public Health Units - Urban/Rural Mix

2. Region of Waterloo Public Health (RWPH)

Interview Participants

Healthy Living, Planning and Promotion

Pat Fisher, Public Health Planner, Population Health, Planning and Evaluation

Marc Xuereb, Public Health Planner, Healthy Eating and Active Communities

Health Protection and Investigation

Peter Ellis, Public Health Planner, Health Information and Planning

Region of Waterloo

- *City of Waterloo*
- *City of Kitchener*
- *City of Cambridge*
- *Township of North Dumfries*
- *Township of Willmot*
- *Township of Wellesley*
- *Township of Woolwich*

Background

Waterloo Region is located in southwestern Ontario. It is bounded by Brant County and the City of Hamilton in the south, Perth County and Oxford County to the West, and Wellington-Dufferin-Guelph County to the north and east. The Region has a population of approximately 500,000 people. It is governed by a two-tier system with the Region of Waterloo as the upper tier of government and three Cities and four townships as the lower tiers of government. Waterloo Region is a mix of urban and rural development patterns. Much of the Region is rural with agriculture playing an important part in the economy, but it also has three major urban centres which house most of the Region's population (RWPH, 2010).

The PHU in Waterloo is a Department within the Regional government. The Regional Council is the Board of Health (BOH) for the PHU. It is composed of seven Mayors, the Regional Chair, and seven Regional Councillors. The Region of Waterloo Public Health department (RWPH) reports to the Regional Council through the Community Services Committee, which is composed of a subset of elected representatives from the Regional Council (RWPH, 2010).

Health Priorities for Land Use Planning Processes

The Public Health department has approached the land use planning processes within the Region with two sets of objectives. One set of objectives are those included in the Region's Growth Management Strategy:

- Preserving rural areas;
- Intensifying urban areas; and
- Maintaining hard lines on the urban boundaries (RWPH, 2010; Waterloo, 2003).

The other set of objectives are designed to meet the PHU's responsibilities under the Ontario Public Health Standards that are mandated by the Province. These include:

- Ensuring community access to healthy foods;
- Ensuring that urban intensification is done in a way that protects air quality, encourages active transportation, supports public transit, and fosters physical activity and social cohesion (RWPH, 2010);
- Engaging in knowledge exchange activities with public health practitioners, policy-makers, community partners, and the public regarding factors that determine the health of the population (MHLTC, 2008);
- Fostering relationships with community researchers, academic partners, and other appropriate organizations to support public health research and knowledge exchange (MHLTC, 2008); and
- Facilitating an awareness of population health information, including determinants of health and health inequities to the public, community partners, public health practitioner's, and policy-makers' (MHLTC, 2008).

Organizational Structures

History of Involvement

The Public Health Department became involved in the land use planning processes in 2002 and 2003 when the Region's Growth Management Strategy was being discussed. During those years, the Public Health Department identified the opportunity to be involved in the process to help influence and support policies, development patterns, and programs which protect and promote the health of the community. Discussions began between Public Health, represented by the Health Determinants, Planning and Evaluation Division, and the Planning department to identify Health's areas of interest and Planning's needs. A whole series of research pieces were generated from those discussions related to physical activity and the built environment, access to healthy foods, and the preservation and promotion of local farms. These research pieces were used to inform and support the development of the Region's new Official Plan which was approved in 2009. They were also used to inform and support Corporate and Departmental programs and policies that continue today (RWPH, 2010).

Cross-Divisional Adhoc Committee

During the years of active involvement in the long-term land use planning process, the Public Health department established a Cross-Divisional Adhoc Committee with staff from different Divisions within the Health department. The Committee met on a frequent basis to discuss cross-cutting issues related to the built environment and the land use planning processes. It included staff who worked on issues related to air quality, environmental health, food issues, and physical activity as it relates to the built environment. The Adhoc Committee met until 2009 when the new Official Plan was approved. While the Adhoc Committee no longer exists, relationships built over that time continue on an informal basis. In addition, staff who worked together through that Adhoc Committee developed a sensitivity to one another's issues which serves them well today (RWPH, 2010).

Restructuring

The Public Health Department has been restructured over the last two years. During this process, the Health Determinants, Planning and Evaluation Division that did research, policy development and health promotion on issues related to the built environment and the land use planning processes, was reorganized into different teams. Today, there are several teams from two divisions doing work related to the built environment and/or land use planning processes: the Healthy Living, Planning and Promotion Division and the Health Protection and Investigation Division (RWPH, 2010).

The Healthy Eating and Active Communities team, from the Healthy Living, Planning and Promotion Division, work on issues related to food access, community gardens, trails, and active transportation. The Healthy Living, Planning and Promotion Division generally provides research and data analysis support to staff in its Division, and also works across Divisions on issues related to health and the built environment (RWPH, 2010). The Health Information and Planning team from the Health Protection and Investigation division undertake research, report-writing, and data analysis projects to support various environmental health programs that are delivered by Public Health Inspectors.

Relationships with Municipalities & Planning

For the most part, the Public Health department works with, and through, the Regional Planners when dealing with issues related to the land use planning processes. When an issue involves the Planning Department from one of the local municipalities, communication is conducted through and with the Regional Planners. There are exceptions to this rule. For example, for the built environment research project that is being managed by the Public Health department, staff will communicate directly with staff from the local municipalities (RWPH, 2010).



Community Partnerships

Staff from different program areas within the Public Health Department work with a broad range of community groups and agencies in Waterloo Region. A number of those organizations have an interest in the built environment and/or land use planning processes. For example, the Pedestrian Charter Steering Committee, Community Garden Council, the Waterloo Region Food System Roundtable and the Waterloo Region Healthy Communities Coalition. Staff from different program areas work with these community groups by attending meetings, providing information about processes within the Regional and Local municipalities that may be of interest (e.g. opportunities to provide comments on a Cycling Master Plan), and providing resource materials (RWPH, 2010).

The Health department has also coordinated and facilitated the Waterloo Region Heart Health Coalition, called Together 4 Health, a partnership of over 75 community organizations and agencies that do

educational work and run programs to promote healthy eating and physical activity among residents in the Region. The Coordinator for the Committee was housed in the Health Department but funded directly through the Province. The Heart Health Committee is currently being reconstituted in response to changes in funding and mandate directed by the MHPS. In the future, it will be known as the Healthy Communities Partnership (RWPH, 2010).

Issues Sparking Interest

In Waterloo Region, there has always been a strong interest in the preservation of farm lands. This interest is reflected in the Region's Growth Management Strategy, Official Plan and Strategic Plan. So the Public Health Department's research on food-related issues has generated a lot of interest and support from Regional Councilors, regional Planners and local area Planners (RWPH, 2010).

In Waterloo Region, there has also been a lot of interest in active transportation and in public transit, which is run by the regional level of government in Waterloo Region. The Region's Planners, particularly the Transportation Demand Management (TDM) Planners, and the local area Planners were very interested in working with Public Health on research related to urban form as it affects active transportation and use of public transit (RWPH, 2010).

Research, Background Reports & Policy Papers

Healthy Growth: Health and the Built Environment

In 2007, the Public Health Department prepared a report that provides an overview on all of its work on the built environment. This report begins by identifying how, without careful planning, growth in the Region could increase chronic diseases, deteriorate air quality, increase service needs, and increase health disparities in the community. It then summarizes how community planning can impact health outcomes by:

- Increasing physical activity through urban design improvements;
- Improving food access and food intake by increasing the availability of healthy food options;
- Improving air quality by reducing emissions from local energy and fuel consumption;
- Increasing social capital in neighbourhoods; and
- Strengthening rural health by improving farm viability and addressing rural isolation (RWPH, 2007a).

The report identifies the strategies for the Public Health Department that could be employed to ensure that growth produces positive health outcomes such as collaboration with regional and local area municipalities, leading by example where possible, engaging citizens, conducting research, and monitoring progress (RWPH, 2007a).

Research on Food Issues

The Public Health department has conducted and/or managed several studies that were directed at food-related issues. These studies were conducted to support the implementation of the Region's

Growth Management Strategy, which was approved by Council in June 2003, and to inform the development of the Region's new Official Plan (RWPH, 2010). Several of these studies are summarized below.

Economic Impact of Waterloo's Agricultural Sector

Working with support from Human Resources Development Canada and other provincial and local agencies, the PHU contracted the services of a consultant to conduct an assessment of Waterloo Region's agriculture and food sector. This report concluded that the primary (farming), secondary (processing, manufacturing, wholesale distribution) and tertiary (direct sale to the consumer) sectors of the food-related industries in Waterloo Region supported over 26,380 jobs in the Region, or approximately 11.3 per cent of Waterloo Region's labour force in 2001/2002. It found that gross sales estimates for the three sectors totaled almost \$2.7 billion in 2001 (HCA, 2003).

The food-related industries in Waterloo Region supported approximately 11.3% of Waterloo Region's labour force in 2001/2002 .

This study found that there were 1,444 farms in Waterloo Region in 2001 compared to 1,590 in 1996. It found that the area of land farmed between 1996 and 2001 declined by 3.7 per cent from 234,400 acres to 225,800 acres. It identified dairy farms as the most numerous type of farm in Waterloo Region and that livestock farms account for 66 per cent of all farms in the Region. The report found that, on average, farms in Waterloo Region net \$39,000 per year; which is almost twice the Ontario average in 2000 of \$21,534. It concluded that: "*Waterloo Region reported the second highest level of productivity on a per acre basis in Ontario, exceeded only by the Niagara fruit belt*" (HCA, 2003).

Among other things, the report recommended that the Region of Waterloo:

- Ensure that the preservation and protection of farmland remain an integral part of the Region's Growth Management Strategy;
- Continue to explore and develop options for institutional purchasing of locally produced food;
- Initiate communications with food retailers to explore options for increasing the availability of locally produced foods on supermarket shelves; and
- Have its Public Health department develop a communication campaign to stimulate an increase in the consumption of locally produced fruits and vegetables (HCA, 2003).

Food Flow Analysis Study

The Public Health Department contracted the services of a consultant to determine what percentage of the food that is consumed in the Region of Waterloo has been grown, raised and/or processed in the Region. Using 20 locally produced food items as the indicator food items, key informant interviews with food producers and food processors, and surveys conducted at supermarkets, convenience stores, and local farmers' markets, the study examined the extent to which foods grown in the Region are used and/or sold in the Region. It found that:

- None of the local processors sourced the 20 food products exclusively with locally grown foods;
- In most cases, locally grown content in locally processed foods is low;
- Consumers who want to buy locally grown food can do so through local farmers' markets in the Region or through a few local retail markets; and

- Locally grown produce is available to a limited extent in some supermarkets but it is not clearly marked as locally grown (HCA, 2005).

Food Miles: Environmental Implications of Food Imports to Waterloo Region

The Public Health Department conducted a study in which it analysed the average distance travelled by 58 commonly eaten foods that were imported into the Region. All 58 foods selected were foods that could be raised or grown in the Region of Waterloo. The study found that, on average, the 58 commonly eaten foods travelled 4,497 km to reach the supermarkets in Waterloo Region with distances ranging from a low of 678 km for sweet and frozen corn to a high of 16,665 km for prepared mushrooms. The study estimated that the transportation of these 58 foods is associated with emissions of approximately 52,000 tonnes of greenhouse gases annually. The study did not attempt to analyse the greenhouse gas emissions associated with the growing and/or processing of the 52 food items (RWPH, 2005b).

Redundant Food Trade in Waterloo

The Public Health Department conducted a study to examine the extent to which trade in food products in Waterloo Region is redundant. The premise of the study is that it is unnecessary, and harmful economically and environmentally, to import food products into the Region when those products are being produced locally and "in season". The study was based on vendor audits, review of food trade data, and key informant interviews with food producers, food distributors and food retailers. It focused on 11 products that were known to be locally available and was conducted during peak harvest time.



It found that about 9 per cent of the produce displays in the selected stores/farmers' markets contained produce from the Region while 84 per cent contained products from Ontario. Using seven selected foods, including apples and strawberries, as the indicators foods, the study found that there is a high level of "redundant trade" during peak season in Ontario. For example, it found that Ontario imported \$31 million in tomatoes during the peak season in 2004, when it was also exporting \$92 million in tomatoes (RWPH, 2006).

A number of producers interviewed indicated that they had moved out of the production of fruits and vegetables because they could not compete with low prices being offered on imports. One retailer noted that his/her market did not carry imported produce in local season because the municipality (Cambridge) has a by-law preventing it. One producer indicated that it would help local producers if there were fewer restrictions on "farm gate sales" (i.e. parking restrictions, size of store restrictions, et cetera) (RWPH, 2006).

Towards a Healthy Community Food System

In 2005, the Public Health department prepared an interim report, *Towards a Healthy community Food System*, that drew on 14 reports prepared by the Public Health department between 2003 and 2005. This report, like the ones discussed above, was prepared in support of the implementation of the Region's Growth Management Strategy. It explains that community food system planning is an integrated response that addresses a number of seemingly disparate food-related problems that can affect public health. The goal of community food system planning is to: "create a system in which all residents have access to, and can afford to buy safe, nutritious, and culturally-acceptable food that has been produced in an environmentally sustainable way and that sustains our rural communities"(RWPH, 2005a).

The report identifies several food-related problems which affect public health directly or indirectly:

- Increases in the rates of obesity among residents in response to the increased availability of low-cost processed foods which are typically high in sodium, fat, and/or refined carbohydrates;
- Increased density of "fast food" restaurants in lower-income neighbourhoods;
- Reduced access to supermarkets and/or convenience stores that sell fresh food;
- Reduced ability to afford healthy foods among lower income populations;
- Growing reliance on imported foods which threatens the long-term viability of local farms;
- Growing consolidation within the food system which makes the local food economy vulnerable to corporate relocation (RWPH, 2005a).

The report also identifies some emerging trends within the Region:

- A growing interest among farmers in selling directly to consumers;
- A strong consumer interest in buying fresh food from farmers' markets with \$20 million annually being spent by consumers at the farmers' markets in the Region;
- The development of Food Box Programs that make fresh produce from local farms available directly to consumers on a regular basis;
- A strong response from consumers to the *Buy Local! Buy Fresh! Map*, that was created and promoted by the Public Health department ;
- The steady increase in the number of community gardens in the Region (i.e. there are currently 31 community gardens in the Region with 679 individual plots);
- The development of six green roofs or rooftop gardens in the Region (RWPH, 2005a).

This report also includes the results of a Public Health Study which calculated the optimal nutritional needs of Waterloo Region's projected population in 40 years, and assessed whether the Region's agricultural land was capable of supplying it. That study found that many of the key nutritious foods needed in the future for the Region's population could be met in whole or in part from local production, with a 10 per cent shift in agricultural production by 2026, and with a 12 per cent shift in agricultural production by 2046 (RWPH, 2005a).

The report identifies a number of strategies that could be used to create community food security. Among these are a few directed at the built environment. For example:

- Develop zoning and/or financial incentives that municipal governments can use to attract food retail operations to targeted location;

- Encourage mobile farmers' markets;
- Encourage the establishment of community gardens with grants as the City of Kitchener does;
- Encourage community gardens and rooftop gardening through Official Plans, Zoning By-laws, and by trading height or parking restrictions for garden space;
- Restrict the density of unhealthy foods in identified neighbourhoods (e.g. near schools);
- Expand local farmers' markets; and
- Enable on-farm processing facilities to make farms economically viable (RWPH, 2005a).

Urban Form, Physical Activity and Health

In 2005, the Public Health Department released a study on urban form and physical activity. Department staff compared travel patterns and health outcomes between residents in an inner-city neighbourhood in Water Region that was built on a grid pattern against those for residents in a suburban neighbourhood in Waterloo Region that was built with crescents and a ring road. The study was based upon 1000 telephone surveys that were conducted with residents in the two selected neighbourhoods in May 2005.



The study found that inner-city residents: walk significantly more days per week; spend significantly more of their walking time doing errands and getting from place to place; and are more likely to walk or cycle to school, work, and for errands than their suburban counterparts. It found that suburban residents: spend more time walking for leisure or exercise; are more likely to walk with a family member or pet; are more likely to own three or more vehicles; and spend significantly more time driving each day than inner-city residents (RWPH, 2005c).

The health outcomes derived from this study were contrary to those expected from the health literature (i.e. higher rates of negative health outcomes were found among inner-city residents) but those results were not statistically significant because of the small population size, and were not corrected for socio-economic status, which may explain the health outcomes. This study led to the development of a major research project that is described under "The Use of Geospatial Tools" (RWPH, 2010).

Baseline Indicators for Walking in Waterloo Region

The Public Health Department worked with staff from the three cities and two of the townships in Waterloo Region to document a baseline inventory of policies, guidelines, and infrastructure which support active transportation in the Region. The Municipal Walkability Working Group examined: policies in official Plans, secondary Plans, guidelines, and plans; by-laws; programs; and pedestrian infrastructure at the regional level and among local area municipalities. It documented these in tables for each jurisdiction as a baseline that can be used for comparison over time (Waterloo, 2008a).

Health and the Physical Environment Report

In 2009, staff from across Regional departments contributed to a 200-page State of the Environment report for the Region that identifies the ways in which the physical environment can impact the health of the population. While the report was coordinated by Public Health staff, staff from other Region of Waterloo departments were asked to contribute because it was determined that decisions and practices around transportation, housing, industry, water use, waste management, and other service areas influence the health of the community. The report focused on health factors or health outcomes relating to topics in broad environmental categories: land, air, water, and community:

- Land contaminants, solid waste management, pesticides, agricultural practices, and brownfield development;
- Drinking water supply, wastewater treatment, lead and other contaminants in water supplies;
- Outdoor air pollution, indoor air quality, and tobacco use;
- Built environment, food safety, vector-borne and zoonotic diseases, UV radiation, and alternative renewable energy (RWPH, 2010).

The report describes environmental health risks using current literature and scientific studies. It also addresses vulnerable populations and the likelihood that people will experience health impacts. It describes how the Region of Waterloo manages these risks and how the residents of Waterloo Region can try to minimize the negative effects of these environmental risks (RWPH, 2009b).

Air Pollution Burden of Illness in Waterloo Region

In 2008, the Public Health Department released a report which estimated the number of health impacts associated with air pollution in the urban areas within the Region of Waterloo. The study used risk coefficients derived from existing epidemiological studies, local air pollution levels derived from air monitoring data provided by the MOE, and local health data (e.g. number of hospitalizations) for the urban areas within the Region. With this data, the Health department estimated that, over a five year period, between 2000 and 2004, in the urban areas of Waterloo Region:

Air pollution in the urban areas of Waterloo Region contributed to approximately 712 non-traumatic deaths and 2,000 hospital admissions over a 5 year period.

- Chronic exposure to PM_{2.5} contributed to approximately 504 non-traumatic deaths, 208 of which were cardio-pulmonary or lung cancer deaths;
- Acute exposure to three air pollutants (PM_{2.5}, nitrogen dioxide [NO₂] and Ozone) contributed to 287 non-traumatic deaths; and
- Acute exposure to four air pollutants (PM_{2.5}, NO₂, Ozone and SO₂) contributed to about 2,000 hospital admissions related to cardiovascular and respiratory problems;
- Ozone exposures contributed to 47 emergency room visits and 20 hospital admissions among children aged 5 to 12 (WRPH, 2010; WRPH, 2008c).

This study recommended, among other things, that the Region:

- Investigate the potential for utilizing air quality modelling software to understand air pollution dispersion patterns and to support land use planning policies; and

- Examine the feasibility of obtaining additional air monitoring equipment to improve the Region's ability to assess air pollution in both rural and urban areas as well as in micro-environments (WRPH, 2008c).

Drive-Through Facilities, Air Quality, and Health

In 2008, at the request of Regional Council, the Public Health department prepared an initial assessment and a literature review of health issues associated with drive-through facilities. This report discusses the health evidence associated with several issues that are often identified as concerns with drive-through facilities including air quality and safety concerns. It notes that there are few peer reviewed articles on drive-through facilities and concludes that these facilities provide a convenience to vehicle drivers only while adding to air pollution, reducing safe pedestrian access to retail establishments, encouraging inactivity and reliance on vehicles, and presenting safety hazards to non-vehicular traffic (RWPH, 2010; RWPH, 2008d).

Raising Chickens in Urban Areas

In 2008, the Public Health Department assessed the health risks and benefits associated with urban residents raising chickens in their backyards in response to a request from an Area Municipality that was drafting an animal control by-law. Staff conducted a review of the peer-reviewed health literature, sought the experience of other health units, and weighed the risks associated with this activity (i.e. increased risk from animal-born and food-born infections) against the benefits associated with this activity (i.e. increasing access to healthy foods). Staff concluded that the risks associated with backyard chickens could be controlled with appropriate measures and regulatory controls, and the benefits outweighed the risks (RWPH, 2008b; RWPH, 2010).

Use of Geospatial Tools

The Public Health Department has been using geospatial tools for several years to map sites and facilities of interest to them such as industrial point sources of air pollution using the National Pollutant Release Inventory (NPRI), sites associated with West Nile Virus, contaminated sites, grocery stores, convenience stores, and community gardens. The Health department has two Epidemiologists who are trained to use geospatial tools and they work closely with the Region's GIS team. The Health department has also conducted several studies using geospatial tools (RWPH, 2010).

Food Access Study

In 2003, the Public Health department used GIS to map the 40 large grocery stores, the 99 small food retail outlets, the 234 convenience stores, and five farmers' markets in Waterloo Region. It then compared these sites to residential neighbourhoods in the Region with particular attention to neighbourhoods with a high percentage of low income households. It found that there were a number of areas in the Region that were poorly serviced with stores and retail outlets that sell fresh fruit and vegetables. It did find however that 94 per cent of the urban population in Waterloo Region lives within 450 metres of a public transportation route, and that all large grocery stores were located on bus routes. This study has been used to identify the neighbourhoods that should be targeted for food access programs such as neighbourhood markets and/or community gardens (RWPH, 2010; RWPH, 2004).

Mapping and Monitoring the Impact of Urban Form on Human Health

In 2008, researchers from the Universities of British Columbia, Waterloo and Alberta partnered with the Region of Waterloo to conduct an innovative three year research project with funding from the Canadian Institute of Health Research, Heart and Stroke Foundation of Canada. The first phase of the research project involved the creation of a GIS walkability surface. This tool uses a variety of land use data on density levels, street construction design, and land use mixes



to estimate the "walkability" for each postal code. The Region of Waterloo staff have worked with Professor Larry Frank to construct an interactive GIS surface that staff will be able to manage and update on an on-going basis. Professor Frank has created similar walkability surfaces in five regions of the United States and in Vancouver. This project provides the Region with the opportunity to shape and form a tool to meet its specific needs while setting an example that will be of interest to municipalities across Canada (RWPH, 2007c).

The research project will advance current approaches to travel data collection. It will include: a two day travel diary for 2000 households; diaries to track food purchasing patterns for 750 households; questions about health outcomes; and a survey respecting neighbourhood preferences. The project is largely patterned after, and will adapt materials from, the well publicized SMARTAQ study conducted by Dr. Frank in Atlanta. The results from this project will inform community planning, transit planning, and obesity prevention (RWPH, 2010; RWPH 2007c).

This project will fill a critical gap in the information needed to inform pedestrian and cycling policies and projects and establish a better understanding of non work and weekend travel patterns. The data collected will allow for calculations of the relative air emissions associated with different types of neighbourhood designs. This model also creates a framework that may eventually enable the Region of Waterloo to measure the causal relationship between the changes to the built environment and changes in travel behaviour and health (RWPH, 2010; RWPH, 2007c).

Growth Plans & Official Plans

Staff from the Public Health Department got involved in the Region's land use planning process when the Region was developing its Growth Management Plan in 2002. From that time until the Region's new Official Plan was approved in 2009, there was a very close working relationship between Public Health and the Planning Department. Staff from Public Health would meet to discuss the projects that were needed, the work that was being done, and the opportunities for influence. For about one year, one staff person from the Public Health department worked half time in the Planning Department to provide public health input and support on an on-going basis while the Regional Official Plan was being prepared (RWPH, 2010).

During these years, Public Health was working with the Planning Department to gain stronger policies in the new Official Plan regarding issues related to active transportation, walkability, public transit, air quality, climate change, access to healthy foods, and the preservation and promotion of local farms. The new Official Plan, which was approved by Regional Council in June 2009 has very strong language on a number of issues that are public health priorities in the opinion of staff in the Public Health department. For example:

- The Section on **Urban Communities** indicates that:

...the Region and Area Municipalities will apply the following Transit Oriented Development provisions in reviewing development applications or site plans, on or near sites that are served by existing or planned rapid transit, or higher frequency transit to ensure that development:

.... provides an appropriate mix of land uses, including a range of food destinations, that allows people to walk or take transit to work, and also provides for a variety of services and amenities that foster vibrant, transit-supportive neighbourhoods (Waterloo, 2009).

- The Section on **Urban Designated Greenfield Areas** indicates that:

Area Municipalities, in collaboration with the Region, will ensure that development occurring in Urban Designated Greenfield Areas will be planned and developed to:

- *...establish a network of continuous sidewalks, community trails and bicycle pathways that provide direct, safe, comfortable and convenient linkages within the neighbourhood and externally to other neighbourhoods, including linkages to transit stops, employment areas, school sites, food destinations and community facilities;*
- *...ensure that the design of the road network provides for direct and efficient transit routes within and between communities*
- *...locate land uses such that the distance to a transit stop is generally within a 450 metre walking distance (Waterloo, 2009).*

- A Section has been added on **Access to Locally Grown and Other Healthy Foods** which says:

The Region will support the development of a strong regional food system through the policies in this Plan that:

- *establish a Countryside Line to protect the countryside for long-term agricultural use;*
- *permit a full range of agricultural uses, farm-related uses and secondary uses to support the economic viability of local farms;*
- *provide for a mix of land uses, including food destinations, within close proximity of each other to facilitate residents' access to locally grown and other healthy food products; and*
- *provide a range of human services including affordable housing, subsidized daycare, employment and income supports that seek to ensure all residents have adequate incomes to be able to afford to buy locally grown and other healthy food products.*
- *Area Municipalities will establish policies in their official plans to permit temporary farmers' markets, wherever appropriate, in existing and newly planned neighbourhoods, particularly in*

areas where access to locally grown food and other healthy food products may currently be limited.

