Planning for healthy communities: A study examining the City of Kingston's Official Plan as a means to facilitate health friendly environments

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Executive Summary

In Canada, health issues such as heart disease, cancers, asthma, diabetes, obesity, stress and depression, and injuries and fatalities are a growing concern. Sedentary lifestyles, poor diets, and reliance on automobiles are thought to be significant contributors to these serious health problems. Increasing recognition is being given to the important role the built environment can play in shaping the health of individuals and their communities.

Through its policy initiatives and urban design guidelines, a municipality's official plan is a tool with the potential to guide development in a way that promotes health-friendly built environments. In establishing policies and design characteristics that foster more active forms of transportation, produce vibrant and accessible public spaces, and enhance access to healthy foods, official plans can be harnessed as a tool to enable those living in the community to live healthier lifestyles. In facilitating land use patterns and transportation infrastructure that promote health, an official plan will also be satisfying the Province's interest in achieving healthy, liveable and safe communities as reflected in the Provincial Policy Statement.

Study Purpose

Recognizing the role an official plan can play in guiding development towards results that increase individuals' participation in healthy, active living, this report examines the City of Kingston's Official Plan to determine its effectiveness in facilitating initiatives, and ultimately developments, that are conducive to healthy living. The twin objectives of this study are therefore:

1. To determine whether, and how, healthy community concepts are articulated within the Official Plan; and
2. To assess the extent to which healthy community concepts within the Official Plan are reflected in city projects and general planning dialogue.

Methods

In order to identify the presence and absence of healthy community concepts within the Official Plan, a Healthy Community Checklist was employed and served as a type of *direct content analysis*. While this tool contains 24 unique items, there are five overarching principles of planning for a healthy community that structure the Checklist. These principles include 1) bicycle and pedestrian accessibility; 2) complete streets principles; 3) parks and open space; 4) compact and mixed-use development; and 5) convenient access to healthy food.

To build on this approach, a *latent content analysis* was used to critically examine the language used to convey healthy community principles. Particular attention was paid to *semantics,* inasmuch as not only were the number and type of words used of interest, but also how effective those words may be.

Finally, two in-depth, semi-structured interviews were conducted with a planner and councilor at the City to examine the degree to which they think the Official Plan's vision and policies are being reflected in projects, plans, priorities and general planning dialogue.

Findings

Results from the Healthy Community Checklist reveal that Kingston's Official Plan contains a significant number of healthy community concepts. Seldom do the goals and

objectives explicitly intend to achieve a healthier community or improved quality of life for people, however the policies have the potential to achieve these results.

Results from the latent content analysis suggest that many community goals are articulated in a manner that is meaningful and substantial. Pedestrian and bicycle accessibility, the conservation and enhancement of open space, complete streets objectives as well as mixed and compact development goals are communicated using meaningful language. Improving access to healthy foods is not as powerfully conveyed through Official Plan policies.

Results from the interviews suggest that Kingston has made progress in facilitating more health-friendly built environments, as seen for example in the re-development of Lake Ontario Park, an anticipated high-speed transit system, and an expected bicycle lane in the Williamsville Street corridor. Despite these achievements, interviews also revealed a number of challenges to implementing healthy community concepts found in the Official Plan, including a lack of resources, developer resistance, limitations to retrofitting the design of older neighbourhoods, occasional opposition to healthy community interventions (e.g. community gardens), and having an outdated zoning by-law.

Conclusions and Recommendations

Results indicate that the goals and policies found in Kingston's Official Plan contain a significant number of healthy community principles. What is less evident is the extent to which these concepts are being translated into City projects and private developments. It is important to note that the current Official Plan was last amended in 2010. Thus, the effects of policies that support health friendly development may not yet be apparent. Nonetheless, as health community

planning continues to gain consideration and as Kingston strives to be Canada's most sustainable city, critically examining the policies that guide development in this city, is essential.

In recognizing the challenges to implementing healthy community concepts within the official plan, a number of recommendations were made including the need to more explicitly commit to improving individuals' quality of life in Official Plan policies in order to bolster greater support from developers, council and the community at large; the consideration of development incentives to incorporate more sustainable and health community design elements into new developments; the need for public consultation to prioritize infrastructure improvements in older neighbourhoods; and the importance of ensuring that the zoning by-law consolidation and update which is currently underway appropriately reflects healthy community concepts found within the Official Plan.

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1 Introduction

An important aspect of realizing a healthy community is through land use policies and other municipal mechanisms. A municipality's official plan for instance can establish a vision for a more livable community, one that provides opportunities for residents to live actively, recreate locally and access healthy foods. An official plan is the most important vehicle for implementing the Provincial Policy Statement (Government of Ontario, 2005), which is a policy document that promotes efficient land use and development patterns that support strong, liveable and healthy communities. The *Planning Act* requires that decisions affecting planning matters (including official plan amendments) be consistent with provincial interest. The current study examines the City of Kingston's Official Plan, to determine whether its policies contain healthy community concepts, and whether these principles are being reflected in development projects and general planning dialogue.

1.1 The Health of Canadians

In Canada, chronic disease rates are rising rapidly and being driven in part by lifestyle choices. Two out of every three adults in Canada are overweight or obese (Health Canada & Public Health Agency of Canada, 2006). The proportion of obese children has nearly tripled in the last 25 years. As well, more than half of Canadian children and youth are not active enough for optimal growth and development (Health Canada & Public Health Agency of Canada, 2006). Rates of overweight and obesity have been climbing steadily for the past 30 years, and these

rising rates are directly linked to a lack of physical activity (Heart and Stroke Foundation of Canada, 2011).

Those who are overweight or obese are at risk for a wide range of serious diseases and conditions including: hypertension or high blood pressure; coronary heart disease; Type 2 diabetes; stroke; gallbladder disease; osteoarthritis; sleep apnea and other breathing problems; some cancers such as breast, colon and endometrial; and mental health problems such as low self-esteem and depression (Health Canada & Public Health Agency of Canada, 2006).

1.2 The Relationship between the Built Environment and Health

The built environment, according to Handy and colleagues (2002) comprises urban design, land use, and the transportation system, and encompasses patterns of human activity within the physical environment. 'Urban design' focuses on the design of the public realm, which is created by both public spaces and the buildings that define them (Steiner & Butler, 2007). 'Land use' typically refers to the distribution of activities across space, including the location and density of different activities, where activities are grouped into categories, such as residential, commercial, office, industrial, and other activities. The 'transportation system' includes the physical infrastructure of roads, sidewalks, bikes paths, railroad tracks, bridges, as well as the level of service provided as determined by traffic levels, bus frequencies, etc.

The way the built environment is designed can have a significant impact on the physical connections between the places where people live, work and play. The nature of these environments in turn can have significant consequences on people's health. One's ability to engage in active transportation and recreational activity, and ward off health problems like heart disease and diabetes (Health Canada & Public Health Agency of Canada, 2006), is greatly

influenced by the nature of transportation systems and land use patterns, and the distribution of recreational facilities and open space (Frank et al., 2003; Miro & Siu, 2009; Social Planning Council of Cambridge and North Dumfies, 2008). Outdoor air pollution in urban areas from industrial factories and traffic related emissions produce ground level ozone, air contaminants and particulate matter, all of which can worsen symptoms for people with asthma and other lung conditions, and increase risk of cardiovascular disease (CIHI, 2011; Frank et al., 2003; Miro & Siu, 2009). Finally, limited access to healthy foods within the proximity of one's neighbourhood may act as a barrier to eating healthful foods and have an adverse health impact on residents (Miro & Siu, 2009; Raja et al, 2008).

1.3 The Role of Policy in Promoting Healthy Built Environments

The health of a community is heavily influenced by two aspects of municipal planning: public policies and community design. Public policies that address zoning, building codes, transportation investments, and subdivision regulations for instance all determine the nature of the built environment and how people use it (Angotti & Hanhardt, 2001; Filion et al., 2004; Frank & Engelke, 2001; Frank et al., 2006). Land use decisions and the way communities are designed have multiple impacts on people's lives, from how people get around to how they interact with their neighbours. The physical form of a community can impact its vitality, define its character and shape its ability to attract business and residents, all of which can affect the overall physical and mental health of the people who live there (Simcoe Muskoka District Health Unit, 2010). Some design characteristics encourage walking, bicycling, transit use and community involvement, while others encourage or even force automobile dependency (Dannenberg et al., 2003; Handy et al., 2002; Horton, 2007). Ultimately, urban and rural

strategies as shaped by policy can promote increased physical activity, psychological well-being and healthier outcomes for people (MMAH & OPPIs, 2009).

An official plan deals with many issues, such as where housing, industry, offices and shops will be located; what services like roads, watermains, sewers, parks and schools will be needed; when, and in which order a community will grow; and community improvement initiatives (MMAH, 2008). Land use policies as found in an official plan can promote active transportation through the provision of appropriate and safe bicycle infrastructure, enhancing sidewalks and walkways, and encouraging a traditional grid pattern street. Allowing for greater mixed-use and compact development can enable residents to live, work and play locally. The provision of parks and open spaces can facilitate both organized and informal recreation while also enhancing the visual attractiveness of an area. And, policy that supports convenient access to healthy food retailers by foot, bicycle, transit and automobile through locating shopping facilities near residences can also contribute to an improved quality of life (Social Planning Council of Cambridge and North Dumfries, 2008; Beck, 2010).

1.4 Study Purpose and Objectives

Given the potential of an official plan in facilitating health-friendly environments, it is important to examine the extent to which currently implemented official plans reflect strategies that can facilitate development supportive of healthy living. In performing this critical assessment of an official plan and providing subsequent recommendations, planners will be better equipped to guide development of the built environment towards results that increase physical activity, reduce the prevalence of preventable diseases, injuries and fatalities, and improve access to healthy foods (MMAH & OPPI, 2009).

This study examines the City of Kingston's current Official Plan (2010) to determine its effectiveness in facilitating initiatives, and ultimately development, that is conducive to healthy living. The twin objectives of this study are therefore:

1. To determine whether, and how, healthy community concepts are articulated within the Official Plan; and
2. To gather perspectives on the extent to which healthy community concepts within the Official Plan are reflected in city projects and general planning dialogue.

The results will enable greater understanding of the strengths and limitations of the current policy, as well as offer recommendations on how future iterations of the Official Plan could include or better articulate healthy community concepts. Recommendations will also address barriers to implementing official plan policies from the perspectives of a City planner and councilor.

1.5 The Kingston Context

Located halfway between Montreal and Toronto, Kingston, Ontario has a rich and diverse heritage as a military, trading, commercial and penal centre (City of Kingston, 2010). The city has a diverse economy, with a stable mix of private and public sector employers (KEDCO, 2012). It is also the home of Queen's University and the Royal Military College of Canada.

On January 1, 1998, the former City of Kingston amalgamated with the Township of Kingston and Pittsburgh Township to create a City having an area of 450 square kilometres (City of Kingston, 2010) and a 2006 population of approximately 117,000 (Statistics Canada, 2006). Kingston includes urban and rural land, as well as substantial water bodies.

The City of Kingston has a vision of being Canada's most sustainable city, and defines a sustainable community as "active, inclusive, safe, well planned and built, well run, well connected and thriving" (City of Kingston, 2010b, p. 3). The City's Sustainability Plan highlights the City's vision of having Kingstonians live, work, and play in a community that promotes, protects, and enhances the physical, mental and spiritual well-being of individuals and families. This Plan also identifies a goal of ensuring that people in Kingston have access to healthy and affordable food that is available through locally sustainable agriculture, local markets, and community gardens (City of Kingston, 2010b). Creating a city that promotes health and well-being appears to be a significant priority for Kingston, so evaluating the Official Plan to determine its effectiveness in facilitating the above mentioned goals is an important endeavour.