- *Area Municipalities will establish policies in their official plans that encourage community gardens and rooftop gardens.*
- *The Region will support community gardens, wherever feasible, by granting access to Regional lands, and by providing rain barrels, composting bins, compost, wood mulch or other forms of in-kind support.*
- *The Region supports food system planning as a means of improving the regional food system (Waterloo, 2009).*
- A new Section has been added on **Supporting the Countryside** which indicates:
 - *...This Plan identifies a broad band of permanently protected environmental features and agricultural lands known as the Protected Countryside.... The Protected Countryside will permanently protect these critical areas from urban development to ensure the region's continued environmental and economic health (Waterloo, 2009).*
- A Section on **Energy Conservation** which:

The Region will support energy conservation through policies in this Plan that:

 - *...maximize, wherever appropriate, the use and production of alternative and/or renewable energy systems...*
 - *... and, wherever appropriate, promote the use of newly planted vegetation including greenroofs to reduce the urban heat island effect...*
 - *support water efficiency measures that reduce the demand for energy to pump and treat water resources...*
 - *promote building designs and orientations that incorporate energy conservation features, and the use of alternative or renewable energy...*
 - *The Region will pursue other energy conservation measures, including undertaking pilot projects and Community Energy Plans, to reduce the need for energy and non-renewable resources (Waterloo, 2009).*
- The Section on **Source Water Protection** indicates that:
 - *Regional Recharge Areas are designated as shown on Map 6g. This designation identifies areas that will be protected from land use practices, *hazardous chemicals and/or substances* that could negatively impact the quality and quantity of water within and available to the aquifers that contribute to the *Region's municipal drinking-water supply system* (Waterloo, 2009).*

Master Plans

The Public Health Department has not had a great deal of involvement in master plans. It has been consulted on several but has not been an active participant in their development. For example, staff

were consulted on the Region's Cycling Master Plan, the Region's Transportation Master Plan which includes public transit, and the Region's Pedestrian Master Plan (RWPH, 2010).

Secondary Plans, Subdivision Plans & Site Plans

The Public Health department has not been involved in the review of secondary plans, subdivision plans, or site plan applications (RWPH, 2010).

Environmental Assessments & Certificates of Approval

The Public Health Department will only get involved in Environmental Assessments or Certificates of Approval if there is the perception that public health is at risk. In the past, Public Health staff have gotten involved in a few cases where there have been concerns about contaminated soil. Usually, when Public Health staff get involved, it is at the request of MOE staff (RWPH, 2010).

Health Promotion & Public Awareness

Neighbourhood Market Pilot Project

In 2007, the Public Health Department initiated a pilot project funded by the Lyle S Hallman Foundation which supported the establishment of five neighbourhood markets in neighbourhoods that have poor access to fresh foods. On each Friday afternoon from the end of June to the middle of September, fresh local produce was made available at five sites in the Region; one located at a hospital; three located in community centres and one located in a Town Centre.

"One interviewee referred to her market as the 'neighbourhood barber shop' (RWPH, 2009).

The evaluation found that the neighbourhood markets received over 4,800 visits in 2008 with most attracting between 40 and 100 people each week. Among those who filled in the end-of-market survey: 38 per cent came regularly and 38 per cent came to the market occasionally; 90 per cent of the regular customers indicated that they ate more vegetables and 53 per cent said that they ate more fruit as a result of the markets; and 100 per cent of the regular customers indicated that their access to healthy foods had been improved (RWPH, 2009).

The evaluation suggested that: the markets were successful in enabling some (although not all) people on low and fixed incomes to improve their fruit and vegetable consumption; they became places which built a sense of community and promoted social interaction; and they were successful at supporting local farms in Waterloo Region (RWPH, 2009).

Public Health staff indicate that it was extremely difficult to establish the neighbourhood markets because of zoning/licensing requirements; something that they have worked to correct with the Region's new Official Plan. They have also indicated that only three of the five neighbourhood markets are continuing today because of the operating costs and low profitability as produce prices need to be affordable. The two community center markets after 3 years in operation are now almost self-sustaining, the Town Center market has evolved into a successful farmers market. The Health

Department is seeking a grant to hire a Coordinator who can provide the on-going support needed to keep them running (RWPH, 2010).

Active and Safe Routes to School

The Public Health Department chairs an Active and Safe Routes to School program in Waterloo Region. Through this program, partnerships with parent councils, , and school board staff to assess the "walkability" of schools and to identify actions that can be taken to encourage walking and cycling to school while reducing the risk of injuries. Public Health Department staff work in partnership with City of Waterloo, City of Cambridge, City of Kitchener, Waterloo Region District School Board, Waterloo Catholic District School Board, Waterloo Region Police Service, run for Life, Ministry of Transportation and Region of Waterloo Transportation Consortium.

WalkOn

The Region of Waterloo Public Health department is one of the Central West PHUs that developed the walkON survey and social marketing campaign. The walkON survey was developed by Health staff in Waterloo and Halton Regions in consultation with the Central West walkON Coordinating Committee. The survey was developed to understand the attitudes and behaviour of residents in the Central West Region of Ontario towards walking and community design, and to inform the development of the walkON social marketing campaign (see more details under Niagara Region). While Waterloo was actively engaged in developing the survey and social marketing campaign, it has not been actively promoting this program in recent years because of restructuring and competing priorities (RWPH, 2010).

Walk 21 - International Conference

In 2007 or 2008, an international conference was convened in Toronto on the creation of walkable communities. Staff in Public Health collaborated with their counterparts in Planning to host one of the "road show sessions" for the Conference. This involved organizing several sessions where Conference Speakers could address Planners and Public Health staff from the Region, citizens from the Region, and Regional Councillors. This event helped to raise awareness about the issues among decision-makers, the public and staff, while developing the relationship between Departments (RWPH, 2010).

Complementary & Contradictory Interventions

Complementary - The Public Health department staff believe that when they promote the policies, development patterns, and infrastructure needed to support active transportation and public transit, they are promoting interventions which address a number of public health priorities (i.e. fostering physical activity, improving air quality, reducing emissions of greenhouse gases, improving access to healthy foods and other necessities) (RWPH, 2010).

Contradictory - Over the years of working together, staff have identified a number of situations where messaging or comments from one team may contradict the views of another team. For example:

- One team promotes eating uncooked foods because of the increased nutritional value while another promotes cooking foods before eating them to ensure that they are free of biological organisms; and
- One team promotes physical activity outdoors all day every day while another team encourages people to take it easy and stay indoors during smog advisories and heat advisories (RWPH, 2010).

Staff have developed an understanding of, and sensitivity to, one another's priorities and perspectives from working together on the Adhoc Committee. Staff take the position that it is the Health Department's job to weigh the risks and benefits associated with various situations and to communicate the nuances clearly and consistently to the community (RWPH, 2010).

Addressing the Health of Low Income Populations

Staff in the Public Health Department feel that the work that they are doing to support the land use planning processes related to active transportation, public transit, and access to healthy foods will be particularly beneficial to people on low incomes who cannot afford vehicles, rely more heavily on public transit, and/or have less access to healthy foods. However, they see this work being beneficial to all members of the community; it is not being directed specifically at low income populations (RWPH, 2010).

When the Health department conducted a preliminary examination of the income levels across the Region, they found that Waterloo is a fairly well integrated community with little difference between neighbourhoods on the basis of socioeconomics. Staff hope to learn more about how income, the built environment, and health outcomes are related in Waterloo Region with the research project that is being led by Dr. Frank (RWPH, 2010).

There are a number of programs that the Public Health Department is directing at low income groups. For example, the Public Health department supports and promotes the development of community gardens and neighbourhood markets in high priority neighbourhoods to improve access to healthy foods (RWPH, 2010).

Organizational or Mandate Issues

The Public Health department made a strong commitment to support the development of the Region's new Official Plan. Staff feel that they now have good working relationship with Planning. They are also very pleased with the new policies that have been included in the new Official Plan. However, they acknowledge that there are limitations on Health's influence on the land use planning processes within the Region. Health is not the Department responsible for land use planning processes. Within the Regional model of governance, Health can make suggestions to Planning but ultimately it is the Planning Department that decides which issues will be addressed and what research will be done when it comes to health and the built environment (RWPH, 2010).

Research, Policy & Resource Needs

Staff in the Public Health department feel that it would be helpful to their work on the built environment and land use planning processes if:

- There was more coordination between the MOE and municipalities on air quality given its transboundary nature;
- There were resources to conduct studies on air quality issues as they relate to the built environment;
- There were a study which analysed the economic costs and benefits associated with active transportation infrastructure such as cycling paths and bike lanes, relative to those associated with roadways and single-occupancy vehicles (RWPH, 2010).

Region of Waterloo Public Health Resources

- For reports on food-related issues, see
[Http://chd.region.waterloo.on.ca/web/health.nsf/4f4813c75e78d71385256e5a0057f5e1/54ed787f44aca44c852571410056aeb0!OpenDocument](http://chd.region.waterloo.on.ca/web/health.nsf/4f4813c75e78d71385256e5a0057f5e1/54ed787f44aca44c852571410056aeb0!OpenDocument)
- For reports on urban form and physical activity, see
<http://chd.region.waterloo.on.ca/web/health.nsf/0/3304018ABBFE6FB58525717F00640305?OpenDocument>
- For Report on Air Quality, see
<http://chd.region.waterloo.on.ca/web/health.nsf/0/ff2ce79175f3643985256d350057115c?OpenDocument>

D Public Health Units - Greater Toronto Area

1. York Region Public Health Branch

Interview Participants

Health Protection Division

Helen Doyle, Manager, Health Hazard Prevention and Management Program

Kevin Haley, Environmental Health Specialist

Mark Payne, Environmental Research and Policy Analyst

Mira Shnabel, Environmental Health Program Coordinator

Bernard Mayer, Manager, Safe Water Program

Healthy Lifestyles Division

Victoria Morley, Manager, Workplace Wellness and Active Communities Program

Lindsay Rosien, Public Health Nurse, Workplace Wellness and Active Communities Program

Pauline Gillen, Public Health Nurse, Workplace Wellness and Active Communities Program

Bonnie Thamm, Manager, Elementary School Program

Loretta Bernard, Manager, Injury Prevention and Senior's Program

Susan Bonomo, Public Health Nurse, Injury Prevention and Senior's Program

Silvana Farrace-Perry, Public Health Nurse, Injury Prevention and Senior's Program

Rita Foscari, Manager, Nutrition Services

York Region

- *Town of Newmarket*
- *Town of East Gwillimbury*
- *Town of Georgina*
- *Town of Whitchurch-Stouffville*
- *Town of Markham*
- *Town of Aurora*
- *Township of King*
- *City of Vaughan*
- *Town of Richmond Hill*

Background

York Region is the upper tier of a two tier government. It extends from the northern border of Toronto to the south shore of Lake Simcoe. It is bounded by Durham Region on the east and Peel Region on the west. It has a population of approximately 1.01 million people. The Region includes nine local municipalities. It is a mixed area, with several large urban centres (Markham, Newmarket, Aurora, Vaughan and Richmond Hill), a fair amount of rural land, and a number of smaller communities. The Greenbelt and the Oak Ridges Moraine run through this Region (YRPHB, 2010).

The PHU for York Region is situated in the Regional Government. It is a Branch within the Community and Health Services Department within York Region. The York Region Public Health Branch reports to Regional Council through the Community and Health Services Committee. The Medical Officer of Health (MOH) in York Region reports to the Committee through the Commissioner of Community and Health Services. The Committee is composed of the Regional Chair and a select number of regional councillors and local municipality mayors (YRPHB, 2010).

Health Priorities for Land Use Planning Processes

When addressing the built environment and land use planning processes, the Health Unit's health priorities are:

- Improving air quality to reduce acute and chronic health impacts;
- Reducing emissions of greenhouse gases and reducing health impacts associated with climate change such as extreme heat;
- Ensuring the quality of ground water and surface water;
- Protecting residents from toxic contaminants in air, water and soil;
- Protecting residents from sun to prevent skin cancer;
- Increasing physical activity to address escalating chronic disease;
- Reducing injuries and fatalities related to traffic and the built environment, particularly among children and seniors;
- Increasing access to healthy foods and increasing community food security;
- Addressing the needs of a growing, aging and diverse population; and
- Improving accessibility to services among all members of the community (i.e. lifespan, disabilities) (YRPHB, 2010).

Views of York Region Residents

In a survey conducted in the fall of 2009, York residents:

- *Identified the following as the most important local problems:*
 - *Transportation (21%);*
 - *Development and Infrastructure (14%);*
 - *Taxes (10%)*
 - *Found York Region effective at:*
 - *Creating safe neighbourhoods 88%;*
 - *Enhancing the natural environment (80%);*
 - *Providing affordable, easy to use transit (64%);*
 - *Providing affordable housing (51%).*
 - *Indicated that their transit use would increase if there were:*
 - *More frequent service and shorter wait times (22%);*
 - *More frequent stops and increased coverage (17%);*
 - *Reduced fares (8%);*
 - *Under no circumstances (21%).*
 - *In terms of addressing the needs of low income residents:*
 - *2% rated York Region as excellent;*
 - *19% rated York as good;*
 - *42% rated York as fair;*
 - *14% rated York as poor*
- (EnviroNics. 2009).*

Organizational Structures

Within the York Region Public Health Branch (**YRPHB**), there are several teams within two Divisions that are involved in issues related to the built environment and/or land use planning processes.

The **Health Protection Division** includes:

- The **Environmental Health** team, which is a multi-disciplinary team that addresses issues associated with indoor and outdoor air quality, toxic chemicals, climate change, extreme weather,

the built environment, electro-magnetic fields associated with cell phone towers and hydro lines, environmental emergency response, and children's environmental health. This team has expertise in toxicology, epidemiology, research and policy analysis, risk assessment, health promotion and public health inspection; and

- The **Safe Water** team, which addresses issues relating to safe drinking water and recreational water quality (e.g. public beaches, swimming pools, and spas). This team has expertise in public health inspection.

The **Healthy Lifestyles Division** includes:

- The **Active Communities and Workplace Wellness** team which promotes active modes of transportation and physical activity through education, community capacity building, consultation and policy development. These strategies focus on the elements needed to build active communities and sustain active lifestyles;
- **Nutrition Services** promotes healthy eating, food security and supportive nutrition environments for infants, preschoolers, children and adults;
- The **Elementary and Secondary School Programs** which use a comprehensive school health approach to promote healthy attitudes and behaviours among students through the schools and the community with a focus on physical activity, nutrition, sun safety, injury and substance misuse prevention; and
- The **Injury Prevention and Seniors Program** which aims to reduce the number of unintentional injuries and fatalities by increasing awareness, knowledge, and skills among residents and employees with a focus on road safety, home safety, childhood and recreational injuries (YRPHB, 2010).

Building Healthy Communities Work Group

The Public Health Branch has established a Building Healthy Communities Work (**BHC**) work group with staff from both the Health Protection and Healthy Lifestyles Divisions to coordinate their work on health issues related to the built environment and/or land use planning processes. The BHC Work Group, which was established two years ago, meets at least six times per year. It is co-chaired by a member of the Environmental Health team and a member of the Workplace Wellness and Active Communities team (YRPHB, 2010).

Relationships with Municipalities & Planning

Teams within the Public Health Branch have worked with staff in a number of other departments within York Region including:

- Planning and Development Services particularly with those in Long Range and Strategic Planning, Community Planning, Transportation Planning, Infrastructure Planning, and the GIS team;
- Corporate Services on energy-related issues;
- Environmental Services on issues related to solid waste and water and waste-water treatment;
- Transportation Services on issues related to forestry, Cycling and Pedestrian Master Plans, and public transit; and

- Tourism on issues related to the Farm Fresh Guide (YRPHB, 2010).

Public Health staff has also worked with staff in local municipalities in transportation planning departments (e.g. TDM Managers), environmental coordinators/sustainability offices, parks and recreation, infrastructure planning, Smart Commute, and source water protection. Some of these relationships have been developed through formal decisions made by senior management or in response to a recommendation in a report to Council, while others are more informal, developed in response to a common concern (YRPHB, 2010).

Community Partnerships

The Heart Health program in York Region (healthyyork) is coordinated by a community partner, external to public health. Representatives from the Healthy Lifestyles Division provide consultation on program initiatives to the planning committee (YRPHB, 2010).

The Environmental Health team works with the Environmental Coordinators in the Region. They meet on a regular basis with the Environmental Advisory Committees for the local municipalities. They also represent the Region on the GTA Clean Air Council, working with all levels of government in the GTA to develop, implement and monitor initiatives that improve air quality and address climate change. The Environmental Health team also participates on the GTA Climate Change group, a collaboration of regional municipalities, conservation authorities, and academic institutions working on climate change adaptation strategies (YRPHB, 2010).

The Health Protection Division's Environmental Epidemiologist sits on the Association of Public Health Epidemiologists of Ontario (APHEO) Core Indicator Project – The Built Environment Subgroup. The mandate of this group is to develop reliable, meaningful built environment indicators that can be used to identify opportunities to address the health impacts of the built environment and to monitor improvements in population health and health-related risk factors.

Public health staff also work with the staff in provincial ministries and agencies to ensure that built environment and healthy community policies are integrated across all jurisdictions. Other partners include the Ontario Public Health Association (OPHA), the Association of Local Public Health Agencies (aLPHA), the Association of Public Health Epidemiologists of Ontario (APHEO), the Canadian Institute of Public Health Inspectors (CIPHI), the Association of Supervisory Public Health Inspectors of Ontario (ASPHIO), the Ontario Nurses Association (ONA), the Ontario Provincial Planners Institute and the Association of Municipalities of Ontario (YRPHB, 2010).

Issues Sparking Interest

The Public Health Branch has been asked to get involved in a number of programs and issues that have been of particular interest to Planners, Councillors, and/or citizens. For example:

- With one Pedestrian and Cycling Master Plan, Planning invited staff to join their advisory committee to: provide feedback on their planning process, participate in marketing to promote the Plan; and increase awareness among the public and decision-makers about the health benefits associated with the proposals;

- With programs such as Smart Commute and Active and Safe Routes to School, there has been enthusiastic response from Councillors who see these programs offering concrete solutions to complaints or concerns expressed by their constituents;
- With proposals related to cell phone towers, compost plants, incinerators and natural gas generating stations, Councillors, staff from other departments or the local municipalities, and/or residents want the Public Health Branch to provide an assessment of the potential health impacts associated with the proposals; and
- The Planners in the Region were also eager to work with the Public Health Branch on comments on the Provincial Policy Statement (**PPS**) because they would like to see healthy communities principles more strongly enshrined in the PPS as well (YRPHB, 2010).

Research, Background Reports & Policy Papers

Guidance Document - Public Health Reference Tool

The Health Protection Division, in consultation with the Healthy Lifestyles Division, has drafted a guidance document entitled, "A Public Health Reference Tool for Healthy Communities in York Region". Based on an extensive review of reports directed at the creation of healthy and sustainable communities, the Tool identifies criteria that could be included in Official Plans or Secondary Plans to guide development towards healthy and sustainable development patterns. It has been divided into sections dedicated to: building design, land use designation, transportation systems, infrastructure, and open spaces, natural spaces and agriculture, and policies (YRPHB, 2010; YRPHB, 2010a).

The draft Tool was used by public health staff when developing healthy public policy recommendations for the Region's Official Plan in 2009. It is also being used internally by the Public Health Branch to guide comments offered on land use planning documents. In June 2010, the Tool was presented to Planners to seek their feedback on the criteria, the target population, and its usefulness. It was also shared with Long Range and Strategic Planning to discuss how it could be linked to the development of the "New Communities Guidelines" initiative. As a result, Planning intends to integrate many of the policies and criteria from the Tool into the New Communities Guidelines. The "New Communities Guidelines" are being developed as implementation guidelines for policies identified in the Regional Official Plan around new development (YRPHB, 2010; YRPHB, 2010a).

Built Environment Indicators

The Building Healthy Communities Work Group has been doing research on the indicators for the built environment that could be used as a surveillance tool to monitor the impact of healthy community policy interventions over time. This document was presented to the Regional Planners in June 2010 who have been asked for their feedback on the development of the proposed indicators. This document could include indicators such as:

- Population density for York Region;
- Proportion of houses that are single-detached;
- Annual number of km of bike/pedestrian facilities constructed;
- Number of bike lanes bridged from Regional to Municipal facilities;

- Proportion of sensitive land uses within a specified distance from incompatible land uses;
- Proportion of residents travelling to work by transit, carpooling, Single-occupancy vehicle, walking, cycling;
- Vehicle kilometres travelled per capita;
- Proportion of population living within 400 metres of playground (YRPHB, 2010).

Nutritious Food Basket

The Ontario Public Health Standards 2008 requires the annual costing of the Nutritious Food Basket in accordance with the Nutritious Food Basket Protocol. Each year, Nutrition Services develops a report on the findings for York Region. This information is available and used by organizations that work to address the needs of low income populations in the community (YRPHB, 2010).

Healthy Aging Strategy

The Public Health Branch has developed a working document entitled the "Healthy Aging Strategy for Older Adults in York Region". This Strategy notes that, among urban municipalities in Ontario, York Region has one of the fastest growing older adult populations. By 2031, it is projected that there will be 313,000 older adults, aged 65 and over, living in York Region. This is three times the current number. The Strategy lays out a multi-pronged approach to promote healthy aging in York Region. One of these prongs commits the Injury Prevention and Seniors team to working with Public Health's BHC Work Group to promote walkable and age-friendly communities that support healthy seniors (YRPHB, 2010; YRPHB, 2010c).

Corporate Air Quality Strategy

The Health Protection Division led the York Region Corporate Clean Air Task Force whose mandate was to develop a Clean Air Quality Strategy to reduce emissions of smog precursors and greenhouse gases in Regional activities and operations. One of the key recommendations in the Strategy was to develop Clean Air Action Plans for all Regional initiatives such as Land Use Planning and the Built Environment. This recommendation identified the need to address the link between air quality, climate change, public health, and land use and transportation



planning. Other areas where clean air action plans were recommended included: Smart Commute, Green Fleets, Green Procurement, Corporate Energy Conservation, Water Efficiency and Solid Waste. The Corporate Air Quality Strategy also recommended that a Climate Change Adaptation Strategy be developed to help communities prepare for the local impacts of climate change (YRPHB, 2010).

State of the Environment Report

The State of the Environment Report project was co-led by Public Health and Planning in 2005. The Environmental Health team supported the development of the report. The SOE Report provides a baseline for a number of indicators that are relevant to the built environment from a health and sustainability perspective (YRPHB, 2010).

Sustainability Progress Report for York Region

The Public Health Branch supported the development of the York Region Sustainability Strategy (2007) and the York Region Sustainability Progress Report (2009). The Progress Report provides details on a number of sustainability indicators related to public health, social housing, policing, transportation and transit services, water, wastewater and solid waste, forestry, land use planning, and the economy (YRPHB, 2010),

Public Health Policy Statements on Health and the Built Environment

The Community and Health Services Department Commissioner attends York Regional Council meetings and represents the various branches within the department including the Public Health Branch. With respect to Council discussions relating to land use planning and transportation proposals, the CHS Commissioner may be asked to comment on the public health impact of these proposals. Public Health Branch staff are currently preparing Public Health Policy Statements on Health and the Built Environment, including health evidence and links to the Ontario Public Health Standards mandate, that the Commissioner can reference during council meetings or as needed (YRPHB, 2010).

Provincial Policy Statement

The Public Health Branch collaborated with staff in the Long Range and Strategic Planning Branch to prepare comments on the Provincial Policy Statement (PPS) which is currently up for review. The comments from York Region note that, like the existing PPS, the Ontario Public Health Standards recognize that the complex interaction between the economy, the environment, and social interactions, has a significant influence on the health of individuals and communities. These factors, York Region notes, are referred to as the determinants of health:

"Land use planning decisions are connected to the determinants of health by the way they influence our housing choices (social factor), our air quality (physical factor) and our level of physical activity (individual behaviour). Our current built form adversely affects the health of our residents, as shown by increasing rates of obesity, diabetes, cardiovascular disease, respiratory illness, traffic injuries and exposure to contaminants. The key factor to addressing these adverse health outcomes is by changing the built environment and the way in which buildings, parks, schools, road systems and other infrastructure are designed" (York, 2010).

York Region recommends a number of different policies or statements for inclusions in the PPS. For example:

- In terms of **Healthy Communities**, York Region recommends that the PPS:
 - *Commit to a Provincial Housing Strategy and require more affordable housing choices;*
 - *Consider an aging and diverse society, climate change and renewable energy;*
 - *Ensure that human services and housing are located on major transit lines;*
 - *Encourage universal accessibility;*
 - *Ensure separation of sensitive uses from sources of significant air pollution; and*
 - *Provide guidance on land use planning for climate change; and*
- In terms of **Complete Communities**, it is recommended that the PPS:
 - *Require a compact urban form that supports pedestrians, cycling, and transit for daily activities;*
 - *Focus on building more sustainable communities that link land use planning with innovative energy generation and supply;*
- *Provide more focus on urban ecosystem protection and enhancement and urban greening;*
- *Ensure that "food deserts" are not created by ensuring comprehensive community planning;*
- *Require linkages between residential and employment growth;*
- *Require a diverse and compatible mix of land uses including residential and employment to support socially inclusive, environmentally sustainable and economically vibrant communities;*
- *Require coordination and sequencing of development with provision of infrastructure, transit and human services;*
- *Require high standards for urban design taking into consideration such things as winter design, urban heat island effects, urban greening, innovative energy and water conservation and management (York, 2010).*

Use of Geospatial Tools

The Public Health Branch's Building Healthy Communities Work Group is developing built environment indicators and will be collaborating with the Region's GIS/Geomatics team to map these indicators.

The Health Protection Division currently has had some information geo-coded. For example, information related to floodplains, West Nile Virus, and food premises has been mapped. They are now extending that work to capture small drinking water systems for their ground water protection work. The Healthy Lifestyles Division has mapped all of the workplaces in the Region (YRPHB, 2010).



Both Divisions are participating in a Feasibility Project with the Epidemiology and Research Team, Queens and York Universities and the Region's Geomatics team to see if they can spatially map

cardiovascular disease risk factors for the Region. This feasibility study has been funded by the Public Health Agency of Canada (YRPHB, 2010).

Growth Plans & Official Plans

Consultation Processes

The Public Health Branch generally communicates with planners in the local municipalities on formal land use planning processes through planners within the Region's Planning and Development Services Department. Local Official Plans and other land use planning documents are circulated through the Regional Planners to the Strategic Service Integration and Policy (SSIP) Branch within Community and Health Services Department to the Public Health Branch. This process has provided Public Health Branch staff with the opportunity to build internal capacity on land use planning issues and to increase awareness among their colleagues about the relationship between the health of the community and elements within the built environment (YRPHB, 2010).

The two managers that co-chair the BHC Work Group participated on interdepartmental committees that were consulted on the development of York Region's new Official Plan. Comments were offered verbally at meetings and formally in writing on issues related to:

- Separation distances for highways;
- Air quality and climate change;
- Density, mixed land uses, and mixed housing;
- Transportation networks (including active modes of transportation);
- Bike lanes, signage and road widths; and
- Water quality (YRPHB, 2010).

New Regional Official Plan Policies

In 2009, the Public Health Branch was able to have a number of new policies incorporated into the York Regional Official Plan. For example:

- Under the **Healthy Communities - Human Health and Well-Being** section, the following policies were incorporated:
 - *To recognize that the design of communities is directly related to human health;*
 - *To work with other levels of government, agencies and stakeholders to identify the links between climate change, community planning and public health;*
 - *That public health and other human services be incorporated into the design and evaluation of new community areas and regional centres and corridors.*
- Under the **Healthy Communities - Air Quality and Climate Change** section, there is a commitment:
 - *To reduce vehicle emissions by ensuring that communities are designed to reduce vehicle use and support public transit;*

- *To require health, environmental and **cumulative air impact** studies that assess the impact on human health for development with significant or known potential air emission levels near sensitive uses such as schools, day cares or seniors facilities;*
- *That **sensitive uses** such as schools, day cares and senior facilities **not be located near significant known air emissions sources**;*
- *To work with other levels of government etc to develop climate change adaptation measures that address such issues such as urban heat island effect, infrastructure resiliency, emergency preparedness, vector borne diseases and extreme weather event responses;*
- *To work with the province to increase air quality monitoring stations in York Region and to improve air quality monitoring;*
- Under the **Urbanizing Region: Building Cities and Complete Communities** section, there are commitments:
 - *To encourage enhanced indoor air quality in buildings;*
 - *That communities be designed to ensure walkability.*
- Under the **Servicing our Population** there is a requirement:
 - *To provide safe and clean drinking water while protecting surface and groundwater resources (YRPHB, 2010: YRPHB, 2010b)*

Master Plans, Strategies & Programs

Region's Transportation Master Plan

The Public Health Branch provided comments on the Region's Transportation Plan. Comments were high level; supporting the positive elements of the Plan from a healthy communities perspective. Staff promoted health messaging related to the air quality, climate, and physical activity benefits associated with public transit and active transportation (YRPHB, 2010).

Pedestrian and Cycling Master Plans

Public Health Branch staff participate in the Advisory Committee for the development of the Pedestrian Cycling Master Plan for the Region where they offer comments related to air quality, injury prevention, physical activity and climate change. They also participated in the Internal Advisory Committee for the development of the Cycling and Pedestrian Master Plan for the Town of Markham, and on an External Technical Advisory Committee for the Pedestrian and Cycling Master Plan for Richmond Hill. In these situations, comments have been offered on issues related to:

- Connectivity of bike lanes, trails and sidewalks;
- Multiuse trails;
- Provision of shade and seating along pathways to make them age-friendly;
- Access to washrooms along trails; and
- Injury prevention messaging related to helmets on signage, legislation, mapping, and with visuals for public awareness (YRPHB, 2010).

The Municipal Pedestrian and Cycling Partnership Program

Public Health staff participate on an interdepartmental committee that considers proposals from local municipalities for funding of pedestrian and cycling infrastructure between different jurisdictions. Under this Program, the Region provides up to 50 per cent of the funding for projects that ensure connectivity for sidewalks, trails and roads between local municipalities, for a maximum of \$500,000 per year. Staff on the interdepartmental committee help to evaluate the applications for funding (YRPHB, 2010).

Metrolinx Plan

The Public Health Branch provided comments on the Metrolinx Draft Regional Transportation Plan. The Public Health Branch expressed support for the Metrolinx assessment that the transportation system in the greater Toronto and Hamilton area must address five major challenges: population growth, climate change, rapid urbanization, aging populations, and public health. The Public Health Branch also expressed its support for the need to transform travel around the Greater Toronto and Hamilton Area so it addresses:

- The impact of vehicular emissions on public health;
- The impact of vehicle-dominated transport on obesity;
- Morbidity and mortality from motor vehicle collisions; and
- To provide safe, healthy and sustainable transportation options to our growing and aging populations.

The draft Metrolinx Plan also proposed that municipalities establish protocols to obtain input from transit agencies and public health departments on all major planning and transportation matters (YRPHB, 2010).

Secondary Plans, Subdivision Plans & Site Plans

Secondary Plans

The Public Health Branch provided comments on two Secondary Plans; one related to the Langstaff Gateway and one related to Aurora. In these two situations comments were offered on issues related to air quality, climate change, water quality, active transportation, urban design guidelines, local food production and community gardens. For example, the following comments were among those offered by the Public Health Branch on one Secondary Plan:

- *Communities must also be designed for the protection of our most vulnerable populations, taking into consideration sensitive land uses and incorporating adequate separation distances to protect residents from all sources of pollution;*
- *Protection and promotion of public health and safety must be an overarching theme of a Secondary Plan in order to build healthy, sustainable communities;*
- *Health-oriented development creates healthy, sustainable communities by recognizing the value of:*

- *the quality of our air, soil and water;*
- *opportunities for exercise and recreation;*
- *access to healthy foods;*
- *social equity and cohesion; and*
- *safety and security;*
- *Land use planning to mitigate the impacts of extreme heat events, flooding, and emerging diseases, is an important step in protecting our communities;*
- *Proposed development adjacent or near sources of air pollutants such as major traffic routes and industrial and commercial operations should require cumulative air quality impact studies;*
- *In reference to redevelopment of existing schools, comprehensive development plans should also include air impact studies and address the impact of adjacent community uses on the school;*
- *Recognize the importance of shade in protecting from UV radiation and the Urban Heat Island effect;*
- *Identify the importance of access to healthy food choices, spaces protected from all sources of pollution, and spaces that provide for all modes of transportation with the pedestrian-first hierarchy;*
- *Include as a priority in the plan that active and multi modal transportation systems are not only safe, efficient, economical, convenient and comfortable, but also 'healthy' because they encourage physical activity and reduce reliance on more heavily polluting forms of transportation such as the single occupancy vehicle; and*
- *Request that developers provide funding for school travel planning initiatives and subsidized transit (YRPHB, 2010).*

Subdivision Plans & Site Plans

The Health Protection Division has commented on a number of Subdivision Plans and Site Plans. In these cases, comments have been directed at:

- Potential impact of private sewage disposal systems on private wells;
- Contaminated soil on property to be re-developed as a school;
- Issues associated with a school's close proximity to an airport; and
- Issues with use of groundwater impacts and hydrogeology for a site to be developed as a cemetery (YRPHB, 2010).

Cell Phone Towers

The Environmental Health team conducted research on the health impacts associated with radio-frequencies and cell phone towers for the Planning Department. This research found that "there is no clear evidence of adverse health effects associated with radio-frequency fields". Staff concluded that "the weight of evidence has not identified that Safety Code 6 is inappropriate in protecting public health from exposure to radio-frequency fields". Staff recommended that Planning continue to "liaise with

Industry Canada regarding the siting and installation of telecommunication towers and antennas..." (YRPHB, 2009).

Hydro Lines

The Environmental Health team conducted an assessment of the health impacts associated with extra-low frequency electro-magnetic fields around hydro lines for the Planning Department. This research, conducted when a transmission corridor was proposed through a suburban area, was also used when a subdivision was proposed in close proximity to an existing hydro line. The comments summarized the findings and discussed the application of "prudent avoidance" when applied to hydro lines in a land use planning context. This document supported a report to council on prudent avoidance to EMFs (YRPHB, 2010).



Environmental Assessments & Certificates of Approval

The Environmental Health team has been involved in the review of documents related to Environmental Assessments for:

- An **Energy from Waste** facility proposed by the Regions of Durham and York. In this case, the team reviewed the Generic Human Health Risk Assessment (HHRA) conducted for the technology with an eye for the cumulative air, soil, water and food quality impacts, identified issues associated with transportation during construction and of waste when operating, and considered broader issues related to incineration as a waste disposal option such as greenhouse gas production (YRPHB, 2010);
- **Natural Gas Generating Station** proposed as a "peaking plant" for King Township. In this case, staff reviewed the Human Health Risk Assessments from all proposals (HHRA) and asked for a peer review to be conducted. In the first phase of this process, the consultants for all three proponents and the peer reviewers contracted by York Region, concluded that "measureable adverse effects on human health or agricultural crops are not expected" with the proposal. The Public Health Branch recommended that the proponent selected be requested to include an "analysis of any frequency of exceedances on health based standards by air contaminants" when conducting the site specific risk assessment (YRPHB, 2010; York, 2008).
- **Southeast Collector Trunk Sewer** proposed by the Region. In this case, public health comments were directed at potential impacts on surface water and groundwater quality (YRPHB, 2010).

Health Promotion & Public Awareness

The Public Health Branch is involved in a number of health promotion activities that support work on health and the built environment.

20/20 The Way to Clean Air

The Public Health Branch is a partner in the *20/20 Way to Clean Air* Campaign that promotes the actions needed to improve air quality and slow climate change. Coordinated by the Clean Air Partnership, this campaign is directed at schools and the community. It encourages active modes of transportation, public transit, carpooling, telecommuting, and reduced energy use at home and at work. It is supported by a web-based portal (<http://www.cleanairpartnership.org/2020>), factsheets, school curriculum, and home energy planners (YRPHB, 2010).

Smart Commute Program

The Environmental Health and Workplace Wellness teams promote the three Regional Smart Commute organizations, that are run by Metrolinx, to promote cycling, transit, and car-pooling as a means of increasing physical activity among employees and reducing emissions that contribute to air pollution and climate change (YRPHB, 2010).

Going Somewhere? Go Active

The Active Communities team conducted a two-year public awareness campaign that was directed at increasing physical activity and active modes of transportation for utilitarian purposes among residents. It was a broad-based campaign supported by educational resources developed for the Region's website, banners that could be used at community events, bus tail ads, factsheets, and articles distributed through local newspapers. The first year was directed at increasing walking and cycling for transportation in the community; the second year was directed at increasing the number of children who walk or ride to school. This campaign included injury prevention messaging (i.e. it promoted the use of helmets when cycling) (YRPHB, 2010).

School Travel Planning

The Elementary School Program, Injury Prevention Program, and Active Communities program have been working with the School Traffic Planner hired by the two School Boards to address safety and accessibility issues associated with schools. Using the Green Communities Canada School Travel Planning model, two Markham schools are currently piloting school travel planning in York Region (YRPHB, 2010).

Travel Smart Pilot

The Environmental Health and Active Communities teams, in collaboration with Injury Prevention, participated in a Transportation Demand Management pilot project directed at two neighbourhoods in Vaughan and Markham. The personal travel planning pilot is directed at encouraging sustainable and active modes of transportation options among residents who are interested in changing their commuting/travel behaviour. The project includes two surveys measuring resident's attitudes and

behaviour in respect to walking, cycling, transit and carpooling. The first one was conducted before the campaign began and the second one will be conducted when the one-year campaign is completed. This is a pilot project based on projects conducted in Australia and the United Kingdom (YRPHB, 2010).

Traffic Calming in Markham

The Injury Prevention team was asked to participate in a consultation process to address safety concerns in one neighbourhood. This included a discussion of different traffic calming practices that addressed transit and emergency vehicle service delivery needs (YRPHB, 2010).

Extreme Heat Program

To address current needs, and prepare for one of many of the public health impacts associated with climate change, the Health Protection Division initiated an Extreme Heat Program in 2010. This Program included development and dissemination of an “Extreme Heat and Your Health” fact sheet to provide information on vulnerable populations, health protective messaging, and dangerous heat-related illnesses; and issuing a heat advisory when Environment Canada issues a Special Weather Statement relating to extreme heat and humidity (YRPHB, 2010).

Fresh Food Gleaning Program

Nutrition Services works with its community partners, farmers and the York Region Food Network to promote the "Gleaning Program". Under this program, community groups and individuals are invited to glean (pick) fresh fruit and vegetables at no cost, from local farmers' fields when the harvest for that local food item is ending.



Gleaning happens about ten to fourteen times per year with eight farmers involved. The produce "gleaned" is in good condition and can include berries, apples and various vegetables. The produce collected is directed to populations on low incomes who may not be able to afford fresh food (YRPHB, 2010).

Community Gardens

Nutrition Services supports the work of the York Region Food Network in promoting and supporting community gardens in neighbourhoods across the Region (YRPHB, 2010).

Shade Promotion Program

The Public Health Branch has been promoting the provision of shade with trees and other structures (natural and built shade). Staff have developed a web-based program that includes a shade audit and policies that can be adopted by schools, workplaces and local municipalities. They have also conducted "train the trainer" workshops to increase the number of people promoting shade policies in the community. The Shade Promotion program addresses a number of public health priorities and integrates messages from programs from the Healthy Lifestyles Division and the Health Protection Division as well as messages from the Canadian Cancer Society, community members, and York Region Natural Heritage and Forestry Services. It is directed at:

- Reducing the "urban heat island" effect exacerbated by climate change;
- Reducing greenhouse gases that contribute to climate change;
- Preventing skin cancer by reducing exposure to sun;
- Promoting sun safe guidelines as identified by Canadian Cancer Society
- Reducing energy use which reduces emissions that contribute to air pollution and climate change (YRPHB, 2010).

Playground Safety

The Injury Prevention team works directly with schools and community to educate people about what makes a safe playground. Staff prepared injury prevention resources on this issue and did promotional work in the community and schools. Public Health Inspectors within the Health Protection Division who are Canadian Certified Playground Inspectors inspect playgrounds at day nurseries and recreational camps upon notification that a potential health hazard exists. School boards and municipalities are contacted if the notification pertains to a structure within their jurisdiction, as these agencies have certified inspectors (YRPHB, 2010).



Falls Prevention for Seniors

There is a large burden of illness associated with falls among seniors in York Region. Educational campaigns include identification of elements in the physical environment both in the home and the community that contribute to falls and injuries (YRPHB, 2010).

Built Environment Banner and Pamphlet

The Building Healthy Communities Work Group developed a *Together We Can Build A Healthy Community. Everyone Has a Role What is Yours* banner for use at community and workplace events to promote public health programs related to the built environment (YRPHB, 2010).

The Active Communities team has collaborated with other PHUs in the Central East Physical Activity Network (CEPAN) to develop an educational pamphlet for the public to increase their awareness of the elements within the built environment and how they impact levels of physical activity and health (YRPHB, 2010).

Contradictory & Complementary Interventions

Complementary - There are many situations where health evidence associated with different health priorities support one another. For example, the promotion of public transit and active transportation is a priority for the Active Communities, Environmental Health, and Injury Prevention teams because of the benefits for air quality, climate change, levels of physical activity, and rates of vehicle-related injuries and deaths. Public transit and active transportation also make services, jobs, and recreational facilities more accessible to people of different ages, incomes, and abilities (YRPHB, 2010).

Contradictory - There have been a number of situations where the advice or messaging of different teams may be contradictory to that of another team. For example:

- The commitment to increased densities and mixed land uses can contradict the need to separate sensitive populations such as children and the elderly from air pollution sources such as high-volume highways and industrial facilities. For example, the Environmental Health team has been advocating that schools and daycares be adequately separated from high traffic areas, and that sensitive populations not be located on the ground level of building situated beside high traffic corridors;
- One team may be recommending bike lanes along high traffic corridors, while another team has concerns about people doing intense physical exercise along a corridor associated with high levels of air pollution, and still another has concerns about the injuries or fatalities that can be associated with that activity;
- One team may create health promotion resources that include a visual that contradicts an important priority for another team (e.g. a poster promoting cycling that shows a cyclist who is not wearing the appropriate safety gear);
- One team may be encouraging people to stay in at dusk to avoid mosquitoes that can be associated with West Nile Virus, while another team is encouraging physical activity at dusk to avoid the sun (YRPHB, 2010).

These situations identify the need for increased communication and collaboration between teams within the Public Health Branch to reconcile recommendations directed at health and the built environment and to ensure that the public is not confused by the various messages they are receiving (YRPHB, 2010).

Addressing the Health of Low Income Populations

A number of the priorities being sought by the Public Health Branch through land use planning processes would create health benefits for people living on low incomes. For example:

- Improvements in public transit would improve access to jobs and services for people on low incomes;
 - Low income families who live in automobile dependent areas are at a disadvantage due to the high cost of owning automobiles and the disproportionate income spent on transportation;
- The provision of safe cycling infrastructure would provide an alternate mode of transportation for people who cannot afford a vehicle. It could also increase levels of physical activity and reduce injuries among low income populations;
- The creation of walkable communities built with pedestrian-friendly infrastructure can encourage social inclusion and interaction, increase physical activity and mental health, and reduce injuries among people who live on low incomes;
- The provision of mixed housing would increase the number of affordable homes for people living on low incomes, and ensure that they are located in healthy neighbourhoods; and
 - Mixed housing provides opportunities for community members from all income levels to know and help each other; it reduces social isolation and improves mental health; it increases civil stewardship and participation in community decisions.
- Ensuring that adequate separation distances are provided between emission sources such as highways and industrial facilities, and sensitive land uses such as homes and daycares, may protect people on low incomes who live in close proximity to air pollution sources;
- Ensuring that open spaces, parks, and safe playgrounds are available across the community;
 - Open spaces and parks promote social interaction and a sense of community; they can foster mental health and improve the quality of life improves; they foster physical activity and play (YRPHB, 2010).

The Public Health Branch also has a number of other programs that are directed at the protection and promotion of health among low income people beyond the work that is related to the land use planning processes. For example, Nutrition Services is involved in a number of community food security projects and access to healthy foods initiatives. In addition, the Health Protection Division investigates complaints from tenants in housing with mould, indoor air quality or other environmental issues (YRPHB, 2010).

As part of the recently initiated Extreme Heat Program, the Health Protection Division will be conducting an evaluation to inform future program planning. Program planning will address strategies for interventions, education and outreach for target populations, of which low-income populations may be a focus (YRPHB, 2010).

Organizational or Mandate Issues

Senior Management Support

The Senior Management in York Region supports Public Health staff working with other Regional departments and Branches on land use and transportation issues. For example, the BHC Committee participates on Regional committees, comments on Official Plans, Sustainability Plans, and New

Communities' Guidelines; and the Environmental Health Team participates on the Development Review Committee. There is also a growing recognition among Regional Councillors about the importance of public health in the community development and land use planning processes.

Capacity Issues

Historically, York Region Public Health participated on the land use planning process only as it related to water quality and sewage disposal. The inclusion of public health comments relating to health impacts of the built environment on air quality, climate change, physical activity, injury prevention and nutrition, is a fairly recent phenomenon. As new members at the Planning table, Public Health Branch staff have had to educate their counterparts in other Branches and Departments about the relationship between health and the built environment. While Health staff have been enthusiastic about this new role, they have needed time to research and synthesize health evidence to support healthy public policies. In some cases this evidence, or the best practices, do not address the local situations being addressed (YRPHB, 2010).

Need Support for Upstream Interventions

Among those who work in Healthy Lifestyles, there are some concerns about the orientation of the MHPS towards diseases and sports, instead of upstream policy interventions. While they are very pleased that the MHPS has created the Healthy Communities Fund, they are disappointed that the fund is being directed at sports facilities rather than interventions directed at the built environment. They feel that public health has the mandate and capacity to collaborate with partners to develop and implement long-term sustainable programs that can be used to establish policies that will have a positive impact on the built environment, promote health and prevent diseases. They feel that public health has the expertise but needs more resources to do this job well (YRPHB, 2010).

Need Support Addressing Air and Climate through Built Environment

Among those who work in Health Protection, there are concerns that the MOHLTC is not adequately resourced to support PHUs striving to address the Ontario Public Health Standards' requirements relating to air quality and climate change. Health unit staff have been consulted by provincial ministries on health issues associated with air quality, climate change, and the built environment when there has been no one present from the MOHLTC to address health concerns associated with these issues (YRPHB, 2010).

Research, Policy & Resource Needs

Legislative Supports

The work of the York Region Public Health Branch could be more effective if the following legislative supports were provided by the Province:

- There were clear guidelines developed at the provincial and federal government level on the separation distances that are needed to protect sensitive receptors from the air quality health impacts associated with high volume traffic corridors;
- The Province's D-6 Guidelines on Incompatible Land Uses were updated to provide guidance on separation distances needed to protect sensitive receptors from emission sources such as industrial facilities;
- The air standards for the criteria air pollutants, particularly nitrogen dioxide and sulphur dioxide, were updated to reflect the new health-based evidence that has accumulated over the last few decades;
- An air standard for fine particulate matter (PM_{2.5}) were developed;
- There were built environment guidelines that could be used to encourage urban design that supports transit and active transportation;
- The Ontario Public Health Standards articulated more clearly the role of PHUs and provides strategies to address the health impact of the built environment so they could be properly resourced;
- The Building Code was improved to mandate more efficient homes and businesses including facilitating grey water use, green roofs, electricity generation, more insulation, improved air quality, window guards, sprinklers and homes with accessible and universal design to serve the people regardless of age or level of ability or mobility; and
- The Environmental Assessment Act included assessment of health impacts as well as assessment of environmental impacts (YRPHB, 2010).

Resources or Tools

The work of the Public Health Branch could be more effective if the following resources or tools existed:

- Research linking injury prevention and the built environment;
- Built environment guidelines that could be used to encourage urban design that supports transit and active transportation;
- "Best practice" policies on climate change mitigation and adaptation that could be applied to Official Plans and Secondary Plans;
- Spatial mapping tools that could be used to analyze the health impacts of different development patterns;
- Training and resources on the Planning Act and land use planning processes for public health professionals; and
- Research on built environment indicators that could be used by Planners and Public Health (YRPHB, 2010).

York Region Public Health Branch Resources

- Food, Nutrition and Food Security www.york.ca/nutrition
- Outdoor Air Quality Health Index
www.york.ca/Services/Public+Health+and+Safety/Environmental+Health/Outdoor+Air+Quality+.htm

- 20/20 The Way to Clean Air campaign
www.york.ca/Services/Public+Health+and+Safety/Environmental+Health/The+Way+to+Clean+Air.htm
- Extreme Heat
www.york.ca/Services/Public+Health+and+Safety/Environmental+Health/Extreme+Heat.htm
- Indoor Air Quality
www.york.ca/Services/Public+Health+and+Safety/Environmental+Health/PH_HInDAirQ.htm
- Safe Water
www.york.ca/Services/Public+Health+and+Safety/Safe+Water+Program/Default++Safe+Water+Program.htm
- York Region's Sun Sense Coalition's Plant Trees and Build Shade campaign
sunsafeyork.org/
- Go Active campaign
www.york.ca/Services/Public+Health+and+Safety/Healthy+Lifestyles/Go+Active.htm
- Travel Smart Cornell www.travelsmartcornell.ca/
- Travel Smart Thornhill www.travelsmartthornhill.ca/
- School Travel Planning – Green Communities Canada
www.saferoutestoschool.ca

D Public Health Units - Greater Toronto Area

2. Peel Public Health

Interview Participants

Office of the Medical Officer of Health

Inge Roosendaal, Research and Policy Analyst

Chronic Disease and Injury Prevention

Bhavna Sivanand, Specialist

Environmental Health

Kiran Ghai, Research and Policy Analyst

Peel Region

City of Mississauga

City of Brampton

Town of Caledon

Background

The Region of Peel covers an area of 1,254 square kilometres. It is bounded by Toronto and York Region on the east, Wellington County and Halton Region on the west, Simcoe and Dufferin County on the north, and Lake Ontario in the south. It has a two-tier government; the upper tier is the Regional Municipality of Peel and the lower tiers include the Cities of Brampton and Mississauga, and the Town of Caledon (PPH, 2010).

Peel Region includes urban and rural areas and has a population of approximately 1.2 million residents. The City of Mississauga captures most of the current population but the City of Brampton is growing quickly (i.e. it is currently the second fastest growing community in Canada) and is expected to close the gap in the near future. The Town of Caledon currently has a fairly small population but it covers a large land mass relative to the two Cities in Peel Region (PPH, 2010).

Peel Region is connected to some of the most significant environmental features in Ontario; the Niagara Escarpment, Oak Ridges Moraine, and Lake Ontario. It is subject to five provincial plans including the Greenbelt Plan, the Niagara Escarpment Plan, the Oak Ridges Moraine Conservation Plan, the Lake Simcoe Protection Plan, and the Growth Plan (PPH, 2010).

The PHU in Peel Region is part of the regional government. The Medical Officer of Health (MOH) reports to the Commissioner of Health Services who is responsible for Public Health, Paramedics and Long-term Care. The MOH and PHU reports to a BOH, which is the Regional Council in Peel Region. Regional Council is composed of three Mayors and 21 Councillors from the three local municipalities (PPH, 2010).

Health Priorities for Land Use Planning

From a land use planning perspective, Peel Public Health is focused on:

- Physical activity and its impact on obesity;

- Injury prevention;
- Air quality;
- Climate change and sustainability; and
- Health hazards such as toxics (PPH, 2010).

Organizational Structures

Support from the MOH

Health staff feel that their work on the built environment has benefitted from the strong support of their MOH who is very committed to these issues. He has provided strong leadership within the Health unit and the Corporation to ensure that Health staff can be effective in this field. He has also worked hard to identify funding for research needed to support Health's work in this field (PPH, 2010).

Three Divisional Leads

There are three divisions within the Health unit that deal with issues related to the built environment, the Office of the MOH, Chronic Disease and Injury Prevention (**CDIP**) and Environmental Health. Each division has assigned a staff person to be the lead for their respective divisions; the Research and Policy Analyst from the Office of the MOH has a Master's in Urban Planning, is a Registered Professional Planner, and a member of the Ontario Professional Planners Institute. The Specialist from CDIP has a Masters in Public Health. In addition, the Research and Policy Analyst and Manager from Environment Health Division both have Masters in Environmental Studies where they studied Planning. The three Divisional Leads meet on a frequent basis and collaborate on the review of planning documents such as official plans, block plans⁵, and the Provincial Policy Statement (PPH, 2010).

The Research and Policy Analyst in the Office of the MOH ensures that the MOH is kept informed of work in this area and shares information with the other two divisional leads about related activities that are occurring at senior levels of management, the Council of Medical Officers of Health and/or the Association of Local Public Health Agencies. She can also ensure that Directors from both teams are brought into discussions on cross-cutting issues that may impact their teams (PPH, 2010).

Public Health Built Environment Committee

The health unit has established an informal process to support communication and collaboration on issues related to the built environment. On a quarterly basis, the Policy person from the MOH's Office and the two Divisional Leads meet with the two Managers and Directors for CDIP and Environmental Health to discuss the built form related activities of both teams (PPH, 2010).

Lessons Learned

Peel Public Health staff have found that it is helpful to their work on the built environment to have:

⁵ A Block Plan is similar to a Secondary Plan but it applies to greenfield developments that can involve several subdivisions and/or a number of different developers.

- Strong leadership and support from the MOH;
- Someone who reports directly to the MOH to address broad/high level issues related to the built environment;
- People with training in Planning who understand the processes in Planning involved in this work; and
- Meetings between divisions within health to ensure good communication and coordination on issues (PPH, 2010).

Relationships with Municipalities & Planning

Working with Planners

The relationships with Planning have been growing steadily through informal relationships that develop around projects and commenting opportunities. Planners in the Region and in the local municipalities are starting to understand the role of public health, its multiple mandates, and the breadth of its interest in land use planning processes.

Health unit staff communicate directly with Planners from the local municipalities on committees, around projects, and in other informal processes. However, when commenting formally on planning documents such as local Official Plans, health's comments are largely directed through the Regional Planners. On occasion, comments will be sent directly to local Planners through the MOH (PPH, 2010).