Despite the presence of healthy community goals in the Sustainability Plan, this study examines the City's official plan, which is a policy document that was prepared with the principles of community sustainability in mind. Kingston's Official Plan makes specific reference to how energy use, neighbourhood planning, transportation, water, and waste functions are to be considered from a municipal planning perspective in the context of sustainable development (City of Kingston, 2010b). Thus, healthy community concepts in the Sustainability Plan should also be found in the Official Plan. Furthermore, every municipality, under the Planning Act, is required to have an up-to-date official plan. Not every municipality however, is obligated to maintain a sustainability plan. Therefore, examining Kingston's Official Plan can allow for comparison with other communities that may only have an official plan.

2 Literature Review

2.1 Relationship Between the Built Environment and Health

The health of a community's residents has become increasingly important to the planning profession. Specifically, literature suggests that planners are seeing the built environment as a significant variable in individual health outcomes, and more broadly, the health of communities. The ways in which the built environment influences health are complex; however, many studies reveal that a dynamic interaction between land development and transportation investments produces built environments that encourage or discourage physical activity (Frank & Engelke, 2001; Frank et al., 2006; Dannenberg et al., 2003). Physical activity in turn is related to health, primarily through the direct influence of activity patterns on health. In essence, the built environment is a key determinant of health, and thus, must be addressed by the planning profession.

Studies suggest that the built environment, particularly sprawling development, is associated with increased automobile dependency and accompanying air pollution. Poor air quality in turn can exacerbate and even cause respiratory diseases (Dannenberg et al., 2003; Horton, 2007; Finkelstein, Jerrett, & Sears, 2005). Furthermore, the nature of the built environment can increase the risk of pedestrian and bicycle injuries and fatalities (Dannenberg et al., 2003; Aultman-Hall & Kaltenecker, 1999; Retting, Ferguson, & McMartt, 2003); can negatively impact individuals' mental health (Galea, et al., 2005; SPC of Cambridge and North Dumfies, 2008); and influences a community's food security (Twiss et al., 2003; Raja, Born, & Kozlowski Russell, 2008; Apparicio, Cloutier, & Shearmur, 2007; Smoyer-Tomic, Spence, & Amrhein, 2006). The following review of the literature will examine these themes and illustrate

the relationship between the built environment and health. An examination of relevant planning strategies and interventions as well as current planning challenges will also be discussed. Finally, several examples of healthy community projects will be discussed.

2.1.1 Physical Activity

Although there are proven benefits of a physically active lifestyle, over 60% of American adults are insufficiently active to achieve these benefits and over 25% are not active at all in their leisure time (Dannenberg et al., 2003). While the Canadian picture is not as grim, with 47% of the population being insufficiently active (HRSDC, n.d.), this number is worrisome. Both land use patters and transportation infrastructure play important roles in creating safe and clean environments that promote active lifestyles, and ultimately, health.

Studies reveal that a person's willingness and ability to participate in physical activity is very much dependent on both macro and micro urban design. At the macro level for instance, the supply or capacity for movement across arterials, bikeways, railways and highways impacts the choice of mode for commuting and other trips between centres or urban areas (Frank & Engelke, 2001; Doyle et al., 2007). Within urban centres and communities, the layout of the street network and the distribution of space for different modes of travel within a given right of way impact the directness and quality of travel (Frank & Engelke, 2001). For example, transit's regional success depends on the pedestrian environment at the local and neighbourhood scale. In addition, the ability to forgo car ownership requires having competitive forms of transit and non-motorized movement. Thus, these alternative modes of travel operate as a system, the relative convenience and attractiveness of which is reliant on the presence of and linkages between distinct modes of travel (Frank & Engelke, 2001).

The results of a study by Dannenberg and colleagues (2003) reveal that such community characteristics as proximity to recreation facilities, sprawl, street design, housing density and accommodation for safe pedestrian, bicycle, and wheelchair use play a significant role in promoting or discouraging physical activity. Frank and Engelke (2001) also note the importance of land development patterns and argue that higher density has been associated with reduced trip lengths, reduced vehicle ownership, and increased mode choice options. Furthermore, the degree to which different activities are located within close proximity to one another, or land use mix, is associated with reduced trip lengths, lower level of per capita auto ownership, increased transit usage for the journey to work, and more travel choices for all trip purposes (Frank & Engelke, 2001).

For children and adolescents, physical activity is heavily dependent on the design, level of safety, and appropriateness of the built environment. At school, there are opportunities for boys and girls of all ages, interests and ability to be more physically active, such as through what Dyment and Bell (2007) refer to as "greening". This refers to the naturalization, habitat restoration, tree planting, food gardening and similar efforts to bring nature back to school. This strategy recognizes the limitations of conventional approaches to school ground design which favoured flat, wide-open expanses of turf and asphalt with chain-link fencing, intended to contain and control students, facilitate supervision and promote competitive sports (Dyment & Bell, 2007). Furthermore, studies on active travel among children suggest that neighbourhood factors such as distance to school, land use mix, parental perceptions, and characteristics of the built environment may influence decisions regarding a child's mode of travel to school (Larsen et al., 2009). Outside of school, motivating youth to initiate and sustain physical activity through

safe and diverse built environments enables them to embrace an active lifestyle that leads to a variety of health benefits (Stuntz & Weiss, 2010).

The health benefits experienced by children and adults alike from increased physical activity are significant. In fact, epidemiological research has shown that regular physical activity can reduce risk factors for many chronic diseases including coronary heart disease, some cancers, hypertension, diabetes, osteoporosis, obesity, anxiety, and clinical depression (Frank and Engelke, 2001).

It is important to note that despite the discussed attributes of the built environment said to promote and/or hinder health, there are a number of personal barriers experienced by individuals that limit one's ability to engage in physical activity (Frank & Engelke, 2001). Although many planning measures can be implemented to address environmental barriers, other strategies may be necessary for addressing subjective considerations that restrict an individual's motivation or ability to exercise. Personal barriers might include lack of time, physical inability to exercise, lack of social support, childcare responsibilities, and lack of health knowledge (Frank & Engelke, 2001).

2.1.2 Air and Water Pollution

The nature of the built environment, particularly sprawling developments, is associated with increased automobile use and accompanying air pollution, which exacerbates and may even cause asthma and other respiratory diseases (Dannenberg et al., 2003). In various combinations, the pollutants that originate from cars and trucks, particularly nitrogen oxides, hydrocarbons, ozone, and particulate matter, account for a substantial part of the air pollution burdening North American cities (Frumkin, 2002). These air pollutants create a number of health hazards, including poor lung function, respiratory disease, cardiopulmonary disease and elevated

mortality. In other words, sprawl is associated with high levels of driving, driving contributes to air pollution, and air pollution causes morbidity and mortality (Frumkin, 2002).

In addition, disruption of farmlands and forests and paving for new roads and parking reduce the ground's natural filtering capacity, causing increased siltation, runoff of pollutants from impervious surfaces, and reduced water quality. The contamination of water supplies from bacteria, chemicals and sediment increases the cost of providing potable water to communities and may cause gastrointestinal and other diseases (Dannenberg et al., 2003).

2.1.3 Accidents and Injuries

The built environment also influences how pedestrians, bicyclists, and motorists interact with one another. Despite declining rates of pedestrian fatalities, pedestrian crash injuries remain a serious health problem (Retting, Ferguson, & McMartt, 2003). Modifications to the built environment can reduce the risk and severity of vehicle-pedestrian crashes. Engineering modifications generally can be classified into three broad categories: separation of pedestrians from vehicles by time or space, measures that increase the visibility and conspicuity of pedestrians, and reductions in vehicle speeds (Retting et al., 2003). Similarly, a study examining commuter cyclists in Toronto, Ontario reveals that urban form, traffic levels and the attitudes of drivers and cyclists can affect bicycle safety (Aultman-Hall & Kaltenecker, 1999). Density in particular can have a significant impact on the safety of individuals when they leave their home. In Lucy's (2003) study, which studied the danger of leaving home as represented by traffic fatalities in 8 metropolitan U.S. cities, counties with low residential density always had the most traffic fatalities in each time period of the study and thus, were more dangerous than their central cities. Furthermore, transportation planning that prioritizes pedestrians and cyclists results in

increased safety and fewer overall injuries. In fact, Pucher, Dill and Handy (2010) reveal that countries and cities with high levels of bicycling and good safety rates tend to have extensive infrastructure, as well as pro-bicycle policies and programs, whereas those with low bicycling rates and poor safety records generally have done much less.

2.1.4 Mental Health

Certain characteristics of a community, such as the degree of "urban sprawl", are now being recognized as contributing to mental health (Galea, et al., 2005; SPC of Cambridge and North Dumfies, 2008; Dannenberg et al., 2003). Obesity and overweight statistics are at their highest levels ever in Canada and planners and public health professionals associate this issue with increasingly sprawling communities (i.e. Frumkin, 2002; Frank et al., 2006). People who are overweight and/or obese suffer not just the negative physical consequences of excess weight, but also the psychological pain associated with a society that is, paradoxically, becoming increasingly weight-obsessed (SPC of Cambridge and North Dumfries, 2008). Given that physical activity in known to be an effective treatment for such mental health problems as anxiety and depression and an important factor in promoting mental health, designing environments to increase opportunities for physical activity can be both mentally protective and therapeutic for individuals and communities (SPC of Cambridge and North Dumfies, 2008).

Furthermore, the urban built form can also impact an individual's mental health independent of his or her weight. Among the participants in Galea and colleagues' (2005) study, residents in neighbourhoods characterized by a poor quality built environment was associated with greater individual likelihood of past six month and lifetime depression even after adjusting for individual age, race/ethnicity, sex, and income and for neighbourhood level income.

2.1.5 Food Security

Recent North American trends have revealed the growing importance of healthy eating for three reasons: 1) a growing public health concern over the rise in obesity; 2) a general increase in food activism and popular consciousness about where our food comes from and what we eat; and 3) recent rising energy and food costs, which are making healthful foods less affordable (Raja et al., 2008). These concerns have launched food to the centre of many public debates. Due to these growing food concerns, there is an increasing interest in identifying food deserts, that is, socially deprived areas within cities that have poor access to food retailers (Apparicio et al., 2007).

The absence of supermarkets in some places of poverty (even within some of Canada's most affluent cities) suggests that low-income families without a car will tend to shop in small local shops that often sell a smaller variety of foods, and at higher prices. In addition, lower-income and sprawling neighbourhoods often have a relatively high prevalence of fast food outlets. A study in the U.S. has found the availability of fast-food restaurants to be greater in lower-income and minority neighbourhoods than in high-income and predominantly white neighbouroods (Larson, Story & Nelson, 2009). Greater access to fast-food retailers in turn is related to increased risk for obesity. Essentially, people's dietary choices may be influenced by the availability and type of food stores (Apparicio et al., 2007). Consequently, community and regional food planning, which is concerned with improving a community's food system by strengthening and making visible the relationships between producers, processors, distributors, and consumers of food, is a growing approach to tackling this issue.

2.2 Social Justice

According to Coburn (2005), in virtually all cities across the world, the worst health problems and premature deaths are highly concentrated in neighbourhoods that also experience a host of other social inequalities, including higher poverty rates, residential segregation, concentration of environmentally noxious facilities, and lack of basic sanitation and water services. What is more concerning is that by almost all measures, disparities in health are growing between the advantaged and least advantaged groups, despite gains in medical technology (Coburn, 2005). The results of Day's (2006) study for instance, found that low-income, Black and Latino populations in the U.S. face heightened risk of overweight and obesity, and that this has resulted from a complex interaction of societal factors (broader patterns of disadvantage), individual factors (cost, time, limited knowledge about health or risk factors of obesity, language barriers), physical environment features (safety from traffic, perceived safety from crime, proximity to jobs and other destinations, and the provision of parks and recreational facilities), and group factors (range of resources available to the particular community that can encourage physical activity). In Merchant and colleagues' (2007) cross-sectional comparison of a poor and rich neighbourhood in Hamilton, Ontario, it was found that children living in low-income neighbourhoods exercise less and are more overweight than those living in more affluent neighbourhoods after accounting for family socio-economic status. Therefore, in addition to recognizing the impacts of the built environment on health, it is imperative that planners acknowledge that health disparities exist that are avoidable, unfair and unjust, and systematically burden populations already vulnerable because of inequalities in underlying social, political, economic and legal institutions (Braveman & Gruskin, 2003).