Planning Liaison

A few months ago, the health department hired a Junior Planner on secondment from the Planning Department to facilitate communication and collaboration with regional Planners and Planners in the local municipalities. This is a pilot project. The Junior Planner reports to the health department but is located within the Planning Department. Her job is to: keep health informed of processes and opportunities for influence within the Planning Department; help health communicate its positions to regional and local Planners; and help Planning to understand the role, culture, and workings of the health department. Health is hoping that this arrangement will help to further integrate health into the land use planning processes within the Region. It also serves to strengthen the informal relationships with the Planning Department by providing opportunities to work closely with the Manager and Director of Planning with whom the Junior Planner works (PPH, 2010).

Development Process Working Group

Environmental Health also sits on the Development Process Working Group which is led by regional Planning. The group serves as a forum for members to share information on development issues (PPH, 2010).

Community Partnerships

Council of Medical Officers of Health & Association of Local Public Health Agencies

The MOH for Peel Health has been working through the Council of Medical Officers of Health and the Association of Local Public Health Agencies to increase awareness about, and action on, health issues as impacted by the built environment. The Council of Medical Officers of Health has recently struck a Health and Built Environment Committee to address these issues more effectively (PPH, 2010).

Building Industry

Peel Public Health is working to educate and engage developers and builders. Each time health develops a major piece, such as the Healthy Development Index, it consults with stakeholders including developers and the building industry (PPH, 2010).

OPHA Health & Built Environment Workgroup

The Environmental Health Research and Policy Analyst is the Co-Chair for the OPHA Health and Built Environment Workgroup (PPH, 2010).

Issues that Sparked Interest

In 2004, the Chief Medical Officer of Health for the Province released a report, "Healthy Weight, Healthy Lives", which declared that: "An epidemic of overweight and obesity is threatening Ontario's health". This report pointed the finger at "obesogenic" communities, workplaces, schools, and homes that "actually encourage or promote obesity" (MOHLTC, 2004). This report, and the ones that followed by the Heart and Stroke Foundation and the Ontario College of



Family Physicians, triggered an interest in health and the built environment in Peel Region. Building on these reports, and the health evidence they presented, Peel Health collaborated with the Region's Planning Department on a report to Council that identified the need for the Health Division to be folded into the land use planning processes within the Region (PPH, 2010).

Research, Background Reports & Policy Papers

Literature Review - Health and the Built Environment

In 2008, CDIP contracted the services of a consultant to conduct a literature review on health and the built environment. This 92-page report discusses the links between health and the built environment particularly with respect to the transportation sector. It discusses the health evidence related to the built environment through the lenses of physical activity, air pollution, pedestrian safety from traffic, and mental health. It also reviews some of the best practices related to health, the built environment, and land use planning processes. It was prepared to inform the development of a health assessment tool that could be used to assess and evaluate land use planning applications (PPH, 2010; Frank 2008).

Public Health Impacts Assessment Tool

In 2008, the PHU contracted the services of a consultant to develop a Health Impact Assessment Tool that could be used to assess the health impacts associated with development applications. While considerable work has been invested in this project, it was decided that the development of this tool was too big an undertaking for the Region of Peel at this time (PPH, 2010; Frank, 2009).

Healthy Development Index (Physical Activity)

In 2009, CDIP contracted the services of researchers at the Centre for Research on Inner City Health at St. Michael's Hospital to develop a Healthy Development Index that could be used to guide and evaluate development proposals. The researchers have proposed a Healthy Development Index that includes seven elements; density, service proximity, land use mix, street connectivity, road network and sidewalk characteristics, parking, and aesthetics and human scale. Each of these elements is further refined into "measures". The measures are quantifiable components of each element that are statistically associated with physical activity outcomes (Dunn et al., 2009).

The Healthy Development Index has been developed with the following steps:

- The literature that links built environment to health, as related to physical activity, was reviewed;
- The measures with the greatest strength of evidence were identified along with the numerical targets and ranges associated with them;
- Stakeholders were consulted on the measures proposed for the Index;
- The proposed measures were compared against existing standards in the official plans and secondary plans of the local municipalities within Peel Region; and
- The proposed measures were used to analyze three communities in Peel that are "widely considered to be walkable" to pilot them (PPH, 2010; Dunn et al., 2009; Dunn, 2008).

Staff from CDIP are now working with Planners in local municipalities to see how this Index works when used on new subdivisions that have been built to a new urbanism model to calibrate and validate it. The Index will be used as a tool to support "good planning policy" both at the pre-consultation stage of planning processes and at the review stage (PPH, 2010).

Conceptual Models

In 2008, Peel Health contracted a consultant to work with staff to develop conceptual models that visually demonstrate how different health impacts and interventions are related to built form (PPH, 2010).

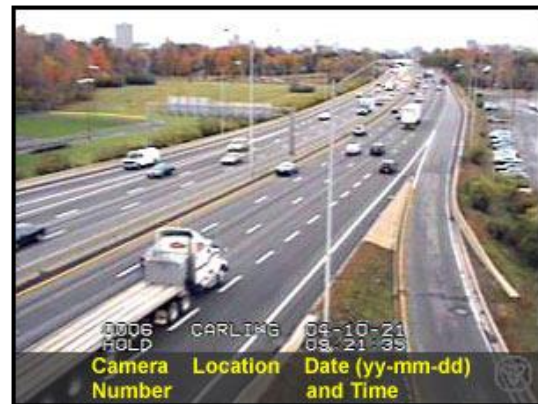
Background Paper - Air Quality

In 2007, Environmental Health prepared a background paper on air quality to support the review of the Region's Official Plan. This report was used as an internal document to begin discussions on the official plan update (PPH, 2010; PPH, 2007).

Discussion Paper - Air Quality

In 2008, Regional Planning and Environmental Health contracted the services of a consultant to prepare a discussion paper on air quality for the Official Plan Review process. This paper built on the internal discussion paper prepared by Environmental Health. The Paper provided the following information:

- An overview of air quality pollutants, sources and impacts;
- A summary of key policy directions that inform approaches to improving air quality at a local level and initiatives ongoing in the Region and its municipalities;
- An assessment of the current air quality situation in Peel Region;
- A review of best practices; and
- Recommendations for Official Plan policies (PPH, 2010; Peel, 2008a).



Background Research - Instruments to Assess the Air Quality for Development

In 2010, Environmental Health contracted the services of a consultant to examine how ten municipalities on three different continents (i.e. North America, Australia and the United Kingdom) have assessed air quality with consideration for both cumulative air quality impacts and proximity between emission sources and sensitive land uses. This report will inform and support the implementation of two of the new air quality policies in the Regional Official Plan (PPH, 2010).

Air Modelling & Monitoring to Inform Land Use Planning

In 2010, Environment Health contracted the services of a consultant to examine the different air monitoring and air modelling technologies and methods that could be employed to assess air quality across the Region to inform land use planning processes. This piece is being done to inform and support the implementation of one of the air quality policies in the new Regional Official Plan (PPH, 2010).

Use of Geospatial Tools

Diabetes and Built Environment

CDIP has contracted the services of the Institute of Clinical and Evaluative Sciences to map the rate of diabetes by neighbourhood in Peel Region and to compare those rates against characteristics in the community such as access to healthy foods and mixed land uses (PPH, 2010).

Urban Heat Island

Environmental Health partnered with the Clean Air Partnership (CAP), the City of Toronto, Town of Ajax, City of Hamilton and GeoConnections (Natural Resources Canada) to develop an on-line mapping tool to help staff:

- Assess the vulnerability to heat of both populations and places in the Greater Toronto and Hamilton Area ;
- Examine the relationship between 'hotspots' and other variables such as age and income; and
- Support heat-related communications activities (PPH, 2010).

Growth Plan & Official Plans

Regional Official Plan

Staff in Peel Public Health were involved in the review of the Regional Official Plan as the Region responded to the Province's Growth Plan. The three divisional leads:

- Reviewed background and discussion papers prepared on energy, sustainability, air quality, waste, managing growth, natural heritage and transportation;
- Were involved in stakeholder consultation sessions on the different focus areas of the official plan update;
- Provided detailed comments on the new proposed sections/policies of the official plan; and
- Proposed new policies to be included in the official plan (PPH, 2010).

Physical Activity Official Plan Policies

CDIP worked to have a few new policies added to the Regional Official Plan that would strengthen health's ability to assess development applications for their impact on walkability. The following policies have now been adopted with the approval of the Peel Regional Official Plan Amendment (ROPA) 28:

- *The Region will prepare an assessment tool to evaluate the public health impacts of development, jointly with the area municipalities.*
- *The Region may require health impact studies as part of a complete development application to amend the Regional Official Plan.*

- *The Region may develop public health indicators to analyze the effectiveness of Official Plan policies and serve as a basis for policy adjustments (PPH, 2010).*

Air Quality Official Plan Policies

Planning and Environmental Health co-led the air quality section of the Regional Official Plan Update. A new section on air quality, along with new policies, was adopted. The new policies that were adopted include the following:

- *In consultation with the area municipalities, develop tools to assess the air quality implications of development that minimize adverse human health effects. These tools would be applied to, but not limited to, development applications and projects that may be insignificant by themselves, but cumulatively are significant.*
- *Develop a multi-stakeholder air quality management plan to provide more detail on policies and strategies for reducing air pollution.*
- *Support the development of area municipal official plan policies including, but not limited to, setbacks for residential developments, transportation corridors and the separation of sensitive land uses from both planned and existing sources of harmful emissions.*
- *Monitor and model air quality to accurately establish local air emissions in Peel and report on the findings from the monitoring and modelling (PPH, 2010).*

Local Official Plans

Staff in Peel Public Health have also been involved in the review processes for the official plans for the local municipalities. In these cases, staff have also focused on air quality, climate change, the urban heat island effect, and active transportation (PPH, 2010).

Master Plans, Strategies & Programs

Transportation and Transit Master Plan

Peel Public Health provided comments on the Transportation and Transit Master Plan drafted for the City of Brampton. While commending the City for its commitment to expand the transit system in Brampton, Peel Public Health also encouraged the City to do more to improve pedestrian and cycling networks for utilitarian purposes. In particular, Peel Public Health encouraged the City to:

- *Consider raising bike lanes above street level at grade with sidewalks on streets with high truck volumes;*
- *Create designated bike lanes on major streets that are used for utilitarian cycling; and*
- *Add secure bicycle parking facilities at existing and proposed new transit hubs (PPH, 2010; PPH, 2009).*

Active Transportation Master Plan

CDIP has a representative at the table for the Planning process to develop an Active Transportation Master Plan for the Region. This Plan will be assessing existing infrastructure and identifying future priorities. In this process, health staff will work to ensure that issues related to interconnectivity between municipalities and modes of transportation are addressed (PPH, 2010).

Sustainability Plans

Staff from Environmental Health are participating in the consultation processes for the development of the Sustainability Plans for the Cities of Mississauga and Brampton (PPH, 2010).

Climate Change Strategy

Environmental Health is also participating in the development of a Climate Change Strategy for the geographic region of Peel; a process that is being led by the Region's Planning Department. Other partners include the three local municipalities, the Toronto and Region Conservation Authority and the Credit Valley Conservation Authority (PPH, 2010).

Secondary Plans, Subdivision Plans & Site Plans

Block Plans

In Peel Region, block plans are developed for greenfield development in large areas that may contain several subdivisions and a variety of developers. The three Divisional Leads review block plans. At this stage in the process, health staff examine issues which would affect health and address issues such as connectivity from an active transportation perspective and proximity to services in terms of "walkability". This is the stage where they see the new health Index being used.

The health team also wants to get involved in the pre-consultation meetings so they can identify issues to be raised with Developers before proposals are drafted (PPH, 2010).

Secondary Plans

Staff have also provided comments on secondary plans. For example, on one secondary plan, health staff provided the following comments, among others:

- For the section on **Parks** consider:
 - *Safe pedestrian and bicycle access to proposed neighbourhood parks;*



Photo: Peel Region

- *The provision of several entry points from residential areas to neighbourhood parks that can be accessed by foot;*
- For the section on **Retail, Commercial and Employment Facilities** consider:
 - *Indicating that adequate parking facilities be considered after pedestrian and bicycle access to commercial facilities are accommodated; and*
 - *Minimize the number of drive-through facilities in residential areas;*
 - *Encourage the use of LEED Certified buildings;*
 - *Require Business Parks to consider access by alternate modes of transportation;*
- The section on **Residential Areas, Density Targets and Transit** consider:
 - *A higher density target where appropriate above and beyond the minimum requirement of the Growth Plan to support potential transit infrastructure;*
 - *Non-motorized access to transit facilities when integrating road systems into existing and proposed transit developments;*
- *Consider the design and integration of **schools** into the community to foster a sense of safety, paying attention to lighting and points of entry (PPH, 2010; PPH, 2008b).*

Subdivision Plans

Environmental Health used to comment on subdivision plans from sewage control perspective, before much of the Region was on municipal water. More recently, one of the regional Planners has been pulling health staff in to review subdivision plans that have been developed under block plans that included comments and/or policies submitted by health staff (PPH, 2010).

Staff have not been raising issues associated with access to healthy foods through the land use planning process for two reasons: they believe that comments related to the location of grocery stores would only be ignored; and they believe that there is insufficient health evidence to warrant action on these issues through the land use planning process (e.g. community gardens) (PPH, 2010).

Site Plans

As a rule, Peel Public Health staff have not been involved in the review of Site Plans because they feel this is not a good use of their resources. They feel that the changes that they could affect at this stage in the process are not sufficient to warrant staff resources at this time (PPH, 2010).

However, Environmental Health does respond to requests from the Planning Division for assistance with environmental and health assessment reports prepared for site plan applications that involve toxic substances. For example, Environmental Health has been asked to review an Air Quality report for a proposed crematorium that would be expected to emit heavy metals such as mercury as well as other air pollutants (PPH, 2010).

Environmental Assessments & Certificates of Approval

Peel Public Health's Environmental Health division includes staff with expertise in toxicology, epidemiology, land use planning and health promotion. In the past, Environmental Health used to

comment on subdivision plans from a sewage control perspective (before much of the Region was on municipal water). Today, this team monitors the Environmental Bill of Rights (EBR) Registry on a regular basis to check for certificates of approval related to air quality and will review those which have the potential to impact human health (PPH, 2010).

The Environmental Health team also meets with the staff from Public Works, the MOE, and the local municipalities to discuss certificates of approvals for waste. Issues related to air quality are brought up at these meetings. Also, Environmental Health staff meet with the district office of the MOE on a quarterly basis to discuss issues related to air quality. These meetings are frequently used by the MOE to inform the partners about other large projects proposed for the Region that have the potential to impact human health through air, water or soil (PPH, 2010).

Certificates of Approval

Over the last few years, Environmental Health has reviewed human health risk assessments and/or air quality assessments for certificates of approval (**CofAs**) related to air quality with a focus on large energy projects. When reviewing CofA applications or environmental assessments (**EAs**), Environmental Health will request an air quality assessment that includes background levels of air pollution as well as the pollutants associated with the proposed development to ensure that residents are protected from the cumulative impacts of the proposed source on local air quality. While there may be limitations on the proponent's ability to estimate background air levels, Environmental Health feels that they are gradually educating the consultants who work for proponents, and the MOE staff, about the assessments that are necessary to protect public health (PPH, 2010).

Environmental Assessments

Environmental Health also reviews reports prepared for EAs for large undertakings that have the potential to impact human health in the region. For example, over the last few years, staff have reviewed reports prepared for EAs directed at major road widenings proposed by the Province and the Region, natural gas-fired power plants proposed by a private firm, and incinerators proposed by the Region:

- With the natural gas-fired power plants, Environmental Health requested that background levels of nitrogen dioxide and fine particular matter be included when the proponents assessed the air quality impacts associated with their proposals;
- With the Region's biosolids incinerator, Environmental Health examined emissions of mercury, a toxic that can accumulate in the food chain when deposited in lakes and rivers. In this case, Peel Public Health worked with the Public Works Division to bring the incinerator into compliance with the Canada Wide Standard for mercury. Mercury pollution control technology was installed on the incinerator units;
- With proposals to widen major highways such as the 401 and the 427, Environmental Health has proposed using High Occupancy Vehicle lanes to mitigate the impacts on local air quality, and that the air quality assessments consider the cumulative impact of the widening on the sensitive land uses adjacent to the highways (PPH, 2010).

Health Promotion & Public Awareness

Walkability Survey

In 2008, CDIP developed two Rapid Risk Factor Surveillance System modules; one on walking distance and one on neighbourhood characteristics. These modules were designed to find out how important distance to services and neighbourhood characteristics were to Peel residents in their current neighbourhoods or during the decision to move to a new neighbourhood. Only one of the modules has had a full cycle of data collection, so results have not been obtained yet.

Survey re: Neighbourhood Preference

CDIP hopes to conduct a rigorous study with a bigger sampling size and visuals of different types of neighbourhoods to find out what kind of neighbourhoods people prefer when shown various options. A preliminary neighbourhood preferences study will be conducted in 2011 as part of the Healthy Canada by Design grant-funded project. CDIP is seeking additional funding to increase the reach of this survey as part of a later project (PPH, 2010).

Overall

At this time, Peel Public Health is focusing on policy changes that would lead to changes in the built environment that would support active and alternative forms transportation. They are not doing social marketing to encourage people to cycle and walk because they feel that the infrastructure needed to support that activity does not yet exist. They will focus on social marketing campaigns once the infrastructure and services exist (PPH, 2010).

Addressing the Health of Low Income Populations

Peel Public Health feels that "complete communities" are much better for low income populations because they ensure jobs, services, affordable housing in good neighbourhoods, and recreational facilities that are readily accessible to everyone in the community. When working on these issues however, they emphasize the benefits of their interventions for all members of the community because they feel that this makes more sense strategically. In contrast to other jurisdictions, Peel Health has found no evidence of an income gradient related to health outcomes in Peel Region. They have therefore concluded that interventions related to environmental determinants are better directed at the overall population. Staff feel that the interventions health is pressing are more likely to be supported by the public, elected representatives, and developers when they are "sold" as beneficial to all members of the public (PPH, 2010).

Complementary & Contradictory Interventions

Health staff feel that there are many complementary health benefits associated with the interventions they are working on. They feel, for example, that active transportation addresses many of the health priorities related to both CDIP and Environmental Health (PPH, 2010).

Evaluation

Peel Public Health is not in a position yet to evaluate the policy work that it is doing on the built environment. That may happen as they move into the next stages in the process (i.e. rolling out the policies). It has however, evaluated specific projects that have had national funding. For example, the Healthy Canada by Design project funded by the Canadian Partnership Against Cancer. In these cases, evaluation will be directed mainly at the processes and objectives with some focus on short-term outcomes (PPH, 2010).

Organizational or Mandate Issues

Peel Public Health has addressed a number of the organizational issues that can complicate work on the built environment by:

- Creating a Research and Policy Analyst position within the MOH's Office who can keep the MOH informed of built form activities and provide strategic and high-level advice;
- Ensuring that the Directors, Managers and Leads from the three divisions active in the built environment meet on a quarterly basis to share information and coordinate their work; and
- Encouraging close collaboration between the three divisions who work on the built environment on the review of planning documents (PPH, 2010).
- Showing leadership in the Public Health's Strategic Plan by creating a program priority that addresses population-based initiatives in the fight against obesity. Part of this priority is to develop an anti-obesity strategy that considers the effect of the built environment (and the food environment) on obesity.

Research, Policy & Resource Needs

Peel Public Health has submitted detailed comments on the Provincial Policy Statement to identify changes that would make it easier to achieve healthy communities. In addition to those changes, Peel Public Health staff feel that it would be easier to succeed in this area if:

- There were an Inter-ministerial Committee with representatives from the Ministries of Health Promotion, Health and Long-term Care, Transportation, Municipal Affairs and Housing, and the Environment, that was addressing issues related to health and the built environment;
- There was funding for projects being done locally that provide information that is useful to many in this field of work;
- There were a market-demand housing survey conducted to support work in this field;
- There were a province-wide social marketing campaign on the built environment to help raise awareness among residents and elected representatives on the impact that the built environment has on human health directly and indirectly;
- There were public service advertisements that helped shift public attitudes towards higher density living; and

- There was a province-wide campaign that helped people to understand all of the different work that staff in the public sector do (PPH, 2010).

Peel Public Health Resources

- Health and Urban Form see <http://www.peelregion.ca/health/urban/>
- Clean Air Peel see <http://www.peelregion.ca/health/cleanairpeel/index.htm>

D Public Health Units - Greater Toronto Area

3. Halton Region Health Department

Interview Participants

Chronic Disease Prevention and Oral Health Division

Kristie Daniel, Senior Policy Analyst, Chronic Disease Prevention

Tanya Rumble, Health Promoter, Chronic Disease Prevention

Health Protection Division

Paul Burgher, Supervisor, Healthy Environments

Beckie Jas, Environmental Health Specialist

Office of the Medical Officer of Health

Peter Steer, Environmental Health Senior Policy Analyst

Halton Region

Town of Oakville

City of Burlington

Town of Milton

Town of Halton Hills

Background

Halton Region is bounded by Peel Region on the east, the City of Hamilton on the west, Wellington County on the north and Lake Ontario on the south. Halton Region is governed by a two-tier system with the Regional Municipality of Halton as the upper tier municipality, and four local area municipalities as the lower tier municipalities. It currently has a population of approximately 450,000 people with most of that population located in the south in Oakville and Burlington. By 2021, the Region is expected to have a population of 628,900 with most of the growth occurring in Milton. In 2006, Statistics Canada identified the Town of Milton as the fastest growing community in the country (HRHD, 2010).

Halton Region can be characterized as an urban/rural mix with two well developed urban centres (i.e. Oakville, Burlington), one quickly growing urban centre (i.e. Milton), and rural land in parts of Milton and most of Halton Hills. There are over 500 working farms in Halton Region. It is rich in natural heritage with the Niagara Escarpment and Greenbelt running through three of its four local municipalities. Halton is subject to three provincial plans; the Niagara Escarpment Plan, the Greenbelt Plan, and the Growth Plan (HRHD, 2010).

The Halton Region Health Department (**HRHD**) is situated in the Regional government. The Medical Officer of Health (MOH), who is also the Commissioner of Health, reports through the Health and Social Services Committee to the Regional Council. The Committee is composed of the Regional Chair and Regional Councillors representing each of the four local municipalities (HRHD, 2010).

Health Priorities for Land Use Planning Processes

For the Health Department, the health priorities for the land use planning process are:

- To improve local and regional air quality;
- To protect residents from localized pockets of poor air quality;
- To mitigate, and adapt to, climate change;
- Increase physical activity among residents
- To reduce injuries related to vehicles;
- To increase community food security;
- Increase social cohesion, health equity, and mental health by creating complete communities; and
- To protect ground and surface water quality /quantity (HRHD, 2010).

Organizational Structures

Historical Involvement in Land Use Planning

In Halton, the health department has a long history of involvement in the land use planning process from the Healthy Environments Team. Staff in the Healthy Environments team have been reviewing land use planning applications for their potential impact on ground water quality and quantity for more than 15 years. In 1996, the health department worked with the Planning Department to create an Urban and Rural Servicing Guidelines for water supply and wastewater treatment including Guidelines for Hydrogeological Studies and Standards for Private Services. The Guidelines for Hydrogeological Studies and Standards for Private Services is used by the Health Department to identify acceptable standards for private services within the region. It also provides a generic guideline and methodologies for the investigation and submission of site specific hydrogeological studies in support of proposed developments on private services. This guideline has been adopted by Regional Council and referenced in the Regional Official Plan (HRHD, 2010).

Dedicated Person in the MOH's Office

In 2006, the Departmental Management Team refocused the Senior Policy Analyst position within the MOH's Office so that person would be dedicated to two objectives: folding air quality into the land use planning process as per the Region's Strategic Plan; and coordinating the health department's involvement in the land use planning process (HRHD, 2010).

Multi-Disciplinary Team

In 2007, a multi-disciplinary Environmental Policy and Promotion team in the MOH's Office with experience and/or expertise doing research, policy analysis, and health promotion on issues related to air quality, planning, and climate change. This newly formed team had responsibility for:

- Research and policy analysis on issues related to the built environment;
- Participating in the process for the Regional Official Plan;
- Reviewing secondary plans, subdivision plans, and site plans;
- Establishing an air monitoring and airshed modelling program that could inform and support the land use planning processes;

- Reviewing environmental reports for environmental assessments, certificates of approval, and large corporate projects; and
- Implementing a health promotion program on air and climate change (HRHD, 2010; MO-35-07).

A Planner was hired into one of the Senior Policy Analyst positions for one year to help the team understand the long-term and current land use planning processes they were trying to influence (HRHD, 2010).

On-Going Structure

While the multi-disciplinary team no longer exists, the internal processes established across divisions continue today on an informal basis, relationships with Planning are evolving, and work on all of health's built environment priorities is continuing (HRHD, 2010).

Board of Health

Over the last four years, 12 reports on air quality and 10 reports on walkability have been taken to the Health and Social Services Committee to: increase awareness and knowledge among Councillors on these issues; and provide them with frequent opportunities to provide direction and advice (HRHD, 2010).



Lessons Learned

Halton Region Health Department staff feel that they have learned some valuable lessons over the last number of years:

- At certain points in the process, it is critical to have one person who is reporting to senior management in the department who can coordinate staff from different divisions, and who becomes the sole contact person for the Planning Department. It is particularly helpful if that person has a broad understanding of the issue (i.e. understands the many ways in which the built environment can impact upon the health of residents);
- At certain points in the process, it can be helpful to have someone with Planning expertise on the health team to help staff understand how and when to communicate its objectives and comments;
- When staff do the research for policy pieces themselves, they develop expertise in the field in a way that would not occur if the policy reports were prepared by outside consultants. This builds confidence within the Department and credibility with the Planning Department; and
- When staff are involved in the implementation side of the land use planning process (i.e. the review of secondary plans, subdivision plans, and site plans), they develop a practical understanding of the complexities associated with their policy objectives. They become partners

in the process with their colleagues in the Planning Department who share responsibility for resolving complex problems associated with reconciling competing priorities; and

- Social change and paradigm shifts require time and patience (HRHD, 2010).

Relationships with Municipalities & Planning

On land use planning applications and related issues such as Metrolinx or a new provincial highway, the health department communicates through the Region's Planners. Staff within the health department work directly with Planners from the area municipalities on committees and projects. They work with local planners and building officials to ensure that a proven well is established before a building permit is issued for any development in the rural areas. And they work with the Environmental Director, Environmental Coordinators, and Sustainability Coordinators in the area municipalities on issues related to the built environment (HRDH, 2010).

Community Partnerships

Overview

Staff in both the Chronic Disease Prevention and Health Protection Divisions within the Health Department partner with a number of agencies on educational programs and social marketing campaigns directed at the built environment such as Conservation Halton, the police, GO Transit, Metrolinx, Parks and Recreation Departments in the local municipalities, the Halton Environmental Network, the Planning Departments in local municipalities, and the school boards.

Active Halton

The Chronic Disease Prevention Division team works with a network for individuals and organizations that have an interest in promoting active lifestyles for all ages in the Halton community (HRHD, 2010).