2.3 Planning Strategies and Interventions

2.3.1 Urban Design

A key approach to achieving a built environment that fosters health and well-being based on much of the literature includes urban design strategies. According to participants in a study by Filion et al. (2004), different types of streetscapes, the presence of urban furniture, façade improvement programs, and the introduction of public art all contribute to a healthy community, particularly for small metropolitan regions (population of 100,000 to 500,000). Horton (2007) argues that designing complete, mixed-use communities with good access to employment, shopping, education, recreational opportunities, and health care will help reduce car trips and promote healthier, more active lifestyles. Designing comprehensive open space systems and the greening of our cities and neighbourhoods is also argued to be necessary for achieving health-promoting environments (Horton, 2007).

2.3.2 Transportation Infrastructure

Transportation infrastructure is also seen as a key urban element that can help promote physical activity and health. Filion and colleagues (2004) suggest that traffic calming measures, the creation of pedestrian malls, the provision of municipally run parking, as well as control – occasionally banning – of parking lots are all appropriate strategies for small metropolitan regions. In addition, planning communities for high connectivity and spreading traffic and transit along the main streets can also help to promote physical activity and reduce congestion (Horton, 2007). Reducing the number of private vehicle lanes, adding dedicated transit lanes, allowing space for intensively planted boulevards and medians, and promoting transit and walkability are also essential for achieving health promoting built environments (Horton, 2007).

In addition to promoting physical activity, improvements to transportation infrastructure, such as increasing capacity for alternatives, reducing traffic speeds, and ensuring the placement of appropriate signage, can help reduce traffic injuries (Miro & Sui, 2009).

2.3.3 Improvements to Environmental Quality

The promotion of mixed-use communities is a recommended design strategy for promoting health-friendly environments. Although the authors approach mixed-use development with a critical eye, Angotti and Hanhardt (2001) suggest strategies to promote health in communities that already experience a high degree of mixing. In their study of mixed communities in New York City, these authors reveal that in order to preserve existing mixed-use communities, the major focus must be on pollution prevention and control. The authors argue that the most toxic and/or noxious uses should be amortised and relocated. In addition, where possible, buildings, transportation facilities and public spaces should be retrofitted to meet current environmental standards. They go on to argue that financial and regulatory incentives must be provided to assist businesses in eliminating or reducing the use of toxic and hazardous substances. And, funds should be made available to redevelop brownfields in a reasonable period of time (Angotti & Hanhardt, 2001). Additionally, Filion and colleagues (2004) argue for the restoration of natural amenities, especially waterfronts, and the opening of pedestrian-friendly corridors to these sites.

2.3.4 Increasing Access to Healthy Foods

As revealed in the work of Raja and colleagues' (2008) and Apparicio et al. (2007), food security and the presence of food deserts is a growing concern in North American cities. There are a number of strategies that can be employed by municipalities to improve access to healthful

foods, such as encouraging adequate provision of food/grocery stores that are accessible by walking and transit in all residential areas, ensuring the community's land use decisions respect local agriculture and enhance food security needs and goals, and identify and secure areas for urban agriculture, community gardens and farmers' markets (Miro & Siu, 2009).

2.4 Planning Challenges and Limitations

Despite the identification of certain strategies that contribute to healthy built environments, literature reveals certain barriers to implementing these strategies. For instance, a study by Handy et al. (2008) found that there is strong, widespread, and growing support for traditionally designed communities (which features a mix of residential and commercial land uses and pedestrian connections between these uses), but this public support is not translating into action. They cite three reasons for this discrepancy, first, public support does not always translate into political support; second, policy is hard to change even when there is support (e.g., modification to laws, regulations, codes, guidelines, standards, and funding formulae are often required); and third, development is a slow process where it may take months or even years before new policies manifest themselves in completed development projects.

The potential health benefits of mixed-used communities, including a more active lifestyle due to improved accessibility and walkability, were discussed earlier. While Angotti and Hanhardt (2001) recognize that mixed-use development can sometimes be beneficial, they also argue that public health and quality of life problems in existing mixed-use communities are often worse than in single-use communities. In particular, many low-income communities in central cities have a mixture of industrial, retail and residential uses, but some of the industries pose serious health hazards. And, many mixed-use communities are overwhelmed by heavy trucks that discharge diesel fumes which weaken building foundations with vibrations and park

in public places like sidewalks and parks. On the other hand, they found that in wealthier communities, mixes of uses tend to create relatively few health risks. Therefore, while mixed-use development is consistently promoted in the literature, Angotti and Hanhardt (2001) illustrate that the benefits of mixed-use development are not universal.

2.5 Healthy Community Planning Precedents

Some cities in Canada and elsewhere are making great strides in implementing policies and strategies to combat physical inactivity and obesity, and to make their communities more health friendly. The City of Vancouver's *Living First* policy favours residential development in the downtown area (Otgaar, Klijs, & Berg, 2011). Zoning By-laws were amended to create more space for dwellings; adjustments in infrastructure and legislation have made for a city centre that is less accessible for cars; and public and private investments in urban design have promoted a safer downtown, one that facilitates more social interactions. The Ontario Food Terminal (OFT) in Toronto is the largest wholesale fruit and produce distribution centre in Canada and the fourth largest in North America (MMAH & OPPI, 2009). The OFT aims to ensure high quality produce to the Ontario consumer at competitive prices; provide a central marketplace for Ontario growers and produce wholesalers to sell their produce; and foster a competitive market where buyers and sellers can freely negotiate prices and terms of sale. Overall, the project has contributed to a more vibrant regional healthy food economy.

Udine, Italy, a city of comparable population size to Kingston also exhibits strategies for improving the health of its citizens (Otgaar et a., 2011). Udine aims to create an age-friendly environment that promotes a healthy lifestyle through investing in the accessibility and road safety for pedestrians and cyclists. The project that was designed to realize this mandate, Pilastri della Sostenibilita ('The Pillars of Sustainability') created a new regional platform involving

fourteen municipalities, the farmer's association and the Chamber of Commerce. This platform's ambition is to further expand networks of sustainable mobility, counting on the involvement of the private sector via the Chamber of Commerce (Otgaar et al., 2011).

Finally, active living through the development, management, preservation and promotion of a system of integrated activity lanes has been a focus in Temiskaming Shores, Ontario (MMAH & OPPI, 2009). Here, a 19.7 km year-round activity lane/path goes along the waterfront and connects the three neighbouring centres and a variety of city anchors (retail, museums, art galleries, sport facilities, libraries, schools, medical facilities). This program has achieved increased opportunities for unstructured physical activity and provides choices for more active living through an accessible and safe linear park network.

3 Methods

3.1 Healthy Communities Checklist

Designed by the University of Delaware Institute of Public Administration, the Comprehensive Plan Assessment Tool is intended to help local government officials, planning commissions, and those involved in writing or updating their community's Official Plan examine and adapt their current policy guidelines in a way that can better facilitate healthy community design (Beck, 2010). The Checklist effectively serves as a type of *direct content analysis*, as it provides already established codes and categories derived from existing theories and explanations relevant to healthy community planning (Berg, 2009).

While this tool contains 24 unique items, there are five overarching principles of planning for a healthy community that structure the Checklist. These principles include 1) bicycle and pedestrian accessibility; 2) complete streets principles; 3) parks and open space; 4) compact and mixed-use development; and 5) convenient access to healthy food (Beck, 2010). The Checklist does not however address the social determinants of health or the health consequences of social inequality. If aspects of each of the five principles are included in an official plan, then the plan should score very highly on the Checklist. In reviewing Kingston's Official Plan, elements related to the above mentioned concepts are extracted from the document as direct quotes or notes. These elements are then classified by Checklist category and documented on the Comprehensive Plan Healthy Community Checklist.

It is important to note that the terms Comprehensive Plan and Official Plan are used interchangeably, with the former referring to U.S. planning policy, and the latter referring to the policy document used in the Ontario context. Delaware State law deems that all municipalities

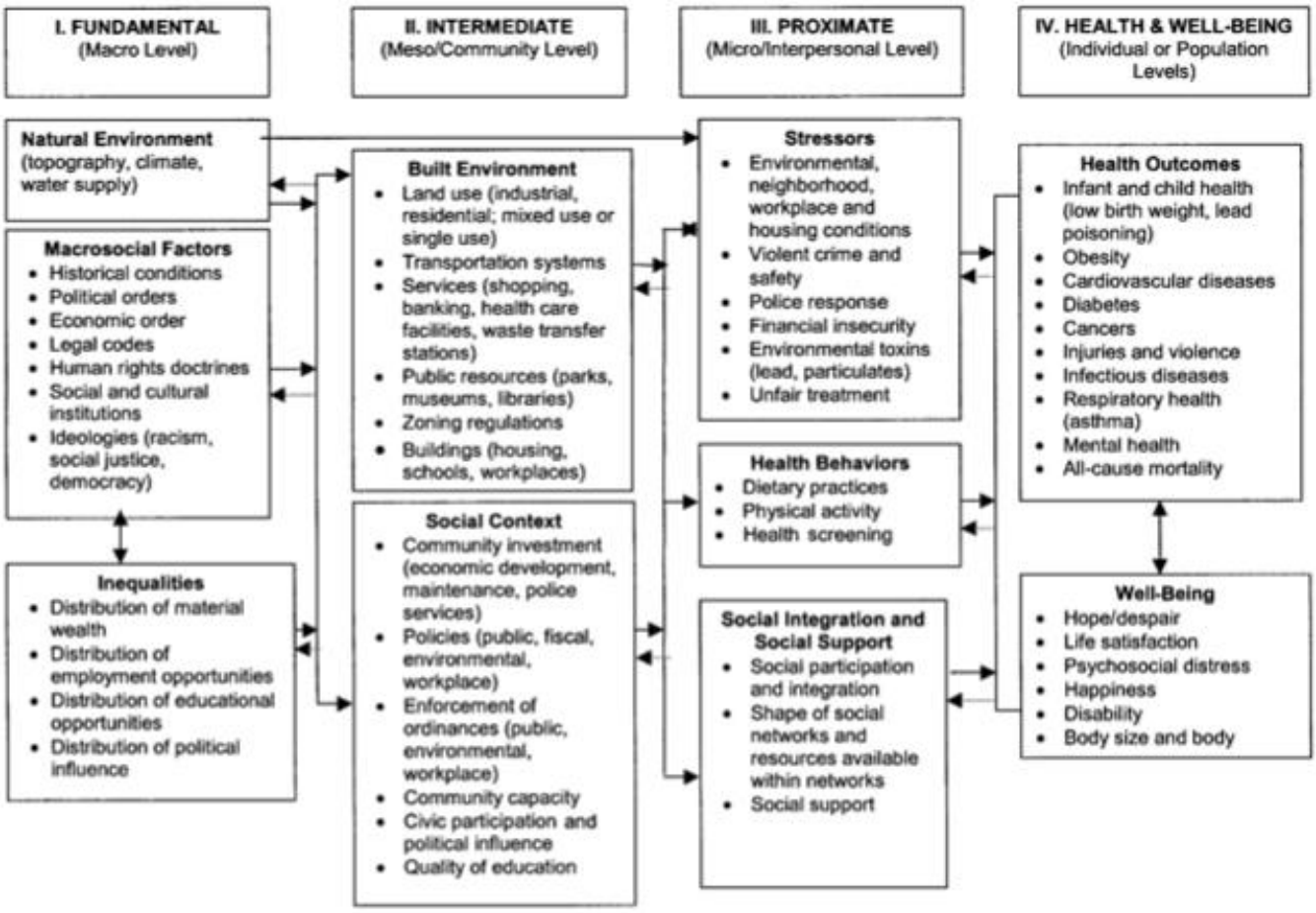
must develop and adopt a Comprehensive Plan (Beck, 2010). Similarly, the Planning Act of Ontario requires all municipalities to prepare, and regularly review, an Official Plan (Government of Ontario, 2005). Although these two municipal plans are mandated by different legislation and occur in different countries, they are comparable in that they both use text and maps to guide future development.