Health Partners for Clean Air

The Health Protection Division facilitates the Halton Partners for Clean Air, a partnership that includes representatives from the four local municipalities, the hydro utilities, the school boards, Conservation Halton, the Ministry of Transportation Ontario, MOE, industry, local environmental groups, as well as other regional departments. This partnership shares information, coordinates work, and collaborates in the preparation of resource materials for campaigns directed at air quality, climate change, and energy efficiency. It also developed a Halton Clean Air Plan Program that could be used by each organization to guide the development of corporate programs for air quality and climate change (HRHD, 2010).

Research, Background Reports & Policy Papers

Policy Paper - Air Quality, Human Health and the Built Environment

In 2007, the health department released a policy paper which: explained how air quality is impacted by the built environment; and provided a strategy for addressing the issue throughout the land use

planning process. It identified transportation systems, fuel consumption for space and water heating, electricity generation, industrial sources, and open sources such as quarries and road dust, as major sources of air pollution in Ontario and Halton Region and recommended that the Region:

- Establish an airshed modelling program that can be used to assess air quality across the Region, evaluate the contribution of new emission sources on air quality, and inform land use planning decisions and policy development;
- Explore portable air monitoring equipment and/or resources that can be used to assess air quality in micro-environments such as traffic corridors, to support land use planning decisions and policy development;
- Explore the legal instruments that can be used to establish “complete communities” criteria that can be used to reduce vehicle-related emissions of air pollutants and greenhouse gases across the Region;
- Explore the legal instruments and/or incentives that might be used to encourage the early application of the EnerGuide 80 standard to small residential buildings, the application of LEED™ standards to large buildings, and the use of alternative or renewable energy systems in new buildings to improve air quality and retard climate change; and
- Explore the legal instruments that could be used to establish set-back guidelines for incompatible land uses, such as schools and highways, to provide greater protection to sensitive populations such as children from air pollution" (HRHD, 2007a).

Comprehensive Air Quality Program

In June 2007, at the Request of Council, the health department proposed a comprehensive air quality program that could be used to inform and support the land use and transportation planning processes in the Region. This was a multi-tiered program that included:

- An airshed modelling and air monitoring program;
- Policy development work directed at air quality, climate change, and land use planning;
- The development and implementation of an air and climate health promotion program that seeks to shift attitudes towards energy use, modes of transportation, and urban form (HRHD, 2010; HRHD, 2007b; HRHD, 2008a; HRHD, 2009d).

This report included a 10-year budget for air monitoring, airshed modelling, policy development and health promotion, which was approved by Regional Council in June 2007 (HRHD, 2007b).

Four Policy Papers - Phase I of Sustainable Halton Process

Four background papers were prepared by the health department to support Phase I of the Sustainable Halton Process established by the Planning Department to bring the Regional Official Plan into conformity with the Province's *Places to Grow* policy. These papers provided support for the "Healthy Communities" policies already captured in the Official Plan, laid the groundwork for new policies and guidelines directed at air quality, and supported new policies and implementation guidelines directed at the creation of healthy communities. Public consultation was conducted on the four background

reports along with the other 18 documents that were prepared for Phase I of the Sustainable Halton process through the Planning Department (HRHD, 2010).

Air Quality, Human Health & the Built Environment

This is a 43-page report that was adapted from the Health's Department's 2007 air quality policy paper (HRHD, 2007c).

Physical Activity & the Built Environment

This is a 34-page report which summarizes the health and social science literature on physical activity, its impact on human health, and its relationship to the built environment. The barriers to physical activity are discussed along with leisure-time and utilitarian physical activity (HRHD, 2007d).

Community Food Security

This is a 37-page report which discusses four aspects of community food security. It discusses the importance of preserving local agricultural land to: support the local food economy; promote fresh foods that are high in nutritional value; and promote foods that have been subjected to high food safety standards. It discusses the importance of community designs that encourage universal access to fresh foods, urban agriculture, and affordable housing because of the link between housing costs and the ability of families to afford healthy foods (HRHD, 2007e).



Healthy Communities Principles

This is a 20-page report which summarizes the healthy communities model as articulated by Ron Labonte at the University of Toronto in 1993. It analyses the complete communities concept enshrined in the Province's *Places to Grow* legislation through the healthy communities principles articulated in Labonte's model (HRHD, 2007f).

Two Policy Papers - Phase III of the Regional Official Plan Process

The health department prepared two policy papers to support Phase III of the Sustainable Halton Process. These two policy papers were, when released, "unique to the Province". Both built on the Health's 2007 policy paper on air quality and on health's background reports for Phase I of Sustainable Halton.

Creating Walkable and Transit-Supportive Communities in Halton

This 71-page policy paper provides the air quality, climate change, and physical activity arguments for creating walkable and transit-supportive communities. It then identifies an array of criteria that could

be captured in an official plan, secondary plan or implementation guideline to guide and/or evaluate development patterns to ensure that they support active transportation and public transit, siting the health evidence which supports each. It does so using the "Density, Diversity, and Design" approach. For example, it recommends the following parameters for consideration:

- *To create transit-supportive densities:*
 - *Locate neighbourhoods and employment areas within a 400 m to 800 m radius around activity nodes, transit nodes, or activity corridors;*
 - *Activity nodes, transit nodes and the 400 m radius around them have a minimum of 200 residents and jobs per gross hectare;*
 - *Activity corridors have a minimum of 80 residents and jobs per gross hectare*
 - *Transitional zones within 800 m of activity nodes and transit nodes in greenfield communities have a minimum 75 residents and jobs per gross hectare....;*
- *To provide appropriate housing for people at all stages of life and income, align the housing mix with the density targets for activity nodes, transit nodes and activity corridors;*
- *Residents live within 400 m of six diverse uses and within 800 m of 17 diverse uses. Because of the important role that access to retail food markets plays in creating complete communities and ensuring access to healthy foods, the best practice literature suggests that residents live within 800 m of a planned or existing retail food market such as a supermarket, grocery store, or produce store;*
- *Locate the land set aside for elementary schools within 1500 m of residents to maximize the numbers of students walking; and, locate the land set aside for secondary schools within 3000 m of residents and on local transit routes...;*
- *Design communities so that residents are within 400 m of an existing or planned transit stop...;*
- *Residents have access to a full range of parks described in the parkland hierarchy. Ideally residents will live within 400 m of a village square/parkette and within 800 m of a neighbourhood park. In addition, locate community parks, town/city wide parks and recreational facilities on local transit routes;*
- *Incorporate a walking and cycling review for pedestrian connectivity and safety at each stage in the planning process, which would include:*
 - *Residents have access to continuous sidewalks or equivalent provisions for walking along both sides of all streets...1.5 meters wide..;*
 - *Commercial areas have continuous sidewalks or equivalent provisions for walking along both sides of all streets...4 metres wide...;*
 - *Design streets on the basis of medium to short block lengths with a recommended maximum block perimeter that does not exceed 250 metres;*
 - *Where block perimeter exceeds 250 metres, a block pedestrian linkage is provided;*
 - *Neighbourhoods have a linked open space system ...;*
- *Incorporate a walking and cycling review for cycling connectivity and safety, at each stage in the planning process, which would include:*
 - *Neighbourhoods and communities accommodate a cycling network that includes bike lanes and off-road cycling or multi-use trails;*

- Roads with speeds over 60 km/h have separated lanes that are part of the road, not sidewalk, infrastructure;
- Roads with speeds between 50-60 km/h have marked bicycle lanes;
- Roads with speeds under 40 km/h are shared;
- Priority for cyclists in intersections;
- Reduce overly frequent stops or places where reduced cycling speeds are necessary;
- Residents have access to trip end facilities such as secure long-term bicycle parking such as lockers...;
- All streets, roadways, and designated bike routes are maintained to be free of deterrents to bicycling.... (HRHD, 2009a).



This report was peer-reviewed by a consultant with expertise in land use planning. It was used to support improvements in the policies contained in the Regional Official Plan Amendment 38 and is being used to inform and support the development of Healthy Communities Guidelines that will be appended to the Regional Official Plan (Halton, 2010).

Protecting Health: Air Quality and Land Use Compatibility

This 67-page report provides the health arguments for addressing land use compatibility from an air quality perspective. It reviews the Province's "Guideline D-6 Compatibility Between Industrial Facilities and Sensitive Land Uses" and compatibility guidelines in British Columbia, California, the United Kingdom, and Australia. It identified the need, among others:

- To develop a Halton-Specific Guideline on Compatible Land Uses;
- To adopt separation distances for high volume traffic corridors, and recommends:
 - a 150 meter separation distance between 400 series highways and sensitive land uses such as homes, schools and daycares; and
 - a 30 meter separation distance between secondary highways (i.e. with > 30,000 vehicles per day) and sensitive land uses except for condominiums and mixed-use buildings where building designs are used to mitigate air pollution impacts on indoor air quality; and
- To conduct site-specific air studies when proposed new developments would potentially result in separation distances, between industrial facilities and sensitive land uses, that are less than those recommended by the Province's D-6 Guidelines (HRHD, 2009b).

This report was also peer reviewed by a consultant with expertise in planning. It was used to support new policies for air quality in the Regional Official Plan Amendment 38, and is being used to inform the development of two new implementation guidelines for the Regional Official Plan (HRHD, 2010).

Airshed Modelling

In 2007, the health department was authorized by Regional Council to establish an airshed modelling program. A consulting firm was contracted to develop a Halton-specific airshed model that would estimate levels of the five common air pollutants across the Region with a 2 kilometre resolution. The airshed model has been built in layers with one for the residential/commercial sector, one for the industrial sector, one for the transportation sectors (which includes road dust), one for the agricultural sector, one for transboundary air pollution, and one that includes all sources combined. The first run of the model, and the report on it, were completed in December 2008. The report was subjected to peer review early in 2009. Once the model has been calibrated, it can be used to predict the impacts of broad land use and/or transportation planning decisions or policies on air quality across the Region (HRHD, 2007b; HRHD, 2008).

Air Monitoring Study re: Secondary Highway

In 2009, the health department conducted an air monitoring study along a secondary highway travelled by more than 30,000 vehicles per day to produce region-specific results that could be used to support new policies in the Regional Official Plan Amendment 38 respecting separation distances for traffic corridors. The Region's two AirPointers, portable air monitors that are capable to monitoring the five common air pollutants on a continuous basis, were used to monitor air quality at different distances and heights from the road to see how distance and height from the road affect air quality. This research provided Halton-specific data, which adds to the weight of evidence from other air monitoring studies, to conclude that concentrations of nitrogen oxides, and to some extent PM_{2.5}, are elevated in close proximity to high-volume traffic corridors. It also indicated that concentrations of nitrogen oxides decrease with increasing distance from the road and increasing height above the ground (HRHD, 2010c).

Air Monitoring Study re: 400 Series Highway

In 2010, a second air monitoring study was initiated along a traffic corridor in Halton Region. This study is being conducted beside a 400 series highway (i.e. the QEW). It is being conducted with the Region's two portable air monitors and a third air monitor on loan from the MOE. This study, which is being directed at the five common air pollutants once more, will sample air quality at ground level at 50 m, 150 m, and 250 m downwind of the highway, and at 100 m upwind and 50 m and 150 m downwind of the highway (HRHD, 2010).

Public Survey on Air Quality & Climate Change

The health department conducted a special survey on attitudes and behaviour related to air quality and climate change using the Rapid Risk Factor Surveillance System (RRFSS) from February to May of 2009. Questions for the survey were developed by health staff in collaboration with York University's Institute for Social Research. Questions were pilot-tested with a sample of 20 respondents prior to final implementation. Survey questions, which were completed by 598 individuals across Halton Region, were divided into six modules on the following topics:

- Impact of climate change on the environment;
- Impact of climate change on the local community;
- Impact of poor air quality on health;
- Responsibility of government in making changes related to air quality and climate change;

- Responsibility of individuals in making changes related to air quality and climate change; and
- Public transit, motorized Vehicles and active modes of transportation (HRHD, 2011).

The survey indicated, among other things, that:

- 91 per cent of respondents would support a by-law where all new houses were built to high energy efficiency standards but that support dropped to 79 per cent if the by-law resulted in the cost of housing increasing by 5 per cent;
- 80 per cent of respondent would support a by-law which required that all new neighbourhoods be built so that schools, parks and restaurants are within a 10 minute walk of homes, but that support dropped to 63 per cent if it meant the cost of housing by 55;
- 78 per cent of respondents would support spending money to improve transit within local communities, but that support dropped to 54 per cent if it meant a 2 per cent increase in property tax;
- 67 per cent of respondents would support spending money to improve transit between communities, but that support dropped to 45 per cent if it meant a 2 per cent increase in property tax (HRHD, 2011).

Use of Geospatial Tools

Health staff have done less work with geospatial tools that they would like to. On the Health Protection side, geospatial tools have been used to map sites associated with West Nile Virus and stores selling tobacco for their proximity to schools. Staff are currently mapping private wells and contaminated sites. On the Chronic Disease side, a research project is being conducted that could produce baseline information on the walkability of different neighbourhoods in the Region in a geocoded format (HRHD, 2010).

Health Department staff plan to use geospatial tools to maps air levels for the criteria air pollutants once the airshed modelling project is complete. These maps could then be used to estimate background air levels that could be used when assessing the air quality impacts for corporate projects such as the Energy from Waste proposal, for Certificates of Approval for large emission sources such as natural gas plants and quarries, and for Environmental Assessments for transportation projects (HRHD, 2010).

Growth Plans & Official Plans

Regional Official Plan Process

With the review of the Regional Official Plan, health was involved in all stages of the process. Health staff participated in the Region's Technical Advisory Committee and in the Inter-Municipal Advisory Committee. They also reviewed and commented in writing on many of the policy papers that were prepared for Phases I and III of the Regional Official Plan review process (which was called the Sustainable Halton process). As indicated earlier, health staff prepared four policy papers for Phase I of the process and two policy papers for Phase III. They also provided detailed comments on the Regional Official Plan on issues related to air quality, climate change, urban heat island effect, alternative energies, energy efficiency, active transportation and public transit (HRHD, 2010).

New Official Plan Policies & Guidelines re: Air Studies & Land Use Compatibility

Through its participation in the process, the health department was able to have three new policies and two new implementation guidelines respecting air quality assessments and incompatible land uses added to the Regional Official Plan:

- 143(2.1) Adopt **Air Quality Impact Assessment Guidelines** to ensure that development will not result in reduction in air quality in Halton, based on standards adopted by Council to protect the health of Halton residents.
- 143(10) Develop, in consultation with the Local Municipalities, the Province, Federal government and the railway agencies, **Land Use Compatibility Guidelines** to minimize the adverse effects of noise, vibration, odour and air pollution from industrial, transportation and utility sources on sensitive land uses, including the application of separation distance between these non-compatible uses.
- 143(12) Require the proponent of sensitive land uses in **proximity to industrial, transportation and utility sources** of noise, vibration, odour and air pollutants to complete appropriate studies and undertake necessary mitigating actions, in accordance with the Region's Land Use Compatibility Guidelines, Air Quality Impact Assessment Guidelines, and any applicable Ministry of the Environment guidelines.
- Specifically, **an air quality study** based on guidelines under Section 143(2.1) is required for such development proposals within 30m of a Major Arterial or Provincial Highway, or 150m of a Provincial Freeway, as defined by Map 3 of this Plan.

New Official Plan Policies & Healthy Community Guidelines

The health department's work also supported improvements in language respecting active transportation and alternative transportation throughout the Official Plan, as well as a commitment to develop **Healthy Community Guidelines** that can be used to encourage the creation of "walkable and transit-supportive communities". The newly amended Regional Official Plan includes the following policies:

- 152(1) Develop, jointly with the Local Municipalities, and adopt **Healthy Communities Guidelines** in accordance with the characterization under Section 31, which include, among other things:
 - a) description of general characteristics of a healthy community
 - b) desirable mix of land uses within the community



- c) *community design features that will promote integration of the community and accessibility by residents to services within and outside the community through active transportation and public transit*
 - d) *physical design features that will promote health and safety of the community's inhabitants*
 - e) *land use regulatory tools for promoting the shared use of land or facility by compatible uses or activities to facilitate the local delivery of human services*
 - f) *suggested level of service and facility requirement for the provision of human services over the full human lifecycle and under special circumstances and*
 - g) *other community features, facilities, programs and plans that will promote a healthy lifestyle based on the principles of sustainability, including access to local food supplies, reduction in automobile use, use of renewable energy sources, measures of conservation and stewardship of the environment.*
- *152(2) Require the Local Municipalities in their preparation of Area Specific Plans or Official Plan policies related to intensification and proponents of major development in submitting their applications, to have regard for the Healthy Communities Guidelines.*
 - *192. This Plan calls for the preparation of certain guidelines or protocols to provide more detailed directions in the implementation of its policies. They serve to guide processes required by policies of this Plan. In the event of conflict between guidelines and the Plan, the latter shall prevail. The following lists the guidelines referred to in this Plan....*
 - 192(5.1) Air Quality Impact Assessment Guidelines (Section 143(2.1))*
 - 192(5.2) Land Use Compatibility Guidelines (Section 143(10))*
 - 192(9) Healthy Communities Guidelines (Section 152(1)) (Halton, 2009).*

Within the new Regional Official Plan Amendment 38, there is also commitment to develop these implementation guidelines, as well as a number of others, within one year of the Plan's approval. Health staff are now involved in the Planning processes to develop Guidelines for Air Quality Impact Assessments, Land Use Compatibility, and Healthy Communities, and to update and revise the Hydrogeological Guidelines used to protect ground water (HRHD, 2010).

Local Official Plans & Secondary Plans - Review Process

On Long-term land use planning documents (i.e. Official Plans or Secondary Plans) documents are sent to the Senior Policy Analyst in the Chronic Disease Prevention team who reviews them for issues related to active transportation and alternative transportation using the "Density, Diversity, Design" approach (e.g. population density, mixed land uses, housing types, distance to transit, and connectivity). The documents are then forwarded to the Environmental Health Senior Policy Analyst who reviews sections for issues related to land use compatibility and air quality. The documents are then sent to the Supervisor on the Healthy Environments team who reviews them for issues related to ground water protection.

Comments are also offered on issues related to climate change, urban heat island effect, energy efficiency, renewable energies, social equities, mental health, and access to healthy foods when and where possible. Comments are pulled together by one person and submitted in one document (HRHD, 2010).

Master Plans

The Chronic Disease Prevention Senior Policy Analyst has participated in the processes for several different Transportation Master Plans. For example, the team has participated:

- On the Advisory Committee for the **Active Transportation Plan for Oakville** which addresses the needs of pedestrians and cyclists. In this process, the staff person has been working to ensure that the Plan provides connectivity and that it is "destination based" (i.e. that trails, bike lanes, and sidewalks take pedestrians and cyclists to useful or appealing destinations); and
- On the Regional Technical Advisory Committee for the **Region's Master Transportation Plan**; a process which is led by Transportation Service Division within the Public Works Department of the Region. This Plan is directed primarily at the Region's road systems but it does address bike lanes along Regional roads (HRHD, 2010).

Throughout these processes, the comments of health staff are informed and guided by the health department's policy paper on creating walkable communities. In some cases, the health department's policy paper is also being used as a resource by councillors and/or citizens on the committees as well (HRHD, 2010).

Secondary Plans, Subdivision Plans & Site Plans

Internal Review Process

For current planning issues (i.e. subdivision plans, site plans, severances), the Planning Department sends documents to the Healthy Environments team who review them for ground water issues. These documents are then sent to the Chronic Disease Prevention team who review them for issues related to active and alternative transportation. The documents are sent to the Environmental Health Senior Policy Analyst for review when there is the potential for issues related to compatible land uses. Comments from all three teams are all recorded on one form and then submitted to Planning. Staff resolve any potentially contradictory comments before submitting them to Planning (HRHD, 2010).

Ground Water Protection

The Healthy Environments team reviews subdivision plans, site plans, and severances for their potential impact on ground water quality and quantity. Since beginning this work, responsibility for the review and approval of private sewage disposal systems has been transferred to the local municipalities under the Ontario Building Code, but the Public Health Inspectors continue to review all land use planning applications that involve private services.

All development applications are sent to the Healthy Environments team. If a proposed development is on municipal services, the Healthy Environments team will, in most cases, sign off. If however, a proposed development includes private services or partial services, the Healthy Environments team will, in most cases, request that the proposal have an assessment conducted by a hydrogeologist as per the Regional Official Plan and its Hydrogeological Guidelines. These assessments are peer reviewed by a hydrogeologist that the Region has on retainer, at the expense of the proponent.

The Public Health Inspectors review the proponent's assessments and the peer review report and provide comments for or against the development to Regional Planning staff. All of these steps are guided by the Hydrogeological Guidelines (HRHD, 2010).

Active and Public Transportation

The Chronic Disease Prevention Senior Policy Analyst reviews subdivision plans for issues related to phasing of housing types, connectivity, walking and cycling infrastructure, and access to services within walking distance. She reviews site plans for townhouses, plazas, condominiums, and hospitals for safe pedestrian access, infrastructure for cyclists, and access to transit. On a few occasions, she has recommended that Planning consider using bonusing, under Section 37 of the Planning Act, to establish a green roof, community garden, or a grocery store in the building/complex, in exchange for increased height (HRHD, 2010).

Compatible Land Use and Air Quality

The Environmental Health Senior Policy Analyst reviews subdivision plans and site plans where a development is proposed that may be incompatible with existing land uses. For example:

- A daycare was proposed beside a high volume traffic corridor that would have elevated levels of air pollution. After receiving comments from the health department, the site plan was revised to put more distance between the outdoor playground and the roadway, and the building's ventilation system was re-designed to re-locate the air intake so that it would be further away from the pollution source;
- A drive-through was proposing to locate the queuing lane within six meters of a row of houses. The health department recommended that a minimum 30 meter separation distance should be provided between the queuing lanes and the houses using an Ontario Municipal Board decision on the same issue as the precedent. The site plan was revised so that the queuing lane was re-located further from the houses; and
- A residential development was proposed for a parcel of land near the 401. After receiving comments from the health department respecting health impacts, the proposal was changed to a non-sensitive land Use (i.e. non-residential) (HRHD, 2010).

Environmental Assessments & Certificates of Approval

Review Process

Environmental reports for the environmental assessments (EA), certificates of approval (CofAs), and/or site plans are reviewed by the Healthy Environments Team and/or the Environmental Health Senior Policy Analyst for issues related to water quality, contaminated soil, noise, electro-magnetic fields, toxics, and air quality. For example, the Healthy Environments Team recently reviewed the



expansion of a crematorium for downtown Milton that was expected to emit small amount of mercury and other contaminants (HRHD, 2010).

When the reviews involve toxics such as mercury or human health or ecological risk assessments, the Environmental Health Research Analyst, who has expertise in Toxicology, supports the Healthy Environments team with reviews. When the reviews involve an air quality assessment, the Senior Environmental Health Policy Analyst provides support (HRHD, 2010).

Cumulative Air Quality Approach

Over the last five years, whenever there has been a corporate project, an EA, or a CofA for a project that has the potential to significantly impact local air quality, the health department has asked that air quality assessments include:

- Background air levels for the common air pollutants where relevant (e.g. fine particulate matter, sulphur dioxide, nitrogen dioxide) so the project can be evaluated for its cumulative impact on air quality; and
- A frequency analysis for the common air pollutants that are assessed with background air levels so the evaluation demonstrates how frequently the combined impact of the proposed site and background air levels might be expected to produce air levels of concern from a human health perspective (HRHD, 2010; HRHD, 2008; HRHD, 2007g).

The cumulative approach to air quality has been raised by the health department for the air quality assessments conducted for:

- The Halton Hills Generating Station in Halton Hills and Milton;
- The expansion of the Roxul plant in Milton;
- The EA for the GTA West Transportation Corridor;
- The proposed extensions for two quarries, one in Burlington and one in Halton Hills; and
- The air quality assessments conducted for the natural gas-fired power plant proposed for the Clarkson and Oakville airsheds in 2009 (HRHD, 2010).

Health Promotion & Public Awareness

walkON

The Chronic Disease Prevention team has been involved in the development and implementation of *walkON*. *walkON*, which began as a project of the Central West Ontario Heart Health Coordinators, is a community partnership that engages the community, municipal staff, and elected officials in the creation of built environments that support walking for active transportation. The program goals are to educate the community-at-large and support community action.

In Halton, the health department works with community groups to organize information sessions and workshops in response to requests from councillors or community groups. Several have been organized in recent years in Acton, Georgetown and Burlington. These workshops have included citizens, community groups, environmental groups, representatives from the police, local or regional councillors, and staff from GO Transit. The reports from these workshops assist stakeholders, including municipal

decision-makers, to identify improvements in the built environment that should be prioritized for planning, fund raising and budgeting (HRHD, 2010).

Active and Safe Routes to School

Active and Safe Routes to School is a provincial initiative that strives to create an environment that is conducive to, and supportive of, safe, walkable communities. The health department has worked closely with the Halton District School Board on a pilot project with eight schools across the region. This pilot project was managed by health staff, guided by a steering committee, and supported and implemented by the Halton District School Board. The health department's epidemiology team conducted an outcome evaluation to determine if the pilot project's goals and objectives were achieved. Since the pilot, the Health Promoter was seconded to work at the Halton District School Board full-time on this program (HRHD, 2010).

Air & Climate Health Promotion Program

In 2007, Regional Council provided the health department with a \$50,000 a year budget, over three years, to develop and implement a comprehensive health promotion campaign on air quality and climate change. With that budget, staff prepared and implemented a multi-layered program that includes banners, book marks, articles in local papers and newsletters, web-pages, factsheets, real-time air monitoring data on the Region's website, videos, and a Tools for Schools kit:

- **Videos/Public Service Ads** - In 2008/2009, the Health Department prepared two one-minute videos on air quality and climate change. In both cases, using 'addiction to energy' as the theme, humor was used to identify how people can reduce energy use to improve air quality and slow climate change. One video deals with energy use on the road while the other addresses energy use in the home. These videos were posted on YouTube, We Conserve TV, the Region's website, and sent to community groups and schools and local libraries. They have also been shown in every movie theatre in Halton as Public Service Ads for one-month stints in 2009 and 2010. They were also shown as advertisements on the local TV channel and CHTV for two weeks in 2009 and 2010. Staff have estimated that these videos have reached over two million people. The videos won an Apex Award of Excellence, a Strategic Video Award (top winner in environmental communication) and were nominated in the INCHES (Environment and Health) film competition and screened at the Netherlands Film Festival;
- **Daily Web TV Videos** - In 2010, health staff collaborated with other regional departments to prepare four videos for Daily Web TV. Each video features a champion: one for active transportation; one for energy reduction on the road; one for energy use at home and at work; and one for air quality and health. Each segment includes a "meet the expert" component where a regional expert provides information/resources on the issue. These videos are scheduled to begin airing in January 2011 and will be followed by a contest for climate change champions (Halton residents);
- **Tools for Schools Kit** - Health staff have prepared a Toolkit on air quality and climate change for schools which includes a school curriculum guideline, factsheets, and "Q & As" that would allow teachers to use the Region's real-time air monitoring results as a teaching aid. One hard copy of the Toolkit has been provided to every school and public library in the Region, while all materials

in the kit can be accessed from the Region's website. The Toolkit includes a disc with the Department's two videos on it to help schools launch their own campaigns (HRHD, 2010; HRHD, 2009c; HRHD, 2008; HRHD, 2007b).

Complementary & Contradictory Interventions

Complementary -There are many health benefits associated with the creation of walkable and transit-supportive communities. These communities can:

- Reduce greenhouse gases that contribute to climate change;
- Improve local and regional air quality;
- Increase physical activity;
- Reduce vehicle related injuries and deaths;
- Increase access to jobs, services and recreation among all members of the community;
- Increase social cohesion and mental health (HRHD, 2010).

Contradictory - Proximity to Secondary Highways - Health staff report that there have been a few occasions when the health priorities could contradict one another. In these situations, staff consider the health risks and benefits associated with advice directed at each health priority and provide comments that reflect a full consideration of all of them. For example:

- When reviewing a site plan for a **new hospital**, there were two competing health priorities. To create a site that fosters active transportation, the building would ideally be located close to the road. However, in this case, the hospital was being located on a secondary highway with a high volume of traffic (i.e. greater than 30,000 vehicles per day) so there was reason to ensure that the building, which would be housing sensitive receptors, should be set back as far as possible from the roadway. In this situation, staff decided that the air quality concerns presented the greater health priority, and it was recommended that the building should be sited as far back from the road as possible and that landscaping should be used to make the site pedestrian-friendly;
- In a more common and more complex situation, **condominiums** were being proposed along a secondary highway that will be serviced with public transit. In this case, it was desirable to have the building close to the road (within four meters) to encourage pedestrian traffic. It was also important to have this high density multi-family residential development on the transit route to encourage transit use, keep transit service affordable and efficient, encourage physical activity, reduce emissions of air pollutants and greenhouse gases, and make jobs and services accessible to residents who do not or cannot drive. However, that advice would put the residential units in the building within a distance that has been associated with elevated levels of air pollution and increased risks of cardiovascular and respiratory health impacts.

In this case, the health department recommended that the proponent be allowed to locate the building close to the road, but it was also recommended that residential units be excluded from the first two floors, and that an air quality assessment be conducted to determine how best to design the building and site to mitigate the air pollution impacts on indoor air quality within the building (HRHD, 2010).

Addressing the Health of Low Income Populations

Health department staff feel that much of their work on the built environment has particular benefits for people living on low incomes even though low income populations are not the only beneficiaries of that work. In particular, they see work directed at the creation of more walkable and transit-supportive communities being particularly beneficial to people on low incomes who may not have easy access to jobs, services and recreation if they cannot afford a vehicle, or who may have to forego healthy foods because of the expenses associated with owning and operating a vehicle (HRHD, 2010).

Public health staff indicated that they believe their work on land use compatibility may have benefits for people on low incomes who are more likely to live in homes built in close proximity to highways or industrial facilities.

They believe that policies related to mixed housing types are particularly important for people on low incomes because they provide low income populations with affordable housing options in safe, well-serviced neighbourhoods. Staff also believe that community gardens, and other steps taken to increase access to healthy foods across the community, may be particularly beneficial to individuals and/or families who are living on low incomes (HRHD, 2010).

Evaluation

Evaluations have been conducted on a variety of health promotion initiatives undertaken by the Health Department. Staff feel that it is difficult to evaluate the policy and review work that the Health Department is doing because there are long timelines between the time the work is done and the outcomes in the community, but they would like to identify a number of indicators that could be used to monitor progress in this field over time. These indicators could be parameters such as population densities, distance to transit services, and distances to mixed land uses. These indicators would require geospatial tools and expertise to analyse and track (HRHD, 2010).

Research, Policy & Resource Needs

Health Department staff feel that the following could be helpful to their work:

- **Research and Policy**
 - Airshed modelling conducted at a regional level (i.e. across the GTA or across southern Ontario) to support airshed modelling done at a local level;
 - Guidelines for energy efficiency in commercial buildings to reduce greenhouse gases and air pollutants from these buildings;
 - Research on land use mixes needed to motivate people to walk to inform land use planning process (i.e. What types of destinations should be located near populations? How close should they be? What density of housing is needed to support those distances?; Language in the Provincial Policy Statement that identifies the need to preserve high quality agricultural land outside of the Greenbelt;

- Broader language in the Health Protection and Promotion Act about what constitutes a "health hazard" to provide PHUs with more authority to act on issues related to the built environment;
 - Discussions between the public health sector and the Ministry of Education on the negative health impacts associated with "mega-schools";
 - Discussions between the public health sector and the Ministry of Transportation about the negative impacts of 12-lane highways bisecting communities;
 - Need more case studies on walkability projects; there are lots on physical activity but very few on walkability; and
 - Need more research/evidence to support the interventions being sought.
- **Health Promotion and Social Marketing**
 - Provincial body to act as knowledge broker in this area, provide best practices; information on health promotion programs to increase walkability and active transportation;
 - Need more advocacy at a broader level on policies related to the built environment;
 - Social marketing directed at the public to shift attitudes about land use densities;
 - Need social marketing at a provincial level to shift attitudes and behaviours towards modes of transportation and energy use ; and
 - Having a budget to support social marketing programs is critical to their success.

Halton Region Health Department Resources

- Air Quality (Outdoor) see <http://www.halton.ca/airquality>
- Air Quality Health Index see <http://www.halton.ca/aqhi>
- Active and Safe Routes to School see <http://www.halton.ca/asrts>
- Tools for Schools on Air and Climate see <http://www.halton.ca/toolsforschools>
- *walkON* see <http://www.halton.ca/walkon>
- Regional Official Plan see <http://www.halton.ca/cms/One.aspx?portalId=8310andpageId=9385>

E Public Health Unit - City of Toronto

1. Toronto Public Health

Interview Participants

Healthy Public Policy

Monica Campbell, Director, Healthy Public Policy
Ronald MacFarlane, Supervisor, Healthy Public Policy
Sudha Sabanadesan, Research Consultant, Healthy Public Policy
Stephanie Gower, Research Consultant, Healthy Public Policy

Healthy Environments

Reg Ayre, Manager, Health Hazard

Healthy Living

Marinella Arduini, Manager, Chronic Disease Prevention
Kerri Richards, Manager, Injury Prevention

Background

The City of Toronto, which covers an area of 641 square km, is Canada's most heavily populated community with approximately 2.5 million people. The City is totally built out with population increases being accommodated with intensification. Toronto is a single tier municipality responsible for all of the services covered by both regional and local municipalities in other areas of the province (TPH, 2010).

The health unit for Toronto, Toronto Public Health (**TPH**), is a division of the City of Toronto. The Medical Officer of Health (**MOH**) has a dual reporting responsibility; he reports directly to the Board of Health (**BOH**) and he also reports to the Deputy City Manager on administrative matters that affect Toronto Public Health employees. The Toronto BOH is composed of 13 members; six City Councillors, six citizen members, and an elected representative for the Toronto school boards. Toronto's MOH is the Executive Officer of the Board (TPH, 2010).

Health Priorities for Land Use Planning Processes

Toronto has a socio-economically and ethnically diverse population with a number of vulnerable groups. TPH has identified the reduction of health inequalities as a strategic priority for the Division. With this strategic priority in mind, the following are objectives that TPH staff are seeking when dealing with the built environment and/or land use planning processes:

- Improving indoor and outdoor air quality;
- Reducing the adverse impact of transportation systems on human health;
- Adapting to extreme weather events and changing weather patterns;
- Increasing physical activity among children, youth, adults and seniors;

- Promoting active transportation and public transit;
- Creating walkable communities that support access to public spaces, recreational spaces and green spaces;
- Improving mental health and social cohesion;
- Improving access to healthy foods (e.g. promoting nutritional food outlets and urban agriculture);
- Cancer prevention;
- Preventing/reducing the release of toxic substances from facilities and businesses;
- Newcomer settlement; and
- Brownfield redevelopment (TPH, 2010).

Organizational Structures

Historically, TPH's functions and services have been undertaken by eight directorates. Three of these directorates are involved in work to influence the built environment and/or support the land use planning processes in the City: the new Healthy Public Policy Directorate, the Healthy Environments Directorate, and the Healthy Living Directorate (TPH, 2011).

New Healthy Public Policy Directorate

On November 1, 2010, the Healthy Public Policy (**HPP**) Directorate was created which will capture the former Environmental Protection Office (**EPO**), Urban Issues, Healthy Living and Disease Prevention, and Healthy Families and Communities team. This new Directorate conducts research and policy analyses on issues related to the built environment, including social and environmental determinants of health. HPP staff do research, policy development, and advocacy on issues related to air quality, climate change including extreme heat, power lines, cell phone towers, and toxics to inform land use planning processes, municipal policies and/or respond to community concerns. Staff also do work on issues related to cancer prevention, nutrition and food issues, mental health, and poverty reduction. HPP staff have expertise in research, policy analysis, toxicology, epidemiology and health promotion (TPH, 2010).

Healthy Environments Directorate

Within the Healthy Environments Directorate, there are Food Program teams and Health Hazard teams. There are six Health Hazards teams with six Managers and 40 Public Health Inspectors. One of these teams has two Public Health Inspectors who review Applications for Demolitions where it is suspected that toxic material may be involved. This team is also consulted when contaminated sites are being redeveloped by the City or one of its agencies. This team also becomes involved in investigations of health hazards in response to community complaints or requests from councillors (TPH, 2010).

Healthy Living

The Healthy Living teams are inter-disciplinary teams of Health Promotion Consultants, Public Health Nurses, Dietitians and Nutritionists who work to increase physical activity, reduce injuries, decrease substance misuse, promote mental health, enhance community capacity, decrease health inequities, promote healthy schools, and increase access to healthy foods among residents in Toronto (TPH, 2010).

Relationships with Municipalities & Planning

TPH staff work closely with staff in Planning, Parks and Recreation, Transportation Services, the Toronto Environment Office, and the Libraries. These relationships have developed informally over time around various projects of common interest. Some relationships have been formalized over time through projects such as:

- The Environmental Plan;
- The Toronto Walking Strategy;
- The Climate Change, Clean Air and Sustainable Energy Action Plan;
- The Tower Renewal Plan;
- Ahead of the Storm: Preparing Toronto for Climate Change (Developing a Climate Change Adaptation Strategy); and
- The Toronto Green Standard (TPH, 2010).

Community Partnerships

Healthy Living

The Healthy Living teams within TPH work with all kinds of community groups (i.e. neighbourhood associations, multicultural groups) schools, other City departments and community health centres across the City on a variety of health promotion projects (TPH, 2010).

Healthy Public Policy

HPP staff work with a variety of government agencies such as Health Canada, Natural Resources Canada, Environment Canada, the MOE, academic organizations, non-governmental organizations such as the OPHA, CAP, the Canadian Partners for Children's Health and Environment (CPCHE), and Canadian Partners Against Cancer (CPAC) on research and health promotion projects (TPH, 2010).

Issues Sparking Interest

In 2000, TPH captured the attention of residents, councillors, and the media with the release of its report, "Air Pollution Burden of Illness in Toronto" which estimated the number of deaths and hospitalizations arising from air pollution in the city (TPH, 2000a). This report gave rise to the Annual Smog Summit, which has continued for 10 years, and to the GTA Clean Air Council, which continues to this day. This report, and those that have followed, have also been used to support a large number of initiatives in the City (TPH, 2010).

Research, Background Reports & Policy Papers

Air Pollution Burden of Illness Report

In 2004, TPH updated the 2000 estimates when it released its second "Air Pollution Burden of Illness Report" which estimated that the five common air pollutants contribute to approximately 1,700 premature deaths and between 3,000 and 6,000 hospital admissions each year in Toronto (TPH, 2004a).

This technical report was released along with a companion policy report, "Agenda for Action on Air and Health". Produced in consultation with staff from Urban Development Services, Works and Emergency Services, Finance, and the CAO's Office, this policy report identified, among other things, the need to:

- Reduce vehicle use in the City by:
 - Curbing urban sprawl in the City and across the Greater Toronto Area;
 - Investing in public transit in Toronto; and
- Reduce emissions associated with fuel consumption by:
 - Phasing out coal-fired power plants in Ontario;
 - Aggressively promoting energy conservation, co-generation, and renewable energies; and
 - Revising the Ontario Building Code to ensure that all newly install residential wood and gas fireplaces and stoves meet the low emission certification of the CSA or EPA (TPH, 2004).

Each year, air pollution in Toronto contributes to approximately:

- ***1,700 premature deaths and***
- ***between 3,000 and 6,000 hospital admissions (TPH, 2004a).***

Health Impact Assessments

In 2005, TPH released a report which explained how health impact assessments (**HIAs**) can be used to provide a fuller assessment of the health impacts that can be associated with development proposals. While the development and use of equity-based HIAs have been identified in TPH's Strategic Plan and approved by Toronto's BOH, HIAs have not been formally approved as the means of assessment by City Council. Nor has TPH been provided with the resources that would be needed if HIAs were to be used as the assessment method for proposed projects. At this time, HIAs are being applied on a case-by-case basis at the request of the MOH. For example, an HIA approach was applied to a solid waste management issue (see the section on Environmental Assessments). They are also being used, in an informal way, by staff within TPH when the conditions seem appropriate. For example, when providing advice on a community garden proposal on a site with contaminated soil, an HIA approach was used for that assessment (TPH, 2010; TPH, 2005b).

Impacts of Traffic on Health

In 2006, TPH released a report which summarized the different ways in which traffic corridors can impact human health directly via localized air pollution, vehicle-related injuries and deaths, noise-related stress, and indirectly, by influencing the levels of physical activity, social cohesion, and mental health of residents (TPH, 2006).

Air Pollution Burden of Illness for Transportation

In 2007, the EPO released a comprehensive report that estimated the air pollution related health impacts that can be attributed to traffic alone in the City of Toronto. Using road count data and vehicle emissions factors, the air levels associated with traffic in the City were estimated using a sophisticated air quality model by specialists in the Toronto Environment Office. TPH staff then used the Air Quality Benefits Assessment Tool (AQBAT) developed by Health Canada to estimate the health impacts and health-related costs associated with those air levels.

The study estimated that traffic-related air pollution in Toronto gives rise to approximately 440 premature deaths and 1,700 hospital admissions each year. While it indicated that most of these deaths and hospitalizations would be borne by the older residents within the City, it also estimated that traffic-related air pollution contributes to approximately 1,200 acute bronchitis episodes and 68,000 asthma symptom days among children in the City each year. The study also estimated that 190 premature deaths and \$900 million in health benefits could be realized by reducing vehicle emissions in Toronto by 30%. This report recommended that:

Each year, traffic-related air pollution in Toronto gives rise to approximately:

- ***440 premature deaths;***
- ***1,700 hospital admissions;***
- ***1,200 acute bronchitis episodes among children; and***
- ***68,000 asthma symptom days among children (TPH, 2007a).***

"More road space needs to be allocated towards the development of expanded infrastructure for walking, cycling, and on-road public transit to accelerate the shift from motor vehicles to sustainable modes of transportation that give more priority to pedestrians, cyclists, and transit users (TPH, 2007a).

This report has been used to support sustainable modes of transportation within the City (TPH, 2010).

Complete Streets

The MOH was a speaker at the Complete Streets Forum convened by the Toronto Committee for Active Transportation, and TPH is supporting related work that is being done by the City on implementation of a "complete streets" approach by gathering and promoting evidence about the health benefits of active transportation in Toronto (TPH, 2010).

Transportation Services - Traffic Calming

HPP staff have supported Transportation Services with the preparation of a report on traffic calming measures that can be used to slow traffic in residential neighbourhoods. Traffic calming measures such as narrowing a street to slow traffic, can meet with considerable resistance from residents in neighbourhoods who fear that they will actually increase risks from traffic on the street (TPH, 2010).

Extreme Weather, Air Pollution and Health

In 2005, TPH released a report on research conducted in collaboration with Health Canada, Environment Canada, and McMaster University on the combined impacts of air pollution and extreme weather on human health among Toronto residents. Using a new methodology which correlated temperature, air quality, and acute non-traumatic deaths from 1954 to the year 2000, this study found that on average 120 Toronto residents died from extreme heat, 105 die from extreme cold, and 822 die from air pollution.

From 1954 to the year 2000, this study found that on average 120 people Toronto residents die from extreme heat, 105 die from extreme cold, and 822 die from air pollution....(TPH, 2005c).

The study estimated that with climate change, by the year, 2080:

- air pollution-related deaths could increase by 25 to 30% because of an increase in the number of days with poor air quality from 822 to 1070 per year;
- heat-related deaths could triple from 120 to 360 deaths per year; and
- cold-related deaths could decrease from 105 to 35 per year (TPH, 2005c).

This information, together with the recommended actions in the City's climate change adaptation report, provide the rationale for the Heat-Related Vulnerability Assessment and the evaluation of the Hot Weather Alert and Response Plan. The vulnerability assessment can support land-use planning to mitigate urban heat island effects (TPH, 2010).

Environmental Reporting and Disclosure By-law

HPP staff developed an Environmental Reporting and Disclosure By-law to provide residents with the "right-to-know" about high priority chemicals being used in the City. TPH staff estimate that there are about 11,000 businesses in the City that may be using chemicals. However, they found that only 4 percent of these businesses report emissions through the National Pollutant Release Inventory (NPRI). TPH identified 25 toxic substances as priorities to be reported under the new by-law because they are present in Toronto's air at levels that exceed health-based benchmarks (e.g. benzene, acrolein, and cadmium). The By-law, which came into effect on January 1st, 2010, requires firms to begin reporting data by June 30, 2011 for the previous year's releases (TPH, 2010; TPH, 2007b).

This disclosure system was developed to provide the community information on local emission sources. It will also provide information that could be used to address community complaints or to assess local health impacts.

Food Strategy

In 2010, TPH released a report based on public consultation that proposed a strategy for creating a healthy and sustainable food system for Toronto. The report begins by identifying the importance of food to the health and well-being of Toronto residents. It notes that:

- At least one household in ten in Toronto can't afford to eat a healthy diet;
- One in three Toronto children (age 2-11) is either overweight or obese;
- One in eight jobs in Toronto is related to the food sector, generating approximately \$85.2 billion in revenue for the Province on an annual basis;
- Toronto residents spend \$7 billion per year on food;
- The City spends \$11 million per year



Photo: TPH, 2010d

feeding people in its care in Children's Services, Homes for the Aged, and Shelter, Support and Housing; and

- The number of farms on the Greenbelt surrounding Toronto dropped by 7 percent between 2001 and 2006 (TPH, 2010d).

The report identifies a number of steps that can be taken by the City to create a healthy and sustainable food system that meets the needs of Toronto residents. Many are directed at supporting local agriculture. Several are focused on the built environment within the City to increase access to healthy foods, social cohesion, and safety in high priority neighbourhoods. For example, it is recommended that steps be taken to:

- Develop enabling policies for community gardens, bake ovens, farmers' markets and fresh food markets in parks and on other public lands; and
- Leverage planning, zoning and licensing rules to increase access to quality affordable food for underserved populations and neighbourhoods, including through enabling the provision of supermarkets, fresh food markets and mobile food vending (TPH, 2010d).

Healthy Canada by Design

TPH has been involved in a partnership called Healthy Canada by Design, a joint initiative of the Heart and Stroke Foundation of Canada, Urban Public Health Network, Canadian Institute of Planners, and the National Collaborating Centre for Healthy Public Policy. The project aims to demonstrate the means of moving knowledge about the effects of the built environment on health into policy and practice, and to disseminate the results, thereby bolstering Canada's capacity to prevent chronic diseases. As one of the Coalitions Linking Action and Science for Prevention (CLASP) projects funded through the Canadian Partnerships Against Cancer, its ultimate goal is to contribute to improving the health of individuals and populations, through integrated, cross-jurisdictional and inter-sectoral chronic disease prevention strategies. The project involves both cross-provincial activities and sets of projects taking place simultaneously in Peel Region, Toronto, Montreal and three health regions of southern British Columbia.

These activities and projects are being implemented, under the overall coordination of the Heart and Stroke Foundation of Canada, between fall 2009 and March 2012. TPH is responsible for facilitating and/or conducting the following Healthy Canada by Design projects:

- **Residential Preference Survey** - TPH is collaborating with Dr. Larry Frank and others to conduct a survey to gauge public demand for a variety of neighbourhood settings, including more walkable versus more vehicle oriented neighbourhoods. The results will shed light on the demand for certain types of neighbourhood environments and how it varies across socio-economic cohorts in Toronto and Vancouver. The results may show that demand for mixed use, more walkable neighbourhoods far outweighs the supply in large cities. The results may provide further evidence of the need to address the affordability and availability of more walkable, health-promoting neighbourhood environments;
- **Software Tool Enhancement Project** - TPH is collaborating with Dr. Larry Frank and others on the development of an evidence-based software tool for evaluating the public health impacts of modifications to the built environment in Toronto. The tool could be used by Planners, public health staff and decision-makers to understand which approaches to land development in Toronto are the most health promoting; and

- **Urban Form and Health Inequities** - TPH is doing research using geospatial information tools to explore the relationships between the urban built environment, health outcomes and socio-economic status within the City of Toronto (TPH, 2010; TPH, 2010a).

Provincial Policy Statement

TPH submitted comments on the Provincial Policy Statement (PPS) which is up for review and emphasized the need to incorporate a broader vision of health into the Vision Statement in the PPS:

- **Promoting and Improving Health:** *Land use patterns and the built environment have a significant influence in preventing chronic diseases and improving public health. Strengthen the PPS by explicitly recognizing the impact of land use planning decisions in not only protecting public health, but also promoting healthy living and preventing both acute and chronic diseases.*
- **Reducing Health Inequalities:** *It is essential that the PPS provide a framework for creating conditions through land use planning that reduce inequity and health disparities. Actions to provide equitable access to healthy, sustainable environments for all, with special attention to priority neighbourhoods, needs to be integrated throughout the PPS.*
- **Climate Change–Mitigation and Adaptation:** *Extreme weather events and changing weather patterns are critical issues to consider in the land use planning process. The PPS could provide directives to include (i) factors that mitigate climate change and (ii) the capacity to adapt to the changing climate, in making land use planning decisions.*
- **Healthy Community Design:** *The concept of “complete communities” and “complete streets” - streets that are designed to provide safe, equal access to all modes of transportation and all people including the most vulnerable - could be adopted as guiding principles for the PPS (TPH, 2010: TPH, 2010c).*

Use of Geospatial Tools

Toronto Food Strategy

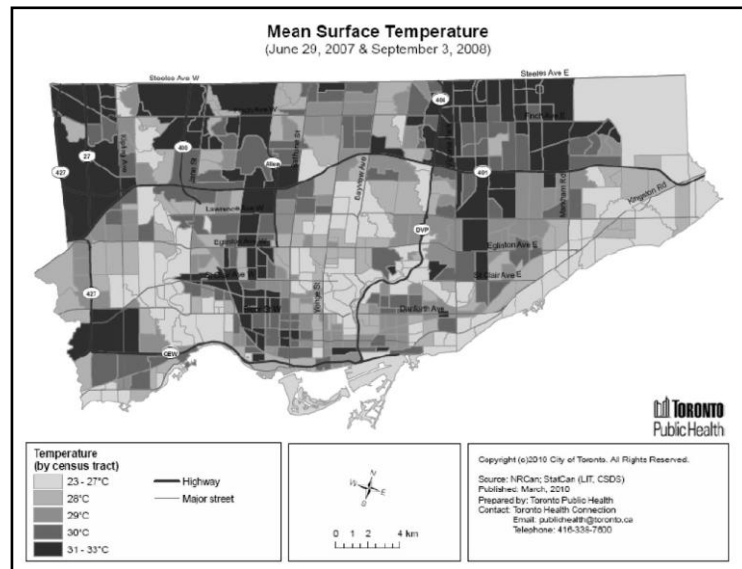
Healthy Living staff are working with TPH epidemiologists and a GIS Analyst from Community Services to map a number of built environment elements that can be used to identify program priorities and/or to monitor progress. At present, Healthy Living staff are focusing on food access issues; mapping FoodShare drop-off sites, stores that sell fresh fruits and vegetables, community gardens, and sites where meal programs are offered. They plan to extend the mapping exercise to other parameters such as trails, bike paths, in the future (TPH, 2010).

Climate Change Adaptation - Extreme Heat Vulnerability Maps

With funding from Natural Resources Canada, HPP staff have been working with consultants to create a series of maps that can be used to identify the people and places that are most vulnerable to extreme heat. Extreme temperatures are expected to become more frequent in Toronto and the rest of Canada

as a result of global climate change. TPH has estimated that 120 Toronto residents die prematurely each year due to summer heat. To reduce heat-related illnesses and death, TPH co-ordinates a Heat Alert and Response program. The program is a partnership with several City divisions and over 450 community agencies. However, there is little information to guide where and for whom hot weather response is most crucial.

To identify the places that are most vulnerable, the project team is examining surface temperatures, urban form and green spaces. To identify the people that are most vulnerable, the project team is using health statistics, demographic information such as age, and socio-economic factors. Thematic maps will be used to focus and fine-tune the Hot Weather Alert and Response Program. They can also be used to inform policies and plans that could mitigate the urban heat island effect. For example, the results could be used to prioritize tree planting by Urban Forestry, with trees being directed at the hottest areas of the City and at the most vulnerable communities first (TPH, 2010; TPH, 2010c; TPH, 2009).



Map: TPH, 2010c

Airshed Modelling - Cumulative Impacts

HPP staff have been working with specialists in the Toronto Environment Office to examine the cumulative health impacts of 30 different air pollutants in two Toronto neighbourhoods. This project involves modelling ambient concentrations of these 30 different air pollutants within the community at a 100 to 200 meter resolution. Emissions originating both inside and outside the neighborhoods are included, and the modelling has been done in layers so the contribution of different sectors such as the transportation, industrial, and residential/commercial sectors, can be evaluated separately for each air pollutant. The health risks associated with the combined impact of the various air pollutants will be estimated and visually illustrated using maps. While this project developed in response to community concerns that originated around the City's biosolids incinerator, it may provide an approach that could be used to inform land use planning policies and decisions in the future (TPH, 2010).

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Unequal City - Income and Health Inequalities in Toronto

In 2009, TPH released a health status report which examined the health impacts in the City of Toronto as related to income levels. It found that those areas of the City that have the greater proportion of people living with low incomes experience higher rates of illness, disease, and premature deaths. The report also found that males in the highest income areas were expected to live 4.5 years longer than males in the lowest income areas. For females, it was 2.0 years longer. The analysis demonstrated that relationships between income and health in Toronto exist for a wide range of health indicators and is consistent with trends found in other jurisdictions. While the focus in the report was on income, the authors note that health inequalities are also associated with other social determinants such as race, immigration and settlement status, and education. These determinants are linked to, and interact with, income to influence health. The data in this report demonstrate that, for most indicators, there is a continuous gradient of health in relation to income with health status improving through each income increment (TPH, 2009).