3.2 Latent Content Analysis

The Healthy Communities Checklist enabled the analysis of *manifest content* (those elements that are physically present and countable) (Berg, 2009). However, as Berg (2009) reveals, it may be necessary to examine beyond the surface structure present in the message and explore the deeper structural meaning conveyed in a text (i.e. latent content). To do this *latent content analysis strategies* were employed as informed by Northridge, Sclar and Biswas's (2003) conceptual framework for understanding the connections between the built environment and health (see Figure 1). This approach extended the analysis to an interpretive reading of the symbolism underlying the physical data (Berg, 2009). This model posits that three domains – the natural environment (including topography, climate, and water supply), macrosocial factors (including historical conditions, political and economic orders, and human rights doctrines), and inequalities (including those related to the distribution of wealth, employment and education opportunities, and political influence) – contain the fundamental factors that underlie and influence health and well-being. Fundamental factors in turn, influence two domains of intermediate factors: the built environment and social context (Northridge et al., 2003). To examine the relationship between the built environment and population health and well-being, Northridge and colleagues (2003) emphasize a focus on the intermediate factors because it is

here that, either purposely or inadvertently, the impact of the built environment is especially subject to the greatest policy manipulation.

Figure 1: Social determinants of health and environmental health promotion (Northridge et al., 2003).



To perform the *latent content analysis*, the data were organized using the Healthy Communities Checklist and examined in terms of the manner in which these words/phrases are offered. More specifically, the researcher undertook data interpretations, whereby ideas were developed about the information found in the various healthy communities categories, as well as the patterns that emerged and meaning that seemed to be conveyed. Particular attention was paid

to what Berg (2009) refers to as *semantics*, whereby it is not only the number and type of words used that are of interest, but also how effective the word(s) may be – in other words, how strong or weak a word is in relation to the overall sentiment of the sentence. In turn, this analysis was related to the literature, the theoretical framework and to the original research questions. This approach offered a means by which to learn about how the authors of the Official Plan view their social worlds and how these views might unconsciously or subconsciously impact the discourse within the Official Plan (Berg, 2009).

3.3 Interviews

In-depth, semi structured interviews were conducted with City staff and politicians to examine the degree to which they believed the Official Plan's vision is being reflected in projects, plans, priorities and general planning dialogue. Interviews were conducted in Kingston, Ontario in April of 2012. After ethics approval was granted, three potential participants were contacted via direct emails. Recruitment emails identified the purpose of the study, sketched out the interview process, explained the guidelines of confidentiality, explained the right to withdraw as a participant, and included the contact information of the researcher. One planner and one councilor that indicated they were familiar with healthy communities initiatives in Kingston and were interested in participating were interviewed.

With the consent of all participants, interviews were audio recorded and then transcribed verbatim by the researcher. Preliminary questions functioned as a means to understand the participant's length time in their current roles. Subsequent questions addressed how the City prioritizes healthy communities strategies compared to other areas of planning, the challenges planners face in implementing or facilitating healthy communities strategies, examples of previous/current healthy communities initiatives, examples of plans for future development

supportive of healthy living, and whether the Official Plan is an appropriate and effective vehicle for facilitating development conducive to healthy community development. After the interviews were transcribed, transcripts were coded by category and results were examined to establish common themes (Berg, 2009). Furthermore, in an attempt to ensure confidentiality, participants' quotes are identified as either 'Councilor' or 'Planner'.

4 Results

The following section highlights the findings of the three methods employed. The use of the Healthy Community Checklist allowed for an objective approach to examining Kingston's Official Plan, and results indicate that policies contain a significant number of healthy community concepts. A more critical examination of the concepts present in the Plan's discourse indicates that many healthy community goals are articulated in a manner that is meaningful and substantial. Interviews with a City planner and councilor reveal that despite the presence of healthy community concepts, development and design that is conducive to healthy, active living is not always achieved, suggesting that there are barriers to implementing Official Plan policies.

4.1 Comprehensive Plan Healthy Community Checklist

Examination of Kingston's Official Plan using the Healthy Community Checklist reveals a seemingly strong commitment from the City to creating healthy built environments. Twenty-two of the 24 healthy community concepts (which fall under one of the five over-arching principles) are present in the Plan. Table 1 summarizes the results of the Checklist by the five healthy community categories. The completed Checklist as well as consolidated list of healthy community quotes can be found in Appendix 1 and 2 respectively.

Table 1: Summary of Healthy Community Concepts within Kingston's Official Plan.

Healthy Community Category (Number of mentions)	Summary of Healthy Community Elements
Pedestrian/Bicycle Accessibility (38)	• Implements the Strategic Direction of Kingston's Transportation Master Plan by promoting active transportation • Community goal to provide pedestrian and cyclist routes in all areas within the Urban Boundary • Prioritizes facilities and services that encourage walking and cycling before providing new road infrastructure • Plan requires areas of employment to provide convenient and safe access for pedestrians and vehicles and must accommodate cyclists • Community goal to preserve human scale in locations that are pedestrian-oriented
Mixed Use/Compact Development (25)	• City encourages mixed land use development that provides for employment, personal services and convenience retail land uses to be located in close proximity to residential land uses • Encouragement of transit-supportive densities that foster pedestrian activity • Community goal to provide retail and other commercial services in a setting that is street oriented and pedestrian focused
Complete Streets Principles (7)	• Promotes satisfying travel demand by making efficient use of the existing infrastructure and by providing the facilities and services to encourage walking, cycling and transit as priority modes • Community goal to prevent and remove barrier for persons with disabilities by applying universal design principles • Traffic flows will be controlled within residential, shopping and employment areas through traffic management, traffic calming and design features • The City supports the development of convenient and appealing streetscapes • The City promotes an integrated and diverse transportation system • Community goal to provide adequate walkway widths, visual permeable materials and structures, and landscaping elements that do not obstruct sightlines in the design of streetscapes and transportation facilities
Access to Healthy Food (5)	• The City promotes opportunities for sharing resources such as parking, utilities, and the land base for locally grown produce, in the form of community gardens • Urban agriculture, such as community gardens and garden plots are permitted in an Open Space designation • The City promotes the provision of retail and other commercial services for surrounding neighbourhoods in a setting that is street oriented and pedestrian focused
Open Space and Recreation (13)	• The City intends to plan parks to be accessible by urban residents within a ten minute walk • The City intends to maintain and enhance Lake Ontario Park as publicly owned parkland in support of its role as one of Kingston's primary waterfront open spaces • The City supports the significant role that Open Space areas play in responding to the recreational needs of City residents • The City will actively acquire, conserve, maintain and renew public Open Space areas • The City plans to move toward establishing a safe and sustainable neighbourhood open space system • It is the Council's intent to prepare guidelines for the design of open space areas in consultation with appropriate public agencies

Although enhancing the health of the community is only explicitly stated a couple of times in Kingston's Official Plan, there are a significant number of goals, recommendations, and design guidelines that, if realized, may result in a healthier community. The presence and frequency of the above healthy community concepts provides some indication of the extent to which healthy community planning is on the City's agenda. In particular, creating opportunities for participation in active transportation through infrastructure and land use policies is commonly emphasized. Creating a compact community with access to park and recreational space for residents is also a priority for the City. However, the Official Plan makes little reference to improving access to healthy foods.

4.2 Latent Content Analysis

The results of the Checklist only reveal the surface structure present in the Official Plan's message (Berg, 2009). To facilitate a more critically examination of the language used to convey healthy community principles, particular attention was paid to what Berg (2009) refers to as *semantics*. This involves examining not only the number and type of words used, but also how strong or weak a word it in relation to the overall sentiment of the sentence. Northridge, Sclar and Biswas's (2002) conceptual framework for understanding the connections between the built environment and health was also considered when examining this content.

4.2.1 Pedestrian and Bicycle Accessibility

When looking at the Checklist results, the Official Plan indicates that the City has a strong commitment to improving pedestrian and bicycle accessibility. Not only are there many references to the creation and maintenance of pedestrian and bicycle infrastructure, but the nature

of the language used to convey these goals has the potential to have a meaningful effect on the built environment. For instance, the Official Plan *prioritizes* pedestrian activity as a means of active transportation in the downtown. Reconstruction of existing roads and construction of new roads within settlement areas *must* include safe and convenient pedestrian facilities.

In addition the Plan *requires* new commercial development to ensure pedestrian and cyclist safety and convenience through site plan control. Individual land use designations in the Official Plan establish criteria for the review of site plan control applications (City of Kingston, 2010). The City uses the process of site plan approval to, among other things, "enhance accessibility to community facilities and services such as transit; provide for pedestrian security, convenience and amenity with special considerations for the disabled" (City of Kingston, 2010, 237). Furthermore, drawings submitted in the site plan control application must sufficiently display "sustainable design elements such as trees, shrubs, hedges, plantings or other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers, and bicycle parking facilities on any adjoining road" (City of Kingston, 2010, 238). The authors of the Official Plan appear to demonstrate an emphatic commitment to facilitating pedestrian- and bicycle-friendly infrastructure.

4.2.2 Creating Complete Streets

Complete streets are those that not only provide the basic infrastructure for walking and cycling, but also create environments that are convenient and accessible for all users of the transportation system. This convenience and accessibility includes accessory factors such as streetscaping improvements and human-scaled design practices (Beck, 2010). In addition to the provision of pedestrian and bicycle infrastructure, the Official Plan to some extent encourages the integration of transportation systems. Policies promote improved connections between active

modes of travel. For instance, the Official Plan indicates that the City supports the integration of cycling amenities such as Rack'n'Roll (which transports bicycles on buses) and the provision of secure bicycle parking at main commercial, employment and institutional developments. The Official Plan also discusses goals of improving the quality of these environments, for instance through promoting quality architecture and pedestrian-friendly streetscapes and through supporting integrated traffic calming devices and landscaping measures to mitigate the impacts of development on pedestrian, cycling and vehicular traffic.

4.2.3 Open Space and Recreation

The Official Plan also indicates a strong commitment to conserving and enhancing park and recreational space. This is demonstrated in policies acknowledging the important role open space plays in addressing the City's recreational needs as well as specific examples of how the City intends to maintain park space. For instance, the City intends to maintain and enhance Lake Ontario Park in support of its role as one of Kingston's primary waterfront open spaces. Furthermore, the Official Plan indicates that the City intends to have parks be accessible by urban residents within a ten-minute walk, thus keeping the City accountable with a measurable objective. Furthermore, Schulz and Northridge (2004) note that creating safe parks and pathways that encourage play, relaxation, exercise, and social interaction across social class and racial groups can encourage the development of stronger social networks within urban, suburban, and rural communities; foster a greater sense of trust and connectedness among residents; and provide opportunities for physical activity and recreation.