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The authors expressed concern that the health inequalities documented in the report may lead to a decline in the overall health status of the city's population. The reduction of income inequality and measures to reduce poverty are identified in the report as priority health strategies for TPH. The report recommends that services, such as those provided by TPH, should be designed to mitigate the impact of income on health by ensuring equal access to universal services, and by focusing on reaching people with greater health needs. The report also recommends that TPH advocate to other levels of government for urgent and comprehensive public policy responses, and collaborate with many others to continue to address the health inequalities that are linked to income and other determinants of health (TPH, 2009).

Growth Plans & Official Plans

TPH provides advice to City Planning in the development of the City's Official Plan. For the City's first Official Plan after amalgamation, TPH participated on a staff advisory group led by City Planning. TPH will be involved in the review of the Official Plan in 2011. As a rule however, TPH has seen Toronto's Official Plan as a sophisticated document that has progressive policies respecting the creation of a healthy and sustainable communities. The challenge in Toronto has usually revolved more around the implementation side of those policies, including site-specific zoning (TPH, 2010).

Toronto Green Standard

TPH was involved in the development of the Toronto Green Standard which focuses on building designs and landscapes that can reduce emissions of air pollutants and greenhouse gases, water use, energy use, and the urban heat island effect. The Standard was developed to support the land use planning processes in the City of Toronto (TPH, 2010). The Toronto Green Standard has been applied on a voluntary basis to private development undergoing Official Plan and Zoning By-law Amendments and/or site plan approvals since adoption by Council in 2006. It has also been applied, where feasible, to new construction by the City and its Agencies, Boards, Commissions and Corporations (Toronto, 2008).

During 2008, an extensive review of the City's legislative abilities to require the Toronto Green Standard was undertaken by City Planning and the City Solicitor's office in consultation with other Departments. The review determined that the City has the ability to secure some environmental performance measures through the Official Plan and Zoning By-law amendment and Site Plan Approval processes. In 2008, it was decided that the City would move to secure compliance with the Green Standard through the planning process and/or with incentives (Toronto 2008).

Master Plans, Strategies & Municipal Programs

Climate Change, Clean Air and Sustainable Energy Action Plan

HPP staff were involved in the development of the City's Climate Change, Clean Air and Sustainability Energy Action Plan. This Plan, which is now being implemented, assigns a number of tasks to TPH as well as to other Departments in the City (TPH, 2010; Toronto, 2007).

The Environmental Plan

TPH provided staff to help manage the Environmental Task Force that produced Toronto's Environmental Plan, "Clean, Green and Healthy - a Plan for an Environmentally Sustainable Toronto", in 2004. That Plan provided direction on sustainable transportation and energy, green economic development, and environmental education. Staff from across the corporation were involved in developing and reviewing the plan. Key departments and divisions included Public Health, Urban Development Services, Works and Emergency Services, Economic Development, Culture and Tourism, Corporate Services, and the former Healthy City Office (TPH, 2010).



Photo: Quentin Chiotti

Climate Change Adaptation Strategy

TPH staff participated in the development of the Toronto Environment Office's 2008 document, "Ahead of the Storm", which initiated the development of a Climate Change Adaptation Strategy for the City. The Strategy identified a series of short-term actions to start in 2008 and 29 longer-term actions that would be taken to prepare for, and adapt to, climate change. The Strategy includes some existing adaptation activities such as the West Nile Virus Prevention Program and the Hot Weather Alert and Response Plan. It also includes the evaluation of the Air Quality Health index (AQHI) and the Hot Weather Alert and Response Plan, the development of a Heat-Related Vulnerability Assessment Tool, and participation in the City's Climate Change Risk Assessment process. All of these activities are underway at TPH (TPH, 2010).

Tower Renewal Project

TPH is a participant in the City's Tower Renewal project. The Tower Renewal Project, led by the Mayor's Tower Renewal Office, is directed at 1000 or so rental apartment buildings that were built in the 1950s.

This Project has several goals: to mitigate the emission of greenhouse gases from old apartment buildings by "re-skinning them" so they use less energy; to address extreme heat by encouraging volunteer-run designated cooling areas in multi-residential buildings that are not air conditioned; and to cultivate social cohesion by working to include residents in multi-residential buildings to become active in the community surrounding them (TPH, 2010).

Urban Forestry Plan

TPH will provide comments on, or participate in the development of, Master Plans that have the potential to impact on human health. For example, HPP staff have been providing comments on the Urban Forestry Plan as a means to address extreme heat health impacts associated with the urban heat island effect. In the process, staff have been identifying the areas in the City that have higher surface temperatures and/or a larger percentage of vulnerable populations (i.e. elderly) (TPH, 2010; TPH, 2010c).

Toronto Walking Strategy

Staff from the Healthy Living Directorate participated in the development of the Toronto Walking Strategy that was released in 2009. The other partners around the table (i.e. Transportation Services and Planning) were looking to public health to help promote walking and cycling so that the public and decision-makers would support policies and plans that provide it. Under this Strategy, TPH has responsibility for promoting and enhancing the *Walk into Health* and *Active and Safe Routes to School* Programs (TPH, 2010; Toronto, 2009).

Secondary Plans, Subdivision Plans & Site Plans

Historical Involvement

In the former City of Toronto, there was a Development Review Team situated in the Healthy Environments Directorate that reviewed:

- Land use planning applications where a potentially contaminated site was being redeveloped from an industrial or commercial use to a more sensitive land use (e.g. residential, school, daycare):
 - Where future occupants of the proposed building/development could be adversely impacted by air pollution sources in close proximity to the proposed site (e.g. the Gardiner Expressway). For example, when a condominium was proposed beside the Gardiner Expressway and the railway, an air quality assessment was requested by TPH and an Air Quality Program was required to mitigate the impact of railway diesel fumes on indoor air quality;
 - Where the proposed development could adversely impact sensitive land uses in close proximity to the proposed site because of emissions associated with the site. In these situations, which are rare in Toronto, air modelling was requested to assess the impact of the proposal on adjacent properties; and
- Applications for the demolition of structures that could involve toxic materials such as asbestos (TPH, 2010).

This work was conducted with Development Review Guidelines that were developed by the Health, Legal and Buildings Departments in the former City of Toronto with Building Permits being withheld until the Development Review Team in TPH were satisfied that the health hazards associated with air quality and/or contaminated sites had been adequately assessed and addressed. With amalgamation, and in response to the Province's revisions to its Guidelines for the Clean-up of Contaminated Sites, the City decided that TPH should not be directly involved in the review of planning applications associated with contaminated sites because of the liability associated with these sites. The Development Review Team was disbanded and the Guidelines regarding air studies for land use planning applications were not included in the amalgamated City's new Official Plan policies (TPH, 2010).

Review of Applications for Demolition

The Demolition Guideline from the former City of Toronto was retained in the Official Plan for the new City of Toronto. The Buildings Department within the City, which has responsibility for this Guideline, has asked the Health Hazard team within the Healthy Environments Directorate to review the Hazard Assessments and Demolition Plans submitted by proponents in support of Applications for Demolition. The Buildings Department funds two positions (soon to be three) within the Healthy Environments team for this work. This small team has developed considerable expertise in this field from experience and formal training (TPH, 2010).

TPH will use its power under the Health Protection and Promotion Act to stop demolition work that has not been properly assessed and approved where there is reason to believe that the public may be subjected to a health hazard. For example, when the bughouse and buildings associated with the silos at the south end of Bathurst were being demolished, TPH issued a "stop order" under the Health Protection and Promotion Act because staff were not satisfied that the demolition work, which would last for over a month, would not expose children in the daycare across the street to harmful levels of asbestos and lead. The Healthy Environments Directorate has historically relied upon, and been supported by, the toxicological expertise of staff within HPP when needed (TPH, 2010).

Re-Development of Contaminated Sites

While the Health Hazards team no longer reviews environmental reports for development applications on contaminated sites for private proponents, it does get "pulled into" situations related to the redevelopment of contaminated sites that belong to the City or an agency of the City. In some cases, the MOE recommends that other departments or agencies of the City consult with TPH. In other cases, the City department or agency consults with TPH as a "best practice"; to reassure citizens and/or councillors that an environmental health issue has been properly assessed and addressed. The Health Hazard team can also get involved in the review of a contaminated site in response to a complaint from a citizen or at the request of the BOH or City Council (TPH, 2010).

In these situations, the team does not peer review the consultants' reports; staff provide advice to the Department about what needs to be done; provide comments about the chemicals involved; and review the consultants' reports from a health perspective. For example, staff from the Health Hazard Team were asked to provide assistance and/or advice:

- When the Parks Department wanted to create a sports field near the Leslie Street spit on a site that historically housed a chemical recycling plant. This site was seriously contaminated with an underground chemical plume that was spreading towards Lake Ontario;
- When the TTC wanted to build a garage near the lake as part of the redevelopment of the Waterfront, it was building on a heavily contaminated site. In this case, TPH was invited into the process at an early stage and the Health Hazards Team was supported by the toxicological experts in HPP. In this case, TTC will spend over one year removing contaminated soil from the site before redevelopment begins;
- When the Parks Department wanted to install a water feature (i.e. a waterfall) at a Park on Sherburne Street using grey water, the Health Hazard team got involved. In this case, TPH staff recommended that the grey water be properly treated to ensure that the public would not be harmed by water-borne or aerosol-borne biological contaminants (TPH, 2010).

Electromagnetic Fields - Power Lines and Cell Phone Towers

When City Planning receives an application for a cell phone tower, the Health Hazards team reviews the Safety Code 6 verification data provided by the proponent to see if it meets the objectives of the City's prudent avoidance policy which is incorporated into the Telecommunications Protocol (TPH, 2010).

As part of the implementation of the City's prudent avoidance policy for parks and new developments in or next to hydro corridors, the Health Hazards team will assess the electromagnetic field associated with power lines on request from other City divisions. The incremental increase in exposures to electromagnetic fields (**EMF**) is evaluated and compared to benchmarks which have been developed as part of the procedures. Recommendations on site layout and designs are made to reduce exposures if required (TPH, 2010).

Lawrence-Allen Secondary Plan - Cycling and Walking Study

The Healthy Living staff have worked with Transportation Services and Planning staff to prepare a telephone survey on walking and cycling habits to support the development of the Lawrence-Allen Secondary Plan. The survey was designed to collect baseline information about walking and cycling habits in selected neighbourhoods. It was developed around the City's plans to redevelop the Lawrence-Allen area. While Toronto Transportation Services collects a lot of data about driving patterns and transit use across the City, it does not, as a rule, collect



detailed data on walking and cycling patterns. The Healthy Living team worked with Transportation Services to develop a fine-scale survey that would examine walking and cycling habits at a neighbourhood level. The survey, which was conducted by consultants for Transportation Services, was conducted by telephone with randomly selected respondents (TPH, 2010).

After the survey was conducted, the Healthy Living team helped to mobilize the community; to get people to participate in the Focus Groups that were being organized around the re-development of the neighbourhood; and to get people to help conduct Walking Audits for the neighbourhood. This experience demonstrated public health's ability to mobilize the community. TPH staff were able to get people in the community to participate in public consultation processes; particularly those who would not normally be engaged. In this case, it involved marginalized populations who would be very dependent on walking and cycling as a mode of transportation (TPH, 2010).

TPH staff considered this to be a very interesting project; some very good recommendations were made about how to plan the community to encourage walking and cycling. However, TPH staff have some concerns about the fact that the people mobilized to participate will not see the benefits of their involvement for 10 to 15 years simply because of the pace of development. They are concerned about possibly raising expectations among marginalized residents about changes that may take a very long time to happen (TPH, 2010).

Environmental Assessments & Certificates of Approval

Health Hazard Team

The TPH Health Hazard team will occasionally get involved in the review of environmental reports prepared for environmental assessments (**EAs**) or certificates of approval (**CofAs**). Usually this occurs when the MOE recommends that the proponent consult with public health. This can involve a project that is being developed by the City or one of its agencies. For example, the Health Hazard team was asked to investigate how contaminated soil was being handled during the construction of a natural gas fired generating station in South Riverdale (TPH, 2010).

Healthy Public Policy

HPP staff do not routinely get involved in the review of EAs or CofAs but will get involved if requested by the BOH or Council. For example, this team reviewed the health and environmental assessments prepared for the Metrolinx proposal to expand the Georgetown GO Train Line, the Island Airport, St. John's Crematorium, the Pearson Airport, and the Portland Energy Centre. In these cases, the team addressed issues associated with air quality, toxics, water quality and/or noise (TPH, 2010).

In recent years, staff at TPH have been asking proponents to include background levels of air pollutants when conducting air quality assessments for the criteria air contaminants (i.e. the six common air pollutants) and for those toxic substances where there is information on background levels (TPH, 2010).

In some cases, TPH has proposed that HIAs should be conducted to allow health impacts associated with a proposal to be considered in a broader way. For example, with the Metrolinx proposal, TPH staff felt that the socio-economic status of the populations adjacent to the rail lines should be included in the assessment of the proposal's impact on health (TPH, 2010; TPH, 2010e).

Health Impact Assessment -Waste Management Options

At the request of City Council, TPH worked with Solid Waste Management Services to apply a HIA approach to assist with the evaluation of options for managing Toronto's mixed waste. (Mixed waste is the portion of the waste that remains after materials for other waste diversion programs, such as the Blue Bin [recycling] or Green Bin [composting], have been separated at source.) The initial step was to commission the development of an HIA Framework to be used to guide the HIA. The framework includes a screening tool which identifies a range of factors to be considered during an HIA. These factors are grouped in five categories of determinants of health: physical environment, social and economic environment, lifestyle, access to services, and equity (TPH, 2010).

The HIA was then carried out in two phases. In the first phase, an internal TPH working group reviewed the information available on various technological options. Six environmental factors were seen to have the greatest potential impact on health for the proposed technologies: odour, noise, built environment, groundwater quality, air quality, and surface water quality. The air and water quality factors can have a direct impact on health, while the remaining factors often have a more indirect impact on health and quality of life. The results of this phase of the HIA were among the parameters that informed the decision to identify the Mechanical Biological Treatment with Anaerobic Digestion as the preferred technology for a mixed waste processing facility (TPH, 2010b).

The second phase involved a stakeholder discussion with the community next to the proposed site for the facility. The stakeholders included were: First Nations communities, the Township of Southwold Council, the Green Lane Landfill public liaison committee, and the local PHUs. The objectives of the workshop were to better understand the stakeholders' perspectives on potential health impacts from the proposed facility and to identify mitigation efforts that could address stakeholder concerns (TPH, 2010b).

Health Promotion & Public Awareness

Healthy Living

The Healthy Living teams are doing a lot of work at a local level to promote safe walking on trails, walking to school, decreasing substance misuse, and increasing access to healthy foods. In some neighbourhoods in Toronto, the focus is on neighbourhood safety. In these neighbourhoods, staff work with the community to make the neighbourhood safer (e.g. improve lighting, reduce vehicle speeds, improve access to sidewalks) so people will be safer when they walk and more willing to walk because they feel safer. For these programs, staff work with the school boards, safety coalitions, parents, Toronto Fire Services, Toronto Police Services, Transportation Services, and Planning (TPH, 2010).

In other neighbourhoods, where there is little access to healthy foods, staff will work with the community to promote food drop-off locations through FoodShare, community gardens, and fruit and vegetable carts. For this program, staff are working with Parks and Recreation and schools as well as community groups (TPH, 2010).

Community gardens are also promoted in "priority neighbourhoods"; neighbourhoods that have a high percentage of low income populations or new immigrants or that are not well served by community services. These neighbourhoods tend to have a greater percentage of high rise apartments. In these

communities, community gardens are promoted as a means of developing a sense of community, increasing neighbourhood safety, and creating access to healthy foods (TPH, 2010).

Healthy Public Policy

The staff in the Healthy Public Policy Directorate are working in collaboration with the City's Public Realm Office in the Transportation Services Division to develop information resources about the health benefits of Complete Streets. Historically, this team has done health promotion on air quality and climate change by promoting the *20/20 Way to Clean Air* program, the Air Quality Health Index (AQHI), and the City's Idling Control By-law. In addition staff lead the coordination of the Corporate Smog Response Program (TPH, 2010).

Addressing the Health of Low Income Populations

From the perspective of the Healthy Living team, everything they do now is directed at low income populations. The priority for this team is to reduce the health inequities across the City. The new Healthy Public Policy Directorate also works towards the reduction of health impacts among those who live on low incomes (TPH, 2010).

Complementary & Contradictory Interventions

For the most part, TPH staff feel that the health arguments related to the built environment complement one another. For example, they see intensification and mixed land uses making communities more "walkable" and transit-supportive, which:

- Reduces emissions of greenhouse gases and air pollutants;
- Increases access to jobs, services, and recreational facilities among all populations;
- Encourages physical activity and social cohesion; and
- Reduces vehicle-related injuries and deaths particularly among high risk populations (TPH, 2010).

Staff acknowledge that there have been some contradictions in the messages regarding issues such as air quality advisories, extreme heat advisories, and West Nile Virus, and issues such as physical activity, where one team is saying "don't exert yourself", or "stay indoors", when another team is saying "get outside, be active". In these situations, staff are exploring strategies to coordinate messaging to limit public confusion. It is acknowledged that the teams will need to ensure that messages are clear and consistent (TPH, 2010).

Issues Not Adequately Addressed through Available Processes

From the Healthy Living teams, staff struggle with how to increase physical activity among those who live in the suburbs which do not currently support utilitarian walking and cycling, when they know that it will take a long time to make those communities more supportive of active modes of transportation and public transit. For Health staff, the challenge is: "how to change people's habits in the meantime?" (TPH, 2010).

Organizational or Mandate Issues

Healthy Living Directorate

In an organization as big as Toronto Public Health, the challenge is figuring out how a particular public health team can contribute in a meaningful and effective way. The Healthy Living teams have recently been re-organized with the objective of increasing their effectiveness. There are now nine teams that are assigned to different geographic areas in the City. The teams are inter-disciplinary with staff who can address physical activity, injury prevention, neighbourhood safety, and food access issues. The geographic focus allows staff to address all of those issues in a complete way and to give priority to the issues that are most important to the particular geographic area in which they are working (TPH, 2010).

Healthy Public Policy Directorate

The Healthy Public Policy Directorate was created to address perceived gaps in service and a lack of integration in research and policy development being directed at the social, environmental, and biophysical determinants of health. With the new Directorate, the hope is that research and policy work can be directed at health issues related to the built environment in a way that integrates all of the different determinants of health (TPH, 2010).

Research, Policy & Resource Needs

From the perspective of the **Healthy Environments Directorate**, it would be very helpful to have:

- Data related to local air quality to inform investigations and reviews associated with complaints, Environmental Assessments, and Certificates of Approval;
- Detailed information about emissions from small industries not captured by NPRI; and
- Data about historical uses of properties to identify when there is the potential for contamination on a site (TPH, 2010).

From the perspective of the **Healthy Living Directorate**, it would be helpful to have:

- Local data on walking patterns that could be used to monitor and evaluate success in the promotion of active transportation;
- Local data on injury rates across the City to help prioritize outcomes for each geographic neighbourhood and to prioritize neighbourhoods for interventions;
- A literature review on what makes some neighbourhoods more dangerous than others (e.g. density of alcohol outlets, crossing time at crosswalks, lighting);
- Broader social marketing campaign, across the province, on the links between injuries and the built environment;
- Walkability Indicators for each stage in the land use planning process that could be used to guide land use planning decisions and to monitor success in the land use planning processes (TPH, 2010).

From the perspective of the new **Healthy Public Policy Directorate**, the Province could make it easier for public health and municipalities to do the work that needs to be done on the built environment by being

explicit about health concerns through documents such as the Provincial Policy Statement. It would also be helpful if the Province provided more resources for research and policy work on the built environment (TPH, 2010).

Toronto Public Health Resources

- <http://www.toronto.ca/health/>

V Discussion & Recommendations

Introduction

For this project, ten public health units were examined to see how they are working to influence the land use and transportation planning processes in their communities in order to create healthier and more sustainable communities.

The ten public health units were drawn from across the province; one from northern Ontario, one from eastern Ontario, three from western Ontario, and five from central Ontario. Four of them report to autonomous boards of health, five are situated in regional municipalities, and one is situated in a single-tier municipality. Four of the public health units are located in the Greater Toronto Area with well established urban centres, two are from regions characterized by an urban/rural mix of development, three are from rural areas, and one is from northern Ontario with one large urban centre and a number of remote communities.

This report is based largely upon interviews conducted with staff in each of the ten public health units. The interviews were guided by questions that were developed in consultation with the Project Advisory Committee which included one representative from each of the ten participating public health units. The interview questions were directed at understanding:

1. The interventions being sought by these ten public health units through the land use and transportation planning processes in their communities;
2. The interventions being sought that could improve the health of low income populations;
3. The strategies that these public health units are employing to directly and/or indirectly influence land use and transportation planning processes; and
4. Where interventions being sought are complementary to one another and where they might be contradictory;
5. The health programs, disciplines and expertise these public health units are directing at land use planning processes;
6. The organizational structures public health units are utilizing to address built environment and land use planning processes given their multi-disciplinary nature; and
7. The research, policies, tools and/or data that public health professionals believe they need in order to be more effective in this field.

1. Interventions Being Sought

Active & Alternative Modes of Transportation

All of the ten public health units examined are promoting densities, land use mixes, and urban designs that support active modes of transportation such as cycling and walking, and/or alternative modes of transportation such as public transit.

In larger urban centres, the public health units are promoting live/work relationships and a range of housing that allow people to work in the communities they live in. They are encouraging employment and population densities that make it possible to provide efficient and affordable transit services. They are supporting mixed land uses that foster walking and other active modes of transportation. They are supporting policies that would locate schools, transit stops, parks, open spaces, recreational facilities, retail outlets and services within close proximity to residential neighbourhoods.

In small and large urban centres, these public health units are encouraging community design elements that support active modes of transportation: street designs with a strong sense of place that foster active modes of transportation; pedestrian and cycling infrastructure that is safe and appealing with a high degree of connectivity; and trails, parks and greenspace that are accessible by active modes of transportation and/or public transit.

In rural or isolated areas, efforts are directed towards the provision of trails and paved shoulders which could be used to increase levels of physical activity and/or access to jobs and services among those who cannot drive because of age, ability or income.

In rural areas and smaller urban centres, physical inactivity, vehicle-related injuries and deaths, and accessibility issues are the primary arguments used to support and promote active transportation, trails, and paved shoulders. In larger urban centres, particularly in southern Ontario, active transportation and public transit are supported with arguments related to their air quality and climate benefits along with those related to physical activity, injury prevention, and access.

Access to Recreational Facilities

Many of these public health units are promoting or supporting policies to establish trails, parks and greenspace, often with a view to ensuring that they are equitably distributed across a community, to encourage recreational physical activity among all ages and income groups. A few PHUs such as the Haliburton Kawartha Pine Ridge District Health Unit are involved in the establishment of trails in their communities.

Access to Healthy Foods

Many of the public health units examined have developed health promotion programs that support local farmers and increased access to fresh foods among residents with a particular emphasis on people living on low incomes (Waterloo, Halton, Niagara, Sudbury, York and Toronto). Several have also attempted to fold food access issues into the land use planning processes by having policies related to mobile farmers' markets, community gardens, green roofs, and/or equitable access to retailers that sell fresh fruits and vegetables in the official plans for the regions, counties and/or local municipalities in their districts. A few have identified the provision of community gardens and/or retail space for fresh foods as a condition to be applied when reviewing secondary plans and/or site plans in high density areas that are not well served by grocery stores. In addition, a few public health units (Waterloo and Toronto) have conducted research into the food systems within their communities to inform and support land use planning policies and municipal programs that support local farms with a "broader determinants of health" approach to the issue.

Protection from Local Air Pollution Sources

Many of the public health units examined have promoted walkable and transit-supportive communities, active transportation, public transit, energy efficient buildings, and alternative energies to improve local and regional air quality with educational programs and generic policies in local and/or regional official plans. Several of the ten public health units are also working to protect residents from the elevated levels of air pollution that can occur in close proximity to point sources such as industrial facilities, linear sources such as high-volume traffic corridors, and area sources such as quarries by reviewing certificates of approval and environmental assessments for issues associated with air quality using a cumulative air quality approach (York, Peel, Halton and Toronto).

A few of these public health units (Halton, Peel, and York) have also worked to include specific policies into their regional official plans to address: cumulative air quality impacts; the need for air studies; the compatibility of land use mixes from an air quality perspective; and/or separation distances from high-volume traffic corridors. Two health units (Halton and Peel) have also been working to establish airshed modelling and/or air monitoring programs that can inform land use and transportation planning processes.

Mitigating & Adapting to Climate Change

Several of public health units examined have also adopted health promotion and/or health protection programs to address extreme heat, extreme cold, and insect-borne diseases that have been, and will be, exacerbated by climate change that is already occurring. As with air quality, several have been promoting the inclusion of policies related to walkable and transit-supportive communities, active transportation, public transit, energy efficient buildings, and alternative energy systems in to official plans to encourage actions that reduce emissions of greenhouse gases to mitigate climate change. Several have also been promoting official plan policies needed to adapt to climate change such as those which support green roofs, shade structures, permeable paving, urban forestry and reflective surfaces.

In addition, a few have been promoting policies and actions needed to mitigate and/or adapt to climate change through land use planning processes and/or municipal programs. For example, a few public health units have conducted geospatial research work to identify areas of the city that experience higher air temperatures because of the "urban heat island effect" and neighbourhoods in the community with a greater percentage of vulnerable residents. This research will be used to inform implementation guidelines for official plans, municipal programs such as forestry programs, as well as hot weather alert and response programs.

Protecting Ground Water Resources

Several of the public health units examined (Sudbury, Grey Bruce, Simcoe Muskoka, Halton and York) work through the land use planning processes to ensure that residents are protected from contaminated ground water and to protect ground water resources. For some, this work includes the review of environmental assessments, certificates of approval, subdivision plans, site plans, and severances for their potential to impact ground water quality and quantity. For a few public health units, it also involves the review and approval of private sewage disposal systems under agreements with local municipalities that are required to do this work under the Ontario Building Code. One health unit reviews land use planning documents using hydrogeological guidelines appended to the regional

official plan. Under these guidelines, health unit staff can request hydrogeological assessments from proponents, which are peer reviewed by a hydrogeologist that the Region has on retainer, at the expense of the proponent.

2. Interventions & Low Income Populations

Active Transportation and/or Public Transit

The staff from all of the public health units interviewed expressed an interest in improving the health of low income populations by improving the built environment. Almost all of the staff interviewed expressed the view that changes in the built environment that improve the walkability of communities, active transportation options, and/or the efficiency of public transit, were changes that would have disproportionate benefits for individuals who live on low income who may not be able to afford vehicles or who may not be able to afford healthy foods because of the expenses associated with their vehicles. Many of the staff interviewed also noted the importance of active transportation and public transit for children, adolescents, the elderly, and people with physical or mental challenges who may not be able to drive.