4.2.4 Mixed Use/Compact Development

Kingston's downtown area is characterized by a high degree of compact, mixed-use development. The Official Plan promotes continued support for higher densities and mixed uses, even with respect to newly developing areas not located in the downtown. Strategies designed to reestablish more mixed-use communities (e.g. both commercial and residential uses) can help promote more economic diversity within urban areas (Schultz & Northridge, 2004). This intermediate-level intervention can also serve to reduce the concentrations of wealth and poverty that appear as fundamental factors in Schultz and Northridge's (2004) conceptual framework. Considering some of the worst health problems and premature deaths are highly concentrated in neighbourhoods that also experience a host of other inequalities, including higher poverty rates (Corburn, 2005), this policy has the potential to have positive health impacts, perhaps for some of Kingston's more vulnerable populations.

Some of the policies also speak to equity when referring to mixed use and compact development. For example, "it is the intent of the Cataraqui North Secondary Plan that all residents will live within reasonable walking distances of public transit". While this does not speak to the quality or frequency of the City's transit, it emphasizes the importance of accessibility and inclusivity of this service for all residents. This serves as an example of what Schulz and Northridge (2004) describe as planners' use of policy tools for superseding market forces in the development of healthy and sustainable built environments. In explicitly supporting intermediate level interventions, Kingston's planners are "pushing back" against fundamental social inequalities and macro-level factors (Schulz & Northridge, 2004).

4.2.5 Access to Healthy Food

Although a policy allows for the establishment of community gardens, the Official Plan is somewhat vague in describing the degree to which the City supports this type of urban agriculture. For example, the City "promotes opportunities for sharing resources such as parking, utilities, and the land base for locally grown produce…(City of Kingston, 2010, p. 22)." The Official Plan also "permits" urban agriculture, such as community garden plots in an Open Space designation. However, the Official Plan does not promote access to healthy foods and locally grown produce as vigorously as other healthy community concepts, such as active transportation. This caution may reflect the fact that community gardens are often met with community opposition, as revealed in the results of the interview with the councilor.

4.3 Interviews

In-depth, semi structured interviews were conducted with a City planner and councilor to examine the degree to which they believe the Official Plan's vision is being reflected in projects, plans, priorities and general planning dialogue. Preliminary questions functioned as a means to understand the participant's length of experience in planning or facilitating Kingston's growth and development. Subsequent questions addressed how the City prioritizes healthy communities strategies, the challenges planners face in implementing or facilitating healthy communities strategies, examples of previous/current healthy communities initiatives, examples of plans for future development supportive of healthy living, and whether the Official Plan is an appropriate and effective vehicle for facilitating development conducive to healthy community development.

4.3.1 Kingston's Current Built Environment

The results of the interviews reveal that the planner and City councilor define a healthy community as one that has economic viability, is walkable and accessible, has a good mix of land uses, has good cycling movement, has well preserved cultural and natural heritage features and has good urban design in terms of functionality, compatibility and aesthetics. When asked to identify the ways in which Kingston's current built environment fosters or hinders health, participants had contradictory responses. For instance, the planner noted that one of Kingston's strengths in promoting health is the through the implementation of bicycle paths, while the councilor claimed that the existing cycling infrastructure is insufficient. Despite this response, the councilor acknowledges the limitations of implementing bicycle infrastructure:

> I know that the cycling community is always saying we're not doing enough. To what extent that's advocacy, to what extent it's a failure to appreciate the pragmatic limits that we can do…for example funding on an annual basis (Councilor).

Both participants note that recreational facilities are available to residents wanting to be physically active. For instance, there have been considerable resources invested in the development of soccer fields on the east side of Highway 15 as well as the development of track and field facilities at the Invista Centre. At the same time, public open space in urban areas is in short supply, which limits opportunities to participate in local and affordable physical activity. The planner noted that the downtown has a limited amount of open space, and as the urban core becomes denser, there will be fewer opportunities to develop new parks. At the same time, development pressure will threaten existing park space. Initiatives that improve pedestrian infrastructure and safety are also limited according to the planner. While the Transportation

Master Plan sought to address the needs of cyclists and those using transit, it neglects to address pedestrians' needs.

4.3.2 An Official Plan's Capacity to Promote Healthy Built Environments

When asked to discuss the role an Official Plan plays in facilitating healthy built environments, the planner and councilor again had sometimes differing opinions. The councilor regards an Official Plan as having limited or indirect outcomes on health. According to the councilor, land use designations impact the development of neighbourhoods and communities that have the potential to influence individuals' quality of life. The planner on the other hand sees an Official Plan has having greater potential to create built environments that are conducive to healthy living, through providing strategic direction and implementation guidelines that can help realize community goals. While it is only one piece of the puzzle Kingston's Official Plan provides design guidelines for development that can promote physical activity, and thus health (e.g. through the design standards for greenfield development that require sidewalks on both sides of the street).

4.3.3 Influence of Kingston's Official Plan on Decisions and General Dialogue

One of the ways Kingston's Official Plan influences planning related decisions is through planning applications which, according to the planner, are measured against the Official Plan. Every project proposal regardless of the scale of the development must conform to the goals and guidelines found in the Official Plan in order to be approved by the City. As well, all capital projects (e.g. road construction) should be in-line with the Official Plan. The review and approval of site plans is also used as a means to infuse healthy community concepts into new developments according to the planner. For example, while reviewing a site plan, planners will

look at pathways, accessibility, landscaping, open and park space, connectivity and urban design, all of which can influence healthy, active living. For council on the other hand, the Official Plan is not considered when making decisions, even when they are related to new developments.

4.3.4 City Projects and Initiatives

Both the planner and councilor identified examples of existing and expected City projects and initiatives that have the potential to promote health. The redevelopment of Lake Ontario Park, which is an ongoing project, aims to enhance this space's usability. The City also recently hired a transportation planner who is responsible for transportation demand management as guided by the Transportation Master Plan. The implementation of this plan is intended to provide more opportunities for carpooling, car sharing and improving the bicycle network and path system (among other things). The planner also noted that the City is exploring the idea of implementing a high-speed transit system down the Princess Street Corridor over the next few years.

Both participants discussed the recently completed Williamsville Main Street Study which examined the 1.7 km portion of Princess Street between Division Street and the Bath Road/Concession Street intersection as an initiative that can promote health. This study explored existing land uses and redevelopment potential in the area and provided recommendations regarding transportation, servicing and the cultural heritage in the area (City of Kingston, 2012). Both the councilor and the planner noted that healthy community concepts were considered while this study was conducted. According to the planner, the local health unit had a very active role throughout the study period, as did the parks department and non-governmental organizations such as Kingston Coalition for Active Transportation. The councilor noted that when the Williamsville study was brought to the City's Planning Committee, the cycling

community advocated for the implementation of more bicycle infrastructure in this corridor. According to the councilor, this advocacy resulted in a compromise that will see on-street parking on one side of the street and a lane for cycling on the other (previously, there were no plans for bicycle infrastructure).

4.3.5 Challenges

When asked to discuss some of the challenges or barriers to implementing healthy community concepts as found in the Official Plan, the councilor noted that money is always a constraint:

> Either the City can't afford it or…the developers are squawking that it's going to cost them too much money and therefore they don't want to do it and they're let off the hook (Councilor).

The planner discussed similar challenges associated with developer resistance, stating that Kingston has a very small development community. Some developers are open to including features that can enable healthy living in new developments, even if these features are more costly, while other developers are only interested in the bottom-line and therefore strongly oppose extra design components (i.e. more sidewalks, neighbourhood pathways). Another barrier noted by both participants is the challenge associated with retrofitting older infrastructure to make it more accessible and conducive to active transportation. The councilor noted that older neighbourhoods, some of which were constructed in the 1800s, have narrow streets and sidewalks. It is therefore extremely difficult to adapt this older built form to accommodate sidewalks on both sides of the street, bicycle lanes and space for public transit:

> The right-of-way for the road is a finite width. Movement on the road, provision of parking, cycling, pedestrians. You can't put all of that in an older, narrower right-of-way. Something has to go (Councilor).

Another challenge described by the councilor is related to the implementation of community gardens. Despite general support for locally grown agriculture, proposals for community agricultural plots are often met with NIMBY (not in my backyard) backlash. In addition, many community gardens that have reached implementation have not succeeded.

A final challenge as noted by the planner, and likely the most significant challenge, is that the zoning by-law currently does not match the Official Plan. Since amalgamation in 1998, the City of Kingston has updated its Official Plan to reflect the development goals of the new municipality. The zoning by-law however, a tool that helps to implement the policies in the Official Plan, has yet to be updated. Therefore, a proposed development may be approved based on the provisions of the zoning by-law, which may not necessarily conform to the Official Plan policies:

> It will be nice when our zoning by-law matches our Official Plan because there are certain concepts in the Official Plan that right now aren't reflected in the zoning…what happens is if you meet the zoning by-law you can come in for a building permit and then the Official Plan really doesn't come into it (Planner).

Thus, the legal mechanism used to implement the vision of the Official Plan is not necessarily achieving development goals, including those that can promote healthy built environments. This is a major barrier and severely limits the extent to which healthy community concepts found in the Official Plan are actually being realized in developments.

5 Conclusion

5.1 Summary of Findings

Using a Healthy Community Checklist, latent content analysis, and semi-structured interviews with a City planner and councilor, this study has examined Kingston's Official Plan (2010) to determine its effectiveness in facilitating initiatives, and ultimately developments, that are conducive to healthy living. The Checklist and latent content analysis were employed to determine whether, and how, healthy community concepts are articulated within the Official Plan, while interviews were designed to assess the extent to which healthy community concepts within Official Plan policies are perceived to be reflected in city projects and general planning dialogue.

Results from the Healthy Community Checklist reveal that Kingston's Official Plan contains a significant number of healthy community concepts. Seldom do the goals and objectives explicitly intend to achieve a healthier community or improved quality of life for people, however the policies have the potential to achieve these results (MMAH & OPPI, 2009). Of the healthy community principles found in the checklist, a commitment to improved *pedestrian and bicycle infrastructure* appears to be the City's main priority. Policies promoting sidewalks, bicycle infrastructure and the integration of these modal systems are frequently present. The Official Plan also indicates a commitment to achieving *mixed and compact communities* through encouraging transit-supportive densities, residential intensification and development of mixed-use buildings. *Complete streets* principles are also prevalent throughout the policies, including those that can foster safe, vibrant and accessible neighbourhoods. The

Official Plan also cites *open space and recreation* goals, such as improving accessibility to park space, acquiring land for future recreation/open space and enhancing existing parks.

Improving access to healthy foods appears to be the least prevalent healthy community principle within the Official Plan policies. Although achieving mixed use and compact development goals can improve access to local retailers, it is not guaranteed that these vendors will sell healthy foods. This may be especially problematic in the City's lower income neighbourhoods, such as those in North Kingston, where issues of food insecurity exist (Ramos, Sibanda, State et al., 2008).

Results from the latent content analysis, which sought to critically examine the language used to convey healthy community principles, suggests that many community goals are articulated in a manner that is meaningful and substantial. Pedestrian and bicycle accessibility, the conservation and enhancement of open space, complete streets objectives as well as mixed and compact development goals are communicated using meaningful language. Verbs such as *requiring* or *prioritizing* appropriate development practices are present and often have measureable outcomes. Improving access to healthy foods is not as powerfully conveyed through Official Plan policies; strategies such as community gardens are only modestly promoted.

Results of the interviews reveal an interesting dichotomy of perspectives regarding Kingston's current built form, an Official Plan's capacity to facilitate healthy built environments and more specifically, the effectiveness of Kingston's Official Plan in creating more livable communities. While the planner indicated that the City is making great strides in establishing bicycle infrastructure, the councilor reveals that, according to the cycling community, the City is not doing enough. The planner feels that an Official Plan can have a direct influence on

promoting active, healthy living through its influence on development, while the councilor feels that Official Plan policies, which are rooted strictly in land use, have a very limited capacity to promote healthy living. Despite the councilor's opinion on this matter, the planner reveals that all planning applications are measured against Official Plan policies. Every project proposal, regardless of its scale, must conform to the goals and guidelines found in the Official Plan. Thus, if healthy communities concepts are present within the policies, they should in theory be considered.

Both the planner and councilor agree that enhancing and attaining more open space downtown is required. They also agreed on some of the challenges of realizing healthy built environments; developer resistance, the nature of older neighbourhoods, opposition to healthy community interventions (e.g. community gardens), and an outdated zoning by-law all act as barriers to implementing infrastructure and community design elements that can promote health.

5.2 Recommendations

Most of the healthy community principles within the Official Plan are couched in the context of sustainability. While it is recognized that sustainability and healthy community planning are interconnected (Barton & Tsourou, 2000), a more explicit commitment to improving individuals' health and quality of life within the goals and objectives of the Official Plan may bolster greater support from developers, council and the community at large.

As noted previously, developers are often opposed to incorporating health-promoting features in new developments due to cost (e.g. sidewalks on both sides of the street, inter-neighbouhood pathways, sustainable design features). As suggested by the planner, this may be addressed by developer education and exposure to profitable development practices that also

promote an improved quality of life for residents. Incentives however, may be a more realistic strategy to incorporate healthy and sustainable design principles in new developments. In Caledon, Ontario for example, a green industrial and commercial development program was introduced using development charge discounts. These development charge discounts are offered to new industrial and commercial developments that meet Leadership in Energy and Environmental Design (LEED) certification. This program has seen reductions in greenhouse gas emissions, the protection and conservation of the natural environment through design, construction and maintenance of buildings, and improved quality of life through healthier work environments (MMAH & OPPI, 2009).

Older neighbourhoods are difficult to retrofit to include infrastructure that supports active transportation. More specifically, these neighbourhoods have narrow streets on which it is very difficult to include pedestrian and bicycle infrastructure as well as a transit right-of-way. Nonetheless, the City should still work towards improving neighbourhoods' capacity to support active travel by prioritizing infrastructure projects. This may be determined through public consultation. As was seen in the Williamsville Main Street Study, it was advocacy from Kingston Coalition for Active Transportation that resulted in the City's plan to include a bicycle lane. This points to the important role of community engagement in ensuring that new development projects include infrastructure supportive of healthy, active living.

It is also imperative that the new Zoning By-law appropriately reflects the vision, goals and objectives found in the Official Plan. While an official plan sets out a municipality's general policies for future land use, zoning by-laws put the plan into effect (MMAH, 2008b). A zoning by-law implements the objectives and policies of a municipality's official plan. Currently, Kingston's Official Plan contains a significant number of healthy community concepts which, if

implemented effectively could have a meaningful impact of the built environment. It will not be until these two municipal tools are harmonized that healthy community goals can be effectively implemented using the zoning by-law.

Finally, there is a need to establish a means of measuring the health impacts of developments and/or implement monitoring indictors to assess the effectiveness of policy interventions; however, this can be quite challenging. Blanco and colleagues (2009) highlight a central issue is that, to date, models and subsequent understanding of the secondary benefits of active transportation are so weak that any estimates that might be produced are only marginally better than guesses. Most active transportation research has been built around a patchwork of local and regional planning and research-based efforts. At the federal level, collected data is weak, focusing mostly on the trips to work and school. Health impact assessments (HIAs) are defined by the World Health Organization (WHO) as "a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population," and they are receiving considerable attention in planning and public health circles (Forsyth, Slotterback & Krizek, 2010). Kingston planners could consider adopting an HIA tool. In doing this, collaboration with public health professionals can be a valuable way to better address the important dimension of human health in planning processes.

5.3 Limitations

It is important to note the limitation of this study. Although a representative sample was not sought, the limited number of interviewees compromises the generalizability of results. However, through interviewing a planner and councilor who have had eight and six years of

experience in their current positions respectively, a richer understanding of healthy community planning in Kingston was produced.

There are several limitations associated with the Healthy Community Checklist used in this study. While this study aimed to examine healthy community planning in the context of the *built* environment, there are aspects of this topic that the Checklist does not address. More specifically, many social determinants of health are neglected in the Checklist. Housing insecurity for instance is linked to income insecurity that, in turn, leads to illness and premature death (Mikkonen, J., & Raphael, D., 2010). Furthermore, income, which is one of the most important social determinants of health, is not addressed in the Checklist. Low income predisposes people to material and social deprivation. The greater the deprivation, the less likely individuals and families are able to afford basic prerequisites of health such as food, clothing, and housing (Mikkonen, J., & Raphael, D., 2010). Other social determinants of health not addressed by the Checklist include education, unemployment and job security, early childhood development, social exclusion, social safety nets, health services, aboriginal status, gender, and race. Although integral to promoting well-being, many of these social determinants of health are difficult to address for planners and policy makers. Housing however is a significant aspect of municipal planning and thus, the Checklist would greatly benefit from the incorporation of this concept as a sixth principle.

Another limitation of the Checklist is that although it was methodically employed, it is to a certain extent subject to researcher interpretation. This is because most Checklist concepts do not exactly match relevant Official Plan policy language. Therefore, researcher discretion was used to extract pertinent healthy community quotes.

Finally, because the zoning by-law does not match the Official Plan, the existence and/or lack of healthy community initiatives throughout the City cannot necessarily be attributed to the goals and policies set out in the Official Plan. Again, the anticipated inclusion of a bicycle lane in the Williamsville Main Street Corridor is a result of advocacy from Kingston Coalition for Active Transportation, not direction given from the Official Plan. Consequently, future research could involve completing the same analysis after the zoning by-law has been updated and has had time to take effect on new developments.

5.4 Conclusions

Based on direct content analysis using a Healthy Community Checklist, it has been determined that the goals and policies found in Kingston's Official Plan contain a significant number of healthy community principles. What is less evident is the extent to which these concepts are being translated into City projects and private developments. It is important to note that the current Official Plan was last amended in 2010. Thus, the effects of policies that support health friendly development may not yet be apparent. Nonetheless, as healthy community planning continues to gain consideration (MMAH & OPPI, 2009) and as Kingston strives to be Canada's most sustainable city, critically examining the policies that guide development in this city, is essential.

Appendix 1

The Comprehensive Plan Healthy-Community Checklist

Pedestrian/Bicycle Accessibility	Check	Page #
1. Community or town goal that emphasizes pedestrian and/or bicycle facilities.	☑	23, 24, 37, 167, 175, 10C-1, 10D-8
2. Community or town goal to enhance children's pedestrian and bicycle safety.		
3. Encouragement to start or enhance Safe Routes to School Programs.		
4. Future development recommendation for increased pedestrian infrastructure.	☑	23, 24, 29, 37, 67, 72, 73, 91, 174, 10A-8
5. Future development recommendation for increased bicycle infrastructure.	☑	24, 37, 67, 91, 174
6. Recommendation for a pedestrian and/or bicycle study.	☑	67
7. Inclusion of or future recommendation for a Master Pedestrian Plan.	☑	29, 37, 173
8. Inclusion of or future recommendation for a Master Bicycle Plan.	☑	29, 37, 173
9. Prioritization of pedestrian improvements.	☑	37, 10A-7, 10C-3, 10C-8, 10C-14, 10D-2
10. Prioritization of bicycle improvements.	☑	37, 174, 10C-14

Mixed Use/Compact Development	Check	Page #
11. Future development recommendation for additional elements of a pedestrian-friendly built environment *	☑	22, 23, 29, 32, 37, 56, 68, 72, 167, 219, 220, 10A-2, 10C-1, 10C-2, 10C-4, 10C-7, 10C-13, 10D-2
12. Recommendation for a Traditional Neighbourhood Development Ordinance **	☑	22, 26, 72, 10A-2, 10C-1, 10C-7, 10D-8

Complete Streets Principles	Check	Page #
13. Community or town goal to reduce automobile traffic throughout the town.	☐	175
14. Develop regulations requiring sidewalks.	☐	88, 174, 10C-15, 10D-2
15. Future development recommendation for streetscaping features.	☐	24, 174, 219, 220, 10D-9
16. Future development recommendation emphasizing pedestrian improvements in the CBD or downtown area to increase business and create a sense of place.	☐	26, 73, 10A-2, 10A-7
17. Future development recommendation for traffic-calming measures on local streets.	☐	175, 10D-9
18. Recommendation for multi-modal infrastructure supporting transit use.	☐	29, 30, 65, 173, 174, 175, 10C-1
19. Recommendation to identify service gaps and deficiencies in mobility for people of all ages and abilities.	☐	31, 60, 219
20. Recommendation to develop a prioritization plan for addressing mobility issues for people of all ages and abilities in the transportation system.	☐	174

Access to Healthy Food	Check	Page #
21. Community or town goal to locate shopping facilities near residences.	☐	22, 72, 10A-2
22. Community or town goal emphasizing public health, including physical activity and access to healthy food.	☐	22, 102

Open Space and Recreation	Check	Page #
23. Community or town goal that emphasizes parks and recreational facilities near residences.	☐	22, 27, 101, 105, 10C-6, 10C-11, 10D-1
24. Recommendation for open-space policies and conservation-oriented land use plans.	☐	51, 102, 103, 105, 10A-2, 10A-5

* Additional elements of a pedestrian-friendly built environment = mix of uses; compact development; building setbacks; parking location; pedestrian-scaled design (buildings, signs, roads); street connectivity.

** Traditional Neighbourhood Developments are neighbourhoods where residential, commercial, and civic buildings are within close proximity to each other.

Appendix 2

Healthy Community Concept Quotes by Official Plan Section

Principle 1: Pedestrian/Bicycle Accessibility

Section 2: Strategic Policy Direction

"In the preparation of secondary plans…encouragement of transit-supportive densities, accessibility, and a mix of uses that foster pedestrian activity." (Official Plan, 2010, p. 23).

"In the encouragement of secondary plans… the design and construction of pedestrian pathways and linked routes for non-motorized vehicles." (p. 23).

"In the design and operation of City buildings, land, equipment and facilities, the City will…use streetscape design that coordinates movement of pedestrians, cyclists and transit, and addresses accessibility matters through the application of universal design principles." (p. 24).

"The primary Centre, east of Division Street, is intended to remain as the primary Centre during the life of this Plan…Increased public access to the water, pedestrian activity and tourism will be promoted within this Centre." (p. 26).

"Centres and Corridors: Major development and an increase in net urban residential density will be directed to the compact, mixed land use development areas and mixed use buildings of the Centres and to the mixed use buildings proposed for properties fronting on the Princess Street Corridor, thereby providing support for transit, infrastructure, and increased levels of economic activity in a pedestrian-oriented setting." (p. 29).

"Transportation: In order to implement the Strategic Direction of the Kingston Transportation Master Plan, active modes of travel will be aggressively promoted with greater emphasis on pedestrians, cyclists and transit, and accessibility for all residents and visitors." (p. 29).

"Goal: To provide all areas within the Urban Boundary with a full range of municipal infrastructure, including pedestrian and cycling routes, public transportation and roads over the long term, through orderly extension or expansion." (p. 37).

"Strategic Direction to Promote Active Modes of Travel: In order to foster sustainability within the City and reduce reliance of the automobile, the Strategic Direction of the Kingston Transportation Master Plan, *"A New Direction"*, promotes satisfying travel demand by making efficient use of the existing infrastructure and by providing the facilities and services to encourage walking, cycling and transit as priority modes before providing new road infrastructure." (p. 37).

"While the automobile will continue to be the primary mode of transportation in the City, other, more active forms of transportation will be aggressively promoted to maximize existing road capacity and improve environmental conditions." (p. 37).