Staff from several public health units (Sudbury, Waterloo and Toronto) have worked to ensure that individuals living on low incomes, and other vulnerable groups, are consulted and considered when consulted on the development of transit plans, cycling plan, and pedestrian plans. These staff noted that it is particularly important to ensure that individuals who live on low incomes are well served by public transit and active transportation because they are more dependent on these mode of transportation than others in the general population.

Access to Healthy Foods

Link to Housing

Staff in several public health units have noted that their annual *Nutritional Food Basket* reports indicate that a substantial percentage of the population in their communities cannot afford to eat healthy foods. These reports identify housing as the expense which requires most of the income of individuals who live on low incomes. These findings suggest that more individuals and households living on low incomes would be able to afford healthy foods if there were a greater supply of affordable housing in their communities. Several public health units make this information available to decision-makers and the community to support work for more affordable housing. At least one of the ten public health units (Sudbury) has been actively involved in community processes directed at poverty reduction and the creation of affordable housing. Several have used it to support official plan policies related to affordable housing.

Community Gardens and Mobile Food Markets

Three public health units (Waterloo, Toronto and Sudbury) have taken steps to increase access to healthy foods in low income neighbourhoods that are poorly serviced by food retail outlets. This has been done in response to health literature which demonstrates that rates of obesity and chronic disease can be impacted by the accessibility of healthy foods, particularly among low income populations. Staff in all three public health units articulated the positive co-benefits that can be associated with the siting

of community gardens or mobile food markets in low income and/or high risk neighbourhoods, including an increase in social cohesion and neighbourhood safety.

Air Quality and Climate Change

While much of the work directed at air quality and climate change will create health benefits for all residents in the community regardless of their income levels, some of the actions and policies are expected to have greater benefits for low income populations. With air quality, it is expected that policies directed at air studies, compatible land uses, and separation distances for high-volume traffic corridors could have greater health benefits for low income households that are more likely to be located in close proximity to emission sources. With climate change, Extreme Heat Vulnerability Maps are expected to result in programs and/or policies which prioritize low income neighbourhoods for adaptation measures such as tree-planting and cooling centres.

3. Strategies Employed by Public Health Units

While there is a strong degree of overlap in the strategies employed by public health units to inform and/or influence the land use planning processes within their communities, there are significant differences in the emphasis for each.

Health Promotion & Community Engagement

Most of the ten public health units examined have health promotion programs directed at the built environment. These programs aim to increase awareness, shift attitudes, and change behaviour among residents in their communities on a broad array of issues in order to increase physical activity, prevent or minimize injuries, encourage healthy eating, and reduce emissions of air pollutants and greenhouse gases.

Several of the public health units examined are also engaging communities more directly on land use planning issues. For example, several offer active transportation or *walkON* workshops for residents, municipal staff and/or councillors. These workshops can include: training on what makes a community "walkable" or supportive of active transportation; a "walking tour" to ground the points presented; a discussion among participants about improvements needed in their neighbourhoods; and meeting notes that record the comments and recommendations developed by participants.

Cultivating Community Partnerships

Several of the public health units examined have made it a priority to work with their community partners on built environment and land use planning processes. These public health units are working with their community partners to provide comments on official plans, secondary plans, and transportation plans. In some cases, they and their partners are leading the development of active transportation plans, sustainable mobility plans, and cycling plans that are being adopted by local councils and/or referenced in official plans. Supported by grants from the Ontario Government's Healthy Communities Fund and other sources, these public health units have collaborated with their community partners to produce comments and/or plans that benefit from professional planning expertise, public health expertise, and community consultation.

These public health units are also collaborating with community partners on the establishment of: recreational trails, fresh food programs that link local farms to community residents, community gardens, and affordable housing. Several are also collaborating with school boards on projects related to school travel planning; projects that are examining issues such as the safety and walkability of school routes and school properties.

Developing Relationships with Planning

Public health staff in autonomous public health units are developing relationships with decision-makers (i.e. councillors) and/or planners in the municipalities in their districts. For example, they have collaborated with their municipal partners on the organization of local conferences and the preparation of comments on the Provincial Policy Statement.

One public health unit (Grey Bruce) assigned a staff person to work in-house with a local municipality for an extended period to develop a strong relationship between the municipality and the public health unit. Another public health unit (Simcoe Muskoka) assigned one person to be the point person for communications between the health unit and its many municipal partners to facilitate communication and collaboration between them.

The five public health units situated in regional governments have worked to establish relationships with their counterparts in planning. While these relationships provide public health with the opportunity to be "at the table", they also require that public health staff participate in a process that is led by another department and subject to a great deal of external pressure.

Two public health units (Waterloo and Halton) have assigned one staff person to coordinate health's involvement in the land use planning processes for an extended period to help establish working relationships and processes between the two departments. Another public health unit (Peel) is hiring a planner to represent the health unit in the planning department for an extended period to help facilitate the relationship between the two organizations. One public health unit (Niagara) has seconded a staff person to work directly with the region's restructured planning department for an extended period to ensure that health concerns are identified and addressed at all stages in the land use planning processes.

Public health staff from Toronto Public Health have developed their relationship with their counterparts in planning by collaborating with them on municipal strategies (e.g. walking strategy), corporate programs (e.g. air and climate programs) and city standards (e.g. green building standard). They have also worked with planning to ensure that vulnerable populations are included in consultation processes directed at secondary plans and master plans.

Research & Policy Development

All of the ten public health units have conducted some research that supports and/or informs land use planning processes. This research has included literature reviews, policy analyses, public surveys, analyses of health and population statistics, geospatial analyses, air monitoring and airshed modelling. The research has been directed at a variety of issues including:

- Physical activity, injuries, food access, air quality, and water quality as they relate to the built environment;
- The impact of densities, land use mixes, and urban design on active transportation and public transit;
- The burden of illness as it relates to injuries, air quality, extreme weather, and income;
- Community food security, economics of local food systems, food miles, redundant food trade;
- Public attitudes and behaviour related to active transportation, air quality, climate change, energy use practices, and public transit;
- Air quality beside high traffic corridors;
- Geospatial differences in temperatures, air quality, age, and incomes across the community;
- Policies to address land use compatibility and air quality;
- Ground water contamination as it relates to karst topographies; and
- Health impact assessments; and
- Traffic calming measures.

Three public health units (Waterloo, Peel and Halton) have done research and/or policy development to directly inform and support the development of their regional official plans. Three public health units (Waterloo, Peel and Toronto) are collaborating with planning to develop tools that can be used to assess health issues related to physical activity as part of the on-going land use planning process. Two public health units (Halton and Peel) are developing air monitoring and/or airshed modelling tools that can be used to inform land use planning processes. One public health unit (Halton) is involved in the development of implementation guidelines for their regional official plan; one on healthy communities, one on air quality impact assessments, and one on land use compatibility. Two public health units (Simcoe Muskoka and Haliburton Kawartha and Pine Ridge) have participated in processes to develop urban design guidelines for local municipalities in their districts.

In some cases, this research/policy development work has been conducted in-house by health staff who then use the expertise gained to review, and comment on, planning documents. In other cases, this work is conducted by external consultants who have specialized training.

Commenting on Planning Documents

All four of the autonomous public health units have provided comments on official plans when provided the opportunity. Three have done this directly while one has done so in collaboration with its community partners. Three have participated in consultation processes directed at the development of master plans for transit, cycling and/or trails when provided the opportunity. Three have provided comments on secondary plans, subdivision plans and site plans when provided the opportunity, while one has made a decision not to get involved in the review of these documents at this point because of resource constraints.

All five of the regional public health units have been directly involved in the development of their regional official plans. Three of these (York, Peel and Halton) provide comments on local official plans and secondary plans as well. Four have participated in consultation processes for master plans related to the planning process. Three (York, Halton and Niagara) systematically review subdivision plans and site plans; two primarily for environmental health issues and one for issues related to active transportation and injury prevention as well as environmental health issues.

Certificates of Approval & Environmental Assessments

Almost all of the public health units interviewed will review background documents related to certificates of approval or environmental assessments when there is the potential for substantial impact on the health of the community or in response to requests by decision-makers. These documents are usually reviewed from the health protection perspective for environmental health impacts related to water quality, air quality, contaminated soil, toxic substances and sometimes noise and electro-magnetic fields. A few public health units are using these opportunities to raise issues related to cumulative air quality impacts, active transportation (e.g. paved shoulders and access issues) and climate change. One public health unit, in response to requests from decision-makers, has conducted health impact assessments to inform land use policy discussions related to designated lanes for streetcars and a corporate decision related to waste management.

4. Complementary & Contradictory Interventions

All of the staff interviewed recognized that much of the work that is being done by different staff on built environment and land use planning issues complement one another. For example, walkable and transit-supportive development patterns can have a positive impact on a number of risk factors that affect human health. The same can be said for: efficient transit services; active transportation infrastructure; equitably distributed trails, parks and greenspace; community gardens, mobile fruit markets, and green roofs; and shade structures including trees.

Public health staff also recognize that there are situations where the messages directed at specific risk factors such as physical activity, heat stress and smog can contradict one another. Within the public health units examined, staff are working to address these situations to ensure that the public receives clear and consistent messages.

Staff in a few public health units have also identified a few situations where the policies or guidelines directed at one risk factor through the land use planning process can contradict the action needed to protect health from another risk factor. In these cases, staff have worked to weigh the risks associated with one risk factor against the benefits associated with another to make recommendations that reflect consideration of both risk factors.

Public health staff understand the many ways in which these risk factors and built environment interventions are inter-related but do not always have the opportunity to address them in a holistic way because of "silos" that can exist between program areas and provincial ministries.

5. Program Areas, Functional Expertise and Roles

Program Areas & Functional Expertise

As noted in the background of this report, the 2008 Ontario Public Health Standards identify four functional approaches to be applied to each of the five program areas: assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection. In the two program areas that are involved with the built environment and land use planning processes, the

Chronic Disease and Injury Prevention Program and the Environmental Health Program, the functional expertise and roles of the staff has historically been quite different.

Chronic Disease and Injury Prevention

Chronic Disease and Injury Prevention program staff tend to be public health nurses or health promoters who have strong training and/or experience doing health promotion and disease/injury prevention. They may also have some expertise and/or experience with assessment and surveillance and/or policy development, but it is unlikely that they have had much experience in the health protection role. As health promoters, their jobs often involve working with community partners and "making change happen", whether it is shifting the attitudes and behaviour of people, or creating the policies or programs that affect people's attitudes and behaviours.

Environmental Health

Environmental Health program staff tend to be public health inspectors who have strong training and/or experience doing health protection work as well as some health promotion and policy development. They may also have some expertise/experience conducting research, doing assessment and surveillance work, but few have the time or opportunity to be involved in policy development work and/or health promotion that is directed at creating changes in attitudes, behaviours, and/or policies. As public health professionals, their jobs often require that they assess risks and hazards using existing regulations, standards and policies. Their jobs often require the interpretation and application of legislation. It also requires that they maintain some "distance" from community partners and residents so they can "rule" neutrally on situations in their health protection role.

Creating Specialized Positions

Among the ten public health units examined, some of the Chronic Disease and Injury Prevention teams have created specialized positions to allow staff to develop expertise and/or experience in research, policy development, and/or planning to help them to be more effective with policy development related to the built environment.

In addition, several of the Environmental Health teams have created specialized positions to allow staff to develop expertise and/or experience in research, policy development, toxicology, air quality, water quality, and/or health promotion to help them address issues related to the built environment such as air quality, climate change, pesticides, and toxic substances, where they have identified a need to supplement, or move beyond, their more traditional "health protection" role.

In some cases, these public health units have hired new staff with specialized training to fill these positions. A few have created teams with specialized expertise that provide research, policy and/or surveillance support to both program areas on built environment issues. Several have retained external consultants to assist with some aspects of their work on the built environment and/or land use planning processes.

Collaboration Across Program Areas

Work on the built environment requires expertise and/or experience in all of the four functional areas identified by the Ontario Public Health Standards, as well as content expertise that is specific to each program area. It requires assessment and surveillance, health promotion and policy development, disease and injury prevention, and health protection. Among all but one of the ten public health units examined, staff from both the Chronic Disease and Injury Prevention and the Environmental Health programs are involved in built environment and land use planning issues. However, staff from the two program areas are often employing different strategies to their respective issues that reflect the strength and/or role of their particular program area. For example, chronic disease and injury prevention staff are using community partnerships very effectively to promote active transportation, while environmental health staff are using their review function on environmental assessments and certificates of approval to advocate for improvements in air quality by taking a cumulative air quality approach.

Most of the public health units examined are exploring different ways to collaborate across program areas and disciplines to address built environment issues in a more holistic way. Among staff in both program areas, there is a recognition that they are responsible for different risk factors that are inter-related, and that there are functional differences in the ways they work. As demonstrated by examples in the cases studies of these ten public health units, there are benefits for all built environment risk factors when staff from different program areas collaborate. For example, public health inspectors can identify opportunities to advocate for paved shoulders when reviewing environmental assessments, while health promoters could identify opportunities to educate community partners about the need for separation distances between highways and schools.

6. Organizational Structures

Restructuring and the New Ontario Public Health Standards

Most of the staff interviewed indicated that there had been on-going discussions within their health units about how to organize staff to address built environment issues which involve risk factors and health conditions that cut across program areas and disciplines. In some health units, these organizational discussions have been part of a larger discussion related to the new Ontario Public Health Standards that were adopted in 2008. Several individuals expressed the view that health units have had to restructure in order to meet their obligations under the new standards, which broaden the scope and responsibilities of health units at a time when they are not receiving increased resources. Others indicated that their health units were restructuring to ensure that the social determinants of health, which are clearly recognized in the new standards are folded into their research, policy development, health protection, and health promotion programs in a more holistic way. Among the ten public health units interviewed, a variety of organizational approaches have been used to address the cross-cutting issues associated with the built environment and land use planning processes.

Creating Multi-Disciplinary Teams

A few public health units (Simcoe Muskoka and Grey Bruce) have created multi-disciplinary teams with staff trained in chronic disease prevention, injury prevention, and environmental health working collaboratively in a formal way on the built environment and/or land use planning processes. In one of these health units, a Built Environment Committee has been struck, which includes the MOH, a few directors, three managers, and two health promotion specialists, to provide strategic direction and support to front-line staff.

A few public health units (Peel and Halton) have identified leads from the various program areas involved in land use planning processes who collaborate together on those processes. In one of these health units, the team structure is supplemented by quarterly meetings of a Public Health Built Environment Committee which includes two directors, two managers from the Chronic Disease and Injury Prevention and Environmental Health Divisions, as well as the three Team Leads. In this particular health unit, one of the three team leads is a research and policy analyst from the MOH's Office.

Working from Informal Relationships

Several public health units (Niagara, Sudbury and Waterloo) indicated that, while they do not have multi-disciplinary teams or formal processes to ensure collaboration across the health unit, communication and collaboration between teams does happen effectively on an informal basis. Staff in Waterloo indicated that strong relationships between staff in different program areas developed during the years in which they all participated in a cross-divisional adhoc committee that was struck to address land use planning issues. Sudbury encourages collaboration between teams/program areas by requiring staff from different program areas to collaborate on program planning for built environment issues.

Working through Committees

York has established a Building Healthy Communities work group, chaired by one manager from the Healthy Living Division and one manager from the Health Protection Division, to facilitate communication, respond to internal and external requests, identify and develop health and built environment indicators, build capacity and collaboration in the Public Health Branch.

Identifying a Point Person

A few public health units (Simcoe Muskoka, Halton and Waterloo) found it helpful to assign one staff person with responsibility for coordinating the health unit's involvement in land use planning processes for an extended period of time until relationships and/or processes with their planning and/or municipal counterparts were solidified.

Healthy Public Policy Directorate

Toronto has established a new Healthy Public Policy Directorate that will do research and policy work on built environment issues with all of the risk factors combined, including socio-economic risk factors. In this case, "program staff" from the Healthy Living and Healthy Environments Directorates also engage directly in the land use planning processes.

Working Separately

HKPR indicated that there is no on-going collaboration between staff who work on chronic disease and injury prevention and those who work on environmental health issues. This team however, has recently been re-organized to broaden the scope of its work on land use planning processes to include issues beyond physical activity such as injury prevention and healthy aging.

7. Research, Policies and Tools Needed

Research, Tools and Data

When asked to identify the research and/or data that would allow them to be more effective in their work on health and land use planning processes, more than one public health unit indicated that it would be helpful if:

- They had free access to health statistics at a local scale for studies and analyses directed at neighbourhoods in their communities;
- They had easy access to local and provincial data respecting built environment indicators such as:
 - obesity rates, levels of physical activity, injury rates, health impacts attributed to heat and air pollution;
 - number of people who commute on foot, bicycles, public transit, multi-passenger vehicles, and single-occupant vehicles;
 - numbers of kilometres of bike lanes, trails, sidewalks, local roads, regional roads, and provincial highways;
- They had access to information on the costs associated with different types of infrastructure (e.g. highways, roads, bike lanes, benches, bike racks, paved shoulders) and facilities (e.g. arenas, trails, parks);
- There were spatial mapping tools that could be used to analyze how different land use development patterns impact on health outcomes such as:
 - levels of physical activity and activity-related health impacts; and
 - levels of air pollutants and air pollution-related health impacts.
- There was research which demonstrates how levels of physical activity are impacted:
 - As the number and variety of retail outlets within close proximity to residential neighbourhoods increases;
 - By particular types of destinations and the distances to those destinations;
 - By housing densities and distances to retail outlets.
- There was a comprehensive literature review on neighbourhood safety and the built environment that includes issues such as density of alcohol outlets, crossing time at crosswalks, lighting, traffic volume, pedestrian and cycling infrastructure;
- There was research which demonstrates how levels of air pollutants and air pollution-related health impacts change along high volume traffic corridors in response to increasing vertical and horizontal distances;

- Airshed modelling was conducted at a regional level to support airshed modelling conducted at a local level;
- The public health sector developed a common position on the application of health impact assessments (HIAs) to built environment issues to ensure that impacts on health and well-being are assessed in a holistic way that includes consideration of low income populations and other vulnerable sub-populations; and
- A rural network of public health units was established to support collaboration on research, policy development, and health promotion directed at land use planning issues as they relate to health in rural areas.

Resource Materials

When asked to identify the resource materials that are needed to support their work in this field, more than one public health unit indicated that it would be helpful if:

- There were a province-wide educational campaign that helped decision-makers and the public to understand the full breadth of public health's work;
- There was a province-wide social marketing campaign directed at the built environment that targeted issues such as population densities, land use mixes, transit service, and active transportation, in terms of their impact on air quality, climate change, vehicle-related injuries/deaths, physical activity and accessibility;
- There was a course and resources for public health professionals to be trained on the Planning Act and land use planning processes;
- There were an inventory of best practices being applied to the built environment for public health units;
- There were an inventory of health-based policies that could be applied to official plans and secondary plans;
- There was a best practices guide for the design and development of schools (i.e. that encourages safe access to schools and active modes of transportation).

Provincial Policies and Practices

When asked to identify the provincial policies and practices needed to effectively address health issues through the land use planning processes, more than one public health unit indicated that it would be helpful if:

- The Ministry of Health Promotion and Sport's Healthy Community Fund provided sustainable funding for projects directed at "upstream policy interventions";
- The Ministry of Health and Long-term Care established a Healthy Communities Fund to support research, policy development, and health promotion directed at environmental health issues and the built environment with an emphasis on air quality, climate change, and/or income disparities;

- Language in the Health Protection and Promotion Act broadened the definition of a "health hazard" to provide health units with more authority to act on issues related to the built environment;
- Language in the Provincial Policy Statement was broadened to authorize municipalities to develop policies that "promote health";
- An Inter-ministerial Built Environment Committee was established with representation from different provincial ministries that are involved in built environment issues to improve communication, collaboration and integration within and between different ministries at a provincial level;
- The Ministry of Health and Long-term Care established staff positions directed at air quality and climate change;
- Health and built environment guidelines were developed that could be used by public health professionals and local and regional municipalities to assess land use development patterns for their ability to support efficient transit service and active transportation;
- The Ontario Building Code were improved to more effectively address climate change mitigation and adaptation, alternative energies, energy efficiency, indoor and outdoor air quality, water use, building safety and accessibility issues;
- Guidelines were established for energy efficiency in commercial buildings to reduce greenhouse gases and air pollutants from these buildings;
- The MOE's Land Use Compatibility Guidelines were updated to clearly address cumulative air quality impacts for industrial facilities and separation distances needed to protect sensitive land uses from high volume traffic corridors; and
- The Environmental Assessment Act included assessment of health impacts as well as environmental impacts.

Recommendations

It is recommended that:

1. The Ministry of Health Promotion and Sport continue to support public health units and not-for-profit organizations with their work on health and the built environment, particularly work directed at upstream policy interventions, with its Healthy Communities Fund;
2. The Ministry of Health and Long-Term Care establish a Healthy Communities Fund that will be used to fund public health units and/or non-governmental organizations that are doing research, policy development, and health promotion work directed at the built environment with a particular focus on air quality, climate change, and/or vulnerable populations including low income populations;
3. The Ministry of Health Promotion and Sport and the Ministry of Health and Long-Term Care:
 - a. Establish an inter-ministerial committee that can encourage collaboration across program areas on built environment issues among public health units and/or not-for-profit organizations that receive funding from either Ministry;

- b. Move to strengthen the requirements in the Ontario Public Health Standards that relate to work on health and the built environment;
- c. Recognize the positive impact that the current Provincial Policy Statement has had on land use and transportation planning processes in the province, and advocate for stronger language respecting the protection and promotion of human health;
- d. Through their Healthy Communities Funds, give priority to:
 - i. Social marketing projects that seek to educate the public about the many health, environmental, social and economic benefits associated with development patterns and built environment designs that support active transportation and public transit, both at the community level and on a province-wide basis;
 - ii. The development and application of health assessment tools that can be used to estimate the health impacts and health costs associated with land use and transportation decisions and policies from a physical activity, injury prevention and air quality perspective;
- 4. The Province establish a standing inter-ministerial committee on the built environment with the Ministries of Municipal Affairs and Housing, Transportation, Environment, Health and Long-Term Care, Health Promotion and Sport, and Education, which includes representatives from the Council of Medical Officers of Health, to coordinate work that impacts the land use and transportation planning processes;
- 5. The Ontario Agency for Health Protection and Promotion, in consultation with public health units and other stakeholders,:
 - a. Develop a Health Impact Assessment process and tool that can be applied to major projects that are currently subject to environmental assessments;
 - b. Develop a Healthy Communities Screening Tool that can be used to guide public health professionals in the review of planning documents; and
 - c. Identify, and facilitate access to, the health statistics data needed by public health units to support their work on the built environment and land use planning processes.

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Appendix 1 - Interview Questions

1. What area and population does your PHU cover?
2. What regional, county, and/or local municipalities does your PHU cover?
3. How would you describe the communities that you cover (i.e. suburban, urban, rural, mix)?
4. How is your PHU situated relative to the regional, county and/or local municipalities in your area? (e.g. is it part of the Regional Government or an independent PHU?)
5. What body does your PHU report to? (e.g. to a Board of Health or a Regional Committee??)
6. What is the composition of your Board or Committee?? (e.g. Councilors, Citizens?)
7. From a land use planning perspective, what are the health issues of particular concern to your PHU because of geography, demographics or other circumstances? (e.g. physical activity, nutrition, air quality?)
8. What individuals and/or teams within your PHU are involved in influencing the land use planning process? Do the teams in your PHU coordinate their work with each other? If so, by what means?
9. Does your team work directly with staff in other Departments and/or with staff in local municipalities within your Region/County? Which Departments/Municipalities do you work with? Are these working relationships formalized? How were these relationships developed?
10. Are there issues that your team works on that have really sparked the interest of the Planning Department, staff in local municipalities, and/or decision-makers? What issues? How did their interest impact on your team's work?
11. Has your team conducted research, produced background documents, or prepared policy pieces on issues related to land use planning and public health? On what issues? Why were they produced? How have they been used?
12. Has your team provided comments verbally or in writing on land use planning documents such as Growth Plans and Official Plans? What policies, positions and/or comments did you recommend/offer? What health issues were highlighted in your comments? How were your recommendations/comments communicated and to whom? Were you referring to any regulations, standards, background reports, policy papers and/or health evidence when you made your comments? Did your comments have an impact on the process?
13. Has your team provided comments verbally or in writing on land use planning documents such as Transportation Master Plans, Cycling Plans, Recreation and Parks Plans, Natural Heritage Plans? What types of documents have you commented on? What types of comments have you recommended/offered? How were your comments communicated and to whom?
14. Has your team provided comments verbally or in writing on land use planning documents such as Secondary Plans, Subdivision Plans, or Site Plan Applications? What types of documents have you commented on? What types of comments have you recommended/offered?
15. Has your team commented on documents related to the land use planning processes such as Environmental Assessments (EA) and/or Certificates of Approval (CofAs)? What types of EAs and/or CofAs have you commented on? How did your team get involved in each case? What types of comments did you provide? How were your comments communicated and to whom?
16. Is your team doing health promotion work to build public awareness and support for policies related to the land use planning processes that can benefit health? What strategies are you or your team using? What health issues are you addressing? What messages are you promoting? What tools have you developed and what audiences are you targeting?

17. Does your team work with local partners on some of these issues? What types of organizations do you partner with? What issues and/or policies do you partner on? What form do the partnerships take?
18. Are you or your team using geo-spatial tools for your work? What tools are being used? When and how are the tools being used? Who does the geospatial work (e.g. Each team member or specially trained individuals)?
19. How is your team evaluating the work that you are doing in this field?
20. Are there situations where comments from different teams within the PHU might be contradictory?
21. What are those situations? What are the reasons for differences? How are they resolved?
22. Are there situations where comments from different teams within the PHU are supportive of one another? What are those situations?
23. Are there comments and/or policies that you are promoting that would, if acted upon, provide health benefits particularly for people on low incomes? What are these comments and/or policies? What are the health inequities being addressed?
24. Are there comments and/or policies that you are promoting that would, if acted upon, provide health benefits to people on low incomes even though low income populations are not the primary populations who benefit from them? Which comments and/or policies would these be? How would they benefit those on low incomes?
25. Are there specific changes in the physical environment that are needed to improve the health of low income populations that you have not been able to raise because the processes do not afford the opportunity? If yes, what would they be?
26. Are there circumstances related to the organization of your workplace and/or the mandate of your programs that limit your effectiveness on land use planning issues? What are they? How might they be improved?
27. Are there research pieces, policy tools, and/or resources related to land use planning and health, that would help you with your work in this field? What are they?
28. Are there research pieces, policy tools, and/or resources related to land use planning and health that would benefit from collaboration across health programs, PHUs, professions, and/or community stakeholders? What are they and who would be the appropriate partners be?



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