"Shared Parking: The City will work together with major institutions and employers to promote the shared use of new parking, which should be strategically located to encourage carpooling, transit use or private busing, and pedestrian accessibility wherever possible, particularly in the Central Business District, east of Division Street." (p. 37).

Section 3: Land Use Designations and Policies

"The transportation study [for the establishment of a commercial use] must demonstrate to the satisfaction of the City…that transit and pedestrian access and movement are integrated and encouraged on the site…how pedestrian and vehicular access and movement are coordinated with nearby sites or integrated with adjacent sites." (p. 67).

"Through site plan control review and associated agreements, new Commercial development, expansions, redevelopments or mixed use buildings will be required to: ensure pedestrian and cyclist safety and convenience of movement both on site and with neighbouring properties, in terms of the design of both parking areas and through such features as separated pathways, lighting, sidewalks, street furniture, landscaping, buildings entry locations and signage…provide direct pedestrian access to transit routes and transit stations" (p. 68).

"The Main Street Commercial designation as shown on Schedule 3 is applied to areas that are pedestrian oriented, with a mix of uses including retail, service, residential, and office uses that are developed close to the sidewalk in a "main street" format." (p.72).

"Within the Main Street Commercial designation, residential uses are permitted as upper storey uses. The building design must contribute to the pedestrian activity and amenity of the street and complement the commercial storefront design and character of the street." (p. 72).

"Between the westerly limit of the Central Business District at Division Street and the Kingston Centre, is a major component of the Princess Street Corridor, as shown on Schedule 2. It is intended to be a focus of development in a pedestrian-oriented form that will provide support for the Princess Street transit corridor and more sustainable means of growth." (p. 73).

"Within areas of employment… each site must provide convenient and safe access for pedestrians and vehicles, accommodate transit and cyclists, and connect on-site walkways, with the public sidewalk system, and with adjacent public spaces and trails, where feasible." (p. 91).

Section 4: Infrastructure and Transportation

"Increasing opportunities for active transportation and improving the maintenance of pedestrian and cycling routes will increase usage, safety and access for all." (p. 167).

"The Council-endorsed Strategic Direction "A New Direction" in the Kingston Transportation Master Plan (2004), as described in Section 2.5.10 of this Plan, is intended to foster sustainability within the City and to reduce reliance on the automobile by satisfying travel demand through the efficient use of the existing infrastructure, and by providing the facilities and

services to encourage walking, cycling and transit as priority modes, before expanding the City's road infrastructure." (p. 173).

"The reconstruction of existing roads and the construction of new roads within settlement areas are to include safe and convenient pedestrian facilities, such as sidewalks, corner ramps, pedestrian signals and crosswalks. The enhancement of roadways, sidewalks, sidewalk safety barriers, and transit facilities to maximize mobility and access for the physically challenged will be required in all construction and reconstruction projects." (p. 174).

"On new roads and on reconstructed roads, sidewalks are to be provided where feasible on both sides of urban arterial and collector roads running adjacent to developed lands. On new or reconstructed local roads, sidewalks must be installed on at least one side of the road. Sidewalk safety barriers on structures such as bridges are recommended." (p. 174).

"Sidewalks and walkways must be designed to provide direct access from the interior of neighbourhoods to transit locations, and are to be designed to connect commercial properties in order to encourage pedestrian movement." (p. 174).

"The City supports the development of convenient and appealing streetscapes through such measures as providing wide sidewalks, street furniture, trees and amenities, including convenient transit stops. " (p. 174).

"It is the intent of the City to designate and develop bicycle routes and pathways on City streets, walkways, and in public open space areas to encourage cyclists to travel within the City. " (p. 174).

"Improving connections between the active modes of walking, cycling and transit will be required through such means as improved pedestrian amenities, connected on and off street cycling routes, bicycle storage, improved transit routing and amenities, and such site plan control matters as locating building entrances near sidewalks and transit stops, and providing weather protection for pedestrians and transit users." (p. 174).

"The City supports the integration of cycling and transit with the Rack'n'Roll program (which transports bicycles on buses), including the provision of adequate and secure bicycle parking at main commercial, employment and institutional developments." (p. 175).

Section 8: Urban Design

"The City recognizes the value associated with quality architecture, pedestrian-friendly streetscapes, and vibrant neighbourhoods." (p. 219).

"…preserving human scale in locations that are pedestrian-oriented by controlling building heights, requiring building step-backs, having entrances at street level, and other means as appropriate." (p. 220).

Section 10: Special Policies and Secondary Plans

"Pedestrian activity is a priority means of active transportation in the Downtown and Harbour Area, providing animation to the streets and support for the historic function of the downtown and mixture of uses that are desired. Means of enhancing pedestrian activity, convenience, safety and amenity are encouraged." (p. 10A-7).

"Further development of structured parking provides opportunities to extend this system of pedestrian routes and courtyard spaces." (p. 10A-8).

"…the scale, design and pattern of development are pedestrian-oriented and supportive of public transit." (p. 10C-1).

"…provides a road network that safely integrates the needs of pedestrian, cyclists, public transit users and motorists." (p. 10C-1).

"…enhances opportunities for bicycle and pedestrian movements, as well as public transit use to reduce the reliance on the automobile." (p. 10C-1).

"Residential areas must be designed to allow for convenient pedestrian movement." (p. 10C-3).

"Neighbourhood convenience uses must be centrally located within the neighbourhood so as to allow convenient pedestrian access." (p. 10C-8).

"Street blocks are to be short to facilitate pedestrian movements." (p. 10C-14).

"In the design of neighbourhood streets and boulevards the needs of pedestrians and cyclists must be accommodated." (p. 10C-14).

"…the provision of walkways, sidewalks and bicycle paths must be designed to facilitate pedestrian connectivity throughout the Residential areas, to schools, parks, and other focal points. Where cul-de-sacs are proposed, walkways and greenways are to be incorporated to ensure pedestrian connectivity." (p. 10D-2).

"The local roads system is intended to accommodate the requirements of pedestrians, bicycles, public transit, automobiles, service vehicles and other supporting features such as parking, laneways, street furniture and tree planting all as may be deemed appropriate." (p. 10D-8).

<u>Principle 2: Mixed Use/Compact Development</u>

Section 2: Strategic Policy Direction

"The City's sustainability program encourages large-scale developments to establish mixed land use development areas that provide for employment, personal services and convenience retail land uses to be located in close proximity to residential land uses, subject to compatibility". (p. 22).

"The City promotes the development of mixed use buildings that contain commercial and office uses on at least the ground floor and residential units on upper floors as part of its sustainability and intensification program along the Princess Street Corridor and its Centres." (p. 23).

"…encouragement of transit-supportive densities, accessibility, and a mix of uses that foster pedestrian activity." (p. 23).

"A mixed land use area is a form of development that is encouraged in order to locate employment, personal services, land uses and convenience retail as close to residential land uses as possible, subject to compatibility." (p. 26).

"The intent of this Plan is to increase the overall residential unit densities and mixed land use character of large-scale residential developments in newly developing areas in order to more efficiently use infrastructure, promote transit use, and enhance the continued sustainability of the City's cultural and natural resources." (p. 29).

"To guide growth within the Urban Boundary and to establish Future Development Areas for future urban growth and infrastructure planning to ensures that the City develops in a compact and orderly manner within its ability to support a full range of utilities, infrastructure and social services." (p. 32).

"The residential intensification target is to be achieved through larger scale developments, the expansion or conversion of existing buildings, and the redevelopment of vacant, underutilized, or brownfield sites and infill developments." (p. 32).

"The use of transit will be supported and encouraged through the development of mixed-use areas and mixed-use buildings, the development of Corridors and more intense mixed-use Centres, and through the increase of densities within newer areas, compatible uses and infill with complementary uses, and appropriate redevelopment of under- utilized and brownfield sites." (p. 37).

Section 3: Land Use Designations and Policies

"In fully serviced areas, intensification through moderate increases in building height or density, and gradual transition to more intense forms of housing may be approved at the edge of neighbourhoods, adjacent to transit routes, community facilities, significant areas of open space or adjacent to mixed-use Centres and Corridors, as identified on Schedule 2." (p. 56).

"Through site plan control review and associated agreements, new Commercial development, expansions, redevelopments or mixed use buildings will be required." (p. 68).

"To provide retail and other commercial services for surrounding neighbourhoods in a setting that is street oriented and pedestrian focused, including a mix of compatible residential and small-scale office or community uses and services." (p. 72).

Section 4: Infrastructure and Transportation

"To increase sustainable means of travel and reduce reliance on the automobile, the City will promote a compact form of development within the Urban Boundary having a mix of uses that reduce the need for travel, and will also promote increased densities that are supportive of public transit alternatives." (p. 167).

Section 8: Urban Design

"The City recognizes the value associated with quality architecture, pedestrian-friendly streetscapes, and vibrant neighbourhoods. For these reasons, the City may undertake urban design guidelines for specific types of *development*, for specific areas of the City or for the entire City." (p. 219).

"…preserving human scale in locations that are pedestrian-oriented by controlling building heights, requiring building step-backs, having entrances at street level, and other means as appropriate." (p. 220).

"…residential multiple building projects are encouraged, where feasible, to incorporate a variety of *compatible* residential building types such as street row housing, townhousing, stacked townhousing, maisonnettes, quadruplexes and various apartment building types in a comprehensive plan." (p. 222).

Section 10: Special Policies and Secondary Plans

"To foster the continued prominence and function of the Downtown and Harbour Area as the principal mixed use business district or commercial "Centre" and civic focus within the City, for both residents and visitors." (p. p. 10A-2).

"A broad mix of uses will be encouraged in the Downtown Area and in much of the Harbour Area (shown on Schedule DH-1), including the widest range of commercial use, as well as civic, institutional, open space, recreation and higher density residential use provided that such uses are supportive of the vitality, human scale, pedestrian activity, historic fabric and function of this Centre." (p. 10A-2).

"To encourage the development of lands based on the principles of "New Urbanism"…" (p. 10C-1).

"To provide a balanced mix of residential, commercial, institutional and open space uses, consistent with the Cataraqui North Alternative Master Plan, that meets the anticipated needs of a growing and evolving neighbourhood." (p. 10C-1).

"To encourage the development and on-going evolution of a vital neighbourhood centre to serve as a focus for neighbourhood activities which may include a park, a community centre or a mix of uses, services and activities." (p. 10C-2).

"An overall density of development, sufficient to foster a healthy and safe neighbourhood environment in which a wide range of services, amenities and employment opportunities can be provided in an efficient and financially-sustainable manner, is encouraged." (p. 10C-4).

"Neighbourhood convenience uses must be centrally located within the neighbourhood so as to allow convenient pedestrian access." (p. 10C-7).

"The Mixed Use area will be located along Princess Street and at the northwest corner of Sydenham Toad and the central east-west neighbourhood street." (p. 10C-7).

"Permitted uses in the Mixed Use areas include retail and service commercial uses, and entertainment, recreational, cultural and office functions that are intended to serve local and area residents." (p. 10C-10).

"Street blocks are to be short to facilitate pedestrian movements." (p. 10C-13).

"It is the intent of this Plan that all residents will live within reasonable walking distances of public transit routes." (p. 10C-13).

"…the provision of walkways, sidewalks and bicycle paths must be designed to facilitate pedestrian connectivity throughout the Residential areas, to schools, parks, and other focal points." (p. 10D-2).

"…encourage residents to walk, cycle or use public transit to gain access to parks and open spaces, commercial uses, public service facilities and employment areas." (p. 10D-8).

<u>Principle 3: Complete Streets Principles</u>

Section 2: Strategic Policy Direction

"…use of streetscape design that coordinates movement of pedestrians, cyclists and transit, and addresses accessibility matters through the application of universal design principles." (p. 24).

"Increased public access to the water, pedestrian activity and tourism will be promoted within this Centre." (p. 26).

"Major development and an increase in net urban residential density will be directed to the compact, mixed land use development areas and mixed use buildings of the Centres and to the mixed use buildings proposed for properties fronting on the Princess Street Corridor, thereby providing support for transit, infrastructure, and increased levels of economic activity in a pedestrian-oriented setting." (p. 29).

"Transportation: In order to implement the Strategic Direction of the Kingston Transportation Master Plan, active modes of travel will be aggressively promoted with greater emphasis on pedestrians, cyclists and transit, and accessibility for all residents and visitors." (p. 29).

"…promotes satisfying travel demand by making efficient use of the existing infrastructure and by providing the facilities and services to encourage walking, cycling and transit as priority modes before providing new road infrastructure." (p. 37).

"…land use patterns that foster transit and pedestrian activity." (p. 22).

"…road design that promotes the operation of transit, ready access to transit stops, facilitates snow clearing and maintenance, and access by emergency vehicles." (p. 23).

"Through the prevention and removal of barriers for persons with disabilities, and the application of universal design principles, the City supports opportunities for all people to access the City and make contributions as citizens. The application of universal design principles in development and renovation is promoted. The City also encourages owners of publicly accessible private properties to do the same." (p. 31).

Section 3: Land Use Designations and Policy

"…ensure pedestrian and cyclist safety and convenience of movement both on site and with neighbouring properties, in terms of the design of both parking areas and through such features as separated pathways, lighting, sidewalks, street furniture, landscaping, buildings entry locations and signage." (p. 68).

"…each site must provide convenient and safe access for pedestrians and vehicles, accommodate transit and cyclists, and connect on-site walkways, with the public sidewalk system, and with adjacent public spaces and trails, where feasible." (p. 88).

"Williamsville Main Street: between the westerly limit of the Central Business District at Division Street and the Kingston Centre, is a major component of the Princess Street Corridor, as shown on Schedule 2. It is intended to be a focus of development in a pedestrian-oriented form that will provide support for the Princess Street transit corridor and more sustainable means of growth. This area includes properties that front onto Princess Street." (p. 73).

"…that transit and pedestrian access and movement are integrated and encouraged on the site." (p. 65).

"Senior Citizen Building: Buildings: The City encourages medium and high density buildings designed for senior citizens or other groups with special needs in locations that are close to supporting commercial, community facility and transit routes." (p. 60).

Section 4: Infrastructure and Transportation

"Traffic flows will be controlled within residential, shopping and employment areas through traffic management, traffic calming, design features, and other techniques." (p. 175).

"The reconstruction of existing roads and the construction of new roads within settlement areas are to include safe and convenient pedestrian facilities, such as sidewalks, corner ramps,

pedestrian signals and crosswalks. The enhancement of roadways, sidewalks, sidewalk safety barriers, and transit facilities to maximize mobility and access for the physically challenged will be required in all construction and reconstruction projects." (p. 174).

"On new roads and on reconstructed roads, sidewalks are to be provided where feasible on both sides of urban arterial and collector roads running adjacent to developed lands. On new or reconstructed local roads, sidewalks must be installed on at least one side of the road. Sidewalk safety barriers on structures such as bridges are recommended." (p. 174).

"The City supports the development of convenient and appealing streetscapes through such measures as providing wide sidewalks, street furniture, trees and amenities, including convenient transit stops." (p. 174).

"To promote an integrated and diverse transportation system for the City through the encouragement of land use patterns, density, road and site design that supports walking, cycling, and transit, as well as commercial traffic, inter-regional travel, and private vehicles." (p. 173).

"Sidewalks and walkways must be designed to provide direct access from the interior of neighbourhoods to transit locations, and are to be designed to connect commercial properties in order to encourage pedestrian movement." (p. 174).

"Intermodal Improvements: Improving connections between the active modes of walking, cycling and transit will be required through such means as improved pedestrian amenities, connected on and off street cycling routes, bicycle storage, improved transit routing and amenities, and such site plan control matters as locating building entrances near sidewalks and transit stops, and providing weather protection for pedestrians and transit users." (p. 174).

"Inter-modal Coordination: system to facilitate the integration of rail, inter-City bus, taxi, municipal transit service, park'n'ride facilities and active modes of travel." (p. 175)

"The enhancement of roadways, sidewalks, sidewalk safety barriers, and transit facilities to maximize mobility and access for the physically challenged will be required in all construction and reconstruction projects." (p. 174).

Section 8: Urban Design

"The City recognizes the value associated with quality architecture, pedestrian-friendly streetscapes, and vibrant neighbourhoods. For these reasons, the City may undertake urban design guidelines for specific types of *development*, for specific areas of the City or for the entire City." (p. 219).

"…providing adequate walkway widths, visually permeable materials and structures, and landscaping elements that do not obstruct sightlines in the design of streetscapes, transportation facilities, or public buildings and places." (p. 219).

"The City maintains or enhances the character of values streetscapes, community areas and

landscapes…" (p. 220).

"The City promotes the provision of barrier free access and safety through the review of *development* proposals, construction of public works, or the preparation and approval of area plans." (p. 219).

Section 10: Special Policies and Secondary Plans

"…integrated traffic calming devices and landscaping measures needed to mitigate the impact(s) from development of the Cataraqui West neighbourhood on pedestrian, cycling and vehicular traffic conditions within the Cataraqui West neighbourhood, to be determined in accordance with the City's Traffic Calming Policy and Subdivision Design Standards." (p. 10D-9).

"…the provision of walkways, sidewalks and bicycle paths must be designed to facilitate pedestrian connectivity throughout the Residential areas, to schools, parks, and other focal points. Where cul-de-sacs are proposed, walkways and greenways are to be incorporated to ensure pedestrian connectivity;" (p. 10D-2).

"…the creation of safe and attractive streetscapes are promoted through the coordinated application of such elements as: tree planting; street lighting; building location, orientation, massing and facades; signage; parking area location and entrances; landscaping; and, preservation and enhancement of significant cultural heritage resources and natural features and areas." (p. 10C-15).

"A broad mix of uses will be encouraged in the Downtown Area and in much of the Harbour Area (shown on Schedule DH-1), including the widest range of commercial use, as well as civic, institutional, open space, recreation and higher density residential use provided that such uses are supportive of the vitality, human scale, pedestrian activity, historic fabric and function of this Centre." (p. 10A-2).

"To add to the accessibility and vitality of the area, new and improved pedestrian linkages to the waterfront and between blocks in the Downtown will be promoted…" (p. 10A-2).

"To support the function and significance of the Downtown and Harbour Area through infrastructure renewal, and improvements to parking, access, transit and other modes of transportation with an emphasis on enhancing the pedestrian activity that is intrinsic to the character of this area." (p. 10A-6).

"The City intends to enhance cycling opportunities in the Downtown through such means as:

- a. provision of additional bicycle parking;
- b. provision of additional bicycle parking;
- c. provision of intersection priority to cyclists in some locations." (p. 10A-6).

"Pedestrian activity is a priority means of active transportation in the Downtown and Harbour Area, providing animation to the streets and support for the historic function of the downtown

and mixture of uses that are desired. Means of enhancing pedestrian activity, convenience, safety and amenity are encouraged." (p. 10A-7).

"…the scale, design and pattern of development are pedestrian-oriented and supportive of public transit." (p. 10C-1).

"…provides a road network that safely integrates the needs of pedestrian, cyclists, public transit users and motorists;" (p. 10C-1).

"It is the intent of this Plan that all residents will live within reasonable walking distances of public transit routes." (p. 10C-15).

Principle 4: Access to Healthy Food

Section 2: Strategic Policy Direction

"The City's sustainability program encourages large-scale developments to establish mixed land use development areas that provide for employment, personal services and convenience retail land uses to be located in close proximity to residential land uses, subject to compatibility." (p. 22).

"opportunities for sharing resources such as parking, utilities, and the land base for locally grown produce, in the form of community gardens, as well as education, recreational or cultural assets." (p. 22).

"…promotion of employment opportunities and alliances that enhance local skills, educational resources and the use of local products, including food." (p. 22).

Section 3: Land Use Designations and Policy

"…To provide retail and other commercial services for surrounding neighbourhoods in a setting that is street oriented and pedestrian focused, including a mix of compatible residential and small-scale office or community uses and services." (p. 72).

"Uses permitted in an Open Space designation…passive recreation uses and forms of urban agriculture, such as community gardens and garden plots." (p. 102).

Section 4: Infrastructure and Transportation

None.

Section 8: Urban Design

None.

Section 10: Special Policies and Secondary Plans

"A broad mix of uses will be encouraged in the Downtown Area and in much of the Harbour Area (shown on Schedule DH-1), including the widest range of commercial use, as well as civic, institutional, open space, recreation and higher density residential use provided that such uses are supportive of the vitality, human scale, pedestrian activity, historic fabric and function of this Centre." (p. 10A-2).

Principle 5: Open Space and Recreation

Section 2: Strategic Policy Direction

"…parks …are planned to be accessible by urban residents within a ten minute walk." (p. 22).

"The City will preserve this resource and augment its open space inventory in newly-developing areas, in redevelopment areas and particularly along the waterfront. Linkage areas will be of particular strategic importance in enabling the maximum use of Open Space areas as trails and walkways." (p. 27).

Section 3: Land Use Designations and Policy

"Parks are generally permitted in all land use designations." (p. 51).

"In accordance with the Planning Act and the policies of this Plan, the City requires as a condition of development, a land dedication to be conveyed to the municipality for park or other public recreational purposes." (p. 103).

"The Council-endorsed vision for Lake Ontario Park states that the Park will be maintained and enhanced as publicly owned parkland in support of its role as one of Kingston's primary waterfront open spaces." (p. 105).

"To support the significant role that Open Space areas play in responding to the recreational and leisure needs of City residents, in sustaining the natural heritage system, and in contributing to cultural landscapes, heritage settings *and to the City's* quality of life and sense of place." (p. 101).

"To ensure the long term protection of and recognition of the significant role *that waterfront areas play in the City's* sense of place, recreational needs, natural heritage system, as well as a valuable source of water." (p. 105).

"The City will actively acquire, conserve, maintain and renew public Open Space areas and related facilities as part of an on-going program." (p. 102).

Section 4: Infrastructure and Transportation

None.

Section 8: Urban Design

None.

Section 10: Special Policies and Secondary Plans

"Confederation Park, Market Square and the Waterfront Pathway constitute major open space resources within the Downtown and Harbour Area that form significant elements of its identity and pedestrian linkage through the area. Additional public areas and pedestrian linkages will be acquired, developed or enhanced as opportunities arise and may take the form of urban squares, courtyards or passageways between buildings." (p. 10A-5).

"the following hierarchy of open space uses, dispersed throughout the neighbourhood, must be established to satisfy the different needs of residents:

- neighbourhood park complex;
- central park;
- parkettes; and,
- pathways and trails." (p. 10C-11).

"While a mixture of uses is permitted in the Harbour Area, its focus will be related to public open space, recreation, and water-based tourist commercial uses such as marine transportation." (p. 10A-2).

"…the intent is to establish a safe and sustainable neighbourhood open space system to fulfill residents' recreational and leisure needs, while protecting significant environmental areas, including the Lower Collins Creek Wetland and adjacent woodlands." (p. 10D-6)."

"…it is Council's intent to prepare guidelines for the design of open space areas in consultation with appropriate public agencies that address elements such as lighting, sight lines, signage, the location of activity generators, access to telephones, night-time use and activity planning." (p. 10C-11).

"To provide for the comprehensive development of a sustainable, healthy, attractive, connected and vibrant residential neighbourhood that meets the needs of its residents, preserves and protects the significant environmental and heritage features, allows for innovation in development and construction practices, provides for physical connections to the open space system, and connects to the rest of the City." (p. 10D-1).

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